Observation of Fine Time Structures in the Cosmic Proton and Helium Fluxes with the Alpha Magnetic Spectrometer on the International Space Station
- SUPPLEMENTAL MATERIAL -

(AMS Collaboration)

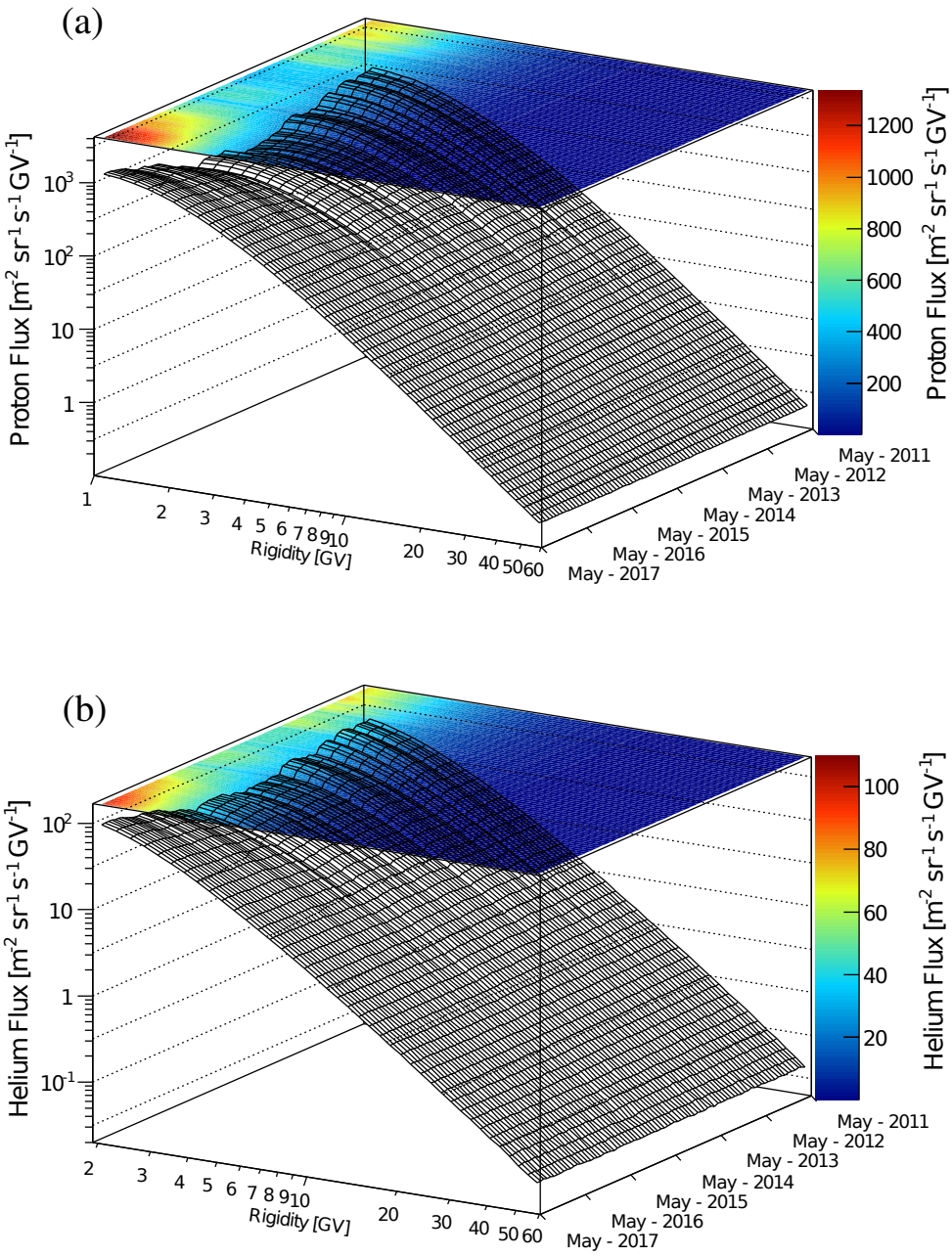

FIG. SM 1. The three-dimensional detailed behavior of the AMS (a) proton and (b) helium fluxes as functions of time and rigidity from 1 to 60 GV and 1.9 to 60 GV, respectively. The color code indicates the flux intensity in units of $[\mathrm{m}^2 \cdot \mathrm{sr} \cdot \mathrm{s} \cdot \mathrm{GV}]^{-1}$.

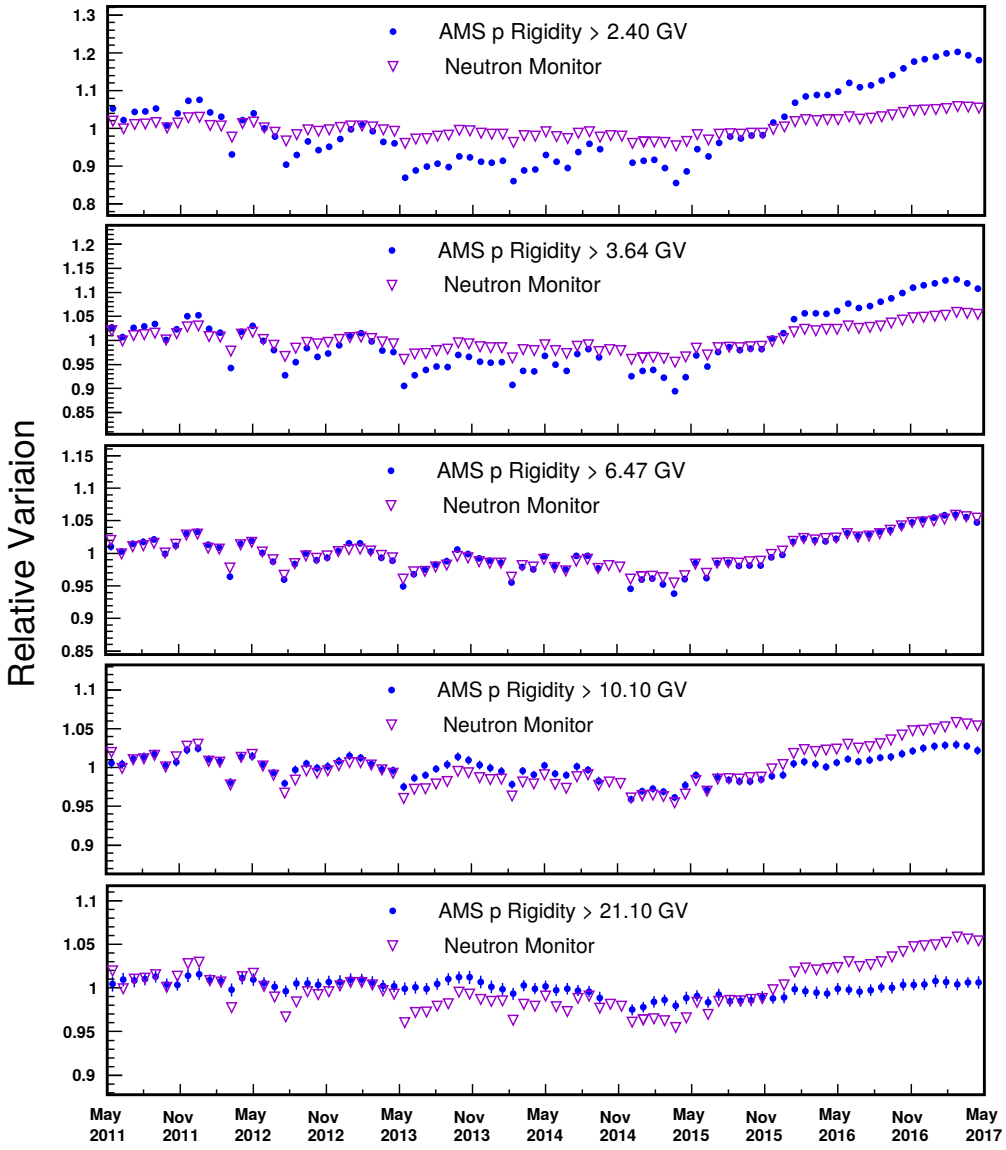

FIG. SM 2. The relative variations of the AMS proton integral flux as a function of time together with the relative variation of the rate reported by the Oulu, Finland neutron monitor [37]. In order to compare the neutron monitor measurement with the AMS data, the AMS proton flux has been integrated above the given minimum rigidity. The AMS error bars are the quadratic sum of the statistical and time dependent systematic errors. Both the AMS integral proton flux and the neutron monitor rate are normalized to their average values from May 2011 to May 2017. The relative time dependent variation for this neutron monitor matches the AMS proton flux only when the flux is integrated over rigidities greater than 6.47 GV.

TABLE SM I: Bartels Rotation 2426 (May 15, 2011 – June 10, 2011). Days from May 15 to May 19, 2011 are not included because AMS data taking started on May 20, 2011. The proton flux Φ_p, helium flux Φ_{He}, and p/He flux ratio as a function of rigidity (in units of GV) at the top of AMS in units of $[\mathrm{m}^2 \cdot \mathrm{sr} \cdot \mathrm{s} \cdot \mathrm{GV}]^{-1}$ including errors due to statistics ($\sigma_{\mathrm{stat.}}$), time dependent systematic errors (σ_{time}) and the total systematic error ($\sigma_{\mathrm{syst.}}$). Contributions to the time dependent systematic errors are from: the trigger and the reconstruction efficiency. Contributions to the total systematic error are from: the acceptance, the background contamination, the geomagnetic cutoff factor, the event selection, the unfolding, the rigidity resolution function, the absolute rigidity scale, and the time dependent systematic errors. The statistical errors for the ratio are the sum in quadrature of the relative statistical errors of the fluxes multiplied by the ratio. The time dependent systematic errors for the ratio are the sum in quadrature of the relative time dependent systematic errors of the fluxes multiplied by the ratio. The systematic errors from the acceptance for the ratio are added in quadrature. The correlations in the systematic errors from the unfolding and the absolute rigidity scale between the fluxes have been accounted for in calculating the corresponding systematic errors of the ratio. The contributions of the individual sources to the systematic error are added in quadrature to arrive at the total systematic uncertainty on the ratio.

Rigidity	Φ_p	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	Φ_{He}	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	p/He	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$
1.00 – 1.16	9.531×10^2	0.083	0.206	0.454	–	–	–	–	–	–	–	–
1.16 – 1.33	9.180×10^2	0.048	0.144	0.344	–	–	–	–	–	–	–	–
1.33 – 1.51	8.543×10^2	0.039	0.101	0.257	–	–	–	–	–	–	–	–
1.51 – 1.71	7.924×10^2	0.027	0.075	0.214	–	–	–	–	–	–	–	–
1.71 – 1.92	7.044×10^2	0.020	0.057	0.171	–	–	–	–	–	–	–	–
1.92 – 2.15	6.179×10^2	0.017	0.044	0.136	7.235×10^1	0.064	0.093	0.172	8.539	0.078	0.125	0.266
2.15 – 2.40	5.329×10^2	0.014	0.034	0.109	6.668×10^1	0.054	0.072	0.138	7.992	0.068	0.100	0.221
2.40 – 2.67	4.548×10^2	0.011	0.027	0.087	5.978×10^1	0.045	0.059	0.113	7.608	0.060	0.087	0.194
2.67 – 2.97	3.846×10^2	0.009	0.022	0.068	5.317×10^1	0.038	0.051	0.095	7.234	0.054	0.080	0.174
2.97 – 3.29	3.231×10^2	0.008	0.018	0.055	4.608×10^1	0.031	0.041	0.079	7.012	0.050	0.073	0.161
3.29 – 3.64	2.700×10^2	0.006	0.015	0.044	3.942×10^1	0.026	0.032	0.066	6.850	0.048	0.068	0.153
3.64 – 4.02	2.238×10^2	0.005	0.013	0.036	3.349×10^1	0.022	0.025	0.055	6.683	0.046	0.063	0.145
4.02 – 4.43	1.850×10^2	0.004	0.011	0.029	2.820×10^1	0.018	0.020	0.045	6.561	0.044	0.060	0.139
4.43 – 4.88	1.512×10^2	0.003	0.008	0.024	2.371×10^1	0.014	0.016	0.038	6.377	0.041	0.057	0.133
4.88 – 5.37	1.230×10^2	0.003	0.007	0.018	1.972×10^1	0.012	0.013	0.031	6.238	0.039	0.053	0.127
5.37 – 5.90	9.986×10^1	0.022	0.050	0.145	1.603×10^1	0.010	0.010	0.025	6.230	0.040	0.050	0.124
5.90 – 6.47	8.062×10^1	0.018	0.039	0.115	1.328×10^1	0.008	0.008	0.020	6.072	0.039	0.047	0.119
6.47 – 7.09	6.539×10^1	0.015	0.030	0.093	1.088×10^1	0.006	0.007	0.017	6.010	0.038	0.047	0.117
7.09 – 7.76	5.287×10^1	0.012	0.024	0.075	8.919×10^0	0.053	0.056	0.137	5.928	0.037	0.046	0.114
7.76 – 8.48	4.268×10^1	0.010	0.019	0.060	7.252×10^0	0.043	0.047	0.111	5.886	0.038	0.046	0.112
8.48 – 9.26	3.425×10^1	0.008	0.016	0.048	5.871×10^0	0.036	0.039	0.090	5.833	0.039	0.047	0.111
9.26 – 10.1	2.744×10^1	0.007	0.013	0.038	4.782×10^0	0.031	0.033	0.074	5.738	0.040	0.048	0.110
10.1 – 11.0	2.217×10^1	0.006	0.011	0.031	3.919×10^0	0.026	0.028	0.061	5.658	0.041	0.049	0.108
11.0 – 12.0	1.771×10^1	0.005	0.009	0.025	3.125×10^0	0.022	0.024	0.049	5.668	0.043	0.051	0.109
12.0 – 13.0	1.422×10^1	0.004	0.007	0.020	2.605×10^0	0.020	0.021	0.041	5.458	0.044	0.051	0.106
13.0 – 14.1	1.153×10^1	0.004	0.006	0.017	2.097×10^0	0.016	0.017	0.033	5.496	0.046	0.054	0.108
14.1 – 15.3	9.250×10^0	0.029	0.050	0.133	1.699×10^0	0.014	0.015	0.027	5.446	0.047	0.055	0.108

Table continued

TABLE SM I: Bartels Rotation 2426 (May 15, 2011 – June 10, 2011). *(Continued).*

Rigidity	Φ_p $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	Φ_{He} $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	p/He $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$
15.3 – 16.6	$(7.427\ 0.024\ 0.041\ 0.108)\times10^{0}$	$(1.402\ 0.012\ 0.013\ 0.023)\times10^{0}$	5.299 0.047 0.056 0.107
16.6 – 18.0	$(5.974\ 0.020\ 0.034\ 0.088)\times10^{0}$	$(1.122\ 0.010\ 0.011\ 0.019)\times10^{0}$	5.325 0.049 0.059 0.109
18.0 – 19.5	$(4.834\ 0.017\ 0.029\ 0.073)\times10^{0}$	$(9.265\ 0.081\ 0.093\ 0.157)\times10^{-1}$	5.218 0.049 0.061 0.108
19.5 – 21.1	$(3.871\ 0.014\ 0.024\ 0.059)\times10^{0}$	$(7.485\ 0.067\ 0.079\ 0.129)\times10^{-1}$	5.172 0.050 0.063 0.108
21.1 – 22.8	$(3.127\ 0.011\ 0.020\ 0.048)\times10^{0}$	$(6.137\ 0.056\ 0.066\ 0.107)\times10^{-1}$	5.095 0.050 0.063 0.108
22.8 – 24.7	$(2.522\ 0.009\ 0.016\ 0.039)\times10^{0}$	$(4.999\ 0.046\ 0.055\ 0.088)\times10^{-1}$	5.045 0.050 0.064 0.107
24.7 – 26.7	$(2.025\ 0.008\ 0.014\ 0.032)\times10^{0}$	$(4.071\ 0.039\ 0.046\ 0.072)\times10^{-1}$	4.975 0.052 0.065 0.107
26.7 – 28.8	$(1.643\ 0.007\ 0.011\ 0.026)\times10^{0}$	$(3.324\ 0.034\ 0.038\ 0.059)\times10^{-1}$	4.944 0.054 0.067 0.107
28.8 – 31.1	$(1.327\ 0.006\ 0.009\ 0.021)\times10^{0}$	$(2.712\ 0.029\ 0.032\ 0.049)\times10^{-1}$	4.893 0.056 0.068 0.108
31.1 – 33.5	$(1.069\ 0.005\ 0.008\ 0.017)\times10^{0}$	$(2.174\ 0.025\ 0.027\ 0.040)\times10^{-1}$	4.915 0.062 0.070 0.109
33.5 – 36.1	$(8.709\ 0.043\ 0.065\ 0.139)\times10^{-1}$	$(1.832\ 0.022\ 0.023\ 0.035)\times10^{-1}$	4.755 0.062 0.070 0.107
36.1 – 38.9	$(7.091\ 0.038\ 0.055\ 0.114)\times10^{-1}$	$(1.493\ 0.019\ 0.019\ 0.029)\times10^{-1}$	4.748 0.066 0.071 0.109
38.9 – 41.9	$(5.775\ 0.033\ 0.046\ 0.094)\times10^{-1}$	$(1.201\ 0.017\ 0.016\ 0.023)\times10^{-1}$	4.809 0.072 0.074 0.112
41.9 – 45.1	$(4.645\ 0.028\ 0.038\ 0.076)\times10^{-1}$	$(9.706\ 0.145\ 0.132\ 0.189)\times10^{-2}$	4.786 0.077 0.076 0.112
45.1 – 48.5	$(3.844\ 0.025\ 0.032\ 0.064)\times10^{-1}$	$(8.187\ 0.128\ 0.114\ 0.162)\times10^{-2}$	4.696 0.080 0.076 0.112
48.5 – 52.2	$(3.125\ 0.022\ 0.027\ 0.053)\times10^{-1}$	$(6.562\ 0.110\ 0.094\ 0.132)\times10^{-2}$	4.762 0.086 0.079 0.115
52.2 – 56.1	$(2.533\ 0.019\ 0.022\ 0.044)\times10^{-1}$	$(5.325\ 0.096\ 0.078\ 0.108)\times10^{-2}$	4.756 0.093 0.081 0.116
56.1 – 60.3	$(2.110\ 0.017\ 0.019\ 0.037)\times10^{-1}$	$(4.296\ 0.083\ 0.064\ 0.088)\times10^{-2}$	4.910 0.102 0.086 0.121

TABLE SM II: Bartels Rotation 2427 (June 11, 2011 – July 7, 2011). The proton flux Φ_p, helium flux Φ_{He}, and p/He flux ratio as a function of rigidity (in units of GV) at the top of AMS in units of $[\mathrm{m}^2 \cdot \mathrm{sr} \cdot \mathrm{s} \cdot \mathrm{GV}]^{-1}$ including errors due to statistics ($\sigma_{\mathrm{stat.}}$), time dependent systematic errors (σ_{time}) and the total systematic error ($\sigma_{\mathrm{syst.}}$). Contributions to the time dependent systematic errors are from: the trigger and the reconstruction efficiency. Contributions to the total systematic error are from: the acceptance, the background contamination, the geomagnetic cutoff factor, the event selection, the unfolding, the rigidity resolution function, the absolute rigidity scale, and the time dependent systematic errors. The statistical errors for the ratio are the sum in quadrature of the relative statistical errors of the fluxes multiplied by the ratio. The time dependent systematic errors for the ratio are the sum in quadrature of the relative time dependent systematic errors of the fluxes multiplied by the ratio. The systematic errors from the acceptance for the ratio are added in quadrature. The correlations in the systematic errors from the unfolding and the absolute rigidity scale between the fluxes have been accounted for in calculating the corresponding systematic errors of the ratio. The contributions of the individual sources to the systematic error are added in quadrature to arrive at the total systematic uncertainty on the ratio.

Rigidity	Φ_p $\sigma_{\mathrm{stat.}}$ σ_{time} $\sigma_{\mathrm{syst.}}$	Φ_{He} $\sigma_{\mathrm{stat.}}$ σ_{time} $\sigma_{\mathrm{syst.}}$	p/He $\sigma_{\mathrm{stat.}}$ σ_{time} $\sigma_{\mathrm{syst.}}$
1.00 – 1.16	(8.981 0.048 0.141 0.406)$\times 10^2$	– – – –	– – – –
1.16 – 1.33	(8.547 0.028 0.097 0.307)$\times 10^2$	– – – –	– – – –
1.33 – 1.51	(8.042 0.024 0.070 0.233)$\times 10^2$	– – – –	– – – –
1.51 – 1.71	(7.392 0.017 0.053 0.194)$\times 10^2$	– – – –	– – – –
1.71 – 1.92	(6.659 0.014 0.042 0.158)$\times 10^2$	– – – –	– – – –
1.92 – 2.15	(5.835 0.012 0.033 0.126)$\times 10^2$	(6.974 0.045 0.069 0.156)$\times 10^1$	8.366 0.057 0.096 0.249
2.15 – 2.40	(5.052 0.010 0.027 0.102)$\times 10^2$	(6.389 0.039 0.053 0.125)$\times 10^1$	7.907 0.050 0.078 0.210
2.40 – 2.67	(4.320 0.008 0.022 0.082)$\times 10^2$	(5.765 0.032 0.045 0.103)$\times 10^1$	7.494 0.044 0.069 0.184
2.67 – 2.97	(3.669 0.007 0.018 0.065)$\times 10^2$	(5.202 0.027 0.039 0.088)$\times 10^1$	7.053 0.039 0.064 0.163
2.97 – 3.29	(3.100 0.006 0.015 0.052)$\times 10^2$	(4.465 0.023 0.031 0.073)$\times 10^1$	6.942 0.037 0.059 0.154
3.29 – 3.64	(2.596 0.005 0.013 0.042)$\times 10^2$	(3.860 0.019 0.025 0.062)$\times 10^1$	6.724 0.035 0.055 0.145
3.64 – 4.02	(2.157 0.004 0.011 0.035)$\times 10^2$	(3.268 0.016 0.020 0.051)$\times 10^1$	6.601 0.034 0.052 0.139
4.02 – 4.43	(1.786 0.003 0.009 0.028)$\times 10^2$	(2.749 0.013 0.016 0.043)$\times 10^1$	6.496 0.033 0.049 0.133
4.43 – 4.88	(1.473 0.002 0.007 0.023)$\times 10^2$	(2.293 0.010 0.012 0.035)$\times 10^1$	6.424 0.031 0.047 0.130
4.88 – 5.37	(1.201 0.002 0.006 0.017)$\times 10^2$	(1.904 0.009 0.010 0.029)$\times 10^1$	6.307 0.030 0.044 0.125
5.37 – 5.90	(9.757 0.017 0.043 0.140)$\times 10^1$	(1.580 0.007 0.008 0.024)$\times 10^1$	6.175 0.030 0.041 0.120
5.90 – 6.47	(7.934 0.014 0.034 0.112)$\times 10^1$	(1.314 0.006 0.006 0.019)$\times 10^1$	6.039 0.029 0.039 0.115
6.47 – 7.09	(6.429 0.011 0.027 0.090)$\times 10^1$	(1.077 0.005 0.005 0.016)$\times 10^1$	5.970 0.028 0.038 0.113
7.09 – 7.76	(5.221 0.009 0.021 0.073)$\times 10^1$	(8.731 0.039 0.042 0.129)$\times 10^0$	5.979 0.029 0.038 0.112
7.76 – 8.48	(4.206 0.007 0.017 0.059)$\times 10^1$	(7.191 0.033 0.035 0.106)$\times 10^0$	5.849 0.029 0.037 0.108
8.48 – 9.26	(3.380 0.006 0.014 0.047)$\times 10^1$	(5.846 0.028 0.029 0.086)$\times 10^0$	5.782 0.029 0.038 0.107
9.26 – 10.1	(2.722 0.005 0.011 0.037)$\times 10^1$	(4.803 0.024 0.025 0.071)$\times 10^0$	5.667 0.030 0.038 0.105
10.1 – 11.0	(2.190 0.004 0.010 0.030)$\times 10^1$	(3.890 0.020 0.021 0.057)$\times 10^0$	5.631 0.031 0.039 0.104
11.0 – 12.0	(1.756 0.004 0.008 0.024)$\times 10^1$	(3.162 0.017 0.018 0.047)$\times 10^0$	5.555 0.032 0.040 0.102
12.0 – 13.0	(1.420 0.003 0.007 0.020)$\times 10^1$	(2.557 0.015 0.015 0.038)$\times 10^0$	5.554 0.035 0.041 0.103
13.0 – 14.1	(1.151 0.003 0.006 0.016)$\times 10^1$	(2.106 0.013 0.013 0.031)$\times 10^0$	5.463 0.035 0.042 0.102
14.1 – 15.3	(9.255 0.023 0.046 0.132)$\times 10^0$	(1.727 0.011 0.011 0.026)$\times 10^0$	5.359 0.035 0.043 0.101
15.3 – 16.6	(7.474 0.019 0.038 0.108)$\times 10^0$	(1.383 0.009 0.009 0.021)$\times 10^0$	5.404 0.037 0.045 0.103

Table continued

TABLE SM II: Bartels Rotation 2427 (June 11, 2011 – July 7, 2011). *(Continued).*

Rigidity	Φ_p $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	Φ_{He} $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	p/He $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$
16.6 – 18.0	$(5.995\ 0.016\ 0.032\ 0.088)\times10^{0}$	$(1.127\ 0.007\ 0.008\ 0.018)\times10^{0}$	5.320 0.038 0.046 0.102
18.0 – 19.5	$(4.817\ 0.013\ 0.026\ 0.072)\times10^{0}$	$(9.281\ 0.061\ 0.068\ 0.144)\times10^{-1}$	5.190 0.037 0.047 0.100
19.5 – 21.1	$(3.898\ 0.011\ 0.022\ 0.059)\times10^{0}$	$(7.499\ 0.051\ 0.057\ 0.118)\times10^{-1}$	5.198 0.038 0.049 0.101
21.1 – 22.8	$(3.138\ 0.009\ 0.018\ 0.048)\times10^{0}$	$(6.061\ 0.043\ 0.048\ 0.096)\times10^{-1}$	5.178 0.039 0.051 0.102
22.8 – 24.7	$(2.525\ 0.007\ 0.015\ 0.039)\times10^{0}$	$(4.969\ 0.035\ 0.040\ 0.079)\times10^{-1}$	5.082 0.039 0.051 0.101
24.7 – 26.7	$(2.037\ 0.006\ 0.013\ 0.032)\times10^{0}$	$(3.991\ 0.030\ 0.034\ 0.064)\times10^{-1}$	5.103 0.042 0.054 0.102
26.7 – 28.8	$(1.651\ 0.005\ 0.011\ 0.026)\times10^{0}$	$(3.319\ 0.026\ 0.029\ 0.054)\times10^{-1}$	4.974 0.043 0.054 0.100
28.8 – 31.1	$(1.333\ 0.005\ 0.009\ 0.021)\times10^{0}$	$(2.676\ 0.022\ 0.024\ 0.044)\times10^{-1}$	4.982 0.045 0.056 0.102
31.1 – 33.5	$(1.071\ 0.004\ 0.007\ 0.017)\times10^{0}$	$(2.227\ 0.020\ 0.021\ 0.037)\times10^{-1}$	4.809 0.047 0.056 0.099
33.5 – 36.1	$(8.782\ 0.035\ 0.061\ 0.138)\times10^{-1}$	$(1.795\ 0.017\ 0.018\ 0.031)\times10^{-1}$	4.893 0.051 0.059 0.102
36.1 – 38.9	$(7.121\ 0.030\ 0.051\ 0.113)\times10^{-1}$	$(1.471\ 0.015\ 0.015\ 0.026)\times10^{-1}$	4.842 0.053 0.060 0.103
38.9 – 41.9	$(5.796\ 0.026\ 0.043\ 0.092)\times10^{-1}$	$(1.194\ 0.013\ 0.012\ 0.020)\times10^{-1}$	4.855 0.057 0.062 0.104
41.9 – 45.1	$(4.723\ 0.023\ 0.036\ 0.076)\times10^{-1}$	$(9.844\ 0.114\ 0.106\ 0.174)\times10^{-2}$	4.798 0.060 0.063 0.104
45.1 – 48.5	$(3.896\ 0.020\ 0.030\ 0.064)\times10^{-1}$	$(7.980\ 0.099\ 0.089\ 0.143)\times10^{-2}$	4.882 0.066 0.066 0.108
48.5 – 52.2	$(3.143\ 0.017\ 0.025\ 0.052)\times10^{-1}$	$(6.555\ 0.086\ 0.075\ 0.119)\times10^{-2}$	4.795 0.068 0.067 0.107
52.2 – 56.1	$(2.561\ 0.015\ 0.021\ 0.044)\times10^{-1}$	$(5.365\ 0.075\ 0.063\ 0.098)\times10^{-2}$	4.774 0.073 0.068 0.107
56.1 – 60.3	$(2.109\ 0.013\ 0.017\ 0.036)\times10^{-1}$	$(4.470\ 0.066\ 0.054\ 0.083)\times10^{-2}$	4.717 0.076 0.069 0.107

TABLE SM III: Bartels Rotation 2428 (July 8, 2011 – August 3, 2011). The proton flux Φ_p, helium flux Φ_{He}, and p/He flux ratio as a function of rigidity (in units of GV) at the top of AMS in units of $[\mathrm{m}^2 \cdot \mathrm{sr} \cdot \mathrm{s} \cdot \mathrm{GV}]^{-1}$ including errors due to statistics ($\sigma_{\mathrm{stat.}}$), time dependent systematic errors (σ_{time}) and the total systematic error ($\sigma_{\mathrm{syst.}}$). Contributions to the time dependent systematic errors are from: the trigger and the reconstruction efficiency. Contributions to the total systematic error are from: the acceptance, the background contamination, the geomagnetic cutoff factor, the event selection, the unfolding, the rigidity resolution function, the absolute rigidity scale, and the time dependent systematic errors. The statistical errors for the ratio are the sum in quadrature of the relative statistical errors of the fluxes multiplied by the ratio. The time dependent systematic errors for the ratio are the sum in quadrature of the relative time dependent systematic errors of the fluxes multiplied by the ratio. The systematic errors from the acceptance for the ratio are added in quadrature. The correlations in the systematic errors from the unfolding and the absolute rigidity scale between the fluxes have been accounted for in calculating the corresponding systematic errors of the ratio. The contributions of the individual sources to the systematic error are added in quadrature to arrive at the total systematic uncertainty on the ratio.

Rigidity	Φ_p $\sigma_{\mathrm{stat.}}$ σ_{time} $\sigma_{\mathrm{syst.}}$	Φ_{He} $\sigma_{\mathrm{stat.}}$ σ_{time} $\sigma_{\mathrm{syst.}}$	p/He $\sigma_{\mathrm{stat.}}$ σ_{time} $\sigma_{\mathrm{syst.}}$
1.00 – 1.16	$(8.940\ 0.052\ 0.149\ 0.407)\times10^2$	– – – –	– – – –
1.16 – 1.33	$(8.779\ 0.031\ 0.106\ 0.317)\times10^2$	– – – –	– – – –
1.33 – 1.51	$(8.279\ 0.026\ 0.076\ 0.241)\times10^2$	– – – –	– – – –
1.51 – 1.71	$(7.595\ 0.018\ 0.057\ 0.200)\times10^2$	– – – –	– – – –
1.71 – 1.92	$(6.678\ 0.014\ 0.043\ 0.159)\times10^2$	– – – –	– – – –
1.92 – 2.15	$(5.925\ 0.011\ 0.034\ 0.128)\times10^2$	$(7.081\ 0.044\ 0.076\ 0.161)\times10^1$	8.367 0.055 0.102 0.251
2.15 – 2.40	$(5.164\ 0.010\ 0.027\ 0.104)\times10^2$	$(6.602\ 0.038\ 0.060\ 0.131)\times10^1$	7.822 0.047 0.083 0.210
2.40 – 2.67	$(4.440\ 0.008\ 0.022\ 0.084)\times10^2$	$(5.953\ 0.032\ 0.053\ 0.109)\times10^1$	7.459 0.042 0.076 0.186
2.67 – 2.97	$(3.765\ 0.007\ 0.018\ 0.066)\times10^2$	$(5.242\ 0.026\ 0.047\ 0.092)\times10^1$	7.184 0.038 0.073 0.170
2.97 – 3.29	$(3.180\ 0.005\ 0.015\ 0.053)\times10^2$	$(4.607\ 0.022\ 0.035\ 0.076)\times10^1$	6.902 0.035 0.062 0.154
3.29 – 3.64	$(2.656\ 0.004\ 0.013\ 0.043)\times10^2$	$(3.952\ 0.018\ 0.025\ 0.063)\times10^1$	6.722 0.033 0.055 0.145
3.64 – 4.02	$(2.215\ 0.004\ 0.011\ 0.035)\times10^2$	$(3.357\ 0.015\ 0.020\ 0.053)\times10^1$	6.597 0.032 0.051 0.139
4.02 – 4.43	$(1.839\ 0.003\ 0.009\ 0.029)\times10^2$	$(2.814\ 0.013\ 0.016\ 0.044)\times10^1$	6.536 0.031 0.050 0.134
4.43 – 4.88	$(1.505\ 0.002\ 0.007\ 0.023)\times10^2$	$(2.358\ 0.010\ 0.013\ 0.036)\times10^1$	6.382 0.029 0.048 0.129
4.88 – 5.37	$(1.225\ 0.002\ 0.006\ 0.018)\times10^2$	$(1.962\ 0.008\ 0.011\ 0.030)\times10^1$	6.246 0.028 0.045 0.125
5.37 – 5.90	$(9.967\ 0.016\ 0.044\ 0.143)\times10^1$	$(1.612\ 0.007\ 0.009\ 0.024)\times10^1$	6.181 0.028 0.043 0.121
5.90 – 6.47	$(8.106\ 0.013\ 0.034\ 0.115)\times10^1$	$(1.326\ 0.006\ 0.007\ 0.020)\times10^1$	6.112 0.028 0.042 0.117
6.47 – 7.09	$(6.550\ 0.011\ 0.027\ 0.092)\times10^1$	$(1.090\ 0.005\ 0.006\ 0.016)\times10^1$	6.012 0.027 0.040 0.114
7.09 – 7.76	$(5.291\ 0.009\ 0.022\ 0.074)\times10^1$	$(8.897\ 0.037\ 0.046\ 0.133)\times10^0$	5.947 0.027 0.039 0.111
7.76 – 8.48	$(4.280\ 0.007\ 0.017\ 0.060)\times10^1$	$(7.251\ 0.031\ 0.038\ 0.107)\times10^0$	5.903 0.027 0.039 0.110
8.48 – 9.26	$(3.448\ 0.006\ 0.014\ 0.048)\times10^1$	$(5.918\ 0.026\ 0.031\ 0.088)\times10^0$	5.827 0.027 0.039 0.108
9.26 – 10.1	$(2.769\ 0.005\ 0.012\ 0.038)\times10^1$	$(4.795\ 0.022\ 0.026\ 0.071)\times10^0$	5.774 0.028 0.040 0.107
10.1 – 11.0	$(2.222\ 0.004\ 0.010\ 0.030)\times10^1$	$(3.932\ 0.019\ 0.022\ 0.058)\times10^0$	5.651 0.029 0.040 0.104
11.0 – 12.0	$(1.785\ 0.003\ 0.008\ 0.025)\times10^1$	$(3.182\ 0.016\ 0.019\ 0.048)\times10^0$	5.610 0.030 0.041 0.104
12.0 – 13.0	$(1.426\ 0.003\ 0.007\ 0.020)\times10^1$	$(2.589\ 0.014\ 0.016\ 0.039)\times10^0$	5.508 0.032 0.042 0.103
13.0 – 14.1	$(1.158\ 0.003\ 0.005\ 0.016)\times10^1$	$(2.110\ 0.012\ 0.014\ 0.032)\times10^0$	5.487 0.033 0.044 0.104
14.1 – 15.3	$(9.328\ 0.021\ 0.046\ 0.133)\times10^0$	$(1.708\ 0.010\ 0.012\ 0.026)\times10^0$	5.462 0.034 0.046 0.104
15.3 – 16.6	$(7.519\ 0.018\ 0.038\ 0.108)\times10^0$	$(1.414\ 0.008\ 0.010\ 0.022)\times10^0$	5.319 0.034 0.046 0.102

Table continued

TABLE SM III: Bartels Rotation 2428 (July 8, 2011 – August 3, 2011). *(Continued).*

Rigidity	Φ_p $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	Φ_{He} $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	p/He $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$
16.6 – 18.0	$(6.049\ 0.015\ 0.032\ 0.088)\times10^{0}$	$(1.142\ 0.007\ 0.008\ 0.018)\times10^{0}$	5.297 0.035 0.048 0.103
18.0 – 19.5	$(4.836\ 0.012\ 0.026\ 0.072)\times10^{0}$	$(9.289\ 0.058\ 0.072\ 0.146)\times10^{-1}$	5.206 0.035 0.049 0.101
19.5 – 21.1	$(3.924\ 0.010\ 0.022\ 0.059)\times10^{0}$	$(7.586\ 0.049\ 0.061\ 0.120)\times10^{-1}$	5.172 0.036 0.051 0.101
21.1 – 22.8	$(3.160\ 0.008\ 0.018\ 0.048)\times10^{0}$	$(6.159\ 0.041\ 0.050\ 0.098)\times10^{-1}$	5.131 0.037 0.051 0.101
22.8 – 24.7	$(2.538\ 0.007\ 0.015\ 0.039)\times10^{0}$	$(4.994\ 0.033\ 0.041\ 0.080)\times10^{-1}$	5.083 0.037 0.052 0.101
24.7 – 26.7	$(2.035\ 0.006\ 0.013\ 0.032)\times10^{0}$	$(4.026\ 0.028\ 0.034\ 0.064)\times10^{-1}$	5.055 0.039 0.053 0.101
26.7 – 28.8	$(1.644\ 0.005\ 0.011\ 0.025)\times10^{0}$	$(3.314\ 0.025\ 0.028\ 0.053)\times10^{-1}$	4.962 0.040 0.053 0.099
28.8 – 31.1	$(1.330\ 0.004\ 0.009\ 0.021)\times10^{0}$	$(2.714\ 0.021\ 0.024\ 0.044)\times10^{-1}$	4.902 0.041 0.053 0.099
31.1 – 33.5	$(1.072\ 0.004\ 0.007\ 0.017)\times10^{0}$	$(2.180\ 0.018\ 0.020\ 0.036)\times10^{-1}$	4.915 0.045 0.055 0.100
33.5 – 36.1	$(8.760\ 0.032\ 0.060\ 0.138)\times10^{-1}$	$(1.778\ 0.016\ 0.016\ 0.030)\times10^{-1}$	4.927 0.048 0.057 0.102
36.1 – 38.9	$(7.061\ 0.028\ 0.050\ 0.112)\times10^{-1}$	$(1.476\ 0.014\ 0.014\ 0.025)\times10^{-1}$	4.785 0.049 0.057 0.100
38.9 – 41.9	$(5.763\ 0.024\ 0.042\ 0.092)\times10^{-1}$	$(1.214\ 0.012\ 0.012\ 0.020)\times10^{-1}$	4.748 0.052 0.059 0.101
41.9 – 45.1	$(4.680\ 0.021\ 0.035\ 0.075)\times10^{-1}$	$(9.648\ 0.105\ 0.100\ 0.168)\times10^{-2}$	4.851 0.057 0.062 0.104
45.1 – 48.5	$(3.822\ 0.018\ 0.029\ 0.062)\times10^{-1}$	$(8.009\ 0.092\ 0.087\ 0.142)\times10^{-2}$	4.773 0.060 0.063 0.104
48.5 – 52.2	$(3.133\ 0.016\ 0.024\ 0.052)\times10^{-1}$	$(6.608\ 0.080\ 0.075\ 0.119)\times10^{-2}$	4.741 0.062 0.065 0.105
52.2 – 56.1	$(2.550\ 0.014\ 0.020\ 0.043)\times10^{-1}$	$(5.436\ 0.071\ 0.064\ 0.100)\times10^{-2}$	4.691 0.066 0.067 0.105
56.1 – 60.3	$(2.094\ 0.012\ 0.017\ 0.036)\times10^{-1}$	$(4.560\ 0.062\ 0.056\ 0.085)\times10^{-2}$	4.593 0.068 0.068 0.105

TABLE SM IV: Bartels Rotation 2429 (August 4, 2011 – August 30, 2011). The proton flux Φ_p, helium flux Φ_{He}, and p/He flux ratio as a function of rigidity (in units of GV) at the top of AMS in units of $[\mathrm{m}^2 \cdot \mathrm{sr} \cdot \mathrm{s} \cdot \mathrm{GV}]^{-1}$ including errors due to statistics ($\sigma_{\mathrm{stat.}}$), time dependent systematic errors (σ_{time}) and the total systematic error ($\sigma_{\mathrm{syst.}}$). Contributions to the time dependent systematic errors are from: the trigger and the reconstruction efficiency. Contributions to the total systematic error are from: the acceptance, the background contamination, the geomagnetic cutoff factor, the event selection, the unfolding, the rigidity resolution function, the absolute rigidity scale, and the time dependent systematic errors. The statistical errors for the ratio are the sum in quadrature of the relative statistical errors of the fluxes multiplied by the ratio. The time dependent systematic errors for the ratio are the sum in quadrature of the relative time dependent systematic errors of the fluxes multiplied by the ratio. The systematic errors from the acceptance for the ratio are added in quadrature. The correlations in the systematic errors from the unfolding and the absolute rigidity scale between the fluxes have been accounted for in calculating the corresponding systematic errors of the ratio. The contributions of the individual sources to the systematic error are added in quadrature to arrive at the total systematic uncertainty on the ratio.

Rigidity	Φ_p	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	Φ_{He}	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	p/He	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$
1.00 – 1.16	$(8.726$	0.042	0.128	$0.392)\times10^2$	–	–	–	–	–	–	–	–
1.16 – 1.33	$(8.518$	0.025	0.091	$0.304)\times10^2$	–	–	–	–	–	–	–	–
1.33 – 1.51	$(8.062$	0.021	0.066	$0.232)\times10^2$	–	–	–	–	–	–	–	–
1.51 – 1.71	$(7.437$	0.015	0.051	$0.194)\times10^2$	–	–	–	–	–	–	–	–
1.71 – 1.92	$(6.712$	0.013	0.040	$0.159)\times10^2$	–	–	–	–	–	–	–	–
1.92 – 2.15	$(5.906$	0.011	0.032	$0.127)\times10^2$	$(7.082$	0.041	0.055	$0.152)\times10^1$	8.340	0.051	0.079	0.242
2.15 – 2.40	$(5.133$	0.009	0.026	$0.103)\times10^2$	$(6.552$	0.035	0.043	$0.123)\times10^1$	7.834	0.044	0.065	0.204
2.40 – 2.67	$(4.423$	0.007	0.021	$0.084)\times10^2$	$(5.929$	0.029	0.036	$0.102)\times10^1$	7.460	0.039	0.058	0.179
2.67 – 2.97	$(3.756$	0.006	0.018	$0.066)\times10^2$	$(5.265$	0.025	0.031	$0.086)\times10^1$	7.135	0.035	0.054	0.161
2.97 – 3.29	$(3.172$	0.005	0.015	$0.053)\times10^2$	$(4.586$	0.020	0.025	$0.072)\times10^1$	6.916	0.033	0.050	0.150
3.29 – 3.64	$(2.667$	0.004	0.013	$0.043)\times10^2$	$(3.956$	0.017	0.020	$0.061)\times10^1$	6.742	0.031	0.047	0.143
3.64 – 4.02	$(2.223$	0.003	0.011	$0.035)\times10^2$	$(3.333$	0.014	0.016	$0.051)\times10^1$	6.671	0.030	0.045	0.138
4.02 – 4.43	$(1.839$	0.003	0.009	$0.028)\times10^2$	$(2.813$	0.012	0.013	$0.042)\times10^1$	6.535	0.029	0.043	0.132
4.43 – 4.88	$(1.511$	0.002	0.007	$0.023)\times10^2$	$(2.362$	0.009	0.010	$0.035)\times10^1$	6.398	0.027	0.041	0.127
4.88 – 5.37	$(1.229$	0.002	0.006	$0.018)\times10^2$	$(1.963$	0.008	0.008	$0.029)\times10^1$	6.260	0.026	0.038	0.122
5.37 – 5.90	$(9.987$	0.015	0.043	$0.143)\times10^1$	$(1.616$	0.006	0.006	$0.024)\times10^1$	6.181	0.026	0.036	0.118
5.90 – 6.47	$(8.113$	0.012	0.033	$0.114)\times10^1$	$(1.330$	0.005	0.005	$0.019)\times10^1$	6.098	0.025	0.034	0.114
6.47 – 7.09	$(6.557$	0.010	0.026	$0.092)\times10^1$	$(1.097$	0.004	0.004	$0.016)\times10^1$	5.977	0.025	0.033	0.111
7.09 – 7.76	$(5.341$	0.008	0.021	$0.074)\times10^1$	$(8.893$	0.035	0.034	$0.129)\times10^0$	6.005	0.025	0.033	0.111
7.76 – 8.48	$(4.290$	0.007	0.017	$0.060)\times10^1$	$(7.321$	0.029	0.029	$0.105)\times10^0$	5.860	0.025	0.033	0.107
8.48 – 9.26	$(3.455$	0.005	0.014	$0.048)\times10^1$	$(5.887$	0.024	0.024	$0.085)\times10^0$	5.869	0.026	0.034	0.107
9.26 – 10.1	$(2.775$	0.005	0.011	$0.038)\times10^1$	$(4.834$	0.021	0.021	$0.070)\times10^0$	5.740	0.026	0.034	0.104
10.1 – 11.0	$(2.227$	0.004	0.009	$0.030)\times10^1$	$(3.936$	0.018	0.017	$0.057)\times10^0$	5.658	0.027	0.034	0.102
11.0 – 12.0	$(1.787$	0.003	0.008	$0.025)\times10^1$	$(3.208$	0.015	0.015	$0.047)\times10^0$	5.571	0.028	0.035	0.101
12.0 – 13.0	$(1.435$	0.003	0.006	$0.020)\times10^1$	$(2.583$	0.013	0.012	$0.038)\times10^0$	5.554	0.030	0.036	0.102
13.0 – 14.1	$(1.165$	0.002	0.005	$0.017)\times10^1$	$(2.116$	0.011	0.011	$0.031)\times10^0$	5.503	0.031	0.037	0.101
14.1 – 15.3	$(9.381$	0.020	0.045	$0.133)\times10^0$	$(1.750$	0.009	0.009	$0.025)\times10^0$	5.361	0.031	0.038	0.099
15.3 – 16.6	$(7.503$	0.016	0.037	$0.108)\times10^0$	$(1.401$	0.008	0.008	$0.021)\times10^0$	5.356	0.032	0.039	0.100

Table continued

TABLE SM IV: Bartels Rotation 2429 (August 4, 2011 – August 30, 2011). *(Continued).*

Rigidity	Φ_p $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	Φ_{He} $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	p/He $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$
16.6 – 18.0	$(6.040\ 0.014\ 0.031\ 0.088)\times10^{0}$	$(1.154\ 0.007\ 0.007\ 0.017)\times10^{0}$	5.233 0.032 0.040 0.098
18.0 – 19.5	$(4.864\ 0.011\ 0.026\ 0.072)\times10^{0}$	$(9.352\ 0.054\ 0.057\ 0.140)\times10^{-1}$	5.201 0.032 0.042 0.098
19.5 – 21.1	$(3.907\ 0.009\ 0.021\ 0.059)\times10^{0}$	$(7.556\ 0.045\ 0.048\ 0.114)\times10^{-1}$	5.171 0.033 0.043 0.098
21.1 – 22.8	$(3.141\ 0.008\ 0.018\ 0.048)\times10^{0}$	$(6.159\ 0.038\ 0.040\ 0.094)\times10^{-1}$	5.100 0.034 0.044 0.097
22.8 – 24.7	$(2.543\ 0.006\ 0.015\ 0.039)\times10^{0}$	$(5.071\ 0.031\ 0.034\ 0.077)\times10^{-1}$	5.015 0.033 0.044 0.096
24.7 – 26.7	$(2.040\ 0.005\ 0.012\ 0.032)\times10^{0}$	$(4.045\ 0.027\ 0.028\ 0.062)\times10^{-1}$	5.044 0.036 0.046 0.097
26.7 – 28.8	$(1.647\ 0.005\ 0.010\ 0.025)\times10^{0}$	$(3.333\ 0.023\ 0.024\ 0.051)\times10^{-1}$	4.942 0.037 0.047 0.096
28.8 – 31.1	$(1.330\ 0.004\ 0.008\ 0.021)\times10^{0}$	$(2.719\ 0.020\ 0.020\ 0.042)\times10^{-1}$	4.893 0.039 0.047 0.096
31.1 – 33.5	$(1.078\ 0.003\ 0.007\ 0.017)\times10^{0}$	$(2.223\ 0.018\ 0.017\ 0.035)\times10^{-1}$	4.851 0.041 0.048 0.096
33.5 – 36.1	$(8.756\ 0.030\ 0.058\ 0.137)\times10^{-1}$	$(1.836\ 0.015\ 0.014\ 0.030)\times10^{-1}$	4.769 0.043 0.049 0.095
36.1 – 38.9	$(7.093\ 0.026\ 0.048\ 0.111)\times10^{-1}$	$(1.497\ 0.013\ 0.012\ 0.024)\times10^{-1}$	4.738 0.045 0.050 0.096
38.9 – 41.9	$(5.782\ 0.023\ 0.040\ 0.091)\times10^{-1}$	$(1.220\ 0.012\ 0.010\ 0.019)\times10^{-1}$	4.739 0.048 0.051 0.097
41.9 – 45.1	$(4.735\ 0.020\ 0.034\ 0.075)\times10^{-1}$	$(9.903\ 0.100\ 0.085\ 0.162)\times10^{-2}$	4.781 0.052 0.053 0.098
45.1 – 48.5	$(3.873\ 0.017\ 0.028\ 0.062)\times10^{-1}$	$(7.958\ 0.087\ 0.070\ 0.132)\times10^{-2}$	4.867 0.057 0.056 0.101
48.5 – 52.2	$(3.123\ 0.015\ 0.023\ 0.051)\times10^{-1}$	$(6.688\ 0.076\ 0.061\ 0.112)\times10^{-2}$	4.670 0.058 0.055 0.098
52.2 – 56.1	$(2.553\ 0.013\ 0.020\ 0.043)\times10^{-1}$	$(5.468\ 0.067\ 0.051\ 0.092)\times10^{-2}$	4.668 0.062 0.056 0.098
56.1 – 60.3	$(2.088\ 0.012\ 0.016\ 0.035)\times10^{-1}$	$(4.437\ 0.058\ 0.042\ 0.075)\times10^{-2}$	4.705 0.066 0.058 0.100

TABLE SM V: Bartels Rotation 2430 (August 31, 2011 – September 26, 2011). The proton flux Φ_p, helium flux Φ_{He}, and p/He flux ratio as a function of rigidity (in units of GV) at the top of AMS in units of $[\mathrm{m}^2 \cdot \mathrm{sr} \cdot \mathrm{s} \cdot \mathrm{GV}]^{-1}$ including errors due to statistics ($\sigma_{\mathrm{stat.}}$), time dependent systematic errors (σ_{time}) and the total systematic error ($\sigma_{\mathrm{syst.}}$). Contributions to the time dependent systematic errors are from: the trigger and the reconstruction efficiency. Contributions to the total systematic error are from: the acceptance, the background contamination, the geomagnetic cutoff factor, the event selection, the unfolding, the rigidity resolution function, the absolute rigidity scale, and the time dependent systematic errors. The statistical errors for the ratio are the sum in quadrature of the relative statistical errors of the fluxes multiplied by the ratio. The time dependent systematic errors for the ratio are the sum in quadrature of the relative time dependent systematic errors of the fluxes multiplied by the ratio. The systematic errors from the acceptance for the ratio are added in quadrature. The correlations in the systematic errors from the unfolding and the absolute rigidity scale between the fluxes have been accounted for in calculating the corresponding systematic errors of the ratio. The contributions of the individual sources to the systematic error are added in quadrature to arrive at the total systematic uncertainty on the ratio.

Rigidity	Φ_p $\sigma_{\mathrm{stat.}}$ σ_{time} $\sigma_{\mathrm{syst.}}$	Φ_{He} $\sigma_{\mathrm{stat.}}$ σ_{time} $\sigma_{\mathrm{syst.}}$	p/He $\sigma_{\mathrm{stat.}}$ σ_{time} $\sigma_{\mathrm{syst.}}$
1.00 – 1.16	$(8.827\ 0.044\ 0.117\ 0.392)\times10^2$	– – – –	– – – –
1.16 – 1.33	$(8.625\ 0.025\ 0.084\ 0.305)\times10^2$	– – – –	– – – –
1.33 – 1.51	$(8.132\ 0.021\ 0.061\ 0.233)\times10^2$	– – – –	– – – –
1.51 – 1.71	$(7.503\ 0.015\ 0.047\ 0.195)\times10^2$	– – – –	– – – –
1.71 – 1.92	$(6.770\ 0.013\ 0.037\ 0.159)\times10^2$	– – – –	– – – –
1.92 – 2.15	$(5.974\ 0.011\ 0.029\ 0.128)\times10^2$	$(7.120\ 0.041\ 0.054\ 0.152)\times10^1$	8.390 0.051 0.076 0.243
2.15 – 2.40	$(5.181\ 0.009\ 0.024\ 0.103)\times10^2$	$(6.580\ 0.035\ 0.044\ 0.124)\times10^1$	7.874 0.044 0.064 0.205
2.40 – 2.67	$(4.448\ 0.007\ 0.019\ 0.084)\times10^2$	$(6.042\ 0.029\ 0.037\ 0.104)\times10^1$	7.361 0.038 0.056 0.176
2.67 – 2.97	$(3.811\ 0.006\ 0.016\ 0.066)\times10^2$	$(5.302\ 0.024\ 0.031\ 0.086)\times10^1$	7.188 0.035 0.053 0.162
2.97 – 3.29	$(3.204\ 0.005\ 0.014\ 0.053)\times10^2$	$(4.623\ 0.020\ 0.025\ 0.073)\times10^1$	6.931 0.032 0.048 0.150
3.29 – 3.64	$(2.689\ 0.004\ 0.012\ 0.043)\times10^2$	$(3.969\ 0.017\ 0.020\ 0.062)\times10^1$	6.776 0.031 0.045 0.143
3.64 – 4.02	$(2.238\ 0.003\ 0.010\ 0.035)\times10^2$	$(3.375\ 0.014\ 0.016\ 0.051)\times10^1$	6.631 0.030 0.043 0.137
4.02 – 4.43	$(1.846\ 0.003\ 0.008\ 0.028)\times10^2$	$(2.849\ 0.012\ 0.013\ 0.043)\times10^1$	6.478 0.028 0.041 0.130
4.43 – 4.88	$(1.517\ 0.002\ 0.007\ 0.023)\times10^2$	$(2.363\ 0.009\ 0.010\ 0.035)\times10^1$	6.421 0.027 0.040 0.127
4.88 – 5.37	$(1.241\ 0.002\ 0.005\ 0.018)\times10^2$	$(1.952\ 0.008\ 0.008\ 0.029)\times10^1$	6.355 0.026 0.037 0.124
5.37 – 5.90	$(1.006\ 0.001\ 0.004\ 0.014)\times10^2$	$(1.625\ 0.006\ 0.006\ 0.024)\times10^1$	6.190 0.025 0.035 0.118
5.90 – 6.47	$(8.139\ 0.012\ 0.031\ 0.114)\times10^1$	$(1.329\ 0.005\ 0.005\ 0.019)\times10^1$	6.123 0.025 0.033 0.115
6.47 – 7.09	$(6.598\ 0.010\ 0.024\ 0.092)\times10^1$	$(1.090\ 0.004\ 0.004\ 0.016)\times10^1$	6.055 0.025 0.033 0.113
7.09 – 7.76	$(5.339\ 0.008\ 0.020\ 0.074)\times10^1$	$(8.862\ 0.034\ 0.035\ 0.129)\times10^0$	6.025 0.025 0.033 0.111
7.76 – 8.48	$(4.300\ 0.007\ 0.016\ 0.059)\times10^1$	$(7.246\ 0.028\ 0.030\ 0.105)\times10^0$	5.934 0.025 0.033 0.108
8.48 – 9.26	$(3.464\ 0.005\ 0.013\ 0.047)\times10^1$	$(5.931\ 0.024\ 0.025\ 0.086)\times10^0$	5.841 0.025 0.033 0.106
9.26 – 10.1	$(2.779\ 0.005\ 0.010\ 0.038)\times10^1$	$(4.817\ 0.020\ 0.021\ 0.070)\times10^0$	5.769 0.026 0.034 0.105
10.1 – 11.0	$(2.238\ 0.004\ 0.009\ 0.030)\times10^1$	$(3.953\ 0.017\ 0.018\ 0.057)\times10^0$	5.662 0.027 0.034 0.102
11.0 – 12.0	$(1.790\ 0.003\ 0.007\ 0.024)\times10^1$	$(3.153\ 0.014\ 0.015\ 0.046)\times10^0$	5.678 0.028 0.035 0.103
12.0 – 13.0	$(1.445\ 0.003\ 0.006\ 0.020)\times10^1$	$(2.588\ 0.013\ 0.013\ 0.038)\times10^0$	5.583 0.030 0.036 0.102
13.0 – 14.1	$(1.166\ 0.002\ 0.005\ 0.016)\times10^1$	$(2.103\ 0.011\ 0.011\ 0.031)\times10^0$	5.547 0.031 0.038 0.102
14.1 – 15.3	$(9.407\ 0.020\ 0.042\ 0.133)\times10^0$	$(1.727\ 0.009\ 0.010\ 0.025)\times10^0$	5.446 0.031 0.039 0.100
15.3 – 16.6	$(7.587\ 0.016\ 0.035\ 0.108)\times10^0$	$(1.395\ 0.008\ 0.008\ 0.021)\times10^0$	5.437 0.032 0.040 0.101

Table continued

TABLE SM V: Bartels Rotation 2430 (August 31, 2011 – September 26, 2011). *(Continued).*

Rigidity	Φ_p $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	Φ_{He} $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	p/He $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$
16.6 – 18.0	$(6.061\ 0.014\ 0.029\ 0.087)\times10^{0}$	$(1.147\ 0.006\ 0.007\ 0.018)\times10^{0}$	5.285 0.032 0.041 0.099
18.0 – 19.5	$(4.888\ 0.011\ 0.024\ 0.072)\times10^{0}$	$(9.279\ 0.053\ 0.060\ 0.140)\times10^{-1}$	5.267 0.032 0.043 0.099
19.5 – 21.1	$(3.927\ 0.009\ 0.020\ 0.058)\times10^{0}$	$(7.503\ 0.044\ 0.051\ 0.114)\times10^{-1}$	5.235 0.033 0.044 0.099
21.1 – 22.8	$(3.169\ 0.008\ 0.017\ 0.048)\times10^{0}$	$(6.132\ 0.037\ 0.042\ 0.094)\times10^{-1}$	5.167 0.034 0.045 0.099
22.8 – 24.7	$(2.556\ 0.006\ 0.014\ 0.038)\times10^{0}$	$(5.009\ 0.030\ 0.035\ 0.077)\times10^{-1}$	5.103 0.033 0.045 0.098
24.7 – 26.7	$(2.042\ 0.005\ 0.011\ 0.031)\times10^{0}$	$(4.079\ 0.026\ 0.029\ 0.063)\times10^{-1}$	5.005 0.035 0.045 0.097
26.7 – 28.8	$(1.658\ 0.005\ 0.010\ 0.025)\times10^{0}$	$(3.313\ 0.023\ 0.025\ 0.051)\times10^{-1}$	5.005 0.037 0.047 0.097
28.8 – 31.1	$(1.334\ 0.004\ 0.008\ 0.021)\times10^{0}$	$(2.696\ 0.019\ 0.020\ 0.042)\times10^{-1}$	4.949 0.038 0.047 0.097
31.1 – 33.5	$(1.084\ 0.003\ 0.006\ 0.017)\times10^{0}$	$(2.194\ 0.017\ 0.017\ 0.035)\times10^{-1}$	4.941 0.042 0.049 0.097
33.5 – 36.1	$(8.768\ 0.030\ 0.054\ 0.135)\times10^{-1}$	$(1.791\ 0.015\ 0.014\ 0.029)\times10^{-1}$	4.896 0.044 0.050 0.097
36.1 – 38.9	$(7.075\ 0.026\ 0.045\ 0.110)\times10^{-1}$	$(1.456\ 0.013\ 0.012\ 0.024)\times10^{-1}$	4.859 0.046 0.050 0.098
38.9 – 41.9	$(5.784\ 0.022\ 0.037\ 0.090)\times10^{-1}$	$(1.199\ 0.011\ 0.010\ 0.019)\times10^{-1}$	4.824 0.049 0.051 0.098
41.9 – 45.1	$(4.751\ 0.020\ 0.031\ 0.075)\times10^{-1}$	$(9.850\ 0.098\ 0.086\ 0.162)\times10^{-2}$	4.823 0.052 0.053 0.099
45.1 – 48.5	$(3.818\ 0.017\ 0.026\ 0.061)\times10^{-1}$	$(8.061\ 0.086\ 0.072\ 0.134)\times10^{-2}$	4.737 0.055 0.053 0.098
48.5 – 52.2	$(3.117\ 0.015\ 0.022\ 0.050)\times10^{-1}$	$(6.570\ 0.074\ 0.060\ 0.110)\times10^{-2}$	4.744 0.058 0.054 0.099
52.2 – 56.1	$(2.566\ 0.013\ 0.018\ 0.042)\times10^{-1}$	$(5.393\ 0.065\ 0.051\ 0.091)\times10^{-2}$	4.759 0.062 0.056 0.100
56.1 – 60.3	$(2.082\ 0.011\ 0.015\ 0.035)\times10^{-1}$	$(4.448\ 0.057\ 0.043\ 0.076)\times10^{-2}$	4.679 0.065 0.056 0.099

TABLE SM VI: Bartels Rotation 2431 (September 27, 2011 – October 23, 2011). The proton flux Φ_p, helium flux Φ_{He}, and p/He flux ratio as a function of rigidity (in units of GV) at the top of AMS in units of $[\mathrm{m}^2 \cdot \mathrm{sr} \cdot \mathrm{s} \cdot \mathrm{GV}]^{-1}$ including errors due to statistics ($\sigma_{\mathrm{stat.}}$), time dependent systematic errors (σ_{time}) and the total systematic error ($\sigma_{\mathrm{syst.}}$). Contributions to the time dependent systematic errors are from: the trigger and the reconstruction efficiency. Contributions to the total systematic error are from: the acceptance, the background contamination, the geomagnetic cutoff factor, the event selection, the unfolding, the rigidity resolution function, the absolute rigidity scale, and the time dependent systematic errors. The statistical errors for the ratio are the sum in quadrature of the relative statistical errors of the fluxes multiplied by the ratio. The time dependent systematic errors for the ratio are the sum in quadrature of the relative time dependent systematic errors of the fluxes multiplied by the ratio. The systematic errors from the acceptance for the ratio are added in quadrature. The correlations in the systematic errors from the unfolding and the absolute rigidity scale between the fluxes have been accounted for in calculating the corresponding systematic errors of the ratio. The contributions of the individual sources to the systematic error are added in quadrature to arrive at the total systematic uncertainty on the ratio.

Rigidity	Φ_p $\sigma_{\mathrm{stat.}}$ σ_{time} $\sigma_{\mathrm{syst.}}$	Φ_{He} $\sigma_{\mathrm{stat.}}$ σ_{time} $\sigma_{\mathrm{syst.}}$	p/He $\sigma_{\mathrm{stat.}}$ σ_{time} $\sigma_{\mathrm{syst.}}$
1.00 – 1.16	$(7.898\ 0.046\ 0.117\ 0.355)\times10^2$	– – – –	– – – –
1.16 – 1.33	$(7.653\ 0.025\ 0.082\ 0.273)\times10^2$	– – – –	– – – –
1.33 – 1.51	$(7.343\ 0.020\ 0.060\ 0.211)\times10^2$	– – – –	– – – –
1.51 – 1.71	$(6.849\ 0.014\ 0.046\ 0.179)\times10^2$	– – – –	– – – –
1.71 – 1.92	$(6.197\ 0.012\ 0.036\ 0.146)\times10^2$	– – – –	– – – –
1.92 – 2.15	$(5.500\ 0.010\ 0.029\ 0.119)\times10^2$	$(6.490\ 0.038\ 0.054\ 0.140)\times10^1$	8.475 0.052 0.083 0.247
2.15 – 2.40	$(4.816\ 0.008\ 0.023\ 0.096)\times10^2$	$(6.094\ 0.033\ 0.043\ 0.116)\times10^1$	7.903 0.045 0.068 0.207
2.40 – 2.67	$(4.170\ 0.007\ 0.019\ 0.079)\times10^2$	$(5.550\ 0.028\ 0.036\ 0.096)\times10^1$	7.514 0.040 0.060 0.181
2.67 – 2.97	$(3.567\ 0.006\ 0.016\ 0.062)\times10^2$	$(4.961\ 0.023\ 0.031\ 0.082)\times10^1$	7.190 0.036 0.056 0.163
2.97 – 3.29	$(3.025\ 0.005\ 0.014\ 0.051)\times10^2$	$(4.356\ 0.019\ 0.026\ 0.069)\times10^1$	6.945 0.033 0.051 0.151
3.29 – 3.64	$(2.549\ 0.004\ 0.012\ 0.041)\times10^2$	$(3.782\ 0.016\ 0.020\ 0.059)\times10^1$	6.740 0.031 0.048 0.143
3.64 – 4.02	$(2.131\ 0.003\ 0.010\ 0.034)\times10^2$	$(3.193\ 0.014\ 0.016\ 0.049)\times10^1$	6.672 0.030 0.046 0.138
4.02 – 4.43	$(1.773\ 0.003\ 0.008\ 0.027)\times10^2$	$(2.724\ 0.011\ 0.013\ 0.041)\times10^1$	6.509 0.029 0.043 0.131
4.43 – 4.88	$(1.461\ 0.002\ 0.007\ 0.022)\times10^2$	$(2.276\ 0.009\ 0.010\ 0.034)\times10^1$	6.419 0.027 0.041 0.128
4.88 – 5.37	$(1.190\ 0.002\ 0.005\ 0.017)\times10^2$	$(1.888\ 0.007\ 0.008\ 0.028)\times10^1$	6.304 0.026 0.039 0.123
5.37 – 5.90	$(9.704\ 0.014\ 0.040\ 0.138)\times10^1$	$(1.564\ 0.006\ 0.006\ 0.023)\times10^1$	6.205 0.026 0.036 0.119
5.90 – 6.47	$(7.890\ 0.012\ 0.031\ 0.111)\times10^1$	$(1.286\ 0.005\ 0.005\ 0.019)\times10^1$	6.134 0.026 0.035 0.115
6.47 – 7.09	$(6.381\ 0.009\ 0.024\ 0.089)\times10^1$	$(1.058\ 0.004\ 0.004\ 0.015)\times10^1$	6.033 0.025 0.034 0.112
7.09 – 7.76	$(5.192\ 0.008\ 0.020\ 0.072)\times10^1$	$(8.734\ 0.034\ 0.036\ 0.127)\times10^0$	5.944 0.025 0.033 0.109
7.76 – 8.48	$(4.187\ 0.006\ 0.016\ 0.058)\times10^1$	$(7.092\ 0.028\ 0.030\ 0.102)\times10^0$	5.904 0.025 0.033 0.108
8.48 – 9.26	$(3.376\ 0.005\ 0.013\ 0.046)\times10^1$	$(5.778\ 0.024\ 0.025\ 0.084)\times10^0$	5.842 0.026 0.034 0.106
9.26 – 10.1	$(2.720\ 0.004\ 0.011\ 0.037)\times10^1$	$(4.737\ 0.020\ 0.021\ 0.069)\times10^0$	5.743 0.026 0.034 0.104
10.1 – 11.0	$(2.189\ 0.004\ 0.009\ 0.030)\times10^1$	$(3.852\ 0.017\ 0.018\ 0.056)\times10^0$	5.683 0.027 0.035 0.103
11.0 – 12.0	$(1.766\ 0.003\ 0.007\ 0.024)\times10^1$	$(3.162\ 0.014\ 0.015\ 0.046)\times10^0$	5.583 0.027 0.035 0.101
12.0 – 13.0	$(1.416\ 0.003\ 0.006\ 0.019)\times10^1$	$(2.550\ 0.013\ 0.013\ 0.037)\times10^0$	5.552 0.030 0.036 0.102
13.0 – 14.1	$(1.156\ 0.002\ 0.005\ 0.016)\times10^1$	$(2.101\ 0.011\ 0.011\ 0.031)\times10^0$	5.501 0.030 0.038 0.101
14.1 – 15.3	$(9.203\ 0.019\ 0.042\ 0.130)\times10^0$	$(1.696\ 0.009\ 0.009\ 0.025)\times10^0$	5.428 0.031 0.039 0.100
15.3 – 16.6	$(7.436\ 0.016\ 0.035\ 0.106)\times10^0$	$(1.378\ 0.008\ 0.008\ 0.021)\times10^0$	5.395 0.032 0.040 0.100

Table continued

TABLE SM VI: Bartels Rotation 2431 (September 27, 2011 – October 23, 2011). *(Continued).*

Rigidity	Φ_p $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	Φ_{He} $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	p/He $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$
16.6 – 18.0	$(5.993\ 0.013\ 0.029\ 0.087)\times10^{0}$	$(1.129\ 0.006\ 0.007\ 0.017)\times10^{0}$	5.307 0.032 0.041 0.100
18.0 – 19.5	$(4.836\ 0.011\ 0.024\ 0.071)\times10^{0}$	$(9.238\ 0.053\ 0.059\ 0.139)\times10^{-1}$	5.234 0.032 0.043 0.099
19.5 – 21.1	$(3.875\ 0.009\ 0.020\ 0.058)\times10^{0}$	$(7.455\ 0.044\ 0.050\ 0.113)\times10^{-1}$	5.198 0.033 0.044 0.098
21.1 – 22.8	$(3.129\ 0.008\ 0.017\ 0.047)\times10^{0}$	$(6.154\ 0.037\ 0.042\ 0.094)\times10^{-1}$	5.085 0.033 0.044 0.097
22.8 – 24.7	$(2.518\ 0.006\ 0.014\ 0.038)\times10^{0}$	$(4.992\ 0.031\ 0.035\ 0.077)\times10^{-1}$	5.044 0.033 0.045 0.097
24.7 – 26.7	$(2.026\ 0.005\ 0.012\ 0.031)\times10^{0}$	$(4.101\ 0.026\ 0.030\ 0.063)\times10^{-1}$	4.941 0.034 0.045 0.096
26.7 – 28.8	$(1.639\ 0.005\ 0.010\ 0.025)\times10^{0}$	$(3.317\ 0.023\ 0.025\ 0.051)\times10^{-1}$	4.943 0.037 0.047 0.096
28.8 – 31.1	$(1.322\ 0.004\ 0.008\ 0.020)\times10^{0}$	$(2.709\ 0.019\ 0.021\ 0.043)\times10^{-1}$	4.879 0.038 0.047 0.096
31.1 – 33.5	$(1.074\ 0.003\ 0.007\ 0.017)\times10^{0}$	$(2.198\ 0.017\ 0.017\ 0.035)\times10^{-1}$	4.887 0.041 0.049 0.097
33.5 – 36.1	$(8.709\ 0.030\ 0.055\ 0.135)\times10^{-1}$	$(1.810\ 0.015\ 0.015\ 0.030)\times10^{-1}$	4.811 0.043 0.050 0.096
36.1 – 38.9	$(7.053\ 0.026\ 0.046\ 0.110)\times10^{-1}$	$(1.457\ 0.013\ 0.012\ 0.024)\times10^{-1}$	4.840 0.046 0.051 0.098
38.9 – 41.9	$(5.744\ 0.022\ 0.038\ 0.090)\times10^{-1}$	$(1.212\ 0.011\ 0.010\ 0.019)\times10^{-1}$	4.739 0.048 0.052 0.097
41.9 – 45.1	$(4.700\ 0.020\ 0.032\ 0.074)\times10^{-1}$	$(1.001\ 0.010\ 0.009\ 0.017)\times10^{-1}$	4.696 0.050 0.053 0.097
45.1 – 48.5	$(3.825\ 0.017\ 0.027\ 0.061)\times10^{-1}$	$(8.038\ 0.086\ 0.073\ 0.134)\times10^{-2}$	4.758 0.055 0.055 0.099
48.5 – 52.2	$(3.125\ 0.015\ 0.022\ 0.051)\times10^{-1}$	$(6.621\ 0.074\ 0.062\ 0.112)\times10^{-2}$	4.721 0.057 0.055 0.099
52.2 – 56.1	$(2.545\ 0.013\ 0.019\ 0.042)\times10^{-1}$	$(5.312\ 0.064\ 0.051\ 0.090)\times10^{-2}$	4.791 0.063 0.058 0.101
56.1 – 60.3	$(2.082\ 0.011\ 0.015\ 0.035)\times10^{-1}$	$(4.492\ 0.057\ 0.044\ 0.077)\times10^{-2}$	4.634 0.064 0.057 0.099

TABLE SM VII: Bartels Rotation 2432 (October 24, 2011 – November 19, 2011). The proton flux Φ_p, helium flux Φ_{He}, and p/He flux ratio as a function of rigidity (in units of GV) at the top of AMS in units of $[\mathrm{m}^2 \cdot \mathrm{sr} \cdot \mathrm{s} \cdot \mathrm{GV}]^{-1}$ including errors due to statistics ($\sigma_{\mathrm{stat.}}$), time dependent systematic errors (σ_{time}) and the total systematic error ($\sigma_{\mathrm{syst.}}$). Contributions to the time dependent systematic errors are from: the trigger and the reconstruction efficiency. Contributions to the total systematic error are from: the acceptance, the background contamination, the geomagnetic cutoff factor, the event selection, the unfolding, the rigidity resolution function, the absolute rigidity scale, and the time dependent systematic errors. The statistical errors for the ratio are the sum in quadrature of the relative statistical errors of the fluxes multiplied by the ratio. The time dependent systematic errors for the ratio are the sum in quadrature of the relative time dependent systematic errors of the fluxes multiplied by the ratio. The systematic errors from the acceptance for the ratio are added in quadrature. The correlations in the systematic errors from the unfolding and the absolute rigidity scale between the fluxes have been accounted for in calculating the corresponding systematic errors of the ratio. The contributions of the individual sources to the systematic error are added in quadrature to arrive at the total systematic uncertainty on the ratio.

Rigidity	Φ_p	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	Φ_{He}	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	p/He	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$
1.00 – 1.16	$(8.450$	0.046	0.124	$0.379)\times10^2$	–	–	–	–	–	–	–	–
1.16 – 1.33	$(8.328$	0.025	0.089	$0.297)\times10^2$	–	–	–	–	–	–	–	–
1.33 – 1.51	$(7.942$	0.021	0.065	$0.229)\times10^2$	–	–	–	–	–	–	–	–
1.51 – 1.71	$(7.365$	0.015	0.049	$0.192)\times10^2$	–	–	–	–	–	–	–	–
1.71 – 1.92	$(6.629$	0.013	0.039	$0.156)\times10^2$	–	–	–	–	–	–	–	–
1.92 – 2.15	$(5.878$	0.010	0.031	$0.127)\times10^2$	$(7.023$	0.040	0.058	$0.152)\times10^1$	8.369	0.050	0.082	0.244
2.15 – 2.40	$(5.121$	0.009	0.025	$0.102)\times10^2$	$(6.512$	0.034	0.047	$0.124)\times10^1$	7.863	0.044	0.069	0.206
2.40 – 2.67	$(4.386$	0.007	0.020	$0.083)\times10^2$	$(5.851$	0.029	0.039	$0.102)\times10^1$	7.496	0.039	0.061	0.181
2.67 – 2.97	$(3.737$	0.006	0.017	$0.065)\times10^2$	$(5.196$	0.024	0.033	$0.086)\times10^1$	7.192	0.035	0.057	0.164
2.97 – 3.29	$(3.165$	0.005	0.014	$0.053)\times10^2$	$(4.557$	0.020	0.027	$0.072)\times10^1$	6.946	0.032	0.052	0.152
3.29 – 3.64	$(2.652$	0.004	0.012	$0.043)\times10^2$	$(3.920$	0.017	0.022	$0.062)\times10^1$	6.765	0.031	0.049	0.144
3.64 – 4.02	$(2.209$	0.003	0.010	$0.035)\times10^2$	$(3.345$	0.014	0.017	$0.051)\times10^1$	6.604	0.029	0.046	0.137
4.02 – 4.43	$(1.827$	0.003	0.009	$0.028)\times10^2$	$(2.781$	0.011	0.014	$0.042)\times10^1$	6.570	0.029	0.045	0.133
4.43 – 4.88	$(1.500$	0.002	0.007	$0.023)\times10^2$	$(2.347$	0.009	0.011	$0.035)\times10^1$	6.389	0.027	0.042	0.127
4.88 – 5.37	$(1.224$	0.002	0.005	$0.018)\times10^2$	$(1.933$	0.007	0.009	$0.029)\times10^1$	6.330	0.026	0.040	0.124
5.37 – 5.90	$(9.947$	0.015	0.041	$0.142)\times10^1$	$(1.598$	0.006	0.007	$0.024)\times10^1$	6.224	0.026	0.037	0.119
5.90 – 6.47	$(8.071$	0.012	0.032	$0.114)\times10^1$	$(1.322$	0.005	0.006	$0.019)\times10^1$	6.104	0.025	0.036	0.115
6.47 – 7.09	$(6.540$	0.010	0.025	$0.091)\times10^1$	$(1.092$	0.004	0.005	$0.016)\times10^1$	5.987	0.025	0.035	0.112
7.09 – 7.76	$(5.294$	0.008	0.020	$0.073)\times10^1$	$(8.854$	0.034	0.039	$0.130)\times10^0$	5.979	0.025	0.035	0.111
7.76 – 8.48	$(4.269$	0.006	0.016	$0.059)\times10^1$	$(7.235$	0.028	0.033	$0.105)\times10^0$	5.900	0.025	0.035	0.109
8.48 – 9.26	$(3.431$	0.005	0.013	$0.047)\times10^1$	$(5.907$	0.024	0.028	$0.086)\times10^0$	5.808	0.025	0.035	0.106
9.26 – 10.1	$(2.760$	0.005	0.011	$0.038)\times10^1$	$(4.793$	0.020	0.023	$0.070)\times10^0$	5.757	0.026	0.036	0.105
10.1 – 11.0	$(2.211$	0.004	0.009	$0.030)\times10^1$	$(3.900$	0.017	0.020	$0.057)\times10^0$	5.670	0.027	0.037	0.104
11.0 – 12.0	$(1.774$	0.003	0.007	$0.024)\times10^1$	$(3.179$	0.015	0.017	$0.047)\times10^0$	5.581	0.028	0.038	0.102
12.0 – 13.0	$(1.426$	0.003	0.006	$0.020)\times10^1$	$(2.573$	0.013	0.014	$0.038)\times10^0$	5.542	0.030	0.039	0.102
13.0 – 14.1	$(1.155$	0.002	0.005	$0.016)\times10^1$	$(2.098$	0.011	0.012	$0.031)\times10^0$	5.505	0.031	0.041	0.103
14.1 – 15.3	$(9.338$	0.020	0.043	$0.132)\times10^0$	$(1.713$	0.009	0.011	$0.025)\times10^0$	5.450	0.031	0.042	0.102
15.3 – 16.6	$(7.476$	0.016	0.036	$0.107)\times10^0$	$(1.406$	0.008	0.009	$0.021)\times10^0$	5.316	0.031	0.043	0.100

Table continued

TABLE SM VII: Bartels Rotation 2432 (October 24, 2011 – November 19, 2011). *(Continued).*

Rigidity	Φ_p $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	Φ_{He} $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	p/He $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$
16.6 – 18.0	$(6.015\ 0.014\ 0.030\ 0.087)\times10^{0}$	$(1.121\ 0.006\ 0.008\ 0.017)\times10^{0}$	5.368 0.033 0.045 0.102
18.0 – 19.5	$(4.833\ 0.011\ 0.025\ 0.071)\times10^{0}$	$(9.310\ 0.054\ 0.067\ 0.144)\times10^{-1}$	5.191 0.032 0.046 0.100
19.5 – 21.1	$(3.863\ 0.009\ 0.020\ 0.058)\times10^{0}$	$(7.481\ 0.045\ 0.056\ 0.117)\times10^{-1}$	5.163 0.033 0.047 0.099
21.1 – 22.8	$(3.133\ 0.008\ 0.017\ 0.047)\times10^{0}$	$(6.153\ 0.037\ 0.047\ 0.097)\times10^{-1}$	5.092 0.033 0.048 0.099
22.8 – 24.7	$(2.521\ 0.006\ 0.014\ 0.038)\times10^{0}$	$(4.974\ 0.031\ 0.039\ 0.078)\times10^{-1}$	5.069 0.034 0.048 0.099
24.7 – 26.7	$(2.025\ 0.005\ 0.012\ 0.031)\times10^{0}$	$(4.079\ 0.026\ 0.032\ 0.064)\times10^{-1}$	4.963 0.035 0.049 0.097
26.7 – 28.8	$(1.639\ 0.005\ 0.010\ 0.025)\times10^{0}$	$(3.305\ 0.023\ 0.027\ 0.052)\times10^{-1}$	4.959 0.037 0.050 0.098
28.8 – 31.1	$(1.330\ 0.004\ 0.008\ 0.021)\times10^{0}$	$(2.677\ 0.019\ 0.022\ 0.043)\times10^{-1}$	4.968 0.039 0.051 0.099
31.1 – 33.5	$(1.070\ 0.003\ 0.007\ 0.017)\times10^{0}$	$(2.208\ 0.017\ 0.019\ 0.036)\times10^{-1}$	4.845 0.041 0.051 0.097
33.5 – 36.1	$(8.710\ 0.030\ 0.056\ 0.135)\times10^{-1}$	$(1.819\ 0.015\ 0.016\ 0.030)\times10^{-1}$	4.789 0.043 0.052 0.097
36.1 – 38.9	$(7.049\ 0.026\ 0.047\ 0.110)\times10^{-1}$	$(1.456\ 0.013\ 0.013\ 0.024)\times10^{-1}$	4.840 0.047 0.053 0.099
38.9 – 41.9	$(5.755\ 0.022\ 0.039\ 0.090)\times10^{-1}$	$(1.190\ 0.011\ 0.011\ 0.019)\times10^{-1}$	4.836 0.050 0.054 0.100
41.9 – 45.1	$(4.675\ 0.020\ 0.033\ 0.074)\times10^{-1}$	$(9.823\ 0.099\ 0.090\ 0.164)\times10^{-2}$	4.760 0.052 0.055 0.099
45.1 – 48.5	$(3.812\ 0.017\ 0.027\ 0.061)\times10^{-1}$	$(8.085\ 0.087\ 0.076\ 0.136)\times10^{-2}$	4.714 0.055 0.055 0.099
48.5 – 52.2	$(3.101\ 0.015\ 0.023\ 0.051)\times10^{-1}$	$(6.532\ 0.074\ 0.062\ 0.111)\times10^{-2}$	4.748 0.059 0.057 0.100
52.2 – 56.1	$(2.531\ 0.013\ 0.019\ 0.042)\times10^{-1}$	$(5.495\ 0.066\ 0.053\ 0.094)\times10^{-2}$	4.605 0.060 0.056 0.098
56.1 – 60.3	$(2.085\ 0.011\ 0.016\ 0.035)\times10^{-1}$	$(4.377\ 0.057\ 0.043\ 0.075)\times10^{-2}$	4.764 0.067 0.059 0.102

TABLE SM VIII: Bartels Rotation 2433 (November 20, 2011 – December 16, 2011). The proton flux Φ_p, helium flux Φ_{He}, and p/He flux ratio as a function of rigidity (in units of GV) at the top of AMS in units of $[\mathrm{m}^2 \cdot \mathrm{sr} \cdot \mathrm{s} \cdot \mathrm{GV}]^{-1}$ including errors due to statistics ($\sigma_{\mathrm{stat.}}$), time dependent systematic errors (σ_{time}) and the total systematic error ($\sigma_{\mathrm{syst.}}$). Contributions to the time dependent systematic errors are from: the trigger and the reconstruction efficiency. Contributions to the total systematic error are from: the acceptance, the background contamination, the geomagnetic cutoff factor, the event selection, the unfolding, the rigidity resolution function, the absolute rigidity scale, and the time dependent systematic errors. The statistical errors for the ratio are the sum in quadrature of the relative statistical errors of the fluxes multiplied by the ratio. The time dependent systematic errors for the ratio are the sum in quadrature of the relative time dependent systematic errors of the fluxes multiplied by the ratio. The systematic errors from the acceptance for the ratio are added in quadrature. The correlations in the systematic errors from the unfolding and the absolute rigidity scale between the fluxes have been accounted for in calculating the corresponding systematic errors of the ratio. The contributions of the individual sources to the systematic error are added in quadrature to arrive at the total systematic uncertainty on the ratio.

Rigidity	Φ_p	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	Φ_{He}	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	p/He	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$
1.00 – 1.16	$(8.790$	0.039	0.122	$0.392)\times10^2$	–	–	–	–	–	–	–	–
1.16 – 1.33	$(8.637$	0.025	0.088	$0.307)\times10^2$	–	–	–	–	–	–	–	–
1.33 – 1.51	$(8.193$	0.021	0.064	$0.235)\times10^2$	–	–	–	–	–	–	–	–
1.51 – 1.71	$(7.663$	0.015	0.050	$0.200)\times10^2$	–	–	–	–	–	–	–	–
1.71 – 1.92	$(6.921$	0.013	0.040	$0.163)\times10^2$	–	–	–	–	–	–	–	–
1.92 – 2.15	$(6.127$	0.011	0.032	$0.132)\times10^2$	$(7.259$	0.042	0.060	$0.157)\times10^1$	8.441	0.051	0.082	0.246
2.15 – 2.40	$(5.316$	0.009	0.026	$0.106)\times10^2$	$(6.821$	0.036	0.049	$0.130)\times10^1$	7.794	0.043	0.068	0.204
2.40 – 2.67	$(4.589$	0.008	0.021	$0.087)\times10^2$	$(6.163$	0.030	0.041	$0.107)\times10^1$	7.447	0.038	0.061	0.180
2.67 – 2.97	$(3.904$	0.006	0.018	$0.068)\times10^2$	$(5.437$	0.025	0.035	$0.090)\times10^1$	7.181	0.035	0.057	0.163
2.97 – 3.29	$(3.301$	0.005	0.015	$0.055)\times10^2$	$(4.795$	0.021	0.029	$0.076)\times10^1$	6.885	0.032	0.052	0.150
3.29 – 3.64	$(2.760$	0.004	0.013	$0.045)\times10^2$	$(4.087$	0.017	0.023	$0.064)\times10^1$	6.754	0.031	0.049	0.143
3.64 – 4.02	$(2.291$	0.004	0.011	$0.036)\times10^2$	$(3.468$	0.015	0.018	$0.053)\times10^1$	6.608	0.030	0.046	0.137
4.02 – 4.43	$(1.889$	0.003	0.009	$0.029)\times10^2$	$(2.918$	0.012	0.014	$0.044)\times10^1$	6.473	0.028	0.044	0.131
4.43 – 4.88	$(1.548$	0.002	0.007	$0.024)\times10^2$	$(2.437$	0.009	0.012	$0.037)\times10^1$	6.353	0.026	0.042	0.127
4.88 – 5.37	$(1.262$	0.002	0.006	$0.018)\times10^2$	$(2.009$	0.008	0.009	$0.030)\times10^1$	6.284	0.026	0.040	0.123
5.37 – 5.90	$(1.025$	0.002	0.004	$0.015)\times10^2$	$(1.659$	0.006	0.007	$0.025)\times10^1$	6.181	0.026	0.037	0.119
5.90 – 6.47	$(8.285$	0.012	0.033	$0.117)\times10^1$	$(1.356$	0.005	0.006	$0.020)\times10^1$	6.108	0.025	0.036	0.115
6.47 – 7.09	$(6.712$	0.010	0.026	$0.094)\times10^1$	$(1.106$	0.004	0.005	$0.016)\times10^1$	6.070	0.025	0.036	0.114
7.09 – 7.76	$(5.382$	0.008	0.021	$0.075)\times10^1$	$(9.105$	0.035	0.040	$0.133)\times10^0$	5.910	0.025	0.035	0.109
7.76 – 8.48	$(4.355$	0.007	0.017	$0.060)\times10^1$	$(7.379$	0.029	0.034	$0.107)\times10^0$	5.902	0.025	0.035	0.109
8.48 – 9.26	$(3.512$	0.006	0.014	$0.048)\times10^1$	$(6.037$	0.025	0.028	$0.088)\times10^0$	5.818	0.026	0.036	0.107
9.26 – 10.1	$(2.812$	0.005	0.011	$0.038)\times10^1$	$(4.884$	0.021	0.024	$0.072)\times10^0$	5.758	0.026	0.037	0.106
10.1 – 11.0	$(2.251$	0.004	0.009	$0.031)\times10^1$	$(3.967$	0.018	0.020	$0.058)\times10^0$	5.673	0.027	0.037	0.104
11.0 – 12.0	$(1.808$	0.003	0.008	$0.025)\times10^1$	$(3.209$	0.015	0.017	$0.048)\times10^0$	5.633	0.028	0.039	0.103
12.0 – 13.0	$(1.451$	0.003	0.006	$0.020)\times10^1$	$(2.622$	0.013	0.015	$0.039)\times10^0$	5.534	0.030	0.039	0.102
13.0 – 14.1	$(1.172$	0.002	0.005	$0.017)\times10^1$	$(2.138$	0.011	0.013	$0.032)\times10^0$	5.483	0.031	0.041	0.102
14.1 – 15.3	$(9.458$	0.020	0.044	$0.134)\times10^0$	$(1.733$	0.009	0.011	$0.026)\times10^0$	5.459	0.032	0.043	0.102
15.3 – 16.6	$(7.594$	0.017	0.037	$0.109)\times10^0$	$(1.414$	0.008	0.009	$0.022)\times10^0$	5.372	0.032	0.044	0.102

Table continued

TABLE SM VIII: Bartels Rotation 2433 (November 20, 2011 – December 16, 2011). *(Continued).*

Rigidity	Φ_p $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	Φ_{He} $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	p/He $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$
16.6 – 18.0	$(6.094\ 0.014\ 0.031\ 0.089)\times10^{0}$	$(1.148\ 0.007\ 0.008\ 0.018)\times10^{0}$	5.309 0.033 0.045 0.101
18.0 – 19.5	$(4.914\ 0.011\ 0.025\ 0.073)\times10^{0}$	$(9.338\ 0.054\ 0.068\ 0.145)\times10^{-1}$	5.262 0.033 0.047 0.101
19.5 – 21.1	$(3.956\ 0.009\ 0.021\ 0.059)\times10^{0}$	$(7.503\ 0.045\ 0.057\ 0.117)\times10^{-1}$	5.273 0.034 0.049 0.102
21.1 – 22.8	$(3.192\ 0.008\ 0.018\ 0.048)\times10^{0}$	$(6.207\ 0.038\ 0.048\ 0.098)\times10^{-1}$	5.143 0.034 0.049 0.100
22.8 – 24.7	$(2.556\ 0.006\ 0.015\ 0.039)\times10^{0}$	$(5.091\ 0.032\ 0.040\ 0.081)\times10^{-1}$	5.019 0.034 0.049 0.099
24.7 – 26.7	$(2.045\ 0.005\ 0.012\ 0.032)\times10^{0}$	$(4.101\ 0.027\ 0.033\ 0.065)\times10^{-1}$	4.988 0.035 0.050 0.098
26.7 – 28.8	$(1.656\ 0.005\ 0.010\ 0.025)\times10^{0}$	$(3.355\ 0.024\ 0.028\ 0.054)\times10^{-1}$	4.936 0.037 0.051 0.098
28.8 – 31.1	$(1.336\ 0.004\ 0.008\ 0.021)\times10^{0}$	$(2.728\ 0.020\ 0.023\ 0.044)\times10^{-1}$	4.898 0.039 0.051 0.098
31.1 – 33.5	$(1.077\ 0.004\ 0.007\ 0.017)\times10^{0}$	$(2.225\ 0.018\ 0.019\ 0.036)\times10^{-1}$	4.842 0.042 0.052 0.098
33.5 – 36.1	$(8.762\ 0.031\ 0.057\ 0.137)\times10^{-1}$	$(1.789\ 0.015\ 0.016\ 0.030)\times10^{-1}$	4.897 0.045 0.054 0.100
36.1 – 38.9	$(7.147\ 0.027\ 0.048\ 0.112)\times10^{-1}$	$(1.487\ 0.013\ 0.014\ 0.025)\times10^{-1}$	4.808 0.047 0.054 0.099
38.9 – 41.9	$(5.801\ 0.023\ 0.040\ 0.091)\times10^{-1}$	$(1.205\ 0.012\ 0.011\ 0.020)\times10^{-1}$	4.813 0.050 0.056 0.100
41.9 – 45.1	$(4.710\ 0.020\ 0.033\ 0.075)\times10^{-1}$	$(9.792\ 0.101\ 0.094\ 0.166)\times10^{-2}$	4.810 0.054 0.057 0.101
45.1 – 48.5	$(3.824\ 0.018\ 0.028\ 0.062)\times10^{-1}$	$(8.127\ 0.089\ 0.080\ 0.139)\times10^{-2}$	4.705 0.056 0.057 0.100
48.5 – 52.2	$(3.120\ 0.015\ 0.023\ 0.051)\times10^{-1}$	$(6.618\ 0.077\ 0.067\ 0.114)\times10^{-2}$	4.714 0.059 0.059 0.101
52.2 – 56.1	$(2.556\ 0.013\ 0.019\ 0.043)\times10^{-1}$	$(5.384\ 0.067\ 0.055\ 0.094)\times10^{-2}$	4.749 0.064 0.061 0.102
56.1 – 60.3	$(2.075\ 0.012\ 0.016\ 0.035)\times10^{-1}$	$(4.502\ 0.059\ 0.047\ 0.079)\times10^{-2}$	4.609 0.065 0.060 0.100

TABLE SM IX: Bartels Rotation 2434 (December 17, 2011 – January 12, 2012). The proton flux Φ_p, helium flux Φ_{He}, and p/He flux ratio as a function of rigidity (in units of GV) at the top of AMS in units of $[\mathrm{m}^2 \cdot \mathrm{sr} \cdot \mathrm{s} \cdot \mathrm{GV}]^{-1}$ including errors due to statistics ($\sigma_{\mathrm{stat.}}$), time dependent systematic errors (σ_{time}) and the total systematic error ($\sigma_{\mathrm{syst.}}$). Contributions to the time dependent systematic errors are from: the trigger and the reconstruction efficiency. Contributions to the total systematic error are from: the acceptance, the background contamination, the geomagnetic cutoff factor, the event selection, the unfolding, the rigidity resolution function, the absolute rigidity scale, and the time dependent systematic errors. The statistical errors for the ratio are the sum in quadrature of the relative statistical errors of the fluxes multiplied by the ratio. The time dependent systematic errors for the ratio are the sum in quadrature of the relative time dependent systematic errors of the fluxes multiplied by the ratio. The systematic errors from the acceptance for the ratio are added in quadrature. The correlations in the systematic errors from the unfolding and the absolute rigidity scale between the fluxes have been accounted for in calculating the corresponding systematic errors of the ratio. The contributions of the individual sources to the systematic error are added in quadrature to arrive at the total systematic uncertainty on the ratio.

Rigidity	Φ_p $\sigma_{\mathrm{stat.}}$ σ_{time} $\sigma_{\mathrm{syst.}}$	Φ_{He} $\sigma_{\mathrm{stat.}}$ σ_{time} $\sigma_{\mathrm{syst.}}$	p/He $\sigma_{\mathrm{stat.}}$ σ_{time} $\sigma_{\mathrm{syst.}}$
1.00 – 1.16	$(8.982\ 0.042\ 0.119\ 0.399)\times10^2$	– – – –	– – – –
1.16 – 1.33	$(8.826\ 0.025\ 0.085\ 0.312)\times10^2$	– – – –	– – – –
1.33 – 1.51	$(8.357\ 0.021\ 0.062\ 0.239)\times10^2$	– – – –	– – – –
1.51 – 1.71	$(7.797\ 0.015\ 0.048\ 0.202)\times10^2$	– – – –	– – – –
1.71 – 1.92	$(7.007\ 0.013\ 0.038\ 0.165)\times10^2$	– – – –	– – – –
1.92 – 2.15	$(6.166\ 0.011\ 0.030\ 0.132)\times10^2$	$(7.459\ 0.042\ 0.054\ 0.159)\times10^1$	8.266 0.048 0.072 0.238
2.15 – 2.40	$(5.355\ 0.009\ 0.024\ 0.107)\times10^2$	$(6.951\ 0.036\ 0.044\ 0.130)\times10^1$	7.704 0.041 0.060 0.199
2.40 – 2.67	$(4.608\ 0.007\ 0.020\ 0.087)\times10^2$	$(6.189\ 0.030\ 0.037\ 0.106)\times10^1$	7.445 0.037 0.055 0.178
2.67 – 2.97	$(3.913\ 0.006\ 0.017\ 0.068)\times10^2$	$(5.548\ 0.025\ 0.032\ 0.090)\times10^1$	7.052 0.034 0.050 0.159
2.97 – 3.29	$(3.297\ 0.005\ 0.014\ 0.055)\times10^2$	$(4.833\ 0.021\ 0.026\ 0.076)\times10^1$	6.821 0.031 0.046 0.147
3.29 – 3.64	$(2.766\ 0.004\ 0.012\ 0.044)\times10^2$	$(4.080\ 0.017\ 0.020\ 0.063)\times10^1$	6.780 0.030 0.044 0.142
3.64 – 4.02	$(2.290\ 0.003\ 0.010\ 0.036)\times10^2$	$(3.500\ 0.014\ 0.016\ 0.053)\times10^1$	6.544 0.029 0.042 0.134
4.02 – 4.43	$(1.894\ 0.003\ 0.008\ 0.029)\times10^2$	$(2.917\ 0.012\ 0.013\ 0.044)\times10^1$	6.492 0.028 0.041 0.130
4.43 – 4.88	$(1.551\ 0.002\ 0.007\ 0.023)\times10^2$	$(2.432\ 0.009\ 0.010\ 0.036)\times10^1$	6.380 0.026 0.039 0.126
4.88 – 5.37	$(1.265\ 0.002\ 0.005\ 0.018)\times10^2$	$(2.003\ 0.008\ 0.008\ 0.029)\times10^1$	6.314 0.026 0.036 0.123
5.37 – 5.90	$(1.025\ 0.001\ 0.004\ 0.015)\times10^2$	$(1.667\ 0.006\ 0.006\ 0.024)\times10^1$	6.148 0.025 0.034 0.117
5.90 – 6.47	$(8.302\ 0.012\ 0.031\ 0.116)\times10^1$	$(1.366\ 0.005\ 0.005\ 0.020)\times10^1$	6.078 0.025 0.032 0.114
6.47 – 7.09	$(6.721\ 0.010\ 0.025\ 0.094)\times10^1$	$(1.112\ 0.004\ 0.004\ 0.016)\times10^1$	6.042 0.025 0.032 0.112
7.09 – 7.76	$(5.412\ 0.008\ 0.020\ 0.075)\times10^1$	$(9.150\ 0.035\ 0.036\ 0.133)\times10^0$	5.915 0.024 0.031 0.109
7.76 – 8.48	$(4.384\ 0.007\ 0.016\ 0.061)\times10^1$	$(7.478\ 0.029\ 0.030\ 0.108)\times10^0$	5.862 0.025 0.032 0.107
8.48 – 9.26	$(3.505\ 0.006\ 0.013\ 0.048)\times10^1$	$(6.075\ 0.025\ 0.025\ 0.088)\times10^0$	5.769 0.025 0.032 0.105
9.26 – 10.1	$(2.822\ 0.005\ 0.011\ 0.038)\times10^1$	$(4.907\ 0.021\ 0.021\ 0.071)\times10^0$	5.750 0.026 0.033 0.104
10.1 – 11.0	$(2.262\ 0.004\ 0.009\ 0.031)\times10^1$	$(4.001\ 0.018\ 0.018\ 0.058)\times10^0$	5.653 0.027 0.034 0.102
11.0 – 12.0	$(1.811\ 0.003\ 0.007\ 0.025)\times10^1$	$(3.249\ 0.015\ 0.015\ 0.048)\times10^0$	5.574 0.028 0.034 0.101
12.0 – 13.0	$(1.453\ 0.003\ 0.006\ 0.020)\times10^1$	$(2.625\ 0.013\ 0.013\ 0.039)\times10^0$	5.534 0.030 0.036 0.101
13.0 – 14.1	$(1.179\ 0.002\ 0.005\ 0.017)\times10^1$	$(2.129\ 0.011\ 0.011\ 0.031)\times10^0$	5.537 0.031 0.037 0.102
14.1 – 15.3	$(9.463\ 0.020\ 0.042\ 0.133)\times10^0$	$(1.742\ 0.009\ 0.009\ 0.025)\times10^0$	5.433 0.031 0.038 0.100
15.3 – 16.6	$(7.595\ 0.017\ 0.035\ 0.108)\times10^0$	$(1.420\ 0.008\ 0.008\ 0.021)\times10^0$	5.349 0.032 0.039 0.099

Table continued

TABLE SM IX: Bartels Rotation 2434 (December 17, 2011 – January 12, 2012). *(Continued).*

Rigidity	Φ_p $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	Φ_{He} $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	p/He $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$
16.6 – 18.0	$(6.126\ 0.014\ 0.029\ 0.088)\times10^{0}$	$(1.160\ 0.007\ 0.007\ 0.018)\times10^{0}$	5.280 0.032 0.041 0.099
18.0 – 19.5	$(4.904\ 0.011\ 0.024\ 0.072)\times10^{0}$	$(9.390\ 0.054\ 0.059\ 0.142)\times10^{-1}$	5.222 0.032 0.042 0.098
19.5 – 21.1	$(3.948\ 0.009\ 0.020\ 0.059)\times10^{0}$	$(7.598\ 0.045\ 0.051\ 0.116)\times10^{-1}$	5.196 0.033 0.043 0.098
21.1 – 22.8	$(3.187\ 0.008\ 0.017\ 0.048)\times10^{0}$	$(6.146\ 0.038\ 0.042\ 0.094)\times10^{-1}$	5.185 0.034 0.045 0.099
22.8 – 24.7	$(2.554\ 0.006\ 0.014\ 0.038)\times10^{0}$	$(5.081\ 0.031\ 0.036\ 0.078)\times10^{-1}$	5.026 0.033 0.045 0.097
24.7 – 26.7	$(2.046\ 0.005\ 0.011\ 0.031)\times10^{0}$	$(4.093\ 0.027\ 0.030\ 0.063)\times10^{-1}$	5.000 0.035 0.046 0.097
26.7 – 28.8	$(1.657\ 0.005\ 0.010\ 0.025)\times10^{0}$	$(3.358\ 0.023\ 0.025\ 0.052)\times10^{-1}$	4.934 0.037 0.047 0.096
28.8 – 31.1	$(1.341\ 0.004\ 0.008\ 0.021)\times10^{0}$	$(2.709\ 0.020\ 0.021\ 0.043)\times10^{-1}$	4.948 0.039 0.048 0.097
31.1 – 33.5	$(1.084\ 0.004\ 0.007\ 0.017)\times10^{0}$	$(2.246\ 0.018\ 0.018\ 0.036)\times10^{-1}$	4.825 0.041 0.049 0.096
33.5 – 36.1	$(8.791\ 0.031\ 0.055\ 0.136)\times10^{-1}$	$(1.780\ 0.015\ 0.015\ 0.029)\times10^{-1}$	4.940 0.045 0.052 0.099
36.1 – 38.9	$(7.159\ 0.027\ 0.046\ 0.111)\times10^{-1}$	$(1.466\ 0.013\ 0.013\ 0.024)\times10^{-1}$	4.885 0.048 0.053 0.099
38.9 – 41.9	$(5.782\ 0.023\ 0.038\ 0.090)\times10^{-1}$	$(1.227\ 0.012\ 0.011\ 0.020)\times10^{-1}$	4.713 0.048 0.053 0.097
41.9 – 45.1	$(4.735\ 0.020\ 0.032\ 0.075)\times10^{-1}$	$(9.975\ 0.101\ 0.093\ 0.167)\times10^{-2}$	4.747 0.052 0.055 0.098
45.1 – 48.5	$(3.873\ 0.018\ 0.027\ 0.062)\times10^{-1}$	$(8.152\ 0.089\ 0.078\ 0.139)\times10^{-2}$	4.752 0.056 0.056 0.100
48.5 – 52.2	$(3.131\ 0.015\ 0.022\ 0.051)\times10^{-1}$	$(6.675\ 0.077\ 0.066\ 0.115)\times10^{-2}$	4.691 0.058 0.057 0.100
52.2 – 56.1	$(2.579\ 0.013\ 0.019\ 0.043)\times10^{-1}$	$(5.367\ 0.067\ 0.055\ 0.093)\times10^{-2}$	4.805 0.065 0.060 0.103
56.1 – 60.3	$(2.078\ 0.012\ 0.015\ 0.035)\times10^{-1}$	$(4.527\ 0.059\ 0.047\ 0.079)\times10^{-2}$	4.591 0.065 0.059 0.099

TABLE SM X: Bartels Rotation 2435 (January 13, 2012 – February 8, 2012). The proton flux Φ_p, helium flux Φ_{He}, and p/He flux ratio as a function of rigidity (in units of GV) at the top of AMS in units of $[\mathrm{m}^2 \cdot \mathrm{sr} \cdot \mathrm{s} \cdot \mathrm{GV}]^{-1}$ including errors due to statistics ($\sigma_{\mathrm{stat.}}$), time dependent systematic errors (σ_{time}) and the total systematic error ($\sigma_{\mathrm{syst.}}$). Contributions to the time dependent systematic errors are from: the trigger and the reconstruction efficiency. Contributions to the total systematic error are from: the acceptance, the background contamination, the geomagnetic cutoff factor, the event selection, the unfolding, the rigidity resolution function, the absolute rigidity scale, and the time dependent systematic errors. The statistical errors for the ratio are the sum in quadrature of the relative statistical errors of the fluxes multiplied by the ratio. The time dependent systematic errors for the ratio are the sum in quadrature of the relative time dependent systematic errors of the fluxes multiplied by the ratio. The systematic errors from the acceptance for the ratio are added in quadrature. The correlations in the systematic errors from the unfolding and the absolute rigidity scale between the fluxes have been accounted for in calculating the corresponding systematic errors of the ratio. The contributions of the individual sources to the systematic error are added in quadrature to arrive at the total systematic uncertainty on the ratio.

Rigidity	Φ_p	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	Φ_{He}	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	p/He	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$
1.00 – 1.16	$(8.648$	0.044	0.119	$0.385)\times10^2$	–	–	–	–	–	–	–	–
1.16 – 1.33	$(8.449$	0.026	0.084	$0.300)\times10^2$	–	–	–	–	–	–	–	–
1.33 – 1.51	$(8.036$	0.022	0.061	$0.230)\times10^2$	–	–	–	–	–	–	–	–
1.51 – 1.71	$(7.422$	0.016	0.046	$0.193)\times10^2$	–	–	–	–	–	–	–	–
1.71 – 1.92	$(6.674$	0.013	0.036	$0.157)\times10^2$	–	–	–	–	–	–	–	–
1.92 – 2.15	$(5.910$	0.011	0.029	$0.127)\times10^2$	$(7.182$	0.042	0.061	$0.156)\times10^1$	8.228	0.050	0.080	0.240
2.15 – 2.40	$(5.134$	0.009	0.023	$0.102)\times10^2$	$(6.636$	0.036	0.049	$0.127)\times10^1$	7.737	0.044	0.067	0.202
2.40 – 2.67	$(4.414$	0.007	0.019	$0.083)\times10^2$	$(5.955$	0.030	0.041	$0.104)\times10^1$	7.412	0.039	0.060	0.179
2.67 – 2.97	$(3.764$	0.006	0.016	$0.066)\times10^2$	$(5.301$	0.025	0.035	$0.088)\times10^1$	7.100	0.035	0.055	0.161
2.97 – 3.29	$(3.170$	0.005	0.013	$0.053)\times10^2$	$(4.612$	0.021	0.028	$0.074)\times10^1$	6.874	0.033	0.051	0.150
3.29 – 3.64	$(2.664$	0.004	0.011	$0.043)\times10^2$	$(3.973$	0.017	0.022	$0.062)\times10^1$	6.706	0.031	0.047	0.142
3.64 – 4.02	$(2.215$	0.003	0.010	$0.035)\times10^2$	$(3.366$	0.014	0.018	$0.052)\times10^1$	6.581	0.030	0.045	0.136
4.02 – 4.43	$(1.832$	0.003	0.008	$0.028)\times10^2$	$(2.830$	0.012	0.014	$0.043)\times10^1$	6.472	0.029	0.043	0.131
4.43 – 4.88	$(1.502$	0.002	0.006	$0.023)\times10^2$	$(2.350$	0.009	0.011	$0.035)\times10^1$	6.390	0.027	0.041	0.127
4.88 – 5.37	$(1.226$	0.002	0.005	$0.018)\times10^2$	$(1.961$	0.008	0.009	$0.029)\times10^1$	6.250	0.026	0.038	0.122
5.37 – 5.90	$(9.977$	0.015	0.039	$0.142)\times10^1$	$(1.616$	0.006	0.007	$0.024)\times10^1$	6.175	0.026	0.036	0.118
5.90 – 6.47	$(8.077$	0.012	0.030	$0.113)\times10^1$	$(1.323$	0.005	0.006	$0.019)\times10^1$	6.105	0.026	0.035	0.115
6.47 – 7.09	$(6.541$	0.010	0.024	$0.091)\times10^1$	$(1.086$	0.004	0.005	$0.016)\times10^1$	6.021	0.025	0.034	0.112
7.09 – 7.76	$(5.288$	0.008	0.019	$0.073)\times10^1$	$(8.923$	0.035	0.039	$0.131)\times10^0$	5.927	0.025	0.033	0.109
7.76 – 8.48	$(4.268$	0.007	0.015	$0.059)\times10^1$	$(7.267$	0.029	0.033	$0.106)\times10^0$	5.873	0.025	0.034	0.108
8.48 – 9.26	$(3.423$	0.005	0.013	$0.047)\times10^1$	$(5.928$	0.024	0.027	$0.087)\times10^0$	5.774	0.025	0.034	0.105
9.26 – 10.1	$(2.753$	0.005	0.010	$0.037)\times10^1$	$(4.834$	0.021	0.023	$0.071)\times10^0$	5.694	0.026	0.035	0.104
10.1 – 11.0	$(2.213$	0.004	0.008	$0.030)\times10^1$	$(3.918$	0.018	0.020	$0.057)\times10^0$	5.649	0.027	0.036	0.103
11.0 – 12.0	$(1.782$	0.003	0.007	$0.024)\times10^1$	$(3.156$	0.015	0.017	$0.047)\times10^0$	5.648	0.028	0.037	0.103
12.0 – 13.0	$(1.433$	0.003	0.006	$0.020)\times10^1$	$(2.596$	0.013	0.014	$0.039)\times10^0$	5.520	0.030	0.038	0.102
13.0 – 14.1	$(1.158$	0.002	0.005	$0.016)\times10^1$	$(2.131$	0.011	0.012	$0.032)\times10^0$	5.435	0.030	0.039	0.101
14.1 – 15.3	$(9.339$	0.020	0.040	$0.131)\times10^0$	$(1.723$	0.009	0.010	$0.025)\times10^0$	5.422	0.031	0.040	0.101
15.3 – 16.6	$(7.512$	0.017	0.034	$0.107)\times10^0$	$(1.407$	0.008	0.009	$0.021)\times10^0$	5.338	0.032	0.041	0.100

Table continued

TABLE SM X: Bartels Rotation 2435 (January 13, 2012 – February 8, 2012). *(Continued).*

Rigidity	Φ_p $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	Φ_{He} $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	p/He $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$
16.6 – 18.0	$(6.005\ 0.014\ 0.028\ 0.086)\times10^{0}$	$(1.131\ 0.006\ 0.008\ 0.018)\times10^{0}$	5.308 0.033 0.043 0.101
18.0 – 19.5	$(4.852\ 0.011\ 0.023\ 0.071)\times10^{0}$	$(9.212\ 0.054\ 0.065\ 0.142)\times10^{-1}$	5.267 0.033 0.045 0.100
19.5 – 21.1	$(3.903\ 0.009\ 0.019\ 0.058)\times10^{0}$	$(7.440\ 0.045\ 0.055\ 0.116)\times10^{-1}$	5.246 0.034 0.046 0.100
21.1 – 22.8	$(3.159\ 0.008\ 0.016\ 0.047)\times10^{0}$	$(6.089\ 0.038\ 0.046\ 0.095)\times10^{-1}$	5.188 0.034 0.047 0.100
22.8 – 24.7	$(2.542\ 0.006\ 0.013\ 0.038)\times10^{0}$	$(5.021\ 0.031\ 0.038\ 0.079)\times10^{-1}$	5.062 0.034 0.047 0.098
24.7 – 26.7	$(2.037\ 0.005\ 0.011\ 0.031)\times10^{0}$	$(4.063\ 0.027\ 0.032\ 0.064)\times10^{-1}$	5.013 0.036 0.048 0.098
26.7 – 28.8	$(1.646\ 0.005\ 0.009\ 0.025)\times10^{0}$	$(3.318\ 0.023\ 0.027\ 0.053)\times10^{-1}$	4.961 0.038 0.049 0.097
28.8 – 31.1	$(1.340\ 0.004\ 0.008\ 0.021)\times10^{0}$	$(2.696\ 0.020\ 0.022\ 0.043)\times10^{-1}$	4.969 0.040 0.050 0.098
31.1 – 33.5	$(1.072\ 0.004\ 0.006\ 0.017)\times10^{0}$	$(2.229\ 0.018\ 0.019\ 0.036)\times10^{-1}$	4.811 0.041 0.050 0.096
33.5 – 36.1	$(8.732\ 0.030\ 0.053\ 0.134)\times10^{-1}$	$(1.792\ 0.015\ 0.016\ 0.030)\times10^{-1}$	4.872 0.045 0.052 0.098
36.1 – 38.9	$(7.115\ 0.026\ 0.044\ 0.110)\times10^{-1}$	$(1.454\ 0.013\ 0.013\ 0.024)\times10^{-1}$	4.894 0.048 0.053 0.100
38.9 – 41.9	$(5.744\ 0.023\ 0.037\ 0.089)\times10^{-1}$	$(1.195\ 0.011\ 0.011\ 0.019)\times10^{-1}$	4.805 0.050 0.054 0.099
41.9 – 45.1	$(4.664\ 0.020\ 0.030\ 0.073)\times10^{-1}$	$(9.767\ 0.100\ 0.092\ 0.164)\times10^{-2}$	4.775 0.053 0.055 0.099
45.1 – 48.5	$(3.822\ 0.018\ 0.026\ 0.061)\times10^{-1}$	$(7.958\ 0.087\ 0.077\ 0.135)\times10^{-2}$	4.802 0.057 0.056 0.101
48.5 – 52.2	$(3.131\ 0.015\ 0.021\ 0.051)\times10^{-1}$	$(6.605\ 0.076\ 0.065\ 0.113)\times10^{-2}$	4.741 0.059 0.057 0.100
52.2 – 56.1	$(2.549\ 0.013\ 0.018\ 0.042)\times10^{-1}$	$(5.438\ 0.067\ 0.055\ 0.094)\times10^{-2}$	4.687 0.063 0.058 0.099
56.1 – 60.3	$(2.084\ 0.012\ 0.015\ 0.035)\times10^{-1}$	$(4.377\ 0.058\ 0.045\ 0.076)\times10^{-2}$	4.761 0.068 0.060 0.102

TABLE SM XI: Bartels Rotation 2436 (February 9, 2012 – March 6, 2012). The proton flux Φ_p, helium flux Φ_{He}, and p/He flux ratio as a function of rigidity (in units of GV) at the top of AMS in units of $[\mathrm{m}^2 \cdot \mathrm{sr} \cdot \mathrm{s} \cdot \mathrm{GV}]^{-1}$ including errors due to statistics ($\sigma_{\mathrm{stat.}}$), time dependent systematic errors (σ_{time}) and the total systematic error ($\sigma_{\mathrm{syst.}}$). Contributions to the time dependent systematic errors are from: the trigger and the reconstruction efficiency. Contributions to the total systematic error are from: the acceptance, the background contamination, the geomagnetic cutoff factor, the event selection, the unfolding, the rigidity resolution function, the absolute rigidity scale, and the time dependent systematic errors. The statistical errors for the ratio are the sum in quadrature of the relative statistical errors of the fluxes multiplied by the ratio. The time dependent systematic errors for the ratio are the sum in quadrature of the relative time dependent systematic errors of the fluxes multiplied by the ratio. The systematic errors from the acceptance for the ratio are added in quadrature. The correlations in the systematic errors from the unfolding and the absolute rigidity scale between the fluxes have been accounted for in calculating the corresponding systematic errors of the ratio. The contributions of the individual sources to the systematic error are added in quadrature to arrive at the total systematic uncertainty on the ratio.

Rigidity	Φ_p	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	Φ_{He}	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	p/He	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$
1.00 – 1.16	$(8.394$	0.040	0.111	$0.373)\times10^2$	–	–	–	–	–	–	–	–
1.16 – 1.33	$(8.217$	0.024	0.079	$0.291)\times10^2$	–	–	–	–	–	–	–	–
1.33 – 1.51	$(7.813$	0.021	0.058	$0.223)\times10^2$	–	–	–	–	–	–	–	–
1.51 – 1.71	$(7.263$	0.015	0.045	$0.188)\times10^2$	–	–	–	–	–	–	–	–
1.71 – 1.92	$(6.525$	0.013	0.035	$0.153)\times10^2$	–	–	–	–	–	–	–	–
1.92 – 2.15	$(5.791$	0.010	0.028	$0.124)\times10^2$	$(6.927$	0.040	0.063	$0.152)\times10^1$	8.361	0.051	0.086	0.245
2.15 – 2.40	$(5.034$	0.009	0.023	$0.100)\times10^2$	$(6.447$	0.035	0.050	$0.125)\times10^1$	7.808	0.044	0.070	0.205
2.40 – 2.67	$(4.353$	0.007	0.019	$0.082)\times10^2$	$(5.847$	0.029	0.045	$0.104)\times10^1$	7.444	0.039	0.066	0.182
2.67 – 2.97	$(3.705$	0.006	0.016	$0.065)\times10^2$	$(5.151$	0.024	0.039	$0.088)\times10^1$	7.192	0.036	0.062	0.166
2.97 – 3.29	$(3.117$	0.005	0.013	$0.052)\times10^2$	$(4.485$	0.020	0.029	$0.072)\times10^1$	6.950	0.033	0.053	0.152
3.29 – 3.64	$(2.622$	0.004	0.011	$0.042)\times10^2$	$(3.883$	0.017	0.021	$0.061)\times10^1$	6.752	0.031	0.047	0.143
3.64 – 4.02	$(2.189$	0.003	0.010	$0.035)\times10^2$	$(3.321$	0.014	0.017	$0.051)\times10^1$	6.591	0.030	0.045	0.136
4.02 – 4.43	$(1.806$	0.003	0.008	$0.028)\times10^2$	$(2.799$	0.011	0.014	$0.043)\times10^1$	6.453	0.028	0.043	0.130
4.43 – 4.88	$(1.484$	0.002	0.006	$0.022)\times10^2$	$(2.333$	0.009	0.012	$0.035)\times10^1$	6.362	0.027	0.042	0.127
4.88 – 5.37	$(1.212$	0.002	0.005	$0.017)\times10^2$	$(1.932$	0.008	0.009	$0.029)\times10^1$	6.274	0.026	0.040	0.123
5.37 – 5.90	$(9.859$	0.015	0.038	$0.140)\times10^1$	$(1.588$	0.006	0.007	$0.024)\times10^1$	6.206	0.026	0.038	0.119
5.90 – 6.47	$(7.983$	0.012	0.030	$0.112)\times10^1$	$(1.316$	0.005	0.006	$0.019)\times10^1$	6.065	0.025	0.036	0.115
6.47 – 7.09	$(6.493$	0.010	0.024	$0.090)\times10^1$	$(1.075$	0.004	0.005	$0.016)\times10^1$	6.040	0.025	0.036	0.113
7.09 – 7.76	$(5.239$	0.008	0.019	$0.072)\times10^1$	$(8.714$	0.034	0.040	$0.128)\times10^0$	6.012	0.025	0.035	0.111
7.76 – 8.48	$(4.239$	0.007	0.015	$0.059)\times10^1$	$(7.206$	0.029	0.033	$0.105)\times10^0$	5.883	0.025	0.034	0.108
8.48 – 9.26	$(3.411$	0.005	0.013	$0.047)\times10^1$	$(5.892$	0.024	0.028	$0.086)\times10^0$	5.790	0.025	0.035	0.106
9.26 – 10.1	$(2.755$	0.005	0.010	$0.037)\times10^1$	$(4.784$	0.020	0.023	$0.070)\times10^0$	5.757	0.026	0.035	0.105
10.1 – 11.0	$(2.205$	0.004	0.008	$0.030)\times10^1$	$(3.874$	0.017	0.020	$0.057)\times10^0$	5.691	0.028	0.036	0.104
11.0 – 12.0	$(1.770$	0.003	0.007	$0.024)\times10^1$	$(3.166$	0.015	0.017	$0.047)\times10^0$	5.590	0.028	0.037	0.102
12.0 – 13.0	$(1.424$	0.003	0.006	$0.019)\times10^1$	$(2.557$	0.013	0.014	$0.038)\times10^0$	5.570	0.030	0.038	0.103
13.0 – 14.1	$(1.154$	0.002	0.005	$0.016)\times10^1$	$(2.109$	0.011	0.012	$0.031)\times10^0$	5.469	0.031	0.040	0.102
14.1 – 15.3	$(9.336$	0.020	0.041	$0.131)\times10^0$	$(1.719$	0.009	0.011	$0.025)\times10^0$	5.432	0.031	0.041	0.101
15.3 – 16.6	$(7.505$	0.016	0.034	$0.107)\times10^0$	$(1.395$	0.008	0.009	$0.021)\times10^0$	5.378	0.032	0.042	0.101

Table continued

TABLE SM XI: Bartels Rotation 2436 (February 9, 2012 – March 6, 2012). *(Continued).*

Rigidity	Φ_p $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	Φ_{He} $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	p/He $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$
16.6 – 18.0	$(6.040\ 0.014\ 0.028\ 0.087)\times10^{0}$	$(1.137\ 0.006\ 0.008\ 0.018)\times10^{0}$	5.312 0.033 0.044 0.101
18.0 – 19.5	$(4.853\ 0.011\ 0.023\ 0.071)\times10^{0}$	$(9.273\ 0.054\ 0.066\ 0.143)\times10^{-1}$	5.234 0.033 0.045 0.100
19.5 – 21.1	$(3.891\ 0.009\ 0.019\ 0.058)\times10^{0}$	$(7.622\ 0.045\ 0.056\ 0.118)\times10^{-1}$	5.105 0.033 0.045 0.098
21.1 – 22.8	$(3.152\ 0.008\ 0.016\ 0.047)\times10^{0}$	$(6.169\ 0.038\ 0.046\ 0.096)\times10^{-1}$	5.109 0.034 0.046 0.099
22.8 – 24.7	$(2.519\ 0.006\ 0.013\ 0.038)\times10^{0}$	$(5.004\ 0.031\ 0.038\ 0.078)\times10^{-1}$	5.033 0.034 0.046 0.098
24.7 – 26.7	$(2.044\ 0.005\ 0.011\ 0.031)\times10^{0}$	$(4.089\ 0.027\ 0.031\ 0.064)\times10^{-1}$	4.998 0.035 0.047 0.097
26.7 – 28.8	$(1.649\ 0.005\ 0.009\ 0.025)\times10^{0}$	$(3.307\ 0.023\ 0.026\ 0.052)\times10^{-1}$	4.987 0.038 0.048 0.097
28.8 – 31.1	$(1.331\ 0.004\ 0.008\ 0.020)\times10^{0}$	$(2.747\ 0.020\ 0.022\ 0.044)\times10^{-1}$	4.844 0.038 0.048 0.096
31.1 – 33.5	$(1.075\ 0.003\ 0.006\ 0.017)\times10^{0}$	$(2.217\ 0.018\ 0.018\ 0.036)\times10^{-1}$	4.851 0.042 0.049 0.096
33.5 – 36.1	$(8.728\ 0.030\ 0.053\ 0.134)\times10^{-1}$	$(1.824\ 0.015\ 0.016\ 0.030)\times10^{-1}$	4.784 0.043 0.050 0.096
36.1 – 38.9	$(7.092\ 0.026\ 0.044\ 0.110)\times10^{-1}$	$(1.472\ 0.013\ 0.013\ 0.025)\times10^{-1}$	4.817 0.047 0.052 0.098
38.9 – 41.9	$(5.761\ 0.023\ 0.037\ 0.089)\times10^{-1}$	$(1.207\ 0.011\ 0.011\ 0.020)\times10^{-1}$	4.771 0.049 0.053 0.098
41.9 – 45.1	$(4.710\ 0.020\ 0.031\ 0.074)\times10^{-1}$	$(1.005\ 0.010\ 0.010\ 0.017)\times10^{-1}$	4.685 0.051 0.054 0.097
45.1 – 48.5	$(3.832\ 0.017\ 0.026\ 0.061)\times10^{-1}$	$(8.190\ 0.088\ 0.081\ 0.141)\times10^{-2}$	4.679 0.055 0.056 0.099
48.5 – 52.2	$(3.136\ 0.015\ 0.022\ 0.051)\times10^{-1}$	$(6.682\ 0.076\ 0.069\ 0.116)\times10^{-2}$	4.693 0.058 0.058 0.100
52.2 – 56.1	$(2.550\ 0.013\ 0.018\ 0.042)\times10^{-1}$	$(5.422\ 0.067\ 0.058\ 0.096)\times10^{-2}$	4.703 0.063 0.060 0.101
56.1 – 60.3	$(2.078\ 0.012\ 0.015\ 0.035)\times10^{-1}$	$(4.448\ 0.058\ 0.050\ 0.080)\times10^{-2}$	4.672 0.066 0.062 0.102

TABLE SM XII: Bartels Rotation 2437 (March 7, 2012 – April 2, 2012). The proton flux Φ_p, helium flux Φ_{He}, and p/He flux ratio as a function of rigidity (in units of GV) at the top of AMS in units of $[\mathrm{m}^2 \cdot \mathrm{sr} \cdot \mathrm{s} \cdot \mathrm{GV}]^{-1}$ including errors due to statistics ($\sigma_{\mathrm{stat.}}$), time dependent systematic errors (σ_{time}) and the total systematic error ($\sigma_{\mathrm{syst.}}$). Contributions to the time dependent systematic errors are from: the trigger and the reconstruction efficiency. Contributions to the total systematic error are from: the acceptance, the background contamination, the geomagnetic cutoff factor, the event selection, the unfolding, the rigidity resolution function, the absolute rigidity scale, and the time dependent systematic errors. The statistical errors for the ratio are the sum in quadrature of the relative statistical errors of the fluxes multiplied by the ratio. The time dependent systematic errors for the ratio are the sum in quadrature of the relative time dependent systematic errors of the fluxes multiplied by the ratio. The systematic errors from the acceptance for the ratio are added in quadrature. The correlations in the systematic errors from the unfolding and the absolute rigidity scale between the fluxes have been accounted for in calculating the corresponding systematic errors of the ratio. The contributions of the individual sources to the systematic error are added in quadrature to arrive at the total systematic uncertainty on the ratio.

Rigidity	Φ_p $\sigma_{\mathrm{stat.}}$ σ_{time} $\sigma_{\mathrm{syst.}}$	Φ_{He} $\sigma_{\mathrm{stat.}}$ σ_{time} $\sigma_{\mathrm{syst.}}$	p/He $\sigma_{\mathrm{stat.}}$ σ_{time} $\sigma_{\mathrm{syst.}}$
1.00 – 1.16	$(6.666\ 0.037\ 0.108\ 0.302)\times10^2$	– – – –	– – – –
1.16 – 1.33	$(6.618\ 0.023\ 0.078\ 0.238)\times10^2$	– – – –	– – – –
1.33 – 1.51	$(6.383\ 0.020\ 0.058\ 0.185)\times10^2$	– – – –	– – – –
1.51 – 1.71	$(5.906\ 0.014\ 0.044\ 0.155)\times10^2$	– – – –	– – – –
1.71 – 1.92	$(5.412\ 0.012\ 0.035\ 0.129)\times10^2$	– – – –	– – – –
1.92 – 2.15	$(4.836\ 0.010\ 0.028\ 0.105)\times10^2$	$(5.718\ 0.038\ 0.056\ 0.128)\times10^1$	8.458 0.059 0.097 0.251
2.15 – 2.40	$(4.235\ 0.008\ 0.023\ 0.085)\times10^2$	$(5.373\ 0.033\ 0.045\ 0.105)\times10^1$	7.882 0.051 0.078 0.210
2.40 – 2.67	$(3.700\ 0.007\ 0.019\ 0.070)\times10^2$	$(4.971\ 0.028\ 0.038\ 0.088)\times10^1$	7.443 0.044 0.068 0.182
2.67 – 2.97	$(3.177\ 0.006\ 0.016\ 0.056)\times10^2$	$(4.490\ 0.023\ 0.033\ 0.076)\times10^1$	7.076 0.039 0.063 0.163
2.97 – 3.29	$(2.719\ 0.005\ 0.013\ 0.046)\times10^2$	$(3.917\ 0.019\ 0.027\ 0.064)\times10^1$	6.942 0.036 0.058 0.154
3.29 – 3.64	$(2.307\ 0.004\ 0.011\ 0.037)\times10^2$	$(3.400\ 0.016\ 0.021\ 0.054)\times10^1$	6.784 0.034 0.054 0.146
3.64 – 4.02	$(1.938\ 0.003\ 0.010\ 0.031)\times10^2$	$(2.942\ 0.014\ 0.017\ 0.046)\times10^1$	6.589 0.032 0.051 0.138
4.02 – 4.43	$(1.621\ 0.003\ 0.008\ 0.025)\times10^2$	$(2.514\ 0.011\ 0.014\ 0.039)\times10^1$	6.448 0.030 0.048 0.132
4.43 – 4.88	$(1.347\ 0.002\ 0.007\ 0.021)\times10^2$	$(2.111\ 0.009\ 0.011\ 0.032)\times10^1$	6.377 0.029 0.046 0.129
4.88 – 5.37	$(1.109\ 0.002\ 0.005\ 0.016)\times10^2$	$(1.784\ 0.007\ 0.009\ 0.027)\times10^1$	6.216 0.027 0.042 0.123
5.37 – 5.90	$(9.059\ 0.014\ 0.040\ 0.130)\times10^1$	$(1.468\ 0.006\ 0.007\ 0.022)\times10^1$	6.172 0.027 0.040 0.119
5.90 – 6.47	$(7.399\ 0.012\ 0.031\ 0.105)\times10^1$	$(1.223\ 0.005\ 0.006\ 0.018)\times10^1$	6.049 0.026 0.038 0.115
6.47 – 7.09	$(6.046\ 0.009\ 0.025\ 0.085)\times10^1$	$(1.008\ 0.004\ 0.005\ 0.015)\times10^1$	6.000 0.026 0.037 0.113
7.09 – 7.76	$(4.912\ 0.008\ 0.020\ 0.068)\times10^1$	$(8.351\ 0.034\ 0.038\ 0.123)\times10^0$	5.882 0.025 0.036 0.109
7.76 – 8.48	$(3.992\ 0.006\ 0.016\ 0.056)\times10^1$	$(6.805\ 0.028\ 0.032\ 0.099)\times10^0$	5.867 0.026 0.036 0.108
8.48 – 9.26	$(3.238\ 0.005\ 0.013\ 0.045)\times10^1$	$(5.581\ 0.024\ 0.027\ 0.082)\times10^0$	5.801 0.026 0.037 0.107
9.26 – 10.1	$(2.613\ 0.004\ 0.011\ 0.036)\times10^1$	$(4.601\ 0.020\ 0.023\ 0.068)\times10^0$	5.679 0.027 0.037 0.104
10.1 – 11.0	$(2.119\ 0.004\ 0.009\ 0.029)\times10^1$	$(3.759\ 0.017\ 0.020\ 0.055)\times10^0$	5.637 0.028 0.038 0.103
11.0 – 12.0	$(1.708\ 0.003\ 0.007\ 0.023)\times10^1$	$(3.044\ 0.014\ 0.017\ 0.045)\times10^0$	5.610 0.029 0.039 0.103
12.0 – 13.0	$(1.375\ 0.003\ 0.006\ 0.019)\times10^1$	$(2.496\ 0.013\ 0.014\ 0.037)\times10^0$	5.507 0.030 0.040 0.102
13.0 – 14.1	$(1.118\ 0.002\ 0.005\ 0.016)\times10^1$	$(2.033\ 0.011\ 0.012\ 0.030)\times10^0$	5.502 0.031 0.041 0.103
14.1 – 15.3	$(9.047\ 0.019\ 0.044\ 0.129)\times10^0$	$(1.659\ 0.009\ 0.010\ 0.024)\times10^0$	5.454 0.032 0.043 0.102
15.3 – 16.6	$(7.279\ 0.016\ 0.036\ 0.105)\times10^0$	$(1.368\ 0.008\ 0.009\ 0.021)\times10^0$	5.322 0.032 0.044 0.101

Table continued

TABLE SM XII: Bartels Rotation 2437 (March 7, 2012 – April 2, 2012). *(Continued).*

Rigidity	Φ_p $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	Φ_{He} $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	p/He $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$
16.6 – 18.0	$(5.858\ 0.013\ 0.030\ 0.085)\times10^{0}$	$(1.110\ 0.006\ 0.008\ 0.017)\times10^{0}$	5.279 0.033 0.045 0.101
18.0 – 19.5	$(4.724\ 0.011\ 0.025\ 0.070)\times10^{0}$	$(9.050\ 0.053\ 0.065\ 0.140)\times10^{-1}$	5.220 0.033 0.047 0.100
19.5 – 21.1	$(3.819\ 0.009\ 0.021\ 0.057)\times10^{0}$	$(7.301\ 0.044\ 0.055\ 0.114)\times10^{-1}$	5.231 0.034 0.049 0.101
21.1 – 22.8	$(3.098\ 0.008\ 0.018\ 0.047)\times10^{0}$	$(6.025\ 0.037\ 0.047\ 0.095)\times10^{-1}$	5.142 0.034 0.050 0.101
22.8 – 24.7	$(2.494\ 0.006\ 0.015\ 0.038)\times10^{0}$	$(4.907\ 0.031\ 0.039\ 0.078)\times10^{-1}$	5.082 0.034 0.050 0.100
24.7 – 26.7	$(2.006\ 0.005\ 0.012\ 0.031)\times10^{0}$	$(4.000\ 0.026\ 0.033\ 0.064)\times10^{-1}$	5.014 0.036 0.051 0.100
26.7 – 28.8	$(1.623\ 0.005\ 0.010\ 0.025)\times10^{0}$	$(3.305\ 0.023\ 0.028\ 0.053)\times10^{-1}$	4.909 0.037 0.052 0.098
28.8 – 31.1	$(1.314\ 0.004\ 0.008\ 0.021)\times10^{0}$	$(2.664\ 0.020\ 0.023\ 0.043)\times10^{-1}$	4.931 0.039 0.053 0.100
31.1 – 33.5	$(1.067\ 0.003\ 0.007\ 0.017)\times10^{0}$	$(2.193\ 0.017\ 0.020\ 0.036)\times10^{-1}$	4.863 0.042 0.054 0.099
33.5 – 36.1	$(8.669\ 0.030\ 0.059\ 0.136)\times10^{-1}$	$(1.792\ 0.015\ 0.017\ 0.030)\times10^{-1}$	4.839 0.044 0.056 0.100
36.1 – 38.9	$(7.081\ 0.026\ 0.049\ 0.112)\times10^{-1}$	$(1.491\ 0.013\ 0.014\ 0.026)\times10^{-1}$	4.750 0.046 0.056 0.099
38.9 – 41.9	$(5.732\ 0.023\ 0.041\ 0.091)\times10^{-1}$	$(1.199\ 0.011\ 0.012\ 0.020)\times10^{-1}$	4.779 0.049 0.059 0.101
41.9 – 45.1	$(4.710\ 0.020\ 0.034\ 0.075)\times10^{-1}$	$(9.671\ 0.099\ 0.100\ 0.168)\times10^{-2}$	4.870 0.054 0.062 0.104
45.1 – 48.5	$(3.813\ 0.017\ 0.029\ 0.062)\times10^{-1}$	$(8.140\ 0.088\ 0.086\ 0.143)\times10^{-2}$	4.684 0.055 0.061 0.102
48.5 – 52.2	$(3.117\ 0.015\ 0.024\ 0.051)\times10^{-1}$	$(6.504\ 0.075\ 0.071\ 0.115)\times10^{-2}$	4.792 0.060 0.064 0.105
52.2 – 56.1	$(2.554\ 0.013\ 0.020\ 0.043)\times10^{-1}$	$(5.348\ 0.066\ 0.060\ 0.096)\times10^{-2}$	4.776 0.064 0.065 0.105
56.1 – 60.3	$(2.089\ 0.012\ 0.017\ 0.036)\times10^{-1}$	$(4.481\ 0.058\ 0.051\ 0.081)\times10^{-2}$	4.661 0.066 0.065 0.104

TABLE SM XIII: Bartels Rotation 2438 (April 3, 2012 – April 29, 2012). The proton flux Φ_p, helium flux Φ_{He}, and p/He flux ratio as a function of rigidity (in units of GV) at the top of AMS in units of $[\mathrm{m}^2 \cdot \mathrm{sr} \cdot \mathrm{s} \cdot \mathrm{GV}]^{-1}$ including errors due to statistics ($\sigma_{\mathrm{stat.}}$), time dependent systematic errors (σ_{time}) and the total systematic error ($\sigma_{\mathrm{syst.}}$). Contributions to the time dependent systematic errors are from: the trigger and the reconstruction efficiency. Contributions to the total systematic error are from: the acceptance, the background contamination, the geomagnetic cutoff factor, the event selection, the unfolding, the rigidity resolution function, the absolute rigidity scale, and the time dependent systematic errors. The statistical errors for the ratio are the sum in quadrature of the relative statistical errors of the fluxes multiplied by the ratio. The time dependent systematic errors for the ratio are the sum in quadrature of the relative time dependent systematic errors of the fluxes multiplied by the ratio. The systematic errors from the acceptance for the ratio are added in quadrature. The correlations in the systematic errors from the unfolding and the absolute rigidity scale between the fluxes have been accounted for in calculating the corresponding systematic errors of the ratio. The contributions of the individual sources to the systematic error are added in quadrature to arrive at the total systematic uncertainty on the ratio.

Rigidity	Φ_p	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	Φ_{He}	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	p/He	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$
1.00 – 1.16	7.456×10^2	0.037	0.103	0.332	–	–	–	–	–	–	–	–
1.16 – 1.33	7.391×10^2	0.023	0.074	0.262	–	–	–	–	–	–	–	–
1.33 – 1.51	7.150×10^2	0.020	0.055	0.205	–	–	–	–	–	–	–	–
1.51 – 1.71	6.731×10^2	0.014	0.043	0.175	–	–	–	–	–	–	–	–
1.71 – 1.92	6.123×10^2	0.012	0.034	0.144	–	–	–	–	–	–	–	–
1.92 – 2.15	5.487×10^2	0.010	0.028	0.118	6.545×10^1	0.039	0.051	0.141	8.383	0.052	0.078	0.243
2.15 – 2.40	4.831×10^2	0.009	0.023	0.097	6.116×10^1	0.033	0.041	0.116	7.899	0.045	0.065	0.206
2.40 – 2.67	4.200×10^2	0.007	0.019	0.079	5.622×10^1	0.028	0.035	0.097	7.471	0.040	0.057	0.179
2.67 – 2.97	3.603×10^2	0.006	0.016	0.063	5.020×10^1	0.024	0.030	0.082	7.178	0.036	0.053	0.162
2.97 – 3.29	3.067×10^2	0.005	0.013	0.051	4.414×10^1	0.020	0.024	0.070	6.950	0.033	0.049	0.151
3.29 – 3.64	2.583×10^2	0.004	0.012	0.042	3.876×10^1	0.017	0.020	0.060	6.664	0.031	0.045	0.141
3.64 – 4.02	2.166×10^2	0.003	0.010	0.034	3.298×10^1	0.014	0.016	0.050	6.567	0.030	0.043	0.135
4.02 – 4.43	1.799×10^2	0.003	0.008	0.028	2.754×10^1	0.011	0.012	0.042	6.532	0.029	0.042	0.131
4.43 – 4.88	1.487×10^2	0.002	0.007	0.023	2.337×10^1	0.009	0.010	0.035	6.362	0.027	0.040	0.126
4.88 – 5.37	1.217×10^2	0.002	0.005	0.018	1.937×10^1	0.008	0.008	0.028	6.281	0.026	0.037	0.122
5.37 – 5.90	9.868×10^1	0.015	0.040	0.141	1.600×10^1	0.006	0.006	0.024	6.167	0.026	0.035	0.118
5.90 – 6.47	8.033×10^1	0.012	0.031	0.113	1.318×10^1	0.005	0.005	0.019	6.093	0.025	0.033	0.114
6.47 – 7.09	6.532×10^1	0.010	0.025	0.091	1.094×10^1	0.004	0.004	0.016	5.968	0.024	0.032	0.111
7.09 – 7.76	5.290×10^1	0.008	0.020	0.073	8.925×10^0	0.034	0.035	0.130	5.927	0.024	0.032	0.109
7.76 – 8.48	4.268×10^1	0.007	0.016	0.059	7.266×10^0	0.029	0.029	0.105	5.875	0.025	0.032	0.107
8.48 – 9.26	3.434×10^1	0.005	0.013	0.047	5.917×10^0	0.024	0.025	0.086	5.804	0.025	0.033	0.105
9.26 – 10.1	2.772×10^1	0.005	0.011	0.038	4.847×10^0	0.021	0.021	0.070	5.719	0.026	0.033	0.104
10.1 – 11.0	2.227×10^1	0.004	0.009	0.030	3.926×10^0	0.018	0.018	0.057	5.672	0.027	0.034	0.103
11.0 – 12.0	1.784×10^1	0.003	0.007	0.024	3.166×10^0	0.015	0.015	0.046	5.636	0.028	0.035	0.102
12.0 – 13.0	1.438×10^1	0.003	0.006	0.020	2.580×10^0	0.013	0.013	0.038	5.572	0.030	0.036	0.102
13.0 – 14.1	1.160×10^1	0.002	0.005	0.016	2.134×10^0	0.011	0.011	0.031	5.437	0.030	0.036	0.100
14.1 – 15.3	9.359×10^0	0.020	0.042	0.132	1.715×10^0	0.009	0.009	0.025	5.458	0.031	0.038	0.100
15.3 – 16.6	7.561×10^0	0.017	0.035	0.108	1.397×10^0	0.008	0.008	0.021	5.414	0.032	0.040	0.100

Table continued

TABLE SM XIII: Bartels Rotation 2438 (April 3, 2012 – April 29, 2012). *(Continued).*

Rigidity	Φ_p $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	Φ_{He} $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	p/He $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$
16.6 – 18.0	$(6.032\ 0.014\ 0.029\ 0.087)\times10^{0}$	$(1.137\ 0.006\ 0.007\ 0.017)\times10^{0}$	5.305 0.032 0.041 0.099
18.0 – 19.5	$(4.857\ 0.011\ 0.024\ 0.071)\times10^{0}$	$(9.280\ 0.053\ 0.058\ 0.140)\times10^{-1}$	5.234 0.032 0.042 0.098
19.5 – 21.1	$(3.910\ 0.009\ 0.020\ 0.058)\times10^{0}$	$(7.496\ 0.044\ 0.049\ 0.114)\times10^{-1}$	5.217 0.033 0.043 0.098
21.1 – 22.8	$(3.174\ 0.008\ 0.017\ 0.048)\times10^{0}$	$(6.128\ 0.037\ 0.041\ 0.094)\times10^{-1}$	5.179 0.034 0.044 0.099
22.8 – 24.7	$(2.541\ 0.006\ 0.014\ 0.038)\times10^{0}$	$(4.975\ 0.031\ 0.034\ 0.076)\times10^{-1}$	5.107 0.034 0.045 0.098
24.7 – 26.7	$(2.041\ 0.005\ 0.011\ 0.031)\times10^{0}$	$(4.099\ 0.027\ 0.029\ 0.063)\times10^{-1}$	4.979 0.035 0.045 0.096
26.7 – 28.8	$(1.644\ 0.005\ 0.010\ 0.025)\times10^{0}$	$(3.306\ 0.023\ 0.024\ 0.051)\times10^{-1}$	4.971 0.038 0.046 0.096
28.8 – 31.1	$(1.334\ 0.004\ 0.008\ 0.021)\times10^{0}$	$(2.677\ 0.020\ 0.020\ 0.042)\times10^{-1}$	4.983 0.040 0.048 0.098
31.1 – 33.5	$(1.078\ 0.004\ 0.007\ 0.017)\times10^{0}$	$(2.214\ 0.018\ 0.017\ 0.035)\times10^{-1}$	4.871 0.042 0.048 0.096
33.5 – 36.1	$(8.744\ 0.030\ 0.055\ 0.135)\times10^{-1}$	$(1.821\ 0.015\ 0.015\ 0.030)\times10^{-1}$	4.803 0.044 0.049 0.096
36.1 – 38.9	$(7.135\ 0.026\ 0.046\ 0.111)\times10^{-1}$	$(1.469\ 0.013\ 0.012\ 0.024)\times10^{-1}$	4.856 0.047 0.051 0.098
38.9 – 41.9	$(5.788\ 0.023\ 0.038\ 0.090)\times10^{-1}$	$(1.211\ 0.012\ 0.010\ 0.019)\times10^{-1}$	4.778 0.049 0.051 0.097
41.9 – 45.1	$(4.690\ 0.020\ 0.032\ 0.074)\times10^{-1}$	$(9.783\ 0.100\ 0.085\ 0.161)\times10^{-2}$	4.794 0.053 0.053 0.098
45.1 – 48.5	$(3.845\ 0.018\ 0.027\ 0.061)\times10^{-1}$	$(8.170\ 0.088\ 0.073\ 0.136)\times10^{-2}$	4.706 0.055 0.053 0.098
48.5 – 52.2	$(3.124\ 0.015\ 0.022\ 0.051)\times10^{-1}$	$(6.619\ 0.076\ 0.061\ 0.111)\times10^{-2}$	4.720 0.059 0.055 0.099
52.2 – 56.1	$(2.552\ 0.013\ 0.019\ 0.042)\times10^{-1}$	$(5.415\ 0.067\ 0.051\ 0.092)\times10^{-2}$	4.713 0.063 0.056 0.099
56.1 – 60.3	$(2.092\ 0.012\ 0.015\ 0.035)\times10^{-1}$	$(4.421\ 0.058\ 0.042\ 0.075)\times10^{-2}$	4.732 0.067 0.057 0.100

TABLE SM XIV: Bartels Rotation 2439 (April 30, 2012 – May 26, 2012). The proton flux Φ_p, helium flux Φ_{He}, and p/He flux ratio as a function of rigidity (in units of GV) at the top of AMS in units of $[\mathrm{m}^2 \cdot \mathrm{sr} \cdot \mathrm{s} \cdot \mathrm{GV}]^{-1}$ including errors due to statistics ($\sigma_{\mathrm{stat.}}$), time dependent systematic errors (σ_{time}) and the total systematic error ($\sigma_{\mathrm{syst.}}$). Contributions to the time dependent systematic errors are from: the trigger and the reconstruction efficiency. Contributions to the total systematic error are from: the acceptance, the background contamination, the geomagnetic cutoff factor, the event selection, the unfolding, the rigidity resolution function, the absolute rigidity scale, and the time dependent systematic errors. The statistical errors for the ratio are the sum in quadrature of the relative statistical errors of the fluxes multiplied by the ratio. The time dependent systematic errors for the ratio are the sum in quadrature of the relative time dependent systematic errors of the fluxes multiplied by the ratio. The systematic errors from the acceptance for the ratio are added in quadrature. The correlations in the systematic errors from the unfolding and the absolute rigidity scale between the fluxes have been accounted for in calculating the corresponding systematic errors of the ratio. The contributions of the individual sources to the systematic error are added in quadrature to arrive at the total systematic uncertainty on the ratio.

Rigidity	Φ_p	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	Φ_{He}	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	p/He	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$
1.00 – 1.16	$(7.919$	0.040	0.115	$0.355)\times10^2$	–	–	–	–	–	–	–	–
1.16 – 1.33	$(7.772$	0.024	0.082	$0.277)\times10^2$	–	–	–	–	–	–	–	–
1.33 – 1.51	$(7.493$	0.021	0.061	$0.216)\times10^2$	–	–	–	–	–	–	–	–
1.51 – 1.71	$(7.013$	0.015	0.047	$0.183)\times10^2$	–	–	–	–	–	–	–	–
1.71 – 1.92	$(6.388$	0.013	0.037	$0.151)\times10^2$	–	–	–	–	–	–	–	–
1.92 – 2.15	$(5.711$	0.011	0.030	$0.123)\times10^2$	$(6.720$	0.040	0.057	$0.146)\times10^1$	8.498	0.053	0.085	0.248
2.15 – 2.40	$(5.001$	0.009	0.024	$0.100)\times10^2$	$(6.377$	0.035	0.047	$0.122)\times10^1$	7.841	0.045	0.069	0.206
2.40 – 2.67	$(4.325$	0.007	0.020	$0.082)\times10^2$	$(5.772$	0.029	0.039	$0.101)\times10^1$	7.493	0.040	0.062	0.181
2.67 – 2.97	$(3.705$	0.006	0.017	$0.065)\times10^2$	$(5.145$	0.024	0.034	$0.085)\times10^1$	7.202	0.036	0.057	0.164
2.97 – 3.29	$(3.139$	0.005	0.014	$0.052)\times10^2$	$(4.519$	0.020	0.027	$0.072)\times10^1$	6.946	0.033	0.052	0.152
3.29 – 3.64	$(2.645$	0.004	0.012	$0.043)\times10^2$	$(3.922$	0.017	0.022	$0.062)\times10^1$	6.745	0.031	0.049	0.143
3.64 – 4.02	$(2.213$	0.003	0.010	$0.035)\times10^2$	$(3.354$	0.014	0.017	$0.052)\times10^1$	6.598	0.030	0.046	0.137
4.02 – 4.43	$(1.836$	0.003	0.009	$0.028)\times10^2$	$(2.832$	0.012	0.014	$0.043)\times10^1$	6.484	0.028	0.044	0.131
4.43 – 4.88	$(1.511$	0.002	0.007	$0.023)\times10^2$	$(2.355$	0.009	0.011	$0.035)\times10^1$	6.418	0.027	0.042	0.128
4.88 – 5.37	$(1.239$	0.002	0.005	$0.018)\times10^2$	$(1.955$	0.008	0.009	$0.029)\times10^1$	6.336	0.026	0.040	0.124
5.37 – 5.90	$(1.001$	0.001	0.004	$0.014)\times10^2$	$(1.610$	0.006	0.007	$0.024)\times10^1$	6.220	0.026	0.037	0.119
5.90 – 6.47	$(8.156$	0.012	0.032	$0.115)\times10^1$	$(1.333$	0.005	0.006	$0.019)\times10^1$	6.117	0.025	0.036	0.115
6.47 – 7.09	$(6.605$	0.010	0.025	$0.092)\times10^1$	$(1.097$	0.004	0.005	$0.016)\times10^1$	6.023	0.025	0.035	0.113
7.09 – 7.76	$(5.323$	0.008	0.020	$0.074)\times10^1$	$(8.995$	0.035	0.040	$0.132)\times10^0$	5.918	0.024	0.034	0.109
7.76 – 8.48	$(4.301$	0.007	0.016	$0.060)\times10^1$	$(7.349$	0.029	0.034	$0.107)\times10^0$	5.853	0.025	0.035	0.108
8.48 – 9.26	$(3.460$	0.005	0.013	$0.048)\times10^1$	$(5.937$	0.024	0.028	$0.087)\times10^0$	5.828	0.026	0.036	0.107
9.26 – 10.1	$(2.778$	0.005	0.011	$0.038)\times10^1$	$(4.872$	0.021	0.024	$0.072)\times10^0$	5.702	0.026	0.036	0.104
10.1 – 11.0	$(2.236$	0.004	0.009	$0.030)\times10^1$	$(3.948$	0.018	0.020	$0.058)\times10^0$	5.664	0.027	0.037	0.103
11.0 – 12.0	$(1.791$	0.003	0.007	$0.024)\times10^1$	$(3.209$	0.015	0.017	$0.048)\times10^0$	5.580	0.028	0.038	0.102
12.0 – 13.0	$(1.443$	0.003	0.006	$0.020)\times10^1$	$(2.596$	0.013	0.015	$0.039)\times10^0$	5.559	0.030	0.039	0.103
13.0 – 14.1	$(1.164$	0.002	0.005	$0.016)\times10^1$	$(2.128$	0.011	0.013	$0.032)\times10^0$	5.470	0.030	0.040	0.102
14.1 – 15.3	$(9.381$	0.020	0.043	$0.133)\times10^0$	$(1.738$	0.009	0.011	$0.026)\times10^0$	5.398	0.031	0.042	0.101
15.3 – 16.6	$(7.524$	0.016	0.036	$0.107)\times10^0$	$(1.411$	0.008	0.009	$0.021)\times10^0$	5.334	0.032	0.043	0.101

Table continued

TABLE SM XIV: Bartels Rotation 2439 (April 30, 2012 – May 26, 2012). *(Continued).*

Rigidity	Φ_p $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	Φ_{He} $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	p/He $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$
16.6 – 18.0	$(6.028\ 0.014\ 0.029\ 0.087)\times10^{0}$	$(1.133\ 0.006\ 0.008\ 0.018)\times10^{0}$	5.318 0.033 0.045 0.101
18.0 – 19.5	$(4.832\ 0.011\ 0.024\ 0.071)\times10^{0}$	$(9.134\ 0.053\ 0.066\ 0.141)\times10^{-1}$	5.290 0.033 0.047 0.101
19.5 – 21.1	$(3.909\ 0.009\ 0.020\ 0.058)\times10^{0}$	$(7.579\ 0.045\ 0.057\ 0.119)\times10^{-1}$	5.158 0.033 0.047 0.099
21.1 – 22.8	$(3.163\ 0.008\ 0.017\ 0.048)\times10^{0}$	$(6.168\ 0.038\ 0.048\ 0.097)\times10^{-1}$	5.128 0.034 0.048 0.100
22.8 – 24.7	$(2.547\ 0.006\ 0.014\ 0.039)\times10^{0}$	$(5.053\ 0.031\ 0.040\ 0.080)\times10^{-1}$	5.041 0.033 0.049 0.099
24.7 – 26.7	$(2.030\ 0.005\ 0.012\ 0.031)\times10^{0}$	$(4.071\ 0.027\ 0.033\ 0.065)\times10^{-1}$	4.988 0.035 0.049 0.098
26.7 – 28.8	$(1.644\ 0.005\ 0.010\ 0.025)\times10^{0}$	$(3.290\ 0.023\ 0.027\ 0.052)\times10^{-1}$	4.995 0.038 0.051 0.099
28.8 – 31.1	$(1.333\ 0.004\ 0.008\ 0.021)\times10^{0}$	$(2.700\ 0.020\ 0.023\ 0.044)\times10^{-1}$	4.938 0.039 0.051 0.099
31.1 – 33.5	$(1.078\ 0.004\ 0.007\ 0.017)\times10^{0}$	$(2.211\ 0.018\ 0.019\ 0.036)\times10^{-1}$	4.878 0.042 0.052 0.098
33.5 – 36.1	$(8.759\ 0.030\ 0.056\ 0.136)\times10^{-1}$	$(1.769\ 0.015\ 0.016\ 0.030)\times10^{-1}$	4.952 0.045 0.054 0.101
36.1 – 38.9	$(7.134\ 0.026\ 0.047\ 0.111)\times10^{-1}$	$(1.500\ 0.013\ 0.014\ 0.025)\times10^{-1}$	4.757 0.046 0.053 0.098
38.9 – 41.9	$(5.789\ 0.023\ 0.039\ 0.091)\times10^{-1}$	$(1.190\ 0.011\ 0.011\ 0.020)\times10^{-1}$	4.866 0.051 0.056 0.101
41.9 – 45.1	$(4.690\ 0.020\ 0.032\ 0.074)\times10^{-1}$	$(9.783\ 0.100\ 0.094\ 0.166)\times10^{-2}$	4.794 0.053 0.057 0.100
45.1 – 48.5	$(3.807\ 0.017\ 0.027\ 0.061)\times10^{-1}$	$(7.934\ 0.087\ 0.078\ 0.136)\times10^{-2}$	4.798 0.057 0.058 0.102
48.5 – 52.2	$(3.123\ 0.015\ 0.023\ 0.051)\times10^{-1}$	$(6.527\ 0.076\ 0.065\ 0.113)\times10^{-2}$	4.784 0.060 0.059 0.102
52.2 – 56.1	$(2.542\ 0.013\ 0.019\ 0.042)\times10^{-1}$	$(5.385\ 0.067\ 0.055\ 0.094)\times10^{-2}$	4.720 0.063 0.060 0.101
56.1 – 60.3	$(2.075\ 0.012\ 0.016\ 0.035)\times10^{-1}$	$(4.536\ 0.059\ 0.047\ 0.080)\times10^{-2}$	4.573 0.064 0.059 0.099

TABLE SM XV: Bartels Rotation 2440 (May 27, 2012 – June 22, 2012). The proton flux Φ_p, helium flux Φ_{He}, and p/He flux ratio as a function of rigidity (in units of GV) at the top of AMS in units of $[\mathrm{m}^2 \cdot \mathrm{sr} \cdot \mathrm{s} \cdot \mathrm{GV}]^{-1}$ including errors due to statistics ($\sigma_{\mathrm{stat.}}$), time dependent systematic errors (σ_{time}) and the total systematic error ($\sigma_{\mathrm{syst.}}$). Contributions to the time dependent systematic errors are from: the trigger and the reconstruction efficiency. Contributions to the total systematic error are from: the acceptance, the background contamination, the geomagnetic cutoff factor, the event selection, the unfolding, the rigidity resolution function, the absolute rigidity scale, and the time dependent systematic errors. The statistical errors for the ratio are the sum in quadrature of the relative statistical errors of the fluxes multiplied by the ratio. The time dependent systematic errors for the ratio are the sum in quadrature of the relative time dependent systematic errors of the fluxes multiplied by the ratio. The systematic errors from the acceptance for the ratio are added in quadrature. The correlations in the systematic errors from the unfolding and the absolute rigidity scale between the fluxes have been accounted for in calculating the corresponding systematic errors of the ratio. The contributions of the individual sources to the systematic error are added in quadrature to arrive at the total systematic uncertainty on the ratio.

Rigidity	Φ_p	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	Φ_{He}	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	p/He	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$
1.00 – 1.16	$(7.404$	0.035	0.101	$0.330)\times10^2$	–	–	–	–	–	–	–	–
1.16 – 1.33	$(7.265$	0.023	0.073	$0.258)\times10^2$	–	–	–	–	–	–	–	–
1.33 – 1.51	$(6.965$	0.020	0.054	$0.200)\times10^2$	–	–	–	–	–	–	–	–
1.51 – 1.71	$(6.544$	0.014	0.043	$0.170)\times10^2$	–	–	–	–	–	–	–	–
1.71 – 1.92	$(5.945$	0.012	0.034	$0.140)\times10^2$	–	–	–	–	–	–	–	–
1.92 – 2.15	$(5.315$	0.010	0.027	$0.114)\times10^2$	$(6.335$	0.039	0.059	$0.140)\times10^1$	8.390	0.053	0.089	0.247
2.15 – 2.40	$(4.680$	0.008	0.023	$0.094)\times10^2$	$(5.945$	0.033	0.047	$0.115)\times10^1$	7.872	0.046	0.073	0.208
2.40 – 2.67	$(4.070$	0.007	0.019	$0.077)\times10^2$	$(5.442$	0.028	0.040	$0.096)\times10^1$	7.479	0.040	0.064	0.182
2.67 – 2.97	$(3.511$	0.006	0.016	$0.061)\times10^2$	$(4.856$	0.023	0.034	$0.081)\times10^1$	7.230	0.037	0.060	0.166
2.97 – 3.29	$(2.977$	0.005	0.013	$0.050)\times10^2$	$(4.274$	0.020	0.028	$0.069)\times10^1$	6.965	0.034	0.055	0.153
3.29 – 3.64	$(2.518$	0.004	0.011	$0.041)\times10^2$	$(3.751$	0.017	0.022	$0.060)\times10^1$	6.712	0.031	0.050	0.143
3.64 – 4.02	$(2.110$	0.003	0.010	$0.033)\times10^2$	$(3.200$	0.014	0.018	$0.050)\times10^1$	6.595	0.030	0.048	0.137
4.02 – 4.43	$(1.757$	0.003	0.008	$0.027)\times10^2$	$(2.707$	0.011	0.014	$0.041)\times10^1$	6.491	0.029	0.046	0.132
4.43 – 4.88	$(1.450$	0.002	0.007	$0.022)\times10^2$	$(2.262$	0.009	0.012	$0.034)\times10^1$	6.410	0.027	0.044	0.128
4.88 – 5.37	$(1.188$	0.002	0.005	$0.017)\times10^2$	$(1.873$	0.007	0.009	$0.028)\times10^1$	6.343	0.027	0.041	0.125
5.37 – 5.90	$(9.686$	0.015	0.039	$0.138)\times10^1$	$(1.568$	0.006	0.007	$0.023)\times10^1$	6.178	0.026	0.038	0.119
5.90 – 6.47	$(7.894$	0.012	0.031	$0.111)\times10^1$	$(1.295$	0.005	0.006	$0.019)\times10^1$	6.096	0.026	0.037	0.115
6.47 – 7.09	$(6.405$	0.010	0.024	$0.089)\times10^1$	$(1.063$	0.004	0.005	$0.016)\times10^1$	6.024	0.025	0.036	0.113
7.09 – 7.76	$(5.188$	0.008	0.020	$0.072)\times10^1$	$(8.744$	0.034	0.040	$0.129)\times10^0$	5.933	0.025	0.035	0.110
7.76 – 8.48	$(4.199$	0.006	0.016	$0.058)\times10^1$	$(7.133$	0.029	0.034	$0.104)\times10^0$	5.888	0.025	0.036	0.109
8.48 – 9.26	$(3.386$	0.005	0.013	$0.047)\times10^1$	$(5.834$	0.024	0.029	$0.086)\times10^0$	5.803	0.026	0.036	0.107
9.26 – 10.1	$(2.726$	0.005	0.011	$0.037)\times10^1$	$(4.770$	0.021	0.024	$0.070)\times10^0$	5.715	0.026	0.037	0.105
10.1 – 11.0	$(2.191$	0.004	0.009	$0.030)\times10^1$	$(3.861$	0.018	0.020	$0.057)\times10^0$	5.675	0.028	0.038	0.104
11.0 – 12.0	$(1.760$	0.003	0.007	$0.024)\times10^1$	$(3.156$	0.015	0.017	$0.047)\times10^0$	5.577	0.028	0.038	0.102
12.0 – 13.0	$(1.419$	0.003	0.006	$0.019)\times10^1$	$(2.563$	0.013	0.015	$0.038)\times10^0$	5.537	0.030	0.040	0.103
13.0 – 14.1	$(1.150$	0.002	0.005	$0.016)\times10^1$	$(2.096$	0.011	0.013	$0.031)\times10^0$	5.486	0.031	0.041	0.102
14.1 – 15.3	$(9.273$	0.020	0.042	$0.131)\times10^0$	$(1.705$	0.009	0.011	$0.025)\times10^0$	5.438	0.032	0.042	0.102
15.3 – 16.6	$(7.460$	0.016	0.035	$0.106)\times10^0$	$(1.389$	0.008	0.009	$0.021)\times10^0$	5.369	0.032	0.044	0.102

Table continued

TABLE SM XV: Bartels Rotation 2440 (May 27, 2012 – June 22, 2012). *(Continued).*

Rigidity	Φ_p $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	Φ_{He} $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	p/He $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$
16.6 – 18.0	$(6.000\ 0.014\ 0.029\ 0.087)\times10^{0}$	$(1.127\ 0.006\ 0.008\ 0.018)\times10^{0}$	5.323 0.033 0.046 0.102
18.0 – 19.5	$(4.822\ 0.011\ 0.024\ 0.071)\times10^{0}$	$(9.267\ 0.054\ 0.068\ 0.144)\times10^{-1}$	5.203 0.032 0.046 0.100
19.5 – 21.1	$(3.882\ 0.009\ 0.020\ 0.058)\times10^{0}$	$(7.488\ 0.045\ 0.058\ 0.118)\times10^{-1}$	5.184 0.033 0.048 0.100
21.1 – 22.8	$(3.134\ 0.008\ 0.017\ 0.047)\times10^{0}$	$(6.119\ 0.038\ 0.048\ 0.097)\times10^{-1}$	5.122 0.034 0.049 0.100
22.8 – 24.7	$(2.519\ 0.006\ 0.014\ 0.038)\times10^{0}$	$(4.993\ 0.031\ 0.040\ 0.079)\times10^{-1}$	5.044 0.034 0.049 0.099
24.7 – 26.7	$(2.030\ 0.005\ 0.012\ 0.031)\times10^{0}$	$(4.067\ 0.027\ 0.034\ 0.065)\times10^{-1}$	4.991 0.036 0.050 0.099
26.7 – 28.8	$(1.640\ 0.005\ 0.010\ 0.025)\times10^{0}$	$(3.312\ 0.023\ 0.028\ 0.053)\times10^{-1}$	4.950 0.038 0.052 0.099
28.8 – 31.1	$(1.322\ 0.004\ 0.008\ 0.020)\times10^{0}$	$(2.695\ 0.020\ 0.024\ 0.044)\times10^{-1}$	4.906 0.039 0.052 0.099
31.1 – 33.5	$(1.076\ 0.004\ 0.007\ 0.017)\times10^{0}$	$(2.234\ 0.018\ 0.020\ 0.037)\times10^{-1}$	4.820 0.041 0.053 0.098
33.5 – 36.1	$(8.695\ 0.030\ 0.056\ 0.135)\times10^{-1}$	$(1.789\ 0.015\ 0.017\ 0.030)\times10^{-1}$	4.860 0.045 0.055 0.100
36.1 – 38.9	$(7.132\ 0.026\ 0.047\ 0.111)\times10^{-1}$	$(1.503\ 0.013\ 0.014\ 0.026)\times10^{-1}$	4.746 0.046 0.055 0.099
38.9 – 41.9	$(5.787\ 0.023\ 0.039\ 0.091)\times10^{-1}$	$(1.226\ 0.012\ 0.012\ 0.021)\times10^{-1}$	4.720 0.049 0.057 0.099
41.9 – 45.1	$(4.694\ 0.020\ 0.032\ 0.074)\times10^{-1}$	$(9.774\ 0.101\ 0.100\ 0.169)\times10^{-2}$	4.802 0.054 0.059 0.102
45.1 – 48.5	$(3.830\ 0.018\ 0.027\ 0.061)\times10^{-1}$	$(8.174\ 0.089\ 0.086\ 0.143)\times10^{-2}$	4.686 0.055 0.059 0.101
48.5 – 52.2	$(3.121\ 0.015\ 0.023\ 0.051)\times10^{-1}$	$(6.553\ 0.076\ 0.071\ 0.116)\times10^{-2}$	4.762 0.060 0.062 0.103
52.2 – 56.1	$(2.541\ 0.013\ 0.019\ 0.042)\times10^{-1}$	$(5.554\ 0.068\ 0.061\ 0.099)\times10^{-2}$	4.574 0.061 0.061 0.100
56.1 – 60.3	$(2.096\ 0.012\ 0.016\ 0.035)\times10^{-1}$	$(4.476\ 0.059\ 0.050\ 0.081)\times10^{-2}$	4.683 0.067 0.063 0.103

TABLE SM XVI: Bartels Rotation 2441 (June 23, 2012 – July 19, 2012). The proton flux Φ_p, helium flux Φ_{He}, and p/He flux ratio as a function of rigidity (in units of GV) at the top of AMS in units of $[\mathrm{m}^2 \cdot \mathrm{sr} \cdot \mathrm{s} \cdot \mathrm{GV}]^{-1}$ including errors due to statistics ($\sigma_{\mathrm{stat.}}$), time dependent systematic errors (σ_{time}) and the total systematic error ($\sigma_{\mathrm{syst.}}$). Contributions to the time dependent systematic errors are from: the trigger and the reconstruction efficiency. Contributions to the total systematic error are from: the acceptance, the background contamination, the geomagnetic cutoff factor, the event selection, the unfolding, the rigidity resolution function, the absolute rigidity scale, and the time dependent systematic errors. The statistical errors for the ratio are the sum in quadrature of the relative statistical errors of the fluxes multiplied by the ratio. The time dependent systematic errors for the ratio are the sum in quadrature of the relative time dependent systematic errors of the fluxes multiplied by the ratio. The systematic errors from the acceptance for the ratio are added in quadrature. The correlations in the systematic errors from the unfolding and the absolute rigidity scale between the fluxes have been accounted for in calculating the corresponding systematic errors of the ratio. The contributions of the individual sources to the systematic error are added in quadrature to arrive at the total systematic uncertainty on the ratio.

Rigidity	Φ_p	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	Φ_{He}	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	p/He	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$
1.00 – 1.16	$(6.951$	0.034	0.096	$0.310)\times10^2$	–	–	–	–	–	–	–	–
1.16 – 1.33	$(6.977$	0.022	0.070	$0.248)\times10^2$	–	–	–	–	–	–	–	–
1.33 – 1.51	$(6.725$	0.019	0.052	$0.193)\times10^2$	–	–	–	–	–	–	–	–
1.51 – 1.71	$(6.341$	0.014	0.040	$0.165)\times10^2$	–	–	–	–	–	–	–	–
1.71 – 1.92	$(5.778$	0.012	0.032	$0.136)\times10^2$	–	–	–	–	–	–	–	–
1.92 – 2.15	$(5.193$	0.010	0.026	$0.112)\times10^2$	$(6.104$	0.038	0.058	$0.135)\times10^1$	8.508	0.055	0.091	0.251
2.15 – 2.40	$(4.543$	0.008	0.021	$0.091)\times10^2$	$(5.834$	0.033	0.047	$0.113)\times10^1$	7.787	0.046	0.072	0.205
2.40 – 2.67	$(3.955$	0.007	0.017	$0.075)\times10^2$	$(5.286$	0.027	0.039	$0.093)\times10^1$	7.482	0.041	0.064	0.182
2.67 – 2.97	$(3.397$	0.006	0.015	$0.059)\times10^2$	$(4.785$	0.023	0.034	$0.080)\times10^1$	7.100	0.036	0.059	0.163
2.97 – 3.29	$(2.911$	0.005	0.012	$0.048)\times10^2$	$(4.172$	0.019	0.028	$0.067)\times10^1$	6.977	0.034	0.055	0.153
3.29 – 3.64	$(2.456$	0.004	0.011	$0.039)\times10^2$	$(3.630$	0.016	0.022	$0.058)\times10^1$	6.767	0.032	0.050	0.144
3.64 – 4.02	$(2.055$	0.003	0.009	$0.033)\times10^2$	$(3.147$	0.014	0.018	$0.049)\times10^1$	6.532	0.030	0.047	0.136
4.02 – 4.43	$(1.712$	0.003	0.008	$0.026)\times10^2$	$(2.624$	0.011	0.014	$0.040)\times10^1$	6.523	0.029	0.045	0.132
4.43 – 4.88	$(1.419$	0.002	0.006	$0.021)\times10^2$	$(2.220$	0.009	0.011	$0.034)\times10^1$	6.394	0.027	0.043	0.128
4.88 – 5.37	$(1.164$	0.002	0.005	$0.017)\times10^2$	$(1.848$	0.007	0.009	$0.028)\times10^1$	6.295	0.027	0.040	0.124
5.37 – 5.90	$(9.490$	0.014	0.037	$0.135)\times10^1$	$(1.543$	0.006	0.007	$0.023)\times10^1$	6.149	0.026	0.037	0.118
5.90 – 6.47	$(7.739$	0.012	0.029	$0.108)\times10^1$	$(1.265$	0.005	0.006	$0.019)\times10^1$	6.117	0.026	0.036	0.115
6.47 – 7.09	$(6.285$	0.009	0.023	$0.088)\times10^1$	$(1.041$	0.004	0.005	$0.015)\times10^1$	6.038	0.025	0.036	0.113
7.09 – 7.76	$(5.091$	0.008	0.018	$0.070)\times10^1$	$(8.537$	0.034	0.040	$0.126)\times10^0$	5.964	0.025	0.035	0.110
7.76 – 8.48	$(4.135$	0.006	0.015	$0.057)\times10^1$	$(7.036$	0.028	0.034	$0.103)\times10^0$	5.877	0.025	0.035	0.108
8.48 – 9.26	$(3.341$	0.005	0.012	$0.046)\times10^1$	$(5.761$	0.024	0.029	$0.085)\times10^0$	5.800	0.026	0.036	0.106
9.26 – 10.1	$(2.687$	0.005	0.010	$0.036)\times10^1$	$(4.714$	0.020	0.025	$0.070)\times10^0$	5.701	0.026	0.036	0.105
10.1 – 11.0	$(2.160$	0.004	0.008	$0.029)\times10^1$	$(3.837$	0.017	0.021	$0.057)\times10^0$	5.628	0.027	0.037	0.103
11.0 – 12.0	$(1.741$	0.003	0.007	$0.024)\times10^1$	$(3.090$	0.014	0.018	$0.046)\times10^0$	5.635	0.028	0.039	0.103
12.0 – 13.0	$(1.397$	0.003	0.006	$0.019)\times10^1$	$(2.527$	0.013	0.015	$0.038)\times10^0$	5.529	0.030	0.040	0.102
13.0 – 14.1	$(1.134$	0.002	0.005	$0.016)\times10^1$	$(2.057$	0.011	0.013	$0.031)\times10^0$	5.511	0.031	0.041	0.103
14.1 – 15.3	$(9.143$	0.019	0.040	$0.129)\times10^0$	$(1.690$	0.009	0.011	$0.025)\times10^0$	5.409	0.031	0.042	0.101
15.3 – 16.6	$(7.381$	0.016	0.033	$0.105)\times10^0$	$(1.374$	0.008	0.009	$0.021)\times10^0$	5.372	0.032	0.044	0.102

Table continued

TABLE SM XVI: Bartels Rotation 2441 (June 23, 2012 – July 19, 2012). *(Continued).*

Rigidity	Φ_p $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	Φ_{He} $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	p/He $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$
16.6 – 18.0	$(5.946\ 0.013\ 0.028\ 0.086)\times10^{0}$	$(1.124\ 0.006\ 0.008\ 0.018)\times10^{0}$	5.291 0.032 0.045 0.101
18.0 – 19.5	$(4.783\ 0.011\ 0.023\ 0.070)\times10^{0}$	$(9.226\ 0.053\ 0.070\ 0.144)\times10^{-1}$	5.185 0.032 0.046 0.100
19.5 – 21.1	$(3.846\ 0.009\ 0.019\ 0.057)\times10^{0}$	$(7.436\ 0.044\ 0.059\ 0.118)\times10^{-1}$	5.173 0.033 0.048 0.100
21.1 – 22.8	$(3.116\ 0.008\ 0.016\ 0.047)\times10^{0}$	$(6.074\ 0.037\ 0.049\ 0.097)\times10^{-1}$	5.130 0.034 0.049 0.100
22.8 – 24.7	$(2.504\ 0.006\ 0.013\ 0.038)\times10^{0}$	$(4.962\ 0.031\ 0.041\ 0.080)\times10^{-1}$	5.045 0.034 0.050 0.099
24.7 – 26.7	$(2.018\ 0.005\ 0.011\ 0.031)\times10^{0}$	$(4.032\ 0.027\ 0.034\ 0.065)\times10^{-1}$	5.006 0.036 0.051 0.099
26.7 – 28.8	$(1.627\ 0.005\ 0.009\ 0.025)\times10^{0}$	$(3.361\ 0.023\ 0.029\ 0.054)\times10^{-1}$	4.841 0.036 0.050 0.096
28.8 – 31.1	$(1.323\ 0.004\ 0.008\ 0.020)\times10^{0}$	$(2.716\ 0.020\ 0.024\ 0.045)\times10^{-1}$	4.872 0.039 0.052 0.098
31.1 – 33.5	$(1.076\ 0.004\ 0.006\ 0.017)\times10^{0}$	$(2.191\ 0.018\ 0.020\ 0.036)\times10^{-1}$	4.908 0.043 0.054 0.100
33.5 – 36.1	$(8.708\ 0.030\ 0.053\ 0.134)\times10^{-1}$	$(1.822\ 0.015\ 0.017\ 0.031)\times10^{-1}$	4.780 0.044 0.054 0.098
36.1 – 38.9	$(7.088\ 0.026\ 0.044\ 0.110)\times10^{-1}$	$(1.490\ 0.013\ 0.015\ 0.026)\times10^{-1}$	4.758 0.046 0.055 0.099
38.9 – 41.9	$(5.728\ 0.023\ 0.037\ 0.089)\times10^{-1}$	$(1.207\ 0.012\ 0.012\ 0.020)\times10^{-1}$	4.747 0.049 0.057 0.100
41.9 – 45.1	$(4.653\ 0.020\ 0.031\ 0.073)\times10^{-1}$	$(9.956\ 0.102\ 0.104\ 0.173)\times10^{-2}$	4.674 0.052 0.058 0.099
45.1 – 48.5	$(3.800\ 0.017\ 0.026\ 0.060)\times10^{-1}$	$(8.082\ 0.089\ 0.086\ 0.142)\times10^{-2}$	4.701 0.056 0.059 0.101
48.5 – 52.2	$(3.140\ 0.015\ 0.022\ 0.051)\times10^{-1}$	$(6.568\ 0.076\ 0.072\ 0.117)\times10^{-2}$	4.780 0.060 0.062 0.104
52.2 – 56.1	$(2.528\ 0.013\ 0.018\ 0.042)\times10^{-1}$	$(5.410\ 0.067\ 0.061\ 0.097)\times10^{-2}$	4.673 0.063 0.062 0.102
56.1 – 60.3	$(2.097\ 0.012\ 0.015\ 0.035)\times10^{-1}$	$(4.463\ 0.059\ 0.051\ 0.081)\times10^{-2}$	4.699 0.067 0.064 0.104

TABLE SM XVII: Bartels Rotation 2442 (July 20, 2012 – August 15, 2012). The proton flux Φ_p, helium flux Φ_{He}, and p/He flux ratio as a function of rigidity (in units of GV) at the top of AMS in units of $[\mathrm{m}^2 \cdot \mathrm{sr} \cdot \mathrm{s} \cdot \mathrm{GV}]^{-1}$ including errors due to statistics ($\sigma_{\mathrm{stat.}}$), time dependent systematic errors (σ_{time}) and the total systematic error ($\sigma_{\mathrm{syst.}}$). Contributions to the time dependent systematic errors are from: the trigger and the reconstruction efficiency. Contributions to the total systematic error are from: the acceptance, the background contamination, the geomagnetic cutoff factor, the event selection, the unfolding, the rigidity resolution function, the absolute rigidity scale, and the time dependent systematic errors. The statistical errors for the ratio are the sum in quadrature of the relative statistical errors of the fluxes multiplied by the ratio. The time dependent systematic errors for the ratio are the sum in quadrature of the relative time dependent systematic errors of the fluxes multiplied by the ratio. The systematic errors from the acceptance for the ratio are added in quadrature. The correlations in the systematic errors from the unfolding and the absolute rigidity scale between the fluxes have been accounted for in calculating the corresponding systematic errors of the ratio. The contributions of the individual sources to the systematic error are added in quadrature to arrive at the total systematic uncertainty on the ratio.

Rigidity	Φ_p	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	Φ_{He}	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	p/He	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$
1.00 – 1.16	$(6.007$	0.028	0.081	$0.267)\times10^2$	–	–	–	–	–	–	–	–
1.16 – 1.33	$(5.950$	0.020	0.059	$0.211)\times10^2$	–	–	–	–	–	–	–	–
1.33 – 1.51	$(5.763$	0.017	0.044	$0.165)\times10^2$	–	–	–	–	–	–	–	–
1.51 – 1.71	$(5.401$	0.012	0.034	$0.140)\times10^2$	–	–	–	–	–	–	–	–
1.71 – 1.92	$(4.934$	0.011	0.027	$0.116)\times10^2$	–	–	–	–	–	–	–	–
1.92 – 2.15	$(4.446$	0.009	0.022	$0.096)\times10^2$	$(5.217$	0.034	0.047	$0.115)\times10^1$	8.522	0.058	0.088	0.250
2.15 – 2.40	$(3.956$	0.007	0.018	$0.079)\times10^2$	$(4.990$	0.029	0.038	$0.096)\times10^1$	7.929	0.049	0.071	0.208
2.40 – 2.67	$(3.473$	0.006	0.015	$0.065)\times10^2$	$(4.614$	0.025	0.033	$0.081)\times10^1$	7.528	0.043	0.063	0.182
2.67 – 2.97	$(3.011$	0.005	0.013	$0.053)\times10^2$	$(4.181$	0.021	0.029	$0.070)\times10^1$	7.201	0.039	0.058	0.164
2.97 – 3.29	$(2.593$	0.004	0.011	$0.043)\times10^2$	$(3.760$	0.018	0.024	$0.060)\times10^1$	6.897	0.035	0.053	0.151
3.29 – 3.64	$(2.213$	0.004	0.010	$0.036)\times10^2$	$(3.312$	0.015	0.019	$0.052)\times10^1$	6.681	0.033	0.048	0.142
3.64 – 4.02	$(1.868$	0.003	0.008	$0.030)\times10^2$	$(2.806$	0.013	0.015	$0.043)\times10^1$	6.656	0.032	0.047	0.138
4.02 – 4.43	$(1.576$	0.003	0.007	$0.024)\times10^2$	$(2.417$	0.010	0.013	$0.037)\times10^1$	6.519	0.030	0.044	0.132
4.43 – 4.88	$(1.309$	0.002	0.006	$0.020)\times10^2$	$(2.047$	0.008	0.010	$0.031)\times10^1$	6.392	0.028	0.042	0.128
4.88 – 5.37	$(1.081$	0.002	0.004	$0.016)\times10^2$	$(1.732$	0.007	0.008	$0.026)\times10^1$	6.239	0.027	0.039	0.122
5.37 – 5.90	$(8.914$	0.014	0.035	$0.127)\times10^1$	$(1.440$	0.006	0.006	$0.021)\times10^1$	6.190	0.027	0.037	0.119
5.90 – 6.47	$(7.304$	0.011	0.027	$0.102)\times10^1$	$(1.202$	0.005	0.005	$0.018)\times10^1$	6.078	0.026	0.035	0.114
6.47 – 7.09	$(5.972$	0.009	0.022	$0.083)\times10^1$	$(9.955$	0.040	0.044	$0.146)\times10^0$	5.999	0.026	0.035	0.112
7.09 – 7.76	$(4.873$	0.007	0.018	$0.067)\times10^1$	$(8.277$	0.033	0.037	$0.121)\times10^0$	5.888	0.025	0.034	0.109
7.76 – 8.48	$(3.969$	0.006	0.014	$0.055)\times10^1$	$(6.801$	0.028	0.031	$0.099)\times10^0$	5.836	0.025	0.034	0.107
8.48 – 9.26	$(3.227$	0.005	0.012	$0.044)\times10^1$	$(5.576$	0.023	0.026	$0.082)\times10^0$	5.787	0.026	0.035	0.106
9.26 – 10.1	$(2.603$	0.004	0.010	$0.035)\times10^1$	$(4.574$	0.020	0.023	$0.067)\times10^0$	5.691	0.027	0.035	0.104
10.1 – 11.0	$(2.111$	0.004	0.008	$0.029)\times10^1$	$(3.724$	0.017	0.019	$0.055)\times10^0$	5.670	0.028	0.036	0.103
11.0 – 12.0	$(1.699$	0.003	0.007	$0.023)\times10^1$	$(3.043$	0.014	0.016	$0.045)\times10^0$	5.583	0.028	0.037	0.102
12.0 – 13.0	$(1.375$	0.003	0.006	$0.019)\times10^1$	$(2.513$	0.013	0.014	$0.037)\times10^0$	5.472	0.030	0.038	0.101
13.0 – 14.1	$(1.114$	0.002	0.005	$0.016)\times10^1$	$(2.035$	0.011	0.012	$0.030)\times10^0$	5.472	0.031	0.039	0.101
14.1 – 15.3	$(9.029$	0.019	0.039	$0.127)\times10^0$	$(1.677$	0.009	0.010	$0.025)\times10^0$	5.384	0.031	0.040	0.100
15.3 – 16.6	$(7.286$	0.016	0.033	$0.104)\times10^0$	$(1.367$	0.008	0.009	$0.021)\times10^0$	5.328	0.032	0.042	0.100

Table continued

TABLE SM XVII: Bartels Rotation 2442 (July 20, 2012 – August 15, 2012). *(Continued).*

Rigidity	Φ_p $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	Φ_{He} $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	p/He $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$
16.6 – 18.0	$(5.881\ 0.013\ 0.027\ 0.085)\times10^{0}$	$(1.116\ 0.006\ 0.008\ 0.017)\times10^{0}$	5.269 0.032 0.043 0.100
18.0 – 19.5	$(4.730\ 0.011\ 0.023\ 0.069)\times10^{0}$	$(9.034\ 0.052\ 0.065\ 0.140)\times10^{-1}$	5.235 0.033 0.045 0.100
19.5 – 21.1	$(3.834\ 0.009\ 0.019\ 0.057)\times10^{0}$	$(7.346\ 0.044\ 0.055\ 0.115)\times10^{-1}$	5.218 0.034 0.047 0.100
21.1 – 22.8	$(3.094\ 0.008\ 0.016\ 0.046)\times10^{0}$	$(6.113\ 0.037\ 0.047\ 0.096)\times10^{-1}$	5.061 0.033 0.047 0.098
22.8 – 24.7	$(2.490\ 0.006\ 0.013\ 0.037)\times10^{0}$	$(4.893\ 0.031\ 0.039\ 0.077)\times10^{-1}$	5.090 0.034 0.048 0.099
24.7 – 26.7	$(2.009\ 0.005\ 0.011\ 0.031)\times10^{0}$	$(4.023\ 0.027\ 0.033\ 0.064)\times10^{-1}$	4.993 0.036 0.049 0.098
26.7 – 28.8	$(1.619\ 0.005\ 0.009\ 0.025)\times10^{0}$	$(3.264\ 0.023\ 0.027\ 0.052)\times10^{-1}$	4.960 0.038 0.050 0.098
28.8 – 31.1	$(1.302\ 0.004\ 0.007\ 0.020)\times10^{0}$	$(2.687\ 0.020\ 0.023\ 0.044)\times10^{-1}$	4.844 0.039 0.050 0.097
31.1 – 33.5	$(1.065\ 0.003\ 0.006\ 0.017)\times10^{0}$	$(2.168\ 0.017\ 0.019\ 0.036)\times10^{-1}$	4.911 0.043 0.053 0.099
33.5 – 36.1	$(8.692\ 0.030\ 0.053\ 0.134)\times10^{-1}$	$(1.813\ 0.015\ 0.017\ 0.031)\times10^{-1}$	4.794 0.044 0.053 0.098
36.1 – 38.9	$(7.020\ 0.026\ 0.043\ 0.108)\times10^{-1}$	$(1.484\ 0.013\ 0.014\ 0.025)\times10^{-1}$	4.731 0.046 0.054 0.098
38.9 – 41.9	$(5.769\ 0.023\ 0.037\ 0.089)\times10^{-1}$	$(1.197\ 0.012\ 0.012\ 0.020)\times10^{-1}$	4.819 0.050 0.057 0.101
41.9 – 45.1	$(4.680\ 0.020\ 0.030\ 0.073)\times10^{-1}$	$(1.009\ 0.010\ 0.010\ 0.017)\times10^{-1}$	4.638 0.051 0.056 0.098
45.1 – 48.5	$(3.814\ 0.017\ 0.025\ 0.060)\times10^{-1}$	$(8.180\ 0.089\ 0.086\ 0.143)\times10^{-2}$	4.662 0.055 0.058 0.100
48.5 – 52.2	$(3.135\ 0.015\ 0.021\ 0.051)\times10^{-1}$	$(6.578\ 0.076\ 0.071\ 0.116)\times10^{-2}$	4.766 0.060 0.061 0.103
52.2 – 56.1	$(2.571\ 0.013\ 0.018\ 0.042)\times10^{-1}$	$(5.356\ 0.067\ 0.059\ 0.096)\times10^{-2}$	4.799 0.065 0.063 0.104
56.1 – 60.3	$(2.077\ 0.012\ 0.015\ 0.035)\times10^{-1}$	$(4.607\ 0.059\ 0.052\ 0.083)\times10^{-2}$	4.508 0.063 0.060 0.099

TABLE SM XVIII: Bartels Rotation 2443 (August 16, 2012 – September 11, 2012). The proton flux Φ_p, helium flux Φ_{He}, and p/He flux ratio as a function of rigidity (in units of GV) at the top of AMS in units of $[\mathrm{m}^2 \cdot \mathrm{sr} \cdot \mathrm{s} \cdot \mathrm{GV}]^{-1}$ including errors due to statistics ($\sigma_{\mathrm{stat.}}$), time dependent systematic errors (σ_{time}) and the total systematic error ($\sigma_{\mathrm{syst.}}$). Contributions to the time dependent systematic errors are from: the trigger and the reconstruction efficiency. Contributions to the total systematic error are from: the acceptance, the background contamination, the geomagnetic cutoff factor, the event selection, the unfolding, the rigidity resolution function, the absolute rigidity scale, and the time dependent systematic errors. The statistical errors for the ratio are the sum in quadrature of the relative statistical errors of the fluxes multiplied by the ratio. The time dependent systematic errors for the ratio are the sum in quadrature of the relative time dependent systematic errors of the fluxes multiplied by the ratio. The systematic errors from the acceptance for the ratio are added in quadrature. The correlations in the systematic errors from the unfolding and the absolute rigidity scale between the fluxes have been accounted for in calculating the corresponding systematic errors of the ratio. The contributions of the individual sources to the systematic error are added in quadrature to arrive at the total systematic uncertainty on the ratio.

Rigidity	Φ_p $\sigma_{\mathrm{stat.}}$ σ_{time} $\sigma_{\mathrm{syst.}}$	Φ_{He} $\sigma_{\mathrm{stat.}}$ σ_{time} $\sigma_{\mathrm{syst.}}$	p/He $\sigma_{\mathrm{stat.}}$ σ_{time} $\sigma_{\mathrm{syst.}}$
1.00 – 1.16	$(5.662\ 0.027\ 0.082\ 0.254)\times10^2$	– – – –	– – – –
1.16 – 1.33	$(5.673\ 0.019\ 0.060\ 0.202)\times10^2$	– – – –	– – – –
1.33 – 1.51	$(5.545\ 0.016\ 0.045\ 0.160)\times10^2$	– – – –	– – – –
1.51 – 1.71	$(5.313\ 0.012\ 0.036\ 0.139)\times10^2$	– – – –	– – – –
1.71 – 1.92	$(4.909\ 0.010\ 0.029\ 0.116)\times10^2$	– – – –	– – – –
1.92 – 2.15	$(4.487\ 0.009\ 0.024\ 0.097)\times10^2$	$(5.247\ 0.033\ 0.045\ 0.114)\times10^1$	8.551 0.057 0.087 0.250
2.15 – 2.40	$(4.009\ 0.007\ 0.020\ 0.080)\times10^2$	$(5.021\ 0.029\ 0.038\ 0.096)\times10^1$	7.985 0.049 0.072 0.210
2.40 – 2.67	$(3.535\ 0.006\ 0.016\ 0.067)\times10^2$	$(4.681\ 0.025\ 0.033\ 0.082)\times10^1$	7.550 0.042 0.063 0.183
2.67 – 2.97	$(3.080\ 0.005\ 0.014\ 0.054)\times10^2$	$(4.303\ 0.021\ 0.029\ 0.071)\times10^1$	7.158 0.037 0.058 0.163
2.97 – 3.29	$(2.664\ 0.004\ 0.012\ 0.045)\times10^2$	$(3.847\ 0.018\ 0.024\ 0.062)\times10^1$	6.925 0.034 0.053 0.151
3.29 – 3.64	$(2.273\ 0.004\ 0.010\ 0.037)\times10^2$	$(3.364\ 0.015\ 0.019\ 0.053)\times10^1$	6.756 0.032 0.049 0.144
3.64 – 4.02	$(1.930\ 0.003\ 0.009\ 0.031)\times10^2$	$(2.926\ 0.013\ 0.016\ 0.045)\times10^1$	6.597 0.031 0.047 0.137
4.02 – 4.43	$(1.625\ 0.003\ 0.008\ 0.025)\times10^2$	$(2.484\ 0.010\ 0.013\ 0.038)\times10^1$	6.541 0.029 0.045 0.132
4.43 – 4.88	$(1.359\ 0.002\ 0.006\ 0.021)\times10^2$	$(2.130\ 0.009\ 0.010\ 0.032)\times10^1$	6.377 0.027 0.043 0.127
4.88 – 5.37	$(1.122\ 0.002\ 0.005\ 0.016)\times10^2$	$(1.779\ 0.007\ 0.008\ 0.026)\times10^1$	6.305 0.027 0.040 0.124
5.37 – 5.90	$(9.214\ 0.014\ 0.038\ 0.132)\times10^1$	$(1.491\ 0.006\ 0.007\ 0.022)\times10^1$	6.182 0.026 0.037 0.119
5.90 – 6.47	$(7.556\ 0.011\ 0.030\ 0.106)\times10^1$	$(1.245\ 0.005\ 0.005\ 0.018)\times10^1$	6.071 0.025 0.036 0.115
6.47 – 7.09	$(6.177\ 0.009\ 0.024\ 0.086)\times10^1$	$(1.028\ 0.004\ 0.005\ 0.015)\times10^1$	6.007 0.025 0.035 0.112
7.09 – 7.76	$(5.035\ 0.008\ 0.019\ 0.070)\times10^1$	$(8.500\ 0.033\ 0.038\ 0.125)\times10^0$	5.924 0.025 0.035 0.110
7.76 – 8.48	$(4.088\ 0.006\ 0.015\ 0.057)\times10^1$	$(7.006\ 0.028\ 0.032\ 0.102)\times10^0$	5.835 0.025 0.035 0.107
8.48 – 9.26	$(3.312\ 0.005\ 0.013\ 0.046)\times10^1$	$(5.741\ 0.024\ 0.028\ 0.084)\times10^0$	5.769 0.025 0.036 0.106
9.26 – 10.1	$(2.681\ 0.004\ 0.010\ 0.036)\times10^1$	$(4.712\ 0.020\ 0.024\ 0.069)\times10^0$	5.690 0.026 0.036 0.104
10.1 – 11.0	$(2.165\ 0.004\ 0.009\ 0.029)\times10^1$	$(3.838\ 0.017\ 0.020\ 0.056)\times10^0$	5.641 0.027 0.037 0.103
11.0 – 12.0	$(1.738\ 0.003\ 0.007\ 0.024)\times10^1$	$(3.138\ 0.015\ 0.017\ 0.047)\times10^0$	5.538 0.028 0.038 0.102
12.0 – 13.0	$(1.404\ 0.003\ 0.006\ 0.019)\times10^1$	$(2.559\ 0.013\ 0.015\ 0.038)\times10^0$	5.488 0.030 0.039 0.102
13.0 – 14.1	$(1.139\ 0.002\ 0.005\ 0.016)\times10^1$	$(2.095\ 0.011\ 0.013\ 0.031)\times10^0$	5.435 0.030 0.041 0.101
14.1 – 15.3	$(9.221\ 0.019\ 0.042\ 0.130)\times10^0$	$(1.719\ 0.009\ 0.011\ 0.026)\times10^0$	5.365 0.031 0.042 0.101
15.3 – 16.6	$(7.437\ 0.016\ 0.035\ 0.106)\times10^0$	$(1.394\ 0.008\ 0.009\ 0.021)\times10^0$	5.336 0.032 0.044 0.101

Table continued

TABLE SM XVIII: Bartels Rotation 2443 (August 16, 2012 – September 11, 2012). *(Continued).*

Rigidity	Φ_p $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	Φ_{He} $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	p/He $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$
16.6 – 18.0	$(5.965\ 0.013\ 0.029\ 0.086)\times10^{0}$	$(1.140\ 0.006\ 0.008\ 0.018)\times10^{0}$	5.231 0.032 0.045 0.100
18.0 – 19.5	$(4.818\ 0.011\ 0.024\ 0.071)\times10^{0}$	$(9.183\ 0.053\ 0.068\ 0.143)\times10^{-1}$	5.247 0.033 0.047 0.101
19.5 – 21.1	$(3.875\ 0.009\ 0.020\ 0.058)\times10^{0}$	$(7.565\ 0.045\ 0.059\ 0.119)\times10^{-1}$	5.123 0.032 0.048 0.099
21.1 – 22.8	$(3.125\ 0.008\ 0.017\ 0.047)\times10^{0}$	$(6.185\ 0.037\ 0.049\ 0.098)\times10^{-1}$	5.053 0.033 0.048 0.099
22.8 – 24.7	$(2.518\ 0.006\ 0.014\ 0.038)\times10^{0}$	$(4.978\ 0.031\ 0.040\ 0.079)\times10^{-1}$	5.059 0.034 0.049 0.099
24.7 – 26.7	$(2.032\ 0.005\ 0.012\ 0.031)\times10^{0}$	$(4.093\ 0.027\ 0.034\ 0.065)\times10^{-1}$	4.965 0.035 0.050 0.098
26.7 – 28.8	$(1.642\ 0.005\ 0.010\ 0.025)\times10^{0}$	$(3.384\ 0.024\ 0.029\ 0.054)\times10^{-1}$	4.853 0.036 0.050 0.096
28.8 – 31.1	$(1.319\ 0.004\ 0.008\ 0.020)\times10^{0}$	$(2.715\ 0.020\ 0.023\ 0.044)\times10^{-1}$	4.859 0.039 0.051 0.097
31.1 – 33.5	$(1.073\ 0.003\ 0.007\ 0.017)\times10^{0}$	$(2.211\ 0.018\ 0.020\ 0.036)\times10^{-1}$	4.854 0.042 0.052 0.098
33.5 – 36.1	$(8.716\ 0.030\ 0.056\ 0.135)\times10^{-1}$	$(1.821\ 0.015\ 0.016\ 0.031)\times10^{-1}$	4.786 0.044 0.053 0.098
36.1 – 38.9	$(7.116\ 0.026\ 0.047\ 0.111)\times10^{-1}$	$(1.480\ 0.013\ 0.014\ 0.025)\times10^{-1}$	4.807 0.047 0.054 0.099
38.9 – 41.9	$(5.778\ 0.023\ 0.039\ 0.091)\times10^{-1}$	$(1.225\ 0.012\ 0.012\ 0.020)\times10^{-1}$	4.716 0.049 0.055 0.098
41.9 – 45.1	$(4.709\ 0.020\ 0.032\ 0.074)\times10^{-1}$	$(9.923\ 0.101\ 0.096\ 0.169)\times10^{-2}$	4.745 0.053 0.057 0.099
45.1 – 48.5	$(3.826\ 0.017\ 0.027\ 0.061)\times10^{-1}$	$(8.230\ 0.089\ 0.082\ 0.141)\times10^{-2}$	4.649 0.055 0.057 0.099
48.5 – 52.2	$(3.118\ 0.015\ 0.023\ 0.051)\times10^{-1}$	$(6.683\ 0.077\ 0.068\ 0.116)\times10^{-2}$	4.666 0.058 0.058 0.100
52.2 – 56.1	$(2.544\ 0.013\ 0.019\ 0.043)\times10^{-1}$	$(5.639\ 0.069\ 0.058\ 0.099)\times10^{-2}$	4.511 0.060 0.057 0.097
56.1 – 60.3	$(2.103\ 0.012\ 0.016\ 0.036)\times10^{-1}$	$(4.419\ 0.058\ 0.047\ 0.078)\times10^{-2}$	4.759 0.068 0.062 0.103

TABLE SM XIX: Bartels Rotation 2444 (September 12, 2012 – October 8, 2012). The proton flux Φ_p, helium flux Φ_{He}, and p/He flux ratio as a function of rigidity (in units of GV) at the top of AMS in units of $[\mathrm{m}^2 \cdot \mathrm{sr} \cdot \mathrm{s} \cdot \mathrm{GV}]^{-1}$ including errors due to statistics ($\sigma_{\mathrm{stat.}}$), time dependent systematic errors (σ_{time}) and the total systematic error ($\sigma_{\mathrm{syst.}}$). Contributions to the time dependent systematic errors are from: the trigger and the reconstruction efficiency. Contributions to the total systematic error are from: the acceptance, the background contamination, the geomagnetic cutoff factor, the event selection, the unfolding, the rigidity resolution function, the absolute rigidity scale, and the time dependent systematic errors. The statistical errors for the ratio are the sum in quadrature of the relative statistical errors of the fluxes multiplied by the ratio. The time dependent systematic errors for the ratio are the sum in quadrature of the relative time dependent systematic errors of the fluxes multiplied by the ratio. The systematic errors from the acceptance for the ratio are added in quadrature. The correlations in the systematic errors from the unfolding and the absolute rigidity scale between the fluxes have been accounted for in calculating the corresponding systematic errors of the ratio. The contributions of the individual sources to the systematic error are added in quadrature to arrive at the total systematic uncertainty on the ratio.

Rigidity	Φ_p	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	Φ_{He}	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	p/He	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$
1.00 – 1.16	$(5.955$	0.032	0.087	$0.267)\times10^2$	–	–	–	–	–	–	–	–
1.16 – 1.33	$(6.003$	0.020	0.064	$0.214)\times10^2$	–	–	–	–	–	–	–	–
1.33 – 1.51	$(5.888$	0.017	0.048	$0.169)\times10^2$	–	–	–	–	–	–	–	–
1.51 – 1.71	$(5.626$	0.013	0.037	$0.147)\times10^2$	–	–	–	–	–	–	–	–
1.71 – 1.92	$(5.223$	0.011	0.030	$0.123)\times10^2$	–	–	–	–	–	–	–	–
1.92 – 2.15	$(4.746$	0.009	0.024	$0.103)\times10^2$	$(5.580$	0.035	0.049	$0.122)\times10^1$	8.506	0.055	0.087	0.249
2.15 – 2.40	$(4.245$	0.008	0.020	$0.086)\times10^2$	$(5.375$	0.030	0.041	$0.103)\times10^1$	7.899	0.047	0.070	0.207
2.40 – 2.67	$(3.730$	0.006	0.017	$0.071)\times10^2$	$(4.989$	0.026	0.035	$0.087)\times10^1$	7.478	0.041	0.062	0.181
2.67 – 2.97	$(3.248$	0.005	0.014	$0.057)\times10^2$	$(4.511$	0.022	0.030	$0.075)\times10^1$	7.200	0.037	0.058	0.164
2.97 – 3.29	$(2.803$	0.005	0.012	$0.047)\times10^2$	$(4.005$	0.018	0.025	$0.064)\times10^1$	7.000	0.034	0.053	0.153
3.29 – 3.64	$(2.402$	0.004	0.011	$0.039)\times10^2$	$(3.541$	0.016	0.020	$0.056)\times10^1$	6.783	0.032	0.049	0.144
3.64 – 4.02	$(2.025$	0.003	0.009	$0.032)\times10^2$	$(3.080$	0.013	0.016	$0.048)\times10^1$	6.573	0.030	0.046	0.136
4.02 – 4.43	$(1.701$	0.003	0.008	$0.026)\times10^2$	$(2.605$	0.011	0.013	$0.040)\times10^1$	6.528	0.029	0.044	0.132
4.43 – 4.88	$(1.414$	0.002	0.006	$0.021)\times10^2$	$(2.209$	0.009	0.011	$0.033)\times10^1$	6.400	0.027	0.042	0.128
4.88 – 5.37	$(1.162$	0.002	0.005	$0.017)\times10^2$	$(1.848$	0.007	0.009	$0.027)\times10^1$	6.289	0.026	0.039	0.123
5.37 – 5.90	$(9.533$	0.014	0.038	$0.136)\times10^1$	$(1.538$	0.006	0.007	$0.023)\times10^1$	6.199	0.026	0.037	0.119
5.90 – 6.47	$(7.804$	0.012	0.030	$0.110)\times10^1$	$(1.280$	0.005	0.006	$0.019)\times10^1$	6.099	0.025	0.036	0.115
6.47 – 7.09	$(6.362$	0.009	0.024	$0.089)\times10^1$	$(1.056$	0.004	0.005	$0.015)\times10^1$	6.022	0.025	0.035	0.113
7.09 – 7.76	$(5.184$	0.008	0.019	$0.072)\times10^1$	$(8.720$	0.034	0.039	$0.128)\times10^0$	5.945	0.025	0.035	0.110
7.76 – 8.48	$(4.187$	0.006	0.015	$0.058)\times10^1$	$(7.128$	0.028	0.033	$0.104)\times10^0$	5.873	0.025	0.035	0.108
8.48 – 9.26	$(3.377$	0.005	0.013	$0.046)\times10^1$	$(5.797$	0.024	0.028	$0.085)\times10^0$	5.825	0.026	0.035	0.107
9.26 – 10.1	$(2.720$	0.005	0.010	$0.037)\times10^1$	$(4.812$	0.020	0.024	$0.071)\times10^0$	5.654	0.026	0.036	0.104
10.1 – 11.0	$(2.197$	0.004	0.009	$0.030)\times10^1$	$(3.937$	0.017	0.021	$0.058)\times10^0$	5.579	0.027	0.036	0.102
11.0 – 12.0	$(1.763$	0.003	0.007	$0.024)\times10^1$	$(3.166$	0.015	0.017	$0.047)\times10^0$	5.569	0.028	0.038	0.102
12.0 – 13.0	$(1.422$	0.003	0.006	$0.020)\times10^1$	$(2.550$	0.013	0.015	$0.038)\times10^0$	5.574	0.030	0.039	0.103
13.0 – 14.1	$(1.150$	0.002	0.005	$0.016)\times10^1$	$(2.126$	0.011	0.013	$0.032)\times10^0$	5.412	0.030	0.040	0.101
14.1 – 15.3	$(9.296$	0.020	0.041	$0.132)\times10^0$	$(1.706$	0.009	0.011	$0.025)\times10^0$	5.449	0.031	0.042	0.102
15.3 – 16.6	$(7.471$	0.016	0.034	$0.107)\times10^0$	$(1.397$	0.008	0.009	$0.021)\times10^0$	5.348	0.032	0.043	0.101

Table continued

TABLE SM XIX: Bartels Rotation 2444 (September 12, 2012 – October 8, 2012). *(Continued).*

Rigidity	Φ_p $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	Φ_{He} $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	p/He $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$
16.6 – 18.0	$(6.027\ 0.013\ 0.028\ 0.087)\times10^{0}$	$(1.142\ 0.006\ 0.008\ 0.018)\times10^{0}$	5.279 0.032 0.045 0.101
18.0 – 19.5	$(4.832\ 0.011\ 0.024\ 0.071)\times10^{0}$	$(9.332\ 0.054\ 0.069\ 0.145)\times10^{-1}$	5.178 0.032 0.046 0.099
19.5 – 21.1	$(3.877\ 0.009\ 0.020\ 0.058)\times10^{0}$	$(7.441\ 0.044\ 0.057\ 0.117)\times10^{-1}$	5.210 0.033 0.048 0.100
21.1 – 22.8	$(3.134\ 0.008\ 0.016\ 0.047)\times10^{0}$	$(6.110\ 0.037\ 0.048\ 0.097)\times10^{-1}$	5.130 0.034 0.048 0.100
22.8 – 24.7	$(2.517\ 0.006\ 0.013\ 0.038)\times10^{0}$	$(4.978\ 0.031\ 0.040\ 0.079)\times10^{-1}$	5.056 0.034 0.049 0.099
24.7 – 26.7	$(2.029\ 0.005\ 0.011\ 0.031)\times10^{0}$	$(4.033\ 0.027\ 0.033\ 0.064)\times10^{-1}$	5.032 0.036 0.050 0.099
26.7 – 28.8	$(1.640\ 0.005\ 0.009\ 0.025)\times10^{0}$	$(3.345\ 0.023\ 0.028\ 0.053)\times10^{-1}$	4.902 0.037 0.050 0.097
28.8 – 31.1	$(1.320\ 0.004\ 0.008\ 0.020)\times10^{0}$	$(2.715\ 0.020\ 0.023\ 0.044)\times10^{-1}$	4.863 0.038 0.050 0.097
31.1 – 33.5	$(1.072\ 0.003\ 0.006\ 0.017)\times10^{0}$	$(2.221\ 0.018\ 0.019\ 0.036)\times10^{-1}$	4.828 0.041 0.051 0.097
33.5 – 36.1	$(8.735\ 0.030\ 0.054\ 0.135)\times10^{-1}$	$(1.848\ 0.015\ 0.017\ 0.031)\times10^{-1}$	4.728 0.043 0.052 0.096
36.1 – 38.9	$(7.118\ 0.026\ 0.045\ 0.111)\times10^{-1}$	$(1.477\ 0.013\ 0.014\ 0.025)\times10^{-1}$	4.818 0.047 0.054 0.099
38.9 – 41.9	$(5.787\ 0.023\ 0.038\ 0.090)\times10^{-1}$	$(1.213\ 0.012\ 0.011\ 0.020)\times10^{-1}$	4.770 0.049 0.055 0.099
41.9 – 45.1	$(4.672\ 0.020\ 0.031\ 0.074)\times10^{-1}$	$(9.873\ 0.100\ 0.095\ 0.168)\times10^{-2}$	4.732 0.052 0.056 0.099
45.1 – 48.5	$(3.822\ 0.017\ 0.026\ 0.061)\times10^{-1}$	$(8.138\ 0.088\ 0.080\ 0.139)\times10^{-2}$	4.697 0.055 0.056 0.099
48.5 – 52.2	$(3.125\ 0.015\ 0.022\ 0.051)\times10^{-1}$	$(6.514\ 0.075\ 0.066\ 0.112)\times10^{-2}$	4.798 0.060 0.059 0.102
52.2 – 56.1	$(2.569\ 0.013\ 0.018\ 0.043)\times10^{-1}$	$(5.504\ 0.067\ 0.057\ 0.096)\times10^{-2}$	4.667 0.062 0.058 0.100
56.1 – 60.3	$(2.103\ 0.012\ 0.015\ 0.035)\times10^{-1}$	$(4.478\ 0.058\ 0.047\ 0.079)\times10^{-2}$	4.696 0.066 0.060 0.101

TABLE SM XX: Bartels Rotation 2445 (October 9, 2012 – November 4, 2012). The proton flux Φ_p, helium flux Φ_{He}, and p/He flux ratio as a function of rigidity (in units of GV) at the top of AMS in units of $[\mathrm{m}^2 \cdot \mathrm{sr} \cdot \mathrm{s} \cdot \mathrm{GV}]^{-1}$ including errors due to statistics ($\sigma_{\mathrm{stat.}}$), time dependent systematic errors (σ_{time}) and the total systematic error ($\sigma_{\mathrm{syst.}}$). Contributions to the time dependent systematic errors are from: the trigger and the reconstruction efficiency. Contributions to the total systematic error are from: the acceptance, the background contamination, the geomagnetic cutoff factor, the event selection, the unfolding, the rigidity resolution function, the absolute rigidity scale, and the time dependent systematic errors. The statistical errors for the ratio are the sum in quadrature of the relative statistical errors of the fluxes multiplied by the ratio. The time dependent systematic errors for the ratio are the sum in quadrature of the relative time dependent systematic errors of the fluxes multiplied by the ratio. The systematic errors from the acceptance for the ratio are added in quadrature. The correlations in the systematic errors from the unfolding and the absolute rigidity scale between the fluxes have been accounted for in calculating the corresponding systematic errors of the ratio. The contributions of the individual sources to the systematic error are added in quadrature to arrive at the total systematic uncertainty on the ratio.

Rigidity	Φ_p	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	Φ_{He}	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	p/He	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$
1.00 – 1.16	$(5.537$	0.032	0.085	$0.250)\times10^2$	–	–	–	–	–	–	–	–
1.16 – 1.33	$(5.604$	0.020	0.062	$0.201)\times10^2$	–	–	–	–	–	–	–	–
1.33 – 1.51	$(5.571$	0.017	0.048	$0.161)\times10^2$	–	–	–	–	–	–	–	–
1.51 – 1.71	$(5.292$	0.013	0.037	$0.138)\times10^2$	–	–	–	–	–	–	–	–
1.71 – 1.92	$(4.933$	0.011	0.030	$0.117)\times10^2$	–	–	–	–	–	–	–	–
1.92 – 2.15	$(4.516$	0.009	0.024	$0.098)\times10^2$	$(5.375$	0.036	0.053	$0.120)\times10^1$	8.403	0.059	0.094	0.249
2.15 – 2.40	$(4.044$	0.008	0.020	$0.081)\times10^2$	$(5.175$	0.031	0.044	$0.101)\times10^1$	7.816	0.050	0.077	0.208
2.40 – 2.67	$(3.582$	0.007	0.017	$0.068)\times10^2$	$(4.754$	0.026	0.037	$0.085)\times10^1$	7.534	0.044	0.068	0.184
2.67 – 2.97	$(3.139$	0.006	0.014	$0.055)\times10^2$	$(4.332$	0.022	0.032	$0.073)\times10^1$	7.246	0.040	0.063	0.167
2.97 – 3.29	$(2.709$	0.005	0.012	$0.045)\times10^2$	$(3.914$	0.019	0.027	$0.064)\times10^1$	6.922	0.035	0.057	0.153
3.29 – 3.64	$(2.323$	0.004	0.011	$0.037)\times10^2$	$(3.456$	0.016	0.022	$0.055)\times10^1$	6.722	0.033	0.052	0.144
3.64 – 4.02	$(1.965$	0.003	0.009	$0.031)\times10^2$	$(2.947$	0.013	0.017	$0.046)\times10^1$	6.667	0.032	0.050	0.139
4.02 – 4.43	$(1.654$	0.003	0.008	$0.026)\times10^2$	$(2.534$	0.011	0.014	$0.039)\times10^1$	6.527	0.030	0.048	0.133
4.43 – 4.88	$(1.381$	0.002	0.006	$0.021)\times10^2$	$(2.156$	0.009	0.012	$0.033)\times10^1$	6.404	0.028	0.045	0.129
4.88 – 5.37	$(1.139$	0.002	0.005	$0.016)\times10^2$	$(1.806$	0.007	0.009	$0.027)\times10^1$	6.307	0.028	0.042	0.124
5.37 – 5.90	$(9.330$	0.014	0.038	$0.133)\times10^1$	$(1.521$	0.006	0.007	$0.023)\times10^1$	6.135	0.027	0.039	0.118
5.90 – 6.47	$(7.675$	0.012	0.030	$0.108)\times10^1$	$(1.251$	0.005	0.006	$0.018)\times10^1$	6.135	0.027	0.038	0.116
6.47 – 7.09	$(6.259$	0.010	0.024	$0.087)\times10^1$	$(1.045$	0.004	0.005	$0.015)\times10^1$	5.987	0.026	0.037	0.113
7.09 – 7.76	$(5.073$	0.008	0.019	$0.070)\times10^1$	$(8.603$	0.035	0.042	$0.127)\times10^0$	5.897	0.025	0.036	0.110
7.76 – 8.48	$(4.128$	0.007	0.015	$0.057)\times10^1$	$(7.071$	0.029	0.036	$0.104)\times10^0$	5.837	0.026	0.037	0.108
8.48 – 9.26	$(3.342$	0.005	0.013	$0.046)\times10^1$	$(5.820$	0.025	0.031	$0.086)\times10^0$	5.742	0.026	0.037	0.106
9.26 – 10.1	$(2.703$	0.005	0.010	$0.037)\times10^1$	$(4.719$	0.021	0.026	$0.070)\times10^0$	5.728	0.027	0.038	0.106
10.1 – 11.0	$(2.183$	0.004	0.009	$0.030)\times10^1$	$(3.828$	0.018	0.022	$0.057)\times10^0$	5.702	0.028	0.040	0.105
11.0 – 12.0	$(1.748$	0.003	0.007	$0.024)\times10^1$	$(3.110$	0.015	0.019	$0.047)\times10^0$	5.621	0.029	0.041	0.104
12.0 – 13.0	$(1.410$	0.003	0.006	$0.019)\times10^1$	$(2.561$	0.013	0.016	$0.039)\times10^0$	5.505	0.031	0.042	0.103
13.0 – 14.1	$(1.142$	0.002	0.005	$0.016)\times10^1$	$(2.093$	0.011	0.014	$0.032)\times10^0$	5.457	0.031	0.043	0.103
14.1 – 15.3	$(9.211$	0.020	0.042	$0.130)\times10^0$	$(1.701$	0.009	0.012	$0.026)\times10^0$	5.414	0.032	0.045	0.102
15.3 – 16.6	$(7.443$	0.017	0.035	$0.106)\times10^0$	$(1.402$	0.008	0.010	$0.022)\times10^0$	5.308	0.032	0.046	0.102

Table continued

TABLE SM XX: Bartels Rotation 2445 (October 9, 2012 – November 4, 2012). *(Continued).*

Rigidity	Φ_p $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	Φ_{He} $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	p/He $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$
16.6 – 18.0	$(5.998\ 0.014\ 0.029\ 0.087)\times10^{0}$	$(1.123\ 0.007\ 0.009\ 0.018)\times10^{0}$	5.343 0.034 0.049 0.103
18.0 – 19.5	$(4.807\ 0.011\ 0.024\ 0.071)\times10^{0}$	$(9.334\ 0.055\ 0.076\ 0.149)\times10^{-1}$	5.150 0.033 0.049 0.100
19.5 – 21.1	$(3.858\ 0.009\ 0.020\ 0.058)\times10^{0}$	$(7.549\ 0.046\ 0.064\ 0.122)\times10^{-1}$	5.111 0.034 0.051 0.100
21.1 – 22.8	$(3.131\ 0.008\ 0.017\ 0.047)\times10^{0}$	$(6.136\ 0.039\ 0.053\ 0.100)\times10^{-1}$	5.102 0.035 0.052 0.101
22.8 – 24.7	$(2.523\ 0.006\ 0.014\ 0.038)\times10^{0}$	$(4.945\ 0.032\ 0.044\ 0.081)\times10^{-1}$	5.102 0.035 0.053 0.102
24.7 – 26.7	$(2.017\ 0.006\ 0.011\ 0.031)\times10^{0}$	$(4.040\ 0.027\ 0.036\ 0.066)\times10^{-1}$	4.994 0.037 0.053 0.100
26.7 – 28.8	$(1.642\ 0.005\ 0.010\ 0.025)\times10^{0}$	$(3.292\ 0.024\ 0.030\ 0.054)\times10^{-1}$	4.988 0.039 0.055 0.101
28.8 – 31.1	$(1.321\ 0.004\ 0.008\ 0.020)\times10^{0}$	$(2.701\ 0.020\ 0.026\ 0.045)\times10^{-1}$	4.891 0.040 0.055 0.100
31.1 – 33.5	$(1.072\ 0.004\ 0.007\ 0.017)\times10^{0}$	$(2.175\ 0.018\ 0.021\ 0.037)\times10^{-1}$	4.926 0.044 0.057 0.101
33.5 – 36.1	$(8.692\ 0.031\ 0.055\ 0.135)\times10^{-1}$	$(1.803\ 0.016\ 0.018\ 0.031)\times10^{-1}$	4.820 0.045 0.057 0.100
36.1 – 38.9	$(7.101\ 0.027\ 0.046\ 0.110)\times10^{-1}$	$(1.467\ 0.014\ 0.015\ 0.026)\times10^{-1}$	4.840 0.048 0.059 0.102
38.9 – 41.9	$(5.754\ 0.023\ 0.038\ 0.090)\times10^{-1}$	$(1.218\ 0.012\ 0.013\ 0.021)\times10^{-1}$	4.724 0.050 0.059 0.101
41.9 – 45.1	$(4.707\ 0.021\ 0.032\ 0.074)\times10^{-1}$	$(9.832\ 0.103\ 0.106\ 0.173)\times10^{-2}$	4.787 0.054 0.061 0.103
45.1 – 48.5	$(3.827\ 0.018\ 0.027\ 0.061)\times10^{-1}$	$(8.055\ 0.090\ 0.089\ 0.144)\times10^{-2}$	4.752 0.058 0.062 0.103
48.5 – 52.2	$(3.113\ 0.016\ 0.022\ 0.051)\times10^{-1}$	$(6.519\ 0.078\ 0.074\ 0.117)\times10^{-2}$	4.774 0.062 0.064 0.105
52.2 – 56.1	$(2.550\ 0.014\ 0.019\ 0.042)\times10^{-1}$	$(5.380\ 0.069\ 0.062\ 0.098)\times10^{-2}$	4.740 0.065 0.065 0.104
56.1 – 60.3	$(2.057\ 0.012\ 0.015\ 0.035)\times10^{-1}$	$(4.396\ 0.059\ 0.052\ 0.081)\times10^{-2}$	4.678 0.069 0.065 0.104

TABLE SM XXI: Bartels Rotation 2446 (November 5, 2012 – December 1, 2012). The proton flux Φ_p, helium flux Φ_{He}, and p/He flux ratio as a function of rigidity (in units of GV) at the top of AMS in units of $[\mathrm{m}^2 \cdot \mathrm{sr} \cdot \mathrm{s} \cdot \mathrm{GV}]^{-1}$ including errors due to statistics ($\sigma_{\mathrm{stat.}}$), time dependent systematic errors (σ_{time}) and the total systematic error ($\sigma_{\mathrm{syst.}}$). Contributions to the time dependent systematic errors are from: the trigger and the reconstruction efficiency. Contributions to the total systematic error are from: the acceptance, the background contamination, the geomagnetic cutoff factor, the event selection, the unfolding, the rigidity resolution function, the absolute rigidity scale, and the time dependent systematic errors. The statistical errors for the ratio are the sum in quadrature of the relative statistical errors of the fluxes multiplied by the ratio. The time dependent systematic errors for the ratio are the sum in quadrature of the relative time dependent systematic errors of the fluxes multiplied by the ratio. The systematic errors from the acceptance for the ratio are added in quadrature. The correlations in the systematic errors from the unfolding and the absolute rigidity scale between the fluxes have been accounted for in calculating the corresponding systematic errors of the ratio. The contributions of the individual sources to the systematic error are added in quadrature to arrive at the total systematic uncertainty on the ratio.

Rigidity	Φ_p $\sigma_{\mathrm{stat.}}$ σ_{time} $\sigma_{\mathrm{syst.}}$	Φ_{He} $\sigma_{\mathrm{stat.}}$ σ_{time} $\sigma_{\mathrm{syst.}}$	p/He $\sigma_{\mathrm{stat.}}$ σ_{time} $\sigma_{\mathrm{syst.}}$
1.00 – 1.16	$(5.585\ 0.030\ 0.084\ 0.251)\times10^2$	– – – –	– – – –
1.16 – 1.33	$(5.673\ 0.019\ 0.062\ 0.203)\times10^2$	– – – –	– – – –
1.33 – 1.51	$(5.592\ 0.017\ 0.047\ 0.161)\times10^2$	– – – –	– – – –
1.51 – 1.71	$(5.393\ 0.012\ 0.038\ 0.141)\times10^2$	– – – –	– – – –
1.71 – 1.92	$(5.037\ 0.011\ 0.031\ 0.119)\times10^2$	– – – –	– – – –
1.92 – 2.15	$(4.601\ 0.009\ 0.025\ 0.099)\times10^2$	$(5.552\ 0.035\ 0.051\ 0.122)\times10^1$	8.287 0.055 0.089 0.244
2.15 – 2.40	$(4.119\ 0.008\ 0.021\ 0.083)\times10^2$	$(5.194\ 0.030\ 0.040\ 0.100)\times10^1$	7.929 0.048 0.073 0.209
2.40 – 2.67	$(3.656\ 0.006\ 0.017\ 0.069)\times10^2$	$(4.870\ 0.026\ 0.035\ 0.086)\times10^1$	7.508 0.042 0.064 0.182
2.67 – 2.97	$(3.192\ 0.005\ 0.015\ 0.056)\times10^2$	$(4.433\ 0.022\ 0.030\ 0.074)\times10^1$	7.202 0.038 0.060 0.165
2.97 – 3.29	$(2.751\ 0.005\ 0.013\ 0.046)\times10^2$	$(3.977\ 0.019\ 0.025\ 0.064)\times10^1$	6.917 0.034 0.054 0.152
3.29 – 3.64	$(2.353\ 0.004\ 0.011\ 0.038)\times10^2$	$(3.494\ 0.016\ 0.020\ 0.055)\times10^1$	6.735 0.032 0.051 0.144
3.64 – 4.02	$(1.991\ 0.003\ 0.010\ 0.032)\times10^2$	$(3.014\ 0.013\ 0.016\ 0.047)\times10^1$	6.607 0.031 0.048 0.138
4.02 – 4.43	$(1.671\ 0.003\ 0.008\ 0.026)\times10^2$	$(2.567\ 0.011\ 0.013\ 0.039)\times10^1$	6.512 0.029 0.046 0.132
4.43 – 4.88	$(1.393\ 0.002\ 0.007\ 0.021)\times10^2$	$(2.197\ 0.009\ 0.011\ 0.033)\times10^1$	6.342 0.027 0.043 0.127
4.88 – 5.37	$(1.148\ 0.002\ 0.005\ 0.017)\times10^2$	$(1.829\ 0.007\ 0.008\ 0.027)\times10^1$	6.281 0.027 0.041 0.123
5.37 – 5.90	$(9.442\ 0.014\ 0.040\ 0.135)\times10^1$	$(1.525\ 0.006\ 0.007\ 0.023)\times10^1$	6.194 0.026 0.038 0.119
5.90 – 6.47	$(7.707\ 0.012\ 0.031\ 0.109)\times10^1$	$(1.266\ 0.005\ 0.006\ 0.018)\times10^1$	6.088 0.026 0.036 0.115
6.47 – 7.09	$(6.288\ 0.009\ 0.025\ 0.088)\times10^1$	$(1.048\ 0.004\ 0.005\ 0.015)\times10^1$	6.000 0.025 0.035 0.112
7.09 – 7.76	$(5.116\ 0.008\ 0.020\ 0.071)\times10^1$	$(8.672\ 0.034\ 0.038\ 0.127)\times10^0$	5.900 0.025 0.035 0.109
7.76 – 8.48	$(4.150\ 0.006\ 0.016\ 0.058)\times10^1$	$(7.076\ 0.028\ 0.032\ 0.103)\times10^0$	5.865 0.025 0.035 0.108
8.48 – 9.26	$(3.358\ 0.005\ 0.013\ 0.046)\times10^1$	$(5.806\ 0.024\ 0.027\ 0.085)\times10^0$	5.785 0.026 0.035 0.106
9.26 – 10.1	$(2.709\ 0.005\ 0.011\ 0.037)\times10^1$	$(4.733\ 0.020\ 0.023\ 0.069)\times10^0$	5.724 0.026 0.036 0.105
10.1 – 11.0	$(2.184\ 0.004\ 0.009\ 0.030)\times10^1$	$(3.864\ 0.017\ 0.019\ 0.056)\times10^0$	5.652 0.027 0.037 0.103
11.0 – 12.0	$(1.750\ 0.003\ 0.007\ 0.024)\times10^1$	$(3.109\ 0.015\ 0.016\ 0.046)\times10^0$	5.629 0.028 0.038 0.103
12.0 – 13.0	$(1.413\ 0.003\ 0.006\ 0.019)\times10^1$	$(2.562\ 0.013\ 0.014\ 0.038)\times10^0$	5.516 0.030 0.038 0.102
13.0 – 14.1	$(1.146\ 0.002\ 0.005\ 0.016)\times10^1$	$(2.118\ 0.011\ 0.012\ 0.031)\times10^0$	5.413 0.030 0.039 0.101
14.1 – 15.3	$(9.223\ 0.020\ 0.044\ 0.131)\times10^0$	$(1.714\ 0.009\ 0.010\ 0.025)\times10^0$	5.382 0.031 0.041 0.100
15.3 – 16.6	$(7.458\ 0.016\ 0.036\ 0.107)\times10^0$	$(1.387\ 0.008\ 0.009\ 0.021)\times10^0$	5.378 0.032 0.043 0.101

Table continued

TABLE SM XXI: Bartels Rotation 2446 (November 5, 2012 – December 1, 2012). *(Continued).*

Rigidity	Φ_p $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	Φ_{He} $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	p/He $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$
16.6 – 18.0	$(5.984\ 0.014\ 0.030\ 0.087)\times10^{0}$	$(1.140\ 0.006\ 0.008\ 0.018)\times10^{0}$	5.249 0.032 0.044 0.100
18.0 – 19.5	$(4.817\ 0.011\ 0.025\ 0.071)\times10^{0}$	$(9.223\ 0.054\ 0.064\ 0.142)\times10^{-1}$	5.223 0.033 0.045 0.100
19.5 – 21.1	$(3.882\ 0.009\ 0.021\ 0.058)\times10^{0}$	$(7.535\ 0.045\ 0.055\ 0.117)\times10^{-1}$	5.152 0.033 0.046 0.099
21.1 – 22.8	$(3.144\ 0.008\ 0.017\ 0.048)\times10^{0}$	$(6.080\ 0.038\ 0.045\ 0.095)\times10^{-1}$	5.171 0.034 0.048 0.100
22.8 – 24.7	$(2.516\ 0.006\ 0.014\ 0.038)\times10^{0}$	$(5.011\ 0.031\ 0.038\ 0.078)\times10^{-1}$	5.022 0.034 0.047 0.098
24.7 – 26.7	$(2.027\ 0.005\ 0.012\ 0.031)\times10^{0}$	$(4.059\ 0.027\ 0.031\ 0.064)\times10^{-1}$	4.994 0.036 0.048 0.098
26.7 – 28.8	$(1.645\ 0.005\ 0.010\ 0.025)\times10^{0}$	$(3.351\ 0.023\ 0.026\ 0.053)\times10^{-1}$	4.908 0.037 0.049 0.097
28.8 – 31.1	$(1.329\ 0.004\ 0.008\ 0.021)\times10^{0}$	$(2.692\ 0.020\ 0.022\ 0.043)\times10^{-1}$	4.939 0.040 0.050 0.098
31.1 – 33.5	$(1.081\ 0.004\ 0.007\ 0.017)\times10^{0}$	$(2.229\ 0.018\ 0.018\ 0.036)\times10^{-1}$	4.850 0.042 0.051 0.097
33.5 – 36.1	$(8.726\ 0.030\ 0.057\ 0.136)\times10^{-1}$	$(1.845\ 0.016\ 0.016\ 0.030)\times10^{-1}$	4.730 0.043 0.051 0.096
36.1 – 38.9	$(7.080\ 0.026\ 0.048\ 0.111)\times10^{-1}$	$(1.518\ 0.014\ 0.013\ 0.025)\times10^{-1}$	4.663 0.045 0.051 0.095
38.9 – 41.9	$(5.774\ 0.023\ 0.040\ 0.091)\times10^{-1}$	$(1.210\ 0.012\ 0.011\ 0.020)\times10^{-1}$	4.773 0.050 0.054 0.099
41.9 – 45.1	$(4.719\ 0.020\ 0.033\ 0.075)\times10^{-1}$	$(9.988\ 0.102\ 0.091\ 0.167)\times10^{-2}$	4.725 0.052 0.055 0.098
45.1 – 48.5	$(3.811\ 0.017\ 0.028\ 0.061)\times10^{-1}$	$(8.152\ 0.089\ 0.076\ 0.137)\times10^{-2}$	4.675 0.055 0.055 0.098
48.5 – 52.2	$(3.138\ 0.015\ 0.023\ 0.052)\times10^{-1}$	$(6.468\ 0.076\ 0.062\ 0.110)\times10^{-2}$	4.851 0.062 0.059 0.103
52.2 – 56.1	$(2.564\ 0.013\ 0.020\ 0.043)\times10^{-1}$	$(5.442\ 0.068\ 0.053\ 0.093)\times10^{-2}$	4.712 0.063 0.058 0.100
56.1 – 60.3	$(2.099\ 0.012\ 0.016\ 0.036)\times10^{-1}$	$(4.461\ 0.059\ 0.044\ 0.077)\times10^{-2}$	4.704 0.067 0.059 0.101

TABLE SM XXII: Bartels Rotation 2447 (December 2, 2012 – December 28, 2012). The proton flux Φ_p, helium flux Φ_{He}, and p/He flux ratio as a function of rigidity (in units of GV) at the top of AMS in units of $[\mathrm{m}^2 \cdot \mathrm{sr} \cdot \mathrm{s} \cdot \mathrm{GV}]^{-1}$ including errors due to statistics ($\sigma_{\mathrm{stat.}}$), time dependent systematic errors (σ_{time}) and the total systematic error ($\sigma_{\mathrm{syst.}}$). Contributions to the time dependent systematic errors are from: the trigger and the reconstruction efficiency. Contributions to the total systematic error are from: the acceptance, the background contamination, the geomagnetic cutoff factor, the event selection, the unfolding, the rigidity resolution function, the absolute rigidity scale, and the time dependent systematic errors. The statistical errors for the ratio are the sum in quadrature of the relative statistical errors of the fluxes multiplied by the ratio. The time dependent systematic errors for the ratio are the sum in quadrature of the relative time dependent systematic errors of the fluxes multiplied by the ratio. The systematic errors from the acceptance for the ratio are added in quadrature. The correlations in the systematic errors from the unfolding and the absolute rigidity scale between the fluxes have been accounted for in calculating the corresponding systematic errors of the ratio. The contributions of the individual sources to the systematic error are added in quadrature to arrive at the total systematic uncertainty on the ratio.

Rigidity	Φ_p $\sigma_{\mathrm{stat.}}$ σ_{time} $\sigma_{\mathrm{syst.}}$	Φ_{He} $\sigma_{\mathrm{stat.}}$ σ_{time} $\sigma_{\mathrm{syst.}}$	p/He $\sigma_{\mathrm{stat.}}$ σ_{time} $\sigma_{\mathrm{syst.}}$
1.00 – 1.16	$(5.549\ 0.028\ 0.080\ 0.249)\times10^2$	– – – –	– – – –
1.16 – 1.33	$(5.715\ 0.019\ 0.061\ 0.204)\times10^2$	– – – –	– – – –
1.33 – 1.51	$(5.686\ 0.017\ 0.047\ 0.164)\times10^2$	– – – –	– – – –
1.51 – 1.71	$(5.511\ 0.012\ 0.038\ 0.144)\times10^2$	– – – –	– – – –
1.71 – 1.92	$(5.169\ 0.011\ 0.031\ 0.122)\times10^2$	– – – –	– – – –
1.92 – 2.15	$(4.726\ 0.009\ 0.026\ 0.102)\times10^2$	$(5.618\ 0.034\ 0.059\ 0.127)\times10^1$	8.412 0.054 0.100 0.252
2.15 – 2.40	$(4.239\ 0.008\ 0.022\ 0.085)\times10^2$	$(5.311\ 0.030\ 0.049\ 0.106)\times10^1$	7.983 0.047 0.084 0.214
2.40 – 2.67	$(3.759\ 0.006\ 0.018\ 0.071)\times10^2$	$(4.983\ 0.026\ 0.044\ 0.091)\times10^1$	7.543 0.041 0.076 0.188
2.67 – 2.97	$(3.275\ 0.005\ 0.015\ 0.058)\times10^2$	$(4.536\ 0.022\ 0.039\ 0.079)\times10^1$	7.219 0.037 0.071 0.170
2.97 – 3.29	$(2.830\ 0.005\ 0.013\ 0.047)\times10^2$	$(4.066\ 0.018\ 0.030\ 0.067)\times10^1$	6.959 0.033 0.061 0.155
3.29 – 3.64	$(2.413\ 0.004\ 0.012\ 0.039)\times10^2$	$(3.562\ 0.016\ 0.023\ 0.057)\times10^1$	6.774 0.031 0.055 0.146
3.64 – 4.02	$(2.044\ 0.003\ 0.010\ 0.033)\times10^2$	$(3.088\ 0.013\ 0.019\ 0.049)\times10^1$	6.620 0.030 0.052 0.139
4.02 – 4.43	$(1.712\ 0.003\ 0.008\ 0.027)\times10^2$	$(2.640\ 0.011\ 0.016\ 0.041)\times10^1$	6.486 0.028 0.050 0.133
4.43 – 4.88	$(1.423\ 0.002\ 0.007\ 0.022)\times10^2$	$(2.221\ 0.009\ 0.013\ 0.034)\times10^1$	6.407 0.027 0.048 0.130
4.88 – 5.37	$(1.173\ 0.002\ 0.005\ 0.017)\times10^2$	$(1.869\ 0.007\ 0.010\ 0.028)\times10^1$	6.276 0.026 0.045 0.125
5.37 – 5.90	$(9.593\ 0.014\ 0.041\ 0.137)\times10^1$	$(1.550\ 0.006\ 0.008\ 0.024)\times10^1$	6.189 0.026 0.043 0.121
5.90 – 6.47	$(7.868\ 0.012\ 0.032\ 0.111)\times10^1$	$(1.292\ 0.005\ 0.007\ 0.019)\times10^1$	6.090 0.025 0.041 0.117
6.47 – 7.09	$(6.399\ 0.009\ 0.026\ 0.090)\times10^1$	$(1.065\ 0.004\ 0.006\ 0.016)\times10^1$	6.009 0.025 0.040 0.114
7.09 – 7.76	$(5.186\ 0.008\ 0.021\ 0.072)\times10^1$	$(8.759\ 0.034\ 0.047\ 0.131)\times10^0$	5.921 0.024 0.040 0.111
7.76 – 8.48	$(4.210\ 0.006\ 0.017\ 0.059)\times10^1$	$(7.168\ 0.028\ 0.039\ 0.107)\times10^0$	5.873 0.025 0.040 0.110
8.48 – 9.26	$(3.400\ 0.005\ 0.014\ 0.047)\times10^1$	$(5.817\ 0.024\ 0.033\ 0.087)\times10^0$	5.845 0.026 0.041 0.109
9.26 – 10.1	$(2.735\ 0.005\ 0.011\ 0.037)\times10^1$	$(4.796\ 0.020\ 0.028\ 0.072)\times10^0$	5.702 0.026 0.041 0.106
10.1 – 11.0	$(2.213\ 0.004\ 0.009\ 0.030)\times10^1$	$(3.892\ 0.017\ 0.024\ 0.059)\times10^0$	5.688 0.027 0.042 0.106
11.0 – 12.0	$(1.773\ 0.003\ 0.008\ 0.024)\times10^1$	$(3.162\ 0.015\ 0.020\ 0.048)\times10^0$	5.608 0.028 0.044 0.105
12.0 – 13.0	$(1.427\ 0.003\ 0.006\ 0.020)\times10^1$	$(2.584\ 0.013\ 0.018\ 0.040)\times10^0$	5.522 0.030 0.045 0.104
13.0 – 14.1	$(1.156\ 0.002\ 0.005\ 0.016)\times10^1$	$(2.090\ 0.011\ 0.015\ 0.032)\times10^0$	5.529 0.031 0.047 0.106
14.1 – 15.3	$(9.315\ 0.020\ 0.045\ 0.133)\times10^0$	$(1.732\ 0.009\ 0.013\ 0.027)\times10^0$	5.379 0.031 0.048 0.103
15.3 – 16.6	$(7.466\ 0.016\ 0.037\ 0.107)\times10^0$	$(1.398\ 0.008\ 0.011\ 0.022)\times10^0$	5.342 0.032 0.050 0.104

Table continued

TABLE SM XXII: Bartels Rotation 2447 (December 2, 2012 – December 28, 2012). *(Continued).*

Rigidity	Φ_p $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	Φ_{He} $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	p/He $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$
16.6 – 18.0	$(6.010\ 0.013\ 0.031\ 0.088)\times10^{0}$	$(1.139\ 0.006\ 0.009\ 0.019)\times10^{0}$	5.276 0.032 0.052 0.104
18.0 – 19.5	$(4.837\ 0.011\ 0.026\ 0.072)\times10^{0}$	$(9.240\ 0.053\ 0.080\ 0.150)\times10^{-1}$	5.234 0.032 0.053 0.104
19.5 – 21.1	$(3.898\ 0.009\ 0.021\ 0.059)\times10^{0}$	$(7.578\ 0.045\ 0.069\ 0.124)\times10^{-1}$	5.145 0.033 0.054 0.103
21.1 – 22.8	$(3.143\ 0.008\ 0.018\ 0.048)\times10^{0}$	$(6.089\ 0.037\ 0.056\ 0.101)\times10^{-1}$	5.161 0.034 0.056 0.104
22.8 – 24.7	$(2.533\ 0.006\ 0.015\ 0.039)\times10^{0}$	$(4.929\ 0.031\ 0.046\ 0.082)\times10^{-1}$	5.138 0.034 0.056 0.104
24.7 – 26.7	$(2.042\ 0.005\ 0.012\ 0.032)\times10^{0}$	$(4.042\ 0.027\ 0.038\ 0.067)\times10^{-1}$	5.052 0.036 0.057 0.103
26.7 – 28.8	$(1.638\ 0.005\ 0.010\ 0.025)\times10^{0}$	$(3.316\ 0.023\ 0.032\ 0.055)\times10^{-1}$	4.940 0.037 0.057 0.101
28.8 – 31.1	$(1.328\ 0.004\ 0.008\ 0.021)\times10^{0}$	$(2.678\ 0.020\ 0.026\ 0.045)\times10^{-1}$	4.959 0.040 0.058 0.103
31.1 – 33.5	$(1.072\ 0.003\ 0.007\ 0.017)\times10^{0}$	$(2.203\ 0.018\ 0.022\ 0.038)\times10^{-1}$	4.865 0.042 0.059 0.102
33.5 – 36.1	$(8.738\ 0.030\ 0.059\ 0.137)\times10^{-1}$	$(1.811\ 0.015\ 0.019\ 0.032)\times10^{-1}$	4.824 0.044 0.060 0.102
36.1 – 38.9	$(7.081\ 0.026\ 0.049\ 0.112)\times10^{-1}$	$(1.476\ 0.013\ 0.016\ 0.026)\times10^{-1}$	4.797 0.047 0.061 0.103
38.9 – 41.9	$(5.762\ 0.023\ 0.041\ 0.091)\times10^{-1}$	$(1.201\ 0.012\ 0.013\ 0.021)\times10^{-1}$	4.799 0.050 0.063 0.104
41.9 – 45.1	$(4.705\ 0.020\ 0.034\ 0.075)\times10^{-1}$	$(9.993\ 0.101\ 0.115\ 0.181)\times10^{-2}$	4.708 0.052 0.064 0.103
45.1 – 48.5	$(3.839\ 0.017\ 0.029\ 0.062)\times10^{-1}$	$(8.082\ 0.088\ 0.096\ 0.148)\times10^{-2}$	4.750 0.056 0.067 0.106
48.5 – 52.2	$(3.143\ 0.015\ 0.024\ 0.052)\times10^{-1}$	$(6.473\ 0.075\ 0.080\ 0.121)\times10^{-2}$	4.856 0.061 0.070 0.110
52.2 – 56.1	$(2.526\ 0.013\ 0.020\ 0.043)\times10^{-1}$	$(5.393\ 0.067\ 0.069\ 0.102)\times10^{-2}$	4.685 0.063 0.070 0.107
56.1 – 60.3	$(2.069\ 0.012\ 0.017\ 0.035)\times10^{-1}$	$(4.471\ 0.058\ 0.059\ 0.086)\times10^{-2}$	4.628 0.066 0.071 0.107

TABLE SM XXIII: Bartels Rotation 2448 (December 29, 2012 – January 24, 2013). The proton flux Φ_p, helium flux Φ_{He}, and p/He flux ratio as a function of rigidity (in units of GV) at the top of AMS in units of $[\mathrm{m}^2 \cdot \mathrm{sr} \cdot \mathrm{s} \cdot \mathrm{GV}]^{-1}$ including errors due to statistics ($\sigma_{\mathrm{stat.}}$), time dependent systematic errors (σ_{time}) and the total systematic error ($\sigma_{\mathrm{syst.}}$). Contributions to the time dependent systematic errors are from: the trigger and the reconstruction efficiency. Contributions to the total systematic error are from: the acceptance, the background contamination, the geomagnetic cutoff factor, the event selection, the unfolding, the rigidity resolution function, the absolute rigidity scale, and the time dependent systematic errors. The statistical errors for the ratio are the sum in quadrature of the relative statistical errors of the fluxes multiplied by the ratio. The time dependent systematic errors for the ratio are the sum in quadrature of the relative time dependent systematic errors of the fluxes multiplied by the ratio. The systematic errors from the acceptance for the ratio are added in quadrature. The correlations in the systematic errors from the unfolding and the absolute rigidity scale between the fluxes have been accounted for in calculating the corresponding systematic errors of the ratio. The contributions of the individual sources to the systematic error are added in quadrature to arrive at the total systematic uncertainty on the ratio.

Rigidity	Φ_p	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	Φ_{He}	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	p/He	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$
1.00 – 1.16	$(5.899$	0.031	0.088	$0.265)\times10^2$	–	–	–	–	–	–	–	–
1.16 – 1.33	$(6.074$	0.020	0.066	$0.217)\times10^2$	–	–	–	–	–	–	–	–
1.33 – 1.51	$(6.058$	0.018	0.050	$0.175)\times10^2$	–	–	–	–	–	–	–	–
1.51 – 1.71	$(5.837$	0.013	0.039	$0.152)\times10^2$	–	–	–	–	–	–	–	–
1.71 – 1.92	$(5.447$	0.011	0.032	$0.129)\times10^2$	–	–	–	–	–	–	–	–
1.92 – 2.15	$(4.981$	0.009	0.026	$0.107)\times10^2$	$(5.915$	0.036	0.058	$0.132)\times10^1$	8.421	0.054	0.093	0.249
2.15 – 2.40	$(4.443$	0.008	0.022	$0.089)\times10^2$	$(5.628$	0.031	0.047	$0.110)\times10^1$	7.894	0.046	0.076	0.209
2.40 – 2.67	$(3.900$	0.007	0.018	$0.074)\times10^2$	$(5.214$	0.027	0.040	$0.093)\times10^1$	7.480	0.040	0.067	0.183
2.67 – 2.97	$(3.409$	0.006	0.015	$0.060)\times10^2$	$(4.716$	0.023	0.035	$0.080)\times10^1$	7.229	0.037	0.063	0.166
2.97 – 3.29	$(2.936$	0.005	0.013	$0.049)\times10^2$	$(4.220$	0.019	0.029	$0.069)\times10^1$	6.957	0.033	0.057	0.153
3.29 – 3.64	$(2.492$	0.004	0.011	$0.040)\times10^2$	$(3.702$	0.016	0.023	$0.059)\times10^1$	6.731	0.031	0.052	0.144
3.64 – 4.02	$(2.110$	0.003	0.010	$0.034)\times10^2$	$(3.165$	0.014	0.019	$0.049)\times10^1$	6.665	0.030	0.050	0.139
4.02 – 4.43	$(1.763$	0.003	0.008	$0.027)\times10^2$	$(2.693$	0.011	0.015	$0.042)\times10^1$	6.547	0.029	0.047	0.133
4.43 – 4.88	$(1.466$	0.002	0.007	$0.022)\times10^2$	$(2.288$	0.009	0.012	$0.035)\times10^1$	6.407	0.027	0.045	0.129
4.88 – 5.37	$(1.201$	0.002	0.005	$0.017)\times10^2$	$(1.913$	0.007	0.010	$0.029)\times10^1$	6.278	0.026	0.042	0.124
5.37 – 5.90	$(9.809$	0.014	0.040	$0.140)\times10^1$	$(1.594$	0.006	0.008	$0.024)\times10^1$	6.155	0.025	0.039	0.119
5.90 – 6.47	$(8.019$	0.012	0.031	$0.113)\times10^1$	$(1.309$	0.005	0.006	$0.019)\times10^1$	6.126	0.025	0.038	0.116
6.47 – 7.09	$(6.517$	0.010	0.025	$0.091)\times10^1$	$(1.088$	0.004	0.005	$0.016)\times10^1$	5.993	0.025	0.037	0.113
7.09 – 7.76	$(5.273$	0.008	0.020	$0.073)\times10^1$	$(8.896$	0.034	0.043	$0.132)\times10^0$	5.928	0.024	0.036	0.110
7.76 – 8.48	$(4.270$	0.006	0.016	$0.059)\times10^1$	$(7.297$	0.029	0.037	$0.107)\times10^0$	5.851	0.025	0.037	0.108
8.48 – 9.26	$(3.442$	0.005	0.013	$0.047)\times10^1$	$(5.972$	0.024	0.031	$0.088)\times10^0$	5.764	0.025	0.037	0.106
9.26 – 10.1	$(2.782$	0.005	0.011	$0.038)\times10^1$	$(4.828$	0.021	0.026	$0.072)\times10^0$	5.762	0.026	0.038	0.106
10.1 – 11.0	$(2.236$	0.004	0.009	$0.030)\times10^1$	$(3.957$	0.018	0.022	$0.059)\times10^0$	5.651	0.027	0.039	0.104
11.0 – 12.0	$(1.785$	0.003	0.007	$0.024)\times10^1$	$(3.194$	0.015	0.019	$0.048)\times10^0$	5.589	0.028	0.040	0.103
12.0 – 13.0	$(1.441$	0.003	0.006	$0.020)\times10^1$	$(2.625$	0.013	0.016	$0.040)\times10^0$	5.489	0.029	0.041	0.102
13.0 – 14.1	$(1.163$	0.002	0.005	$0.016)\times10^1$	$(2.144$	0.011	0.014	$0.032)\times10^0$	5.425	0.030	0.043	0.102
14.1 – 15.3	$(9.412$	0.020	0.043	$0.133)\times10^0$	$(1.721$	0.009	0.012	$0.026)\times10^0$	5.468	0.031	0.045	0.103
15.3 – 16.6	$(7.523$	0.016	0.035	$0.107)\times10^0$	$(1.398$	0.008	0.010	$0.022)\times10^0$	5.380	0.032	0.046	0.103

Table continued

TABLE SM XXIII: Bartels Rotation 2448 (December 29, 2012 – January 24, 2013). *(Continued).*

Rigidity	Φ_p $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	Φ_{He} $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	p/He $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$
16.6 – 18.0	$(6.064\ 0.014\ 0.029\ 0.088)\times10^{0}$	$(1.156\ 0.007\ 0.009\ 0.018)\times10^{0}$	5.244 0.032 0.047 0.101
18.0 – 19.5	$(4.856\ 0.011\ 0.024\ 0.072)\times10^{0}$	$(9.373\ 0.054\ 0.075\ 0.149)\times10^{-1}$	5.181 0.032 0.049 0.101
19.5 – 21.1	$(3.919\ 0.009\ 0.020\ 0.059)\times10^{0}$	$(7.551\ 0.045\ 0.064\ 0.121)\times10^{-1}$	5.189 0.033 0.051 0.102
21.1 – 22.8	$(3.167\ 0.008\ 0.017\ 0.048)\times10^{0}$	$(6.198\ 0.038\ 0.053\ 0.100)\times10^{-1}$	5.110 0.034 0.052 0.101
22.8 – 24.7	$(2.530\ 0.006\ 0.014\ 0.038)\times10^{0}$	$(5.036\ 0.031\ 0.044\ 0.082)\times10^{-1}$	5.025 0.034 0.052 0.100
24.7 – 26.7	$(2.042\ 0.005\ 0.012\ 0.031)\times10^{0}$	$(4.110\ 0.027\ 0.037\ 0.067)\times10^{-1}$	4.967 0.035 0.053 0.100
26.7 – 28.8	$(1.649\ 0.005\ 0.010\ 0.025)\times10^{0}$	$(3.367\ 0.023\ 0.031\ 0.055)\times10^{-1}$	4.897 0.037 0.054 0.099
28.8 – 31.1	$(1.335\ 0.004\ 0.008\ 0.021)\times10^{0}$	$(2.742\ 0.020\ 0.026\ 0.046)\times10^{-1}$	4.869 0.038 0.055 0.100
31.1 – 33.5	$(1.080\ 0.004\ 0.007\ 0.017)\times10^{0}$	$(2.192\ 0.018\ 0.021\ 0.037)\times10^{-1}$	4.927 0.043 0.057 0.102
33.5 – 36.1	$(8.773\ 0.030\ 0.055\ 0.136)\times10^{-1}$	$(1.803\ 0.015\ 0.018\ 0.031)\times10^{-1}$	4.866 0.044 0.058 0.101
36.1 – 38.9	$(7.078\ 0.026\ 0.046\ 0.110)\times10^{-1}$	$(1.492\ 0.013\ 0.015\ 0.026)\times10^{-1}$	4.744 0.046 0.058 0.100
38.9 – 41.9	$(5.754\ 0.023\ 0.038\ 0.090)\times10^{-1}$	$(1.190\ 0.011\ 0.013\ 0.020)\times10^{-1}$	4.834 0.050 0.061 0.103
41.9 – 45.1	$(4.676\ 0.020\ 0.032\ 0.074)\times10^{-1}$	$(9.890\ 0.101\ 0.108\ 0.175)\times10^{-2}$	4.729 0.052 0.061 0.102
45.1 – 48.5	$(3.826\ 0.017\ 0.027\ 0.061)\times10^{-1}$	$(8.118\ 0.088\ 0.091\ 0.146)\times10^{-2}$	4.713 0.056 0.062 0.103
48.5 – 52.2	$(3.121\ 0.015\ 0.022\ 0.051)\times10^{-1}$	$(6.626\ 0.076\ 0.076\ 0.120)\times10^{-2}$	4.711 0.059 0.064 0.104
52.2 – 56.1	$(2.548\ 0.013\ 0.019\ 0.042)\times10^{-1}$	$(5.397\ 0.067\ 0.063\ 0.099)\times10^{-2}$	4.721 0.063 0.065 0.104
56.1 – 60.3	$(2.080\ 0.012\ 0.015\ 0.035)\times10^{-1}$	$(4.423\ 0.058\ 0.053\ 0.082)\times10^{-2}$	4.703 0.067 0.066 0.105

TABLE SM XXIV: Bartels Rotation 2449 (January 25, 2013 – February 20, 2013). The proton flux Φ_p, helium flux Φ_{He}, and p/He flux ratio as a function of rigidity (in units of GV) at the top of AMS in units of $[\mathrm{m}^2 \cdot \mathrm{sr} \cdot \mathrm{s} \cdot \mathrm{GV}]^{-1}$ including errors due to statistics ($\sigma_{\mathrm{stat.}}$), time dependent systematic errors (σ_{time}) and the total systematic error ($\sigma_{\mathrm{syst.}}$). Contributions to the time dependent systematic errors are from: the trigger and the reconstruction efficiency. Contributions to the total systematic error are from: the acceptance, the background contamination, the geomagnetic cutoff factor, the event selection, the unfolding, the rigidity resolution function, the absolute rigidity scale, and the time dependent systematic errors. The statistical errors for the ratio are the sum in quadrature of the relative statistical errors of the fluxes multiplied by the ratio. The time dependent systematic errors for the ratio are the sum in quadrature of the relative time dependent systematic errors of the fluxes multiplied by the ratio. The systematic errors from the acceptance for the ratio are added in quadrature. The correlations in the systematic errors from the unfolding and the absolute rigidity scale between the fluxes have been accounted for in calculating the corresponding systematic errors of the ratio. The contributions of the individual sources to the systematic error are added in quadrature to arrive at the total systematic uncertainty on the ratio.

Rigidity	Φ_p $\sigma_{\mathrm{stat.}}$ σ_{time} $\sigma_{\mathrm{syst.}}$	Φ_{He} $\sigma_{\mathrm{stat.}}$ σ_{time} $\sigma_{\mathrm{syst.}}$	p/He $\sigma_{\mathrm{stat.}}$ σ_{time} $\sigma_{\mathrm{syst.}}$
1.00 – 1.16	$(6.245\ 0.034\ 0.092\ 0.280)\times10^2$	– – – –	– – – –
1.16 – 1.33	$(6.324\ 0.021\ 0.067\ 0.226)\times10^2$	– – – –	– – – –
1.33 – 1.51	$(6.289\ 0.018\ 0.051\ 0.181)\times10^2$	– – – –	– – – –
1.51 – 1.71	$(6.009\ 0.013\ 0.040\ 0.157)\times10^2$	– – – –	– – – –
1.71 – 1.92	$(5.599\ 0.011\ 0.032\ 0.132)\times10^2$	– – – –	– – – –
1.92 – 2.15	$(5.099\ 0.009\ 0.026\ 0.110)\times10^2$	$(6.088\ 0.037\ 0.053\ 0.133)\times10^1$	8.376 0.053 0.084 0.245
2.15 – 2.40	$(4.559\ 0.008\ 0.021\ 0.091)\times10^2$	$(5.809\ 0.032\ 0.044\ 0.112)\times10^1$	7.849 0.045 0.070 0.206
2.40 – 2.67	$(4.009\ 0.007\ 0.018\ 0.076)\times10^2$	$(5.426\ 0.027\ 0.038\ 0.095)\times10^1$	7.388 0.039 0.061 0.179
2.67 – 2.97	$(3.483\ 0.006\ 0.015\ 0.061)\times10^2$	$(4.832\ 0.023\ 0.032\ 0.080)\times10^1$	7.207 0.036 0.057 0.164
2.97 – 3.29	$(2.985\ 0.005\ 0.013\ 0.050)\times10^2$	$(4.329\ 0.019\ 0.027\ 0.069)\times10^1$	6.895 0.033 0.052 0.151
3.29 – 3.64	$(2.536\ 0.004\ 0.011\ 0.041)\times10^2$	$(3.767\ 0.016\ 0.022\ 0.059)\times10^1$	6.732 0.031 0.049 0.143
3.64 – 4.02	$(2.139\ 0.003\ 0.010\ 0.034)\times10^2$	$(3.230\ 0.014\ 0.017\ 0.050)\times10^1$	6.622 0.030 0.046 0.137
4.02 – 4.43	$(1.789\ 0.003\ 0.008\ 0.028)\times10^2$	$(2.753\ 0.011\ 0.014\ 0.042)\times10^1$	6.498 0.028 0.044 0.131
4.43 – 4.88	$(1.479\ 0.002\ 0.007\ 0.022)\times10^2$	$(2.308\ 0.009\ 0.011\ 0.035)\times10^1$	6.406 0.027 0.043 0.128
4.88 – 5.37	$(1.212\ 0.002\ 0.005\ 0.017)\times10^2$	$(1.920\ 0.007\ 0.009\ 0.029)\times10^1$	6.314 0.026 0.040 0.124
5.37 – 5.90	$(9.915\ 0.014\ 0.039\ 0.141)\times10^1$	$(1.606\ 0.006\ 0.007\ 0.024)\times10^1$	6.174 0.025 0.037 0.118
5.90 – 6.47	$(8.058\ 0.012\ 0.031\ 0.113)\times10^1$	$(1.322\ 0.005\ 0.006\ 0.019)\times10^1$	6.094 0.025 0.036 0.115
6.47 – 7.09	$(6.543\ 0.010\ 0.024\ 0.091)\times10^1$	$(1.084\ 0.004\ 0.005\ 0.016)\times10^1$	6.035 0.025 0.036 0.113
7.09 – 7.76	$(5.284\ 0.008\ 0.019\ 0.073)\times10^1$	$(8.912\ 0.034\ 0.041\ 0.131)\times10^0$	5.929 0.024 0.035 0.110
7.76 – 8.48	$(4.279\ 0.007\ 0.016\ 0.059)\times10^1$	$(7.256\ 0.029\ 0.035\ 0.106)\times10^0$	5.898 0.025 0.036 0.109
8.48 – 9.26	$(3.450\ 0.005\ 0.013\ 0.047)\times10^1$	$(5.940\ 0.024\ 0.030\ 0.088)\times10^0$	5.809 0.025 0.036 0.107
9.26 – 10.1	$(2.772\ 0.005\ 0.010\ 0.038)\times10^1$	$(4.841\ 0.021\ 0.025\ 0.072)\times10^0$	5.727 0.026 0.037 0.105
10.1 – 11.0	$(2.222\ 0.004\ 0.009\ 0.030)\times10^1$	$(3.947\ 0.018\ 0.022\ 0.058)\times10^0$	5.631 0.027 0.038 0.103
11.0 – 12.0	$(1.780\ 0.003\ 0.007\ 0.024)\times10^1$	$(3.203\ 0.015\ 0.018\ 0.048)\times10^0$	5.557 0.028 0.039 0.102
12.0 – 13.0	$(1.442\ 0.003\ 0.006\ 0.020)\times10^1$	$(2.619\ 0.013\ 0.016\ 0.039)\times10^0$	5.506 0.030 0.040 0.102
13.0 – 14.1	$(1.163\ 0.002\ 0.005\ 0.016)\times10^1$	$(2.117\ 0.011\ 0.013\ 0.032)\times10^0$	5.493 0.031 0.042 0.103
14.1 – 15.3	$(9.348\ 0.020\ 0.041\ 0.132)\times10^0$	$(1.722\ 0.009\ 0.011\ 0.026)\times10^0$	5.428 0.031 0.043 0.102
15.3 – 16.6	$(7.515\ 0.016\ 0.034\ 0.107)\times10^0$	$(1.400\ 0.008\ 0.010\ 0.022)\times10^0$	5.368 0.032 0.045 0.102

Table continued

TABLE SM XXIV: Bartels Rotation 2449 (January 25, 2013 – February 20, 2013). *(Continued).*

Rigidity	Φ_p $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	Φ_{He} $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	p/He $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$
16.6 – 18.0	$(6.024\ 0.014\ 0.028\ 0.087)\times10^{0}$	$(1.139\ 0.006\ 0.008\ 0.018)\times10^{0}$	5.291 0.032 0.046 0.102
18.0 – 19.5	$(4.848\ 0.011\ 0.024\ 0.071)\times10^{0}$	$(9.280\ 0.054\ 0.072\ 0.146)\times10^{-1}$	5.224 0.033 0.048 0.101
19.5 – 21.1	$(3.890\ 0.009\ 0.020\ 0.058)\times10^{0}$	$(7.550\ 0.045\ 0.061\ 0.120)\times10^{-1}$	5.152 0.033 0.049 0.100
21.1 – 22.8	$(3.152\ 0.008\ 0.016\ 0.047)\times10^{0}$	$(6.139\ 0.038\ 0.051\ 0.098)\times10^{-1}$	5.134 0.034 0.050 0.101
22.8 – 24.7	$(2.533\ 0.006\ 0.014\ 0.038)\times10^{0}$	$(5.003\ 0.031\ 0.042\ 0.081)\times10^{-1}$	5.064 0.034 0.051 0.100
24.7 – 26.7	$(2.038\ 0.005\ 0.011\ 0.031)\times10^{0}$	$(4.043\ 0.027\ 0.035\ 0.065)\times10^{-1}$	5.041 0.036 0.052 0.100
26.7 – 28.8	$(1.650\ 0.005\ 0.009\ 0.025)\times10^{0}$	$(3.316\ 0.023\ 0.029\ 0.054)\times10^{-1}$	4.977 0.038 0.052 0.099
28.8 – 31.1	$(1.338\ 0.004\ 0.008\ 0.021)\times10^{0}$	$(2.671\ 0.020\ 0.024\ 0.044)\times10^{-1}$	5.010 0.040 0.054 0.101
31.1 – 33.5	$(1.077\ 0.004\ 0.006\ 0.017)\times10^{0}$	$(2.240\ 0.018\ 0.021\ 0.037)\times10^{-1}$	4.810 0.041 0.053 0.098
33.5 – 36.1	$(8.783\ 0.030\ 0.054\ 0.136)\times10^{-1}$	$(1.825\ 0.015\ 0.017\ 0.031)\times10^{-1}$	4.813 0.044 0.055 0.099
36.1 – 38.9	$(7.095\ 0.026\ 0.045\ 0.110)\times10^{-1}$	$(1.481\ 0.013\ 0.014\ 0.025)\times10^{-1}$	4.789 0.047 0.056 0.100
38.9 – 41.9	$(5.784\ 0.023\ 0.038\ 0.090)\times10^{-1}$	$(1.198\ 0.012\ 0.012\ 0.020)\times10^{-1}$	4.826 0.050 0.058 0.101
41.9 – 45.1	$(4.727\ 0.020\ 0.032\ 0.074)\times10^{-1}$	$(9.643\ 0.100\ 0.099\ 0.167)\times10^{-2}$	4.902 0.055 0.060 0.104
45.1 – 48.5	$(3.824\ 0.017\ 0.026\ 0.061)\times10^{-1}$	$(8.090\ 0.088\ 0.085\ 0.142)\times10^{-2}$	4.727 0.056 0.059 0.101
48.5 – 52.2	$(3.114\ 0.015\ 0.022\ 0.051)\times10^{-1}$	$(6.730\ 0.077\ 0.072\ 0.119)\times10^{-2}$	4.627 0.057 0.059 0.100
52.2 – 56.1	$(2.541\ 0.013\ 0.018\ 0.042)\times10^{-1}$	$(5.391\ 0.067\ 0.059\ 0.096)\times10^{-2}$	4.713 0.063 0.062 0.102
56.1 – 60.3	$(2.071\ 0.012\ 0.015\ 0.035)\times10^{-1}$	$(4.523\ 0.059\ 0.051\ 0.081)\times10^{-2}$	4.578 0.065 0.061 0.100

TABLE SM XXV: Bartels Rotation 2450 (February 21, 2013 – March 19, 2013). The proton flux Φ_p, helium flux Φ_{He}, and p/He flux ratio as a function of rigidity (in units of GV) at the top of AMS in units of $[\mathrm{m}^2 \cdot \mathrm{sr} \cdot \mathrm{s} \cdot \mathrm{GV}]^{-1}$ including errors due to statistics ($\sigma_{\mathrm{stat.}}$), time dependent systematic errors (σ_{time}) and the total systematic error ($\sigma_{\mathrm{syst.}}$). Contributions to the time dependent systematic errors are from: the trigger and the reconstruction efficiency. Contributions to the total systematic error are from: the acceptance, the background contamination, the geomagnetic cutoff factor, the event selection, the unfolding, the rigidity resolution function, the absolute rigidity scale, and the time dependent systematic errors. The statistical errors for the ratio are the sum in quadrature of the relative statistical errors of the fluxes multiplied by the ratio. The time dependent systematic errors for the ratio are the sum in quadrature of the relative time dependent systematic errors of the fluxes multiplied by the ratio. The systematic errors from the acceptance for the ratio are added in quadrature. The correlations in the systematic errors from the unfolding and the absolute rigidity scale between the fluxes have been accounted for in calculating the corresponding systematic errors of the ratio. The contributions of the individual sources to the systematic error are added in quadrature to arrive at the total systematic uncertainty on the ratio.

Rigidity	Φ_p $\sigma_{\mathrm{stat.}}$ σ_{time} $\sigma_{\mathrm{syst.}}$	Φ_{He} $\sigma_{\mathrm{stat.}}$ σ_{time} $\sigma_{\mathrm{syst.}}$	p/He $\sigma_{\mathrm{stat.}}$ σ_{time} $\sigma_{\mathrm{syst.}}$
1.00 – 1.16	$(6.273\ 0.032\ 0.094\ 0.282)\times10^2$	– – – –	– – – –
1.16 – 1.33	$(6.384\ 0.021\ 0.069\ 0.228)\times10^2$	– – – –	– – – –
1.33 – 1.51	$(6.325\ 0.018\ 0.053\ 0.183)\times10^2$	– – – –	– – – –
1.51 – 1.71	$(6.039\ 0.013\ 0.042\ 0.158)\times10^2$	– – – –	– – – –
1.71 – 1.92	$(5.606\ 0.011\ 0.034\ 0.133)\times10^2$	– – – –	– – – –
1.92 – 2.15	$(5.085\ 0.010\ 0.028\ 0.110)\times10^2$	$(5.993\ 0.037\ 0.060\ 0.134)\times10^1$	8.484 0.054 0.097 0.252
2.15 – 2.40	$(4.504\ 0.008\ 0.023\ 0.090)\times10^2$	$(5.786\ 0.032\ 0.049\ 0.114)\times10^1$	7.784 0.045 0.077 0.207
2.40 – 2.67	$(3.964\ 0.007\ 0.019\ 0.075)\times10^2$	$(5.326\ 0.027\ 0.042\ 0.095)\times10^1$	7.441 0.040 0.069 0.183
2.67 – 2.97	$(3.433\ 0.006\ 0.016\ 0.060)\times10^2$	$(4.839\ 0.023\ 0.037\ 0.082)\times10^1$	7.094 0.036 0.063 0.164
2.97 – 3.29	$(2.935\ 0.005\ 0.013\ 0.049)\times10^2$	$(4.232\ 0.019\ 0.030\ 0.069)\times10^1$	6.935 0.033 0.058 0.154
3.29 – 3.64	$(2.505\ 0.004\ 0.012\ 0.040)\times10^2$	$(3.697\ 0.016\ 0.024\ 0.059)\times10^1$	6.776 0.031 0.054 0.146
3.64 – 4.02	$(2.100\ 0.003\ 0.010\ 0.033)\times10^2$	$(3.167\ 0.014\ 0.019\ 0.050)\times10^1$	6.631 0.030 0.051 0.139
4.02 – 4.43	$(1.746\ 0.003\ 0.008\ 0.027)\times10^2$	$(2.697\ 0.011\ 0.015\ 0.042)\times10^1$	6.473 0.029 0.048 0.132
4.43 – 4.88	$(1.446\ 0.002\ 0.007\ 0.022)\times10^2$	$(2.262\ 0.009\ 0.012\ 0.035)\times10^1$	6.393 0.027 0.046 0.129
4.88 – 5.37	$(1.184\ 0.002\ 0.005\ 0.017)\times10^2$	$(1.904\ 0.007\ 0.010\ 0.029)\times10^1$	6.219 0.026 0.043 0.123
5.37 – 5.90	$(9.711\ 0.014\ 0.041\ 0.139)\times10^1$	$(1.570\ 0.006\ 0.008\ 0.024)\times10^1$	6.185 0.026 0.040 0.120
5.90 – 6.47	$(7.885\ 0.012\ 0.032\ 0.111)\times10^1$	$(1.294\ 0.005\ 0.006\ 0.019)\times10^1$	6.093 0.025 0.039 0.116
6.47 – 7.09	$(6.426\ 0.009\ 0.025\ 0.090)\times10^1$	$(1.074\ 0.004\ 0.005\ 0.016)\times10^1$	5.986 0.025 0.038 0.113
7.09 – 7.76	$(5.210\ 0.008\ 0.020\ 0.072)\times10^1$	$(8.734\ 0.034\ 0.044\ 0.130)\times10^0$	5.966 0.025 0.038 0.111
7.76 – 8.48	$(4.210\ 0.006\ 0.016\ 0.058)\times10^1$	$(7.148\ 0.028\ 0.037\ 0.106)\times10^0$	5.890 0.025 0.038 0.109
8.48 – 9.26	$(3.390\ 0.005\ 0.013\ 0.047)\times10^1$	$(5.835\ 0.024\ 0.031\ 0.087)\times10^0$	5.809 0.026 0.039 0.107
9.26 – 10.1	$(2.733\ 0.005\ 0.011\ 0.037)\times10^1$	$(4.786\ 0.020\ 0.027\ 0.071)\times10^0$	5.712 0.026 0.039 0.106
10.1 – 11.0	$(2.197\ 0.004\ 0.009\ 0.030)\times10^1$	$(3.888\ 0.017\ 0.022\ 0.058)\times10^0$	5.650 0.027 0.040 0.104
11.0 – 12.0	$(1.762\ 0.003\ 0.007\ 0.024)\times10^1$	$(3.172\ 0.015\ 0.019\ 0.048)\times10^0$	5.553 0.028 0.041 0.103
12.0 – 13.0	$(1.423\ 0.003\ 0.006\ 0.020)\times10^1$	$(2.568\ 0.013\ 0.016\ 0.039)\times10^0$	5.541 0.030 0.043 0.104
13.0 – 14.1	$(1.150\ 0.002\ 0.005\ 0.016)\times10^1$	$(2.109\ 0.011\ 0.014\ 0.032)\times10^0$	5.452 0.030 0.044 0.103
14.1 – 15.3	$(9.284\ 0.020\ 0.044\ 0.132)\times10^0$	$(1.707\ 0.009\ 0.012\ 0.026)\times10^0$	5.439 0.031 0.046 0.103
15.3 – 16.6	$(7.432\ 0.016\ 0.036\ 0.107)\times10^0$	$(1.398\ 0.008\ 0.010\ 0.022)\times10^0$	5.318 0.032 0.047 0.102

Table continued

TABLE SM XXV: Bartels Rotation 2450 (February 21, 2013 – March 19, 2013). *(Continued).*

Rigidity	Φ_p $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	Φ_{He} $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	p/He $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$
16.6 – 18.0	$(5.990\ 0.013\ 0.030\ 0.087)\times10^{0}$	$(1.130\ 0.006\ 0.009\ 0.018)\times10^{0}$	5.301 0.032 0.049 0.103
18.0 – 19.5	$(4.836\ 0.011\ 0.025\ 0.072)\times10^{0}$	$(9.289\ 0.054\ 0.075\ 0.148)\times10^{-1}$	5.206 0.032 0.050 0.102
19.5 – 21.1	$(3.880\ 0.009\ 0.021\ 0.058)\times10^{0}$	$(7.570\ 0.045\ 0.064\ 0.122)\times10^{-1}$	5.126 0.033 0.051 0.101
21.1 – 22.8	$(3.144\ 0.008\ 0.018\ 0.048)\times10^{0}$	$(6.129\ 0.037\ 0.053\ 0.100)\times10^{-1}$	5.130 0.034 0.053 0.102
22.8 – 24.7	$(2.533\ 0.006\ 0.014\ 0.038)\times10^{0}$	$(4.988\ 0.031\ 0.044\ 0.081)\times10^{-1}$	5.078 0.034 0.054 0.102
24.7 – 26.7	$(2.027\ 0.005\ 0.012\ 0.031)\times10^{0}$	$(4.046\ 0.027\ 0.037\ 0.066)\times10^{-1}$	5.010 0.035 0.054 0.101
26.7 – 28.8	$(1.630\ 0.005\ 0.010\ 0.025)\times10^{0}$	$(3.292\ 0.023\ 0.031\ 0.054)\times10^{-1}$	4.952 0.037 0.055 0.101
28.8 – 31.1	$(1.328\ 0.004\ 0.008\ 0.021)\times10^{0}$	$(2.708\ 0.020\ 0.026\ 0.045)\times10^{-1}$	4.905 0.039 0.056 0.101
31.1 – 33.5	$(1.077\ 0.003\ 0.007\ 0.017)\times10^{0}$	$(2.199\ 0.018\ 0.022\ 0.037)\times10^{-1}$	4.897 0.042 0.058 0.101
33.5 – 36.1	$(8.738\ 0.030\ 0.058\ 0.136)\times10^{-1}$	$(1.815\ 0.015\ 0.018\ 0.032)\times10^{-1}$	4.813 0.044 0.058 0.101
36.1 – 38.9	$(7.080\ 0.026\ 0.048\ 0.111)\times10^{-1}$	$(1.474\ 0.013\ 0.015\ 0.026)\times10^{-1}$	4.802 0.047 0.060 0.102
38.9 – 41.9	$(5.778\ 0.023\ 0.040\ 0.091)\times10^{-1}$	$(1.193\ 0.011\ 0.013\ 0.021)\times10^{-1}$	4.844 0.050 0.062 0.104
41.9 – 45.1	$(4.714\ 0.020\ 0.034\ 0.075)\times10^{-1}$	$(9.992\ 0.101\ 0.110\ 0.178)\times10^{-2}$	4.718 0.052 0.062 0.102
45.1 – 48.5	$(3.836\ 0.017\ 0.028\ 0.062)\times10^{-1}$	$(8.018\ 0.088\ 0.090\ 0.144)\times10^{-2}$	4.785 0.057 0.064 0.105
48.5 – 52.2	$(3.124\ 0.015\ 0.023\ 0.051)\times10^{-1}$	$(6.544\ 0.076\ 0.075\ 0.119)\times10^{-2}$	4.773 0.060 0.066 0.106
52.2 – 56.1	$(2.547\ 0.013\ 0.020\ 0.043)\times10^{-1}$	$(5.437\ 0.067\ 0.064\ 0.100)\times10^{-2}$	4.685 0.063 0.066 0.104
56.1 – 60.3	$(2.080\ 0.012\ 0.016\ 0.035)\times10^{-1}$	$(4.487\ 0.058\ 0.054\ 0.083)\times10^{-2}$	4.636 0.066 0.067 0.105

TABLE SM XXVI: Bartels Rotation 2451 (March 20, 2013 – April 15, 2013). The proton flux Φ_p, helium flux Φ_{He}, and p/He flux ratio as a function of rigidity (in units of GV) at the top of AMS in units of $[\mathrm{m}^2 \cdot \mathrm{sr} \cdot \mathrm{s} \cdot \mathrm{GV}]^{-1}$ including errors due to statistics ($\sigma_{\mathrm{stat.}}$), time dependent systematic errors (σ_{time}) and the total systematic error ($\sigma_{\mathrm{syst.}}$). Contributions to the time dependent systematic errors are from: the trigger and the reconstruction efficiency. Contributions to the total systematic error are from: the acceptance, the background contamination, the geomagnetic cutoff factor, the event selection, the unfolding, the rigidity resolution function, the absolute rigidity scale, and the time dependent systematic errors. The statistical errors for the ratio are the sum in quadrature of the relative statistical errors of the fluxes multiplied by the ratio. The time dependent systematic errors for the ratio are the sum in quadrature of the relative time dependent systematic errors of the fluxes multiplied by the ratio. The systematic errors from the acceptance for the ratio are added in quadrature. The correlations in the systematic errors from the unfolding and the absolute rigidity scale between the fluxes have been accounted for in calculating the corresponding systematic errors of the ratio. The contributions of the individual sources to the systematic error are added in quadrature to arrive at the total systematic uncertainty on the ratio.

Rigidity	Φ_p	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	Φ_{He}	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	p/He	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$
1.00 – 1.16	$(5.836$	0.031	0.085	$0.262)\times10^2$	–	–	–	–	–	–	–	–
1.16 – 1.33	$(5.957$	0.020	0.063	$0.213)\times10^2$	–	–	–	–	–	–	–	–
1.33 – 1.51	$(5.881$	0.018	0.048	$0.169)\times10^2$	–	–	–	–	–	–	–	–
1.51 – 1.71	$(5.646$	0.013	0.038	$0.147)\times10^2$	–	–	–	–	–	–	–	–
1.71 – 1.92	$(5.255$	0.011	0.031	$0.124)\times10^2$	–	–	–	–	–	–	–	–
1.92 – 2.15	$(4.789$	0.009	0.025	$0.103)\times10^2$	$(5.709$	0.036	0.051	$0.125)\times10^1$	8.389	0.055	0.086	0.246
2.15 – 2.40	$(4.270$	0.008	0.021	$0.085)\times10^2$	$(5.458$	0.031	0.042	$0.105)\times10^1$	7.823	0.047	0.071	0.206
2.40 – 2.67	$(3.761$	0.007	0.017	$0.071)\times10^2$	$(5.021$	0.026	0.036	$0.088)\times10^1$	7.491	0.041	0.063	0.182
2.67 – 2.97	$(3.278$	0.006	0.014	$0.057)\times10^2$	$(4.594$	0.023	0.031	$0.076)\times10^1$	7.136	0.037	0.058	0.163
2.97 – 3.29	$(2.813$	0.005	0.012	$0.047)\times10^2$	$(4.119$	0.019	0.026	$0.066)\times10^1$	6.829	0.033	0.052	0.149
3.29 – 3.64	$(2.399$	0.004	0.011	$0.039)\times10^2$	$(3.552$	0.016	0.021	$0.056)\times10^1$	6.754	0.032	0.049	0.144
3.64 – 4.02	$(2.027$	0.003	0.009	$0.032)\times10^2$	$(3.073$	0.013	0.017	$0.048)\times10^1$	6.598	0.031	0.047	0.137
4.02 – 4.43	$(1.693$	0.003	0.008	$0.026)\times10^2$	$(2.612$	0.011	0.014	$0.040)\times10^1$	6.483	0.029	0.045	0.131
4.43 – 4.88	$(1.405$	0.002	0.006	$0.021)\times10^2$	$(2.189$	0.009	0.011	$0.033)\times10^1$	6.420	0.028	0.043	0.128
4.88 – 5.37	$(1.161$	0.002	0.005	$0.017)\times10^2$	$(1.851$	0.007	0.009	$0.028)\times10^1$	6.271	0.027	0.040	0.123
5.37 – 5.90	$(9.512$	0.014	0.038	$0.135)\times10^1$	$(1.539$	0.006	0.007	$0.023)\times10^1$	6.182	0.026	0.037	0.119
5.90 – 6.47	$(7.767$	0.012	0.030	$0.109)\times10^1$	$(1.281$	0.005	0.006	$0.019)\times10^1$	6.066	0.026	0.036	0.114
6.47 – 7.09	$(6.317$	0.009	0.024	$0.088)\times10^1$	$(1.062$	0.004	0.005	$0.016)\times10^1$	5.947	0.025	0.035	0.111
7.09 – 7.76	$(5.129$	0.008	0.019	$0.071)\times10^1$	$(8.594$	0.034	0.039	$0.126)\times10^0$	5.969	0.025	0.035	0.111
7.76 – 8.48	$(4.160$	0.006	0.015	$0.058)\times10^1$	$(7.098$	0.028	0.033	$0.104)\times10^0$	5.861	0.025	0.035	0.108
8.48 – 9.26	$(3.360$	0.005	0.013	$0.046)\times10^1$	$(5.793$	0.024	0.028	$0.085)\times10^0$	5.801	0.026	0.036	0.106
9.26 – 10.1	$(2.709$	0.005	0.010	$0.037)\times10^1$	$(4.767$	0.021	0.024	$0.070)\times10^0$	5.683	0.026	0.036	0.104
10.1 – 11.0	$(2.178$	0.004	0.009	$0.030)\times10^1$	$(3.860$	0.017	0.020	$0.057)\times10^0$	5.643	0.027	0.037	0.103
11.0 – 12.0	$(1.746$	0.003	0.007	$0.024)\times10^1$	$(3.135$	0.015	0.017	$0.047)\times10^0$	5.570	0.028	0.038	0.102
12.0 – 13.0	$(1.409$	0.003	0.006	$0.019)\times10^1$	$(2.562$	0.013	0.015	$0.038)\times10^0$	5.500	0.030	0.039	0.102
13.0 – 14.1	$(1.139$	0.002	0.005	$0.016)\times10^1$	$(2.097$	0.011	0.013	$0.031)\times10^0$	5.431	0.030	0.041	0.101
14.1 – 15.3	$(9.238$	0.020	0.041	$0.130)\times10^0$	$(1.705$	0.009	0.011	$0.025)\times10^0$	5.420	0.031	0.042	0.101
15.3 – 16.6	$(7.429$	0.016	0.034	$0.106)\times10^0$	$(1.404$	0.008	0.010	$0.022)\times10^0$	5.290	0.032	0.043	0.100

Table continued

TABLE SM XXVI: Bartels Rotation 2451 (March 20, 2013 – April 15, 2013). *(Continued).*

Rigidity	Φ_p $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	Φ_{He} $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	p/He $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$
16.6 – 18.0	$(5.948\ 0.013\ 0.028\ 0.086)\times10^{0}$	$(1.123\ 0.006\ 0.008\ 0.018)\times10^{0}$	5.296 0.033 0.045 0.101
18.0 – 19.5	$(4.802\ 0.011\ 0.024\ 0.071)\times10^{0}$	$(9.265\ 0.054\ 0.070\ 0.145)\times10^{-1}$	5.183 0.032 0.047 0.100
19.5 – 21.1	$(3.852\ 0.009\ 0.020\ 0.057)\times10^{0}$	$(7.395\ 0.044\ 0.058\ 0.117)\times10^{-1}$	5.210 0.034 0.049 0.101
21.1 – 22.8	$(3.127\ 0.008\ 0.016\ 0.047)\times10^{0}$	$(6.164\ 0.038\ 0.049\ 0.098)\times10^{-1}$	5.074 0.033 0.049 0.099
22.8 – 24.7	$(2.516\ 0.006\ 0.014\ 0.038)\times10^{0}$	$(4.997\ 0.031\ 0.041\ 0.080)\times10^{-1}$	5.036 0.034 0.049 0.099
24.7 – 26.7	$(2.023\ 0.005\ 0.011\ 0.031)\times10^{0}$	$(4.082\ 0.027\ 0.034\ 0.065)\times10^{-1}$	4.955 0.035 0.050 0.098
26.7 – 28.8	$(1.629\ 0.005\ 0.009\ 0.025)\times10^{0}$	$(3.303\ 0.023\ 0.028\ 0.053)\times10^{-1}$	4.932 0.037 0.051 0.098
28.8 – 31.1	$(1.321\ 0.004\ 0.008\ 0.020)\times10^{0}$	$(2.699\ 0.020\ 0.023\ 0.044)\times10^{-1}$	4.896 0.039 0.051 0.098
31.1 – 33.5	$(1.069\ 0.003\ 0.006\ 0.017)\times10^{0}$	$(2.195\ 0.018\ 0.020\ 0.036)\times10^{-1}$	4.871 0.042 0.053 0.098
33.5 – 36.1	$(8.720\ 0.030\ 0.054\ 0.135)\times10^{-1}$	$(1.793\ 0.015\ 0.016\ 0.030)\times10^{-1}$	4.863 0.045 0.054 0.099
36.1 – 38.9	$(7.061\ 0.026\ 0.045\ 0.110)\times10^{-1}$	$(1.469\ 0.013\ 0.014\ 0.025)\times10^{-1}$	4.808 0.047 0.054 0.099
38.9 – 41.9	$(5.775\ 0.023\ 0.038\ 0.090)\times10^{-1}$	$(1.187\ 0.012\ 0.011\ 0.020)\times10^{-1}$	4.863 0.051 0.057 0.101
41.9 – 45.1	$(4.682\ 0.020\ 0.031\ 0.074)\times10^{-1}$	$(9.919\ 0.102\ 0.098\ 0.169)\times10^{-2}$	4.720 0.052 0.056 0.099
45.1 – 48.5	$(3.805\ 0.017\ 0.026\ 0.061)\times10^{-1}$	$(8.220\ 0.089\ 0.083\ 0.142)\times10^{-2}$	4.629 0.055 0.056 0.098
48.5 – 52.2	$(3.106\ 0.015\ 0.022\ 0.050)\times10^{-1}$	$(6.536\ 0.076\ 0.067\ 0.114)\times10^{-2}$	4.752 0.060 0.059 0.102
52.2 – 56.1	$(2.545\ 0.013\ 0.018\ 0.042)\times10^{-1}$	$(5.524\ 0.068\ 0.058\ 0.097)\times10^{-2}$	4.608 0.062 0.059 0.099
56.1 – 60.3	$(2.071\ 0.012\ 0.015\ 0.035)\times10^{-1}$	$(4.432\ 0.058\ 0.048\ 0.078)\times10^{-2}$	4.673 0.067 0.061 0.101

TABLE SM XXVII: Bartels Rotation 2452 (April 16, 2013 – May 12, 2013). The proton flux Φ_p, helium flux Φ_{He}, and p/He flux ratio as a function of rigidity (in units of GV) at the top of AMS in units of $[\mathrm{m}^2 \cdot \mathrm{sr} \cdot \mathrm{s} \cdot \mathrm{GV}]^{-1}$ including errors due to statistics ($\sigma_{\mathrm{stat.}}$), time dependent systematic errors (σ_{time}) and the total systematic error ($\sigma_{\mathrm{syst.}}$). Contributions to the time dependent systematic errors are from: the trigger and the reconstruction efficiency. Contributions to the total systematic error are from: the acceptance, the background contamination, the geomagnetic cutoff factor, the event selection, the unfolding, the rigidity resolution function, the absolute rigidity scale, and the time dependent systematic errors. The statistical errors for the ratio are the sum in quadrature of the relative statistical errors of the fluxes multiplied by the ratio. The time dependent systematic errors for the ratio are the sum in quadrature of the relative time dependent systematic errors of the fluxes multiplied by the ratio. The systematic errors from the acceptance for the ratio are added in quadrature. The correlations in the systematic errors from the unfolding and the absolute rigidity scale between the fluxes have been accounted for in calculating the corresponding systematic errors of the ratio. The contributions of the individual sources to the systematic error are added in quadrature to arrive at the total systematic uncertainty on the ratio.

Rigidity	Φ_p	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	Φ_{He}	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	p/He	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$
1.00 – 1.16	$(5.765$	0.031	0.082	$0.258)\times10^2$	–	–	–	–	–	–	–	–
1.16 – 1.33	$(5.965$	0.020	0.061	$0.212)\times10^2$	–	–	–	–	–	–	–	–
1.33 – 1.51	$(5.859$	0.017	0.046	$0.168)\times10^2$	–	–	–	–	–	–	–	–
1.51 – 1.71	$(5.659$	0.013	0.037	$0.147)\times10^2$	–	–	–	–	–	–	–	–
1.71 – 1.92	$(5.253$	0.011	0.030	$0.124)\times10^2$	–	–	–	–	–	–	–	–
1.92 – 2.15	$(4.796$	0.009	0.024	$0.103)\times10^2$	$(5.686$	0.035	0.053	$0.125)\times10^1$	8.435	0.055	0.089	0.248
2.15 – 2.40	$(4.269$	0.008	0.020	$0.085)\times10^2$	$(5.377$	0.030	0.043	$0.104)\times10^1$	7.939	0.047	0.074	0.210
2.40 – 2.67	$(3.752$	0.007	0.017	$0.071)\times10^2$	$(4.992$	0.026	0.037	$0.088)\times10^1$	7.516	0.041	0.065	0.183
2.67 – 2.97	$(3.262$	0.005	0.014	$0.057)\times10^2$	$(4.535$	0.022	0.032	$0.076)\times10^1$	7.194	0.037	0.060	0.165
2.97 – 3.29	$(2.810$	0.005	0.012	$0.047)\times10^2$	$(4.025$	0.018	0.027	$0.065)\times10^1$	6.981	0.034	0.055	0.153
3.29 – 3.64	$(2.388$	0.004	0.011	$0.038)\times10^2$	$(3.516$	0.016	0.021	$0.056)\times10^1$	6.791	0.032	0.051	0.145
3.64 – 4.02	$(2.019$	0.003	0.009	$0.032)\times10^2$	$(3.048$	0.013	0.017	$0.047)\times10^1$	6.624	0.031	0.048	0.138
4.02 – 4.43	$(1.689$	0.003	0.008	$0.026)\times10^2$	$(2.599$	0.011	0.014	$0.040)\times10^1$	6.499	0.029	0.046	0.132
4.43 – 4.88	$(1.402$	0.002	0.006	$0.021)\times10^2$	$(2.182$	0.009	0.011	$0.033)\times10^1$	6.425	0.027	0.044	0.129
4.88 – 5.37	$(1.160$	0.002	0.005	$0.017)\times10^2$	$(1.839$	0.007	0.009	$0.028)\times10^1$	6.306	0.026	0.041	0.124
5.37 – 5.90	$(9.460$	0.014	0.037	$0.135)\times10^1$	$(1.527$	0.006	0.007	$0.023)\times10^1$	6.194	0.026	0.038	0.119
5.90 – 6.47	$(7.733$	0.012	0.029	$0.108)\times10^1$	$(1.272$	0.005	0.006	$0.019)\times10^1$	6.080	0.025	0.037	0.115
6.47 – 7.09	$(6.287$	0.009	0.023	$0.088)\times10^1$	$(1.041$	0.004	0.005	$0.015)\times10^1$	6.041	0.025	0.037	0.113
7.09 – 7.76	$(5.081$	0.008	0.019	$0.070)\times10^1$	$(8.562$	0.033	0.042	$0.127)\times10^0$	5.934	0.025	0.036	0.110
7.76 – 8.48	$(4.140$	0.006	0.015	$0.057)\times10^1$	$(7.008$	0.028	0.035	$0.103)\times10^0$	5.907	0.025	0.037	0.109
8.48 – 9.26	$(3.338$	0.005	0.012	$0.046)\times10^1$	$(5.782$	0.024	0.030	$0.086)\times10^0$	5.772	0.025	0.037	0.106
9.26 – 10.1	$(2.693$	0.004	0.010	$0.036)\times10^1$	$(4.689$	0.020	0.026	$0.070)\times10^0$	5.743	0.026	0.038	0.106
10.1 – 11.0	$(2.169$	0.004	0.008	$0.029)\times10^1$	$(3.871$	0.017	0.022	$0.058)\times10^0$	5.603	0.027	0.039	0.103
11.0 – 12.0	$(1.743$	0.003	0.007	$0.024)\times10^1$	$(3.105$	0.014	0.019	$0.047)\times10^0$	5.615	0.028	0.041	0.104
12.0 – 13.0	$(1.410$	0.003	0.006	$0.019)\times10^1$	$(2.540$	0.013	0.016	$0.039)\times10^0$	5.551	0.030	0.042	0.104
13.0 – 14.1	$(1.137$	0.002	0.005	$0.016)\times10^1$	$(2.066$	0.011	0.014	$0.031)\times10^0$	5.502	0.031	0.044	0.104
14.1 – 15.3	$(9.192$	0.019	0.041	$0.130)\times10^0$	$(1.697$	0.009	0.012	$0.026)\times10^0$	5.416	0.031	0.045	0.103
15.3 – 16.6	$(7.403$	0.016	0.034	$0.105)\times10^0$	$(1.381$	0.008	0.010	$0.022)\times10^0$	5.361	0.032	0.047	0.103

Table continued

TABLE SM XXVII: Bartels Rotation 2452 (April 16, 2013 – May 12, 2013). *(Continued).*

Rigidity	Φ_p $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	Φ_{He} $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	p/He $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$
16.6 – 18.0	(5.945 0.013 0.028 0.086)$\times 10^{0}$	(1.129 0.006 0.009 0.018)$\times 10^{0}$	5.267 0.032 0.048 0.102
18.0 – 19.5	(4.808 0.011 0.023 0.071)$\times 10^{0}$	(9.156 0.053 0.076 0.146)$\times 10^{-1}$	5.251 0.033 0.050 0.103
19.5 – 21.1	(3.851 0.009 0.019 0.057)$\times 10^{0}$	(7.468 0.044 0.064 0.121)$\times 10^{-1}$	5.157 0.033 0.051 0.101
21.1 – 22.8	(3.113 0.008 0.016 0.047)$\times 10^{0}$	(6.079 0.037 0.053 0.099)$\times 10^{-1}$	5.121 0.034 0.052 0.102
22.8 – 24.7	(2.522 0.006 0.013 0.038)$\times 10^{0}$	(4.977 0.031 0.044 0.081)$\times 10^{-1}$	5.068 0.034 0.053 0.101
24.7 – 26.7	(2.012 0.005 0.011 0.031)$\times 10^{0}$	(4.039 0.026 0.036 0.066)$\times 10^{-1}$	4.981 0.035 0.053 0.100
26.7 – 28.8	(1.631 0.005 0.009 0.025)$\times 10^{0}$	(3.324 0.023 0.031 0.055)$\times 10^{-1}$	4.907 0.037 0.053 0.099
28.8 – 31.1	(1.328 0.004 0.008 0.020)$\times 10^{0}$	(2.680 0.020 0.025 0.045)$\times 10^{-1}$	4.954 0.039 0.055 0.101
31.1 – 33.5	(1.069 0.003 0.006 0.017)$\times 10^{0}$	(2.198 0.017 0.021 0.037)$\times 10^{-1}$	4.863 0.042 0.055 0.100
33.5 – 36.1	(8.695 0.030 0.054 0.134)$\times 10^{-1}$	(1.791 0.015 0.018 0.031)$\times 10^{-1}$	4.854 0.044 0.056 0.100
36.1 – 38.9	(7.060 0.026 0.045 0.109)$\times 10^{-1}$	(1.489 0.013 0.015 0.026)$\times 10^{-1}$	4.740 0.046 0.056 0.099
38.9 – 41.9	(5.736 0.023 0.037 0.089)$\times 10^{-1}$	(1.198 0.011 0.012 0.020)$\times 10^{-1}$	4.788 0.050 0.058 0.101
41.9 – 45.1	(4.693 0.020 0.031 0.074)$\times 10^{-1}$	(9.865 0.101 0.103 0.172)$\times 10^{-2}$	4.757 0.053 0.059 0.101
45.1 – 48.5	(3.817 0.017 0.026 0.061)$\times 10^{-1}$	(8.324 0.089 0.089 0.147)$\times 10^{-2}$	4.586 0.053 0.058 0.099
48.5 – 52.2	(3.129 0.015 0.022 0.051)$\times 10^{-1}$	(6.649 0.076 0.073 0.118)$\times 10^{-2}$	4.706 0.059 0.061 0.102
52.2 – 56.1	(2.539 0.013 0.018 0.042)$\times 10^{-1}$	(5.506 0.067 0.061 0.099)$\times 10^{-2}$	4.612 0.061 0.061 0.100
56.1 – 60.3	(2.077 0.011 0.015 0.035)$\times 10^{-1}$	(4.549 0.059 0.051 0.082)$\times 10^{-2}$	4.565 0.064 0.061 0.100

TABLE SM XXVIII: Bartels Rotation 2453 (May 13, 2013 – June 8, 2013). The proton flux Φ_p, helium flux Φ_{He}, and p/He flux ratio as a function of rigidity (in units of GV) at the top of AMS in units of $[\mathrm{m}^2 \cdot \mathrm{sr} \cdot \mathrm{s} \cdot \mathrm{GV}]^{-1}$ including errors due to statistics ($\sigma_{\mathrm{stat.}}$), time dependent systematic errors (σ_{time}) and the total systematic error ($\sigma_{\mathrm{syst.}}$). Contributions to the time dependent systematic errors are from: the trigger and the reconstruction efficiency. Contributions to the total systematic error are from: the acceptance, the background contamination, the geomagnetic cutoff factor, the event selection, the unfolding, the rigidity resolution function, the absolute rigidity scale, and the time dependent systematic errors. The statistical errors for the ratio are the sum in quadrature of the relative statistical errors of the fluxes multiplied by the ratio. The time dependent systematic errors for the ratio are the sum in quadrature of the relative time dependent systematic errors of the fluxes multiplied by the ratio. The systematic errors from the acceptance for the ratio are added in quadrature. The correlations in the systematic errors from the unfolding and the absolute rigidity scale between the fluxes have been accounted for in calculating the corresponding systematic errors of the ratio. The contributions of the individual sources to the systematic error are added in quadrature to arrive at the total systematic uncertainty on the ratio.

Rigidity	Φ_p	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	Φ_{He}	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	p/He	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$
1.00 – 1.16	$(4.936$	0.028	0.083	$0.225)\times10^2$	–	–	–	–	–	–	–	–
1.16 – 1.33	$(4.968$	0.019	0.060	$0.180)\times10^2$	–	–	–	–	–	–	–	–
1.33 – 1.51	$(4.878$	0.016	0.045	$0.142)\times10^2$	–	–	–	–	–	–	–	–
1.51 – 1.71	$(4.713$	0.012	0.036	$0.124)\times10^2$	–	–	–	–	–	–	–	–
1.71 – 1.92	$(4.421$	0.010	0.029	$0.105)\times10^2$	–	–	–	–	–	–	–	–
1.92 – 2.15	$(4.027$	0.009	0.023	$0.087)\times10^2$	$(4.703$	0.033	0.044	$0.104)\times10^1$	8.561	0.062	0.095	0.253
2.15 – 2.40	$(3.604$	0.007	0.019	$0.073)\times10^2$	$(4.473$	0.028	0.036	$0.087)\times10^1$	8.056	0.053	0.078	0.214
2.40 – 2.67	$(3.207$	0.006	0.016	$0.061)\times10^2$	$(4.255$	0.024	0.031	$0.075)\times10^1$	7.537	0.045	0.067	0.184
2.67 – 2.97	$(2.813$	0.005	0.014	$0.050)\times10^2$	$(3.923$	0.021	0.028	$0.066)\times10^1$	7.170	0.040	0.061	0.165
2.97 – 3.29	$(2.449$	0.004	0.012	$0.041)\times10^2$	$(3.500$	0.017	0.023	$0.056)\times10^1$	6.999	0.037	0.057	0.154
3.29 – 3.64	$(2.107$	0.004	0.010	$0.034)\times10^2$	$(3.079$	0.015	0.018	$0.049)\times10^1$	6.843	0.035	0.053	0.147
3.64 – 4.02	$(1.789$	0.003	0.009	$0.029)\times10^2$	$(2.672$	0.012	0.015	$0.042)\times10^1$	6.697	0.033	0.050	0.140
4.02 – 4.43	$(1.511$	0.002	0.008	$0.023)\times10^2$	$(2.318$	0.010	0.012	$0.036)\times10^1$	6.518	0.031	0.048	0.133
4.43 – 4.88	$(1.263$	0.002	0.006	$0.019)\times10^2$	$(1.965$	0.008	0.010	$0.030)\times10^1$	6.426	0.029	0.045	0.129
4.88 – 5.37	$(1.049$	0.002	0.005	$0.015)\times10^2$	$(1.661$	0.007	0.008	$0.025)\times10^1$	6.315	0.028	0.042	0.125
5.37 – 5.90	$(8.648$	0.014	0.038	$0.124)\times10^1$	$(1.396$	0.006	0.006	$0.021)\times10^1$	6.193	0.027	0.039	0.119
5.90 – 6.47	$(7.137$	0.011	0.030	$0.101)\times10^1$	$(1.164$	0.005	0.005	$0.017)\times10^1$	6.129	0.027	0.038	0.116
6.47 – 7.09	$(5.835$	0.009	0.024	$0.082)\times10^1$	$(9.679$	0.039	0.044	$0.142)\times10^0$	6.029	0.026	0.037	0.113
7.09 – 7.76	$(4.775$	0.007	0.019	$0.067)\times10^1$	$(7.989$	0.032	0.036	$0.117)\times10^0$	5.977	0.026	0.036	0.111
7.76 – 8.48	$(3.906$	0.006	0.016	$0.054)\times10^1$	$(6.581$	0.027	0.031	$0.096)\times10^0$	5.935	0.026	0.037	0.110
8.48 – 9.26	$(3.178$	0.005	0.013	$0.044)\times10^1$	$(5.452$	0.023	0.026	$0.080)\times10^0$	5.829	0.027	0.037	0.107
9.26 – 10.1	$(2.576$	0.004	0.011	$0.035)\times10^1$	$(4.529$	0.020	0.023	$0.067)\times10^0$	5.687	0.027	0.037	0.105
10.1 – 11.0	$(2.088$	0.004	0.009	$0.029)\times10^1$	$(3.704$	0.017	0.019	$0.054)\times10^0$	5.636	0.028	0.038	0.103
11.0 – 12.0	$(1.680$	0.003	0.007	$0.023)\times10^1$	$(2.989$	0.014	0.016	$0.044)\times10^0$	5.620	0.029	0.039	0.103
12.0 – 13.0	$(1.366$	0.003	0.006	$0.019)\times10^1$	$(2.462$	0.013	0.014	$0.037)\times10^0$	5.548	0.031	0.040	0.103
13.0 – 14.1	$(1.109$	0.002	0.005	$0.016)\times10^1$	$(2.033$	0.011	0.012	$0.030)\times10^0$	5.453	0.031	0.041	0.102
14.1 – 15.3	$(8.965$	0.019	0.043	$0.128)\times10^0$	$(1.649$	0.009	0.010	$0.024)\times10^0$	5.438	0.032	0.043	0.102
15.3 – 16.6	$(7.282$	0.016	0.036	$0.105)\times10^0$	$(1.356$	0.008	0.009	$0.021)\times10^0$	5.370	0.032	0.045	0.102

Table continued

TABLE SM XXVIII: Bartels Rotation 2453 (May 13, 2013 – June 8, 2013). *(Continued).*

Rigidity	Φ_p $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	Φ_{He} $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	p/He $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$
16.6 – 18.0	$(5.844\ 0.013\ 0.030\ 0.085)\times10^{0}$	$(1.102\ 0.006\ 0.008\ 0.017)\times10^{0}$	5.303 0.033 0.046 0.102
18.0 – 19.5	$(4.729\ 0.011\ 0.025\ 0.070)\times10^{0}$	$(9.030\ 0.053\ 0.067\ 0.140)\times10^{-1}$	5.237 0.033 0.048 0.101
19.5 – 21.1	$(3.821\ 0.009\ 0.021\ 0.057)\times10^{0}$	$(7.278\ 0.044\ 0.056\ 0.114)\times10^{-1}$	5.249 0.034 0.050 0.102
21.1 – 22.8	$(3.099\ 0.008\ 0.018\ 0.047)\times10^{0}$	$(6.071\ 0.037\ 0.048\ 0.096)\times10^{-1}$	5.105 0.034 0.050 0.100
22.8 – 24.7	$(2.502\ 0.006\ 0.015\ 0.038)\times10^{0}$	$(4.866\ 0.030\ 0.039\ 0.077)\times10^{-1}$	5.141 0.035 0.051 0.101
24.7 – 26.7	$(2.012\ 0.005\ 0.012\ 0.031)\times10^{0}$	$(4.002\ 0.026\ 0.033\ 0.064)\times10^{-1}$	5.027 0.036 0.051 0.100
26.7 – 28.8	$(1.621\ 0.005\ 0.010\ 0.025)\times10^{0}$	$(3.264\ 0.023\ 0.028\ 0.052)\times10^{-1}$	4.967 0.038 0.052 0.099
28.8 – 31.1	$(1.321\ 0.004\ 0.008\ 0.021)\times10^{0}$	$(2.677\ 0.020\ 0.023\ 0.044)\times10^{-1}$	4.935 0.039 0.053 0.100
31.1 – 33.5	$(1.069\ 0.003\ 0.007\ 0.017)\times10^{0}$	$(2.201\ 0.018\ 0.020\ 0.036)\times10^{-1}$	4.855 0.042 0.054 0.099
33.5 – 36.1	$(8.717\ 0.030\ 0.059\ 0.136)\times10^{-1}$	$(1.800\ 0.015\ 0.016\ 0.030)\times10^{-1}$	4.844 0.044 0.055 0.099
36.1 – 38.9	$(7.074\ 0.026\ 0.049\ 0.111)\times10^{-1}$	$(1.457\ 0.013\ 0.014\ 0.025)\times10^{-1}$	4.855 0.047 0.056 0.101
38.9 – 41.9	$(5.733\ 0.023\ 0.040\ 0.091)\times10^{-1}$	$(1.194\ 0.011\ 0.011\ 0.020)\times10^{-1}$	4.800 0.050 0.057 0.101
41.9 – 45.1	$(4.696\ 0.020\ 0.034\ 0.075)\times10^{-1}$	$(9.832\ 0.100\ 0.097\ 0.168)\times10^{-2}$	4.776 0.053 0.058 0.101
45.1 – 48.5	$(3.823\ 0.017\ 0.028\ 0.062)\times10^{-1}$	$(8.124\ 0.088\ 0.082\ 0.140)\times10^{-2}$	4.706 0.055 0.059 0.101
48.5 – 52.2	$(3.131\ 0.015\ 0.024\ 0.052)\times10^{-1}$	$(6.488\ 0.075\ 0.067\ 0.113)\times10^{-2}$	4.826 0.061 0.062 0.104
52.2 – 56.1	$(2.526\ 0.013\ 0.020\ 0.043)\times10^{-1}$	$(5.408\ 0.067\ 0.057\ 0.095)\times10^{-2}$	4.670 0.063 0.061 0.101
56.1 – 60.3	$(2.072\ 0.012\ 0.016\ 0.035)\times10^{-1}$	$(4.288\ 0.057\ 0.046\ 0.076)\times10^{-2}$	4.832 0.070 0.065 0.106

TABLE SM XXIX: Bartels Rotation 2454 (June 9, 2013 – July 5, 2013). The proton flux Φ_p, helium flux Φ_{He}, and p/He flux ratio as a function of rigidity (in units of GV) at the top of AMS in units of $[\mathrm{m}^2 \cdot \mathrm{sr} \cdot \mathrm{s} \cdot \mathrm{GV}]^{-1}$ including errors due to statistics ($\sigma_{\mathrm{stat.}}$), time dependent systematic errors (σ_{time}) and the total systematic error ($\sigma_{\mathrm{syst.}}$). Contributions to the time dependent systematic errors are from: the trigger and the reconstruction efficiency. Contributions to the total systematic error are from: the acceptance, the background contamination, the geomagnetic cutoff factor, the event selection, the unfolding, the rigidity resolution function, the absolute rigidity scale, and the time dependent systematic errors. The statistical errors for the ratio are the sum in quadrature of the relative statistical errors of the fluxes multiplied by the ratio. The time dependent systematic errors for the ratio are the sum in quadrature of the relative time dependent systematic errors of the fluxes multiplied by the ratio. The systematic errors from the acceptance for the ratio are added in quadrature. The correlations in the systematic errors from the unfolding and the absolute rigidity scale between the fluxes have been accounted for in calculating the corresponding systematic errors of the ratio. The contributions of the individual sources to the systematic error are added in quadrature to arrive at the total systematic uncertainty on the ratio.

Rigidity	Φ_p	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	Φ_{He}	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	p/He	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$
1.00 – 1.16	$(4.599$	0.025	0.068	$0.207)\times10^2$	–	–	–	–	–	–	–	–
1.16 – 1.33	$(4.751$	0.017	0.051	$0.170)\times10^2$	–	–	–	–	–	–	–	–
1.33 – 1.51	$(4.759$	0.015	0.040	$0.137)\times10^2$	–	–	–	–	–	–	–	–
1.51 – 1.71	$(4.595$	0.011	0.032	$0.120)\times10^2$	–	–	–	–	–	–	–	–
1.71 – 1.92	$(4.342$	0.010	0.026	$0.103)\times10^2$	–	–	–	–	–	–	–	–
1.92 – 2.15	$(3.994$	0.008	0.022	$0.086)\times10^2$	$(4.725$	0.032	0.043	$0.104)\times10^1$	8.454	0.059	0.090	0.249
2.15 – 2.40	$(3.620$	0.007	0.018	$0.073)\times10^2$	$(4.556$	0.028	0.035	$0.088)\times10^1$	7.945	0.050	0.073	0.209
2.40 – 2.67	$(3.234$	0.006	0.015	$0.061)\times10^2$	$(4.262$	0.024	0.030	$0.075)\times10^1$	7.589	0.044	0.064	0.184
2.67 – 2.97	$(2.861$	0.005	0.013	$0.050)\times10^2$	$(3.951$	0.020	0.027	$0.066)\times10^1$	7.242	0.039	0.059	0.165
2.97 – 3.29	$(2.488$	0.004	0.011	$0.042)\times10^2$	$(3.575$	0.017	0.022	$0.057)\times10^1$	6.959	0.035	0.053	0.152
3.29 – 3.64	$(2.151$	0.004	0.010	$0.035)\times10^2$	$(3.196$	0.015	0.018	$0.050)\times10^1$	6.732	0.033	0.049	0.143
3.64 – 4.02	$(1.833$	0.003	0.009	$0.029)\times10^2$	$(2.765$	0.012	0.015	$0.043)\times10^1$	6.629	0.032	0.047	0.138
4.02 – 4.43	$(1.552$	0.002	0.007	$0.024)\times10^2$	$(2.382$	0.010	0.012	$0.036)\times10^1$	6.517	0.030	0.045	0.132
4.43 – 4.88	$(1.305$	0.002	0.006	$0.020)\times10^2$	$(2.044$	0.008	0.010	$0.031)\times10^1$	6.386	0.028	0.042	0.127
4.88 – 5.37	$(1.081$	0.002	0.005	$0.016)\times10^2$	$(1.721$	0.007	0.008	$0.026)\times10^1$	6.282	0.027	0.039	0.123
5.37 – 5.90	$(8.921$	0.013	0.036	$0.127)\times10^1$	$(1.446$	0.006	0.006	$0.021)\times10^1$	6.170	0.026	0.037	0.118
5.90 – 6.47	$(7.347$	0.011	0.029	$0.103)\times10^1$	$(1.199$	0.005	0.005	$0.017)\times10^1$	6.130	0.026	0.035	0.115
6.47 – 7.09	$(6.034$	0.009	0.023	$0.084)\times10^1$	$(1.008$	0.004	0.004	$0.015)\times10^1$	5.985	0.025	0.034	0.112
7.09 – 7.76	$(4.909$	0.007	0.018	$0.068)\times10^1$	$(8.276$	0.033	0.035	$0.121)\times10^0$	5.931	0.025	0.034	0.109
7.76 – 8.48	$(4.005$	0.006	0.015	$0.055)\times10^1$	$(6.835$	0.027	0.030	$0.099)\times10^0$	5.860	0.025	0.034	0.107
8.48 – 9.26	$(3.251$	0.005	0.012	$0.045)\times10^1$	$(5.626$	0.023	0.025	$0.082)\times10^0$	5.779	0.026	0.034	0.105
9.26 – 10.1	$(2.632$	0.004	0.010	$0.036)\times10^1$	$(4.609$	0.020	0.021	$0.067)\times10^0$	5.710	0.026	0.034	0.104
10.1 – 11.0	$(2.134$	0.004	0.008	$0.029)\times10^1$	$(3.766$	0.017	0.018	$0.055)\times10^0$	5.667	0.028	0.035	0.103
11.0 – 12.0	$(1.714$	0.003	0.007	$0.023)\times10^1$	$(3.080$	0.014	0.015	$0.045)\times10^0$	5.566	0.028	0.036	0.101
12.0 – 13.0	$(1.384$	0.003	0.006	$0.019)\times10^1$	$(2.523$	0.013	0.013	$0.037)\times10^0$	5.485	0.030	0.037	0.101
13.0 – 14.1	$(1.125$	0.002	0.005	$0.016)\times10^1$	$(2.060$	0.011	0.011	$0.030)\times10^0$	5.458	0.030	0.038	0.101
14.1 – 15.3	$(9.121$	0.019	0.041	$0.129)\times10^0$	$(1.698$	0.009	0.010	$0.025)\times10^0$	5.373	0.031	0.039	0.099
15.3 – 16.6	$(7.344$	0.016	0.034	$0.105)\times10^0$	$(1.379$	0.008	0.008	$0.021)\times10^0$	5.327	0.032	0.040	0.100

Table continued

TABLE SM XXIX: Bartels Rotation 2454 (June 9, 2013 – July 5, 2013). *(Continued).*

Rigidity	Φ_p $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	Φ_{He} $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	p/He $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$
16.6 – 18.0	(5.906 0.013 0.028 0.085)$\times 10^{0}$	(1.122 0.006 0.007 0.017)$\times 10^{0}$	5.264 0.032 0.042 0.099
18.0 – 19.5	(4.772 0.011 0.024 0.070)$\times 10^{0}$	(9.303 0.053 0.062 0.142)$\times 10^{-1}$	5.130 0.032 0.043 0.097
19.5 – 21.1	(3.838 0.009 0.020 0.057)$\times 10^{0}$	(7.504 0.044 0.052 0.115)$\times 10^{-1}$	5.114 0.032 0.044 0.097
21.1 – 22.8	(3.124 0.008 0.017 0.047)$\times 10^{0}$	(6.123 0.037 0.044 0.095)$\times 10^{-1}$	5.103 0.033 0.045 0.098
22.8 – 24.7	(2.503 0.006 0.014 0.038)$\times 10^{0}$	(4.979 0.031 0.036 0.077)$\times 10^{-1}$	5.028 0.033 0.046 0.097
24.7 – 26.7	(2.010 0.005 0.011 0.031)$\times 10^{0}$	(4.091 0.027 0.031 0.064)$\times 10^{-1}$	4.912 0.034 0.046 0.095
26.7 – 28.8	(1.633 0.005 0.010 0.025)$\times 10^{0}$	(3.272 0.023 0.025 0.051)$\times 10^{-1}$	4.992 0.038 0.048 0.097
28.8 – 31.1	(1.315 0.004 0.008 0.020)$\times 10^{0}$	(2.746 0.020 0.022 0.044)$\times 10^{-1}$	4.789 0.038 0.047 0.095
31.1 – 33.5	(1.070 0.003 0.007 0.017)$\times 10^{0}$	(2.233 0.018 0.018 0.036)$\times 10^{-1}$	4.795 0.041 0.049 0.095
33.5 – 36.1	(8.680 0.030 0.054 0.134)$\times 10^{-1}$	(1.812 0.015 0.015 0.030)$\times 10^{-1}$	4.791 0.043 0.050 0.096
36.1 – 38.9	(7.047 0.026 0.045 0.109)$\times 10^{-1}$	(1.480 0.013 0.013 0.025)$\times 10^{-1}$	4.762 0.046 0.051 0.097
38.9 – 41.9	(5.738 0.023 0.038 0.090)$\times 10^{-1}$	(1.194 0.011 0.011 0.019)$\times 10^{-1}$	4.806 0.050 0.053 0.099
41.9 – 45.1	(4.706 0.020 0.032 0.074)$\times 10^{-1}$	(9.870 0.101 0.090 0.165)$\times 10^{-2}$	4.769 0.053 0.054 0.099
45.1 – 48.5	(3.824 0.017 0.026 0.061)$\times 10^{-1}$	(8.142 0.088 0.077 0.137)$\times 10^{-2}$	4.697 0.055 0.055 0.098
48.5 – 52.2	(3.120 0.015 0.022 0.051)$\times 10^{-1}$	(6.659 0.076 0.064 0.113)$\times 10^{-2}$	4.685 0.058 0.056 0.099
52.2 – 56.1	(2.537 0.013 0.018 0.042)$\times 10^{-1}$	(5.340 0.066 0.053 0.092)$\times 10^{-2}$	4.750 0.064 0.058 0.101
56.1 – 60.3	(2.084 0.011 0.015 0.035)$\times 10^{-1}$	(4.526 0.059 0.046 0.078)$\times 10^{-2}$	4.604 0.065 0.058 0.099

TABLE SM XXX: Bartels Rotation 2455 (July 6, 2013 – August 1, 2013). The proton flux Φ_p, helium flux Φ_{He}, and p/He flux ratio as a function of rigidity (in units of GV) at the top of AMS in units of $[\mathrm{m}^2 \cdot \mathrm{sr} \cdot \mathrm{s} \cdot \mathrm{GV}]^{-1}$ including errors due to statistics ($\sigma_{\mathrm{stat.}}$), time dependent systematic errors (σ_{time}) and the total systematic error ($\sigma_{\mathrm{syst.}}$). Contributions to the time dependent systematic errors are from: the trigger and the reconstruction efficiency. Contributions to the total systematic error are from: the acceptance, the background contamination, the geomagnetic cutoff factor, the event selection, the unfolding, the rigidity resolution function, the absolute rigidity scale, and the time dependent systematic errors. The statistical errors for the ratio are the sum in quadrature of the relative statistical errors of the fluxes multiplied by the ratio. The time dependent systematic errors for the ratio are the sum in quadrature of the relative time dependent systematic errors of the fluxes multiplied by the ratio. The systematic errors from the acceptance for the ratio are added in quadrature. The correlations in the systematic errors from the unfolding and the absolute rigidity scale between the fluxes have been accounted for in calculating the corresponding systematic errors of the ratio. The contributions of the individual sources to the systematic error are added in quadrature to arrive at the total systematic uncertainty on the ratio.

Rigidity	Φ_p	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	Φ_{He}	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	p/He	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$
1.00 – 1.16	$(4.573$	0.025	0.067	$0.205)\times10^2$	–	–	–	–	–	–	–	–
1.16 – 1.33	$(4.686$	0.017	0.050	$0.167)\times10^2$	–	–	–	–	–	–	–	–
1.33 – 1.51	$(4.738$	0.015	0.038	$0.136)\times10^2$	–	–	–	–	–	–	–	–
1.51 – 1.71	$(4.609$	0.011	0.031	$0.120)\times10^2$	–	–	–	–	–	–	–	–
1.71 – 1.92	$(4.364$	0.010	0.025	$0.103)\times10^2$	–	–	–	–	–	–	–	–
1.92 – 2.15	$(4.044$	0.008	0.021	$0.087)\times10^2$	$(4.785$	0.032	0.044	$0.105)\times10^1$	8.451	0.059	0.088	0.248
2.15 – 2.40	$(3.662$	0.007	0.017	$0.073)\times10^2$	$(4.554$	0.028	0.035	$0.088)\times10^1$	8.040	0.052	0.072	0.211
2.40 – 2.67	$(3.274$	0.006	0.014	$0.062)\times10^2$	$(4.402$	0.024	0.031	$0.077)\times10^1$	7.439	0.043	0.061	0.180
2.67 – 2.97	$(2.899$	0.005	0.012	$0.051)\times10^2$	$(4.028$	0.021	0.027	$0.067)\times10^1$	7.198	0.039	0.057	0.164
2.97 – 3.29	$(2.520$	0.004	0.011	$0.042)\times10^2$	$(3.615$	0.017	0.022	$0.058)\times10^1$	6.972	0.036	0.052	0.152
3.29 – 3.64	$(2.177$	0.004	0.009	$0.035)\times10^2$	$(3.208$	0.015	0.018	$0.051)\times10^1$	6.786	0.033	0.048	0.144
3.64 – 4.02	$(1.859$	0.003	0.008	$0.029)\times10^2$	$(2.792$	0.013	0.015	$0.043)\times10^1$	6.660	0.032	0.046	0.138
4.02 – 4.43	$(1.578$	0.002	0.007	$0.024)\times10^2$	$(2.422$	0.010	0.012	$0.037)\times10^1$	6.514	0.030	0.043	0.131
4.43 – 4.88	$(1.323$	0.002	0.006	$0.020)\times10^2$	$(2.063$	0.008	0.010	$0.031)\times10^1$	6.413	0.028	0.041	0.128
4.88 – 5.37	$(1.100$	0.002	0.004	$0.016)\times10^2$	$(1.747$	0.007	0.008	$0.026)\times10^1$	6.297	0.027	0.038	0.123
5.37 – 5.90	$(9.067$	0.014	0.035	$0.129)\times10^1$	$(1.467$	0.006	0.006	$0.022)\times10^1$	6.179	0.026	0.036	0.118
5.90 – 6.47	$(7.439$	0.011	0.027	$0.104)\times10^1$	$(1.222$	0.005	0.005	$0.018)\times10^1$	6.086	0.026	0.034	0.114
6.47 – 7.09	$(6.117$	0.009	0.022	$0.085)\times10^1$	$(1.015$	0.004	0.004	$0.015)\times10^1$	6.029	0.025	0.034	0.112
7.09 – 7.76	$(4.977$	0.008	0.018	$0.069)\times10^1$	$(8.406$	0.033	0.036	$0.123)\times10^0$	5.920	0.025	0.033	0.109
7.76 – 8.48	$(4.045$	0.006	0.014	$0.056)\times10^1$	$(6.931$	0.028	0.031	$0.101)\times10^0$	5.837	0.025	0.033	0.107
8.48 – 9.26	$(3.292$	0.005	0.012	$0.045)\times10^1$	$(5.659$	0.023	0.026	$0.083)\times10^0$	5.819	0.026	0.034	0.106
9.26 – 10.1	$(2.662$	0.004	0.010	$0.036)\times10^1$	$(4.652$	0.020	0.022	$0.068)\times10^0$	5.722	0.026	0.034	0.104
10.1 – 11.0	$(2.143$	0.004	0.008	$0.029)\times10^1$	$(3.802$	0.017	0.019	$0.056)\times10^0$	5.636	0.027	0.035	0.102
11.0 – 12.0	$(1.731$	0.003	0.007	$0.024)\times10^1$	$(3.110$	0.014	0.016	$0.046)\times10^0$	5.566	0.028	0.036	0.101
12.0 – 13.0	$(1.398$	0.003	0.006	$0.019)\times10^1$	$(2.533$	0.013	0.014	$0.038)\times10^0$	5.521	0.030	0.037	0.101
13.0 – 14.1	$(1.133$	0.002	0.005	$0.016)\times10^1$	$(2.067$	0.011	0.012	$0.031)\times10^0$	5.480	0.031	0.039	0.101
14.1 – 15.3	$(9.132$	0.019	0.039	$0.128)\times10^0$	$(1.697$	0.009	0.010	$0.025)\times10^0$	5.382	0.031	0.040	0.100
15.3 – 16.6	$(7.369$	0.016	0.032	$0.105)\times10^0$	$(1.377$	0.008	0.009	$0.021)\times10^0$	5.353	0.032	0.041	0.100

Table continued

TABLE SM XXX: Bartels Rotation 2455 (July 6, 2013 – August 1, 2013). *(Continued).*

Rigidity	Φ_p $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	Φ_{He} $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	p/He $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$
16.6 – 18.0	$(5.897\ 0.013\ 0.027\ 0.085)\times10^{0}$	$(1.129\ 0.006\ 0.008\ 0.017)\times10^{0}$	5.221 0.032 0.042 0.099
18.0 – 19.5	$(4.758\ 0.011\ 0.022\ 0.070)\times10^{0}$	$(9.192\ 0.053\ 0.064\ 0.141)\times10^{-1}$	5.176 0.032 0.044 0.098
19.5 – 21.1	$(3.845\ 0.009\ 0.018\ 0.057)\times10^{0}$	$(7.414\ 0.044\ 0.054\ 0.115)\times10^{-1}$	5.186 0.033 0.046 0.099
21.1 – 22.8	$(3.118\ 0.008\ 0.016\ 0.047)\times10^{0}$	$(6.082\ 0.037\ 0.045\ 0.095)\times10^{-1}$	5.127 0.034 0.046 0.099
22.8 – 24.7	$(2.501\ 0.006\ 0.013\ 0.037)\times10^{0}$	$(4.959\ 0.031\ 0.038\ 0.078)\times10^{-1}$	5.042 0.034 0.046 0.098
24.7 – 26.7	$(2.011\ 0.005\ 0.011\ 0.031)\times10^{0}$	$(4.059\ 0.027\ 0.032\ 0.064)\times10^{-1}$	4.955 0.035 0.047 0.096
26.7 – 28.8	$(1.628\ 0.005\ 0.009\ 0.025)\times10^{0}$	$(3.276\ 0.023\ 0.026\ 0.052)\times10^{-1}$	4.971 0.038 0.048 0.097
28.8 – 31.1	$(1.312\ 0.004\ 0.007\ 0.020)\times10^{0}$	$(2.677\ 0.020\ 0.022\ 0.043)\times10^{-1}$	4.900 0.039 0.049 0.097
31.1 – 33.5	$(1.069\ 0.003\ 0.006\ 0.017)\times10^{0}$	$(2.183\ 0.017\ 0.018\ 0.035)\times10^{-1}$	4.895 0.042 0.050 0.097
33.5 – 36.1	$(8.705\ 0.030\ 0.051\ 0.133)\times10^{-1}$	$(1.799\ 0.015\ 0.016\ 0.030)\times10^{-1}$	4.839 0.044 0.051 0.097
36.1 – 38.9	$(7.055\ 0.026\ 0.043\ 0.109)\times10^{-1}$	$(1.489\ 0.013\ 0.013\ 0.025)\times10^{-1}$	4.738 0.046 0.051 0.096
38.9 – 41.9	$(5.744\ 0.023\ 0.036\ 0.089)\times10^{-1}$	$(1.204\ 0.012\ 0.011\ 0.020)\times10^{-1}$	4.772 0.049 0.053 0.098
41.9 – 45.1	$(4.689\ 0.020\ 0.030\ 0.073)\times10^{-1}$	$(9.949\ 0.101\ 0.093\ 0.167)\times10^{-2}$	4.713 0.052 0.053 0.097
45.1 – 48.5	$(3.809\ 0.017\ 0.025\ 0.060)\times10^{-1}$	$(8.001\ 0.088\ 0.077\ 0.136)\times10^{-2}$	4.760 0.056 0.055 0.099
48.5 – 52.2	$(3.101\ 0.015\ 0.021\ 0.050)\times10^{-1}$	$(6.554\ 0.076\ 0.064\ 0.112)\times10^{-2}$	4.730 0.059 0.056 0.099
52.2 – 56.1	$(2.536\ 0.013\ 0.017\ 0.042)\times10^{-1}$	$(5.463\ 0.067\ 0.055\ 0.094)\times10^{-2}$	4.642 0.062 0.056 0.098
56.1 – 60.3	$(2.071\ 0.011\ 0.014\ 0.034)\times10^{-1}$	$(4.515\ 0.059\ 0.046\ 0.079)\times10^{-2}$	4.586 0.065 0.057 0.098

TABLE SM XXXI: Bartels Rotation 2456 (August 2, 2013 – August 28, 2013). The proton flux Φ_p, helium flux Φ_{He}, and p/He flux ratio as a function of rigidity (in units of GV) at the top of AMS in units of $[\mathrm{m}^2 \cdot \mathrm{sr} \cdot \mathrm{s} \cdot \mathrm{GV}]^{-1}$ including errors due to statistics ($\sigma_{\mathrm{stat.}}$), time dependent systematic errors (σ_{time}) and the total systematic error ($\sigma_{\mathrm{syst.}}$). Contributions to the time dependent systematic errors are from: the trigger and the reconstruction efficiency. Contributions to the total systematic error are from: the acceptance, the background contamination, the geomagnetic cutoff factor, the event selection, the unfolding, the rigidity resolution function, the absolute rigidity scale, and the time dependent systematic errors. The statistical errors for the ratio are the sum in quadrature of the relative statistical errors of the fluxes multiplied by the ratio. The time dependent systematic errors for the ratio are the sum in quadrature of the relative time dependent systematic errors of the fluxes multiplied by the ratio. The systematic errors from the acceptance for the ratio are added in quadrature. The correlations in the systematic errors from the unfolding and the absolute rigidity scale between the fluxes have been accounted for in calculating the corresponding systematic errors of the ratio. The contributions of the individual sources to the systematic error are added in quadrature to arrive at the total systematic uncertainty on the ratio.

Rigidity	Φ_p	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	Φ_{He}	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	p/He	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$
1.00 – 1.16	$(4.510$	0.024	0.067	$0.203)\times10^2$	–	–	–	–	–	–	–	–
1.16 – 1.33	$(4.694$	0.017	0.051	$0.168)\times10^2$	–	–	–	–	–	–	–	–
1.33 – 1.51	$(4.690$	0.015	0.039	$0.135)\times10^2$	–	–	–	–	–	–	–	–
1.51 – 1.71	$(4.593$	0.011	0.031	$0.120)\times10^2$	–	–	–	–	–	–	–	–
1.71 – 1.92	$(4.355$	0.010	0.025	$0.103)\times10^2$	–	–	–	–	–	–	–	–
1.92 – 2.15	$(4.063$	0.008	0.021	$0.088)\times10^2$	$(4.744$	0.031	0.049	$0.107)\times10^1$	8.566	0.059	0.098	0.255
2.15 – 2.40	$(3.682$	0.007	0.018	$0.074)\times10^2$	$(4.610$	0.027	0.040	$0.091)\times10^1$	7.987	0.050	0.080	0.213
2.40 – 2.67	$(3.305$	0.006	0.015	$0.063)\times10^2$	$(4.342$	0.024	0.035	$0.078)\times10^1$	7.612	0.043	0.070	0.187
2.67 – 2.97	$(2.914$	0.005	0.013	$0.051)\times10^2$	$(4.027$	0.020	0.031	$0.069)\times10^1$	7.235	0.038	0.064	0.167
2.97 – 3.29	$(2.542$	0.004	0.011	$0.042)\times10^2$	$(3.628$	0.017	0.026	$0.059)\times10^1$	7.006	0.035	0.058	0.155
3.29 – 3.64	$(2.197$	0.004	0.010	$0.035)\times10^2$	$(3.235$	0.015	0.021	$0.052)\times10^1$	6.793	0.033	0.054	0.146
3.64 – 4.02	$(1.876$	0.003	0.009	$0.030)\times10^2$	$(2.837$	0.012	0.017	$0.045)\times10^1$	6.612	0.031	0.050	0.139
4.02 – 4.43	$(1.590$	0.002	0.007	$0.025)\times10^2$	$(2.422$	0.010	0.014	$0.038)\times10^1$	6.565	0.030	0.048	0.134
4.43 – 4.88	$(1.334$	0.002	0.006	$0.020)\times10^2$	$(2.085$	0.008	0.012	$0.032)\times10^1$	6.397	0.027	0.045	0.129
4.88 – 5.37	$(1.108$	0.002	0.005	$0.016)\times10^2$	$(1.769$	0.007	0.009	$0.027)\times10^1$	6.263	0.026	0.042	0.124
5.37 – 5.90	$(9.116$	0.014	0.036	$0.130)\times10^1$	$(1.477$	0.006	0.007	$0.022)\times10^1$	6.171	0.026	0.040	0.119
5.90 – 6.47	$(7.505$	0.011	0.029	$0.105)\times10^1$	$(1.239$	0.005	0.006	$0.018)\times10^1$	6.058	0.025	0.038	0.115
6.47 – 7.09	$(6.140$	0.009	0.023	$0.086)\times10^1$	$(1.018$	0.004	0.005	$0.015)\times10^1$	6.031	0.025	0.038	0.114
7.09 – 7.76	$(5.012$	0.007	0.018	$0.069)\times10^1$	$(8.503$	0.033	0.043	$0.127)\times10^0$	5.895	0.025	0.037	0.110
7.76 – 8.48	$(4.081$	0.006	0.015	$0.056)\times10^1$	$(7.009$	0.028	0.037	$0.104)\times10^0$	5.822	0.025	0.037	0.108
8.48 – 9.26	$(3.312$	0.005	0.012	$0.045)\times10^1$	$(5.730$	0.024	0.031	$0.085)\times10^0$	5.779	0.025	0.038	0.107
9.26 – 10.1	$(2.673$	0.004	0.010	$0.036)\times10^1$	$(4.697$	0.020	0.027	$0.070)\times10^0$	5.691	0.026	0.039	0.105
10.1 – 11.0	$(2.159$	0.004	0.008	$0.029)\times10^1$	$(3.851$	0.017	0.023	$0.058)\times10^0$	5.606	0.027	0.040	0.104
11.0 – 12.0	$(1.742$	0.003	0.007	$0.024)\times10^1$	$(3.130$	0.015	0.020	$0.048)\times10^0$	5.564	0.028	0.041	0.103
12.0 – 13.0	$(1.410$	0.003	0.006	$0.019)\times10^1$	$(2.602$	0.013	0.017	$0.040)\times10^0$	5.418	0.029	0.042	0.102
13.0 – 14.1	$(1.144$	0.002	0.005	$0.016)\times10^1$	$(2.110$	0.011	0.015	$0.032)\times10^0$	5.423	0.030	0.044	0.103
14.1 – 15.3	$(9.189$	0.019	0.041	$0.130)\times10^0$	$(1.720$	0.009	0.012	$0.026)\times10^0$	5.344	0.031	0.045	0.102
15.3 – 16.6	$(7.446$	0.016	0.034	$0.106)\times10^0$	$(1.416$	0.008	0.011	$0.022)\times10^0$	5.257	0.031	0.047	0.101

Table continued

TABLE SM XXXI: Bartels Rotation 2456 (August 2, 2013 – August 28, 2013). *(Continued).*

Rigidity	Φ_p $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	Φ_{He} $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	p/He $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$
16.6 – 18.0	$(5.987\ 0.013\ 0.028\ 0.087)\times10^{0}$	$(1.143\ 0.006\ 0.009\ 0.018)\times10^{0}$	5.236 0.032 0.049 0.102
18.0 – 19.5	$(4.833\ 0.011\ 0.024\ 0.071)\times10^{0}$	$(9.319\ 0.053\ 0.079\ 0.150)\times10^{-1}$	5.186 0.032 0.051 0.102
19.5 – 21.1	$(3.900\ 0.009\ 0.020\ 0.058)\times10^{0}$	$(7.592\ 0.045\ 0.067\ 0.124)\times10^{-1}$	5.136 0.032 0.052 0.102
21.1 – 22.8	$(3.122\ 0.008\ 0.016\ 0.047)\times10^{0}$	$(6.124\ 0.037\ 0.055\ 0.101)\times10^{-1}$	5.098 0.033 0.053 0.102
22.8 – 24.7	$(2.527\ 0.006\ 0.013\ 0.038)\times10^{0}$	$(5.056\ 0.031\ 0.046\ 0.083)\times10^{-1}$	4.997 0.033 0.053 0.100
24.7 – 26.7	$(2.035\ 0.005\ 0.011\ 0.031)\times10^{0}$	$(4.095\ 0.027\ 0.038\ 0.068)\times10^{-1}$	4.969 0.035 0.054 0.100
26.7 – 28.8	$(1.632\ 0.005\ 0.009\ 0.025)\times10^{0}$	$(3.355\ 0.023\ 0.032\ 0.056)\times10^{-1}$	4.865 0.037 0.054 0.099
28.8 – 31.1	$(1.327\ 0.004\ 0.008\ 0.020)\times10^{0}$	$(2.737\ 0.020\ 0.027\ 0.046)\times10^{-1}$	4.848 0.038 0.055 0.099
31.1 – 33.5	$(1.073\ 0.003\ 0.006\ 0.017)\times10^{0}$	$(2.251\ 0.018\ 0.022\ 0.038)\times10^{-1}$	4.767 0.041 0.055 0.098
33.5 – 36.1	$(8.694\ 0.030\ 0.053\ 0.134)\times10^{-1}$	$(1.809\ 0.015\ 0.018\ 0.032)\times10^{-1}$	4.805 0.044 0.057 0.100
36.1 – 38.9	$(7.083\ 0.026\ 0.045\ 0.110)\times10^{-1}$	$(1.484\ 0.013\ 0.015\ 0.026)\times10^{-1}$	4.773 0.046 0.058 0.101
38.9 – 41.9	$(5.721\ 0.023\ 0.037\ 0.089)\times10^{-1}$	$(1.229\ 0.012\ 0.013\ 0.021)\times10^{-1}$	4.656 0.048 0.058 0.099
41.9 – 45.1	$(4.699\ 0.020\ 0.031\ 0.074)\times10^{-1}$	$(1.000\ 0.010\ 0.011\ 0.018)\times10^{-1}$	4.699 0.052 0.060 0.101
45.1 – 48.5	$(3.821\ 0.017\ 0.026\ 0.061)\times10^{-1}$	$(8.197\ 0.089\ 0.091\ 0.146)\times10^{-2}$	4.662 0.055 0.060 0.101
48.5 – 52.2	$(3.130\ 0.015\ 0.022\ 0.051)\times10^{-1}$	$(6.746\ 0.077\ 0.076\ 0.122)\times10^{-2}$	4.640 0.058 0.061 0.101
52.2 – 56.1	$(2.556\ 0.013\ 0.018\ 0.042)\times10^{-1}$	$(5.631\ 0.069\ 0.065\ 0.103)\times10^{-2}$	4.538 0.060 0.061 0.100
56.1 – 60.3	$(2.097\ 0.012\ 0.015\ 0.035)\times10^{-1}$	$(4.340\ 0.058\ 0.051\ 0.080)\times10^{-2}$	4.831 0.070 0.066 0.107

TABLE SM XXXII: Bartels Rotation 2457 (August 29, 2013 – September 24, 2013). The proton flux Φ_p, helium flux Φ_{He}, and p/He flux ratio as a function of rigidity (in units of GV) at the top of AMS in units of $[\mathrm{m}^2 \cdot \mathrm{sr} \cdot \mathrm{s} \cdot \mathrm{GV}]^{-1}$ including errors due to statistics ($\sigma_{\mathrm{stat.}}$), time dependent systematic errors (σ_{time}) and the total systematic error ($\sigma_{\mathrm{syst.}}$). Contributions to the time dependent systematic errors are from: the trigger and the reconstruction efficiency. Contributions to the total systematic error are from: the acceptance, the background contamination, the geomagnetic cutoff factor, the event selection, the unfolding, the rigidity resolution function, the absolute rigidity scale, and the time dependent systematic errors. The statistical errors for the ratio are the sum in quadrature of the relative statistical errors of the fluxes multiplied by the ratio. The time dependent systematic errors for the ratio are the sum in quadrature of the relative time dependent systematic errors of the fluxes multiplied by the ratio. The systematic errors from the acceptance for the ratio are added in quadrature. The correlations in the systematic errors from the unfolding and the absolute rigidity scale between the fluxes have been accounted for in calculating the corresponding systematic errors of the ratio. The contributions of the individual sources to the systematic error are added in quadrature to arrive at the total systematic uncertainty on the ratio.

Rigidity	Φ_p	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	Φ_{He}	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	p/He	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$
1.00 – 1.16	$(4.125$	0.025	0.066	$0.187)\times10^2$	–	–	–	–	–	–	–	–
1.16 – 1.33	$(4.376$	0.017	0.051	$0.158)\times10^2$	–	–	–	–	–	–	–	–
1.33 – 1.51	$(4.386$	0.015	0.039	$0.127)\times10^2$	–	–	–	–	–	–	–	–
1.51 – 1.71	$(4.345$	0.011	0.032	$0.114)\times10^2$	–	–	–	–	–	–	–	–
1.71 – 1.92	$(4.124$	0.010	0.026	$0.098)\times10^2$	–	–	–	–	–	–	–	–
1.92 – 2.15	$(3.861$	0.008	0.021	$0.084)\times10^2$	$(4.534$	0.032	0.042	$0.100)\times10^1$	8.516	0.063	0.093	0.251
2.15 – 2.40	$(3.543$	0.007	0.018	$0.071)\times10^2$	$(4.435$	0.028	0.035	$0.086)\times10^1$	7.990	0.053	0.075	0.211
2.40 – 2.67	$(3.194$	0.006	0.015	$0.061)\times10^2$	$(4.205$	0.024	0.030	$0.074)\times10^1$	7.596	0.046	0.066	0.185
2.67 – 2.97	$(2.827$	0.005	0.013	$0.050)\times10^2$	$(3.884$	0.021	0.027	$0.065)\times10^1$	7.279	0.041	0.061	0.167
2.97 – 3.29	$(2.487$	0.004	0.011	$0.042)\times10^2$	$(3.538$	0.018	0.023	$0.057)\times10^1$	7.030	0.037	0.055	0.154
3.29 – 3.64	$(2.157$	0.004	0.010	$0.035)\times10^2$	$(3.151$	0.015	0.019	$0.050)\times10^1$	6.847	0.035	0.051	0.146
3.64 – 4.02	$(1.847$	0.003	0.009	$0.029)\times10^2$	$(2.784$	0.013	0.015	$0.043)\times10^1$	6.634	0.033	0.048	0.138
4.02 – 4.43	$(1.571$	0.003	0.007	$0.024)\times10^2$	$(2.400$	0.011	0.012	$0.037)\times10^1$	6.547	0.031	0.046	0.133
4.43 – 4.88	$(1.323$	0.002	0.006	$0.020)\times10^2$	$(2.058$	0.009	0.010	$0.031)\times10^1$	6.432	0.029	0.044	0.129
4.88 – 5.37	$(1.104$	0.002	0.005	$0.016)\times10^2$	$(1.753$	0.007	0.008	$0.026)\times10^1$	6.294	0.028	0.040	0.124
5.37 – 5.90	$(9.116$	0.014	0.037	$0.130)\times10^1$	$(1.473$	0.006	0.007	$0.022)\times10^1$	6.187	0.027	0.038	0.119
5.90 – 6.47	$(7.515$	0.012	0.030	$0.106)\times10^1$	$(1.242$	0.005	0.005	$0.018)\times10^1$	6.049	0.026	0.036	0.114
6.47 – 7.09	$(6.173$	0.009	0.024	$0.086)\times10^1$	$(1.019$	0.004	0.005	$0.015)\times10^1$	6.060	0.026	0.036	0.113
7.09 – 7.76	$(5.043$	0.008	0.019	$0.070)\times10^1$	$(8.380$	0.034	0.037	$0.123)\times10^0$	6.018	0.026	0.035	0.111
7.76 – 8.48	$(4.098$	0.006	0.015	$0.057)\times10^1$	$(7.027$	0.029	0.032	$0.102)\times10^0$	5.831	0.026	0.035	0.107
8.48 – 9.26	$(3.328$	0.005	0.013	$0.046)\times10^1$	$(5.709$	0.024	0.027	$0.084)\times10^0$	5.829	0.026	0.035	0.107
9.26 – 10.1	$(2.701$	0.005	0.010	$0.037)\times10^1$	$(4.731$	0.021	0.023	$0.070)\times10^0$	5.710	0.027	0.036	0.105
10.1 – 11.0	$(2.185$	0.004	0.009	$0.030)\times10^1$	$(3.844$	0.018	0.020	$0.056)\times10^0$	5.683	0.028	0.037	0.104
11.0 – 12.0	$(1.757$	0.003	0.007	$0.024)\times10^1$	$(3.127$	0.015	0.017	$0.046)\times10^0$	5.620	0.029	0.038	0.103
12.0 – 13.0	$(1.413$	0.003	0.006	$0.019)\times10^1$	$(2.559$	0.013	0.014	$0.038)\times10^0$	5.520	0.031	0.039	0.102
13.0 – 14.1	$(1.146$	0.002	0.005	$0.016)\times10^1$	$(2.105$	0.011	0.012	$0.031)\times10^0$	5.442	0.031	0.040	0.101
14.1 – 15.3	$(9.268$	0.020	0.042	$0.131)\times10^0$	$(1.719$	0.009	0.011	$0.025)\times10^0$	5.392	0.032	0.041	0.101
15.3 – 16.6	$(7.456$	0.017	0.035	$0.107)\times10^0$	$(1.387$	0.008	0.009	$0.021)\times10^0$	5.376	0.033	0.043	0.101

Table continued

TABLE SM XXXII: Bartels Rotation 2457 (August 29, 2013 – September 24, 2013). *(Continued).*

Rigidity	Φ_p $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	Φ_{He} $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	p/He $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$
16.6 – 18.0	$(6.014\ 0.014\ 0.029\ 0.087)\times10^{0}$	$(1.139\ 0.007\ 0.008\ 0.018)\times10^{0}$	5.280 0.033 0.044 0.101
18.0 – 19.5	$(4.852\ 0.011\ 0.024\ 0.071)\times10^{0}$	$(9.244\ 0.055\ 0.067\ 0.143)\times10^{-1}$	5.249 0.033 0.046 0.101
19.5 – 21.1	$(3.904\ 0.009\ 0.020\ 0.058)\times10^{0}$	$(7.441\ 0.045\ 0.057\ 0.116)\times10^{-1}$	5.247 0.034 0.048 0.101
21.1 – 22.8	$(3.143\ 0.008\ 0.017\ 0.047)\times10^{0}$	$(6.125\ 0.038\ 0.047\ 0.097)\times10^{-1}$	5.132 0.034 0.048 0.100
22.8 – 24.7	$(2.534\ 0.006\ 0.014\ 0.038)\times10^{0}$	$(4.999\ 0.032\ 0.040\ 0.079)\times10^{-1}$	5.069 0.035 0.049 0.099
24.7 – 26.7	$(2.042\ 0.006\ 0.012\ 0.031)\times10^{0}$	$(4.060\ 0.027\ 0.033\ 0.064)\times10^{-1}$	5.029 0.036 0.050 0.099
26.7 – 28.8	$(1.651\ 0.005\ 0.010\ 0.025)\times10^{0}$	$(3.319\ 0.024\ 0.028\ 0.053)\times10^{-1}$	4.976 0.038 0.051 0.098
28.8 – 31.1	$(1.337\ 0.004\ 0.008\ 0.021)\times10^{0}$	$(2.698\ 0.020\ 0.023\ 0.044)\times10^{-1}$	4.955 0.040 0.052 0.099
31.1 – 33.5	$(1.077\ 0.004\ 0.007\ 0.017)\times10^{0}$	$(2.234\ 0.018\ 0.020\ 0.037)\times10^{-1}$	4.821 0.042 0.052 0.097
33.5 – 36.1	$(8.763\ 0.031\ 0.055\ 0.136)\times10^{-1}$	$(1.816\ 0.016\ 0.016\ 0.030)\times10^{-1}$	4.826 0.045 0.053 0.098
36.1 – 38.9	$(7.115\ 0.027\ 0.046\ 0.111)\times10^{-1}$	$(1.478\ 0.014\ 0.014\ 0.025)\times10^{-1}$	4.815 0.048 0.054 0.099
38.9 – 41.9	$(5.775\ 0.023\ 0.038\ 0.090)\times10^{-1}$	$(1.216\ 0.012\ 0.012\ 0.020)\times10^{-1}$	4.751 0.050 0.055 0.099
41.9 – 45.1	$(4.721\ 0.020\ 0.032\ 0.074)\times10^{-1}$	$(9.918\ 0.104\ 0.097\ 0.169)\times10^{-2}$	4.760 0.054 0.057 0.100
45.1 – 48.5	$(3.821\ 0.018\ 0.027\ 0.061)\times10^{-1}$	$(8.317\ 0.092\ 0.083\ 0.143)\times10^{-2}$	4.594 0.055 0.056 0.098
48.5 – 52.2	$(3.158\ 0.015\ 0.022\ 0.051)\times10^{-1}$	$(6.599\ 0.078\ 0.068\ 0.115)\times10^{-2}$	4.786 0.061 0.060 0.102
52.2 – 56.1	$(2.553\ 0.014\ 0.019\ 0.043)\times10^{-1}$	$(5.395\ 0.068\ 0.057\ 0.095)\times10^{-2}$	4.731 0.065 0.060 0.102
56.1 – 60.3	$(2.091\ 0.012\ 0.016\ 0.035)\times10^{-1}$	$(4.400\ 0.059\ 0.047\ 0.078)\times10^{-2}$	4.752 0.070 0.062 0.103

TABLE SM XXXIII: Bartels Rotation 2458 (September 25, 2013 – October 21, 2013). The proton flux Φ_p, helium flux Φ_{He}, and p/He flux ratio as a function of rigidity (in units of GV) at the top of AMS in units of $[\mathrm{m}^2 \cdot \mathrm{sr} \cdot \mathrm{s} \cdot \mathrm{GV}]^{-1}$ including errors due to statistics ($\sigma_{\mathrm{stat.}}$), time dependent systematic errors (σ_{time}) and the total systematic error ($\sigma_{\mathrm{syst.}}$). Contributions to the time dependent systematic errors are from: the trigger and the reconstruction efficiency. Contributions to the total systematic error are from: the acceptance, the background contamination, the geomagnetic cutoff factor, the event selection, the unfolding, the rigidity resolution function, the absolute rigidity scale, and the time dependent systematic errors. The statistical errors for the ratio are the sum in quadrature of the relative statistical errors of the fluxes multiplied by the ratio. The time dependent systematic errors for the ratio are the sum in quadrature of the relative time dependent systematic errors of the fluxes multiplied by the ratio. The systematic errors from the acceptance for the ratio are added in quadrature. The correlations in the systematic errors from the unfolding and the absolute rigidity scale between the fluxes have been accounted for in calculating the corresponding systematic errors of the ratio. The contributions of the individual sources to the systematic error are added in quadrature to arrive at the total systematic uncertainty on the ratio.

Rigidity	Φ_p $\sigma_{\mathrm{stat.}}$ σ_{time} $\sigma_{\mathrm{syst.}}$	Φ_{He} $\sigma_{\mathrm{stat.}}$ σ_{time} $\sigma_{\mathrm{syst.}}$	p/He $\sigma_{\mathrm{stat.}}$ σ_{time} $\sigma_{\mathrm{syst.}}$
1.00 – 1.16	$(4.227\ 0.025\ 0.066\ 0.191)\times10^2$	– – – –	– – – –
1.16 – 1.33	$(4.394\ 0.017\ 0.050\ 0.158)\times10^2$	– – – –	– – – –
1.33 – 1.51	$(4.483\ 0.015\ 0.039\ 0.130)\times10^2$	– – – –	– – – –
1.51 – 1.71	$(4.451\ 0.011\ 0.032\ 0.117)\times10^2$	– – – –	– – – –
1.71 – 1.92	$(4.262\ 0.010\ 0.026\ 0.101)\times10^2$	– – – –	– – – –
1.92 – 2.15	$(3.978\ 0.008\ 0.022\ 0.086)\times10^2$	$(4.648\ 0.032\ 0.043\ 0.103)\times10^1$	8.559 0.061 0.093 0.252
2.15 – 2.40	$(3.654\ 0.007\ 0.018\ 0.074)\times10^2$	$(4.570\ 0.028\ 0.036\ 0.088)\times10^1$	7.995 0.051 0.074 0.211
2.40 – 2.67	$(3.311\ 0.006\ 0.015\ 0.063)\times10^2$	$(4.362\ 0.024\ 0.031\ 0.077)\times10^1$	7.590 0.044 0.064 0.184
2.67 – 2.97	$(2.945\ 0.005\ 0.013\ 0.052)\times10^2$	$(4.079\ 0.021\ 0.028\ 0.068)\times10^1$	7.221 0.039 0.059 0.165
2.97 – 3.29	$(2.581\ 0.004\ 0.011\ 0.043)\times10^2$	$(3.751\ 0.018\ 0.024\ 0.060)\times10^1$	6.881 0.035 0.053 0.151
3.29 – 3.64	$(2.241\ 0.004\ 0.010\ 0.036)\times10^2$	$(3.310\ 0.015\ 0.019\ 0.052)\times10^1$	6.768 0.033 0.050 0.144
3.64 – 4.02	$(1.916\ 0.003\ 0.009\ 0.030)\times10^2$	$(2.886\ 0.013\ 0.015\ 0.045)\times10^1$	6.638 0.032 0.047 0.138
4.02 – 4.43	$(1.633\ 0.003\ 0.007\ 0.025)\times10^2$	$(2.484\ 0.011\ 0.013\ 0.038)\times10^1$	6.573 0.030 0.045 0.133
4.43 – 4.88	$(1.375\ 0.002\ 0.006\ 0.021)\times10^2$	$(2.142\ 0.009\ 0.010\ 0.032)\times10^1$	6.419 0.028 0.043 0.128
4.88 – 5.37	$(1.141\ 0.002\ 0.005\ 0.016)\times10^2$	$(1.806\ 0.007\ 0.008\ 0.027)\times10^1$	6.319 0.027 0.040 0.124
5.37 – 5.90	$(9.413\ 0.014\ 0.038\ 0.134)\times10^1$	$(1.524\ 0.006\ 0.007\ 0.023)\times10^1$	6.177 0.026 0.037 0.118
5.90 – 6.47	$(7.748\ 0.012\ 0.030\ 0.109)\times10^1$	$(1.265\ 0.005\ 0.005\ 0.018)\times10^1$	6.124 0.026 0.035 0.115
6.47 – 7.09	$(6.345\ 0.009\ 0.024\ 0.089)\times10^1$	$(1.060\ 0.004\ 0.005\ 0.015)\times10^1$	5.985 0.025 0.034 0.112
7.09 – 7.76	$(5.173\ 0.008\ 0.019\ 0.072)\times10^1$	$(8.729\ 0.034\ 0.037\ 0.128)\times10^0$	5.926 0.025 0.034 0.109
7.76 – 8.48	$(4.204\ 0.006\ 0.016\ 0.058)\times10^1$	$(7.167\ 0.029\ 0.031\ 0.104)\times10^0$	5.866 0.025 0.034 0.108
8.48 – 9.26	$(3.405\ 0.005\ 0.013\ 0.047)\times10^1$	$(5.864\ 0.024\ 0.027\ 0.086)\times10^0$	5.807 0.026 0.034 0.106
9.26 – 10.1	$(2.751\ 0.005\ 0.011\ 0.037)\times10^1$	$(4.797\ 0.021\ 0.023\ 0.070)\times10^0$	5.734 0.027 0.035 0.105
10.1 – 11.0	$(2.219\ 0.004\ 0.009\ 0.030)\times10^1$	$(3.953\ 0.018\ 0.019\ 0.058)\times10^0$	5.614 0.027 0.035 0.102
11.0 – 12.0	$(1.781\ 0.003\ 0.007\ 0.024)\times10^1$	$(3.173\ 0.015\ 0.016\ 0.047)\times10^0$	5.614 0.028 0.037 0.102
12.0 – 13.0	$(1.434\ 0.003\ 0.006\ 0.020)\times10^1$	$(2.611\ 0.013\ 0.014\ 0.039)\times10^0$	5.493 0.030 0.037 0.101
13.0 – 14.1	$(1.163\ 0.002\ 0.005\ 0.016)\times10^1$	$(2.121\ 0.011\ 0.012\ 0.031)\times10^0$	5.485 0.031 0.039 0.102
14.1 – 15.3	$(9.376\ 0.020\ 0.042\ 0.133)\times10^0$	$(1.727\ 0.009\ 0.010\ 0.025)\times10^0$	5.431 0.031 0.040 0.101
15.3 – 16.6	$(7.538\ 0.017\ 0.035\ 0.108)\times10^0$	$(1.403\ 0.008\ 0.009\ 0.021)\times10^0$	5.373 0.032 0.042 0.101

Table continued

TABLE SM XXXIII: Bartels Rotation 2458 (September 25, 2013 – October 21, 2013). *(Continued).*

Rigidity	Φ_p $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	Φ_{He} $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	p/He $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$
16.6 – 18.0	(6.045 0.014 0.029 0.087)$\times 10^{0}$	(1.145 0.007 0.008 0.018)$\times 10^{0}$	5.278 0.032 0.043 0.100
18.0 – 19.5	(4.885 0.011 0.024 0.072)$\times 10^{0}$	(9.311 0.054 0.064 0.143)$\times 10^{-1}$	5.246 0.033 0.044 0.100
19.5 – 21.1	(3.932 0.009 0.020 0.059)$\times 10^{0}$	(7.593 0.045 0.055 0.117)$\times 10^{-1}$	5.178 0.033 0.046 0.099
21.1 – 22.8	(3.162 0.008 0.017 0.048)$\times 10^{0}$	(6.181 0.038 0.046 0.096)$\times 10^{-1}$	5.115 0.034 0.046 0.099
22.8 – 24.7	(2.554 0.006 0.014 0.039)$\times 10^{0}$	(5.000 0.031 0.038 0.078)$\times 10^{-1}$	5.108 0.034 0.047 0.099
24.7 – 26.7	(2.045 0.005 0.011 0.031)$\times 10^{0}$	(4.030 0.027 0.031 0.063)$\times 10^{-1}$	5.076 0.036 0.048 0.099
26.7 – 28.8	(1.654 0.005 0.010 0.025)$\times 10^{0}$	(3.319 0.023 0.026 0.052)$\times 10^{-1}$	4.985 0.038 0.049 0.098
28.8 – 31.1	(1.337 0.004 0.008 0.021)$\times 10^{0}$	(2.686 0.020 0.022 0.043)$\times 10^{-1}$	4.976 0.040 0.050 0.099
31.1 – 33.5	(1.082 0.004 0.007 0.017)$\times 10^{0}$	(2.219 0.018 0.019 0.036)$\times 10^{-1}$	4.876 0.042 0.051 0.097
33.5 – 36.1	(8.749 0.031 0.055 0.135)$\times 10^{-1}$	(1.820 0.015 0.016 0.030)$\times 10^{-1}$	4.808 0.044 0.051 0.097
36.1 – 38.9	(7.132 0.027 0.046 0.111)$\times 10^{-1}$	(1.457 0.013 0.013 0.024)$\times 10^{-1}$	4.895 0.048 0.053 0.100
38.9 – 41.9	(5.757 0.023 0.038 0.090)$\times 10^{-1}$	(1.206 0.012 0.011 0.020)$\times 10^{-1}$	4.775 0.050 0.054 0.098
41.9 – 45.1	(4.722 0.020 0.032 0.074)$\times 10^{-1}$	(9.833 0.101 0.092 0.165)$\times 10^{-2}$	4.802 0.054 0.055 0.100
45.1 – 48.5	(3.874 0.018 0.027 0.062)$\times 10^{-1}$	(7.970 0.088 0.076 0.135)$\times 10^{-2}$	4.861 0.058 0.057 0.102
48.5 – 52.2	(3.094 0.015 0.022 0.050)$\times 10^{-1}$	(6.459 0.076 0.063 0.111)$\times 10^{-2}$	4.790 0.061 0.058 0.101
52.2 – 56.1	(2.532 0.013 0.018 0.042)$\times 10^{-1}$	(5.348 0.067 0.054 0.093)$\times 10^{-2}$	4.734 0.064 0.059 0.101
56.1 – 60.3	(2.088 0.012 0.015 0.035)$\times 10^{-1}$	(4.455 0.059 0.046 0.078)$\times 10^{-2}$	4.688 0.067 0.059 0.101

TABLE SM XXXIV: Bartels Rotation 2459 (October 22, 2013 – November 17, 2013). Days from October 22 to October 24, 2013 are not included because AMS was performing detector studies in that interval. The proton flux Φ_p, helium flux Φ_{He}, and p/He flux ratio as a function of rigidity (in units of GV) at the top of AMS in units of $[\mathrm{m}^2 \cdot \mathrm{sr} \cdot \mathrm{s} \cdot \mathrm{GV}]^{-1}$ including errors due to statistics ($\sigma_{\mathrm{stat.}}$), time dependent systematic errors (σ_{time}) and the total systematic error ($\sigma_{\mathrm{syst.}}$). Contributions to the time dependent systematic errors are from: the trigger and the reconstruction efficiency. Contributions to the total systematic error are from: the acceptance, the background contamination, the geomagnetic cutoff factor, the event selection, the unfolding, the rigidity resolution function, the absolute rigidity scale, and the time dependent systematic errors. The statistical errors for the ratio are the sum in quadrature of the relative statistical errors of the fluxes multiplied by the ratio. The time dependent systematic errors for the ratio are the sum in quadrature of the relative time dependent systematic errors of the fluxes multiplied by the ratio. The systematic errors from the acceptance for the ratio are added in quadrature. The correlations in the systematic errors from the unfolding and the absolute rigidity scale between the fluxes have been accounted for in calculating the corresponding systematic errors of the ratio. The contributions of the individual sources to the systematic error are added in quadrature to arrive at the total systematic uncertainty on the ratio.

Rigidity	Φ_p	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	Φ_{He}	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	p/He	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$
1.00 – 1.16	$(4.149$	0.027	0.072	$0.190)\times10^2$	–	–	–	–	–	–	–	–
1.16 – 1.33	$(4.362$	0.018	0.054	$0.158)\times10^2$	–	–	–	–	–	–	–	–
1.33 – 1.51	$(4.431$	0.016	0.042	$0.129)\times10^2$	–	–	–	–	–	–	–	–
1.51 – 1.71	$(4.407$	0.012	0.034	$0.116)\times10^2$	–	–	–	–	–	–	–	–
1.71 – 1.92	$(4.247$	0.010	0.028	$0.101)\times10^2$	–	–	–	–	–	–	–	–
1.92 – 2.15	$(3.980$	0.009	0.023	$0.087)\times10^2$	$(4.679$	0.034	0.046	$0.104)\times10^1$	8.507	0.064	0.097	0.253
2.15 – 2.40	$(3.669$	0.008	0.020	$0.074)\times10^2$	$(4.648$	0.030	0.039	$0.091)\times10^1$	7.894	0.054	0.078	0.210
2.40 – 2.67	$(3.305$	0.007	0.016	$0.063)\times10^2$	$(4.352$	0.026	0.033	$0.077)\times10^1$	7.595	0.048	0.069	0.186
2.67 – 2.97	$(2.947$	0.006	0.014	$0.052)\times10^2$	$(4.071$	0.022	0.030	$0.069)\times10^1$	7.238	0.042	0.063	0.167
2.97 – 3.29	$(2.591$	0.005	0.012	$0.043)\times10^2$	$(3.696$	0.019	0.025	$0.060)\times10^1$	7.009	0.038	0.058	0.155
3.29 – 3.64	$(2.243$	0.004	0.011	$0.036)\times10^2$	$(3.302$	0.016	0.020	$0.053)\times10^1$	6.792	0.035	0.053	0.146
3.64 – 4.02	$(1.921$	0.003	0.009	$0.031)\times10^2$	$(2.888$	0.014	0.017	$0.045)\times10^1$	6.652	0.034	0.050	0.139
4.02 – 4.43	$(1.634$	0.003	0.008	$0.025)\times10^2$	$(2.480$	0.011	0.014	$0.038)\times10^1$	6.588	0.032	0.048	0.134
4.43 – 4.88	$(1.364$	0.002	0.007	$0.021)\times10^2$	$(2.128$	0.009	0.011	$0.032)\times10^1$	6.413	0.030	0.045	0.129
4.88 – 5.37	$(1.134$	0.002	0.005	$0.016)\times10^2$	$(1.797$	0.008	0.009	$0.027)\times10^1$	6.310	0.029	0.042	0.125
5.37 – 5.90	$(9.375$	0.015	0.040	$0.134)\times10^1$	$(1.524$	0.006	0.007	$0.023)\times10^1$	6.153	0.028	0.039	0.119
5.90 – 6.47	$(7.708$	0.012	0.032	$0.109)\times10^1$	$(1.253$	0.005	0.006	$0.018)\times10^1$	6.151	0.028	0.038	0.117
6.47 – 7.09	$(6.290$	0.010	0.025	$0.088)\times10^1$	$(1.044$	0.004	0.005	$0.015)\times10^1$	6.028	0.027	0.037	0.113
7.09 – 7.76	$(5.125$	0.008	0.020	$0.071)\times10^1$	$(8.557$	0.036	0.039	$0.126)\times10^0$	5.989	0.027	0.036	0.111
7.76 – 8.48	$(4.171$	0.007	0.016	$0.058)\times10^1$	$(7.120$	0.030	0.034	$0.104)\times10^0$	5.858	0.027	0.036	0.108
8.48 – 9.26	$(3.378$	0.006	0.014	$0.047)\times10^1$	$(5.839$	0.026	0.028	$0.086)\times10^0$	5.785	0.027	0.036	0.106
9.26 – 10.1	$(2.725$	0.005	0.011	$0.037)\times10^1$	$(4.787$	0.022	0.024	$0.071)\times10^0$	5.693	0.028	0.037	0.105
10.1 – 11.0	$(2.197$	0.004	0.009	$0.030)\times10^1$	$(3.879$	0.019	0.020	$0.057)\times10^0$	5.665	0.029	0.038	0.104
11.0 – 12.0	$(1.768$	0.003	0.008	$0.024)\times10^1$	$(3.161$	0.016	0.017	$0.047)\times10^0$	5.594	0.030	0.039	0.103
12.0 – 13.0	$(1.429$	0.003	0.006	$0.020)\times10^1$	$(2.568$	0.014	0.015	$0.038)\times10^0$	5.564	0.032	0.040	0.103
13.0 – 14.1	$(1.157$	0.003	0.005	$0.016)\times10^1$	$(2.111$	0.012	0.013	$0.032)\times10^0$	5.478	0.033	0.042	0.102

Table continued

TABLE SM XXXIV: Bartels Rotation 2459 (October 22, 2013 – November 17, 2013). *(Continued).*

Rigidity	Φ_p $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	Φ_{He} $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	p/He $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$
14.1 – 15.3	$(9.351\ 0.021\ 0.044\ 0.133)\times10^{0}$	$(1.722\ 0.010\ 0.011\ 0.026)\times10^{0}$	5.430 0.034 0.043 0.102
15.3 – 16.6	$(7.506\ 0.018\ 0.037\ 0.108)\times10^{0}$	$(1.393\ 0.008\ 0.009\ 0.021)\times10^{0}$	5.388 0.035 0.045 0.102
16.6 – 18.0	$(6.026\ 0.015\ 0.031\ 0.088)\times10^{0}$	$(1.132\ 0.007\ 0.008\ 0.018)\times10^{0}$	5.323 0.035 0.046 0.102
18.0 – 19.5	$(4.848\ 0.012\ 0.025\ 0.072)\times10^{0}$	$(9.287\ 0.058\ 0.069\ 0.145)\times10^{-1}$	5.220 0.035 0.047 0.101
19.5 – 21.1	$(3.922\ 0.010\ 0.021\ 0.059)\times10^{0}$	$(7.589\ 0.048\ 0.059\ 0.119)\times10^{-1}$	5.169 0.035 0.049 0.100
21.1 – 22.8	$(3.171\ 0.008\ 0.018\ 0.048)\times10^{0}$	$(6.142\ 0.040\ 0.048\ 0.097)\times10^{-1}$	5.163 0.037 0.050 0.101
22.8 – 24.7	$(2.546\ 0.007\ 0.015\ 0.039)\times10^{0}$	$(4.952\ 0.033\ 0.040\ 0.079)\times10^{-1}$	5.142 0.037 0.051 0.101
24.7 – 26.7	$(2.044\ 0.006\ 0.012\ 0.032)\times10^{0}$	$(4.086\ 0.029\ 0.033\ 0.065)\times10^{-1}$	5.003 0.038 0.051 0.099
26.7 – 28.8	$(1.657\ 0.005\ 0.010\ 0.026)\times10^{0}$	$(3.315\ 0.025\ 0.028\ 0.053)\times10^{-1}$	5.000 0.041 0.052 0.100
28.8 – 31.1	$(1.324\ 0.004\ 0.008\ 0.021)\times10^{0}$	$(2.722\ 0.022\ 0.023\ 0.044)\times10^{-1}$	4.864 0.042 0.052 0.098
31.1 – 33.5	$(1.075\ 0.004\ 0.007\ 0.017)\times10^{0}$	$(2.226\ 0.019\ 0.020\ 0.036)\times10^{-1}$	4.830 0.045 0.053 0.098
33.5 – 36.1	$(8.785\ 0.033\ 0.059\ 0.137)\times10^{-1}$	$(1.835\ 0.017\ 0.017\ 0.031)\times10^{-1}$	4.787 0.047 0.054 0.098
36.1 – 38.9	$(7.126\ 0.028\ 0.049\ 0.112)\times10^{-1}$	$(1.470\ 0.014\ 0.013\ 0.025)\times10^{-1}$	4.847 0.051 0.056 0.100
38.9 – 41.9	$(5.826\ 0.025\ 0.041\ 0.092)\times10^{-1}$	$(1.211\ 0.012\ 0.011\ 0.020)\times10^{-1}$	4.812 0.054 0.057 0.101
41.9 – 45.1	$(4.730\ 0.022\ 0.034\ 0.076)\times10^{-1}$	$(9.865\ 0.109\ 0.095\ 0.167)\times10^{-2}$	4.795 0.057 0.058 0.101
45.1 – 48.5	$(3.820\ 0.019\ 0.028\ 0.062)\times10^{-1}$	$(8.042\ 0.095\ 0.079\ 0.138)\times10^{-2}$	4.750 0.061 0.059 0.101
48.5 – 52.2	$(3.102\ 0.016\ 0.024\ 0.051)\times10^{-1}$	$(6.614\ 0.082\ 0.066\ 0.114)\times10^{-2}$	4.690 0.063 0.059 0.101
52.2 – 56.1	$(2.562\ 0.014\ 0.020\ 0.043)\times10^{-1}$	$(5.395\ 0.072\ 0.055\ 0.094)\times10^{-2}$	4.749 0.069 0.061 0.102
56.1 – 60.3	$(2.107\ 0.013\ 0.017\ 0.036)\times10^{-1}$	$(4.330\ 0.062\ 0.045\ 0.076)\times10^{-2}$	4.866 0.076 0.064 0.106

TABLE SM XXXV: Bartels Rotation 2460 (November 18, 2013 – December 14, 2013). The proton flux Φ_p, helium flux Φ_{He}, and p/He flux ratio as a function of rigidity (in units of GV) at the top of AMS in units of $[\mathrm{m}^2 \cdot \mathrm{sr} \cdot \mathrm{s} \cdot \mathrm{GV}]^{-1}$ including errors due to statistics ($\sigma_{\mathrm{stat.}}$), time dependent systematic errors (σ_{time}) and the total systematic error ($\sigma_{\mathrm{syst.}}$). Contributions to the time dependent systematic errors are from: the trigger and the reconstruction efficiency. Contributions to the total systematic error are from: the acceptance, the background contamination, the geomagnetic cutoff factor, the event selection, the unfolding, the rigidity resolution function, the absolute rigidity scale, and the time dependent systematic errors. The statistical errors for the ratio are the sum in quadrature of the relative statistical errors of the fluxes multiplied by the ratio. The time dependent systematic errors for the ratio are the sum in quadrature of the relative time dependent systematic errors of the fluxes multiplied by the ratio. The systematic errors from the acceptance for the ratio are added in quadrature. The correlations in the systematic errors from the unfolding and the absolute rigidity scale between the fluxes have been accounted for in calculating the corresponding systematic errors of the ratio. The contributions of the individual sources to the systematic error are added in quadrature to arrive at the total systematic uncertainty on the ratio.

Rigidity	Φ_p	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	Φ_{He}	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	p/He	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$
1.00 – 1.16	$(3.950$	0.024	0.065	$0.180)\times10^2$	–	–	–	–	–	–	–	–
1.16 – 1.33	$(4.199$	0.016	0.050	$0.152)\times10^2$	–	–	–	–	–	–	–	–
1.33 – 1.51	$(4.338$	0.014	0.040	$0.126)\times10^2$	–	–	–	–	–	–	–	–
1.51 – 1.71	$(4.322$	0.011	0.032	$0.114)\times10^2$	–	–	–	–	–	–	–	–
1.71 – 1.92	$(4.150$	0.009	0.027	$0.099)\times10^2$	–	–	–	–	–	–	–	–
1.92 – 2.15	$(3.911$	0.008	0.022	$0.085)\times10^2$	$(4.658$	0.031	0.048	$0.105)\times10^1$	8.396	0.059	0.099	0.251
2.15 – 2.40	$(3.588$	0.007	0.019	$0.072)\times10^2$	$(4.571$	0.028	0.041	$0.091)\times10^1$	7.850	0.050	0.081	0.210
2.40 – 2.67	$(3.255$	0.006	0.016	$0.062)\times10^2$	$(4.306$	0.024	0.035	$0.078)\times10^1$	7.559	0.044	0.072	0.186
2.67 – 2.97	$(2.900$	0.005	0.014	$0.051)\times10^2$	$(4.032$	0.021	0.032	$0.069)\times10^1$	7.191	0.039	0.066	0.167
2.97 – 3.29	$(2.547$	0.004	0.012	$0.043)\times10^2$	$(3.689$	0.018	0.027	$0.061)\times10^1$	6.905	0.035	0.060	0.153
3.29 – 3.64	$(2.205$	0.004	0.010	$0.036)\times10^2$	$(3.268$	0.015	0.022	$0.053)\times10^1$	6.747	0.033	0.055	0.146
3.64 – 4.02	$(1.894$	0.003	0.009	$0.030)\times10^2$	$(2.836$	0.013	0.018	$0.045)\times10^1$	6.678	0.032	0.053	0.141
4.02 – 4.43	$(1.607$	0.003	0.008	$0.025)\times10^2$	$(2.470$	0.010	0.015	$0.038)\times10^1$	6.505	0.029	0.050	0.133
4.43 – 4.88	$(1.349$	0.002	0.006	$0.021)\times10^2$	$(2.090$	0.008	0.012	$0.032)\times10^1$	6.454	0.028	0.047	0.130
4.88 – 5.37	$(1.123$	0.002	0.005	$0.016)\times10^2$	$(1.769$	0.007	0.009	$0.027)\times10^1$	6.345	0.027	0.044	0.126
5.37 – 5.90	$(9.260$	0.014	0.039	$0.133)\times10^1$	$(1.494$	0.006	0.008	$0.023)\times10^1$	6.198	0.026	0.041	0.120
5.90 – 6.47	$(7.604$	0.011	0.031	$0.107)\times10^1$	$(1.249$	0.005	0.006	$0.018)\times10^1$	6.090	0.026	0.039	0.116
6.47 – 7.09	$(6.248$	0.009	0.025	$0.088)\times10^1$	$(1.040$	0.004	0.005	$0.015)\times10^1$	6.011	0.025	0.039	0.114
7.09 – 7.76	$(5.094$	0.008	0.020	$0.071)\times10^1$	$(8.621$	0.034	0.044	$0.128)\times10^0$	5.910	0.025	0.038	0.110
7.76 – 8.48	$(4.130$	0.006	0.016	$0.057)\times10^1$	$(7.049$	0.028	0.037	$0.104)\times10^0$	5.859	0.025	0.038	0.109
8.48 – 9.26	$(3.349$	0.005	0.013	$0.046)\times10^1$	$(5.803$	0.024	0.031	$0.086)\times10^0$	5.771	0.025	0.039	0.107
9.26 – 10.1	$(2.711$	0.004	0.011	$0.037)\times10^1$	$(4.724$	0.020	0.027	$0.071)\times10^0$	5.738	0.026	0.040	0.106
10.1 – 11.0	$(2.190$	0.004	0.009	$0.030)\times10^1$	$(3.879$	0.017	0.023	$0.058)\times10^0$	5.645	0.027	0.041	0.105
11.0 – 12.0	$(1.751$	0.003	0.007	$0.024)\times10^1$	$(3.153$	0.015	0.020	$0.048)\times10^0$	5.555	0.028	0.042	0.103
12.0 – 13.0	$(1.417$	0.003	0.006	$0.020)\times10^1$	$(2.552$	0.013	0.017	$0.039)\times10^0$	5.551	0.030	0.044	0.104
13.0 – 14.1	$(1.153$	0.002	0.005	$0.016)\times10^1$	$(2.103$	0.011	0.014	$0.032)\times10^0$	5.483	0.031	0.045	0.104
14.1 – 15.3	$(9.280$	0.019	0.044	$0.132)\times10^0$	$(1.713$	0.009	0.012	$0.026)\times10^0$	5.417	0.031	0.047	0.103
15.3 – 16.6	$(7.436$	0.016	0.036	$0.107)\times10^0$	$(1.398$	0.008	0.011	$0.022)\times10^0$	5.318	0.032	0.048	0.103

Table continued

TABLE SM XXXV: Bartels Rotation 2460 (November 18, 2013 – December 14, 2013). *(Continued).*

Rigidity	Φ_p $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	Φ_{He} $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	p/He $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$
16.6 – 18.0	$(6.008\ 0.013\ 0.030\ 0.087)\times10^{0}$	$(1.142\ 0.006\ 0.009\ 0.018)\times10^{0}$	$5.260\ 0.032\ 0.050\ \ 0.103$
18.0 – 19.5	$(4.828\ 0.011\ 0.025\ 0.072)\times10^{0}$	$(9.212\ 0.053\ 0.078\ 0.148)\times10^{-1}$	$5.241\ 0.033\ 0.052\ \ 0.103$
19.5 – 21.1	$(3.890\ 0.009\ 0.021\ 0.058)\times10^{0}$	$(7.577\ 0.045\ 0.067\ 0.123)\times10^{-1}$	$5.134\ 0.033\ 0.053\ \ 0.102$
21.1 – 22.8	$(3.146\ 0.008\ 0.018\ 0.048)\times10^{0}$	$(6.122\ 0.038\ 0.055\ 0.100)\times10^{-1}$	$5.139\ 0.034\ 0.054\ \ 0.103$
22.8 – 24.7	$(2.527\ 0.006\ 0.014\ 0.038)\times10^{0}$	$(5.048\ 0.031\ 0.046\ 0.083)\times10^{-1}$	$5.007\ 0.033\ 0.054\ \ 0.101$
24.7 – 26.7	$(2.026\ 0.005\ 0.012\ 0.031)\times10^{0}$	$(4.069\ 0.027\ 0.037\ 0.067)\times10^{-1}$	$4.980\ 0.035\ 0.054\ \ 0.101$
26.7 – 28.8	$(1.647\ 0.005\ 0.010\ 0.025)\times10^{0}$	$(3.338\ 0.023\ 0.031\ 0.055)\times10^{-1}$	$4.934\ 0.037\ 0.055\ \ 0.100$
28.8 – 31.1	$(1.330\ 0.004\ 0.008\ 0.021)\times10^{0}$	$(2.694\ 0.020\ 0.026\ 0.045)\times10^{-1}$	$4.938\ 0.040\ 0.056\ \ 0.101$
31.1 – 33.5	$(1.076\ 0.003\ 0.007\ 0.017)\times10^{0}$	$(2.195\ 0.018\ 0.021\ 0.037)\times10^{-1}$	$4.905\ 0.043\ 0.057\ \ 0.101$
33.5 – 36.1	$(8.766\ 0.030\ 0.058\ 0.137)\times10^{-1}$	$(1.820\ 0.015\ 0.018\ 0.031)\times10^{-1}$	$4.817\ 0.044\ 0.057\ \ 0.100$
36.1 – 38.9	$(7.064\ 0.026\ 0.048\ 0.111)\times10^{-1}$	$(1.472\ 0.013\ 0.015\ 0.026)\times10^{-1}$	$4.798\ 0.047\ 0.058\ \ 0.101$
38.9 – 41.9	$(5.751\ 0.023\ 0.040\ 0.091)\times10^{-1}$	$(1.210\ 0.012\ 0.012\ 0.021)\times10^{-1}$	$4.753\ 0.050\ 0.059\ \ 0.101$
41.9 – 45.1	$(4.697\ 0.020\ 0.034\ 0.075)\times10^{-1}$	$(9.949\ 0.102\ 0.104\ 0.174)\times10^{-2}$	$4.721\ 0.052\ 0.060\ \ 0.101$
45.1 – 48.5	$(3.777\ 0.017\ 0.028\ 0.061)\times10^{-1}$	$(8.182\ 0.090\ 0.087\ 0.144)\times10^{-2}$	$4.616\ 0.055\ 0.060\ \ 0.100$
48.5 – 52.2	$(3.129\ 0.015\ 0.024\ 0.052)\times10^{-1}$	$(6.598\ 0.077\ 0.072\ 0.117)\times10^{-2}$	$4.742\ 0.060\ 0.063\ \ 0.104$
52.2 – 56.1	$(2.581\ 0.013\ 0.020\ 0.044)\times10^{-1}$	$(5.425\ 0.068\ 0.060\ 0.097)\times10^{-2}$	$4.758\ 0.064\ 0.064\ \ 0.104$
56.1 – 60.3	$(2.082\ 0.012\ 0.016\ 0.036)\times10^{-1}$	$(4.390\ 0.058\ 0.049\ 0.079)\times10^{-2}$	$4.744\ 0.068\ 0.065\ \ 0.105$

TABLE SM XXXVI: Bartels Rotation 2461 (December 15, 2013 – January 10, 2014). The proton flux Φ_p, helium flux Φ_{He}, and p/He flux ratio as a function of rigidity (in units of GV) at the top of AMS in units of $[\mathrm{m}^2 \cdot \mathrm{sr} \cdot \mathrm{s} \cdot \mathrm{GV}]^{-1}$ including errors due to statistics ($\sigma_{\mathrm{stat.}}$), time dependent systematic errors (σ_{time}) and the total systematic error ($\sigma_{\mathrm{syst.}}$). Contributions to the time dependent systematic errors are from: the trigger and the reconstruction efficiency. Contributions to the total systematic error are from: the acceptance, the background contamination, the geomagnetic cutoff factor, the event selection, the unfolding, the rigidity resolution function, the absolute rigidity scale, and the time dependent systematic errors. The statistical errors for the ratio are the sum in quadrature of the relative statistical errors of the fluxes multiplied by the ratio. The time dependent systematic errors for the ratio are the sum in quadrature of the relative time dependent systematic errors of the fluxes multiplied by the ratio. The systematic errors from the acceptance for the ratio are added in quadrature. The correlations in the systematic errors from the unfolding and the absolute rigidity scale between the fluxes have been accounted for in calculating the corresponding systematic errors of the ratio. The contributions of the individual sources to the systematic error are added in quadrature to arrive at the total systematic uncertainty on the ratio.

Rigidity	Φ_p	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	Φ_{He}	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	p/He	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$
1.00 – 1.16	$\times 10^2$				–	–	–	–	–	–	–	–
1.16 – 1.33	$\times 10^2$				–	–	–	–	–	–	–	–
1.33 – 1.51	$\times 10^2$				–	–	–	–	–	–	–	–
1.51 – 1.71	$\times 10^2$				–	–	–	–	–	–	–	–
1.71 – 1.92	$\times 10^2$				–	–	–	–	–	–	–	–
1.92 – 2.15	$\times 10^2$				$\times 10^1$							
2.15 – 2.40	$\times 10^2$				$\times 10^1$							
2.40 – 2.67	$\times 10^2$				$\times 10^1$							
2.67 – 2.97	$\times 10^2$				$\times 10^1$							
2.97 – 3.29	$\times 10^2$				$\times 10^1$							
3.29 – 3.64	$\times 10^2$				$\times 10^1$							
3.64 – 4.02	$\times 10^2$				$\times 10^1$							
4.02 – 4.43	$\times 10^2$				$\times 10^1$							
4.43 – 4.88	$\times 10^2$				$\times 10^1$							
4.88 – 5.37	$\times 10^2$				$\times 10^1$							
5.37 – 5.90	$\times 10^1$				$\times 10^1$							
5.90 – 6.47	$\times 10^1$				$\times 10^1$							
6.47 – 7.09	$\times 10^1$				$\times 10^1$							
7.09 – 7.76	$\times 10^1$				$\times 10^0$							
7.76 – 8.48	$\times 10^1$				$\times 10^0$							
8.48 – 9.26	$\times 10^1$				$\times 10^0$							
9.26 – 10.1	$\times 10^1$				$\times 10^0$							
10.1 – 11.0	$\times 10^1$				$\times 10^0$							
11.0 – 12.0	$\times 10^1$				$\times 10^0$							
12.0 – 13.0	$\times 10^1$				$\times 10^0$							
13.0 – 14.1	$\times 10^1$				$\times 10^0$							
14.1 – 15.3	$\times 10^0$				$\times 10^0$							
15.3 – 16.6	$\times 10^0$				$\times 10^0$							

Table continued

TABLE SM XXXVI: Bartels Rotation 2461 (December 15, 2013 – January 10, 2014). *(Continued).*

Rigidity	Φ_p $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	Φ_{He} $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	p/He $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$
16.6 – 18.0	$(5.995\ 0.013\ 0.030\ 0.087)\times10^{0}$	$(1.134\ 0.006\ 0.010\ 0.019)\times10^{0}$	5.288 0.032 0.053 0.105
18.0 – 19.5	$(4.809\ 0.011\ 0.025\ 0.071)\times10^{0}$	$(9.229\ 0.054\ 0.085\ 0.153)\times10^{-1}$	5.211 0.033 0.055 0.104
19.5 – 21.1	$(3.897\ 0.009\ 0.021\ 0.058)\times10^{0}$	$(7.518\ 0.045\ 0.073\ 0.126)\times10^{-1}$	5.183 0.033 0.057 0.105
21.1 – 22.8	$(3.127\ 0.008\ 0.017\ 0.047)\times10^{0}$	$(6.161\ 0.038\ 0.060\ 0.104)\times10^{-1}$	5.075 0.033 0.057 0.104
22.8 – 24.7	$(2.508\ 0.006\ 0.014\ 0.038)\times10^{0}$	$(5.009\ 0.031\ 0.050\ 0.085)\times10^{-1}$	5.006 0.033 0.057 0.103
24.7 – 26.7	$(2.019\ 0.005\ 0.012\ 0.031)\times10^{0}$	$(4.029\ 0.027\ 0.041\ 0.068)\times10^{-1}$	5.012 0.036 0.058 0.103
26.7 – 28.8	$(1.635\ 0.005\ 0.010\ 0.025)\times10^{0}$	$(3.308\ 0.023\ 0.034\ 0.056)\times10^{-1}$	4.942 0.037 0.059 0.102
28.8 – 31.1	$(1.327\ 0.004\ 0.008\ 0.021)\times10^{0}$	$(2.651\ 0.020\ 0.028\ 0.046)\times10^{-1}$	5.007 0.040 0.060 0.105
31.1 – 33.5	$(1.070\ 0.003\ 0.007\ 0.017)\times10^{0}$	$(2.209\ 0.018\ 0.023\ 0.039)\times10^{-1}$	4.844 0.042 0.060 0.102
33.5 – 36.1	$(8.651\ 0.030\ 0.056\ 0.134)\times10^{-1}$	$(1.802\ 0.015\ 0.020\ 0.032)\times10^{-1}$	4.801 0.044 0.061 0.102
36.1 – 38.9	$(7.029\ 0.026\ 0.046\ 0.110)\times10^{-1}$	$(1.484\ 0.013\ 0.016\ 0.027)\times10^{-1}$	4.737 0.046 0.061 0.102
38.9 – 41.9	$(5.752\ 0.022\ 0.039\ 0.090)\times10^{-1}$	$(1.198\ 0.012\ 0.013\ 0.021)\times10^{-1}$	4.801 0.050 0.063 0.104
41.9 – 45.1	$(4.676\ 0.020\ 0.032\ 0.074)\times10^{-1}$	$(9.871\ 0.101\ 0.113\ 0.178)\times10^{-2}$	4.737 0.052 0.063 0.103
45.1 – 48.5	$(3.786\ 0.017\ 0.027\ 0.061)\times10^{-1}$	$(8.077\ 0.088\ 0.094\ 0.147)\times10^{-2}$	4.688 0.056 0.064 0.104
48.5 – 52.2	$(3.121\ 0.015\ 0.023\ 0.051)\times10^{-1}$	$(6.527\ 0.076\ 0.078\ 0.120)\times10^{-2}$	4.782 0.060 0.066 0.106
52.2 – 56.1	$(2.551\ 0.013\ 0.019\ 0.043)\times10^{-1}$	$(5.431\ 0.067\ 0.066\ 0.101)\times10^{-2}$	4.697 0.063 0.067 0.105
56.1 – 60.3	$(2.062\ 0.011\ 0.016\ 0.035)\times10^{-1}$	$(4.497\ 0.059\ 0.055\ 0.084)\times10^{-2}$	4.586 0.065 0.066 0.104

TABLE SM XXXVII: Bartels Rotation 2462 (January 11, 2014 – February 6, 2014). The proton flux Φ_p, helium flux Φ_{He}, and p/He flux ratio as a function of rigidity (in units of GV) at the top of AMS in units of $[\mathrm{m}^2 \cdot \mathrm{sr} \cdot \mathrm{s} \cdot \mathrm{GV}]^{-1}$ including errors due to statistics ($\sigma_{\mathrm{stat.}}$), time dependent systematic errors (σ_{time}) and the total systematic error ($\sigma_{\mathrm{syst.}}$). Contributions to the time dependent systematic errors are from: the trigger and the reconstruction efficiency. Contributions to the total systematic error are from: the acceptance, the background contamination, the geomagnetic cutoff factor, the event selection, the unfolding, the rigidity resolution function, the absolute rigidity scale, and the time dependent systematic errors. The statistical errors for the ratio are the sum in quadrature of the relative statistical errors of the fluxes multiplied by the ratio. The time dependent systematic errors for the ratio are the sum in quadrature of the relative time dependent systematic errors of the fluxes multiplied by the ratio. The systematic errors from the acceptance for the ratio are added in quadrature. The correlations in the systematic errors from the unfolding and the absolute rigidity scale between the fluxes have been accounted for in calculating the corresponding systematic errors of the ratio. The contributions of the individual sources to the systematic error are added in quadrature to arrive at the total systematic uncertainty on the ratio.

Rigidity	Φ_p	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	Φ_{He}	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	p/He	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$
1.00 – 1.16	$(3.854$	0.025	0.072	$0.178)\times10^2$	–	–	–	–	–	–	–	–
1.16 – 1.33	$(4.153$	0.017	0.056	$0.152)\times10^2$	–	–	–	–	–	–	–	–
1.33 – 1.51	$(4.334$	0.015	0.044	$0.127)\times10^2$	–	–	–	–	–	–	–	–
1.51 – 1.71	$(4.332$	0.011	0.035	$0.115)\times10^2$	–	–	–	–	–	–	–	–
1.71 – 1.92	$(4.197$	0.010	0.029	$0.100)\times10^2$	–	–	–	–	–	–	–	–
1.92 – 2.15	$(3.951$	0.008	0.024	$0.086)\times10^2$	$(4.680$	0.031	0.042	$0.103)\times10^1$	8.443	0.059	0.091	0.249
2.15 – 2.40	$(3.634$	0.007	0.020	$0.074)\times10^2$	$(4.563$	0.028	0.035	$0.088)\times10^1$	7.966	0.051	0.075	0.210
2.40 – 2.67	$(3.290$	0.006	0.016	$0.063)\times10^2$	$(4.326$	0.024	0.030	$0.076)\times10^1$	7.604	0.044	0.065	0.185
2.67 – 2.97	$(2.922$	0.005	0.014	$0.052)\times10^2$	$(4.019$	0.021	0.027	$0.067)\times10^1$	7.270	0.039	0.060	0.166
2.97 – 3.29	$(2.580$	0.004	0.012	$0.043)\times10^2$	$(3.679$	0.018	0.023	$0.059)\times10^1$	7.013	0.035	0.055	0.154
3.29 – 3.64	$(2.230$	0.004	0.011	$0.036)\times10^2$	$(3.262$	0.015	0.019	$0.052)\times10^1$	6.837	0.033	0.051	0.146
3.64 – 4.02	$(1.910$	0.003	0.009	$0.031)\times10^2$	$(2.829$	0.013	0.015	$0.044)\times10^1$	6.753	0.032	0.049	0.141
4.02 – 4.43	$(1.611$	0.003	0.008	$0.025)\times10^2$	$(2.430$	0.010	0.012	$0.037)\times10^1$	6.628	0.030	0.047	0.135
4.43 – 4.88	$(1.354$	0.002	0.007	$0.021)\times10^2$	$(2.077$	0.008	0.010	$0.031)\times10^1$	6.519	0.028	0.045	0.131
4.88 – 5.37	$(1.125$	0.002	0.005	$0.016)\times10^2$	$(1.766$	0.007	0.008	$0.026)\times10^1$	6.368	0.027	0.042	0.125
5.37 – 5.90	$(9.263$	0.014	0.040	$0.133)\times10^1$	$(1.488$	0.006	0.007	$0.022)\times10^1$	6.227	0.026	0.039	0.120
5.90 – 6.47	$(7.600$	0.011	0.032	$0.107)\times10^1$	$(1.247$	0.005	0.006	$0.018)\times10^1$	6.094	0.026	0.037	0.115
6.47 – 7.09	$(6.221$	0.009	0.025	$0.087)\times10^1$	$(1.034$	0.004	0.005	$0.015)\times10^1$	6.014	0.025	0.036	0.113
7.09 – 7.76	$(5.061$	0.008	0.020	$0.071)\times10^1$	$(8.564$	0.033	0.038	$0.126)\times10^0$	5.910	0.025	0.035	0.110
7.76 – 8.48	$(4.116$	0.006	0.016	$0.057)\times10^1$	$(7.042$	0.028	0.033	$0.103)\times10^0$	5.844	0.025	0.036	0.108
8.48 – 9.26	$(3.341$	0.005	0.013	$0.046)\times10^1$	$(5.755$	0.024	0.028	$0.084)\times10^0$	5.805	0.026	0.036	0.107
9.26 – 10.1	$(2.693$	0.004	0.011	$0.037)\times10^1$	$(4.695$	0.020	0.024	$0.069)\times10^0$	5.736	0.027	0.037	0.105
10.1 – 11.0	$(2.173$	0.004	0.009	$0.030)\times10^1$	$(3.836$	0.017	0.020	$0.056)\times10^0$	5.666	0.028	0.038	0.104
11.0 – 12.0	$(1.743$	0.003	0.007	$0.024)\times10^1$	$(3.134$	0.015	0.017	$0.047)\times10^0$	5.561	0.028	0.039	0.102
12.0 – 13.0	$(1.405$	0.003	0.006	$0.019)\times10^1$	$(2.558$	0.013	0.015	$0.038)\times10^0$	5.491	0.030	0.040	0.102
13.0 – 14.1	$(1.143$	0.002	0.005	$0.016)\times10^1$	$(2.076$	0.011	0.013	$0.031)\times10^0$	5.504	0.031	0.042	0.103
14.1 – 15.3	$(9.179$	0.019	0.044	$0.131)\times10^0$	$(1.719$	0.009	0.011	$0.025)\times10^0$	5.339	0.031	0.042	0.100
15.3 – 16.6	$(7.389$	0.016	0.036	$0.106)\times10^0$	$(1.399$	0.008	0.009	$0.021)\times10^0$	5.281	0.031	0.044	0.100

Table continued

TABLE SM XXXVII: Bartels Rotation 2462 (January 11, 2014 – February 6, 2014). *(Continued).*

Rigidity	Φ_p $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	Φ_{He} $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	p/He $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$
16.6 – 18.0	$(5.946\ 0.013\ 0.030\ 0.087)\times10^{0}$	$(1.138\ 0.006\ 0.008\ 0.018)\times10^{0}$	5.227 0.032 0.045 0.100
18.0 – 19.5	$(4.783\ 0.011\ 0.025\ 0.071)\times10^{0}$	$(9.211\ 0.054\ 0.068\ 0.143)\times10^{-1}$	5.193 0.032 0.047 0.100
19.5 – 21.1	$(3.844\ 0.009\ 0.021\ 0.058)\times10^{0}$	$(7.544\ 0.045\ 0.058\ 0.119)\times10^{-1}$	5.096 0.033 0.048 0.099
21.1 – 22.8	$(3.117\ 0.008\ 0.018\ 0.047)\times10^{0}$	$(6.199\ 0.038\ 0.049\ 0.098)\times10^{-1}$	5.029 0.033 0.049 0.099
22.8 – 24.7	$(2.499\ 0.006\ 0.014\ 0.038)\times10^{0}$	$(5.020\ 0.031\ 0.040\ 0.080)\times10^{-1}$	4.977 0.033 0.049 0.098
24.7 – 26.7	$(2.008\ 0.005\ 0.012\ 0.031)\times10^{0}$	$(4.042\ 0.027\ 0.033\ 0.064)\times10^{-1}$	4.968 0.035 0.050 0.098
26.7 – 28.8	$(1.632\ 0.005\ 0.010\ 0.025)\times10^{0}$	$(3.328\ 0.023\ 0.028\ 0.053)\times10^{-1}$	4.903 0.037 0.051 0.098
28.8 – 31.1	$(1.316\ 0.004\ 0.008\ 0.021)\times10^{0}$	$(2.686\ 0.020\ 0.023\ 0.043)\times10^{-1}$	4.900 0.039 0.052 0.098
31.1 – 33.5	$(1.062\ 0.003\ 0.007\ 0.017)\times10^{0}$	$(2.211\ 0.018\ 0.019\ 0.036)\times10^{-1}$	4.803 0.041 0.052 0.097
33.5 – 36.1	$(8.701\ 0.030\ 0.058\ 0.136)\times10^{-1}$	$(1.814\ 0.015\ 0.016\ 0.030)\times10^{-1}$	4.797 0.044 0.053 0.098
36.1 – 38.9	$(7.043\ 0.026\ 0.048\ 0.111)\times10^{-1}$	$(1.465\ 0.013\ 0.013\ 0.025)\times10^{-1}$	4.808 0.047 0.055 0.099
38.9 – 41.9	$(5.710\ 0.022\ 0.040\ 0.090)\times10^{-1}$	$(1.182\ 0.011\ 0.011\ 0.019)\times10^{-1}$	4.830 0.051 0.056 0.101
41.9 – 45.1	$(4.657\ 0.020\ 0.034\ 0.074)\times10^{-1}$	$(9.848\ 0.101\ 0.094\ 0.166)\times10^{-2}$	4.729 0.053 0.056 0.099
45.1 – 48.5	$(3.824\ 0.017\ 0.028\ 0.062)\times10^{-1}$	$(8.149\ 0.089\ 0.079\ 0.139)\times10^{-2}$	4.692 0.055 0.057 0.100
48.5 – 52.2	$(3.109\ 0.015\ 0.024\ 0.051)\times10^{-1}$	$(6.571\ 0.076\ 0.065\ 0.113)\times10^{-2}$	4.731 0.059 0.059 0.101
52.2 – 56.1	$(2.534\ 0.013\ 0.020\ 0.043)\times10^{-1}$	$(5.497\ 0.068\ 0.055\ 0.095)\times10^{-2}$	4.610 0.062 0.059 0.099
56.1 – 60.3	$(2.080\ 0.011\ 0.017\ 0.036)\times10^{-1}$	$(4.488\ 0.059\ 0.046\ 0.078)\times10^{-2}$	4.635 0.066 0.060 0.101

TABLE SM XXXVIII: Bartels Rotation 2463 (February 7, 2014 – March 5, 2014). The proton flux Φ_p, helium flux Φ_{He}, and p/He flux ratio as a function of rigidity (in units of GV) at the top of AMS in units of $[\mathrm{m}^2 \cdot \mathrm{sr} \cdot \mathrm{s} \cdot \mathrm{GV}]^{-1}$ including errors due to statistics ($\sigma_{\mathrm{stat.}}$), time dependent systematic errors (σ_{time}) and the total systematic error ($\sigma_{\mathrm{syst.}}$). Contributions to the time dependent systematic errors are from: the trigger and the reconstruction efficiency. Contributions to the total systematic error are from: the acceptance, the background contamination, the geomagnetic cutoff factor, the event selection, the unfolding, the rigidity resolution function, the absolute rigidity scale, and the time dependent systematic errors. The statistical errors for the ratio are the sum in quadrature of the relative statistical errors of the fluxes multiplied by the ratio. The time dependent systematic errors for the ratio are the sum in quadrature of the relative time dependent systematic errors of the fluxes multiplied by the ratio. The systematic errors from the acceptance for the ratio are added in quadrature. The correlations in the systematic errors from the unfolding and the absolute rigidity scale between the fluxes have been accounted for in calculating the corresponding systematic errors of the ratio. The contributions of the individual sources to the systematic error are added in quadrature to arrive at the total systematic uncertainty on the ratio.

Rigidity	Φ_p	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	Φ_{He}	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	p/He	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$
1.00 – 1.16	$(3.911$	0.024	0.068	$0.179)\times10^2$	–	–	–	–	–	–	–	–
1.16 – 1.33	$(4.021$	0.016	0.050	$0.146)\times10^2$	–	–	–	–	–	–	–	–
1.33 – 1.51	$(4.064$	0.014	0.039	$0.119)\times10^2$	–	–	–	–	–	–	–	–
1.51 – 1.71	$(4.045$	0.010	0.031	$0.107)\times10^2$	–	–	–	–	–	–	–	–
1.71 – 1.92	$(3.882$	0.009	0.026	$0.093)\times10^2$	–	–	–	–	–	–	–	–
1.92 – 2.15	$(3.642$	0.008	0.021	$0.079)\times10^2$	$(4.326$	0.030	0.051	$0.100)\times10^1$	8.419	0.061	0.110	0.256
2.15 – 2.40	$(3.353$	0.007	0.018	$0.068)\times10^2$	$(4.198$	0.026	0.042	$0.085)\times10^1$	7.985	0.052	0.090	0.217
2.40 – 2.67	$(3.029$	0.006	0.015	$0.058)\times10^2$	$(4.014$	0.023	0.038	$0.075)\times10^1$	7.545	0.045	0.081	0.190
2.67 – 2.97	$(2.700$	0.005	0.013	$0.048)\times10^2$	$(3.746$	0.020	0.035	$0.067)\times10^1$	7.207	0.040	0.075	0.171
2.97 – 3.29	$(2.374$	0.004	0.011	$0.040)\times10^2$	$(3.396$	0.017	0.027	$0.057)\times10^1$	6.990	0.036	0.065	0.157
3.29 – 3.64	$(2.062$	0.003	0.010	$0.033)\times10^2$	$(3.012$	0.014	0.021	$0.049)\times10^1$	6.848	0.034	0.058	0.148
3.64 – 4.02	$(1.770$	0.003	0.009	$0.028)\times10^2$	$(2.630$	0.012	0.017	$0.042)\times10^1$	6.728	0.033	0.054	0.142
4.02 – 4.43	$(1.503$	0.002	0.007	$0.023)\times10^2$	$(2.291$	0.010	0.014	$0.036)\times10^1$	6.561	0.030	0.051	0.135
4.43 – 4.88	$(1.263$	0.002	0.006	$0.019)\times10^2$	$(1.964$	0.008	0.012	$0.030)\times10^1$	6.432	0.028	0.049	0.131
4.88 – 5.37	$(1.054$	0.002	0.005	$0.015)\times10^2$	$(1.672$	0.007	0.010	$0.025)\times10^1$	6.302	0.027	0.047	0.126
5.37 – 5.90	$(8.742$	0.013	0.038	$0.125)\times10^1$	$(1.403$	0.006	0.008	$0.021)\times10^1$	6.233	0.027	0.044	0.122
5.90 – 6.47	$(7.180$	0.011	0.030	$0.102)\times10^1$	$(1.174$	0.005	0.006	$0.018)\times10^1$	6.119	0.026	0.042	0.117
6.47 – 7.09	$(5.899$	0.009	0.024	$0.083)\times10^1$	$(9.812$	0.039	0.054	$0.147)\times10^0$	6.013	0.026	0.041	0.114
7.09 – 7.76	$(4.831$	0.007	0.019	$0.067)\times10^1$	$(8.186$	0.033	0.044	$0.123)\times10^0$	5.902	0.025	0.040	0.111
7.76 – 8.48	$(3.932$	0.006	0.016	$0.055)\times10^1$	$(6.759$	0.027	0.037	$0.101)\times10^0$	5.817	0.025	0.039	0.109
8.48 – 9.26	$(3.197$	0.005	0.013	$0.044)\times10^1$	$(5.567$	0.023	0.031	$0.083)\times10^0$	5.742	0.026	0.040	0.107
9.26 – 10.1	$(2.600$	0.004	0.011	$0.036)\times10^1$	$(4.563$	0.020	0.026	$0.068)\times10^0$	5.698	0.027	0.040	0.106
10.1 – 11.0	$(2.105$	0.004	0.009	$0.029)\times10^1$	$(3.726$	0.017	0.022	$0.056)\times10^0$	5.648	0.028	0.042	0.105
11.0 – 12.0	$(1.701$	0.003	0.007	$0.023)\times10^1$	$(3.049$	0.014	0.019	$0.046)\times10^0$	5.579	0.028	0.043	0.104
12.0 – 13.0	$(1.371$	0.003	0.006	$0.019)\times10^1$	$(2.500$	0.013	0.017	$0.038)\times10^0$	5.487	0.030	0.044	0.104
13.0 – 14.1	$(1.115$	0.002	0.005	$0.016)\times10^1$	$(2.049$	0.011	0.014	$0.031)\times10^0$	5.441	0.031	0.046	0.104
14.1 – 15.3	$(9.014$	0.019	0.043	$0.128)\times10^0$	$(1.688$	0.009	0.012	$0.026)\times10^0$	5.341	0.031	0.047	0.102
15.3 – 16.6	$(7.268$	0.016	0.036	$0.105)\times10^0$	$(1.359$	0.008	0.011	$0.021)\times10^0$	5.347	0.032	0.049	0.104

Table continued

TABLE SM XXXVIII: Bartels Rotation 2463 (February 7, 2014 – March 5, 2014). *(Continued).*

Rigidity	Φ_p $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	Φ_{He} $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	p/He $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$
16.6 – 18.0	$(5.884\ 0.013\ 0.030\ 0.086)\times10^{0}$	$(1.121\ 0.006\ 0.009\ 0.018)\times10^{0}$	5.249 0.032 0.050 0.103
18.0 – 19.5	$(4.731\ 0.011\ 0.025\ 0.070)\times10^{0}$	$(9.126\ 0.053\ 0.078\ 0.147)\times10^{-1}$	5.184 0.033 0.052 0.102
19.5 – 21.1	$(3.828\ 0.009\ 0.021\ 0.058)\times10^{0}$	$(7.421\ 0.044\ 0.065\ 0.121)\times10^{-1}$	5.158 0.033 0.053 0.102
21.1 – 22.8	$(3.092\ 0.008\ 0.017\ 0.047)\times10^{0}$	$(6.038\ 0.037\ 0.054\ 0.099)\times10^{-1}$	5.121 0.034 0.054 0.103
22.8 – 24.7	$(2.483\ 0.006\ 0.014\ 0.038)\times10^{0}$	$(5.010\ 0.031\ 0.045\ 0.082)\times10^{-1}$	4.956 0.033 0.053 0.100
24.7 – 26.7	$(1.995\ 0.005\ 0.012\ 0.031)\times10^{0}$	$(4.055\ 0.027\ 0.037\ 0.067)\times10^{-1}$	4.920 0.035 0.054 0.099
26.7 – 28.8	$(1.618\ 0.005\ 0.010\ 0.025)\times10^{0}$	$(3.322\ 0.023\ 0.031\ 0.055)\times10^{-1}$	4.870 0.037 0.054 0.099
28.8 – 31.1	$(1.309\ 0.004\ 0.008\ 0.020)\times10^{0}$	$(2.719\ 0.020\ 0.025\ 0.045)\times10^{-1}$	4.813 0.038 0.054 0.099
31.1 – 33.5	$(1.064\ 0.003\ 0.007\ 0.017)\times10^{0}$	$(2.242\ 0.018\ 0.021\ 0.038)\times10^{-1}$	4.748 0.041 0.055 0.098
33.5 – 36.1	$(8.664\ 0.030\ 0.058\ 0.135)\times10^{-1}$	$(1.792\ 0.015\ 0.018\ 0.031)\times10^{-1}$	4.835 0.044 0.057 0.101
36.1 – 38.9	$(7.067\ 0.026\ 0.048\ 0.111)\times10^{-1}$	$(1.484\ 0.013\ 0.015\ 0.026)\times10^{-1}$	4.762 0.046 0.058 0.100
38.9 – 41.9	$(5.708\ 0.022\ 0.040\ 0.090)\times10^{-1}$	$(1.196\ 0.012\ 0.012\ 0.020)\times10^{-1}$	4.773 0.050 0.060 0.102
41.9 – 45.1	$(4.617\ 0.020\ 0.033\ 0.074)\times10^{-1}$	$(9.733\ 0.101\ 0.104\ 0.171)\times10^{-2}$	4.744 0.053 0.061 0.102
45.1 – 48.5	$(3.775\ 0.017\ 0.028\ 0.061)\times10^{-1}$	$(8.087\ 0.089\ 0.089\ 0.144)\times10^{-2}$	4.668 0.056 0.062 0.102
48.5 – 52.2	$(3.108\ 0.015\ 0.023\ 0.051)\times10^{-1}$	$(6.631\ 0.077\ 0.076\ 0.120)\times10^{-2}$	4.688 0.059 0.064 0.104
52.2 – 56.1	$(2.533\ 0.013\ 0.019\ 0.043)\times10^{-1}$	$(5.421\ 0.067\ 0.064\ 0.100)\times10^{-2}$	4.672 0.063 0.066 0.104
56.1 – 60.3	$(2.070\ 0.011\ 0.016\ 0.035)\times10^{-1}$	$(4.461\ 0.059\ 0.055\ 0.083)\times10^{-2}$	4.641 0.066 0.067 0.105

TABLE SM XXXIX: Bartels Rotation 2464 (March 6, 2014 – April 1, 2014). The proton flux Φ_p, helium flux Φ_{He}, and p/He flux ratio as a function of rigidity (in units of GV) at the top of AMS in units of $[\mathrm{m}^2 \cdot \mathrm{sr} \cdot \mathrm{s} \cdot \mathrm{GV}]^{-1}$ including errors due to statistics ($\sigma_{\mathrm{stat.}}$), time dependent systematic errors (σ_{time}) and the total systematic error ($\sigma_{\mathrm{syst.}}$). Contributions to the time dependent systematic errors are from: the trigger and the reconstruction efficiency. Contributions to the total systematic error are from: the acceptance, the background contamination, the geomagnetic cutoff factor, the event selection, the unfolding, the rigidity resolution function, the absolute rigidity scale, and the time dependent systematic errors. The statistical errors for the ratio are the sum in quadrature of the relative statistical errors of the fluxes multiplied by the ratio. The time dependent systematic errors for the ratio are the sum in quadrature of the relative time dependent systematic errors of the fluxes multiplied by the ratio. The systematic errors from the acceptance for the ratio are added in quadrature. The correlations in the systematic errors from the unfolding and the absolute rigidity scale between the fluxes have been accounted for in calculating the corresponding systematic errors of the ratio. The contributions of the individual sources to the systematic error are added in quadrature to arrive at the total systematic uncertainty on the ratio.

Rigidity	Φ_p	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	Φ_{He}	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	p/He	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$
1.00 – 1.16	$(3.697$	0.026	0.063	$0.169)\times10^2$	–	–	–	–	–	–	–	–
1.16 – 1.33	$(3.931$	0.016	0.048	$0.142)\times10^2$	–	–	–	–	–	–	–	–
1.33 – 1.51	$(4.096$	0.014	0.037	$0.119)\times10^2$	–	–	–	–	–	–	–	–
1.51 – 1.71	$(4.117$	0.011	0.030	$0.108)\times10^2$	–	–	–	–	–	–	–	–
1.71 – 1.92	$(3.977$	0.009	0.024	$0.094)\times10^2$	–	–	–	–	–	–	–	–
1.92 – 2.15	$(3.765$	0.008	0.020	$0.081)\times10^2$	$(4.412$	0.031	0.049	$0.101)\times10^1$	8.534	0.062	0.106	0.257
2.15 – 2.40	$(3.470$	0.007	0.017	$0.070)\times10^2$	$(4.364$	0.027	0.041	$0.088)\times10^1$	7.951	0.052	0.085	0.214
2.40 – 2.67	$(3.141$	0.006	0.014	$0.060)\times10^2$	$(4.133$	0.023	0.038	$0.076)\times10^1$	7.599	0.045	0.077	0.189
2.67 – 2.97	$(2.794$	0.005	0.012	$0.049)\times10^2$	$(3.824$	0.020	0.034	$0.067)\times10^1$	7.307	0.041	0.072	0.172
2.97 – 3.29	$(2.465$	0.004	0.011	$0.041)\times10^2$	$(3.527$	0.017	0.027	$0.059)\times10^1$	6.988	0.036	0.061	0.156
3.29 – 3.64	$(2.135$	0.004	0.009	$0.034)\times10^2$	$(3.142$	0.015	0.021	$0.051)\times10^1$	6.794	0.034	0.054	0.146
3.64 – 4.02	$(1.832$	0.003	0.008	$0.029)\times10^2$	$(2.728$	0.012	0.017	$0.043)\times10^1$	6.717	0.033	0.051	0.141
4.02 – 4.43	$(1.560$	0.002	0.007	$0.024)\times10^2$	$(2.375$	0.010	0.014	$0.037)\times10^1$	6.569	0.030	0.048	0.134
4.43 – 4.88	$(1.315$	0.002	0.006	$0.020)\times10^2$	$(2.034$	0.008	0.012	$0.031)\times10^1$	6.465	0.028	0.047	0.130
4.88 – 5.37	$(1.092$	0.002	0.005	$0.016)\times10^2$	$(1.719$	0.007	0.010	$0.026)\times10^1$	6.355	0.027	0.044	0.126
5.37 – 5.90	$(9.042$	0.014	0.035	$0.129)\times10^1$	$(1.447$	0.006	0.008	$0.022)\times10^1$	6.250	0.027	0.042	0.121
5.90 – 6.47	$(7.444$	0.011	0.028	$0.104)\times10^1$	$(1.218$	0.005	0.006	$0.018)\times10^1$	6.109	0.026	0.040	0.116
6.47 – 7.09	$(6.101$	0.009	0.022	$0.085)\times10^1$	$(1.010$	0.004	0.005	$0.015)\times10^1$	6.039	0.025	0.039	0.114
7.09 – 7.76	$(4.992$	0.007	0.018	$0.069)\times10^1$	$(8.351$	0.033	0.044	$0.125)\times10^0$	5.978	0.025	0.038	0.112
7.76 – 8.48	$(4.066$	0.006	0.015	$0.056)\times10^1$	$(6.904$	0.028	0.037	$0.102)\times10^0$	5.889	0.025	0.038	0.109
8.48 – 9.26	$(3.304$	0.005	0.012	$0.045)\times10^1$	$(5.695$	0.024	0.031	$0.085)\times10^0$	5.802	0.026	0.038	0.107
9.26 – 10.1	$(2.665$	0.004	0.010	$0.036)\times10^1$	$(4.697$	0.020	0.027	$0.070)\times10^0$	5.674	0.026	0.038	0.105
10.1 – 11.0	$(2.165$	0.004	0.008	$0.029)\times10^1$	$(3.814$	0.017	0.022	$0.057)\times10^0$	5.676	0.028	0.040	0.105
11.0 – 12.0	$(1.735$	0.003	0.007	$0.024)\times10^1$	$(3.100$	0.014	0.019	$0.047)\times10^0$	5.596	0.028	0.041	0.104
12.0 – 13.0	$(1.400$	0.003	0.006	$0.019)\times10^1$	$(2.527$	0.013	0.016	$0.039)\times10^0$	5.540	0.030	0.042	0.104
13.0 – 14.1	$(1.141$	0.002	0.005	$0.016)\times10^1$	$(2.107$	0.011	0.014	$0.032)\times10^0$	5.417	0.030	0.043	0.102
14.1 – 15.3	$(9.191$	0.019	0.040	$0.129)\times10^0$	$(1.698$	0.009	0.012	$0.026)\times10^0$	5.411	0.031	0.045	0.103
15.3 – 16.6	$(7.434$	0.016	0.033	$0.106)\times10^0$	$(1.373$	0.008	0.010	$0.022)\times10^0$	5.414	0.032	0.047	0.104

Table continued

TABLE SM XXXIX: Bartels Rotation 2464 (March 6, 2014 – April 1, 2014). *(Continued).*

Rigidity	Φ_p $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	Φ_{He} $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	p/He $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$
16.6 – 18.0	$(5.950\ 0.013\ 0.027\ 0.086)\times10^{0}$	$(1.130\ 0.006\ 0.009\ 0.018)\times10^{0}$	5.263 0.032 0.048 0.102
18.0 – 19.5	$(4.799\ 0.011\ 0.023\ 0.070)\times10^{0}$	$(9.113\ 0.053\ 0.076\ 0.146)\times10^{-1}$	5.266 0.033 0.050 0.103
19.5 – 21.1	$(3.866\ 0.009\ 0.019\ 0.057)\times10^{0}$	$(7.428\ 0.044\ 0.064\ 0.120)\times10^{-1}$	5.205 0.033 0.052 0.102
21.1 – 22.8	$(3.129\ 0.008\ 0.016\ 0.047)\times10^{0}$	$(6.102\ 0.037\ 0.053\ 0.099)\times10^{-1}$	5.128 0.034 0.052 0.102
22.8 – 24.7	$(2.530\ 0.006\ 0.013\ 0.038)\times10^{0}$	$(4.900\ 0.031\ 0.043\ 0.080)\times10^{-1}$	5.163 0.035 0.053 0.103
24.7 – 26.7	$(2.023\ 0.005\ 0.011\ 0.031)\times10^{0}$	$(4.012\ 0.027\ 0.036\ 0.066)\times10^{-1}$	5.042 0.036 0.053 0.101
26.7 – 28.8	$(1.627\ 0.005\ 0.009\ 0.025)\times10^{0}$	$(3.257\ 0.023\ 0.030\ 0.054)\times10^{-1}$	4.997 0.038 0.054 0.100
28.8 – 31.1	$(1.319\ 0.004\ 0.007\ 0.020)\times10^{0}$	$(2.685\ 0.020\ 0.025\ 0.045)\times10^{-1}$	4.914 0.039 0.054 0.100
31.1 – 33.5	$(1.073\ 0.003\ 0.006\ 0.017)\times10^{0}$	$(2.210\ 0.018\ 0.021\ 0.037)\times10^{-1}$	4.857 0.042 0.054 0.099
33.5 – 36.1	$(8.717\ 0.030\ 0.052\ 0.134)\times10^{-1}$	$(1.793\ 0.015\ 0.018\ 0.031)\times10^{-1}$	4.861 0.044 0.056 0.100
36.1 – 38.9	$(7.051\ 0.026\ 0.043\ 0.109)\times10^{-1}$	$(1.470\ 0.013\ 0.015\ 0.026)\times10^{-1}$	4.795 0.047 0.057 0.100
38.9 – 41.9	$(5.746\ 0.022\ 0.036\ 0.089)\times10^{-1}$	$(1.187\ 0.011\ 0.012\ 0.020)\times10^{-1}$	4.841 0.050 0.059 0.102
41.9 – 45.1	$(4.703\ 0.020\ 0.030\ 0.073)\times10^{-1}$	$(9.815\ 0.100\ 0.106\ 0.173)\times10^{-2}$	4.792 0.053 0.060 0.102
45.1 – 48.5	$(3.803\ 0.017\ 0.025\ 0.060)\times10^{-1}$	$(8.094\ 0.088\ 0.091\ 0.145)\times10^{-2}$	4.698 0.055 0.061 0.102
48.5 – 52.2	$(3.118\ 0.015\ 0.021\ 0.050)\times10^{-1}$	$(6.558\ 0.076\ 0.076\ 0.119)\times10^{-2}$	4.755 0.060 0.064 0.104
52.2 – 56.1	$(2.510\ 0.013\ 0.017\ 0.041)\times10^{-1}$	$(5.372\ 0.067\ 0.065\ 0.099)\times10^{-2}$	4.673 0.063 0.065 0.104
56.1 – 60.3	$(2.076\ 0.011\ 0.014\ 0.035)\times10^{-1}$	$(4.410\ 0.058\ 0.055\ 0.083)\times10^{-2}$	4.708 0.067 0.067 0.106

TABLE SM XL: Bartels Rotation 2465 (April 2, 2014 – April 28, 2014). The proton flux Φ_p, helium flux Φ_{He}, and p/He flux ratio as a function of rigidity (in units of GV) at the top of AMS in units of $[\mathrm{m}^2 \cdot \mathrm{sr} \cdot \mathrm{s} \cdot \mathrm{GV}]^{-1}$ including errors due to statistics ($\sigma_{\mathrm{stat.}}$), time dependent systematic errors (σ_{time}) and the total systematic error ($\sigma_{\mathrm{syst.}}$). Contributions to the time dependent systematic errors are from: the trigger and the reconstruction efficiency. Contributions to the total systematic error are from: the acceptance, the background contamination, the geomagnetic cutoff factor, the event selection, the unfolding, the rigidity resolution function, the absolute rigidity scale, and the time dependent systematic errors. The statistical errors for the ratio are the sum in quadrature of the relative statistical errors of the fluxes multiplied by the ratio. The time dependent systematic errors for the ratio are the sum in quadrature of the relative time dependent systematic errors of the fluxes multiplied by the ratio. The systematic errors from the acceptance for the ratio are added in quadrature. The correlations in the systematic errors from the unfolding and the absolute rigidity scale between the fluxes have been accounted for in calculating the corresponding systematic errors of the ratio. The contributions of the individual sources to the systematic error are added in quadrature to arrive at the total systematic uncertainty on the ratio.

Rigidity	Φ_p	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	Φ_{He}	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	p/He	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$
1.00 – 1.16	$(3.813$	0.025	0.055	$0.171)\times10^2$	–	–	–	–	–	–	–	–
1.16 – 1.33	$(4.081$	0.017	0.042	$0.145)\times10^2$	–	–	–	–	–	–	–	–
1.33 – 1.51	$(4.233$	0.014	0.033	$0.122)\times10^2$	–	–	–	–	–	–	–	–
1.51 – 1.71	$(4.222$	0.011	0.027	$0.110)\times10^2$	–	–	–	–	–	–	–	–
1.71 – 1.92	$(4.073$	0.009	0.022	$0.096)\times10^2$	–	–	–	–	–	–	–	–
1.92 – 2.15	$(3.825$	0.008	0.019	$0.082)\times10^2$	$(4.552$	0.031	0.059	$0.108)\times10^1$	8.402	0.059	0.116	0.258
2.15 – 2.40	$(3.521$	0.007	0.016	$0.070)\times10^2$	$(4.401$	0.027	0.048	$0.091)\times10^1$	7.999	0.051	0.094	0.219
2.40 – 2.67	$(3.179$	0.006	0.013	$0.060)\times10^2$	$(4.219$	0.023	0.044	$0.081)\times10^1$	7.535	0.044	0.085	0.191
2.67 – 2.97	$(2.830$	0.005	0.011	$0.049)\times10^2$	$(3.923$	0.020	0.040	$0.072)\times10^1$	7.213	0.039	0.079	0.173
2.97 – 3.29	$(2.485$	0.004	0.010	$0.041)\times10^2$	$(3.558$	0.017	0.031	$0.061)\times10^1$	6.983	0.036	0.067	0.158
3.29 – 3.64	$(2.158$	0.004	0.009	$0.034)\times10^2$	$(3.185$	0.015	0.024	$0.053)\times10^1$	6.775	0.033	0.058	0.147
3.64 – 4.02	$(1.843$	0.003	0.008	$0.029)\times10^2$	$(2.754$	0.012	0.019	$0.044)\times10^1$	6.693	0.032	0.054	0.141
4.02 – 4.43	$(1.569$	0.002	0.006	$0.024)\times10^2$	$(2.389$	0.010	0.016	$0.038)\times10^1$	6.567	0.030	0.051	0.135
4.43 – 4.88	$(1.314$	0.002	0.005	$0.020)\times10^2$	$(2.048$	0.008	0.013	$0.032)\times10^1$	6.414	0.028	0.049	0.130
4.88 – 5.37	$(1.096$	0.002	0.004	$0.016)\times10^2$	$(1.729$	0.007	0.011	$0.027)\times10^1$	6.339	0.027	0.047	0.127
5.37 – 5.90	$(9.045$	0.014	0.033	$0.128)\times10^1$	$(1.441$	0.006	0.009	$0.022)\times10^1$	6.276	0.027	0.045	0.123
5.90 – 6.47	$(7.456$	0.011	0.026	$0.104)\times10^1$	$(1.225$	0.005	0.007	$0.019)\times10^1$	6.089	0.026	0.043	0.117
6.47 – 7.09	$(6.095$	0.009	0.021	$0.085)\times10^1$	$(1.015$	0.004	0.006	$0.015)\times10^1$	6.005	0.025	0.042	0.115
7.09 – 7.76	$(4.983$	0.007	0.017	$0.069)\times10^1$	$(8.329$	0.033	0.050	$0.127)\times10^0$	5.983	0.025	0.041	0.113
7.76 – 8.48	$(4.040$	0.006	0.013	$0.056)\times10^1$	$(6.894$	0.028	0.042	$0.104)\times10^0$	5.860	0.025	0.041	0.110
8.48 – 9.26	$(3.285$	0.005	0.011	$0.045)\times10^1$	$(5.686$	0.024	0.035	$0.086)\times10^0$	5.776	0.026	0.041	0.108
9.26 – 10.1	$(2.658$	0.004	0.009	$0.036)\times10^1$	$(4.644$	0.020	0.030	$0.071)\times10^0$	5.724	0.027	0.042	0.107
10.1 – 11.0	$(2.150$	0.004	0.008	$0.029)\times10^1$	$(3.799$	0.017	0.025	$0.058)\times10^0$	5.660	0.028	0.043	0.106
11.0 – 12.0	$(1.730$	0.003	0.006	$0.023)\times10^1$	$(3.097$	0.015	0.022	$0.048)\times10^0$	5.585	0.028	0.044	0.105
12.0 – 13.0	$(1.400$	0.003	0.005	$0.019)\times10^1$	$(2.537$	0.013	0.019	$0.040)\times10^0$	5.516	0.030	0.046	0.105
13.0 – 14.1	$(1.133$	0.002	0.004	$0.016)\times10^1$	$(2.061$	0.011	0.016	$0.032)\times10^0$	5.496	0.031	0.048	0.105
14.1 – 15.3	$(9.152$	0.019	0.037	$0.128)\times10^0$	$(1.691$	0.009	0.014	$0.027)\times10^0$	5.414	0.031	0.049	0.104
15.3 – 16.6	$(7.350$	0.016	0.030	$0.104)\times10^0$	$(1.393$	0.008	0.012	$0.023)\times10^0$	5.276	0.031	0.050	0.103

Table continued

TABLE SM XL: Bartels Rotation 2465 (April 2, 2014 – April 28, 2014). *(Continued).*

Rigidity	Φ_p $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	Φ_{He} $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	p/He $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$
16.6 – 18.0	$(5.945\ 0.013\ 0.025\ 0.085)\times10^{0}$	$(1.129\ 0.006\ 0.010\ 0.019)\times10^{0}$	5.265 0.032 0.052 0.104
18.0 – 19.5	$(4.764\ 0.011\ 0.021\ 0.069)\times10^{0}$	$(9.204\ 0.053\ 0.087\ 0.153)\times10^{-1}$	5.176 0.032 0.054 0.103
19.5 – 21.1	$(3.858\ 0.009\ 0.017\ 0.057)\times10^{0}$	$(7.536\ 0.045\ 0.074\ 0.127)\times10^{-1}$	5.119 0.033 0.055 0.103
21.1 – 22.8	$(3.106\ 0.008\ 0.015\ 0.046)\times10^{0}$	$(5.981\ 0.037\ 0.059\ 0.101)\times10^{-1}$	5.193 0.035 0.057 0.105
22.8 – 24.7	$(2.508\ 0.006\ 0.012\ 0.037)\times10^{0}$	$(4.959\ 0.031\ 0.049\ 0.084)\times10^{-1}$	5.059 0.034 0.056 0.103
24.7 – 26.7	$(2.016\ 0.005\ 0.010\ 0.031)\times10^{0}$	$(4.055\ 0.027\ 0.041\ 0.069)\times10^{-1}$	4.973 0.035 0.056 0.101
26.7 – 28.8	$(1.631\ 0.005\ 0.008\ 0.024)\times10^{0}$	$(3.336\ 0.023\ 0.034\ 0.057)\times10^{-1}$	4.887 0.037 0.056 0.100
28.8 – 31.1	$(1.315\ 0.004\ 0.007\ 0.020)\times10^{0}$	$(2.721\ 0.020\ 0.028\ 0.047)\times10^{-1}$	4.831 0.038 0.056 0.100
31.1 – 33.5	$(1.072\ 0.003\ 0.006\ 0.017)\times10^{0}$	$(2.209\ 0.018\ 0.023\ 0.038)\times10^{-1}$	4.854 0.042 0.057 0.101
33.5 – 36.1	$(8.679\ 0.030\ 0.048\ 0.132)\times10^{-1}$	$(1.836\ 0.015\ 0.020\ 0.033)\times10^{-1}$	4.728 0.043 0.057 0.099
36.1 – 38.9	$(7.046\ 0.026\ 0.040\ 0.107)\times10^{-1}$	$(1.486\ 0.013\ 0.016\ 0.027)\times10^{-1}$	4.742 0.046 0.059 0.101
38.9 – 41.9	$(5.778\ 0.023\ 0.034\ 0.089)\times10^{-1}$	$(1.186\ 0.012\ 0.013\ 0.021)\times10^{-1}$	4.871 0.051 0.062 0.105
41.9 – 45.1	$(4.675\ 0.020\ 0.028\ 0.072)\times10^{-1}$	$(9.698\ 0.101\ 0.113\ 0.176)\times10^{-2}$	4.820 0.054 0.063 0.104
45.1 – 48.5	$(3.816\ 0.017\ 0.023\ 0.060)\times10^{-1}$	$(8.125\ 0.089\ 0.098\ 0.150)\times10^{-2}$	4.696 0.056 0.063 0.103
48.5 – 52.2	$(3.071\ 0.015\ 0.019\ 0.049)\times10^{-1}$	$(6.636\ 0.077\ 0.083\ 0.125)\times10^{-2}$	4.628 0.058 0.065 0.103
52.2 – 56.1	$(2.537\ 0.013\ 0.016\ 0.041)\times10^{-1}$	$(5.377\ 0.067\ 0.070\ 0.103)\times10^{-2}$	4.718 0.064 0.068 0.106
56.1 – 60.3	$(2.059\ 0.011\ 0.013\ 0.034)\times10^{-1}$	$(4.558\ 0.059\ 0.061\ 0.089)\times10^{-2}$	4.517 0.064 0.067 0.103

TABLE SM XLI: Bartels Rotation 2466 (April 29, 2014 – May 25, 2014). The proton flux Φ_p, helium flux Φ_{He}, and p/He flux ratio as a function of rigidity (in units of GV) at the top of AMS in units of $[\mathrm{m}^2 \cdot \mathrm{sr} \cdot \mathrm{s} \cdot \mathrm{GV}]^{-1}$ including errors due to statistics ($\sigma_{\mathrm{stat.}}$), time dependent systematic errors (σ_{time}) and the total systematic error ($\sigma_{\mathrm{syst.}}$). Contributions to the time dependent systematic errors are from: the trigger and the reconstruction efficiency. Contributions to the total systematic error are from: the acceptance, the background contamination, the geomagnetic cutoff factor, the event selection, the unfolding, the rigidity resolution function, the absolute rigidity scale, and the time dependent systematic errors. The statistical errors for the ratio are the sum in quadrature of the relative statistical errors of the fluxes multiplied by the ratio. The time dependent systematic errors for the ratio are the sum in quadrature of the relative time dependent systematic errors of the fluxes multiplied by the ratio. The systematic errors from the acceptance for the ratio are added in quadrature. The correlations in the systematic errors from the unfolding and the absolute rigidity scale between the fluxes have been accounted for in calculating the corresponding systematic errors of the ratio. The contributions of the individual sources to the systematic error are added in quadrature to arrive at the total systematic uncertainty on the ratio.

Rigidity	Φ_p $\sigma_{\mathrm{stat.}}$ σ_{time} $\sigma_{\mathrm{syst.}}$	Φ_{He} $\sigma_{\mathrm{stat.}}$ σ_{time} $\sigma_{\mathrm{syst.}}$	p/He $\sigma_{\mathrm{stat.}}$ σ_{time} $\sigma_{\mathrm{syst.}}$
1.00 – 1.16	$(4.166\ 0.024\ 0.067\ 0.189)\times10^2$	– – – –	– – – –
1.16 – 1.33	$(4.401\ 0.017\ 0.051\ 0.158)\times10^2$	– – – –	– – – –
1.33 – 1.51	$(4.566\ 0.015\ 0.040\ 0.132)\times10^2$	– – – –	– – – –
1.51 – 1.71	$(4.535\ 0.011\ 0.032\ 0.119)\times10^2$	– – – –	– – – –
1.71 – 1.92	$(4.367\ 0.010\ 0.027\ 0.103)\times10^2$	– – – –	– – – –
1.92 – 2.15	$(4.105\ 0.008\ 0.022\ 0.089)\times10^2$	$(4.823\ 0.032\ 0.056\ 0.111)\times10^1$	8.511 0.060 0.108 0.257
2.15 – 2.40	$(3.750\ 0.007\ 0.018\ 0.075)\times10^2$	$(4.755\ 0.029\ 0.046\ 0.096)\times10^1$	7.887 0.050 0.086 0.213
2.40 – 2.67	$(3.391\ 0.006\ 0.016\ 0.064)\times10^2$	$(4.500\ 0.025\ 0.042\ 0.084)\times10^1$	7.535 0.044 0.079 0.189
2.67 – 2.97	$(3.016\ 0.005\ 0.013\ 0.053)\times10^2$	$(4.120\ 0.021\ 0.038\ 0.073)\times10^1$	7.320 0.040 0.075 0.173
2.97 – 3.29	$(2.628\ 0.004\ 0.011\ 0.044)\times10^2$	$(3.803\ 0.018\ 0.030\ 0.063)\times10^1$	6.909 0.035 0.062 0.155
3.29 – 3.64	$(2.271\ 0.004\ 0.010\ 0.037)\times10^2$	$(3.352\ 0.015\ 0.022\ 0.054)\times10^1$	6.773 0.033 0.054 0.146
3.64 – 4.02	$(1.939\ 0.003\ 0.009\ 0.031)\times10^2$	$(2.900\ 0.013\ 0.018\ 0.046)\times10^1$	6.686 0.032 0.051 0.140
4.02 – 4.43	$(1.642\ 0.003\ 0.007\ 0.025)\times10^2$	$(2.510\ 0.011\ 0.015\ 0.039)\times10^1$	6.545 0.030 0.049 0.134
4.43 – 4.88	$(1.378\ 0.002\ 0.006\ 0.021)\times10^2$	$(2.152\ 0.009\ 0.013\ 0.033)\times10^1$	6.404 0.028 0.047 0.129
4.88 – 5.37	$(1.140\ 0.002\ 0.005\ 0.016)\times10^2$	$(1.806\ 0.007\ 0.010\ 0.027)\times10^1$	6.314 0.027 0.045 0.126
5.37 – 5.90	$(9.391\ 0.014\ 0.038\ 0.134)\times10^1$	$(1.515\ 0.006\ 0.008\ 0.023)\times10^1$	6.197 0.026 0.042 0.121
5.90 – 6.47	$(7.721\ 0.011\ 0.030\ 0.108)\times10^1$	$(1.271\ 0.005\ 0.007\ 0.019)\times10^1$	6.077 0.025 0.041 0.116
6.47 – 7.09	$(6.300\ 0.009\ 0.024\ 0.088)\times10^1$	$(1.045\ 0.004\ 0.006\ 0.016)\times10^1$	6.028 0.025 0.040 0.114
7.09 – 7.76	$(5.128\ 0.008\ 0.019\ 0.071)\times10^1$	$(8.676\ 0.034\ 0.047\ 0.130)\times10^0$	5.910 0.025 0.039 0.111
7.76 – 8.48	$(4.154\ 0.006\ 0.015\ 0.057)\times10^1$	$(7.088\ 0.028\ 0.038\ 0.105)\times10^0$	5.861 0.025 0.038 0.109
8.48 – 9.26	$(3.370\ 0.005\ 0.013\ 0.046)\times10^1$	$(5.882\ 0.024\ 0.033\ 0.088)\times10^0$	5.729 0.025 0.038 0.106
9.26 – 10.1	$(2.726\ 0.005\ 0.010\ 0.037)\times10^1$	$(4.778\ 0.021\ 0.027\ 0.072)\times10^0$	5.704 0.026 0.039 0.106
10.1 – 11.0	$(2.192\ 0.004\ 0.009\ 0.030)\times10^1$	$(3.881\ 0.018\ 0.023\ 0.058)\times10^0$	5.647 0.027 0.040 0.104
11.0 – 12.0	$(1.762\ 0.003\ 0.007\ 0.024)\times10^1$	$(3.163\ 0.015\ 0.020\ 0.048)\times10^0$	5.571 0.028 0.041 0.103
12.0 – 13.0	$(1.416\ 0.003\ 0.006\ 0.019)\times10^1$	$(2.588\ 0.013\ 0.017\ 0.040)\times10^0$	5.474 0.030 0.042 0.103
13.0 – 14.1	$(1.149\ 0.002\ 0.005\ 0.016)\times10^1$	$(2.108\ 0.011\ 0.015\ 0.032)\times10^0$	5.453 0.031 0.044 0.103
14.1 – 15.3	$(9.275\ 0.019\ 0.041\ 0.131)\times10^0$	$(1.736\ 0.009\ 0.013\ 0.026)\times10^0$	5.342 0.031 0.045 0.102
15.3 – 16.6	$(7.451\ 0.016\ 0.034\ 0.106)\times10^0$	$(1.401\ 0.008\ 0.011\ 0.022)\times10^0$	5.318 0.032 0.047 0.102

Table continued

TABLE SM XLI: Bartels Rotation 2466 (April 29, 2014 – May 25, 2014). *(Continued).*

Rigidity	Φ_p $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	Φ_{He} $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	p/He $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$
16.6 – 18.0	$(5.990\ 0.013\ 0.028\ 0.087)\times10^{0}$	$(1.126\ 0.006\ 0.009\ 0.018)\times10^{0}$	5.321 0.033 0.049 0.104
18.0 – 19.5	$(4.823\ 0.011\ 0.024\ 0.071)\times10^{0}$	$(9.342\ 0.054\ 0.078\ 0.150)\times10^{-1}$	5.162 0.032 0.050 0.101
19.5 – 21.1	$(3.871\ 0.009\ 0.019\ 0.058)\times10^{0}$	$(7.527\ 0.045\ 0.065\ 0.122)\times10^{-1}$	5.144 0.033 0.051 0.101
21.1 – 22.8	$(3.121\ 0.008\ 0.016\ 0.047)\times10^{0}$	$(6.197\ 0.038\ 0.054\ 0.101)\times10^{-1}$	5.036 0.033 0.051 0.100
22.8 – 24.7	$(2.515\ 0.006\ 0.013\ 0.038)\times10^{0}$	$(5.014\ 0.031\ 0.044\ 0.082)\times10^{-1}$	5.015 0.034 0.052 0.100
24.7 – 26.7	$(2.022\ 0.005\ 0.011\ 0.031)\times10^{0}$	$(4.087\ 0.027\ 0.037\ 0.067)\times10^{-1}$	4.947 0.035 0.052 0.099
26.7 – 28.8	$(1.640\ 0.005\ 0.009\ 0.025)\times10^{0}$	$(3.320\ 0.024\ 0.030\ 0.054)\times10^{-1}$	4.940 0.038 0.053 0.099
28.8 – 31.1	$(1.321\ 0.004\ 0.008\ 0.020)\times10^{0}$	$(2.708\ 0.020\ 0.025\ 0.045)\times10^{-1}$	4.880 0.039 0.053 0.099
31.1 – 33.5	$(1.071\ 0.003\ 0.006\ 0.017)\times10^{0}$	$(2.213\ 0.018\ 0.021\ 0.037)\times10^{-1}$	4.840 0.042 0.054 0.099
33.5 – 36.1	$(8.698\ 0.030\ 0.053\ 0.134)\times10^{-1}$	$(1.835\ 0.016\ 0.018\ 0.031)\times10^{-1}$	4.740 0.043 0.055 0.098
36.1 – 38.9	$(7.059\ 0.026\ 0.044\ 0.109)\times10^{-1}$	$(1.510\ 0.014\ 0.015\ 0.026)\times10^{-1}$	4.674 0.045 0.055 0.098
38.9 – 41.9	$(5.766\ 0.023\ 0.037\ 0.090)\times10^{-1}$	$(1.214\ 0.012\ 0.013\ 0.021)\times10^{-1}$	4.752 0.050 0.058 0.101
41.9 – 45.1	$(4.664\ 0.020\ 0.031\ 0.073)\times10^{-1}$	$(9.946\ 0.103\ 0.107\ 0.175)\times10^{-2}$	4.690 0.052 0.059 0.100
45.1 – 48.5	$(3.819\ 0.017\ 0.026\ 0.061)\times10^{-1}$	$(8.044\ 0.089\ 0.090\ 0.144)\times10^{-2}$	4.748 0.057 0.062 0.103
48.5 – 52.2	$(3.107\ 0.015\ 0.021\ 0.050)\times10^{-1}$	$(6.628\ 0.077\ 0.077\ 0.121)\times10^{-2}$	4.687 0.059 0.063 0.103
52.2 – 56.1	$(2.529\ 0.013\ 0.018\ 0.042)\times10^{-1}$	$(5.411\ 0.068\ 0.065\ 0.100)\times10^{-2}$	4.674 0.063 0.065 0.104
56.1 – 60.3	$(2.059\ 0.011\ 0.015\ 0.034)\times10^{-1}$	$(4.456\ 0.059\ 0.056\ 0.084)\times10^{-2}$	4.620 0.066 0.067 0.105

TABLE SM XLII: Bartels Rotation 2467 (May 26, 2014 – June 21, 2014). The proton flux Φ_p, helium flux Φ_{He}, and p/He flux ratio as a function of rigidity (in units of GV) at the top of AMS in units of $[\mathrm{m}^2 \cdot \mathrm{sr} \cdot \mathrm{s} \cdot \mathrm{GV}]^{-1}$ including errors due to statistics ($\sigma_{\mathrm{stat.}}$), time dependent systematic errors (σ_{time}) and the total systematic error ($\sigma_{\mathrm{syst.}}$). Contributions to the time dependent systematic errors are from: the trigger and the reconstruction efficiency. Contributions to the total systematic error are from: the acceptance, the background contamination, the geomagnetic cutoff factor, the event selection, the unfolding, the rigidity resolution function, the absolute rigidity scale, and the time dependent systematic errors. The statistical errors for the ratio are the sum in quadrature of the relative statistical errors of the fluxes multiplied by the ratio. The time dependent systematic errors for the ratio are the sum in quadrature of the relative time dependent systematic errors of the fluxes multiplied by the ratio. The systematic errors from the acceptance for the ratio are added in quadrature. The correlations in the systematic errors from the unfolding and the absolute rigidity scale between the fluxes have been accounted for in calculating the corresponding systematic errors of the ratio. The contributions of the individual sources to the systematic error are added in quadrature to arrive at the total systematic uncertainty on the ratio.

Rigidity	Φ_p $\sigma_{\mathrm{stat.}}$ σ_{time} $\sigma_{\mathrm{syst.}}$	Φ_{He} $\sigma_{\mathrm{stat.}}$ σ_{time} $\sigma_{\mathrm{syst.}}$	p/He $\sigma_{\mathrm{stat.}}$ σ_{time} $\sigma_{\mathrm{syst.}}$
1.00 – 1.16	$(4.071\ 0.025\ 0.063\ 0.184)\times10^2$	– – – –	– – – –
1.16 – 1.33	$(4.395\ 0.016\ 0.049\ 0.158)\times10^2$	– – – –	– – – –
1.33 – 1.51	$(4.522\ 0.015\ 0.039\ 0.131)\times10^2$	– – – –	– – – –
1.51 – 1.71	$(4.487\ 0.011\ 0.031\ 0.117)\times10^2$	– – – –	– – – –
1.71 – 1.92	$(4.329\ 0.010\ 0.026\ 0.102)\times10^2$	– – – –	– – – –
1.92 – 2.15	$(4.029\ 0.008\ 0.021\ 0.087)\times10^2$	$(4.801\ 0.032\ 0.043\ 0.105)\times10^1$	8.391 0.058 0.087 0.246
2.15 – 2.40	$(3.686\ 0.007\ 0.018\ 0.074)\times10^2$	$(4.634\ 0.028\ 0.036\ 0.089)\times10^1$	7.954 0.050 0.073 0.210
2.40 – 2.67	$(3.315\ 0.006\ 0.015\ 0.063)\times10^2$	$(4.392\ 0.024\ 0.032\ 0.077)\times10^1$	7.548 0.043 0.064 0.183
2.67 – 2.97	$(2.938\ 0.005\ 0.013\ 0.051)\times10^2$	$(4.044\ 0.021\ 0.028\ 0.067)\times10^1$	7.265 0.039 0.059 0.166
2.97 – 3.29	$(2.575\ 0.004\ 0.011\ 0.043)\times10^2$	$(3.658\ 0.017\ 0.023\ 0.059)\times10^1$	7.039 0.035 0.054 0.154
3.29 – 3.64	$(2.219\ 0.004\ 0.010\ 0.036)\times10^2$	$(3.253\ 0.015\ 0.019\ 0.051)\times10^1$	6.820 0.033 0.050 0.145
3.64 – 4.02	$(1.894\ 0.003\ 0.009\ 0.030)\times10^2$	$(2.822\ 0.013\ 0.015\ 0.044)\times10^1$	6.713 0.032 0.047 0.139
4.02 – 4.43	$(1.611\ 0.002\ 0.007\ 0.025)\times10^2$	$(2.443\ 0.010\ 0.013\ 0.037)\times10^1$	6.594 0.030 0.045 0.134
4.43 – 4.88	$(1.350\ 0.002\ 0.006\ 0.020)\times10^2$	$(2.084\ 0.008\ 0.010\ 0.031)\times10^1$	6.477 0.028 0.043 0.129
4.88 – 5.37	$(1.116\ 0.002\ 0.005\ 0.016)\times10^2$	$(1.765\ 0.007\ 0.008\ 0.026)\times10^1$	6.325 0.027 0.040 0.124
5.37 – 5.90	$(9.172\ 0.014\ 0.036\ 0.131)\times10^1$	$(1.477\ 0.006\ 0.007\ 0.022)\times10^1$	6.210 0.026 0.038 0.119
5.90 – 6.47	$(7.562\ 0.011\ 0.029\ 0.106)\times10^1$	$(1.244\ 0.005\ 0.006\ 0.018)\times10^1$	6.080 0.026 0.036 0.115
6.47 – 7.09	$(6.177\ 0.009\ 0.023\ 0.086)\times10^1$	$(1.028\ 0.004\ 0.005\ 0.015)\times10^1$	6.011 0.025 0.036 0.113
7.09 – 7.76	$(5.032\ 0.008\ 0.018\ 0.070)\times10^1$	$(8.463\ 0.033\ 0.040\ 0.125)\times10^0$	5.945 0.025 0.035 0.110
7.76 – 8.48	$(4.089\ 0.006\ 0.015\ 0.057)\times10^1$	$(6.927\ 0.028\ 0.034\ 0.102)\times10^0$	5.903 0.025 0.036 0.109
8.48 – 9.26	$(3.306\ 0.005\ 0.012\ 0.045)\times10^1$	$(5.716\ 0.024\ 0.029\ 0.084)\times10^0$	5.785 0.026 0.036 0.106
9.26 – 10.1	$(2.669\ 0.004\ 0.010\ 0.036)\times10^1$	$(4.695\ 0.020\ 0.025\ 0.070)\times10^0$	5.685 0.026 0.037 0.105
10.1 – 11.0	$(2.155\ 0.004\ 0.008\ 0.029)\times10^1$	$(3.843\ 0.017\ 0.021\ 0.057)\times10^0$	5.609 0.027 0.038 0.103
11.0 – 12.0	$(1.734\ 0.003\ 0.007\ 0.024)\times10^1$	$(3.130\ 0.015\ 0.018\ 0.047)\times10^0$	5.539 0.028 0.039 0.102
12.0 – 13.0	$(1.402\ 0.003\ 0.006\ 0.019)\times10^1$	$(2.541\ 0.013\ 0.016\ 0.038)\times10^0$	5.516 0.030 0.041 0.103
13.0 – 14.1	$(1.137\ 0.002\ 0.005\ 0.016)\times10^1$	$(2.106\ 0.011\ 0.014\ 0.032)\times10^0$	5.396 0.030 0.042 0.101
14.1 – 15.3	$(9.171\ 0.019\ 0.040\ 0.129)\times10^0$	$(1.716\ 0.009\ 0.012\ 0.026)\times10^0$	5.345 0.031 0.043 0.101
15.3 – 16.6	$(7.390\ 0.016\ 0.033\ 0.105)\times10^0$	$(1.381\ 0.008\ 0.010\ 0.021)\times10^0$	5.351 0.032 0.046 0.102

Table continued

TABLE SM XLII: Bartels Rotation 2467 (May 26, 2014 – June 21, 2014). *(Continued).*

Rigidity	Φ_p $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	Φ_{He} $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	p/He $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$
16.6 – 18.0	$(5.946\ 0.013\ 0.028\ 0.086)\times10^{0}$	$(1.129\ 0.006\ 0.009\ 0.018)\times10^{0}$	5.267 0.032 0.047 0.102
18.0 – 19.5	$(4.770\ 0.011\ 0.023\ 0.070)\times10^{0}$	$(9.234\ 0.054\ 0.074\ 0.147)\times10^{-1}$	5.166 0.032 0.048 0.100
19.5 – 21.1	$(3.840\ 0.009\ 0.019\ 0.057)\times10^{0}$	$(7.444\ 0.045\ 0.063\ 0.120)\times10^{-1}$	5.159 0.033 0.050 0.101
21.1 – 22.8	$(3.101\ 0.008\ 0.016\ 0.047)\times10^{0}$	$(6.185\ 0.038\ 0.053\ 0.100)\times10^{-1}$	5.013 0.033 0.050 0.099
22.8 – 24.7	$(2.507\ 0.006\ 0.013\ 0.038)\times10^{0}$	$(4.937\ 0.031\ 0.043\ 0.080)\times10^{-1}$	5.078 0.034 0.052 0.101
24.7 – 26.7	$(2.005\ 0.005\ 0.011\ 0.031)\times10^{0}$	$(4.052\ 0.027\ 0.036\ 0.066)\times10^{-1}$	4.947 0.035 0.051 0.099
26.7 – 28.8	$(1.633\ 0.005\ 0.009\ 0.025)\times10^{0}$	$(3.314\ 0.023\ 0.030\ 0.054)\times10^{-1}$	4.926 0.037 0.053 0.099
28.8 – 31.1	$(1.315\ 0.004\ 0.008\ 0.020)\times10^{0}$	$(2.705\ 0.020\ 0.025\ 0.045)\times10^{-1}$	4.862 0.039 0.053 0.098
31.1 – 33.5	$(1.067\ 0.003\ 0.006\ 0.017)\times10^{0}$	$(2.198\ 0.018\ 0.021\ 0.037)\times10^{-1}$	4.854 0.042 0.054 0.099
33.5 – 36.1	$(8.676\ 0.030\ 0.053\ 0.134)\times10^{-1}$	$(1.806\ 0.015\ 0.017\ 0.031)\times10^{-1}$	4.804 0.044 0.055 0.099
36.1 – 38.9	$(7.028\ 0.026\ 0.044\ 0.109)\times10^{-1}$	$(1.460\ 0.013\ 0.014\ 0.025)\times10^{-1}$	4.812 0.047 0.056 0.100
38.9 – 41.9	$(5.726\ 0.022\ 0.037\ 0.089)\times10^{-1}$	$(1.216\ 0.012\ 0.012\ 0.021)\times10^{-1}$	4.707 0.049 0.056 0.099
41.9 – 45.1	$(4.662\ 0.020\ 0.031\ 0.073)\times10^{-1}$	$(9.717\ 0.101\ 0.101\ 0.169)\times10^{-2}$	4.797 0.054 0.059 0.101
45.1 – 48.5	$(3.794\ 0.017\ 0.025\ 0.060)\times10^{-1}$	$(8.121\ 0.089\ 0.086\ 0.142)\times10^{-2}$	4.672 0.055 0.058 0.100
48.5 – 52.2	$(3.097\ 0.015\ 0.021\ 0.050)\times10^{-1}$	$(6.621\ 0.077\ 0.071\ 0.117)\times10^{-2}$	4.677 0.059 0.060 0.101
52.2 – 56.1	$(2.536\ 0.013\ 0.018\ 0.042)\times10^{-1}$	$(5.397\ 0.067\ 0.059\ 0.096)\times10^{-2}$	4.700 0.063 0.061 0.102
56.1 – 60.3	$(2.060\ 0.011\ 0.015\ 0.034)\times10^{-1}$	$(4.421\ 0.058\ 0.050\ 0.080)\times10^{-2}$	4.659 0.067 0.062 0.102

TABLE SM XLIII: Bartels Rotation 2468 (June 22, 2014 – July 18, 2014). The proton flux Φ_p, helium flux Φ_{He}, and p/He flux ratio as a function of rigidity (in units of GV) at the top of AMS in units of $[\mathrm{m}^2 \cdot \mathrm{sr} \cdot \mathrm{s} \cdot \mathrm{GV}]^{-1}$ including errors due to statistics ($\sigma_{\mathrm{stat.}}$), time dependent systematic errors (σ_{time}) and the total systematic error ($\sigma_{\mathrm{syst.}}$). Contributions to the time dependent systematic errors are from: the trigger and the reconstruction efficiency. Contributions to the total systematic error are from: the acceptance, the background contamination, the geomagnetic cutoff factor, the event selection, the unfolding, the rigidity resolution function, the absolute rigidity scale, and the time dependent systematic errors. The statistical errors for the ratio are the sum in quadrature of the relative statistical errors of the fluxes multiplied by the ratio. The time dependent systematic errors for the ratio are the sum in quadrature of the relative time dependent systematic errors of the fluxes multiplied by the ratio. The systematic errors from the acceptance for the ratio are added in quadrature. The correlations in the systematic errors from the unfolding and the absolute rigidity scale between the fluxes have been accounted for in calculating the corresponding systematic errors of the ratio. The contributions of the individual sources to the systematic error are added in quadrature to arrive at the total systematic uncertainty on the ratio.

Rigidity	Φ_p	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	Φ_{He}	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	p/He	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$
1.00 – 1.16	3.952×10^2	0.024	0.060	0.178	–	–	–	–	–	–	–	–
1.16 – 1.33	4.239×10^2	0.016	0.047	0.152	–	–	–	–	–	–	–	–
1.33 – 1.51	4.363×10^2	0.014	0.037	0.126	–	–	–	–	–	–	–	–
1.51 – 1.71	4.332×10^2	0.011	0.030	0.113	–	–	–	–	–	–	–	–
1.71 – 1.92	4.168×10^2	0.010	0.025	0.099	–	–	–	–	–	–	–	–
1.92 – 2.15	3.888×10^2	0.008	0.020	0.084	4.616×10^1	0.031	0.051	0.106	8.423	0.060	0.103	0.253
2.15 – 2.40	3.547×10^2	0.007	0.017	0.071	4.468×10^1	0.027	0.041	0.089	7.938	0.051	0.083	0.213
2.40 – 2.67	3.210×10^2	0.006	0.014	0.061	4.226×10^1	0.024	0.036	0.077	7.596	0.045	0.073	0.188
2.67 – 2.97	2.863×10^2	0.005	0.012	0.050	3.909×10^1	0.020	0.033	0.068	7.324	0.040	0.069	0.171
2.97 – 3.29	2.497×10^2	0.004	0.011	0.042	3.565×10^1	0.017	0.027	0.059	7.006	0.036	0.061	0.156
3.29 – 3.64	2.165×10^2	0.004	0.009	0.035	3.185×10^1	0.015	0.021	0.052	6.797	0.033	0.054	0.146
3.64 – 4.02	1.854×10^2	0.003	0.008	0.029	2.764×10^1	0.012	0.017	0.044	6.707	0.032	0.051	0.140
4.02 – 4.43	1.569×10^2	0.002	0.007	0.024	2.405×10^1	0.010	0.014	0.037	6.523	0.030	0.047	0.133
4.43 – 4.88	1.317×10^2	0.002	0.006	0.020	2.043×10^1	0.008	0.011	0.031	6.449	0.028	0.045	0.130
4.88 – 5.37	1.095×10^2	0.002	0.005	0.016	1.722×10^1	0.007	0.009	0.026	6.358	0.027	0.043	0.126
5.37 – 5.90	9.036×10^1	0.014	0.035	0.128	1.454×10^1	0.006	0.007	0.022	6.213	0.027	0.040	0.120
5.90 – 6.47	7.452×10^1	0.011	0.028	0.104	1.223×10^1	0.005	0.006	0.018	6.095	0.026	0.039	0.116
6.47 – 7.09	6.112×10^1	0.009	0.022	0.085	1.008×10^1	0.004	0.005	0.015	6.063	0.026	0.039	0.114
7.09 – 7.76	4.963×10^1	0.007	0.018	0.069	8.394×10^0	0.033	0.044	0.125	5.913	0.025	0.038	0.111
7.76 – 8.48	4.052×10^1	0.006	0.015	0.056	6.971×10^0	0.028	0.038	0.104	5.813	0.025	0.038	0.108
8.48 – 9.26	3.285×10^1	0.005	0.012	0.045	5.711×10^0	0.024	0.032	0.086	5.752	0.026	0.039	0.107
9.26 – 10.1	2.657×10^1	0.004	0.010	0.036	4.674×10^0	0.020	0.028	0.070	5.684	0.026	0.040	0.105
10.1 – 11.0	2.144×10^1	0.004	0.008	0.029	3.796×10^0	0.017	0.023	0.057	5.649	0.028	0.041	0.105
11.0 – 12.0	1.724×10^1	0.003	0.007	0.023	3.115×10^0	0.015	0.020	0.047	5.536	0.028	0.041	0.103
12.0 – 13.0	1.394×10^1	0.003	0.006	0.019	2.545×10^0	0.013	0.017	0.039	5.476	0.030	0.043	0.103
13.0 – 14.1	1.133×10^1	0.002	0.005	0.016	2.090×10^0	0.011	0.015	0.032	5.422	0.030	0.044	0.103
14.1 – 15.3	9.131×10^0	0.019	0.039	0.129	1.693×10^0	0.009	0.012	0.026	5.392	0.031	0.046	0.102
15.3 – 16.6	7.383×10^0	0.016	0.033	0.105	1.389×10^0	0.008	0.011	0.022	5.314	0.032	0.047	0.102

Table continued

TABLE SM XLIII: Bartels Rotation 2468 (June 22, 2014 – July 18, 2014). *(Continued).*

Rigidity	Φ_p $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	Φ_{He} $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	p/He $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$
16.6 – 18.0	(5.959 0.013 0.027 0.086)$\times 10^{0}$	(1.125 0.006 0.009 0.018)$\times 10^{0}$	5.298 0.032 0.049 0.103
18.0 – 19.5	(4.774 0.011 0.023 0.070)$\times 10^{0}$	(9.262 0.054 0.078 0.149)$\times 10^{-1}$	5.155 0.032 0.050 0.101
19.5 – 21.1	(3.854 0.009 0.019 0.057)$\times 10^{0}$	(7.474 0.045 0.066 0.122)$\times 10^{-1}$	5.156 0.033 0.052 0.102
21.1 – 22.8	(3.109 0.008 0.016 0.047)$\times 10^{0}$	(6.093 0.037 0.054 0.100)$\times 10^{-1}$	5.103 0.034 0.052 0.102
22.8 – 24.7	(2.507 0.006 0.013 0.038)$\times 10^{0}$	(4.979 0.031 0.045 0.082)$\times 10^{-1}$	5.035 0.034 0.053 0.101
24.7 – 26.7	(2.013 0.005 0.011 0.031)$\times 10^{0}$	(4.030 0.027 0.037 0.066)$\times 10^{-1}$	4.994 0.036 0.053 0.100
26.7 – 28.8	(1.627 0.005 0.009 0.025)$\times 10^{0}$	(3.263 0.023 0.031 0.054)$\times 10^{-1}$	4.987 0.038 0.055 0.101
28.8 – 31.1	(1.314 0.004 0.007 0.020)$\times 10^{0}$	(2.708 0.020 0.026 0.046)$\times 10^{-1}$	4.854 0.039 0.054 0.099
31.1 – 33.5	(1.073 0.003 0.006 0.017)$\times 10^{0}$	(2.175 0.018 0.022 0.037)$\times 10^{-1}$	4.934 0.043 0.057 0.101
33.5 – 36.1	(8.660 0.030 0.052 0.133)$\times 10^{-1}$	(1.796 0.015 0.018 0.031)$\times 10^{-1}$	4.822 0.044 0.057 0.100
36.1 – 38.9	(7.072 0.026 0.043 0.109)$\times 10^{-1}$	(1.461 0.013 0.015 0.026)$\times 10^{-1}$	4.840 0.047 0.058 0.102
38.9 – 41.9	(5.691 0.022 0.036 0.088)$\times 10^{-1}$	(1.199 0.012 0.013 0.021)$\times 10^{-1}$	4.746 0.049 0.059 0.101
41.9 – 45.1	(4.656 0.020 0.030 0.073)$\times 10^{-1}$	(9.802 0.101 0.108 0.174)$\times 10^{-2}$	4.751 0.053 0.061 0.102
45.1 – 48.5	(3.813 0.017 0.025 0.060)$\times 10^{-1}$	(7.961 0.088 0.090 0.143)$\times 10^{-2}$	4.789 0.057 0.063 0.104
48.5 – 52.2	(3.127 0.015 0.021 0.050)$\times 10^{-1}$	(6.544 0.076 0.076 0.119)$\times 10^{-2}$	4.778 0.060 0.064 0.105
52.2 – 56.1	(2.554 0.013 0.018 0.042)$\times 10^{-1}$	(5.371 0.067 0.064 0.099)$\times 10^{-2}$	4.756 0.064 0.065 0.105
56.1 – 60.3	(2.074 0.011 0.015 0.035)$\times 10^{-1}$	(4.369 0.058 0.053 0.081)$\times 10^{-2}$	4.746 0.068 0.067 0.106

TABLE SM XLIV: Bartels Rotation 2469 (July 19, 2014 – August 14, 2014). The proton flux Φ_p, helium flux Φ_{He}, and p/He flux ratio as a function of rigidity (in units of GV) at the top of AMS in units of $[\mathrm{m}^2 \cdot \mathrm{sr} \cdot \mathrm{s} \cdot \mathrm{GV}]^{-1}$ including errors due to statistics ($\sigma_{\mathrm{stat.}}$), time dependent systematic errors (σ_{time}) and the total systematic error ($\sigma_{\mathrm{syst.}}$). Contributions to the time dependent systematic errors are from: the trigger and the reconstruction efficiency. Contributions to the total systematic error are from: the acceptance, the background contamination, the geomagnetic cutoff factor, the event selection, the unfolding, the rigidity resolution function, the absolute rigidity scale, and the time dependent systematic errors. The statistical errors for the ratio are the sum in quadrature of the relative statistical errors of the fluxes multiplied by the ratio. The time dependent systematic errors for the ratio are the sum in quadrature of the relative time dependent systematic errors of the fluxes multiplied by the ratio. The systematic errors from the acceptance for the ratio are added in quadrature. The correlations in the systematic errors from the unfolding and the absolute rigidity scale between the fluxes have been accounted for in calculating the corresponding systematic errors of the ratio. The contributions of the individual sources to the systematic error are added in quadrature to arrive at the total systematic uncertainty on the ratio.

Rigidity	Φ_p	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	Φ_{He}	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	p/He	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$
1.00 – 1.16	$(4.365$	0.027	0.066	$0.196)\times10^2$	–	–	–	–	–	–	–	–
1.16 – 1.33	$(4.636$	0.018	0.051	$0.166)\times10^2$	–	–	–	–	–	–	–	–
1.33 – 1.51	$(4.792$	0.016	0.040	$0.138)\times10^2$	–	–	–	–	–	–	–	–
1.51 – 1.71	$(4.706$	0.011	0.032	$0.123)\times10^2$	–	–	–	–	–	–	–	–
1.71 – 1.92	$(4.525$	0.010	0.026	$0.107)\times10^2$	–	–	–	–	–	–	–	–
1.92 – 2.15	$(4.232$	0.009	0.022	$0.091)\times10^2$	$(5.033$	0.033	0.060	$0.117)\times10^1$	8.409	0.057	0.109	0.255
2.15 – 2.40	$(3.858$	0.007	0.018	$0.077)\times10^2$	$(4.904$	0.029	0.050	$0.100)\times10^1$	7.867	0.049	0.088	0.213
2.40 – 2.67	$(3.458$	0.006	0.015	$0.065)\times10^2$	$(4.638$	0.025	0.043	$0.086)\times10^1$	7.456	0.042	0.077	0.186
2.67 – 2.97	$(3.057$	0.005	0.013	$0.053)\times10^2$	$(4.252$	0.021	0.038	$0.075)\times10^1$	7.190	0.038	0.071	0.169
2.97 – 3.29	$(2.671$	0.004	0.011	$0.044)\times10^2$	$(3.832$	0.018	0.032	$0.065)\times10^1$	6.970	0.035	0.065	0.157
3.29 – 3.64	$(2.303$	0.004	0.010	$0.037)\times10^2$	$(3.388$	0.015	0.026	$0.056)\times10^1$	6.797	0.033	0.059	0.148
3.64 – 4.02	$(1.962$	0.003	0.009	$0.031)\times10^2$	$(2.932$	0.013	0.021	$0.047)\times10^1$	6.692	0.031	0.056	0.142
4.02 – 4.43	$(1.654$	0.003	0.007	$0.025)\times10^2$	$(2.555$	0.011	0.017	$0.041)\times10^1$	6.472	0.029	0.052	0.134
4.43 – 4.88	$(1.388$	0.002	0.006	$0.021)\times10^2$	$(2.153$	0.009	0.014	$0.034)\times10^1$	6.447	0.028	0.050	0.131
4.88 – 5.37	$(1.148$	0.002	0.005	$0.017)\times10^2$	$(1.810$	0.007	0.011	$0.028)\times10^1$	6.344	0.027	0.047	0.127
5.37 – 5.90	$(9.441$	0.014	0.036	$0.134)\times10^1$	$(1.512$	0.006	0.009	$0.023)\times10^1$	6.244	0.026	0.044	0.122
5.90 – 6.47	$(7.731$	0.011	0.029	$0.108)\times10^1$	$(1.267$	0.005	0.007	$0.019)\times10^1$	6.101	0.026	0.042	0.117
6.47 – 7.09	$(6.319$	0.009	0.023	$0.088)\times10^1$	$(1.043$	0.004	0.006	$0.016)\times10^1$	6.061	0.025	0.041	0.115
7.09 – 7.76	$(5.139$	0.008	0.018	$0.071)\times10^1$	$(8.701$	0.034	0.051	$0.132)\times10^0$	5.906	0.025	0.040	0.111
7.76 – 8.48	$(4.168$	0.006	0.015	$0.058)\times10^1$	$(7.148$	0.028	0.043	$0.108)\times10^0$	5.831	0.025	0.041	0.109
8.48 – 9.26	$(3.374$	0.005	0.012	$0.046)\times10^1$	$(5.817$	0.024	0.036	$0.088)\times10^0$	5.801	0.026	0.042	0.109
9.26 – 10.1	$(2.731$	0.005	0.010	$0.037)\times10^1$	$(4.765$	0.021	0.031	$0.073)\times10^0$	5.730	0.026	0.043	0.107
10.1 – 11.0	$(2.196$	0.004	0.008	$0.030)\times10^1$	$(3.879$	0.018	0.026	$0.059)\times10^0$	5.663	0.027	0.044	0.106
11.0 – 12.0	$(1.763$	0.003	0.007	$0.024)\times10^1$	$(3.158$	0.015	0.023	$0.049)\times10^0$	5.584	0.028	0.045	0.105
12.0 – 13.0	$(1.422$	0.003	0.006	$0.019)\times10^1$	$(2.576$	0.013	0.019	$0.041)\times10^0$	5.523	0.030	0.047	0.105
13.0 – 14.1	$(1.150$	0.002	0.005	$0.016)\times10^1$	$(2.114$	0.011	0.017	$0.033)\times10^0$	5.437	0.030	0.049	0.105
14.1 – 15.3	$(9.262$	0.019	0.040	$0.131)\times10^0$	$(1.713$	0.009	0.014	$0.027)\times10^0$	5.406	0.031	0.051	0.105
15.3 – 16.6	$(7.438$	0.016	0.033	$0.106)\times10^0$	$(1.415$	0.008	0.012	$0.023)\times10^0$	5.256	0.031	0.052	0.103

Table continued

TABLE SM XLIV: Bartels Rotation 2469 (July 19, 2014 – August 14, 2014). *(Continued).*

Rigidity	Φ_p $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	Φ_{He} $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	p/He $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$
16.6 – 18.0	$(5.969\ 0.013\ 0.027\ 0.086)\times10^{0}$	$(1.138\ 0.006\ 0.011\ 0.019)\times10^{0}$	5.244 0.032 0.054 0.105
18.0 – 19.5	$(4.801\ 0.011\ 0.023\ 0.070)\times10^{0}$	$(9.155\ 0.053\ 0.089\ 0.154)\times10^{-1}$	5.244 0.033 0.057 0.106
19.5 – 21.1	$(3.855\ 0.009\ 0.019\ 0.057)\times10^{0}$	$(7.432\ 0.045\ 0.076\ 0.127)\times10^{-1}$	5.186 0.033 0.058 0.106
21.1 – 22.8	$(3.123\ 0.008\ 0.016\ 0.047)\times10^{0}$	$(6.116\ 0.038\ 0.063\ 0.105)\times10^{-1}$	5.107 0.034 0.059 0.105
22.8 – 24.7	$(2.513\ 0.006\ 0.013\ 0.038)\times10^{0}$	$(5.013\ 0.031\ 0.052\ 0.086)\times10^{-1}$	5.013 0.034 0.058 0.104
24.7 – 26.7	$(2.014\ 0.005\ 0.011\ 0.031)\times10^{0}$	$(4.049\ 0.027\ 0.043\ 0.070)\times10^{-1}$	4.973 0.036 0.059 0.103
26.7 – 28.8	$(1.623\ 0.005\ 0.009\ 0.025)\times10^{0}$	$(3.297\ 0.023\ 0.036\ 0.057)\times10^{-1}$	4.923 0.038 0.060 0.103
28.8 – 31.1	$(1.312\ 0.004\ 0.007\ 0.020)\times10^{0}$	$(2.695\ 0.020\ 0.030\ 0.047)\times10^{-1}$	4.868 0.039 0.060 0.103
31.1 – 33.5	$(1.067\ 0.003\ 0.006\ 0.017)\times10^{0}$	$(2.181\ 0.018\ 0.024\ 0.039)\times10^{-1}$	4.892 0.043 0.062 0.104
33.5 – 36.1	$(8.650\ 0.030\ 0.052\ 0.133)\times10^{-1}$	$(1.805\ 0.015\ 0.021\ 0.033)\times10^{-1}$	4.793 0.044 0.062 0.103
36.1 – 38.9	$(7.005\ 0.026\ 0.043\ 0.108)\times10^{-1}$	$(1.464\ 0.013\ 0.017\ 0.027)\times10^{-1}$	4.784 0.047 0.063 0.104
38.9 – 41.9	$(5.719\ 0.023\ 0.036\ 0.089)\times10^{-1}$	$(1.221\ 0.012\ 0.014\ 0.022)\times10^{-1}$	4.684 0.049 0.063 0.102
41.9 – 45.1	$(4.638\ 0.020\ 0.030\ 0.073)\times10^{-1}$	$(9.853\ 0.102\ 0.119\ 0.182)\times10^{-2}$	4.707 0.053 0.064 0.104
45.1 – 48.5	$(3.761\ 0.017\ 0.025\ 0.060)\times10^{-1}$	$(8.154\ 0.089\ 0.100\ 0.152)\times10^{-2}$	4.612 0.055 0.064 0.103
48.5 – 52.2	$(3.072\ 0.015\ 0.021\ 0.050)\times10^{-1}$	$(6.591\ 0.077\ 0.082\ 0.124)\times10^{-2}$	4.661 0.059 0.066 0.105
52.2 – 56.1	$(2.514\ 0.013\ 0.017\ 0.042)\times10^{-1}$	$(5.438\ 0.068\ 0.069\ 0.103)\times10^{-2}$	4.624 0.062 0.067 0.104
56.1 – 60.3	$(2.062\ 0.011\ 0.014\ 0.034)\times10^{-1}$	$(4.451\ 0.059\ 0.057\ 0.085)\times10^{-2}$	4.632 0.066 0.068 0.106

TABLE SM XLV: Bartels Rotation 2470 (August 15, 2014 – September 10, 2014). The proton flux Φ_p, helium flux Φ_{He}, and p/He flux ratio as a function of rigidity (in units of GV) at the top of AMS in units of $[\mathrm{m}^2 \cdot \mathrm{sr} \cdot \mathrm{s} \cdot \mathrm{GV}]^{-1}$ including errors due to statistics ($\sigma_{\mathrm{stat.}}$), time dependent systematic errors (σ_{time}) and the total systematic error ($\sigma_{\mathrm{syst.}}$). Contributions to the time dependent systematic errors are from: the trigger and the reconstruction efficiency. Contributions to the total systematic error are from: the acceptance, the background contamination, the geomagnetic cutoff factor, the event selection, the unfolding, the rigidity resolution function, the absolute rigidity scale, and the time dependent systematic errors. The statistical errors for the ratio are the sum in quadrature of the relative statistical errors of the fluxes multiplied by the ratio. The time dependent systematic errors for the ratio are the sum in quadrature of the relative time dependent systematic errors of the fluxes multiplied by the ratio. The systematic errors from the acceptance for the ratio are added in quadrature. The correlations in the systematic errors from the unfolding and the absolute rigidity scale between the fluxes have been accounted for in calculating the corresponding systematic errors of the ratio. The contributions of the individual sources to the systematic error are added in quadrature to arrive at the total systematic uncertainty on the ratio.

Rigidity	Φ_p	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	Φ_{He}	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	p/He	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$
1.00 – 1.16	$(5.328$	0.028	0.074	$0.238)\times10^2$	–	–	–	–	–	–	–	–
1.16 – 1.33	$(5.393$	0.019	0.055	$0.192)\times10^2$	–	–	–	–	–	–	–	–
1.33 – 1.51	$(5.307$	0.016	0.041	$0.152)\times10^2$	–	–	–	–	–	–	–	–
1.51 – 1.71	$(5.169$	0.012	0.033	$0.134)\times10^2$	–	–	–	–	–	–	–	–
1.71 – 1.92	$(4.895$	0.011	0.027	$0.115)\times10^2$	–	–	–	–	–	–	–	–
1.92 – 2.15	$(4.529$	0.009	0.023	$0.097)\times10^2$	$(5.392$	0.034	0.055	$0.121)\times10^1$	8.399	0.056	0.095	0.249
2.15 – 2.40	$(4.092$	0.008	0.019	$0.082)\times10^2$	$(5.259$	0.030	0.046	$0.104)\times10^1$	7.779	0.047	0.077	0.207
2.40 – 2.67	$(3.651$	0.006	0.016	$0.069)\times10^2$	$(4.946$	0.026	0.042	$0.090)\times10^1$	7.381	0.041	0.070	0.182
2.67 – 2.97	$(3.209$	0.005	0.014	$0.056)\times10^2$	$(4.471$	0.022	0.037	$0.077)\times10^1$	7.177	0.037	0.067	0.167
2.97 – 3.29	$(2.769$	0.004	0.012	$0.046)\times10^2$	$(4.039$	0.019	0.029	$0.066)\times10^1$	6.855	0.033	0.057	0.151
3.29 – 3.64	$(2.378$	0.004	0.010	$0.038)\times10^2$	$(3.493$	0.016	0.022	$0.056)\times10^1$	6.808	0.032	0.052	0.145
3.64 – 4.02	$(2.017$	0.003	0.009	$0.032)\times10^2$	$(3.051$	0.013	0.018	$0.048)\times10^1$	6.613	0.031	0.048	0.138
4.02 – 4.43	$(1.699$	0.003	0.007	$0.026)\times10^2$	$(2.592$	0.011	0.015	$0.040)\times10^1$	6.557	0.029	0.046	0.133
4.43 – 4.88	$(1.415$	0.002	0.006	$0.021)\times10^2$	$(2.198$	0.009	0.012	$0.034)\times10^1$	6.438	0.027	0.045	0.129
4.88 – 5.37	$(1.166$	0.002	0.005	$0.017)\times10^2$	$(1.867$	0.007	0.010	$0.028)\times10^1$	6.246	0.026	0.042	0.123
5.37 – 5.90	$(9.565$	0.014	0.037	$0.136)\times10^1$	$(1.538$	0.006	0.008	$0.023)\times10^1$	6.219	0.026	0.040	0.120
5.90 – 6.47	$(7.816$	0.011	0.029	$0.109)\times10^1$	$(1.279$	0.005	0.007	$0.019)\times10^1$	6.111	0.025	0.039	0.116
6.47 – 7.09	$(6.369$	0.009	0.023	$0.089)\times10^1$	$(1.061$	0.004	0.005	$0.016)\times10^1$	6.003	0.025	0.038	0.113
7.09 – 7.76	$(5.170$	0.008	0.018	$0.071)\times10^1$	$(8.757$	0.034	0.045	$0.130)\times10^0$	5.904	0.025	0.037	0.110
7.76 – 8.48	$(4.180$	0.006	0.015	$0.058)\times10^1$	$(7.121$	0.028	0.037	$0.105)\times10^0$	5.870	0.025	0.037	0.109
8.48 – 9.26	$(3.379$	0.005	0.012	$0.046)\times10^1$	$(5.830$	0.024	0.031	$0.087)\times10^0$	5.797	0.026	0.038	0.107
9.26 – 10.1	$(2.719$	0.005	0.010	$0.037)\times10^1$	$(4.784$	0.021	0.027	$0.071)\times10^0$	5.683	0.026	0.038	0.105
10.1 – 11.0	$(2.191$	0.004	0.008	$0.030)\times10^1$	$(3.872$	0.018	0.023	$0.058)\times10^0$	5.659	0.027	0.039	0.104
11.0 – 12.0	$(1.751$	0.003	0.007	$0.024)\times10^1$	$(3.138$	0.015	0.019	$0.047)\times10^0$	5.581	0.028	0.040	0.103
12.0 – 13.0	$(1.415$	0.003	0.006	$0.019)\times10^1$	$(2.553$	0.013	0.016	$0.039)\times10^0$	5.543	0.030	0.042	0.104
13.0 – 14.1	$(1.141$	0.002	0.005	$0.016)\times10^1$	$(2.108$	0.011	0.014	$0.032)\times10^0$	5.413	0.030	0.043	0.102
14.1 – 15.3	$(9.180$	0.019	0.039	$0.129)\times10^0$	$(1.703$	0.009	0.012	$0.026)\times10^0$	5.390	0.031	0.045	0.102
15.3 – 16.6	$(7.393$	0.016	0.033	$0.105)\times10^0$	$(1.402$	0.008	0.011	$0.022)\times10^0$	5.273	0.031	0.046	0.101

Table continued

TABLE SM XLV: Bartels Rotation 2470 (August 15, 2014 – September 10, 2014). *(Continued).*

Rigidity	Φ_p $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	Φ_{He} $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	p/He $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$
16.6 – 18.0	(5.967 0.013 0.027 0.086)$\times 10^{0}$	(1.121 0.006 0.009 0.018)$\times 10^{0}$	5.321 0.033 0.048 0.103
18.0 – 19.5	(4.772 0.011 0.022 0.070)$\times 10^{0}$	(9.206 0.054 0.076 0.147)$\times 10^{-1}$	5.183 0.032 0.049 0.101
19.5 – 21.1	(3.870 0.009 0.019 0.057)$\times 10^{0}$	(7.481 0.045 0.064 0.121)$\times 10^{-1}$	5.173 0.033 0.051 0.101
21.1 – 22.8	(3.103 0.008 0.016 0.046)$\times 10^{0}$	(6.128 0.038 0.053 0.099)$\times 10^{-1}$	5.063 0.033 0.051 0.100
22.8 – 24.7	(2.505 0.006 0.013 0.038)$\times 10^{0}$	(4.895 0.031 0.043 0.080)$\times 10^{-1}$	5.118 0.035 0.052 0.102
24.7 – 26.7	(2.010 0.005 0.011 0.031)$\times 10^{0}$	(4.014 0.027 0.036 0.065)$\times 10^{-1}$	5.009 0.036 0.052 0.100
26.7 – 28.8	(1.618 0.005 0.009 0.025)$\times 10^{0}$	(3.303 0.023 0.030 0.054)$\times 10^{-1}$	4.899 0.037 0.052 0.098
28.8 – 31.1	(1.314 0.004 0.007 0.020)$\times 10^{0}$	(2.705 0.020 0.025 0.045)$\times 10^{-1}$	4.857 0.039 0.052 0.098
31.1 – 33.5	(1.060 0.003 0.006 0.016)$\times 10^{0}$	(2.200 0.018 0.021 0.037)$\times 10^{-1}$	4.817 0.042 0.053 0.098
33.5 – 36.1	(8.636 0.030 0.051 0.132)$\times 10^{-1}$	(1.795 0.015 0.017 0.031)$\times 10^{-1}$	4.810 0.044 0.054 0.099
36.1 – 38.9	(7.039 0.026 0.043 0.108)$\times 10^{-1}$	(1.465 0.013 0.014 0.025)$\times 10^{-1}$	4.804 0.047 0.055 0.100
38.9 – 41.9	(5.687 0.022 0.036 0.088)$\times 10^{-1}$	(1.180 0.012 0.012 0.020)$\times 10^{-1}$	4.820 0.051 0.057 0.101
41.9 – 45.1	(4.656 0.020 0.030 0.073)$\times 10^{-1}$	(9.971 0.102 0.104 0.174)$\times 10^{-2}$	4.670 0.052 0.057 0.099
45.1 – 48.5	(3.813 0.017 0.025 0.060)$\times 10^{-1}$	(8.161 0.090 0.088 0.144)$\times 10^{-2}$	4.672 0.055 0.059 0.100
48.5 – 52.2	(3.094 0.015 0.021 0.050)$\times 10^{-1}$	(6.565 0.077 0.073 0.118)$\times 10^{-2}$	4.713 0.060 0.061 0.102
52.2 – 56.1	(2.521 0.013 0.017 0.042)$\times 10^{-1}$	(5.352 0.067 0.062 0.097)$\times 10^{-2}$	4.711 0.064 0.063 0.103
56.1 – 60.3	(2.082 0.011 0.015 0.035)$\times 10^{-1}$	(4.336 0.058 0.052 0.080)$\times 10^{-2}$	4.801 0.070 0.066 0.107

TABLE SM XLVI: Bartels Rotation 2471 (September 11, 2014 – October 7, 2014). Days from September 30 to October 7, 2014 are not included because AMS was performing detector studies in that interval. The proton flux Φ_p, helium flux Φ_{He}, and p/He flux ratio as a function of rigidity (in units of GV) at the top of AMS in units of $[\mathrm{m}^2 \cdot \mathrm{sr} \cdot \mathrm{s} \cdot \mathrm{GV}]^{-1}$ including errors due to statistics ($\sigma_{\mathrm{stat.}}$), time dependent systematic errors (σ_{time}) and the total systematic error ($\sigma_{\mathrm{syst.}}$). Contributions to the time dependent systematic errors are from: the trigger and the reconstruction efficiency. Contributions to the total systematic error are from: the acceptance, the background contamination, the geomagnetic cutoff factor, the event selection, the unfolding, the rigidity resolution function, the absolute rigidity scale, and the time dependent systematic errors. The statistical errors for the ratio are the sum in quadrature of the relative statistical errors of the fluxes multiplied by the ratio. The time dependent systematic errors for the ratio are the sum in quadrature of the relative time dependent systematic errors of the fluxes multiplied by the ratio. The systematic errors from the acceptance for the ratio are added in quadrature. The correlations in the systematic errors from the unfolding and the absolute rigidity scale between the fluxes have been accounted for in calculating the corresponding systematic errors of the ratio. The contributions of the individual sources to the systematic error are added in quadrature to arrive at the total systematic uncertainty on the ratio.

Rigidity	Φ_p	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	Φ_{He}	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	p/He	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$
1.00 – 1.16	$(4.987$	0.034	0.084	$0.228)\times10^2$	–	–	–	–	–	–	–	–
1.16 – 1.33	$(5.130$	0.022	0.062	$0.186)\times10^2$	–	–	–	–	–	–	–	–
1.33 – 1.51	$(5.249$	0.020	0.048	$0.153)\times10^2$	–	–	–	–	–	–	–	–
1.51 – 1.71	$(5.139$	0.014	0.038	$0.135)\times10^2$	–	–	–	–	–	–	–	–
1.71 – 1.92	$(4.865$	0.013	0.031	$0.116)\times10^2$	–	–	–	–	–	–	–	–
1.92 – 2.15	$(4.513$	0.011	0.025	$0.098)\times10^2$	$(5.341$	0.041	0.071	$0.128)\times10^1$	8.449	0.068	0.122	0.262
2.15 – 2.40	$(4.086$	0.009	0.021	$0.082)\times10^2$	$(5.219$	0.036	0.060	$0.110)\times10^1$	7.830	0.057	0.098	0.217
2.40 – 2.67	$(3.625$	0.008	0.017	$0.069)\times10^2$	$(4.865$	0.031	0.051	$0.093)\times10^1$	7.452	0.050	0.086	0.190
2.67 – 2.97	$(3.175$	0.006	0.015	$0.056)\times10^2$	$(4.406$	0.026	0.044	$0.080)\times10^1$	7.207	0.045	0.080	0.173
2.97 – 3.29	$(2.746$	0.005	0.012	$0.046)\times10^2$	$(3.920$	0.022	0.037	$0.068)\times10^1$	7.004	0.042	0.073	0.161
3.29 – 3.64	$(2.357$	0.005	0.011	$0.038)\times10^2$	$(3.504$	0.019	0.030	$0.060)\times10^1$	6.727	0.038	0.066	0.150
3.64 – 4.02	$(1.997$	0.004	0.009	$0.032)\times10^2$	$(2.990$	0.016	0.024	$0.050)\times10^1$	6.680	0.038	0.062	0.145
4.02 – 4.43	$(1.673$	0.003	0.008	$0.026)\times10^2$	$(2.555$	0.013	0.020	$0.042)\times10^1$	6.549	0.035	0.059	0.138
4.43 – 4.88	$(1.391$	0.002	0.006	$0.021)\times10^2$	$(2.166$	0.010	0.016	$0.035)\times10^1$	6.424	0.033	0.056	0.133
4.88 – 5.37	$(1.142$	0.002	0.005	$0.017)\times10^2$	$(1.820$	0.009	0.013	$0.029)\times10^1$	6.277	0.032	0.052	0.128
5.37 – 5.90	$(9.423$	0.017	0.039	$0.135)\times10^1$	$(1.512$	0.007	0.010	$0.024)\times10^1$	6.231	0.032	0.050	0.124
5.90 – 6.47	$(7.655$	0.014	0.030	$0.108)\times10^1$	$(1.261$	0.006	0.009	$0.019)\times10^1$	6.073	0.031	0.048	0.119
6.47 – 7.09	$(6.221$	0.011	0.024	$0.087)\times10^1$	$(1.040$	0.005	0.007	$0.016)\times10^1$	5.980	0.030	0.047	0.116
7.09 – 7.76	$(5.043$	0.009	0.019	$0.070)\times10^1$	$(8.523$	0.041	0.059	$0.133)\times10^0$	5.917	0.030	0.047	0.114
7.76 – 8.48	$(4.088$	0.008	0.015	$0.057)\times10^1$	$(6.995$	0.034	0.050	$0.109)\times10^0$	5.844	0.030	0.048	0.112
8.48 – 9.26	$(3.294$	0.006	0.013	$0.045)\times10^1$	$(5.670$	0.029	0.042	$0.089)\times10^0$	5.809	0.031	0.049	0.112
9.26 – 10.1	$(2.653$	0.005	0.010	$0.036)\times10^1$	$(4.691$	0.025	0.037	$0.075)\times10^0$	5.655	0.032	0.050	0.109
10.1 – 11.0	$(2.152$	0.005	0.009	$0.029)\times10^1$	$(3.797$	0.021	0.031	$0.061)\times10^0$	5.668	0.034	0.052	0.110
11.0 – 12.0	$(1.725$	0.004	0.007	$0.024)\times10^1$	$(3.067$	0.018	0.027	$0.050)\times10^0$	5.623	0.034	0.054	0.110
12.0 – 13.0	$(1.381$	0.003	0.006	$0.019)\times10^1$	$(2.493$	0.016	0.023	$0.041)\times10^0$	5.539	0.037	0.056	0.110
13.0 – 14.1	$(1.125$	0.003	0.005	$0.016)\times10^1$	$(2.086$	0.013	0.020	$0.035)\times10^0$	5.394	0.037	0.057	0.108

Table continued

TABLE SM XLVI: Bartels Rotation 2471 (September 11, 2014 – October 7, 2014). *(Continued).*

Rigidity	Φ_p $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	Φ_{He} $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	p/He $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$
14.1 – 15.3	$(9.043\ 0.023\ 0.041\ 0.128)\times10^{0}$	$(1.691\ 0.011\ 0.017\ 0.028)\times10^{0}$	5.348 0.038 0.059 0.109
15.3 – 16.6	$(7.267\ 0.019\ 0.034\ 0.104)\times10^{0}$	$(1.369\ 0.009\ 0.015\ 0.024)\times10^{0}$	5.308 0.039 0.062 0.110
16.6 – 18.0	$(5.861\ 0.016\ 0.029\ 0.085)\times10^{0}$	$(1.100\ 0.008\ 0.012\ 0.020)\times10^{0}$	5.327 0.040 0.065 0.112
18.0 – 19.5	$(4.717\ 0.013\ 0.024\ 0.070)\times10^{0}$	$(9.073\ 0.065\ 0.107\ 0.164)\times10^{-1}$	5.199 0.040 0.067 0.111
19.5 – 21.1	$(3.788\ 0.011\ 0.020\ 0.057)\times10^{0}$	$(7.454\ 0.054\ 0.092\ 0.137)\times10^{-1}$	5.082 0.040 0.068 0.110
21.1 – 22.8	$(3.072\ 0.009\ 0.017\ 0.046)\times10^{0}$	$(6.032\ 0.045\ 0.075\ 0.112)\times10^{-1}$	5.092 0.041 0.069 0.111
22.8 – 24.7	$(2.487\ 0.007\ 0.014\ 0.038)\times10^{0}$	$(4.882\ 0.037\ 0.061\ 0.091)\times10^{-1}$	5.095 0.042 0.070 0.112
24.7 – 26.7	$(2.000\ 0.006\ 0.012\ 0.031)\times10^{0}$	$(4.053\ 0.033\ 0.051\ 0.076)\times10^{-1}$	4.934 0.043 0.069 0.109
26.7 – 28.8	$(1.599\ 0.006\ 0.010\ 0.025)\times10^{0}$	$(3.295\ 0.028\ 0.042\ 0.062)\times10^{-1}$	4.852 0.045 0.069 0.107
28.8 – 31.1	$(1.299\ 0.005\ 0.008\ 0.020)\times10^{0}$	$(2.649\ 0.024\ 0.034\ 0.050)\times10^{-1}$	4.905 0.048 0.070 0.110
31.1 – 33.5	$(1.056\ 0.004\ 0.007\ 0.017)\times10^{0}$	$(2.167\ 0.021\ 0.029\ 0.041)\times10^{-1}$	4.873 0.052 0.071 0.109
33.5 – 36.1	$(8.555\ 0.036\ 0.056\ 0.133)\times10^{-1}$	$(1.813\ 0.019\ 0.024\ 0.035)\times10^{-1}$	4.720 0.052 0.070 0.107
36.1 – 38.9	$(7.005\ 0.031\ 0.047\ 0.110)\times10^{-1}$	$(1.447\ 0.016\ 0.020\ 0.028)\times10^{-1}$	4.841 0.058 0.073 0.111
38.9 – 41.9	$(5.686\ 0.027\ 0.039\ 0.090)\times10^{-1}$	$(1.199\ 0.014\ 0.016\ 0.023)\times10^{-1}$	4.742 0.060 0.073 0.110
41.9 – 45.1	$(4.676\ 0.024\ 0.033\ 0.074)\times10^{-1}$	$(9.950\ 0.124\ 0.139\ 0.196)\times10^{-2}$	4.699 0.063 0.073 0.109
45.1 – 48.5	$(3.746\ 0.021\ 0.027\ 0.060)\times10^{-1}$	$(8.069\ 0.108\ 0.114\ 0.160)\times10^{-2}$	4.642 0.067 0.074 0.109
48.5 – 52.2	$(3.069\ 0.018\ 0.023\ 0.050)\times10^{-1}$	$(6.308\ 0.091\ 0.090\ 0.126)\times10^{-2}$	4.865 0.076 0.079 0.115
52.2 – 56.1	$(2.539\ 0.016\ 0.020\ 0.043)\times10^{-1}$	$(5.383\ 0.081\ 0.078\ 0.109)\times10^{-2}$	4.716 0.077 0.077 0.112
56.1 – 60.3	$(2.046\ 0.014\ 0.016\ 0.035)\times10^{-1}$	$(4.428\ 0.071\ 0.065\ 0.090)\times10^{-2}$	4.619 0.080 0.077 0.111

TABLE SM XLVII: Bartels Rotation 2474 (December 1, 2014 – December 27, 2014). The proton flux Φ_p, helium flux Φ_{He}, and p/He flux ratio as a function of rigidity (in units of GV) at the top of AMS in units of $[\mathrm{m}^2 \cdot \mathrm{sr} \cdot \mathrm{s} \cdot \mathrm{GV}]^{-1}$ including errors due to statistics ($\sigma_{\mathrm{stat.}}$), time dependent systematic errors (σ_{time}) and the total systematic error ($\sigma_{\mathrm{syst.}}$). Contributions to the time dependent systematic errors are from: the trigger and the reconstruction efficiency. Contributions to the total systematic error are from: the acceptance, the background contamination, the geomagnetic cutoff factor, the event selection, the unfolding, the rigidity resolution function, the absolute rigidity scale, and the time dependent systematic errors. The statistical errors for the ratio are the sum in quadrature of the relative statistical errors of the fluxes multiplied by the ratio. The time dependent systematic errors for the ratio are the sum in quadrature of the relative time dependent systematic errors of the fluxes multiplied by the ratio. The systematic errors from the acceptance for the ratio are added in quadrature. The correlations in the systematic errors from the unfolding and the absolute rigidity scale between the fluxes have been accounted for in calculating the corresponding systematic errors of the ratio. The contributions of the individual sources to the systematic error are added in quadrature to arrive at the total systematic uncertainty on the ratio.

Rigidity	Φ_p	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	Φ_{He}	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	p/He	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$
1.00 – 1.16	$(5.418$	0.028	0.074	$0.241)\times10^2$	–	–	–	–	–	–	–	–
1.16 – 1.33	$(5.584$	0.019	0.055	$0.198)\times10^2$	–	–	–	–	–	–	–	–
1.33 – 1.51	$(5.542$	0.017	0.042	$0.159)\times10^2$	–	–	–	–	–	–	–	–
1.51 – 1.71	$(5.303$	0.012	0.034	$0.138)\times10^2$	–	–	–	–	–	–	–	–
1.71 – 1.92	$(4.964$	0.010	0.027	$0.117)\times10^2$	–	–	–	–	–	–	–	–
1.92 – 2.15	$(4.514$	0.009	0.022	$0.097)\times10^2$	$(5.372$	0.034	0.058	$0.122)\times10^1$	8.402	0.056	0.099	0.251
2.15 – 2.40	$(4.027$	0.007	0.019	$0.080)\times10^2$	$(5.127$	0.030	0.048	$0.103)\times10^1$	7.855	0.048	0.082	0.211
2.40 – 2.67	$(3.534$	0.006	0.015	$0.067)\times10^2$	$(4.702$	0.025	0.043	$0.087)\times10^1$	7.515	0.042	0.076	0.187
2.67 – 2.97	$(3.074$	0.005	0.013	$0.054)\times10^2$	$(4.278$	0.021	0.038	$0.075)\times10^1$	7.184	0.038	0.070	0.169
2.97 – 3.29	$(2.646$	0.004	0.011	$0.044)\times10^2$	$(3.793$	0.018	0.029	$0.063)\times10^1$	6.975	0.035	0.061	0.155
3.29 – 3.64	$(2.253$	0.004	0.010	$0.036)\times10^2$	$(3.336$	0.015	0.023	$0.054)\times10^1$	6.754	0.033	0.054	0.145
3.64 – 4.02	$(1.897$	0.003	0.008	$0.030)\times10^2$	$(2.849$	0.013	0.018	$0.045)\times10^1$	6.658	0.032	0.051	0.140
4.02 – 4.43	$(1.593$	0.003	0.007	$0.024)\times10^2$	$(2.430$	0.010	0.015	$0.038)\times10^1$	6.558	0.030	0.049	0.134
4.43 – 4.88	$(1.325$	0.002	0.006	$0.020)\times10^2$	$(2.053$	0.008	0.012	$0.032)\times10^1$	6.453	0.028	0.047	0.130
4.88 – 5.37	$(1.088$	0.002	0.004	$0.016)\times10^2$	$(1.722$	0.007	0.010	$0.026)\times10^1$	6.319	0.027	0.045	0.126
5.37 – 5.90	$(8.931$	0.014	0.034	$0.127)\times10^1$	$(1.427$	0.006	0.008	$0.022)\times10^1$	6.261	0.027	0.043	0.122
5.90 – 6.47	$(7.314$	0.011	0.027	$0.102)\times10^1$	$(1.180$	0.005	0.007	$0.018)\times10^1$	6.198	0.027	0.041	0.119
6.47 – 7.09	$(5.952$	0.009	0.022	$0.083)\times10^1$	$(9.881$	0.040	0.055	$0.148)\times10^0$	6.024	0.026	0.040	0.114
7.09 – 7.76	$(4.834$	0.007	0.017	$0.067)\times10^1$	$(8.154$	0.033	0.045	$0.123)\times10^0$	5.928	0.025	0.039	0.111
7.76 – 8.48	$(3.934$	0.006	0.014	$0.054)\times10^1$	$(6.656$	0.027	0.038	$0.100)\times10^0$	5.911	0.026	0.040	0.110
8.48 – 9.26	$(3.171$	0.005	0.012	$0.043)\times10^1$	$(5.464$	0.023	0.032	$0.082)\times10^0$	5.803	0.026	0.040	0.108
9.26 – 10.1	$(2.565$	0.004	0.009	$0.035)\times10^1$	$(4.476$	0.020	0.027	$0.068)\times10^0$	5.730	0.027	0.041	0.107
10.1 – 11.0	$(2.066$	0.004	0.008	$0.028)\times10^1$	$(3.661$	0.017	0.023	$0.055)\times10^0$	5.642	0.028	0.042	0.105
11.0 – 12.0	$(1.666$	0.003	0.006	$0.023)\times10^1$	$(2.996$	0.014	0.020	$0.046)\times10^0$	5.560	0.029	0.043	0.104
12.0 – 13.0	$(1.352$	0.003	0.005	$0.018)\times10^1$	$(2.419$	0.013	0.017	$0.037)\times10^0$	5.591	0.031	0.045	0.106
13.0 – 14.1	$(1.094$	0.002	0.005	$0.015)\times10^1$	$(1.981$	0.011	0.015	$0.031)\times10^0$	5.524	0.032	0.047	0.105
14.1 – 15.3	$(8.801$	0.019	0.038	$0.124)\times10^0$	$(1.632$	0.009	0.013	$0.025)\times10^0$	5.393	0.032	0.048	0.103
15.3 – 16.6	$(7.139$	0.016	0.031	$0.101)\times10^0$	$(1.327$	0.008	0.011	$0.021)\times10^0$	5.378	0.033	0.050	0.104

Table continued

TABLE SM XLVII: Bartels Rotation 2474 (December 1, 2014 – December 27, 2014). *(Continued).*

Rigidity	Φ_p $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	Φ_{He} $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	p/He $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$
16.6 – 18.0	$(5.729\ 0.013\ 0.026\ 0.082)\times10^{0}$	$(1.085\ 0.006\ 0.009\ 0.018)\times10^{0}$	5.282 0.033 0.051 0.104
18.0 – 19.5	$(4.621\ 0.011\ 0.022\ 0.068)\times10^{0}$	$(8.783\ 0.052\ 0.079\ 0.144)\times10^{-1}$	5.262 0.034 0.053 0.104
19.5 – 21.1	$(3.729\ 0.009\ 0.018\ 0.055)\times10^{0}$	$(7.195\ 0.044\ 0.067\ 0.119)\times10^{-1}$	5.182 0.034 0.054 0.103
21.1 – 22.8	$(3.039\ 0.007\ 0.015\ 0.045)\times10^{0}$	$(5.919\ 0.037\ 0.056\ 0.098)\times10^{-1}$	5.133 0.035 0.055 0.103
22.8 – 24.7	$(2.424\ 0.006\ 0.013\ 0.036)\times10^{0}$	$(4.831\ 0.031\ 0.046\ 0.080)\times10^{-1}$	5.018 0.034 0.054 0.101
24.7 – 26.7	$(1.964\ 0.005\ 0.011\ 0.030)\times10^{0}$	$(3.937\ 0.026\ 0.038\ 0.066)\times10^{-1}$	4.987 0.036 0.055 0.101
26.7 – 28.8	$(1.583\ 0.005\ 0.009\ 0.024)\times10^{0}$	$(3.212\ 0.023\ 0.031\ 0.054)\times10^{-1}$	4.928 0.038 0.055 0.100
28.8 – 31.1	$(1.286\ 0.004\ 0.007\ 0.020)\times10^{0}$	$(2.650\ 0.020\ 0.026\ 0.045)\times10^{-1}$	4.854 0.039 0.055 0.100
31.1 – 33.5	$(1.040\ 0.003\ 0.006\ 0.016)\times10^{0}$	$(2.139\ 0.017\ 0.021\ 0.037)\times10^{-1}$	4.861 0.043 0.056 0.100
33.5 – 36.1	$(8.439\ 0.030\ 0.050\ 0.130)\times10^{-1}$	$(1.740\ 0.015\ 0.018\ 0.030)\times10^{-1}$	4.849 0.045 0.058 0.101
36.1 – 38.9	$(6.915\ 0.026\ 0.042\ 0.107)\times10^{-1}$	$(1.416\ 0.013\ 0.015\ 0.025)\times10^{-1}$	4.883 0.049 0.059 0.103
38.9 – 41.9	$(5.628\ 0.022\ 0.035\ 0.087)\times10^{-1}$	$(1.165\ 0.011\ 0.012\ 0.020)\times10^{-1}$	4.832 0.051 0.060 0.103
41.9 – 45.1	$(4.614\ 0.020\ 0.030\ 0.072)\times10^{-1}$	$(9.563\ 0.100\ 0.106\ 0.170)\times10^{-2}$	4.825 0.054 0.062 0.104
45.1 – 48.5	$(3.737\ 0.017\ 0.025\ 0.059)\times10^{-1}$	$(7.943\ 0.088\ 0.090\ 0.143)\times10^{-2}$	4.705 0.056 0.062 0.103
48.5 – 52.2	$(3.053\ 0.015\ 0.020\ 0.049)\times10^{-1}$	$(6.388\ 0.075\ 0.075\ 0.117)\times10^{-2}$	4.780 0.061 0.065 0.105
52.2 – 56.1	$(2.488\ 0.013\ 0.017\ 0.041)\times10^{-1}$	$(5.439\ 0.068\ 0.066\ 0.101)\times10^{-2}$	4.575 0.062 0.064 0.102
56.1 – 60.3	$(2.038\ 0.011\ 0.014\ 0.034)\times10^{-1}$	$(4.376\ 0.058\ 0.055\ 0.082)\times10^{-2}$	4.657 0.067 0.067 0.105

TABLE SM XLVIII: Bartels Rotation 2475 (December 28, 2014 – January 23, 2015). The proton flux Φ_p, helium flux Φ_{He}, and p/He flux ratio as a function of rigidity (in units of GV) at the top of AMS in units of $[\mathrm{m}^2 \cdot \mathrm{sr} \cdot \mathrm{s} \cdot \mathrm{GV}]^{-1}$ including errors due to statistics ($\sigma_{\mathrm{stat.}}$), time dependent systematic errors (σ_{time}) and the total systematic error ($\sigma_{\mathrm{syst.}}$). Contributions to the time dependent systematic errors are from: the trigger and the reconstruction efficiency. Contributions to the total systematic error are from: the acceptance, the background contamination, the geomagnetic cutoff factor, the event selection, the unfolding, the rigidity resolution function, the absolute rigidity scale, and the time dependent systematic errors. The statistical errors for the ratio are the sum in quadrature of the relative statistical errors of the fluxes multiplied by the ratio. The time dependent systematic errors for the ratio are the sum in quadrature of the relative time dependent systematic errors of the fluxes multiplied by the ratio. The systematic errors from the acceptance for the ratio are added in quadrature. The correlations in the systematic errors from the unfolding and the absolute rigidity scale between the fluxes have been accounted for in calculating the corresponding systematic errors of the ratio. The contributions of the individual sources to the systematic error are added in quadrature to arrive at the total systematic uncertainty on the ratio.

Rigidity	Φ_p	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	Φ_{He}	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	p/He	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$
1.00 – 1.16	$(5.304$	0.028	0.068	$0.235)\times10^2$	–	–	–	–	–	–	–	–
1.16 – 1.33	$(5.478$	0.019	0.051	$0.193)\times10^2$	–	–	–	–	–	–	–	–
1.33 – 1.51	$(5.402$	0.016	0.039	$0.154)\times10^2$	–	–	–	–	–	–	–	–
1.51 – 1.71	$(5.177$	0.012	0.031	$0.134)\times10^2$	–	–	–	–	–	–	–	–
1.71 – 1.92	$(4.841$	0.011	0.025	$0.114)\times10^2$	–	–	–	–	–	–	–	–
1.92 – 2.15	$(4.408$	0.009	0.021	$0.095)\times10^2$	$(5.306$	0.034	0.056	$0.120)\times10^1$	8.309	0.056	0.096	0.248
2.15 – 2.40	$(3.968$	0.008	0.017	$0.079)\times10^2$	$(5.056$	0.030	0.047	$0.101)\times10^1$	7.847	0.049	0.080	0.210
2.40 – 2.67	$(3.504$	0.006	0.014	$0.066)\times10^2$	$(4.653$	0.025	0.040	$0.085)\times10^1$	7.531	0.043	0.072	0.186
2.67 – 2.97	$(3.051$	0.005	0.012	$0.053)\times10^2$	$(4.230$	0.021	0.035	$0.073)\times10^1$	7.213	0.039	0.066	0.167
2.97 – 3.29	$(2.643$	0.004	0.010	$0.044)\times10^2$	$(3.789$	0.018	0.029	$0.063)\times10^1$	6.975	0.035	0.060	0.155
3.29 – 3.64	$(2.245$	0.004	0.009	$0.036)\times10^2$	$(3.325$	0.015	0.023	$0.054)\times10^1$	6.752	0.033	0.055	0.145
3.64 – 4.02	$(1.911$	0.003	0.008	$0.030)\times10^2$	$(2.874$	0.013	0.019	$0.046)\times10^1$	6.649	0.032	0.052	0.140
4.02 – 4.43	$(1.603$	0.003	0.007	$0.024)\times10^2$	$(2.456$	0.011	0.015	$0.039)\times10^1$	6.526	0.030	0.049	0.134
4.43 – 4.88	$(1.337$	0.002	0.005	$0.020)\times10^2$	$(2.061$	0.008	0.012	$0.032)\times10^1$	6.484	0.028	0.047	0.131
4.88 – 5.37	$(1.104$	0.002	0.004	$0.016)\times10^2$	$(1.742$	0.007	0.010	$0.027)\times10^1$	6.335	0.027	0.044	0.126
5.37 – 5.90	$(9.070$	0.014	0.033	$0.128)\times10^1$	$(1.461$	0.006	0.008	$0.022)\times10^1$	6.206	0.027	0.041	0.120
5.90 – 6.47	$(7.420$	0.011	0.026	$0.103)\times10^1$	$(1.213$	0.005	0.007	$0.018)\times10^1$	6.116	0.026	0.040	0.117
6.47 – 7.09	$(6.061$	0.009	0.021	$0.084)\times10^1$	$(1.012$	0.004	0.006	$0.015)\times10^1$	5.990	0.025	0.039	0.113
7.09 – 7.76	$(4.933$	0.007	0.017	$0.068)\times10^1$	$(8.308$	0.033	0.047	$0.125)\times10^0$	5.938	0.025	0.039	0.111
7.76 – 8.48	$(3.992$	0.006	0.013	$0.055)\times10^1$	$(6.888$	0.028	0.040	$0.103)\times10^0$	5.796	0.025	0.039	0.108
8.48 – 9.26	$(3.239$	0.005	0.011	$0.044)\times10^1$	$(5.585$	0.023	0.034	$0.085)\times10^0$	5.799	0.026	0.040	0.108
9.26 – 10.1	$(2.618$	0.004	0.009	$0.035)\times10^1$	$(4.560$	0.020	0.029	$0.069)\times10^0$	5.740	0.027	0.041	0.107
10.1 – 11.0	$(2.108$	0.004	0.008	$0.028)\times10^1$	$(3.737$	0.017	0.025	$0.057)\times10^0$	5.640	0.028	0.042	0.105
11.0 – 12.0	$(1.695$	0.003	0.006	$0.023)\times10^1$	$(3.070$	0.015	0.021	$0.048)\times10^0$	5.522	0.028	0.043	0.103
12.0 – 13.0	$(1.366$	0.003	0.005	$0.019)\times10^1$	$(2.495$	0.013	0.018	$0.039)\times10^0$	5.474	0.030	0.045	0.104
13.0 – 14.1	$(1.109$	0.002	0.004	$0.016)\times10^1$	$(2.030$	0.011	0.016	$0.032)\times10^0$	5.464	0.031	0.047	0.105
14.1 – 15.3	$(8.923$	0.019	0.036	$0.125)\times10^0$	$(1.663$	0.009	0.013	$0.026)\times10^0$	5.366	0.031	0.048	0.103
15.3 – 16.6	$(7.194$	0.016	0.030	$0.102)\times10^0$	$(1.362$	0.008	0.012	$0.022)\times10^0$	5.283	0.032	0.050	0.103

Table continued

TABLE SM XLVIII: Bartels Rotation 2475 (December 28, 2014 – January 23, 2015). *(Continued).*

Rigidity	Φ_p $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	Φ_{He} $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	p/He $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$
16.6 – 18.0	$(5.792\ 0.013\ 0.025\ 0.083)\times10^{0}$	$(1.090\ 0.006\ 0.010\ 0.018)\times10^{0}$	5.314 0.033 0.053 0.105
18.0 – 19.5	$(4.659\ 0.011\ 0.021\ 0.068)\times10^{0}$	$(8.908\ 0.053\ 0.084\ 0.148)\times10^{-1}$	5.231 0.033 0.054 0.104
19.5 – 21.1	$(3.771\ 0.009\ 0.017\ 0.056)\times10^{0}$	$(7.341\ 0.044\ 0.072\ 0.124)\times10^{-1}$	5.137 0.033 0.056 0.103
21.1 – 22.8	$(3.028\ 0.007\ 0.014\ 0.045)\times10^{0}$	$(5.967\ 0.037\ 0.059\ 0.101)\times10^{-1}$	5.074 0.034 0.056 0.103
22.8 – 24.7	$(2.449\ 0.006\ 0.012\ 0.036)\times10^{0}$	$(4.845\ 0.031\ 0.049\ 0.082)\times10^{-1}$	5.055 0.034 0.057 0.103
24.7 – 26.7	$(1.969\ 0.005\ 0.010\ 0.030)\times10^{0}$	$(3.959\ 0.027\ 0.040\ 0.068)\times10^{-1}$	4.974 0.036 0.057 0.102
26.7 – 28.8	$(1.597\ 0.005\ 0.008\ 0.024)\times10^{0}$	$(3.192\ 0.023\ 0.033\ 0.055)\times10^{-1}$	5.002 0.039 0.058 0.103
28.8 – 31.1	$(1.284\ 0.004\ 0.007\ 0.020)\times10^{0}$	$(2.592\ 0.020\ 0.027\ 0.045)\times10^{-1}$	4.955 0.040 0.059 0.103
31.1 – 33.5	$(1.048\ 0.003\ 0.006\ 0.016)\times10^{0}$	$(2.134\ 0.017\ 0.023\ 0.037)\times10^{-1}$	4.910 0.043 0.059 0.103
33.5 – 36.1	$(8.480\ 0.029\ 0.047\ 0.129)\times10^{-1}$	$(1.779\ 0.015\ 0.020\ 0.032)\times10^{-1}$	4.766 0.044 0.059 0.101
36.1 – 38.9	$(6.898\ 0.026\ 0.039\ 0.105)\times10^{-1}$	$(1.441\ 0.013\ 0.016\ 0.026)\times10^{-1}$	4.786 0.047 0.060 0.102
38.9 – 41.9	$(5.619\ 0.022\ 0.033\ 0.086)\times10^{-1}$	$(1.169\ 0.011\ 0.013\ 0.021)\times10^{-1}$	4.805 0.051 0.062 0.103
41.9 – 45.1	$(4.612\ 0.020\ 0.028\ 0.071)\times10^{-1}$	$(9.567\ 0.100\ 0.112\ 0.174)\times10^{-2}$	4.821 0.054 0.063 0.104
45.1 – 48.5	$(3.720\ 0.017\ 0.023\ 0.058)\times10^{-1}$	$(7.799\ 0.087\ 0.093\ 0.143)\times10^{-2}$	4.770 0.057 0.064 0.105
48.5 – 52.2	$(3.076\ 0.015\ 0.019\ 0.049)\times10^{-1}$	$(6.377\ 0.075\ 0.077\ 0.118)\times10^{-2}$	4.824 0.061 0.066 0.106
52.2 – 56.1	$(2.500\ 0.013\ 0.016\ 0.041)\times10^{-1}$	$(5.297\ 0.066\ 0.065\ 0.099)\times10^{-2}$	4.720 0.064 0.065 0.105
56.1 – 60.3	$(2.046\ 0.011\ 0.013\ 0.034)\times10^{-1}$	$(4.379\ 0.058\ 0.055\ 0.082)\times10^{-2}$	4.671 0.067 0.066 0.104

TABLE SM XLIX: Bartels Rotation 2476 (January 24, 2015 – February 19, 2015). The proton flux Φ_p, helium flux Φ_{He}, and p/He flux ratio as a function of rigidity (in units of GV) at the top of AMS in units of $[\mathrm{m}^2 \cdot \mathrm{sr} \cdot \mathrm{s} \cdot \mathrm{GV}]^{-1}$ including errors due to statistics ($\sigma_{\mathrm{stat.}}$), time dependent systematic errors (σ_{time}) and the total systematic error ($\sigma_{\mathrm{syst.}}$). Contributions to the time dependent systematic errors are from: the trigger and the reconstruction efficiency. Contributions to the total systematic error are from: the acceptance, the background contamination, the geomagnetic cutoff factor, the event selection, the unfolding, the rigidity resolution function, the absolute rigidity scale, and the time dependent systematic errors. The statistical errors for the ratio are the sum in quadrature of the relative statistical errors of the fluxes multiplied by the ratio. The time dependent systematic errors for the ratio are the sum in quadrature of the relative time dependent systematic errors of the fluxes multiplied by the ratio. The systematic errors from the acceptance for the ratio are added in quadrature. The correlations in the systematic errors from the unfolding and the absolute rigidity scale between the fluxes have been accounted for in calculating the corresponding systematic errors of the ratio. The contributions of the individual sources to the systematic error are added in quadrature to arrive at the total systematic uncertainty on the ratio.

Rigidity	Φ_p	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	Φ_{He}	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	p/He	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$
1.00 – 1.16	$(5.335$	0.028	0.076	$0.239)\times10^2$	–	–	–	–	–	–	–	–
1.16 – 1.33	$(5.442$	0.018	0.056	$0.194)\times10^2$	–	–	–	–	–	–	–	–
1.33 – 1.51	$(5.394$	0.016	0.042	$0.155)\times10^2$	–	–	–	–	–	–	–	–
1.51 – 1.71	$(5.195$	0.012	0.033	$0.135)\times10^2$	–	–	–	–	–	–	–	–
1.71 – 1.92	$(4.863$	0.010	0.027	$0.114)\times10^2$	–	–	–	–	–	–	–	–
1.92 – 2.15	$(4.428$	0.009	0.022	$0.095)\times10^2$	$(5.223$	0.034	0.060	$0.121)\times10^1$	8.477	0.057	0.106	0.256
2.15 – 2.40	$(3.958$	0.007	0.018	$0.079)\times10^2$	$(5.054$	0.029	0.051	$0.103)\times10^1$	7.830	0.048	0.087	0.212
2.40 – 2.67	$(3.514$	0.006	0.015	$0.066)\times10^2$	$(4.700$	0.025	0.046	$0.088)\times10^1$	7.477	0.042	0.079	0.188
2.67 – 2.97	$(3.064$	0.005	0.013	$0.053)\times10^2$	$(4.253$	0.021	0.040	$0.076)\times10^1$	7.203	0.038	0.074	0.171
2.97 – 3.29	$(2.641$	0.004	0.011	$0.044)\times10^2$	$(3.799$	0.018	0.031	$0.064)\times10^1$	6.953	0.035	0.064	0.156
3.29 – 3.64	$(2.264$	0.004	0.010	$0.036)\times10^2$	$(3.328$	0.015	0.024	$0.055)\times10^1$	6.803	0.033	0.058	0.148
3.64 – 4.02	$(1.920$	0.003	0.008	$0.030)\times10^2$	$(2.861$	0.013	0.019	$0.046)\times10^1$	6.712	0.032	0.054	0.142
4.02 – 4.43	$(1.610$	0.003	0.007	$0.025)\times10^2$	$(2.464$	0.010	0.016	$0.039)\times10^1$	6.534	0.030	0.051	0.135
4.43 – 4.88	$(1.338$	0.002	0.006	$0.020)\times10^2$	$(2.078$	0.008	0.013	$0.032)\times10^1$	6.437	0.028	0.049	0.131
4.88 – 5.37	$(1.105$	0.002	0.005	$0.016)\times10^2$	$(1.733$	0.007	0.011	$0.027)\times10^1$	6.378	0.027	0.047	0.128
5.37 – 5.90	$(9.087$	0.014	0.035	$0.129)\times10^1$	$(1.457$	0.006	0.009	$0.022)\times10^1$	6.239	0.027	0.045	0.122
5.90 – 6.47	$(7.427$	0.011	0.028	$0.104)\times10^1$	$(1.213$	0.005	0.007	$0.018)\times10^1$	6.124	0.026	0.043	0.118
6.47 – 7.09	$(6.066$	0.009	0.022	$0.084)\times10^1$	$(1.004$	0.004	0.006	$0.015)\times10^1$	6.044	0.026	0.042	0.115
7.09 – 7.76	$(4.926$	0.007	0.018	$0.068)\times10^1$	$(8.268$	0.033	0.050	$0.126)\times10^0$	5.958	0.025	0.042	0.113
7.76 – 8.48	$(3.999$	0.006	0.014	$0.055)\times10^1$	$(6.828$	0.028	0.042	$0.103)\times10^0$	5.857	0.025	0.041	0.110
8.48 – 9.26	$(3.235$	0.005	0.012	$0.044)\times10^1$	$(5.574$	0.023	0.035	$0.085)\times10^0$	5.803	0.026	0.042	0.109
9.26 – 10.1	$(2.611$	0.004	0.010	$0.035)\times10^1$	$(4.587$	0.020	0.030	$0.070)\times10^0$	5.691	0.027	0.043	0.107
10.1 – 11.0	$(2.106$	0.004	0.008	$0.028)\times10^1$	$(3.707$	0.017	0.025	$0.057)\times10^0$	5.681	0.028	0.045	0.107
11.0 – 12.0	$(1.696$	0.003	0.007	$0.023)\times10^1$	$(3.030$	0.014	0.022	$0.047)\times10^0$	5.596	0.028	0.046	0.106
12.0 – 13.0	$(1.371$	0.003	0.005	$0.019)\times10^1$	$(2.453$	0.013	0.019	$0.039)\times10^0$	5.588	0.031	0.048	0.107
13.0 – 14.1	$(1.113$	0.002	0.005	$0.016)\times10^1$	$(2.036$	0.011	0.016	$0.032)\times10^0$	5.464	0.031	0.049	0.106
14.1 – 15.3	$(8.994$	0.019	0.039	$0.127)\times10^0$	$(1.650$	0.009	0.014	$0.026)\times10^0$	5.451	0.032	0.052	0.106
15.3 – 16.6	$(7.197$	0.016	0.032	$0.102)\times10^0$	$(1.360$	0.008	0.012	$0.022)\times10^0$	5.293	0.032	0.052	0.104

Table continued

TABLE SM XLIX: Bartels Rotation 2476 (January 24, 2015 – February 19, 2015). *(Continued).*

Rigidity	Φ_p $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	Φ_{He} $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	p/He $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$
16.6 – 18.0	$(5.813\ 0.013\ 0.027\ 0.084)\times10^{0}$	$(1.096\ 0.006\ 0.010\ 0.018)\times10^{0}$	5.306 0.033 0.055 0.106
18.0 – 19.5	$(4.673\ 0.011\ 0.022\ 0.068)\times10^{0}$	$(8.920\ 0.053\ 0.087\ 0.150)\times10^{-1}$	5.240 0.033 0.057 0.106
19.5 – 21.1	$(3.782\ 0.009\ 0.018\ 0.056)\times10^{0}$	$(7.372\ 0.044\ 0.075\ 0.126)\times10^{-1}$	5.131 0.033 0.058 0.104
21.1 – 22.8	$(3.056\ 0.007\ 0.015\ 0.046)\times10^{0}$	$(5.976\ 0.037\ 0.061\ 0.102)\times10^{-1}$	5.115 0.034 0.058 0.105
22.8 – 24.7	$(2.463\ 0.006\ 0.013\ 0.037)\times10^{0}$	$(4.800\ 0.030\ 0.049\ 0.082)\times10^{-1}$	5.131 0.035 0.059 0.106
24.7 – 26.7	$(1.976\ 0.005\ 0.011\ 0.030)\times10^{0}$	$(3.971\ 0.027\ 0.041\ 0.068)\times10^{-1}$	4.977 0.036 0.058 0.103
26.7 – 28.8	$(1.609\ 0.005\ 0.009\ 0.024)\times10^{0}$	$(3.252\ 0.023\ 0.034\ 0.056)\times10^{-1}$	4.946 0.038 0.059 0.102
28.8 – 31.1	$(1.297\ 0.004\ 0.007\ 0.020)\times10^{0}$	$(2.674\ 0.020\ 0.028\ 0.046)\times10^{-1}$	4.850 0.039 0.058 0.101
31.1 – 33.5	$(1.052\ 0.003\ 0.006\ 0.016)\times10^{0}$	$(2.176\ 0.018\ 0.023\ 0.038)\times10^{-1}$	4.835 0.042 0.059 0.101
33.5 – 36.1	$(8.582\ 0.030\ 0.051\ 0.132)\times10^{-1}$	$(1.748\ 0.015\ 0.019\ 0.031)\times10^{-1}$	4.910 0.046 0.061 0.104
36.1 – 38.9	$(6.971\ 0.026\ 0.043\ 0.107)\times10^{-1}$	$(1.448\ 0.013\ 0.016\ 0.026)\times10^{-1}$	4.815 0.047 0.061 0.103
38.9 – 41.9	$(5.615\ 0.022\ 0.035\ 0.087)\times10^{-1}$	$(1.175\ 0.011\ 0.013\ 0.021)\times10^{-1}$	4.777 0.050 0.062 0.103
41.9 – 45.1	$(4.573\ 0.019\ 0.029\ 0.071)\times10^{-1}$	$(9.701\ 0.100\ 0.112\ 0.176)\times10^{-2}$	4.714 0.053 0.062 0.103
45.1 – 48.5	$(3.749\ 0.017\ 0.025\ 0.059)\times10^{-1}$	$(8.048\ 0.088\ 0.096\ 0.148)\times10^{-2}$	4.658 0.055 0.063 0.103
48.5 – 52.2	$(3.090\ 0.015\ 0.021\ 0.050)\times10^{-1}$	$(6.386\ 0.075\ 0.078\ 0.119)\times10^{-2}$	4.838 0.062 0.067 0.108
52.2 – 56.1	$(2.516\ 0.013\ 0.017\ 0.041)\times10^{-1}$	$(5.402\ 0.067\ 0.068\ 0.102)\times10^{-2}$	4.657 0.063 0.067 0.105
56.1 – 60.3	$(2.072\ 0.011\ 0.014\ 0.035)\times10^{-1}$	$(4.378\ 0.058\ 0.056\ 0.084)\times10^{-2}$	4.733 0.068 0.069 0.108

TABLE SM L: Bartels Rotation 2477 (February 20, 2015 – March 18, 2015). The proton flux Φ_p, helium flux Φ_{He}, and p/He flux ratio as a function of rigidity (in units of GV) at the top of AMS in units of $[\mathrm{m}^2 \cdot \mathrm{sr} \cdot \mathrm{s} \cdot \mathrm{GV}]^{-1}$ including errors due to statistics ($\sigma_{\mathrm{stat.}}$), time dependent systematic errors (σ_{time}) and the total systematic error ($\sigma_{\mathrm{syst.}}$). Contributions to the time dependent systematic errors are from: the trigger and the reconstruction efficiency. Contributions to the total systematic error are from: the acceptance, the background contamination, the geomagnetic cutoff factor, the event selection, the unfolding, the rigidity resolution function, the absolute rigidity scale, and the time dependent systematic errors. The statistical errors for the ratio are the sum in quadrature of the relative statistical errors of the fluxes multiplied by the ratio. The time dependent systematic errors for the ratio are the sum in quadrature of the relative time dependent systematic errors of the fluxes multiplied by the ratio. The systematic errors from the acceptance for the ratio are added in quadrature. The correlations in the systematic errors from the unfolding and the absolute rigidity scale between the fluxes have been accounted for in calculating the corresponding systematic errors of the ratio. The contributions of the individual sources to the systematic error are added in quadrature to arrive at the total systematic uncertainty on the ratio.

Rigidity	Φ_p	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	Φ_{He}	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	p/He	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$
1.00 – 1.16	$(4.992$	0.030	0.072	$0.223)\times10^2$	–	–	–	–	–	–	–	–
1.16 – 1.33	$(5.108$	0.018	0.053	$0.182)\times10^2$	–	–	–	–	–	–	–	–
1.33 – 1.51	$(5.065$	0.016	0.040	$0.146)\times10^2$	–	–	–	–	–	–	–	–
1.51 – 1.71	$(4.898$	0.012	0.032	$0.128)\times10^2$	–	–	–	–	–	–	–	–
1.71 – 1.92	$(4.596$	0.010	0.026	$0.108)\times10^2$	–	–	–	–	–	–	–	–
1.92 – 2.15	$(4.204$	0.009	0.021	$0.090)\times10^2$	$(5.023$	0.033	0.052	$0.113)\times10^1$	8.370	0.058	0.096	0.249
2.15 – 2.40	$(3.792$	0.007	0.017	$0.076)\times10^2$	$(4.802$	0.029	0.043	$0.095)\times10^1$	7.897	0.050	0.079	0.210
2.40 – 2.67	$(3.373$	0.006	0.014	$0.064)\times10^2$	$(4.473$	0.025	0.037	$0.080)\times10^1$	7.540	0.044	0.070	0.185
2.67 – 2.97	$(2.944$	0.005	0.012	$0.051)\times10^2$	$(4.103$	0.021	0.032	$0.070)\times10^1$	7.175	0.039	0.064	0.166
2.97 – 3.29	$(2.561$	0.004	0.010	$0.043)\times10^2$	$(3.649$	0.018	0.026	$0.060)\times10^1$	7.019	0.036	0.058	0.155
3.29 – 3.64	$(2.192$	0.004	0.009	$0.035)\times10^2$	$(3.231$	0.015	0.022	$0.052)\times10^1$	6.785	0.034	0.054	0.146
3.64 – 4.02	$(1.861$	0.003	0.008	$0.029)\times10^2$	$(2.795$	0.013	0.017	$0.044)\times10^1$	6.659	0.032	0.050	0.139
4.02 – 4.43	$(1.568$	0.003	0.007	$0.024)\times10^2$	$(2.379$	0.010	0.014	$0.037)\times10^1$	6.592	0.031	0.048	0.134
4.43 – 4.88	$(1.309$	0.002	0.005	$0.020)\times10^2$	$(2.033$	0.008	0.012	$0.031)\times10^1$	6.441	0.028	0.045	0.129
4.88 – 5.37	$(1.083$	0.002	0.004	$0.016)\times10^2$	$(1.706$	0.007	0.009	$0.026)\times10^1$	6.346	0.028	0.042	0.125
5.37 – 5.90	$(8.908$	0.014	0.033	$0.126)\times10^1$	$(1.423$	0.006	0.007	$0.021)\times10^1$	6.258	0.027	0.040	0.121
5.90 – 6.47	$(7.279$	0.011	0.026	$0.102)\times10^1$	$(1.193$	0.005	0.006	$0.018)\times10^1$	6.099	0.026	0.038	0.116
6.47 – 7.09	$(5.960$	0.009	0.021	$0.083)\times10^1$	$(9.911$	0.040	0.051	$0.147)\times10^0$	6.013	0.026	0.038	0.113
7.09 – 7.76	$(4.846$	0.007	0.017	$0.067)\times10^1$	$(8.161$	0.033	0.042	$0.122)\times10^0$	5.938	0.026	0.037	0.111
7.76 – 8.48	$(3.942$	0.006	0.014	$0.054)\times10^1$	$(6.754$	0.028	0.036	$0.100)\times10^0$	5.836	0.026	0.037	0.108
8.48 – 9.26	$(3.200$	0.005	0.011	$0.044)\times10^1$	$(5.510$	0.023	0.030	$0.082)\times10^0$	5.808	0.026	0.038	0.107
9.26 – 10.1	$(2.593$	0.004	0.009	$0.035)\times10^1$	$(4.534$	0.020	0.026	$0.068)\times10^0$	5.719	0.027	0.039	0.106
10.1 – 11.0	$(2.088$	0.004	0.008	$0.028)\times10^1$	$(3.711$	0.017	0.022	$0.056)\times10^0$	5.625	0.028	0.040	0.104
11.0 – 12.0	$(1.679$	0.003	0.006	$0.023)\times10^1$	$(3.043$	0.014	0.019	$0.046)\times10^0$	5.517	0.028	0.040	0.102
12.0 – 13.0	$(1.364$	0.003	0.005	$0.019)\times10^1$	$(2.480$	0.013	0.016	$0.038)\times10^0$	5.500	0.030	0.042	0.103
13.0 – 14.1	$(1.106$	0.002	0.004	$0.016)\times10^1$	$(2.011$	0.011	0.014	$0.031)\times10^0$	5.500	0.032	0.044	0.104
14.1 – 15.3	$(8.896$	0.019	0.037	$0.125)\times10^0$	$(1.649$	0.009	0.012	$0.025)\times10^0$	5.395	0.032	0.045	0.102
15.3 – 16.6	$(7.213$	0.016	0.031	$0.102)\times10^0$	$(1.353$	0.008	0.010	$0.021)\times10^0$	5.332	0.032	0.047	0.102

Table continued

TABLE SM L: Bartels Rotation 2477 (February 20, 2015 – March 18, 2015). *(Continued).*

Rigidity	Φ_p $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	Φ_{He} $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	p/He $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$
16.6 – 18.0	$(5.784\ 0.013\ 0.025\ 0.083)\times10^{0}$	$(1.092\ 0.006\ 0.009\ 0.018)\times10^{0}$	5.295 0.033 0.049 0.103
18.0 – 19.5	$(4.677\ 0.011\ 0.021\ 0.068)\times10^{0}$	$(8.948\ 0.053\ 0.076\ 0.144)\times10^{-1}$	5.227 0.033 0.050 0.102
19.5 – 21.1	$(3.774\ 0.009\ 0.018\ 0.056)\times10^{0}$	$(7.323\ 0.045\ 0.065\ 0.119)\times10^{-1}$	5.154 0.034 0.051 0.101
21.1 – 22.8	$(3.066\ 0.008\ 0.015\ 0.046)\times10^{0}$	$(5.967\ 0.037\ 0.053\ 0.098)\times10^{-1}$	5.139 0.035 0.052 0.102
22.8 – 24.7	$(2.466\ 0.006\ 0.012\ 0.037)\times10^{0}$	$(4.891\ 0.031\ 0.044\ 0.080)\times10^{-1}$	5.043 0.034 0.052 0.101
24.7 – 26.7	$(1.973\ 0.005\ 0.010\ 0.030)\times10^{0}$	$(3.945\ 0.027\ 0.036\ 0.065)\times10^{-1}$	5.003 0.036 0.053 0.100
26.7 – 28.8	$(1.613\ 0.005\ 0.009\ 0.024)\times10^{0}$	$(3.198\ 0.023\ 0.030\ 0.053)\times10^{-1}$	5.044 0.039 0.054 0.101
28.8 – 31.1	$(1.296\ 0.004\ 0.007\ 0.020)\times10^{0}$	$(2.645\ 0.020\ 0.025\ 0.044)\times10^{-1}$	4.899 0.040 0.054 0.099
31.1 – 33.5	$(1.056\ 0.003\ 0.006\ 0.016)\times10^{0}$	$(2.165\ 0.018\ 0.021\ 0.037)\times10^{-1}$	4.880 0.043 0.055 0.100
33.5 – 36.1	$(8.584\ 0.030\ 0.049\ 0.131)\times10^{-1}$	$(1.797\ 0.015\ 0.018\ 0.031)\times10^{-1}$	4.777 0.044 0.055 0.098
36.1 – 38.9	$(6.963\ 0.026\ 0.041\ 0.107)\times10^{-1}$	$(1.451\ 0.013\ 0.015\ 0.025)\times10^{-1}$	4.798 0.047 0.056 0.100
38.9 – 41.9	$(5.657\ 0.022\ 0.034\ 0.087)\times10^{-1}$	$(1.191\ 0.012\ 0.012\ 0.020)\times10^{-1}$	4.751 0.050 0.056 0.100
41.9 – 45.1	$(4.615\ 0.020\ 0.028\ 0.072)\times10^{-1}$	$(9.582\ 0.100\ 0.100\ 0.167)\times10^{-2}$	4.817 0.054 0.058 0.102
45.1 – 48.5	$(3.773\ 0.017\ 0.024\ 0.059)\times10^{-1}$	$(7.891\ 0.088\ 0.084\ 0.139)\times10^{-2}$	4.781 0.058 0.059 0.102
48.5 – 52.2	$(3.100\ 0.015\ 0.020\ 0.050)\times10^{-1}$	$(6.491\ 0.076\ 0.070\ 0.115)\times10^{-2}$	4.776 0.061 0.060 0.102
52.2 – 56.1	$(2.526\ 0.013\ 0.017\ 0.041)\times10^{-1}$	$(5.412\ 0.067\ 0.059\ 0.097)\times10^{-2}$	4.668 0.063 0.060 0.101
56.1 – 60.3	$(2.071\ 0.011\ 0.014\ 0.034)\times10^{-1}$	$(4.458\ 0.059\ 0.050\ 0.080)\times10^{-2}$	4.645 0.066 0.060 0.101

TABLE SM LI: Bartels Rotation 2478 (March 19, 2015 – April 14, 2015). The proton flux Φ_p, helium flux Φ_{He}, and p/He flux ratio as a function of rigidity (in units of GV) at the top of AMS in units of $[\mathrm{m}^2 \cdot \mathrm{sr} \cdot \mathrm{s} \cdot \mathrm{GV}]^{-1}$ including errors due to statistics ($\sigma_{\mathrm{stat.}}$), time dependent systematic errors (σ_{time}) and the total systematic error ($\sigma_{\mathrm{syst.}}$). Contributions to the time dependent systematic errors are from: the trigger and the reconstruction efficiency. Contributions to the total systematic error are from: the acceptance, the background contamination, the geomagnetic cutoff factor, the event selection, the unfolding, the rigidity resolution function, the absolute rigidity scale, and the time dependent systematic errors. The statistical errors for the ratio are the sum in quadrature of the relative statistical errors of the fluxes multiplied by the ratio. The time dependent systematic errors for the ratio are the sum in quadrature of the relative time dependent systematic errors of the fluxes multiplied by the ratio. The systematic errors from the acceptance for the ratio are added in quadrature. The correlations in the systematic errors from the unfolding and the absolute rigidity scale between the fluxes have been accounted for in calculating the corresponding systematic errors of the ratio. The contributions of the individual sources to the systematic error are added in quadrature to arrive at the total systematic uncertainty on the ratio.

Rigidity	Φ_p	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	Φ_{He}	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	p/He	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$
1.00 – 1.16	$(4.487$	0.028	0.064	$0.201)\times10^2$	–	–	–	–	–	–	–	–
1.16 – 1.33	$(4.600$	0.017	0.048	$0.164)\times10^2$	–	–	–	–	–	–	–	–
1.33 – 1.51	$(4.566$	0.015	0.036	$0.131)\times10^2$	–	–	–	–	–	–	–	–
1.51 – 1.71	$(4.450$	0.011	0.029	$0.116)\times10^2$	–	–	–	–	–	–	–	–
1.71 – 1.92	$(4.201$	0.010	0.023	$0.099)\times10^2$	–	–	–	–	–	–	–	–
1.92 – 2.15	$(3.868$	0.008	0.019	$0.083)\times10^2$	$(4.644$	0.032	0.050	$0.105)\times10^1$	8.330	0.060	0.098	0.249
2.15 – 2.40	$(3.485$	0.007	0.016	$0.070)\times10^2$	$(4.410$	0.028	0.040	$0.088)\times10^1$	7.904	0.052	0.080	0.211
2.40 – 2.67	$(3.109$	0.006	0.013	$0.059)\times10^2$	$(4.171$	0.024	0.037	$0.076)\times10^1$	7.454	0.045	0.073	0.185
2.67 – 2.97	$(2.738$	0.005	0.011	$0.048)\times10^2$	$(3.819$	0.020	0.033	$0.067)\times10^1$	7.169	0.041	0.069	0.168
2.97 – 3.29	$(2.391$	0.004	0.010	$0.040)\times10^2$	$(3.418$	0.017	0.025	$0.056)\times10^1$	6.995	0.037	0.059	0.155
3.29 – 3.64	$(2.060$	0.004	0.008	$0.033)\times10^2$	$(3.049$	0.015	0.019	$0.049)\times10^1$	6.756	0.035	0.051	0.144
3.64 – 4.02	$(1.760$	0.003	0.007	$0.028)\times10^2$	$(2.650$	0.012	0.016	$0.041)\times10^1$	6.641	0.033	0.048	0.138
4.02 – 4.43	$(1.487$	0.002	0.006	$0.023)\times10^2$	$(2.274$	0.010	0.013	$0.035)\times10^1$	6.537	0.031	0.046	0.133
4.43 – 4.88	$(1.250$	0.002	0.005	$0.019)\times10^2$	$(1.943$	0.008	0.011	$0.030)\times10^1$	6.435	0.029	0.044	0.129
4.88 – 5.37	$(1.037$	0.002	0.004	$0.015)\times10^2$	$(1.657$	0.007	0.009	$0.025)\times10^1$	6.254	0.028	0.042	0.123
5.37 – 5.90	$(8.559$	0.013	0.031	$0.121)\times10^1$	$(1.386$	0.006	0.007	$0.021)\times10^1$	6.175	0.027	0.039	0.119
5.90 – 6.47	$(7.068$	0.011	0.025	$0.099)\times10^1$	$(1.162$	0.005	0.006	$0.017)\times10^1$	6.084	0.027	0.038	0.115
6.47 – 7.09	$(5.798$	0.009	0.020	$0.080)\times10^1$	$(9.670$	0.039	0.050	$0.144)\times10^0$	5.996	0.026	0.037	0.113
7.09 – 7.76	$(4.750$	0.007	0.016	$0.065)\times10^1$	$(7.983$	0.033	0.040	$0.119)\times10^0$	5.951	0.026	0.036	0.111
7.76 – 8.48	$(3.865$	0.006	0.013	$0.053)\times10^1$	$(6.595$	0.027	0.034	$0.097)\times10^0$	5.860	0.026	0.036	0.108
8.48 – 9.26	$(3.144$	0.005	0.011	$0.043)\times10^1$	$(5.443$	0.023	0.028	$0.081)\times10^0$	5.776	0.026	0.036	0.106
9.26 – 10.1	$(2.550$	0.004	0.009	$0.034)\times10^1$	$(4.463$	0.020	0.024	$0.066)\times10^0$	5.714	0.027	0.037	0.105
10.1 – 11.0	$(2.067$	0.004	0.007	$0.028)\times10^1$	$(3.663$	0.017	0.021	$0.054)\times10^0$	5.642	0.028	0.038	0.103
11.0 – 12.0	$(1.663$	0.003	0.006	$0.022)\times10^1$	$(2.979$	0.014	0.018	$0.045)\times10^0$	5.581	0.029	0.039	0.102
12.0 – 13.0	$(1.348$	0.003	0.005	$0.018)\times10^1$	$(2.436$	0.013	0.015	$0.037)\times10^0$	5.536	0.031	0.040	0.103
13.0 – 14.1	$(1.096$	0.002	0.004	$0.015)\times10^1$	$(2.005$	0.011	0.013	$0.030)\times10^0$	5.466	0.031	0.041	0.102
14.1 – 15.3	$(8.859$	0.019	0.036	$0.124)\times10^0$	$(1.645$	0.009	0.011	$0.025)\times10^0$	5.386	0.032	0.043	0.101
15.3 – 16.6	$(7.177$	0.016	0.030	$0.101)\times10^0$	$(1.350$	0.008	0.010	$0.021)\times10^0$	5.319	0.032	0.044	0.101

Table continued

TABLE SM LI: Bartels Rotation 2478 (March 19, 2015 – April 14, 2015). *(Continued).*

Rigidity	Φ_p $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	Φ_{He} $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	p/He $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$
16.6 – 18.0	$(5.755\ 0.013\ 0.025\ 0.082)\times10^{0}$	$(1.089\ 0.006\ 0.008\ 0.017)\times10^{0}$	5.286 0.033 0.046 0.101
18.0 – 19.5	$(4.637\ 0.011\ 0.021\ 0.067)\times10^{0}$	$(8.994\ 0.053\ 0.071\ 0.142)\times10^{-1}$	5.156 0.033 0.046 0.099
19.5 – 21.1	$(3.755\ 0.009\ 0.017\ 0.055)\times10^{0}$	$(7.344\ 0.045\ 0.060\ 0.117)\times10^{-1}$	5.112 0.033 0.048 0.099
21.1 – 22.8	$(3.037\ 0.008\ 0.014\ 0.045)\times10^{0}$	$(5.917\ 0.037\ 0.049\ 0.095)\times10^{-1}$	5.133 0.035 0.049 0.100
22.8 – 24.7	$(2.447\ 0.006\ 0.012\ 0.036)\times10^{0}$	$(4.907\ 0.031\ 0.041\ 0.079)\times10^{-1}$	4.987 0.034 0.048 0.098
24.7 – 26.7	$(1.973\ 0.005\ 0.010\ 0.030)\times10^{0}$	$(4.004\ 0.027\ 0.034\ 0.064)\times10^{-1}$	4.927 0.035 0.049 0.097
26.7 – 28.8	$(1.594\ 0.005\ 0.008\ 0.024)\times10^{0}$	$(3.280\ 0.023\ 0.028\ 0.053)\times10^{-1}$	4.858 0.037 0.049 0.096
28.8 – 31.1	$(1.292\ 0.004\ 0.007\ 0.020)\times10^{0}$	$(2.632\ 0.020\ 0.023\ 0.043)\times10^{-1}$	4.908 0.040 0.050 0.098
31.1 – 33.5	$(1.050\ 0.003\ 0.006\ 0.016)\times10^{0}$	$(2.171\ 0.018\ 0.019\ 0.036)\times10^{-1}$	4.836 0.042 0.051 0.097
33.5 – 36.1	$(8.516\ 0.030\ 0.048\ 0.129)\times10^{-1}$	$(1.789\ 0.015\ 0.017\ 0.030)\times10^{-1}$	4.760 0.044 0.051 0.096
36.1 – 38.9	$(6.881\ 0.026\ 0.039\ 0.105)\times10^{-1}$	$(1.458\ 0.013\ 0.014\ 0.025)\times10^{-1}$	4.721 0.046 0.052 0.097
38.9 – 41.9	$(5.605\ 0.022\ 0.033\ 0.086)\times10^{-1}$	$(1.198\ 0.012\ 0.012\ 0.020)\times10^{-1}$	4.677 0.049 0.053 0.097
41.9 – 45.1	$(4.637\ 0.020\ 0.028\ 0.072)\times10^{-1}$	$(9.829\ 0.101\ 0.100\ 0.170)\times10^{-2}$	4.717 0.053 0.056 0.099
45.1 – 48.5	$(3.761\ 0.017\ 0.023\ 0.059)\times10^{-1}$	$(8.062\ 0.089\ 0.085\ 0.141)\times10^{-2}$	4.666 0.056 0.057 0.099
48.5 – 52.2	$(3.063\ 0.015\ 0.019\ 0.049)\times10^{-1}$	$(6.660\ 0.077\ 0.072\ 0.118)\times10^{-2}$	4.599 0.058 0.058 0.099
52.2 – 56.1	$(2.515\ 0.013\ 0.016\ 0.041)\times10^{-1}$	$(5.380\ 0.067\ 0.061\ 0.097)\times10^{-2}$	4.674 0.063 0.061 0.101
56.1 – 60.3	$(2.059\ 0.011\ 0.014\ 0.034)\times10^{-1}$	$(4.412\ 0.059\ 0.052\ 0.081)\times10^{-2}$	4.666 0.067 0.063 0.103

TABLE SM LII: Bartels Rotation 2479 (April 15, 2015 – May 11, 2015). The proton flux Φ_p, helium flux Φ_{He}, and p/He flux ratio as a function of rigidity (in units of GV) at the top of AMS in units of $[\mathrm{m}^2 \cdot \mathrm{sr} \cdot \mathrm{s} \cdot \mathrm{GV}]^{-1}$ including errors due to statistics ($\sigma_{\mathrm{stat.}}$), time dependent systematic errors (σ_{time}) and the total systematic error ($\sigma_{\mathrm{syst.}}$). Contributions to the time dependent systematic errors are from: the trigger and the reconstruction efficiency. Contributions to the total systematic error are from: the acceptance, the background contamination, the geomagnetic cutoff factor, the event selection, the unfolding, the rigidity resolution function, the absolute rigidity scale, and the time dependent systematic errors. The statistical errors for the ratio are the sum in quadrature of the relative statistical errors of the fluxes multiplied by the ratio. The time dependent systematic errors for the ratio are the sum in quadrature of the relative time dependent systematic errors of the fluxes multiplied by the ratio. The systematic errors from the acceptance for the ratio are added in quadrature. The correlations in the systematic errors from the unfolding and the absolute rigidity scale between the fluxes have been accounted for in calculating the corresponding systematic errors of the ratio. The contributions of the individual sources to the systematic error are added in quadrature to arrive at the total systematic uncertainty on the ratio.

Rigidity	Φ_p	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	Φ_{He}	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	p/He	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$
1.00 – 1.16	$(4.417$	0.025	0.079	$0.203)\times10^2$	–	–	–	–	–	–	–	–
1.16 – 1.33	$(4.544$	0.017	0.058	$0.165)\times10^2$	–	–	–	–	–	–	–	–
1.33 – 1.51	$(4.610$	0.015	0.045	$0.135)\times10^2$	–	–	–	–	–	–	–	–
1.51 – 1.71	$(4.485$	0.011	0.036	$0.119)\times10^2$	–	–	–	–	–	–	–	–
1.71 – 1.92	$(4.253$	0.010	0.029	$0.102)\times10^2$	–	–	–	–	–	–	–	–
1.92 – 2.15	$(3.967$	0.008	0.024	$0.086)\times10^2$	$(4.750$	0.032	0.057	$0.111)\times10^1$	8.353	0.059	0.112	0.255
2.15 – 2.40	$(3.594$	0.007	0.020	$0.073)\times10^2$	$(4.543$	0.028	0.047	$0.093)\times10^1$	7.911	0.051	0.092	0.216
2.40 – 2.67	$(3.231$	0.006	0.017	$0.062)\times10^2$	$(4.272$	0.024	0.042	$0.081)\times10^1$	7.564	0.045	0.084	0.192
2.67 – 2.97	$(2.849$	0.005	0.014	$0.050)\times10^2$	$(3.943$	0.021	0.038	$0.071)\times10^1$	7.224	0.040	0.078	0.173
2.97 – 3.29	$(2.481$	0.004	0.012	$0.042)\times10^2$	$(3.602$	0.017	0.030	$0.061)\times10^1$	6.887	0.035	0.066	0.156
3.29 – 3.64	$(2.148$	0.004	0.011	$0.035)\times10^2$	$(3.144$	0.015	0.023	$0.051)\times10^1$	6.834	0.034	0.060	0.149
3.64 – 4.02	$(1.834$	0.003	0.009	$0.029)\times10^2$	$(2.742$	0.012	0.018	$0.044)\times10^1$	6.691	0.032	0.056	0.142
4.02 – 4.43	$(1.555$	0.002	0.008	$0.024)\times10^2$	$(2.356$	0.010	0.015	$0.037)\times10^1$	6.599	0.031	0.054	0.137
4.43 – 4.88	$(1.302$	0.002	0.006	$0.020)\times10^2$	$(2.015$	0.008	0.013	$0.031)\times10^1$	6.461	0.028	0.052	0.132
4.88 – 5.37	$(1.082$	0.002	0.005	$0.016)\times10^2$	$(1.699$	0.007	0.010	$0.026)\times10^1$	6.369	0.028	0.049	0.128
5.37 – 5.90	$(8.921$	0.013	0.040	$0.128)\times10^1$	$(1.436$	0.006	0.008	$0.022)\times10^1$	6.212	0.027	0.046	0.122
5.90 – 6.47	$(7.291$	0.011	0.031	$0.103)\times10^1$	$(1.196$	0.005	0.007	$0.018)\times10^1$	6.096	0.026	0.044	0.118
6.47 – 7.09	$(5.995$	0.009	0.025	$0.084)\times10^1$	$(9.949$	0.040	0.057	$0.150)\times10^0$	6.026	0.026	0.043	0.115
7.09 – 7.76	$(4.893$	0.007	0.020	$0.068)\times10^1$	$(8.253$	0.033	0.047	$0.125)\times10^0$	5.929	0.025	0.042	0.112
7.76 – 8.48	$(3.987$	0.006	0.016	$0.056)\times10^1$	$(6.780$	0.028	0.039	$0.102)\times10^0$	5.881	0.026	0.042	0.111
8.48 – 9.26	$(3.229$	0.005	0.013	$0.045)\times10^1$	$(5.600$	0.023	0.033	$0.085)\times10^0$	5.765	0.026	0.042	0.108
9.26 – 10.1	$(2.616$	0.004	0.011	$0.036)\times10^1$	$(4.569$	0.020	0.028	$0.069)\times10^0$	5.726	0.027	0.043	0.107
10.1 – 11.0	$(2.115$	0.004	0.009	$0.029)\times10^1$	$(3.758$	0.017	0.024	$0.057)\times10^0$	5.629	0.028	0.044	0.105
11.0 – 12.0	$(1.701$	0.003	0.008	$0.023)\times10^1$	$(3.038$	0.014	0.021	$0.047)\times10^0$	5.600	0.028	0.045	0.105
12.0 – 13.0	$(1.371$	0.003	0.006	$0.019)\times10^1$	$(2.493$	0.013	0.018	$0.039)\times10^0$	5.498	0.030	0.046	0.105
13.0 – 14.1	$(1.113$	0.002	0.005	$0.016)\times10^1$	$(2.041$	0.011	0.015	$0.032)\times10^0$	5.453	0.031	0.048	0.105
14.1 – 15.3	$(9.024$	0.019	0.044	$0.129)\times10^0$	$(1.655$	0.009	0.013	$0.026)\times10^0$	5.453	0.032	0.051	0.106
15.3 – 16.6	$(7.280$	0.016	0.037	$0.105)\times10^0$	$(1.353$	0.008	0.011	$0.022)\times10^0$	5.382	0.032	0.052	0.106

Table continued

TABLE SM LII: Bartels Rotation 2479 (April 15, 2015 – May 11, 2015). *(Continued).*

Rigidity	Φ_p $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	Φ_{He} $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	p/He $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$
16.6 – 18.0	$(5.848\ 0.013\ 0.031\ 0.086)\times10^{0}$	$(1.107\ 0.006\ 0.010\ 0.018)\times10^{0}$	5.282 0.033 0.054 0.105
18.0 – 19.5	$(4.732\ 0.011\ 0.026\ 0.070)\times10^{0}$	$(9.119\ 0.053\ 0.083\ 0.150)\times10^{-1}$	5.190 0.033 0.055 0.104
19.5 – 21.1	$(3.808\ 0.009\ 0.021\ 0.058)\times10^{0}$	$(7.382\ 0.044\ 0.069\ 0.123)\times10^{-1}$	5.159 0.033 0.056 0.104
21.1 – 22.8	$(3.070\ 0.007\ 0.018\ 0.047)\times10^{0}$	$(6.057\ 0.037\ 0.058\ 0.101)\times10^{-1}$	5.069 0.034 0.056 0.103
22.8 – 24.7	$(2.476\ 0.006\ 0.015\ 0.038)\times10^{0}$	$(4.908\ 0.031\ 0.047\ 0.082)\times10^{-1}$	5.046 0.034 0.057 0.103
24.7 – 26.7	$(1.986\ 0.005\ 0.012\ 0.031)\times10^{0}$	$(4.000\ 0.027\ 0.039\ 0.067)\times10^{-1}$	4.966 0.036 0.057 0.102
26.7 – 28.8	$(1.617\ 0.005\ 0.010\ 0.025)\times10^{0}$	$(3.260\ 0.023\ 0.032\ 0.055)\times10^{-1}$	4.959 0.038 0.059 0.103
28.8 – 31.1	$(1.301\ 0.004\ 0.008\ 0.020)\times10^{0}$	$(2.665\ 0.020\ 0.027\ 0.046)\times10^{-1}$	4.882 0.039 0.059 0.102
31.1 – 33.5	$(1.056\ 0.003\ 0.007\ 0.017)\times10^{0}$	$(2.157\ 0.018\ 0.022\ 0.037)\times10^{-1}$	4.898 0.043 0.060 0.103
33.5 – 36.1	$(8.590\ 0.030\ 0.059\ 0.135)\times10^{-1}$	$(1.822\ 0.015\ 0.019\ 0.032)\times10^{-1}$	4.714 0.043 0.060 0.100
36.1 – 38.9	$(6.984\ 0.026\ 0.049\ 0.110)\times10^{-1}$	$(1.460\ 0.013\ 0.016\ 0.026)\times10^{-1}$	4.783 0.047 0.062 0.103
38.9 – 41.9	$(5.654\ 0.022\ 0.041\ 0.090)\times10^{-1}$	$(1.177\ 0.011\ 0.013\ 0.021)\times10^{-1}$	4.804 0.051 0.064 0.105
41.9 – 45.1	$(4.634\ 0.020\ 0.034\ 0.074)\times10^{-1}$	$(9.724\ 0.101\ 0.113\ 0.177)\times10^{-2}$	4.766 0.053 0.066 0.105
45.1 – 48.5	$(3.798\ 0.017\ 0.029\ 0.062)\times10^{-1}$	$(7.977\ 0.088\ 0.096\ 0.147)\times10^{-2}$	4.761 0.057 0.068 0.107
48.5 – 52.2	$(3.100\ 0.015\ 0.024\ 0.051)\times10^{-1}$	$(6.595\ 0.077\ 0.082\ 0.124)\times10^{-2}$	4.700 0.059 0.069 0.107
52.2 – 56.1	$(2.532\ 0.013\ 0.020\ 0.043)\times10^{-1}$	$(5.441\ 0.068\ 0.070\ 0.104)\times10^{-2}$	4.653 0.063 0.070 0.107
56.1 – 60.3	$(2.047\ 0.011\ 0.016\ 0.035)\times10^{-1}$	$(4.419\ 0.058\ 0.059\ 0.086)\times10^{-2}$	4.633 0.066 0.072 0.108

TABLE SM LIII: Bartels Rotation 2480 (May 12, 2015 – June 7, 2015). The proton flux Φ_p, helium flux Φ_{He}, and p/He flux ratio as a function of rigidity (in units of GV) at the top of AMS in units of $[\mathrm{m}^2 \cdot \mathrm{sr} \cdot \mathrm{s} \cdot \mathrm{GV}]^{-1}$ including errors due to statistics ($\sigma_{\mathrm{stat.}}$), time dependent systematic errors (σ_{time}) and the total systematic error ($\sigma_{\mathrm{syst.}}$). Contributions to the time dependent systematic errors are from: the trigger and the reconstruction efficiency. Contributions to the total systematic error are from: the acceptance, the background contamination, the geomagnetic cutoff factor, the event selection, the unfolding, the rigidity resolution function, the absolute rigidity scale, and the time dependent systematic errors. The statistical errors for the ratio are the sum in quadrature of the relative statistical errors of the fluxes multiplied by the ratio. The time dependent systematic errors for the ratio are the sum in quadrature of the relative time dependent systematic errors of the fluxes multiplied by the ratio. The systematic errors from the acceptance for the ratio are added in quadrature. The correlations in the systematic errors from the unfolding and the absolute rigidity scale between the fluxes have been accounted for in calculating the corresponding systematic errors of the ratio. The contributions of the individual sources to the systematic error are added in quadrature to arrive at the total systematic uncertainty on the ratio.

Rigidity	Φ_p	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	Φ_{He}	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	p/He	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$
1.00 – 1.16	$(4.878$	0.026	0.066	$0.217)\times10^2$	–	–	–	–	–	–	–	–
1.16 – 1.33	$(5.102$	0.018	0.050	$0.181)\times10^2$	–	–	–	–	–	–	–	–
1.33 – 1.51	$(5.195$	0.016	0.039	$0.149)\times10^2$	–	–	–	–	–	–	–	–
1.51 – 1.71	$(5.038$	0.012	0.031	$0.131)\times10^2$	–	–	–	–	–	–	–	–
1.71 – 1.92	$(4.821$	0.010	0.026	$0.113)\times10^2$	–	–	–	–	–	–	–	–
1.92 – 2.15	$(4.450$	0.009	0.022	$0.096)\times10^2$	$(5.301$	0.034	0.060	$0.122)\times10^1$	8.395	0.057	0.103	0.252
2.15 – 2.40	$(4.027$	0.008	0.018	$0.081)\times10^2$	$(5.088$	0.030	0.050	$0.103)\times10^1$	7.915	0.049	0.085	0.213
2.40 – 2.67	$(3.586$	0.006	0.015	$0.068)\times10^2$	$(4.784$	0.026	0.045	$0.089)\times10^1$	7.495	0.042	0.077	0.187
2.67 – 2.97	$(3.146$	0.005	0.013	$0.055)\times10^2$	$(4.408$	0.022	0.040	$0.078)\times10^1$	7.137	0.037	0.071	0.168
2.97 – 3.29	$(2.723$	0.004	0.011	$0.045)\times10^2$	$(3.906$	0.018	0.031	$0.065)\times10^1$	6.971	0.035	0.062	0.156
3.29 – 3.64	$(2.334$	0.004	0.010	$0.037)\times10^2$	$(3.453$	0.016	0.024	$0.056)\times10^1$	6.759	0.032	0.055	0.146
3.64 – 4.02	$(1.991$	0.003	0.008	$0.031)\times10^2$	$(2.980$	0.013	0.019	$0.047)\times10^1$	6.682	0.031	0.052	0.140
4.02 – 4.43	$(1.668$	0.003	0.007	$0.026)\times10^2$	$(2.555$	0.011	0.016	$0.040)\times10^1$	6.528	0.029	0.049	0.134
4.43 – 4.88	$(1.393$	0.002	0.006	$0.021)\times10^2$	$(2.163$	0.009	0.013	$0.034)\times10^1$	6.437	0.027	0.047	0.130
4.88 – 5.37	$(1.147$	0.002	0.005	$0.016)\times10^2$	$(1.811$	0.007	0.011	$0.028)\times10^1$	6.337	0.027	0.045	0.126
5.37 – 5.90	$(9.414$	0.014	0.035	$0.133)\times10^1$	$(1.504$	0.006	0.009	$0.023)\times10^1$	6.258	0.026	0.043	0.122
5.90 – 6.47	$(7.680$	0.011	0.027	$0.107)\times10^1$	$(1.264$	0.005	0.007	$0.019)\times10^1$	6.075	0.025	0.041	0.116
6.47 – 7.09	$(6.265$	0.009	0.022	$0.087)\times10^1$	$(1.041$	0.004	0.006	$0.016)\times10^1$	6.018	0.025	0.040	0.114
7.09 – 7.76	$(5.097$	0.008	0.018	$0.070)\times10^1$	$(8.505$	0.033	0.049	$0.128)\times10^0$	5.994	0.025	0.040	0.113
7.76 – 8.48	$(4.123$	0.006	0.014	$0.057)\times10^1$	$(7.042$	0.028	0.041	$0.106)\times10^0$	5.855	0.025	0.040	0.109
8.48 – 9.26	$(3.328$	0.005	0.012	$0.046)\times10^1$	$(5.754$	0.024	0.035	$0.087)\times10^0$	5.784	0.026	0.040	0.108
9.26 – 10.1	$(2.686$	0.004	0.010	$0.036)\times10^1$	$(4.682$	0.020	0.029	$0.071)\times10^0$	5.736	0.027	0.041	0.107
10.1 – 11.0	$(2.168$	0.004	0.008	$0.029)\times10^1$	$(3.827$	0.017	0.025	$0.058)\times10^0$	5.666	0.028	0.043	0.106
11.0 – 12.0	$(1.742$	0.003	0.006	$0.024)\times10^1$	$(3.130$	0.015	0.022	$0.048)\times10^0$	5.565	0.028	0.044	0.104
12.0 – 13.0	$(1.402$	0.003	0.005	$0.019)\times10^1$	$(2.543$	0.013	0.018	$0.040)\times10^0$	5.512	0.030	0.045	0.104
13.0 – 14.1	$(1.133$	0.002	0.005	$0.016)\times10^1$	$(2.074$	0.011	0.016	$0.032)\times10^0$	5.461	0.031	0.047	0.105
14.1 – 15.3	$(9.115$	0.019	0.038	$0.128)\times10^0$	$(1.679$	0.009	0.013	$0.026)\times10^0$	5.428	0.032	0.049	0.105
15.3 – 16.6	$(7.383$	0.016	0.031	$0.105)\times10^0$	$(1.377$	0.008	0.012	$0.022)\times10^0$	5.363	0.032	0.051	0.105

Table continued

TABLE SM LIII: Bartels Rotation 2480 (May 12, 2015 – June 7, 2015). *(Continued).*

Rigidity	Φ_p $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	Φ_{He} $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	p/He $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$
16.6 – 18.0	$(5.884\ 0.013\ 0.026\ 0.085)\times10^{0}$	$(1.112\ 0.006\ 0.010\ 0.018)\times10^{0}$	5.293 0.033 0.052 0.105
18.0 – 19.5	$(4.748\ 0.011\ 0.022\ 0.069)\times10^{0}$	$(9.141\ 0.053\ 0.085\ 0.151)\times10^{-1}$	5.194 0.032 0.054 0.103
19.5 – 21.1	$(3.826\ 0.009\ 0.018\ 0.057)\times10^{0}$	$(7.441\ 0.044\ 0.072\ 0.124)\times10^{-1}$	5.142 0.033 0.055 0.103
21.1 – 22.8	$(3.094\ 0.008\ 0.015\ 0.046)\times10^{0}$	$(6.079\ 0.037\ 0.059\ 0.102)\times10^{-1}$	5.089 0.034 0.055 0.103
22.8 – 24.7	$(2.485\ 0.006\ 0.012\ 0.037)\times10^{0}$	$(4.965\ 0.031\ 0.049\ 0.084)\times10^{-1}$	5.005 0.034 0.055 0.102
24.7 – 26.7	$(1.988\ 0.005\ 0.010\ 0.030)\times10^{0}$	$(4.039\ 0.027\ 0.040\ 0.068)\times10^{-1}$	4.922 0.035 0.055 0.100
26.7 – 28.8	$(1.622\ 0.005\ 0.009\ 0.024)\times10^{0}$	$(3.301\ 0.023\ 0.033\ 0.056)\times10^{-1}$	4.914 0.037 0.056 0.100
28.8 – 31.1	$(1.307\ 0.004\ 0.007\ 0.020)\times10^{0}$	$(2.683\ 0.020\ 0.027\ 0.046)\times10^{-1}$	4.870 0.039 0.056 0.100
31.1 – 33.5	$(1.062\ 0.003\ 0.006\ 0.016)\times10^{0}$	$(2.231\ 0.018\ 0.023\ 0.039)\times10^{-1}$	4.761 0.041 0.056 0.099
33.5 – 36.1	$(8.603\ 0.030\ 0.049\ 0.131)\times10^{-1}$	$(1.791\ 0.015\ 0.019\ 0.032)\times10^{-1}$	4.804 0.044 0.058 0.101
36.1 – 38.9	$(6.999\ 0.026\ 0.041\ 0.107)\times10^{-1}$	$(1.453\ 0.013\ 0.016\ 0.026)\times10^{-1}$	4.818 0.047 0.059 0.102
38.9 – 41.9	$(5.687\ 0.022\ 0.034\ 0.088)\times10^{-1}$	$(1.202\ 0.012\ 0.013\ 0.021)\times10^{-1}$	4.733 0.049 0.060 0.101
41.9 – 45.1	$(4.591\ 0.019\ 0.028\ 0.071)\times10^{-1}$	$(9.729\ 0.101\ 0.112\ 0.176)\times10^{-2}$	4.719 0.053 0.062 0.102
45.1 – 48.5	$(3.757\ 0.017\ 0.024\ 0.059)\times10^{-1}$	$(8.018\ 0.088\ 0.095\ 0.147)\times10^{-2}$	4.686 0.056 0.063 0.103
48.5 – 52.2	$(3.069\ 0.015\ 0.020\ 0.049)\times10^{-1}$	$(6.505\ 0.076\ 0.079\ 0.121)\times10^{-2}$	4.718 0.060 0.065 0.105
52.2 – 56.1	$(2.528\ 0.013\ 0.017\ 0.041)\times10^{-1}$	$(5.355\ 0.067\ 0.067\ 0.101)\times10^{-2}$	4.721 0.064 0.067 0.106
56.1 – 60.3	$(2.065\ 0.011\ 0.014\ 0.034)\times10^{-1}$	$(4.465\ 0.059\ 0.058\ 0.086)\times10^{-2}$	4.625 0.066 0.068 0.105

TABLE SM LIV: Bartels Rotation 2481 (June 8, 2015 – July 4, 2015). The proton flux Φ_p, helium flux Φ_{He}, and p/He flux ratio as a function of rigidity (in units of GV) at the top of AMS in units of $[\mathrm{m}^2 \cdot \mathrm{sr} \cdot \mathrm{s} \cdot \mathrm{GV}]^{-1}$ including errors due to statistics ($\sigma_{\mathrm{stat.}}$), time dependent systematic errors (σ_{time}) and the total systematic error ($\sigma_{\mathrm{syst.}}$). Contributions to the time dependent systematic errors are from: the trigger and the reconstruction efficiency. Contributions to the total systematic error are from: the acceptance, the background contamination, the geomagnetic cutoff factor, the event selection, the unfolding, the rigidity resolution function, the absolute rigidity scale, and the time dependent systematic errors. The statistical errors for the ratio are the sum in quadrature of the relative statistical errors of the fluxes multiplied by the ratio. The time dependent systematic errors for the ratio are the sum in quadrature of the relative time dependent systematic errors of the fluxes multiplied by the ratio. The systematic errors from the acceptance for the ratio are added in quadrature. The correlations in the systematic errors from the unfolding and the absolute rigidity scale between the fluxes have been accounted for in calculating the corresponding systematic errors of the ratio. The contributions of the individual sources to the systematic error are added in quadrature to arrive at the total systematic uncertainty on the ratio.

Rigidity	Φ_p	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	Φ_{He}	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	p/He	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$
1.00 – 1.16	$(5.125$	0.026	0.067	$0.227)\times10^2$	–	–	–	–	–	–	–	–
1.16 – 1.33	$(5.366$	0.018	0.051	$0.190)\times10^2$	–	–	–	–	–	–	–	–
1.33 – 1.51	$(5.332$	0.016	0.039	$0.152)\times10^2$	–	–	–	–	–	–	–	–
1.51 – 1.71	$(5.170$	0.012	0.032	$0.134)\times10^2$	–	–	–	–	–	–	–	–
1.71 – 1.92	$(4.863$	0.010	0.026	$0.114)\times10^2$	–	–	–	–	–	–	–	–
1.92 – 2.15	$(4.456$	0.009	0.021	$0.096)\times10^2$	$(5.318$	0.034	0.055	$0.120)\times10^1$	8.378	0.056	0.096	0.249
2.15 – 2.40	$(4.009$	0.007	0.018	$0.080)\times10^2$	$(5.098$	0.030	0.045	$0.101)\times10^1$	7.864	0.048	0.078	0.209
2.40 – 2.67	$(3.563$	0.006	0.015	$0.067)\times10^2$	$(4.776$	0.025	0.042	$0.087)\times10^1$	7.461	0.042	0.072	0.184
2.67 – 2.97	$(3.107$	0.005	0.012	$0.054)\times10^2$	$(4.347$	0.022	0.037	$0.076)\times10^1$	7.148	0.038	0.067	0.167
2.97 – 3.29	$(2.688$	0.004	0.011	$0.045)\times10^2$	$(3.839$	0.018	0.028	$0.063)\times10^1$	7.002	0.035	0.058	0.155
3.29 – 3.64	$(2.302$	0.004	0.009	$0.037)\times10^2$	$(3.365$	0.015	0.021	$0.054)\times10^1$	6.842	0.033	0.051	0.146
3.64 – 4.02	$(1.936$	0.003	0.008	$0.030)\times10^2$	$(2.928$	0.013	0.017	$0.046)\times10^1$	6.614	0.031	0.047	0.138
4.02 – 4.43	$(1.636$	0.003	0.007	$0.025)\times10^2$	$(2.489$	0.011	0.014	$0.038)\times10^1$	6.575	0.030	0.046	0.133
4.43 – 4.88	$(1.358$	0.002	0.005	$0.020)\times10^2$	$(2.104$	0.009	0.012	$0.032)\times10^1$	6.453	0.028	0.045	0.129
4.88 – 5.37	$(1.118$	0.002	0.004	$0.016)\times10^2$	$(1.765$	0.007	0.010	$0.027)\times10^1$	6.336	0.027	0.042	0.125
5.37 – 5.90	$(9.172$	0.014	0.033	$0.130)\times10^1$	$(1.480$	0.006	0.008	$0.022)\times10^1$	6.198	0.027	0.040	0.120
5.90 – 6.47	$(7.478$	0.011	0.026	$0.104)\times10^1$	$(1.223$	0.005	0.006	$0.018)\times10^1$	6.112	0.026	0.039	0.116
6.47 – 7.09	$(6.105$	0.009	0.021	$0.085)\times10^1$	$(1.011$	0.004	0.005	$0.015)\times10^1$	6.036	0.026	0.038	0.114
7.09 – 7.76	$(4.940$	0.007	0.017	$0.068)\times10^1$	$(8.298$	0.033	0.044	$0.124)\times10^0$	5.953	0.025	0.037	0.111
7.76 – 8.48	$(4.009$	0.006	0.013	$0.055)\times10^1$	$(6.893$	0.028	0.037	$0.102)\times10^0$	5.815	0.025	0.037	0.108
8.48 – 9.26	$(3.251$	0.005	0.011	$0.044)\times10^1$	$(5.623$	0.024	0.031	$0.084)\times10^0$	5.781	0.026	0.038	0.107
9.26 – 10.1	$(2.619$	0.004	0.009	$0.035)\times10^1$	$(4.584$	0.020	0.026	$0.069)\times10^0$	5.713	0.027	0.038	0.105
10.1 – 11.0	$(2.110$	0.004	0.008	$0.028)\times10^1$	$(3.732$	0.017	0.022	$0.056)\times10^0$	5.653	0.028	0.039	0.104
11.0 – 12.0	$(1.695$	0.003	0.006	$0.023)\times10^1$	$(3.044$	0.014	0.019	$0.046)\times10^0$	5.569	0.028	0.040	0.103
12.0 – 13.0	$(1.364$	0.003	0.005	$0.019)\times10^1$	$(2.470$	0.013	0.016	$0.038)\times10^0$	5.523	0.031	0.042	0.103
13.0 – 14.1	$(1.108$	0.002	0.004	$0.016)\times10^1$	$(2.018$	0.011	0.014	$0.031)\times10^0$	5.490	0.031	0.044	0.103
14.1 – 15.3	$(8.965$	0.019	0.036	$0.126)\times10^0$	$(1.667$	0.009	0.012	$0.025)\times10^0$	5.377	0.032	0.045	0.102
15.3 – 16.6	$(7.168$	0.016	0.030	$0.101)\times10^0$	$(1.345$	0.008	0.010	$0.021)\times10^0$	5.330	0.032	0.046	0.102

Table continued

TABLE SM LIV: Bartels Rotation 2481 (June 8, 2015 – July 4, 2015). *(Continued).*

Rigidity	Φ_p $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	Φ_{He} $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	p/He $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$
16.6 – 18.0	$(5.806\ 0.013\ 0.025\ 0.083)\times10^{0}$	$(1.115\ 0.006\ 0.009\ 0.018)\times10^{0}$	5.209 0.032 0.047 0.101
18.0 – 19.5	$(4.674\ 0.011\ 0.021\ 0.068)\times10^{0}$	$(8.876\ 0.052\ 0.074\ 0.142)\times10^{-1}$	5.266 0.033 0.050 0.103
19.5 – 21.1	$(3.780\ 0.009\ 0.017\ 0.056)\times10^{0}$	$(7.245\ 0.044\ 0.063\ 0.117)\times10^{-1}$	5.217 0.034 0.051 0.102
21.1 – 22.8	$(3.043\ 0.007\ 0.015\ 0.045)\times10^{0}$	$(6.011\ 0.037\ 0.053\ 0.098)\times10^{-1}$	5.063 0.034 0.050 0.100
22.8 – 24.7	$(2.466\ 0.006\ 0.012\ 0.037)\times10^{0}$	$(4.914\ 0.031\ 0.043\ 0.080)\times10^{-1}$	5.019 0.034 0.051 0.099
24.7 – 26.7	$(1.979\ 0.005\ 0.010\ 0.030)\times10^{0}$	$(3.998\ 0.027\ 0.036\ 0.065)\times10^{-1}$	4.949 0.036 0.051 0.098
26.7 – 28.8	$(1.599\ 0.005\ 0.008\ 0.024)\times10^{0}$	$(3.274\ 0.023\ 0.030\ 0.054)\times10^{-1}$	4.884 0.037 0.051 0.098
28.8 – 31.1	$(1.296\ 0.004\ 0.007\ 0.020)\times10^{0}$	$(2.671\ 0.020\ 0.025\ 0.044)\times10^{-1}$	4.853 0.039 0.052 0.098
31.1 – 33.5	$(1.054\ 0.003\ 0.006\ 0.016)\times10^{0}$	$(2.198\ 0.018\ 0.021\ 0.037)\times10^{-1}$	4.796 0.042 0.052 0.097
33.5 – 36.1	$(8.561\ 0.030\ 0.048\ 0.130)\times10^{-1}$	$(1.797\ 0.015\ 0.017\ 0.031)\times10^{-1}$	4.763 0.044 0.054 0.097
36.1 – 38.9	$(6.941\ 0.026\ 0.040\ 0.106)\times10^{-1}$	$(1.464\ 0.013\ 0.015\ 0.025)\times10^{-1}$	4.740 0.047 0.055 0.098
38.9 – 41.9	$(5.668\ 0.022\ 0.034\ 0.087)\times10^{-1}$	$(1.207\ 0.012\ 0.012\ 0.020)\times10^{-1}$	4.697 0.049 0.056 0.099
41.9 – 45.1	$(4.595\ 0.020\ 0.028\ 0.071)\times10^{-1}$	$(9.608\ 0.101\ 0.102\ 0.169)\times10^{-2}$	4.782 0.054 0.059 0.101
45.1 – 48.5	$(3.786\ 0.017\ 0.023\ 0.059)\times10^{-1}$	$(7.825\ 0.088\ 0.086\ 0.140)\times10^{-2}$	4.838 0.059 0.061 0.104
48.5 – 52.2	$(3.071\ 0.015\ 0.019\ 0.049)\times10^{-1}$	$(6.606\ 0.077\ 0.076\ 0.120)\times10^{-2}$	4.648 0.059 0.061 0.101
52.2 – 56.1	$(2.525\ 0.013\ 0.016\ 0.041)\times10^{-1}$	$(5.462\ 0.068\ 0.065\ 0.101)\times10^{-2}$	4.623 0.063 0.063 0.101
56.1 – 60.3	$(2.077\ 0.011\ 0.014\ 0.034)\times10^{-1}$	$(4.438\ 0.059\ 0.054\ 0.083)\times10^{-2}$	4.680 0.067 0.065 0.104

TABLE SM LV: Bartels Rotation 2482 (July 5, 2015 – July 31, 2015). The proton flux Φ_p, helium flux Φ_{He}, and p/He flux ratio as a function of rigidity (in units of GV) at the top of AMS in units of $[\mathrm{m}^2 \cdot \mathrm{sr} \cdot \mathrm{s} \cdot \mathrm{GV}]^{-1}$ including errors due to statistics ($\sigma_{\mathrm{stat.}}$), time dependent systematic errors (σ_{time}) and the total systematic error ($\sigma_{\mathrm{syst.}}$). Contributions to the time dependent systematic errors are from: the trigger and the reconstruction efficiency. Contributions to the total systematic error are from: the acceptance, the background contamination, the geomagnetic cutoff factor, the event selection, the unfolding, the rigidity resolution function, the absolute rigidity scale, and the time dependent systematic errors. The statistical errors for the ratio are the sum in quadrature of the relative statistical errors of the fluxes multiplied by the ratio. The time dependent systematic errors for the ratio are the sum in quadrature of the relative time dependent systematic errors of the fluxes multiplied by the ratio. The systematic errors from the acceptance for the ratio are added in quadrature. The correlations in the systematic errors from the unfolding and the absolute rigidity scale between the fluxes have been accounted for in calculating the corresponding systematic errors of the ratio. The contributions of the individual sources to the systematic error are added in quadrature to arrive at the total systematic uncertainty on the ratio.

Rigidity	Φ_p $\sigma_{\mathrm{stat.}}$ σ_{time} $\sigma_{\mathrm{syst.}}$	Φ_{He} $\sigma_{\mathrm{stat.}}$ σ_{time} $\sigma_{\mathrm{syst.}}$	p/He $\sigma_{\mathrm{stat.}}$ σ_{time} $\sigma_{\mathrm{syst.}}$
1.00 – 1.16	$(5.650\ 0.029\ 0.086\ 0.255)\times10^2$	– – – –	– – – –
1.16 – 1.33	$(5.791\ 0.020\ 0.064\ 0.207)\times10^2$	– – – –	– – – –
1.33 – 1.51	$(5.759\ 0.017\ 0.049\ 0.166)\times10^2$	– – – –	– – – –
1.51 – 1.71	$(5.557\ 0.013\ 0.038\ 0.145)\times10^2$	– – – –	– – – –
1.71 – 1.92	$(5.200\ 0.011\ 0.031\ 0.123)\times10^2$	– – – –	– – – –
1.92 – 2.15	$(4.740\ 0.009\ 0.025\ 0.102)\times10^2$	$(5.723\ 0.036\ 0.059\ 0.129)\times10^1$	8.282 0.055 0.096 0.247
2.15 – 2.40	$(4.249\ 0.008\ 0.021\ 0.085)\times10^2$	$(5.498\ 0.031\ 0.050\ 0.110)\times10^1$	7.729 0.046 0.081 0.207
2.40 – 2.67	$(3.752\ 0.007\ 0.017\ 0.071)\times10^2$	$(5.059\ 0.027\ 0.043\ 0.092)\times10^1$	7.416 0.041 0.072 0.183
2.67 – 2.97	$(3.257\ 0.006\ 0.015\ 0.057)\times10^2$	$(4.522\ 0.022\ 0.037\ 0.078)\times10^1$	7.203 0.038 0.067 0.168
2.97 – 3.29	$(2.809\ 0.005\ 0.013\ 0.047)\times10^2$	$(4.038\ 0.019\ 0.030\ 0.067)\times10^1$	6.957 0.034 0.061 0.155
3.29 – 3.64	$(2.400\ 0.004\ 0.011\ 0.039)\times10^2$	$(3.533\ 0.016\ 0.025\ 0.058)\times10^1$	6.793 0.033 0.057 0.147
3.64 – 4.02	$(2.025\ 0.003\ 0.010\ 0.032)\times10^2$	$(3.045\ 0.013\ 0.020\ 0.048)\times10^1$	6.651 0.031 0.054 0.141
4.02 – 4.43	$(1.702\ 0.003\ 0.008\ 0.026)\times10^2$	$(2.594\ 0.011\ 0.016\ 0.041)\times10^1$	6.564 0.030 0.051 0.135
4.43 – 4.88	$(1.414\ 0.002\ 0.007\ 0.022)\times10^2$	$(2.204\ 0.009\ 0.013\ 0.034)\times10^1$	6.415 0.028 0.049 0.130
4.88 – 5.37	$(1.161\ 0.002\ 0.005\ 0.017)\times10^2$	$(1.833\ 0.007\ 0.011\ 0.028)\times10^1$	6.331 0.027 0.046 0.126
5.37 – 5.90	$(9.466\ 0.014\ 0.039\ 0.135)\times10^1$	$(1.532\ 0.006\ 0.009\ 0.023)\times10^1$	6.179 0.026 0.043 0.120
5.90 – 6.47	$(7.730\ 0.012\ 0.031\ 0.109)\times10^1$	$(1.263\ 0.005\ 0.007\ 0.019)\times10^1$	6.122 0.026 0.042 0.117
6.47 – 7.09	$(6.289\ 0.009\ 0.024\ 0.088)\times10^1$	$(1.051\ 0.004\ 0.006\ 0.016)\times10^1$	5.983 0.025 0.041 0.114
7.09 – 7.76	$(5.098\ 0.008\ 0.019\ 0.071)\times10^1$	$(8.623\ 0.034\ 0.049\ 0.130)\times10^0$	5.912 0.025 0.041 0.111
7.76 – 8.48	$(4.134\ 0.006\ 0.016\ 0.057)\times10^1$	$(7.022\ 0.028\ 0.042\ 0.106)\times10^0$	5.887 0.025 0.041 0.111
8.48 – 9.26	$(3.330\ 0.005\ 0.013\ 0.046)\times10^1$	$(5.759\ 0.024\ 0.035\ 0.087)\times10^0$	5.782 0.026 0.042 0.108
9.26 – 10.1	$(2.687\ 0.004\ 0.011\ 0.037)\times10^1$	$(4.704\ 0.020\ 0.030\ 0.072)\times10^0$	5.711 0.027 0.043 0.107
10.1 – 11.0	$(2.151\ 0.004\ 0.009\ 0.029)\times10^1$	$(3.837\ 0.018\ 0.026\ 0.059)\times10^0$	5.606 0.027 0.044 0.105
11.0 – 12.0	$(1.736\ 0.003\ 0.007\ 0.024)\times10^1$	$(3.101\ 0.015\ 0.022\ 0.048)\times10^0$	5.597 0.028 0.046 0.106
12.0 – 13.0	$(1.396\ 0.003\ 0.006\ 0.019)\times10^1$	$(2.548\ 0.013\ 0.019\ 0.040)\times10^0$	5.479 0.030 0.047 0.105
13.0 – 14.1	$(1.131\ 0.002\ 0.005\ 0.016)\times10^1$	$(2.087\ 0.011\ 0.016\ 0.033)\times10^0$	5.420 0.031 0.049 0.105
14.1 – 15.3	$(9.114\ 0.019\ 0.042\ 0.129)\times10^0$	$(1.711\ 0.009\ 0.014\ 0.027)\times10^0$	5.325 0.031 0.051 0.104
15.3 – 16.6	$(7.348\ 0.016\ 0.035\ 0.105)\times10^0$	$(1.374\ 0.008\ 0.012\ 0.022)\times10^0$	5.348 0.032 0.053 0.106

Table continued

TABLE SM LV: Bartels Rotation 2482 (July 5, 2015 – July 31, 2015). *(Continued).*

Rigidity	Φ_p $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	Φ_{He} $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	p/He $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$
16.6 – 18.0	$(5.906\ 0.013\ 0.029\ 0.086)\times10^{0}$	$(1.117\ 0.006\ 0.010\ 0.019)\times10^{0}$	5.289 0.033 0.055 0.106
18.0 – 19.5	$(4.729\ 0.011\ 0.024\ 0.070)\times10^{0}$	$(9.132\ 0.053\ 0.089\ 0.153)\times10^{-1}$	5.179 0.033 0.057 0.105
19.5 – 21.1	$(3.822\ 0.009\ 0.020\ 0.057)\times10^{0}$	$(7.517\ 0.045\ 0.076\ 0.128)\times10^{-1}$	5.085 0.033 0.058 0.104
21.1 – 22.8	$(3.080\ 0.008\ 0.017\ 0.046)\times10^{0}$	$(6.067\ 0.038\ 0.062\ 0.104)\times10^{-1}$	5.076 0.034 0.059 0.105
22.8 – 24.7	$(2.490\ 0.006\ 0.014\ 0.038)\times10^{0}$	$(4.930\ 0.031\ 0.051\ 0.085)\times10^{-1}$	5.049 0.034 0.059 0.105
24.7 – 26.7	$(2.003\ 0.005\ 0.011\ 0.031)\times10^{0}$	$(3.997\ 0.027\ 0.042\ 0.069)\times10^{-1}$	5.012 0.036 0.060 0.104
26.7 – 28.8	$(1.612\ 0.005\ 0.010\ 0.025)\times10^{0}$	$(3.273\ 0.023\ 0.035\ 0.057)\times10^{-1}$	4.925 0.038 0.060 0.103
28.8 – 31.1	$(1.310\ 0.004\ 0.008\ 0.020)\times10^{0}$	$(2.676\ 0.020\ 0.029\ 0.047)\times10^{-1}$	4.894 0.039 0.061 0.103
31.1 – 33.5	$(1.057\ 0.003\ 0.007\ 0.017)\times10^{0}$	$(2.144\ 0.017\ 0.024\ 0.038)\times10^{-1}$	4.931 0.043 0.062 0.105
33.5 – 36.1	$(8.619\ 0.030\ 0.055\ 0.134)\times10^{-1}$	$(1.771\ 0.015\ 0.020\ 0.032)\times10^{-1}$	4.867 0.045 0.063 0.104
36.1 – 38.9	$(7.045\ 0.026\ 0.046\ 0.110)\times10^{-1}$	$(1.464\ 0.013\ 0.017\ 0.027)\times10^{-1}$	4.813 0.047 0.063 0.104
38.9 – 41.9	$(5.687\ 0.023\ 0.038\ 0.089)\times10^{-1}$	$(1.191\ 0.012\ 0.014\ 0.021)\times10^{-1}$	4.773 0.050 0.064 0.104
41.9 – 45.1	$(4.618\ 0.020\ 0.032\ 0.073)\times10^{-1}$	$(9.736\ 0.101\ 0.114\ 0.178)\times10^{-2}$	4.743 0.053 0.065 0.104
45.1 – 48.5	$(3.762\ 0.017\ 0.026\ 0.060)\times10^{-1}$	$(8.017\ 0.089\ 0.096\ 0.148)\times10^{-2}$	4.693 0.056 0.065 0.104
48.5 – 52.2	$(3.112\ 0.015\ 0.022\ 0.051)\times10^{-1}$	$(6.509\ 0.076\ 0.079\ 0.121)\times10^{-2}$	4.781 0.061 0.067 0.107
52.2 – 56.1	$(2.545\ 0.013\ 0.019\ 0.042)\times10^{-1}$	$(5.417\ 0.068\ 0.067\ 0.101)\times10^{-2}$	4.699 0.064 0.067 0.106
56.1 – 60.3	$(2.083\ 0.011\ 0.016\ 0.035)\times10^{-1}$	$(4.425\ 0.059\ 0.055\ 0.083)\times10^{-2}$	4.708 0.068 0.069 0.107

TABLE SM LVI: Bartels Rotation 2483 (August 1, 2015 – August 27, 2015). The proton flux Φ_p, helium flux Φ_{He}, and p/He flux ratio as a function of rigidity (in units of GV) at the top of AMS in units of $[\mathrm{m}^2 \cdot \mathrm{sr} \cdot \mathrm{s} \cdot \mathrm{GV}]^{-1}$ including errors due to statistics ($\sigma_{\mathrm{stat.}}$), time dependent systematic errors (σ_{time}) and the total systematic error ($\sigma_{\mathrm{syst.}}$). Contributions to the time dependent systematic errors are from: the trigger and the reconstruction efficiency. Contributions to the total systematic error are from: the acceptance, the background contamination, the geomagnetic cutoff factor, the event selection, the unfolding, the rigidity resolution function, the absolute rigidity scale, and the time dependent systematic errors. The statistical errors for the ratio are the sum in quadrature of the relative statistical errors of the fluxes multiplied by the ratio. The time dependent systematic errors for the ratio are the sum in quadrature of the relative time dependent systematic errors of the fluxes multiplied by the ratio. The systematic errors from the acceptance for the ratio are added in quadrature. The correlations in the systematic errors from the unfolding and the absolute rigidity scale between the fluxes have been accounted for in calculating the corresponding systematic errors of the ratio. The contributions of the individual sources to the systematic error are added in quadrature to arrive at the total systematic uncertainty on the ratio.

Rigidity	Φ_p	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	Φ_{He}	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	p/He	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$
1.00 – 1.16	$(5.853$	0.030	0.080	$0.261)\times10^2$	–	–	–	–	–	–	–	–
1.16 – 1.33	$(6.042$	0.020	0.060	$0.214)\times10^2$	–	–	–	–	–	–	–	–
1.33 – 1.51	$(6.006$	0.018	0.046	$0.172)\times10^2$	–	–	–	–	–	–	–	–
1.51 – 1.71	$(5.775$	0.013	0.037	$0.150)\times10^2$	–	–	–	–	–	–	–	–
1.71 – 1.92	$(5.387$	0.011	0.030	$0.127)\times10^2$	–	–	–	–	–	–	–	–
1.92 – 2.15	$(4.887$	0.010	0.024	$0.105)\times10^2$	$(5.884$	0.037	0.063	$0.133)\times10^1$	8.306	0.055	0.098	0.248
2.15 – 2.40	$(4.380$	0.008	0.020	$0.088)\times10^2$	$(5.558$	0.032	0.052	$0.111)\times10^1$	7.880	0.047	0.082	0.211
2.40 – 2.67	$(3.862$	0.007	0.017	$0.073)\times10^2$	$(5.182$	0.027	0.047	$0.095)\times10^1$	7.454	0.041	0.074	0.185
2.67 – 2.97	$(3.366$	0.006	0.014	$0.059)\times10^2$	$(4.732$	0.023	0.041	$0.083)\times10^1$	7.112	0.037	0.069	0.167
2.97 – 3.29	$(2.899$	0.005	0.012	$0.048)\times10^2$	$(4.175$	0.019	0.032	$0.069)\times10^1$	6.944	0.034	0.060	0.154
3.29 – 3.64	$(2.467$	0.004	0.011	$0.040)\times10^2$	$(3.642$	0.016	0.024	$0.059)\times10^1$	6.772	0.032	0.054	0.146
3.64 – 4.02	$(2.078$	0.003	0.009	$0.033)\times10^2$	$(3.121$	0.014	0.020	$0.049)\times10^1$	6.659	0.031	0.051	0.140
4.02 – 4.43	$(1.734$	0.003	0.008	$0.027)\times10^2$	$(2.642$	0.011	0.016	$0.041)\times10^1$	6.564	0.029	0.049	0.134
4.43 – 4.88	$(1.437$	0.002	0.006	$0.022)\times10^2$	$(2.245$	0.009	0.013	$0.035)\times10^1$	6.401	0.027	0.047	0.129
4.88 – 5.37	$(1.180$	0.002	0.005	$0.017)\times10^2$	$(1.876$	0.007	0.011	$0.029)\times10^1$	6.290	0.027	0.045	0.125
5.37 – 5.90	$(9.615$	0.014	0.037	$0.137)\times10^1$	$(1.550$	0.006	0.009	$0.024)\times10^1$	6.204	0.026	0.042	0.121
5.90 – 6.47	$(7.835$	0.012	0.029	$0.110)\times10^1$	$(1.291$	0.005	0.007	$0.019)\times10^1$	6.069	0.026	0.041	0.116
6.47 – 7.09	$(6.350$	0.009	0.023	$0.088)\times10^1$	$(1.059$	0.004	0.006	$0.016)\times10^1$	5.997	0.025	0.040	0.114
7.09 – 7.76	$(5.145$	0.008	0.018	$0.071)\times10^1$	$(8.634$	0.034	0.049	$0.130)\times10^0$	5.959	0.025	0.040	0.112
7.76 – 8.48	$(4.147$	0.006	0.015	$0.057)\times10^1$	$(7.086$	0.029	0.041	$0.106)\times10^0$	5.853	0.025	0.040	0.110
8.48 – 9.26	$(3.341$	0.005	0.012	$0.046)\times10^1$	$(5.776$	0.024	0.035	$0.087)\times10^0$	5.784	0.026	0.041	0.108
9.26 – 10.1	$(2.683$	0.005	0.010	$0.036)\times10^1$	$(4.712$	0.021	0.030	$0.072)\times10^0$	5.694	0.027	0.042	0.106
10.1 – 11.0	$(2.160$	0.004	0.008	$0.029)\times10^1$	$(3.860$	0.018	0.026	$0.059)\times10^0$	5.596	0.027	0.043	0.105
11.0 – 12.0	$(1.729$	0.003	0.007	$0.023)\times10^1$	$(3.122$	0.015	0.022	$0.048)\times10^0$	5.539	0.028	0.044	0.104
12.0 – 13.0	$(1.386$	0.003	0.005	$0.019)\times10^1$	$(2.536$	0.013	0.019	$0.040)\times10^0$	5.466	0.030	0.046	0.104
13.0 – 14.1	$(1.128$	0.002	0.005	$0.016)\times10^1$	$(2.080$	0.011	0.016	$0.033)\times10^0$	5.425	0.031	0.048	0.104
14.1 – 15.3	$(9.106$	0.019	0.039	$0.128)\times10^0$	$(1.674$	0.009	0.014	$0.026)\times10^0$	5.441	0.032	0.050	0.105
15.3 – 16.6	$(7.295$	0.016	0.032	$0.104)\times10^0$	$(1.382$	0.008	0.012	$0.022)\times10^0$	5.278	0.032	0.051	0.103

Table continued

TABLE SM LVI: Bartels Rotation 2483 (August 1, 2015 – August 27, 2015). *(Continued).*

Rigidity	Φ_p $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	Φ_{He} $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	p/He $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$
16.6 – 18.0	$(5.861\ 0.013\ 0.027\ 0.084)\times10^{0}$	$(1.137\ 0.007\ 0.010\ 0.019)\times10^{0}$	5.156 0.032 0.052 0.102
18.0 – 19.5	$(4.713\ 0.011\ 0.022\ 0.069)\times10^{0}$	$(9.104\ 0.054\ 0.086\ 0.151)\times10^{-1}$	5.177 0.033 0.055 0.104
19.5 – 21.1	$(3.789\ 0.009\ 0.018\ 0.056)\times10^{0}$	$(7.349\ 0.045\ 0.072\ 0.124)\times10^{-1}$	5.155 0.034 0.057 0.104
21.1 – 22.8	$(3.074\ 0.008\ 0.015\ 0.046)\times10^{0}$	$(6.085\ 0.038\ 0.061\ 0.103)\times10^{-1}$	5.051 0.034 0.056 0.103
22.8 – 24.7	$(2.466\ 0.006\ 0.013\ 0.037)\times10^{0}$	$(4.911\ 0.031\ 0.050\ 0.084)\times10^{-1}$	5.021 0.034 0.057 0.103
24.7 – 26.7	$(1.981\ 0.005\ 0.011\ 0.030)\times10^{0}$	$(4.010\ 0.027\ 0.041\ 0.068)\times10^{-1}$	4.940 0.036 0.057 0.102
26.7 – 28.8	$(1.607\ 0.005\ 0.009\ 0.024)\times10^{0}$	$(3.237\ 0.023\ 0.034\ 0.056)\times10^{-1}$	4.964 0.038 0.059 0.103
28.8 – 31.1	$(1.299\ 0.004\ 0.007\ 0.020)\times10^{0}$	$(2.677\ 0.020\ 0.028\ 0.047)\times10^{-1}$	4.851 0.039 0.058 0.101
31.1 – 33.5	$(1.052\ 0.003\ 0.006\ 0.016)\times10^{0}$	$(2.138\ 0.018\ 0.023\ 0.038)\times10^{-1}$	4.922 0.044 0.061 0.104
33.5 – 36.1	$(8.562\ 0.030\ 0.051\ 0.131)\times10^{-1}$	$(1.786\ 0.015\ 0.020\ 0.032)\times10^{-1}$	4.794 0.045 0.061 0.102
36.1 – 38.9	$(6.957\ 0.026\ 0.042\ 0.107)\times10^{-1}$	$(1.453\ 0.013\ 0.017\ 0.026)\times10^{-1}$	4.787 0.048 0.062 0.103
38.9 – 41.9	$(5.618\ 0.022\ 0.035\ 0.087)\times10^{-1}$	$(1.208\ 0.012\ 0.014\ 0.022)\times10^{-1}$	4.650 0.049 0.062 0.101
41.9 – 45.1	$(4.603\ 0.020\ 0.029\ 0.072)\times10^{-1}$	$(9.686\ 0.102\ 0.118\ 0.179)\times10^{-2}$	4.753 0.054 0.065 0.105
45.1 – 48.5	$(3.757\ 0.017\ 0.024\ 0.059)\times10^{-1}$	$(8.235\ 0.091\ 0.103\ 0.155)\times10^{-2}$	4.562 0.054 0.064 0.102
48.5 – 52.2	$(3.058\ 0.015\ 0.020\ 0.049)\times10^{-1}$	$(6.538\ 0.077\ 0.084\ 0.125)\times10^{-2}$	4.676 0.060 0.068 0.106
52.2 – 56.1	$(2.519\ 0.013\ 0.017\ 0.041)\times10^{-1}$	$(5.242\ 0.067\ 0.070\ 0.102)\times10^{-2}$	4.806 0.066 0.072 0.110
56.1 – 60.3	$(2.043\ 0.011\ 0.014\ 0.034)\times10^{-1}$	$(4.287\ 0.058\ 0.059\ 0.084)\times10^{-2}$	4.765 0.070 0.073 0.111

TABLE SM LVII: Bartels Rotation 2484 (August 28, 2015 – September 23, 2015). The proton flux Φ_p, helium flux Φ_{He}, and p/He flux ratio as a function of rigidity (in units of GV) at the top of AMS in units of $[\mathrm{m}^2 \cdot \mathrm{sr} \cdot \mathrm{s} \cdot \mathrm{GV}]^{-1}$ including errors due to statistics ($\sigma_{\mathrm{stat.}}$), time dependent systematic errors (σ_{time}) and the total systematic error ($\sigma_{\mathrm{syst.}}$). Contributions to the time dependent systematic errors are from: the trigger and the reconstruction efficiency. Contributions to the total systematic error are from: the acceptance, the background contamination, the geomagnetic cutoff factor, the event selection, the unfolding, the rigidity resolution function, the absolute rigidity scale, and the time dependent systematic errors. The statistical errors for the ratio are the sum in quadrature of the relative statistical errors of the fluxes multiplied by the ratio. The time dependent systematic errors for the ratio are the sum in quadrature of the relative time dependent systematic errors of the fluxes multiplied by the ratio. The systematic errors from the acceptance for the ratio are added in quadrature. The correlations in the systematic errors from the unfolding and the absolute rigidity scale between the fluxes have been accounted for in calculating the corresponding systematic errors of the ratio. The contributions of the individual sources to the systematic error are added in quadrature to arrive at the total systematic uncertainty on the ratio.

Rigidity	Φ_p $\sigma_{\mathrm{stat.}}$ σ_{time} $\sigma_{\mathrm{syst.}}$	Φ_{He} $\sigma_{\mathrm{stat.}}$ σ_{time} $\sigma_{\mathrm{syst.}}$	p/He $\sigma_{\mathrm{stat.}}$ σ_{time} $\sigma_{\mathrm{syst.}}$
1.00 – 1.16	$(5.954\ 0.029\ 0.085\ 0.266)\times10^2$	– – – –	– – – –
1.16 – 1.33	$(6.147\ 0.021\ 0.064\ 0.219)\times10^2$	– – – –	– – – –
1.33 – 1.51	$(6.122\ 0.018\ 0.050\ 0.176)\times10^2$	– – – –	– – – –
1.51 – 1.71	$(5.837\ 0.014\ 0.039\ 0.152)\times10^2$	– – – –	– – – –
1.71 – 1.92	$(5.420\ 0.012\ 0.032\ 0.128)\times10^2$	– – – –	– – – –
1.92 – 2.15	$(4.931\ 0.010\ 0.026\ 0.106)\times10^2$	$(5.897\ 0.038\ 0.056\ 0.131)\times10^1$	8.362 0.057 0.090 0.247
2.15 – 2.40	$(4.406\ 0.008\ 0.021\ 0.088)\times10^2$	$(5.617\ 0.033\ 0.046\ 0.110)\times10^1$	7.842 0.048 0.075 0.208
2.40 – 2.67	$(3.867\ 0.007\ 0.018\ 0.073)\times10^2$	$(5.214\ 0.028\ 0.040\ 0.093)\times10^1$	7.417 0.042 0.066 0.181
2.67 – 2.97	$(3.361\ 0.006\ 0.015\ 0.059)\times10^2$	$(4.703\ 0.024\ 0.034\ 0.079)\times10^1$	7.146 0.038 0.061 0.164
2.97 – 3.29	$(2.885\ 0.005\ 0.013\ 0.048)\times10^2$	$(4.175\ 0.020\ 0.028\ 0.068)\times10^1$	6.912 0.035 0.056 0.152
3.29 – 3.64	$(2.457\ 0.004\ 0.011\ 0.040)\times10^2$	$(3.639\ 0.017\ 0.023\ 0.058)\times10^1$	6.750 0.033 0.052 0.144
3.64 – 4.02	$(2.070\ 0.003\ 0.009\ 0.033)\times10^2$	$(3.098\ 0.014\ 0.018\ 0.049)\times10^1$	6.681 0.032 0.050 0.140
4.02 – 4.43	$(1.723\ 0.003\ 0.008\ 0.027)\times10^2$	$(2.646\ 0.011\ 0.015\ 0.041)\times10^1$	6.512 0.030 0.047 0.133
4.43 – 4.88	$(1.427\ 0.002\ 0.006\ 0.022)\times10^2$	$(2.214\ 0.009\ 0.012\ 0.034)\times10^1$	6.448 0.028 0.045 0.129
4.88 – 5.37	$(1.169\ 0.002\ 0.005\ 0.017)\times10^2$	$(1.855\ 0.007\ 0.009\ 0.028)\times10^1$	6.302 0.027 0.042 0.124
5.37 – 5.90	$(9.528\ 0.014\ 0.038\ 0.136)\times10^1$	$(1.544\ 0.006\ 0.008\ 0.023)\times10^1$	6.170 0.026 0.039 0.119
5.90 – 6.47	$(7.761\ 0.012\ 0.030\ 0.109)\times10^1$	$(1.265\ 0.005\ 0.006\ 0.019)\times10^1$	6.133 0.026 0.038 0.116
6.47 – 7.09	$(6.287\ 0.009\ 0.024\ 0.088)\times10^1$	$(1.044\ 0.004\ 0.005\ 0.015)\times10^1$	6.022 0.026 0.038 0.113
7.09 – 7.76	$(5.095\ 0.008\ 0.019\ 0.071)\times10^1$	$(8.523\ 0.034\ 0.043\ 0.127)\times10^0$	5.978 0.026 0.037 0.111
7.76 – 8.48	$(4.103\ 0.006\ 0.015\ 0.057)\times10^1$	$(7.087\ 0.029\ 0.037\ 0.105)\times10^0$	5.789 0.025 0.037 0.107
8.48 – 9.26	$(3.312\ 0.005\ 0.013\ 0.045)\times10^1$	$(5.707\ 0.024\ 0.031\ 0.085)\times10^0$	5.804 0.026 0.038 0.107
9.26 – 10.1	$(2.672\ 0.005\ 0.010\ 0.036)\times10^1$	$(4.628\ 0.021\ 0.026\ 0.069)\times10^0$	5.775 0.027 0.039 0.107
10.1 – 11.0	$(2.149\ 0.004\ 0.009\ 0.029)\times10^1$	$(3.826\ 0.018\ 0.023\ 0.057)\times10^0$	5.617 0.028 0.040 0.104
11.0 – 12.0	$(1.724\ 0.003\ 0.007\ 0.024)\times10^1$	$(3.093\ 0.015\ 0.019\ 0.047)\times10^0$	5.574 0.029 0.041 0.103
12.0 – 13.0	$(1.390\ 0.003\ 0.006\ 0.019)\times10^1$	$(2.521\ 0.013\ 0.016\ 0.039)\times10^0$	5.514 0.031 0.043 0.103
13.0 – 14.1	$(1.123\ 0.002\ 0.005\ 0.016)\times10^1$	$(2.055\ 0.011\ 0.014\ 0.031)\times10^0$	5.466 0.031 0.044 0.103
14.1 – 15.3	$(9.040\ 0.019\ 0.040\ 0.128)\times10^0$	$(1.684\ 0.009\ 0.012\ 0.026)\times10^0$	5.367 0.032 0.045 0.102
15.3 – 16.6	$(7.276\ 0.016\ 0.034\ 0.104)\times10^0$	$(1.364\ 0.008\ 0.010\ 0.021)\times10^0$	5.333 0.032 0.047 0.103

Table continued

TABLE SM LVII: Bartels Rotation 2484 (August 28, 2015 – September 23, 2015). *(Continued).*

Rigidity	Φ_p $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	Φ_{He} $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	p/He $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$
16.6 – 18.0	$(5.859\ 0.013\ 0.028\ 0.085)\times10^{0}$	$(1.102\ 0.006\ 0.009\ 0.018)\times10^{0}$	5.318 0.033 0.049 0.103
18.0 – 19.5	$(4.725\ 0.011\ 0.023\ 0.069)\times10^{0}$	$(9.012\ 0.053\ 0.076\ 0.145)\times10^{-1}$	5.242 0.033 0.051 0.103
19.5 – 21.1	$(3.806\ 0.009\ 0.019\ 0.057)\times10^{0}$	$(7.504\ 0.045\ 0.066\ 0.122)\times10^{-1}$	5.072 0.033 0.051 0.100
21.1 – 22.8	$(3.067\ 0.008\ 0.016\ 0.046)\times10^{0}$	$(6.045\ 0.038\ 0.054\ 0.099)\times10^{-1}$	5.073 0.034 0.052 0.101
22.8 – 24.7	$(2.471\ 0.006\ 0.013\ 0.037)\times10^{0}$	$(4.917\ 0.031\ 0.044\ 0.081)\times10^{-1}$	5.024 0.034 0.053 0.101
24.7 – 26.7	$(1.980\ 0.005\ 0.011\ 0.030)\times10^{0}$	$(3.957\ 0.027\ 0.036\ 0.065)\times10^{-1}$	5.003 0.036 0.054 0.101
26.7 – 28.8	$(1.605\ 0.005\ 0.009\ 0.024)\times10^{0}$	$(3.212\ 0.023\ 0.030\ 0.053)\times10^{-1}$	4.996 0.039 0.055 0.101
28.8 – 31.1	$(1.296\ 0.004\ 0.008\ 0.020)\times10^{0}$	$(2.660\ 0.020\ 0.025\ 0.044)\times10^{-1}$	4.874 0.040 0.054 0.099
31.1 – 33.5	$(1.049\ 0.003\ 0.006\ 0.016)\times10^{0}$	$(2.162\ 0.018\ 0.021\ 0.036)\times10^{-1}$	4.852 0.043 0.055 0.099
33.5 – 36.1	$(8.571\ 0.030\ 0.053\ 0.132)\times10^{-1}$	$(1.773\ 0.015\ 0.017\ 0.031)\times10^{-1}$	4.834 0.045 0.056 0.100
36.1 – 38.9	$(6.958\ 0.026\ 0.044\ 0.108)\times10^{-1}$	$(1.484\ 0.014\ 0.015\ 0.026)\times10^{-1}$	4.687 0.046 0.056 0.098
38.9 – 41.9	$(5.686\ 0.023\ 0.037\ 0.089)\times10^{-1}$	$(1.187\ 0.012\ 0.012\ 0.020)\times10^{-1}$	4.789 0.051 0.058 0.101
41.9 – 45.1	$(4.624\ 0.020\ 0.031\ 0.073)\times10^{-1}$	$(9.754\ 0.102\ 0.101\ 0.170)\times10^{-2}$	4.741 0.054 0.059 0.101
45.1 – 48.5	$(3.752\ 0.017\ 0.026\ 0.060)\times10^{-1}$	$(8.050\ 0.090\ 0.085\ 0.141)\times10^{-2}$	4.661 0.056 0.059 0.100
48.5 – 52.2	$(3.057\ 0.015\ 0.022\ 0.050)\times10^{-1}$	$(6.490\ 0.077\ 0.070\ 0.115)\times10^{-2}$	4.710 0.060 0.061 0.102
52.2 – 56.1	$(2.523\ 0.013\ 0.018\ 0.042)\times10^{-1}$	$(5.395\ 0.068\ 0.059\ 0.096)\times10^{-2}$	4.677 0.064 0.061 0.102
56.1 – 60.3	$(2.045\ 0.011\ 0.015\ 0.034)\times10^{-1}$	$(4.413\ 0.059\ 0.049\ 0.079)\times10^{-2}$	4.634 0.067 0.062 0.102

TABLE SM LVIII: Bartels Rotation 2485 (September 24, 2015 – October 20, 2015). The proton flux Φ_p, helium flux Φ_{He}, and p/He flux ratio as a function of rigidity (in units of GV) at the top of AMS in units of $[\mathrm{m}^2 \cdot \mathrm{sr} \cdot \mathrm{s} \cdot \mathrm{GV}]^{-1}$ including errors due to statistics ($\sigma_{\mathrm{stat.}}$), time dependent systematic errors (σ_{time}) and the total systematic error ($\sigma_{\mathrm{syst.}}$). Contributions to the time dependent systematic errors are from: the trigger and the reconstruction efficiency. Contributions to the total systematic error are from: the acceptance, the background contamination, the geomagnetic cutoff factor, the event selection, the unfolding, the rigidity resolution function, the absolute rigidity scale, and the time dependent systematic errors. The statistical errors for the ratio are the sum in quadrature of the relative statistical errors of the fluxes multiplied by the ratio. The time dependent systematic errors for the ratio are the sum in quadrature of the relative time dependent systematic errors of the fluxes multiplied by the ratio. The systematic errors from the acceptance for the ratio are added in quadrature. The correlations in the systematic errors from the unfolding and the absolute rigidity scale between the fluxes have been accounted for in calculating the corresponding systematic errors of the ratio. The contributions of the individual sources to the systematic error are added in quadrature to arrive at the total systematic uncertainty on the ratio.

Rigidity	Φ_p $\sigma_{\mathrm{stat.}}$ σ_{time} $\sigma_{\mathrm{syst.}}$	Φ_{He} $\sigma_{\mathrm{stat.}}$ σ_{time} $\sigma_{\mathrm{syst.}}$	p/He $\sigma_{\mathrm{stat.}}$ σ_{time} $\sigma_{\mathrm{syst.}}$
1.00 – 1.16	$(6.186\ 0.032\ 0.089\ 0.277)\times10^2$	– – – –	– – – –
1.16 – 1.33	$(6.313\ 0.021\ 0.066\ 0.225)\times10^2$	– – – –	– – – –
1.33 – 1.51	$(6.223\ 0.018\ 0.050\ 0.179)\times10^2$	– – – –	– – – –
1.51 – 1.71	$(6.000\ 0.014\ 0.039\ 0.156)\times10^2$	– – – –	– – – –
1.71 – 1.92	$(5.578\ 0.012\ 0.032\ 0.131)\times10^2$	– – – –	– – – –
1.92 – 2.15	$(5.042\ 0.010\ 0.026\ 0.109)\times10^2$	$(6.083\ 0.038\ 0.068\ 0.139)\times10^1$	8.289 0.055 0.102 0.249
2.15 – 2.40	$(4.493\ 0.008\ 0.021\ 0.090)\times10^2$	$(5.798\ 0.033\ 0.056\ 0.117)\times10^1$	7.749 0.046 0.083 0.209
2.40 – 2.67	$(3.944\ 0.007\ 0.017\ 0.074)\times10^2$	$(5.357\ 0.028\ 0.050\ 0.100)\times10^1$	7.363 0.040 0.076 0.184
2.67 – 2.97	$(3.407\ 0.006\ 0.015\ 0.060)\times10^2$	$(4.784\ 0.023\ 0.044\ 0.085)\times10^1$	7.122 0.037 0.072 0.168
2.97 – 3.29	$(2.927\ 0.005\ 0.012\ 0.049)\times10^2$	$(4.252\ 0.020\ 0.033\ 0.071)\times10^1$	6.885 0.034 0.062 0.154
3.29 – 3.64	$(2.479\ 0.004\ 0.011\ 0.040)\times10^2$	$(3.679\ 0.016\ 0.025\ 0.060)\times10^1$	6.739 0.032 0.055 0.145
3.64 – 4.02	$(2.081\ 0.003\ 0.009\ 0.033)\times10^2$	$(3.131\ 0.014\ 0.020\ 0.050)\times10^1$	6.649 0.031 0.052 0.140
4.02 – 4.43	$(1.736\ 0.003\ 0.008\ 0.027)\times10^2$	$(2.675\ 0.011\ 0.017\ 0.042)\times10^1$	6.489 0.029 0.049 0.133
4.43 – 4.88	$(1.438\ 0.002\ 0.006\ 0.022)\times10^2$	$(2.234\ 0.009\ 0.014\ 0.035)\times10^1$	6.435 0.028 0.048 0.130
4.88 – 5.37	$(1.174\ 0.002\ 0.005\ 0.017)\times10^2$	$(1.868\ 0.007\ 0.011\ 0.029)\times10^1$	6.288 0.027 0.046 0.125
5.37 – 5.90	$(9.560\ 0.014\ 0.037\ 0.136)\times10^1$	$(1.542\ 0.006\ 0.009\ 0.024)\times10^1$	6.199 0.026 0.043 0.121
5.90 – 6.47	$(7.773\ 0.012\ 0.029\ 0.109)\times10^1$	$(1.277\ 0.005\ 0.007\ 0.019)\times10^1$	6.087 0.026 0.042 0.117
6.47 – 7.09	$(6.299\ 0.009\ 0.023\ 0.088)\times10^1$	$(1.050\ 0.004\ 0.006\ 0.016)\times10^1$	5.998 0.025 0.041 0.114
7.09 – 7.76	$(5.100\ 0.008\ 0.018\ 0.071)\times10^1$	$(8.574\ 0.034\ 0.049\ 0.130)\times10^0$	5.948 0.025 0.040 0.112
7.76 – 8.48	$(4.111\ 0.006\ 0.015\ 0.057)\times10^1$	$(7.038\ 0.029\ 0.041\ 0.106)\times10^0$	5.841 0.025 0.040 0.109
8.48 – 9.26	$(3.325\ 0.005\ 0.012\ 0.046)\times10^1$	$(5.771\ 0.024\ 0.035\ 0.087)\times10^0$	5.761 0.026 0.041 0.108
9.26 – 10.1	$(2.682\ 0.005\ 0.010\ 0.036)\times10^1$	$(4.700\ 0.021\ 0.029\ 0.071)\times10^0$	5.707 0.027 0.042 0.107
10.1 – 11.0	$(2.150\ 0.004\ 0.008\ 0.029)\times10^1$	$(3.801\ 0.018\ 0.025\ 0.058)\times10^0$	5.658 0.028 0.043 0.106
11.0 – 12.0	$(1.723\ 0.003\ 0.007\ 0.023)\times10^1$	$(3.074\ 0.015\ 0.021\ 0.047)\times10^0$	5.606 0.029 0.044 0.105
12.0 – 13.0	$(1.384\ 0.003\ 0.006\ 0.019)\times10^1$	$(2.547\ 0.013\ 0.018\ 0.040)\times10^0$	5.434 0.030 0.045 0.103
13.0 – 14.1	$(1.127\ 0.002\ 0.005\ 0.016)\times10^1$	$(2.071\ 0.011\ 0.016\ 0.032)\times10^0$	5.440 0.031 0.047 0.104
14.1 – 15.3	$(9.050\ 0.019\ 0.039\ 0.128)\times10^0$	$(1.690\ 0.009\ 0.013\ 0.026)\times10^0$	5.355 0.032 0.048 0.103
15.3 – 16.6	$(7.281\ 0.016\ 0.033\ 0.104)\times10^0$	$(1.386\ 0.008\ 0.012\ 0.022)\times10^0$	5.254 0.032 0.050 0.102

Table continued

TABLE SM LVIII: Bartels Rotation 2485 (September 24, 2015 – October 20, 2015). *(Continued).*

Rigidity	Φ_p $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	Φ_{He} $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	p/He $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$
16.6 – 18.0	$(5.840\ 0.013\ 0.027\ 0.084)\times10^{0}$	$(1.110\ 0.006\ 0.010\ 0.018)\times10^{0}$	5.261 0.033 0.052 0.104
18.0 – 19.5	$(4.713\ 0.011\ 0.023\ 0.069)\times10^{0}$	$(9.019\ 0.054\ 0.082\ 0.148)\times10^{-1}$	5.226 0.033 0.054 0.104
19.5 – 21.1	$(3.801\ 0.009\ 0.019\ 0.057)\times10^{0}$	$(7.378\ 0.045\ 0.070\ 0.123)\times10^{-1}$	5.152 0.034 0.055 0.103
21.1 – 22.8	$(3.062\ 0.008\ 0.016\ 0.046)\times10^{0}$	$(6.082\ 0.038\ 0.058\ 0.102)\times10^{-1}$	5.035 0.034 0.055 0.102
22.8 – 24.7	$(2.476\ 0.006\ 0.013\ 0.037)\times10^{0}$	$(4.859\ 0.031\ 0.047\ 0.082)\times10^{-1}$	5.096 0.035 0.056 0.104
24.7 – 26.7	$(1.986\ 0.005\ 0.011\ 0.030)\times10^{0}$	$(3.965\ 0.027\ 0.039\ 0.067)\times10^{-1}$	5.008 0.036 0.057 0.102
26.7 – 28.8	$(1.608\ 0.005\ 0.009\ 0.024)\times10^{0}$	$(3.277\ 0.023\ 0.033\ 0.056)\times10^{-1}$	4.907 0.038 0.057 0.101
28.8 – 31.1	$(1.296\ 0.004\ 0.007\ 0.020)\times10^{0}$	$(2.659\ 0.020\ 0.027\ 0.046)\times10^{-1}$	4.874 0.040 0.057 0.101
31.1 – 33.5	$(1.055\ 0.003\ 0.006\ 0.016)\times10^{0}$	$(2.188\ 0.018\ 0.023\ 0.038)\times10^{-1}$	4.821 0.042 0.058 0.101
33.5 – 36.1	$(8.582\ 0.030\ 0.052\ 0.132)\times10^{-1}$	$(1.757\ 0.015\ 0.019\ 0.031)\times10^{-1}$	4.885 0.046 0.061 0.103
36.1 – 38.9	$(6.956\ 0.026\ 0.043\ 0.107)\times10^{-1}$	$(1.457\ 0.013\ 0.016\ 0.026)\times10^{-1}$	4.774 0.047 0.061 0.102
38.9 – 41.9	$(5.676\ 0.023\ 0.036\ 0.088)\times10^{-1}$	$(1.201\ 0.012\ 0.014\ 0.021)\times10^{-1}$	4.726 0.050 0.062 0.103
41.9 – 45.1	$(4.583\ 0.020\ 0.030\ 0.072)\times10^{-1}$	$(9.749\ 0.102\ 0.117\ 0.179)\times10^{-2}$	4.700 0.053 0.064 0.103
45.1 – 48.5	$(3.763\ 0.017\ 0.025\ 0.060)\times10^{-1}$	$(8.025\ 0.089\ 0.100\ 0.150)\times10^{-2}$	4.689 0.056 0.066 0.105
48.5 – 52.2	$(3.077\ 0.015\ 0.021\ 0.050)\times10^{-1}$	$(6.601\ 0.077\ 0.085\ 0.126)\times10^{-2}$	4.661 0.059 0.068 0.106
52.2 – 56.1	$(2.513\ 0.013\ 0.018\ 0.042)\times10^{-1}$	$(5.420\ 0.068\ 0.072\ 0.105)\times10^{-2}$	4.637 0.063 0.070 0.106
56.1 – 60.3	$(2.023\ 0.011\ 0.014\ 0.034)\times10^{-1}$	$(4.430\ 0.059\ 0.061\ 0.088)\times10^{-2}$	4.565 0.066 0.071 0.107

TABLE SM LIX: Bartels Rotation 2486 (October 21, 2015 – November 16, 2015). The proton flux Φ_p, helium flux Φ_{He}, and p/He flux ratio as a function of rigidity (in units of GV) at the top of AMS in units of $[\mathrm{m}^2 \cdot \mathrm{sr} \cdot \mathrm{s} \cdot \mathrm{GV}]^{-1}$ including errors due to statistics ($\sigma_{\mathrm{stat.}}$), time dependent systematic errors (σ_{time}) and the total systematic error ($\sigma_{\mathrm{syst.}}$). Contributions to the time dependent systematic errors are from: the trigger and the reconstruction efficiency. Contributions to the total systematic error are from: the acceptance, the background contamination, the geomagnetic cutoff factor, the event selection, the unfolding, the rigidity resolution function, the absolute rigidity scale, and the time dependent systematic errors. The statistical errors for the ratio are the sum in quadrature of the relative statistical errors of the fluxes multiplied by the ratio. The time dependent systematic errors for the ratio are the sum in quadrature of the relative time dependent systematic errors of the fluxes multiplied by the ratio. The systematic errors from the acceptance for the ratio are added in quadrature. The correlations in the systematic errors from the unfolding and the absolute rigidity scale between the fluxes have been accounted for in calculating the corresponding systematic errors of the ratio. The contributions of the individual sources to the systematic error are added in quadrature to arrive at the total systematic uncertainty on the ratio.

Rigidity	Φ_p $\sigma_{\mathrm{stat.}}$ σ_{time} $\sigma_{\mathrm{syst.}}$	Φ_{He} $\sigma_{\mathrm{stat.}}$ σ_{time} $\sigma_{\mathrm{syst.}}$	p/He $\sigma_{\mathrm{stat.}}$ σ_{time} $\sigma_{\mathrm{syst.}}$
1.00 – 1.16	$(6.466\ 0.033\ 0.097\ 0.291)\times10^2$	– – – –	– – – –
1.16 – 1.33	$(6.539\ 0.021\ 0.071\ 0.234)\times10^2$	– – – –	– – – –
1.33 – 1.51	$(6.407\ 0.018\ 0.053\ 0.185)\times10^2$	– – – –	– – – –
1.51 – 1.71	$(6.122\ 0.014\ 0.041\ 0.160)\times10^2$	– – – –	– – – –
1.71 – 1.92	$(5.680\ 0.012\ 0.033\ 0.134)\times10^2$	– – – –	– – – –
1.92 – 2.15	$(5.123\ 0.010\ 0.027\ 0.110)\times10^2$	$(6.249\ 0.038\ 0.061\ 0.139)\times10^1$	8.198 0.053 0.091 0.243
2.15 – 2.40	$(4.547\ 0.008\ 0.022\ 0.091)\times10^2$	$(5.826\ 0.033\ 0.049\ 0.114)\times10^1$	7.805 0.046 0.075 0.207
2.40 – 2.67	$(3.980\ 0.007\ 0.018\ 0.075)\times10^2$	$(5.326\ 0.028\ 0.044\ 0.096)\times10^1$	7.474 0.041 0.070 0.184
2.67 – 2.97	$(3.446\ 0.006\ 0.015\ 0.060)\times10^2$	$(4.835\ 0.023\ 0.039\ 0.083)\times10^1$	7.128 0.037 0.066 0.166
2.97 – 3.29	$(2.939\ 0.005\ 0.013\ 0.049)\times10^2$	$(4.250\ 0.019\ 0.029\ 0.069)\times10^1$	6.916 0.034 0.056 0.152
3.29 – 3.64	$(2.489\ 0.004\ 0.011\ 0.040)\times10^2$	$(3.685\ 0.016\ 0.022\ 0.058)\times10^1$	6.753 0.032 0.050 0.144
3.64 – 4.02	$(2.078\ 0.003\ 0.010\ 0.033)\times10^2$	$(3.146\ 0.014\ 0.017\ 0.049)\times10^1$	6.603 0.031 0.047 0.137
4.02 – 4.43	$(1.730\ 0.003\ 0.008\ 0.027)\times10^2$	$(2.651\ 0.011\ 0.014\ 0.041)\times10^1$	6.524 0.029 0.046 0.132
4.43 – 4.88	$(1.430\ 0.002\ 0.006\ 0.022)\times10^2$	$(2.228\ 0.009\ 0.012\ 0.034)\times10^1$	6.419 0.027 0.044 0.129
4.88 – 5.37	$(1.171\ 0.002\ 0.005\ 0.017)\times10^2$	$(1.856\ 0.007\ 0.010\ 0.028)\times10^1$	6.311 0.027 0.042 0.125
5.37 – 5.90	$(9.543\ 0.014\ 0.038\ 0.136)\times10^1$	$(1.542\ 0.006\ 0.008\ 0.023)\times10^1$	6.189 0.026 0.040 0.120
5.90 – 6.47	$(7.751\ 0.012\ 0.030\ 0.109)\times10^1$	$(1.260\ 0.005\ 0.006\ 0.019)\times10^1$	6.152 0.026 0.038 0.117
6.47 – 7.09	$(6.280\ 0.009\ 0.024\ 0.088)\times10^1$	$(1.045\ 0.004\ 0.005\ 0.015)\times10^1$	6.009 0.025 0.037 0.113
7.09 – 7.76	$(5.085\ 0.008\ 0.019\ 0.070)\times10^1$	$(8.609\ 0.034\ 0.042\ 0.127)\times10^0$	5.906 0.025 0.036 0.110
7.76 – 8.48	$(4.120\ 0.006\ 0.015\ 0.057)\times10^1$	$(7.074\ 0.029\ 0.035\ 0.104)\times10^0$	5.824 0.025 0.036 0.108
8.48 – 9.26	$(3.315\ 0.005\ 0.013\ 0.045)\times10^1$	$(5.757\ 0.024\ 0.029\ 0.085)\times10^0$	5.757 0.026 0.036 0.106
9.26 – 10.1	$(2.672\ 0.004\ 0.010\ 0.036)\times10^1$	$(4.685\ 0.020\ 0.024\ 0.069)\times10^0$	5.703 0.027 0.037 0.105
10.1 – 11.0	$(2.148\ 0.004\ 0.009\ 0.029)\times10^1$	$(3.797\ 0.017\ 0.021\ 0.056)\times10^0$	5.656 0.028 0.038 0.104
11.0 – 12.0	$(1.729\ 0.003\ 0.007\ 0.024)\times10^1$	$(3.094\ 0.015\ 0.018\ 0.046)\times10^0$	5.589 0.028 0.039 0.103
12.0 – 13.0	$(1.390\ 0.003\ 0.006\ 0.019)\times10^1$	$(2.554\ 0.013\ 0.015\ 0.038)\times10^0$	5.442 0.030 0.039 0.101
13.0 – 14.1	$(1.128\ 0.002\ 0.005\ 0.016)\times10^1$	$(2.055\ 0.011\ 0.013\ 0.031)\times10^0$	5.489 0.031 0.042 0.103
14.1 – 15.3	$(9.077\ 0.019\ 0.041\ 0.128)\times10^0$	$(1.684\ 0.009\ 0.011\ 0.025)\times10^0$	5.390 0.032 0.043 0.101
15.3 – 16.6	$(7.312\ 0.016\ 0.034\ 0.104)\times10^0$	$(1.366\ 0.008\ 0.009\ 0.021)\times10^0$	5.354 0.033 0.044 0.102

Table continued

TABLE SM LIX: Bartels Rotation 2486 (October 21, 2015 – November 16, 2015). *(Continued).*

Rigidity	Φ_p $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	Φ_{He} $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	p/He $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$
16.6 – 18.0	$(5.865\ 0.013\ 0.028\ 0.085)\times10^{0}$	$(1.106\ 0.006\ 0.008\ 0.017)\times10^{0}$	5.303 0.033 0.046 0.102
18.0 – 19.5	$(4.729\ 0.011\ 0.023\ 0.070)\times10^{0}$	$(9.046\ 0.054\ 0.068\ 0.141)\times10^{-1}$	5.228 0.033 0.047 0.101
19.5 – 21.1	$(3.798\ 0.009\ 0.019\ 0.057)\times10^{0}$	$(7.414\ 0.045\ 0.058\ 0.117)\times10^{-1}$	5.123 0.033 0.048 0.099
21.1 – 22.8	$(3.094\ 0.008\ 0.016\ 0.046)\times10^{0}$	$(6.025\ 0.038\ 0.048\ 0.095)\times10^{-1}$	5.135 0.034 0.049 0.100
22.8 – 24.7	$(2.477\ 0.006\ 0.013\ 0.037)\times10^{0}$	$(4.915\ 0.031\ 0.039\ 0.078)\times10^{-1}$	5.041 0.034 0.049 0.099
24.7 – 26.7	$(1.991\ 0.005\ 0.011\ 0.031)\times10^{0}$	$(3.984\ 0.027\ 0.032\ 0.063)\times10^{-1}$	4.997 0.036 0.049 0.098
26.7 – 28.8	$(1.607\ 0.005\ 0.009\ 0.024)\times10^{0}$	$(3.236\ 0.023\ 0.027\ 0.052)\times10^{-1}$	4.967 0.038 0.050 0.098
28.8 – 31.1	$(1.306\ 0.004\ 0.008\ 0.020)\times10^{0}$	$(2.652\ 0.020\ 0.022\ 0.043)\times10^{-1}$	4.923 0.040 0.051 0.098
31.1 – 33.5	$(1.053\ 0.003\ 0.006\ 0.017)\times10^{0}$	$(2.164\ 0.018\ 0.019\ 0.035)\times10^{-1}$	4.865 0.043 0.052 0.098
33.5 – 36.1	$(8.616\ 0.030\ 0.054\ 0.133)\times10^{-1}$	$(1.810\ 0.015\ 0.016\ 0.030)\times10^{-1}$	4.762 0.044 0.052 0.097
36.1 – 38.9	$(6.988\ 0.026\ 0.045\ 0.109)\times10^{-1}$	$(1.453\ 0.013\ 0.013\ 0.025)\times10^{-1}$	4.808 0.048 0.054 0.099
38.9 – 41.9	$(5.681\ 0.023\ 0.037\ 0.089)\times10^{-1}$	$(1.181\ 0.012\ 0.011\ 0.020)\times10^{-1}$	4.812 0.051 0.056 0.100
41.9 – 45.1	$(4.623\ 0.020\ 0.031\ 0.073)\times10^{-1}$	$(9.672\ 0.101\ 0.097\ 0.166)\times10^{-2}$	4.780 0.054 0.058 0.101
45.1 – 48.5	$(3.753\ 0.017\ 0.026\ 0.060)\times10^{-1}$	$(8.033\ 0.089\ 0.084\ 0.140)\times10^{-2}$	4.672 0.056 0.058 0.100
48.5 – 52.2	$(3.078\ 0.015\ 0.022\ 0.050)\times10^{-1}$	$(6.494\ 0.077\ 0.070\ 0.115)\times10^{-2}$	4.739 0.060 0.061 0.103
52.2 – 56.1	$(2.520\ 0.013\ 0.018\ 0.042)\times10^{-1}$	$(5.317\ 0.067\ 0.060\ 0.096)\times10^{-2}$	4.740 0.065 0.064 0.104
56.1 – 60.3	$(2.074\ 0.011\ 0.015\ 0.035)\times10^{-1}$	$(4.430\ 0.059\ 0.052\ 0.081)\times10^{-2}$	4.682 0.067 0.065 0.104

TABLE SM LX: Bartels Rotation 2487 (November 17, 2015 – December 13, 2015). The proton flux Φ_p, helium flux Φ_{He}, and p/He flux ratio as a function of rigidity (in units of GV) at the top of AMS in units of $[\mathrm{m}^2 \cdot \mathrm{sr} \cdot \mathrm{s} \cdot \mathrm{GV}]^{-1}$ including errors due to statistics ($\sigma_{\mathrm{stat.}}$), time dependent systematic errors (σ_{time}) and the total systematic error ($\sigma_{\mathrm{syst.}}$). Contributions to the time dependent systematic errors are from: the trigger and the reconstruction efficiency. Contributions to the total systematic error are from: the acceptance, the background contamination, the geomagnetic cutoff factor, the event selection, the unfolding, the rigidity resolution function, the absolute rigidity scale, and the time dependent systematic errors. The statistical errors for the ratio are the sum in quadrature of the relative statistical errors of the fluxes multiplied by the ratio. The time dependent systematic errors for the ratio are the sum in quadrature of the relative time dependent systematic errors of the fluxes multiplied by the ratio. The systematic errors from the acceptance for the ratio are added in quadrature. The correlations in the systematic errors from the unfolding and the absolute rigidity scale between the fluxes have been accounted for in calculating the corresponding systematic errors of the ratio. The contributions of the individual sources to the systematic error are added in quadrature to arrive at the total systematic uncertainty on the ratio.

Rigidity	Φ_p	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	Φ_{He}	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	p/He	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$
1.00 – 1.16	$(7.097$	0.034	0.091	$0.314)\times10^2$	–	–	–	–	–	–	–	–
1.16 – 1.33	$(7.169$	0.022	0.067	$0.253)\times10^2$	–	–	–	–	–	–	–	–
1.33 – 1.51	$(7.049$	0.019	0.051	$0.201)\times10^2$	–	–	–	–	–	–	–	–
1.51 – 1.71	$(6.647$	0.014	0.040	$0.172)\times10^2$	–	–	–	–	–	–	–	–
1.71 – 1.92	$(6.121$	0.012	0.032	$0.144)\times10^2$	–	–	–	–	–	–	–	–
1.92 – 2.15	$(5.500$	0.010	0.026	$0.118)\times10^2$	$(6.716$	0.039	0.076	$0.154)\times10^1$	8.190	0.050	0.100	0.246
2.15 – 2.40	$(4.830$	0.008	0.021	$0.096)\times10^2$	$(6.202$	0.033	0.062	$0.126)\times10^1$	7.787	0.044	0.084	0.210
2.40 – 2.67	$(4.211$	0.007	0.017	$0.079)\times10^2$	$(5.679$	0.028	0.055	$0.106)\times10^1$	7.414	0.039	0.078	0.186
2.67 – 2.97	$(3.620$	0.006	0.015	$0.063)\times10^2$	$(5.051$	0.024	0.048	$0.090)\times10^1$	7.167	0.035	0.073	0.170
2.97 – 3.29	$(3.071$	0.005	0.012	$0.051)\times10^2$	$(4.442$	0.020	0.036	$0.075)\times10^1$	6.913	0.032	0.063	0.155
3.29 – 3.64	$(2.592$	0.004	0.011	$0.041)\times10^2$	$(3.822$	0.016	0.027	$0.063)\times10^1$	6.781	0.031	0.056	0.147
3.64 – 4.02	$(2.163$	0.003	0.009	$0.034)\times10^2$	$(3.229$	0.014	0.022	$0.052)\times10^1$	6.698	0.030	0.053	0.141
4.02 – 4.43	$(1.791$	0.003	0.007	$0.027)\times10^2$	$(2.738$	0.011	0.018	$0.043)\times10^1$	6.539	0.029	0.051	0.134
4.43 – 4.88	$(1.474$	0.002	0.006	$0.022)\times10^2$	$(2.291$	0.009	0.015	$0.036)\times10^1$	6.431	0.027	0.049	0.131
4.88 – 5.37	$(1.202$	0.002	0.005	$0.017)\times10^2$	$(1.905$	0.007	0.012	$0.029)\times10^1$	6.310	0.026	0.047	0.126
5.37 – 5.90	$(9.788$	0.014	0.036	$0.139)\times10^1$	$(1.581$	0.006	0.010	$0.024)\times10^1$	6.190	0.026	0.044	0.121
5.90 – 6.47	$(7.944$	0.012	0.028	$0.111)\times10^1$	$(1.289$	0.005	0.008	$0.020)\times10^1$	6.164	0.026	0.043	0.119
6.47 – 7.09	$(6.438$	0.009	0.022	$0.089)\times10^1$	$(1.058$	0.004	0.007	$0.016)\times10^1$	6.084	0.025	0.043	0.116
7.09 – 7.76	$(5.196$	0.008	0.018	$0.072)\times10^1$	$(8.718$	0.034	0.054	$0.133)\times10^0$	5.960	0.025	0.042	0.113
7.76 – 8.48	$(4.176$	0.006	0.014	$0.057)\times10^1$	$(7.152$	0.029	0.045	$0.109)\times10^0$	5.839	0.025	0.042	0.110
8.48 – 9.26	$(3.382$	0.005	0.012	$0.046)\times10^1$	$(5.831$	0.024	0.038	$0.089)\times10^0$	5.799	0.026	0.043	0.109
9.26 – 10.1	$(2.712$	0.005	0.010	$0.037)\times10^1$	$(4.741$	0.021	0.032	$0.073)\times10^0$	5.721	0.027	0.044	0.108
10.1 – 11.0	$(2.174$	0.004	0.008	$0.029)\times10^1$	$(3.805$	0.017	0.027	$0.059)\times10^0$	5.713	0.028	0.046	0.108
11.0 – 12.0	$(1.738$	0.003	0.006	$0.024)\times10^1$	$(3.111$	0.015	0.023	$0.049)\times10^0$	5.588	0.028	0.047	0.106
12.0 – 13.0	$(1.400$	0.003	0.005	$0.019)\times10^1$	$(2.521$	0.013	0.020	$0.040)\times10^0$	5.554	0.031	0.049	0.107
13.0 – 14.1	$(1.131$	0.002	0.005	$0.016)\times10^1$	$(2.084$	0.011	0.017	$0.033)\times10^0$	5.426	0.031	0.050	0.105
14.1 – 15.3	$(9.155$	0.019	0.038	$0.128)\times10^0$	$(1.691$	0.009	0.015	$0.027)\times10^0$	5.414	0.032	0.052	0.106
15.3 – 16.6	$(7.325$	0.016	0.031	$0.104)\times10^0$	$(1.391$	0.008	0.013	$0.023)\times10^0$	5.264	0.032	0.053	0.104

Table continued

TABLE SM LX: Bartels Rotation 2487 (November 17, 2015 – December 13, 2015). *(Continued).*

Rigidity	Φ_p $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	Φ_{He} $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	p/He $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$
16.6 – 18.0	$(5.908\ 0.013\ 0.026\ 0.085)\times10^{0}$	$(1.124\ 0.006\ 0.011\ 0.019)\times10^{0}$	5.257 0.033 0.056 0.106
18.0 – 19.5	$(4.727\ 0.011\ 0.021\ 0.069)\times10^{0}$	$(9.087\ 0.054\ 0.092\ 0.155)\times10^{-1}$	5.203 0.033 0.058 0.106
19.5 – 21.1	$(3.797\ 0.009\ 0.018\ 0.056)\times10^{0}$	$(7.385\ 0.045\ 0.077\ 0.127)\times10^{-1}$	5.141 0.033 0.059 0.105
21.1 – 22.8	$(3.077\ 0.008\ 0.015\ 0.046)\times10^{0}$	$(6.021\ 0.038\ 0.064\ 0.104)\times10^{-1}$	5.110 0.034 0.060 0.106
22.8 – 24.7	$(2.476\ 0.006\ 0.012\ 0.037)\times10^{0}$	$(4.941\ 0.031\ 0.053\ 0.086)\times10^{-1}$	5.011 0.034 0.059 0.104
24.7 – 26.7	$(1.999\ 0.005\ 0.010\ 0.030)\times10^{0}$	$(3.955\ 0.027\ 0.043\ 0.069)\times10^{-1}$	5.054 0.037 0.061 0.105
26.7 – 28.8	$(1.606\ 0.005\ 0.009\ 0.024)\times10^{0}$	$(3.251\ 0.023\ 0.036\ 0.057)\times10^{-1}$	4.940 0.038 0.061 0.103
28.8 – 31.1	$(1.302\ 0.004\ 0.007\ 0.020)\times10^{0}$	$(2.655\ 0.020\ 0.030\ 0.047)\times10^{-1}$	4.903 0.040 0.061 0.104
31.1 – 33.5	$(1.055\ 0.003\ 0.006\ 0.016)\times10^{0}$	$(2.134\ 0.017\ 0.024\ 0.038)\times10^{-1}$	4.945 0.044 0.063 0.105
33.5 – 36.1	$(8.603\ 0.030\ 0.049\ 0.131)\times10^{-1}$	$(1.791\ 0.015\ 0.021\ 0.033)\times10^{-1}$	4.802 0.044 0.063 0.103
36.1 – 38.9	$(6.960\ 0.026\ 0.041\ 0.107)\times10^{-1}$	$(1.437\ 0.013\ 0.017\ 0.027)\times10^{-1}$	4.844 0.048 0.065 0.106
38.9 – 41.9	$(5.656\ 0.022\ 0.034\ 0.087)\times10^{-1}$	$(1.182\ 0.012\ 0.015\ 0.022)\times10^{-1}$	4.787 0.050 0.066 0.106
41.9 – 45.1	$(4.602\ 0.020\ 0.028\ 0.071)\times10^{-1}$	$(9.819\ 0.102\ 0.125\ 0.186)\times10^{-2}$	4.687 0.052 0.066 0.105
45.1 – 48.5	$(3.780\ 0.017\ 0.024\ 0.059)\times10^{-1}$	$(8.101\ 0.089\ 0.106\ 0.156)\times10^{-2}$	4.666 0.056 0.068 0.106
48.5 – 52.2	$(3.056\ 0.015\ 0.020\ 0.049)\times10^{-1}$	$(6.337\ 0.075\ 0.086\ 0.124)\times10^{-2}$	4.823 0.062 0.072 0.111
52.2 – 56.1	$(2.526\ 0.013\ 0.017\ 0.041)\times10^{-1}$	$(5.293\ 0.067\ 0.074\ 0.105)\times10^{-2}$	4.773 0.065 0.074 0.111
56.1 – 60.3	$(2.056\ 0.011\ 0.014\ 0.034)\times10^{-1}$	$(4.332\ 0.058\ 0.063\ 0.087)\times10^{-2}$	4.746 0.069 0.076 0.112

TABLE SM LXI: Bartels Rotation 2488 (December 14, 2015 – January 9, 2016). The proton flux Φ_p, helium flux Φ_{He}, and p/He flux ratio as a function of rigidity (in units of GV) at the top of AMS in units of $[\mathrm{m}^2 \cdot \mathrm{sr} \cdot \mathrm{s} \cdot \mathrm{GV}]^{-1}$ including errors due to statistics ($\sigma_{\mathrm{stat.}}$), time dependent systematic errors (σ_{time}) and the total systematic error ($\sigma_{\mathrm{syst.}}$). Contributions to the time dependent systematic errors are from: the trigger and the reconstruction efficiency. Contributions to the total systematic error are from: the acceptance, the background contamination, the geomagnetic cutoff factor, the event selection, the unfolding, the rigidity resolution function, the absolute rigidity scale, and the time dependent systematic errors. The statistical errors for the ratio are the sum in quadrature of the relative statistical errors of the fluxes multiplied by the ratio. The time dependent systematic errors for the ratio are the sum in quadrature of the relative time dependent systematic errors of the fluxes multiplied by the ratio. The systematic errors from the acceptance for the ratio are added in quadrature. The correlations in the systematic errors from the unfolding and the absolute rigidity scale between the fluxes have been accounted for in calculating the corresponding systematic errors of the ratio. The contributions of the individual sources to the systematic error are added in quadrature to arrive at the total systematic uncertainty on the ratio.

Rigidity	Φ_p $\sigma_{\mathrm{stat.}}$ σ_{time} $\sigma_{\mathrm{syst.}}$	Φ_{He} $\sigma_{\mathrm{stat.}}$ σ_{time} $\sigma_{\mathrm{syst.}}$	p/He $\sigma_{\mathrm{stat.}}$ σ_{time} $\sigma_{\mathrm{syst.}}$
1.00 – 1.16	$(7.642\ 0.038\ 0.103\ 0.340)\times10^2$	– – – –	– – – –
1.16 – 1.33	$(7.691\ 0.023\ 0.076\ 0.273)\times10^2$	– – – –	– – – –
1.33 – 1.51	$(7.435\ 0.020\ 0.056\ 0.213)\times10^2$	– – – –	– – – –
1.51 – 1.71	$(6.964\ 0.015\ 0.043\ 0.181)\times10^2$	– – – –	– – – –
1.71 – 1.92	$(6.364\ 0.012\ 0.035\ 0.150)\times10^2$	– – – –	– – – –
1.92 – 2.15	$(5.684\ 0.010\ 0.028\ 0.122)\times10^2$	$(6.937\ 0.041\ 0.071\ 0.156)\times10^1$	8.193 0.050 0.093 0.243
2.15 – 2.40	$(4.982\ 0.009\ 0.023\ 0.099)\times10^2$	$(6.524\ 0.035\ 0.059\ 0.129)\times10^1$	7.636 0.043 0.077 0.204
2.40 – 2.67	$(4.327\ 0.007\ 0.019\ 0.081)\times10^2$	$(5.837\ 0.029\ 0.049\ 0.106)\times10^1$	7.412 0.039 0.070 0.182
2.67 – 2.97	$(3.700\ 0.006\ 0.016\ 0.065)\times10^2$	$(5.183\ 0.024\ 0.042\ 0.089)\times10^1$	7.140 0.036 0.065 0.165
2.97 – 3.29	$(3.139\ 0.005\ 0.013\ 0.052)\times10^2$	$(4.573\ 0.020\ 0.034\ 0.076)\times10^1$	6.864 0.032 0.059 0.152
3.29 – 3.64	$(2.637\ 0.004\ 0.011\ 0.042)\times10^2$	$(3.928\ 0.017\ 0.027\ 0.064)\times10^1$	6.715 0.031 0.055 0.145
3.64 – 4.02	$(2.204\ 0.003\ 0.010\ 0.035)\times10^2$	$(3.340\ 0.014\ 0.022\ 0.053)\times10^1$	6.600 0.030 0.052 0.139
4.02 – 4.43	$(1.825\ 0.003\ 0.008\ 0.028)\times10^2$	$(2.787\ 0.012\ 0.017\ 0.044)\times10^1$	6.548 0.029 0.050 0.134
4.43 – 4.88	$(1.500\ 0.002\ 0.006\ 0.023)\times10^2$	$(2.333\ 0.009\ 0.014\ 0.036)\times10^1$	6.430 0.027 0.048 0.130
4.88 – 5.37	$(1.218\ 0.002\ 0.005\ 0.018)\times10^2$	$(1.927\ 0.008\ 0.011\ 0.029)\times10^1$	6.319 0.026 0.045 0.126
5.37 – 5.90	$(9.894\ 0.015\ 0.038\ 0.141)\times10^1$	$(1.590\ 0.006\ 0.009\ 0.024)\times10^1$	6.221 0.026 0.042 0.121
5.90 – 6.47	$(8.026\ 0.012\ 0.030\ 0.112)\times10^1$	$(1.317\ 0.005\ 0.007\ 0.020)\times10^1$	6.095 0.026 0.041 0.117
6.47 – 7.09	$(6.486\ 0.010\ 0.024\ 0.090)\times10^1$	$(1.077\ 0.004\ 0.006\ 0.016)\times10^1$	6.023 0.025 0.041 0.115
7.09 – 7.76	$(5.240\ 0.008\ 0.019\ 0.072)\times10^1$	$(8.792\ 0.035\ 0.051\ 0.133)\times10^0$	5.960 0.025 0.041 0.112
7.76 – 8.48	$(4.218\ 0.006\ 0.015\ 0.058)\times10^1$	$(7.149\ 0.029\ 0.043\ 0.108)\times10^0$	5.900 0.025 0.041 0.111
8.48 – 9.26	$(3.384\ 0.005\ 0.012\ 0.046)\times10^1$	$(5.845\ 0.024\ 0.037\ 0.089)\times10^0$	5.789 0.026 0.042 0.108
9.26 – 10.1	$(2.714\ 0.005\ 0.010\ 0.037)\times10^1$	$(4.736\ 0.021\ 0.031\ 0.073)\times10^0$	5.731 0.027 0.043 0.108
10.1 – 11.0	$(2.178\ 0.004\ 0.008\ 0.029)\times10^1$	$(3.815\ 0.018\ 0.026\ 0.059)\times10^0$	5.708 0.028 0.045 0.107
11.0 – 12.0	$(1.747\ 0.003\ 0.007\ 0.024)\times10^1$	$(3.121\ 0.015\ 0.023\ 0.049)\times10^0$	5.598 0.028 0.046 0.106
12.0 – 13.0	$(1.403\ 0.003\ 0.006\ 0.019)\times10^1$	$(2.562\ 0.013\ 0.019\ 0.040)\times10^0$	5.476 0.030 0.047 0.105
13.0 – 14.1	$(1.140\ 0.002\ 0.005\ 0.016)\times10^1$	$(2.069\ 0.011\ 0.016\ 0.033)\times10^0$	5.510 0.031 0.050 0.106
14.1 – 15.3	$(9.113\ 0.020\ 0.040\ 0.128)\times10^0$	$(1.675\ 0.009\ 0.014\ 0.026)\times10^0$	5.440 0.032 0.051 0.106
15.3 – 16.6	$(7.326\ 0.016\ 0.033\ 0.104)\times10^0$	$(1.365\ 0.008\ 0.012\ 0.022)\times10^0$	5.369 0.033 0.053 0.106

Table continued

TABLE SM LXI: Bartels Rotation 2488 (December 14, 2015 – January 9, 2016). *(Continued).*

Rigidity	Φ_p $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	Φ_{He} $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	p/He $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$
16.6 – 18.0	$(5.873\ 0.013\ 0.027\ 0.085)\times10^{0}$	$(1.109\ 0.006\ 0.010\ 0.019)\times10^{0}$	5.294 0.033 0.055 0.106
18.0 – 19.5	$(4.740\ 0.011\ 0.023\ 0.069)\times10^{0}$	$(8.976\ 0.054\ 0.088\ 0.151)\times10^{-1}$	5.280 0.034 0.057 0.107
19.5 – 21.1	$(3.817\ 0.009\ 0.019\ 0.057)\times10^{0}$	$(7.426\ 0.045\ 0.076\ 0.127)\times10^{-1}$	5.140 0.034 0.058 0.105
21.1 – 22.8	$(3.082\ 0.008\ 0.016\ 0.046)\times10^{0}$	$(5.973\ 0.038\ 0.061\ 0.103)\times10^{-1}$	5.161 0.035 0.059 0.106
22.8 – 24.7	$(2.483\ 0.006\ 0.013\ 0.037)\times10^{0}$	$(4.909\ 0.031\ 0.051\ 0.085)\times10^{-1}$	5.059 0.034 0.059 0.105
24.7 – 26.7	$(1.995\ 0.005\ 0.011\ 0.030)\times10^{0}$	$(3.983\ 0.027\ 0.042\ 0.069)\times10^{-1}$	5.008 0.036 0.059 0.104
26.7 – 28.8	$(1.611\ 0.005\ 0.009\ 0.024)\times10^{0}$	$(3.266\ 0.023\ 0.035\ 0.057)\times10^{-1}$	4.931 0.038 0.060 0.103
28.8 – 31.1	$(1.303\ 0.004\ 0.007\ 0.020)\times10^{0}$	$(2.687\ 0.020\ 0.029\ 0.047)\times10^{-1}$	4.850 0.039 0.060 0.102
31.1 – 33.5	$(1.060\ 0.003\ 0.006\ 0.017)\times10^{0}$	$(2.181\ 0.018\ 0.024\ 0.039)\times10^{-1}$	4.861 0.043 0.061 0.103
33.5 – 36.1	$(8.559\ 0.030\ 0.052\ 0.132)\times10^{-1}$	$(1.756\ 0.015\ 0.020\ 0.032)\times10^{-1}$	4.873 0.046 0.062 0.104
36.1 – 38.9	$(6.966\ 0.026\ 0.043\ 0.108)\times10^{-1}$	$(1.454\ 0.013\ 0.017\ 0.026)\times10^{-1}$	4.790 0.047 0.062 0.103
38.9 – 41.9	$(5.682\ 0.023\ 0.036\ 0.088)\times10^{-1}$	$(1.193\ 0.012\ 0.014\ 0.021)\times10^{-1}$	4.763 0.050 0.063 0.104
41.9 – 45.1	$(4.603\ 0.020\ 0.030\ 0.072)\times10^{-1}$	$(9.695\ 0.101\ 0.115\ 0.178)\times10^{-2}$	4.748 0.054 0.064 0.104
45.1 – 48.5	$(3.770\ 0.017\ 0.025\ 0.060)\times10^{-1}$	$(8.161\ 0.090\ 0.099\ 0.151)\times10^{-2}$	4.619 0.055 0.064 0.103
48.5 – 52.2	$(3.069\ 0.015\ 0.021\ 0.050)\times10^{-1}$	$(6.650\ 0.078\ 0.082\ 0.124)\times10^{-2}$	4.614 0.058 0.065 0.103
52.2 – 56.1	$(2.513\ 0.013\ 0.018\ 0.041)\times10^{-1}$	$(5.334\ 0.067\ 0.066\ 0.100)\times10^{-2}$	4.711 0.064 0.067 0.106
56.1 – 60.3	$(2.065\ 0.011\ 0.015\ 0.034)\times10^{-1}$	$(4.356\ 0.058\ 0.055\ 0.082)\times10^{-2}$	4.741 0.069 0.069 0.107

TABLE SM LXII: Bartels Rotation 2489 (January 10, 2016 – February 5, 2016). The proton flux Φ_p, helium flux Φ_{He}, and p/He flux ratio as a function of rigidity (in units of GV) at the top of AMS in units of $[\mathrm{m}^2 \cdot \mathrm{sr} \cdot \mathrm{s} \cdot \mathrm{GV}]^{-1}$ including errors due to statistics ($\sigma_{\mathrm{stat.}}$), time dependent systematic errors (σ_{time}) and the total systematic error ($\sigma_{\mathrm{syst.}}$). Contributions to the time dependent systematic errors are from: the trigger and the reconstruction efficiency. Contributions to the total systematic error are from: the acceptance, the background contamination, the geomagnetic cutoff factor, the event selection, the unfolding, the rigidity resolution function, the absolute rigidity scale, and the time dependent systematic errors. The statistical errors for the ratio are the sum in quadrature of the relative statistical errors of the fluxes multiplied by the ratio. The time dependent systematic errors for the ratio are the sum in quadrature of the relative time dependent systematic errors of the fluxes multiplied by the ratio. The systematic errors from the acceptance for the ratio are added in quadrature. The correlations in the systematic errors from the unfolding and the absolute rigidity scale between the fluxes have been accounted for in calculating the corresponding systematic errors of the ratio. The contributions of the individual sources to the systematic error are added in quadrature to arrive at the total systematic uncertainty on the ratio.

Rigidity	Φ_p $\sigma_{\mathrm{stat.}}$ σ_{time} $\sigma_{\mathrm{syst.}}$	Φ_{He} $\sigma_{\mathrm{stat.}}$ σ_{time} $\sigma_{\mathrm{syst.}}$	p/He $\sigma_{\mathrm{stat.}}$ σ_{time} $\sigma_{\mathrm{syst.}}$
1.00 – 1.16	$(8.292\ 0.038\ 0.112\ 0.369)\times10^2$	– – – –	– – – –
1.16 – 1.33	$(8.221\ 0.024\ 0.081\ 0.291)\times10^2$	– – – –	– – – –
1.33 – 1.51	$(7.922\ 0.021\ 0.060\ 0.227)\times10^2$	– – – –	– – – –
1.51 – 1.71	$(7.396\ 0.015\ 0.046\ 0.192)\times10^2$	– – – –	– – – –
1.71 – 1.92	$(6.745\ 0.013\ 0.036\ 0.159)\times10^2$	– – – –	– – – –
1.92 – 2.15	$(6.009\ 0.011\ 0.029\ 0.129)\times10^2$	$(7.390\ 0.042\ 0.090\ 0.173)\times10^1$	8.132 0.048 0.107 0.247
2.15 – 2.40	$(5.251\ 0.009\ 0.024\ 0.105)\times10^2$	$(6.897\ 0.036\ 0.074\ 0.143)\times10^1$	7.613 0.042 0.089 0.208
2.40 – 2.67	$(4.543\ 0.007\ 0.020\ 0.086)\times10^2$	$(6.197\ 0.030\ 0.065\ 0.119)\times10^1$	7.331 0.037 0.083 0.186
2.67 – 2.97	$(3.886\ 0.006\ 0.017\ 0.068)\times10^2$	$(5.509\ 0.025\ 0.056\ 0.101)\times10^1$	7.054 0.034 0.078 0.169
2.97 – 3.29	$(3.287\ 0.005\ 0.014\ 0.055)\times10^2$	$(4.775\ 0.021\ 0.042\ 0.082)\times10^1$	6.885 0.032 0.068 0.156
3.29 – 3.64	$(2.752\ 0.004\ 0.012\ 0.044)\times10^2$	$(4.069\ 0.017\ 0.032\ 0.068)\times10^1$	6.764 0.031 0.061 0.148
3.64 – 4.02	$(2.286\ 0.003\ 0.010\ 0.036)\times10^2$	$(3.463\ 0.014\ 0.026\ 0.056)\times10^1$	6.601 0.029 0.057 0.141
4.02 – 4.43	$(1.897\ 0.003\ 0.008\ 0.029)\times10^2$	$(2.890\ 0.012\ 0.021\ 0.046)\times10^1$	6.563 0.028 0.055 0.137
4.43 – 4.88	$(1.552\ 0.002\ 0.007\ 0.023)\times10^2$	$(2.416\ 0.009\ 0.017\ 0.038)\times10^1$	6.423 0.026 0.053 0.132
4.88 – 5.37	$(1.264\ 0.002\ 0.005\ 0.018)\times10^2$	$(2.004\ 0.008\ 0.014\ 0.031)\times10^1$	6.306 0.026 0.051 0.128
5.37 – 5.90	$(1.022\ 0.001\ 0.004\ 0.015)\times10^2$	$(1.643\ 0.006\ 0.011\ 0.026)\times10^1$	6.219 0.026 0.049 0.123
5.90 – 6.47	$(8.240\ 0.012\ 0.031\ 0.115)\times10^1$	$(1.351\ 0.005\ 0.009\ 0.021)\times10^1$	6.099 0.025 0.047 0.119
6.47 – 7.09	$(6.665\ 0.010\ 0.024\ 0.093)\times10^1$	$(1.109\ 0.004\ 0.008\ 0.017)\times10^1$	6.011 0.025 0.046 0.116
7.09 – 7.76	$(5.363\ 0.008\ 0.019\ 0.074)\times10^1$	$(8.979\ 0.035\ 0.061\ 0.140)\times10^0$	5.972 0.025 0.046 0.115
7.76 – 8.48	$(4.322\ 0.007\ 0.016\ 0.060)\times10^1$	$(7.319\ 0.029\ 0.051\ 0.114)\times10^0$	5.905 0.025 0.047 0.113
8.48 – 9.26	$(3.464\ 0.005\ 0.013\ 0.047)\times10^1$	$(5.981\ 0.025\ 0.043\ 0.094)\times10^0$	5.793 0.025 0.047 0.111
9.26 – 10.1	$(2.771\ 0.005\ 0.010\ 0.037)\times10^1$	$(4.883\ 0.021\ 0.037\ 0.077)\times10^0$	5.674 0.026 0.048 0.109
10.1 – 11.0	$(2.229\ 0.004\ 0.009\ 0.030)\times10^1$	$(3.944\ 0.018\ 0.031\ 0.063)\times10^0$	5.652 0.027 0.050 0.108
11.0 – 12.0	$(1.775\ 0.003\ 0.007\ 0.024)\times10^1$	$(3.192\ 0.015\ 0.027\ 0.052)\times10^0$	5.560 0.028 0.051 0.108
12.0 – 13.0	$(1.423\ 0.003\ 0.006\ 0.019)\times10^1$	$(2.563\ 0.013\ 0.022\ 0.042)\times10^0$	5.554 0.030 0.054 0.109
13.0 – 14.1	$(1.153\ 0.002\ 0.005\ 0.016)\times10^1$	$(2.119\ 0.011\ 0.019\ 0.035)\times10^0$	5.438 0.031 0.055 0.108
14.1 – 15.3	$(9.262\ 0.020\ 0.041\ 0.130)\times10^0$	$(1.724\ 0.009\ 0.017\ 0.028)\times10^0$	5.371 0.031 0.057 0.108
15.3 – 16.6	$(7.448\ 0.016\ 0.034\ 0.106)\times10^0$	$(1.392\ 0.008\ 0.014\ 0.024)\times10^0$	5.352 0.032 0.060 0.109

Table continued

TABLE SM LXII: Bartels Rotation 2489 (January 10, 2016 – February 5, 2016). *(Continued).*

Rigidity	Φ_p $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	Φ_{He} $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	p/He $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$
16.6 – 18.0	$(5.974\ 0.014\ 0.028\ 0.086)\times10^{0}$	$(1.118\ 0.006\ 0.012\ 0.020)\times10^{0}$	5.342 0.033 0.062 0.110
18.0 – 19.5	$(4.805\ 0.011\ 0.023\ 0.070)\times10^{0}$	$(9.254\ 0.054\ 0.103\ 0.163)\times10^{-1}$	5.192 0.033 0.063 0.109
19.5 – 21.1	$(3.871\ 0.009\ 0.019\ 0.058)\times10^{0}$	$(7.449\ 0.045\ 0.086\ 0.133)\times10^{-1}$	5.197 0.034 0.065 0.110
21.1 – 22.8	$(3.117\ 0.008\ 0.016\ 0.047)\times10^{0}$	$(6.056\ 0.038\ 0.070\ 0.109)\times10^{-1}$	5.146 0.034 0.065 0.109
22.8 – 24.7	$(2.502\ 0.006\ 0.013\ 0.038)\times10^{0}$	$(4.955\ 0.031\ 0.058\ 0.089)\times10^{-1}$	5.049 0.034 0.065 0.108
24.7 – 26.7	$(2.021\ 0.005\ 0.011\ 0.031)\times10^{0}$	$(4.009\ 0.027\ 0.047\ 0.072)\times10^{-1}$	5.041 0.036 0.066 0.108
26.7 – 28.8	$(1.635\ 0.005\ 0.009\ 0.025)\times10^{0}$	$(3.274\ 0.023\ 0.039\ 0.059)\times10^{-1}$	4.994 0.038 0.066 0.107
28.8 – 31.1	$(1.314\ 0.004\ 0.008\ 0.020)\times10^{0}$	$(2.698\ 0.020\ 0.032\ 0.049)\times10^{-1}$	4.870 0.039 0.065 0.106
31.1 – 33.5	$(1.067\ 0.003\ 0.006\ 0.017)\times10^{0}$	$(2.173\ 0.018\ 0.027\ 0.040)\times10^{-1}$	4.911 0.043 0.067 0.107
33.5 – 36.1	$(8.648\ 0.030\ 0.053\ 0.133)\times10^{-1}$	$(1.806\ 0.015\ 0.022\ 0.034)\times10^{-1}$	4.788 0.044 0.066 0.105
36.1 – 38.9	$(7.016\ 0.026\ 0.044\ 0.109)\times10^{-1}$	$(1.451\ 0.013\ 0.018\ 0.028)\times10^{-1}$	4.836 0.048 0.068 0.108
38.9 – 41.9	$(5.688\ 0.023\ 0.037\ 0.088)\times10^{-1}$	$(1.209\ 0.012\ 0.016\ 0.023)\times10^{-1}$	4.705 0.049 0.068 0.106
41.9 – 45.1	$(4.664\ 0.020\ 0.031\ 0.073)\times10^{-1}$	$(9.731\ 0.101\ 0.129\ 0.188)\times10^{-2}$	4.792 0.054 0.071 0.109
45.1 – 48.5	$(3.757\ 0.017\ 0.025\ 0.060)\times10^{-1}$	$(7.909\ 0.088\ 0.108\ 0.155)\times10^{-2}$	4.750 0.057 0.072 0.110
48.5 – 52.2	$(3.120\ 0.015\ 0.022\ 0.050)\times10^{-1}$	$(6.484\ 0.076\ 0.091\ 0.129)\times10^{-2}$	4.812 0.061 0.075 0.112
52.2 – 56.1	$(2.540\ 0.013\ 0.018\ 0.042)\times10^{-1}$	$(5.320\ 0.067\ 0.077\ 0.107)\times10^{-2}$	4.773 0.065 0.077 0.113
56.1 – 60.3	$(2.078\ 0.011\ 0.015\ 0.035)\times10^{-1}$	$(4.388\ 0.058\ 0.065\ 0.090)\times10^{-2}$	4.735 0.068 0.078 0.114

TABLE SM LXIII: Bartels Rotation 2490 (February 6, 2016 – March 3, 2016). The proton flux Φ_p, helium flux Φ_{He}, and p/He flux ratio as a function of rigidity (in units of GV) at the top of AMS in units of $[\mathrm{m}^2 \cdot \mathrm{sr} \cdot \mathrm{s} \cdot \mathrm{GV}]^{-1}$ including errors due to statistics ($\sigma_{\mathrm{stat.}}$), time dependent systematic errors (σ_{time}) and the total systematic error ($\sigma_{\mathrm{syst.}}$). Contributions to the time dependent systematic errors are from: the trigger and the reconstruction efficiency. Contributions to the total systematic error are from: the acceptance, the background contamination, the geomagnetic cutoff factor, the event selection, the unfolding, the rigidity resolution function, the absolute rigidity scale, and the time dependent systematic errors. The statistical errors for the ratio are the sum in quadrature of the relative statistical errors of the fluxes multiplied by the ratio. The time dependent systematic errors for the ratio are the sum in quadrature of the relative time dependent systematic errors of the fluxes multiplied by the ratio. The systematic errors from the acceptance for the ratio are added in quadrature. The correlations in the systematic errors from the unfolding and the absolute rigidity scale between the fluxes have been accounted for in calculating the corresponding systematic errors of the ratio. The contributions of the individual sources to the systematic error are added in quadrature to arrive at the total systematic uncertainty on the ratio.

Rigidity	Φ_p $\sigma_{\mathrm{stat.}}$ σ_{time} $\sigma_{\mathrm{syst.}}$	Φ_{He} $\sigma_{\mathrm{stat.}}$ σ_{time} $\sigma_{\mathrm{syst.}}$	p/He $\sigma_{\mathrm{stat.}}$ σ_{time} $\sigma_{\mathrm{syst.}}$
1.00 – 1.16	$(8.662\ 0.040\ 0.115\ 0.385)\times10^2$	– – – –	– – – –
1.16 – 1.33	$(8.514\ 0.025\ 0.082\ 0.301)\times10^2$	– – – –	– – – –
1.33 – 1.51	$(8.164\ 0.021\ 0.060\ 0.233)\times10^2$	– – – –	– – – –
1.51 – 1.71	$(7.651\ 0.016\ 0.047\ 0.198)\times10^2$	– – – –	– – – –
1.71 – 1.92	$(6.926\ 0.013\ 0.037\ 0.163)\times10^2$	– – – –	– – – –
1.92 – 2.15	$(6.173\ 0.011\ 0.030\ 0.132)\times10^2$	$(7.539\ 0.043\ 0.069\ 0.166)\times10^1$	8.188 0.049 0.085 0.240
2.15 – 2.40	$(5.387\ 0.009\ 0.024\ 0.107)\times10^2$	$(7.007\ 0.036\ 0.056\ 0.136)\times10^1$	7.688 0.042 0.070 0.202
2.40 – 2.67	$(4.656\ 0.008\ 0.020\ 0.088)\times10^2$	$(6.362\ 0.031\ 0.050\ 0.114)\times10^1$	7.319 0.037 0.065 0.179
2.67 – 2.97	$(3.981\ 0.006\ 0.017\ 0.069)\times10^2$	$(5.569\ 0.025\ 0.043\ 0.095)\times10^1$	7.148 0.034 0.062 0.165
2.97 – 3.29	$(3.360\ 0.005\ 0.014\ 0.056)\times10^2$	$(4.893\ 0.021\ 0.032\ 0.079)\times10^1$	6.867 0.031 0.053 0.150
3.29 – 3.64	$(2.809\ 0.004\ 0.012\ 0.045)\times10^2$	$(4.190\ 0.018\ 0.024\ 0.066)\times10^1$	6.703 0.030 0.048 0.142
3.64 – 4.02	$(2.327\ 0.004\ 0.010\ 0.037)\times10^2$	$(3.520\ 0.015\ 0.019\ 0.054)\times10^1$	6.611 0.029 0.045 0.137
4.02 – 4.43	$(1.928\ 0.003\ 0.008\ 0.030)\times10^2$	$(2.949\ 0.012\ 0.015\ 0.045)\times10^1$	6.538 0.028 0.044 0.132
4.43 – 4.88	$(1.578\ 0.002\ 0.007\ 0.024)\times10^2$	$(2.458\ 0.009\ 0.013\ 0.037)\times10^1$	6.422 0.026 0.043 0.128
4.88 – 5.37	$(1.280\ 0.002\ 0.005\ 0.018)\times10^2$	$(2.022\ 0.008\ 0.010\ 0.030)\times10^1$	6.330 0.026 0.041 0.125
5.37 – 5.90	$(1.036\ 0.001\ 0.004\ 0.015)\times10^2$	$(1.670\ 0.006\ 0.008\ 0.025)\times10^1$	6.201 0.025 0.039 0.120
5.90 – 6.47	$(8.370\ 0.012\ 0.031\ 0.117)\times10^1$	$(1.367\ 0.005\ 0.007\ 0.020)\times10^1$	6.124 0.025 0.038 0.116
6.47 – 7.09	$(6.727\ 0.010\ 0.024\ 0.094)\times10^1$	$(1.123\ 0.004\ 0.006\ 0.017)\times10^1$	5.988 0.025 0.037 0.113
7.09 – 7.76	$(5.418\ 0.008\ 0.019\ 0.075)\times10^1$	$(9.190\ 0.035\ 0.046\ 0.136)\times10^0$	5.895 0.024 0.036 0.110
7.76 – 8.48	$(4.348\ 0.007\ 0.015\ 0.060)\times10^1$	$(7.443\ 0.029\ 0.038\ 0.110)\times10^0$	5.842 0.025 0.036 0.108
8.48 – 9.26	$(3.483\ 0.005\ 0.013\ 0.048)\times10^1$	$(6.041\ 0.025\ 0.032\ 0.090)\times10^0$	5.766 0.025 0.037 0.106
9.26 – 10.1	$(2.786\ 0.005\ 0.010\ 0.038)\times10^1$	$(4.888\ 0.021\ 0.027\ 0.073)\times10^0$	5.700 0.026 0.038 0.105
10.1 – 11.0	$(2.239\ 0.004\ 0.009\ 0.030)\times10^1$	$(3.966\ 0.018\ 0.023\ 0.059)\times10^0$	5.646 0.027 0.039 0.104
11.0 – 12.0	$(1.788\ 0.003\ 0.007\ 0.024)\times10^1$	$(3.200\ 0.015\ 0.019\ 0.048)\times10^0$	5.587 0.028 0.040 0.103
12.0 – 13.0	$(1.430\ 0.003\ 0.006\ 0.019)\times10^1$	$(2.609\ 0.013\ 0.016\ 0.040)\times10^0$	5.480 0.030 0.041 0.102
13.0 – 14.1	$(1.156\ 0.002\ 0.005\ 0.016)\times10^1$	$(2.133\ 0.011\ 0.014\ 0.032)\times10^0$	5.422 0.031 0.042 0.102
14.1 – 15.3	$(9.302\ 0.020\ 0.040\ 0.131)\times10^0$	$(1.721\ 0.009\ 0.012\ 0.026)\times10^0$	5.404 0.032 0.044 0.102
15.3 – 16.6	$(7.484\ 0.016\ 0.033\ 0.106)\times10^0$	$(1.403\ 0.008\ 0.010\ 0.022)\times10^0$	5.333 0.032 0.046 0.102

Table continued

TABLE SM LXIII: Bartels Rotation 2490 (February 6, 2016 – March 3, 2016). *(Continued).*

Rigidity	Φ_p $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	Φ_{He} $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	p/He $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$
16.6 – 18.0	$(5.986\ 0.014\ 0.027\ 0.086)\times10^{0}$	$(1.136\ 0.007\ 0.009\ 0.018)\times10^{0}$	5.268 0.033 0.047 0.102
18.0 – 19.5	$(4.795\ 0.011\ 0.023\ 0.070)\times10^{0}$	$(9.255\ 0.054\ 0.074\ 0.147)\times10^{-1}$	5.181 0.033 0.048 0.100
19.5 – 21.1	$(3.861\ 0.009\ 0.019\ 0.057)\times10^{0}$	$(7.538\ 0.045\ 0.063\ 0.121)\times10^{-1}$	5.123 0.033 0.049 0.100
21.1 – 22.8	$(3.124\ 0.008\ 0.016\ 0.047)\times10^{0}$	$(6.088\ 0.038\ 0.051\ 0.098)\times10^{-1}$	5.131 0.034 0.050 0.101
22.8 – 24.7	$(2.504\ 0.006\ 0.013\ 0.038)\times10^{0}$	$(4.945\ 0.031\ 0.042\ 0.080)\times10^{-1}$	5.062 0.034 0.050 0.100
24.7 – 26.7	$(2.011\ 0.005\ 0.011\ 0.031)\times10^{0}$	$(4.075\ 0.027\ 0.035\ 0.066)\times10^{-1}$	4.935 0.035 0.050 0.098
26.7 – 28.8	$(1.615\ 0.005\ 0.009\ 0.024)\times10^{0}$	$(3.308\ 0.024\ 0.029\ 0.054)\times10^{-1}$	4.882 0.037 0.051 0.097
28.8 – 31.1	$(1.316\ 0.004\ 0.007\ 0.020)\times10^{0}$	$(2.636\ 0.020\ 0.024\ 0.043)\times10^{-1}$	4.994 0.041 0.053 0.100
31.1 – 33.5	$(1.055\ 0.003\ 0.006\ 0.016)\times10^{0}$	$(2.238\ 0.018\ 0.021\ 0.037)\times10^{-1}$	4.713 0.041 0.051 0.095
33.5 – 36.1	$(8.648\ 0.030\ 0.052\ 0.133)\times10^{-1}$	$(1.803\ 0.015\ 0.017\ 0.031)\times10^{-1}$	4.795 0.044 0.054 0.098
36.1 – 38.9	$(6.978\ 0.026\ 0.043\ 0.107)\times10^{-1}$	$(1.457\ 0.013\ 0.014\ 0.025)\times10^{-1}$	4.789 0.047 0.055 0.099
38.9 – 41.9	$(5.727\ 0.023\ 0.036\ 0.089)\times10^{-1}$	$(1.200\ 0.012\ 0.012\ 0.020)\times10^{-1}$	4.774 0.050 0.057 0.100
41.9 – 45.1	$(4.628\ 0.020\ 0.030\ 0.072)\times10^{-1}$	$(9.518\ 0.101\ 0.099\ 0.166)\times10^{-2}$	4.863 0.055 0.059 0.103
45.1 – 48.5	$(3.828\ 0.017\ 0.025\ 0.060)\times10^{-1}$	$(7.976\ 0.089\ 0.086\ 0.141)\times10^{-2}$	4.799 0.058 0.061 0.103
48.5 – 52.2	$(3.087\ 0.015\ 0.021\ 0.050)\times10^{-1}$	$(6.547\ 0.077\ 0.073\ 0.118)\times10^{-2}$	4.715 0.060 0.062 0.102
52.2 – 56.1	$(2.511\ 0.013\ 0.017\ 0.041)\times10^{-1}$	$(5.417\ 0.068\ 0.063\ 0.099)\times10^{-2}$	4.636 0.063 0.063 0.102
56.1 – 60.3	$(2.064\ 0.011\ 0.014\ 0.034)\times10^{-1}$	$(4.319\ 0.058\ 0.052\ 0.080)\times10^{-2}$	4.779 0.070 0.066 0.106

TABLE SM LXIV: Bartels Rotation 2491 (March 4, 2016 – March 30, 2016). The proton flux Φ_p, helium flux Φ_{He}, and p/He flux ratio as a function of rigidity (in units of GV) at the top of AMS in units of $[\mathrm{m}^2 \cdot \mathrm{sr} \cdot \mathrm{s} \cdot \mathrm{GV}]^{-1}$ including errors due to statistics ($\sigma_{\mathrm{stat.}}$), time dependent systematic errors (σ_{time}) and the total systematic error ($\sigma_{\mathrm{syst.}}$). Contributions to the time dependent systematic errors are from: the trigger and the reconstruction efficiency. Contributions to the total systematic error are from: the acceptance, the background contamination, the geomagnetic cutoff factor, the event selection, the unfolding, the rigidity resolution function, the absolute rigidity scale, and the time dependent systematic errors. The statistical errors for the ratio are the sum in quadrature of the relative statistical errors of the fluxes multiplied by the ratio. The time dependent systematic errors for the ratio are the sum in quadrature of the relative time dependent systematic errors of the fluxes multiplied by the ratio. The systematic errors from the acceptance for the ratio are added in quadrature. The correlations in the systematic errors from the unfolding and the absolute rigidity scale between the fluxes have been accounted for in calculating the corresponding systematic errors of the ratio. The contributions of the individual sources to the systematic error are added in quadrature to arrive at the total systematic uncertainty on the ratio.

Rigidity	Φ_p	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	Φ_{He}	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	p/He	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$
1.00 – 1.16	$(8.852$	0.043	0.133	$0.398)\times10^2$	–	–	–	–	–	–	–	–
1.16 – 1.33	$(8.700$	0.026	0.095	$0.311)\times10^2$	–	–	–	–	–	–	–	–
1.33 – 1.51	$(8.395$	0.022	0.070	$0.242)\times10^2$	–	–	–	–	–	–	–	–
1.51 – 1.71	$(7.761$	0.016	0.053	$0.203)\times10^2$	–	–	–	–	–	–	–	–
1.71 – 1.92	$(7.059$	0.013	0.042	$0.167)\times10^2$	–	–	–	–	–	–	–	–
1.92 – 2.15	$(6.259$	0.011	0.034	$0.135)\times10^2$	$(7.724$	0.044	0.088	$0.178)\times10^1$	8.104	0.048	0.102	0.245
2.15 – 2.40	$(5.453$	0.009	0.027	$0.109)\times10^2$	$(7.086$	0.037	0.070	$0.144)\times10^1$	7.695	0.042	0.086	0.208
2.40 – 2.67	$(4.701$	0.008	0.022	$0.089)\times10^2$	$(6.428$	0.031	0.063	$0.121)\times10^1$	7.314	0.037	0.079	0.184
2.67 – 2.97	$(4.015$	0.006	0.019	$0.070)\times10^2$	$(5.656$	0.026	0.054	$0.101)\times10^1$	7.099	0.034	0.076	0.169
2.97 – 3.29	$(3.375$	0.005	0.016	$0.057)\times10^2$	$(4.914$	0.021	0.040	$0.083)\times10^1$	6.868	0.032	0.065	0.155
3.29 – 3.64	$(2.828$	0.004	0.014	$0.046)\times10^2$	$(4.168$	0.018	0.030	$0.068)\times10^1$	6.785	0.031	0.059	0.148
3.64 – 4.02	$(2.345$	0.004	0.011	$0.037)\times10^2$	$(3.541$	0.015	0.024	$0.057)\times10^1$	6.623	0.030	0.055	0.141
4.02 – 4.43	$(1.933$	0.003	0.009	$0.030)\times10^2$	$(2.965$	0.012	0.019	$0.047)\times10^1$	6.518	0.028	0.053	0.135
4.43 – 4.88	$(1.581$	0.002	0.008	$0.024)\times10^2$	$(2.467$	0.010	0.016	$0.039)\times10^1$	6.407	0.027	0.052	0.131
4.88 – 5.37	$(1.281$	0.002	0.006	$0.019)\times10^2$	$(2.031$	0.008	0.013	$0.031)\times10^1$	6.308	0.026	0.049	0.127
5.37 – 5.90	$(1.037$	0.002	0.004	$0.015)\times10^2$	$(1.668$	0.006	0.010	$0.026)\times10^1$	6.217	0.026	0.047	0.123
5.90 – 6.47	$(8.361$	0.012	0.034	$0.118)\times10^1$	$(1.370$	0.005	0.009	$0.021)\times10^1$	6.102	0.025	0.045	0.118
6.47 – 7.09	$(6.711$	0.010	0.027	$0.094)\times10^1$	$(1.123$	0.004	0.007	$0.017)\times10^1$	5.976	0.025	0.044	0.115
7.09 – 7.76	$(5.402$	0.008	0.021	$0.075)\times10^1$	$(9.060$	0.035	0.057	$0.139)\times10^0$	5.962	0.025	0.044	0.114
7.76 – 8.48	$(4.341$	0.007	0.017	$0.060)\times10^1$	$(7.389$	0.030	0.047	$0.113)\times10^0$	5.874	0.025	0.044	0.111
8.48 – 9.26	$(3.478$	0.006	0.014	$0.048)\times10^1$	$(6.022$	0.025	0.040	$0.092)\times10^0$	5.776	0.026	0.045	0.109
9.26 – 10.1	$(2.785$	0.005	0.011	$0.038)\times10^1$	$(4.909$	0.021	0.034	$0.076)\times10^0$	5.675	0.026	0.045	0.108
10.1 – 11.0	$(2.230$	0.004	0.009	$0.030)\times10^1$	$(4.009$	0.018	0.029	$0.062)\times10^0$	5.562	0.027	0.046	0.106
11.0 – 12.0	$(1.779$	0.003	0.008	$0.024)\times10^1$	$(3.195$	0.015	0.024	$0.050)\times10^0$	5.566	0.028	0.048	0.106
12.0 – 13.0	$(1.432$	0.003	0.006	$0.020)\times10^1$	$(2.624$	0.013	0.021	$0.042)\times10^0$	5.456	0.030	0.050	0.106
13.0 – 14.1	$(1.153$	0.002	0.005	$0.016)\times10^1$	$(2.126$	0.011	0.018	$0.034)\times10^0$	5.422	0.031	0.052	0.106
14.1 – 15.3	$(9.271$	0.020	0.045	$0.132)\times10^0$	$(1.713$	0.009	0.015	$0.027)\times10^0$	5.412	0.032	0.054	0.107
15.3 – 16.6	$(7.428$	0.016	0.037	$0.107)\times10^0$	$(1.385$	0.008	0.013	$0.023)\times10^0$	5.362	0.033	0.056	0.107

Table continued

TABLE SM LXIV: Bartels Rotation 2491 (March 4, 2016 – March 30, 2016). *(Continued).*

Rigidity	Φ_p $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	Φ_{He} $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	p/He $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$
16.6 – 18.0	$(5.965\ 0.014\ 0.031\ 0.087)\times10^{0}$	$(1.139\ 0.007\ 0.011\ 0.019)\times10^{0}$	5.235 0.033 0.057 0.106
18.0 – 19.5	$(4.781\ 0.011\ 0.025\ 0.071)\times10^{0}$	$(9.308\ 0.055\ 0.094\ 0.158)\times10^{-1}$	5.136 0.033 0.058 0.105
19.5 – 21.1	$(3.853\ 0.009\ 0.021\ 0.058)\times10^{0}$	$(7.491\ 0.046\ 0.078\ 0.129)\times10^{-1}$	5.144 0.034 0.061 0.106
21.1 – 22.8	$(3.103\ 0.008\ 0.018\ 0.047)\times10^{0}$	$(6.094\ 0.038\ 0.064\ 0.105)\times10^{-1}$	5.091 0.034 0.061 0.106
22.8 – 24.7	$(2.498\ 0.006\ 0.015\ 0.038)\times10^{0}$	$(4.968\ 0.032\ 0.053\ 0.086)\times10^{-1}$	5.029 0.034 0.061 0.105
24.7 – 26.7	$(2.001\ 0.005\ 0.012\ 0.031)\times10^{0}$	$(4.010\ 0.027\ 0.043\ 0.070)\times10^{-1}$	4.991 0.036 0.061 0.105
26.7 – 28.8	$(1.615\ 0.005\ 0.010\ 0.025)\times10^{0}$	$(3.337\ 0.024\ 0.036\ 0.058)\times10^{-1}$	4.841 0.037 0.061 0.102
28.8 – 31.1	$(1.312\ 0.004\ 0.008\ 0.020)\times10^{0}$	$(2.709\ 0.020\ 0.030\ 0.048)\times10^{-1}$	4.844 0.039 0.062 0.103
31.1 – 33.5	$(1.059\ 0.003\ 0.007\ 0.017)\times10^{0}$	$(2.203\ 0.018\ 0.025\ 0.039)\times10^{-1}$	4.808 0.042 0.063 0.103
33.5 – 36.1	$(8.679\ 0.030\ 0.058\ 0.136)\times10^{-1}$	$(1.779\ 0.015\ 0.020\ 0.032)\times10^{-1}$	4.879 0.046 0.065 0.106
36.1 – 38.9	$(7.023\ 0.026\ 0.048\ 0.111)\times10^{-1}$	$(1.496\ 0.014\ 0.018\ 0.028)\times10^{-1}$	4.694 0.046 0.064 0.103
38.9 – 41.9	$(5.726\ 0.023\ 0.040\ 0.091)\times10^{-1}$	$(1.201\ 0.012\ 0.015\ 0.022)\times10^{-1}$	4.769 0.050 0.067 0.106
41.9 – 45.1	$(4.657\ 0.020\ 0.034\ 0.074)\times10^{-1}$	$(9.819\ 0.103\ 0.123\ 0.184)\times10^{-2}$	4.743 0.054 0.069 0.107
45.1 – 48.5	$(3.807\ 0.017\ 0.028\ 0.062)\times10^{-1}$	$(8.152\ 0.091\ 0.106\ 0.156)\times10^{-2}$	4.670 0.056 0.070 0.107
48.5 – 52.2	$(3.059\ 0.015\ 0.023\ 0.050)\times10^{-1}$	$(6.633\ 0.078\ 0.089\ 0.129)\times10^{-2}$	4.612 0.059 0.071 0.107
52.2 – 56.1	$(2.523\ 0.013\ 0.020\ 0.043)\times10^{-1}$	$(5.343\ 0.068\ 0.074\ 0.106)\times10^{-2}$	4.721 0.065 0.075 0.111
56.1 – 60.3	$(2.054\ 0.011\ 0.016\ 0.035)\times10^{-1}$	$(4.405\ 0.059\ 0.063\ 0.089)\times10^{-2}$	4.663 0.068 0.076 0.111

TABLE SM LXV: Bartels Rotation 2492 (March 31, 2016 – April 26, 2016). The proton flux Φ_p, helium flux Φ_{He}, and p/He flux ratio as a function of rigidity (in units of GV) at the top of AMS in units of $[\mathrm{m}^2 \cdot \mathrm{sr} \cdot \mathrm{s} \cdot \mathrm{GV}]^{-1}$ including errors due to statistics ($\sigma_{\mathrm{stat.}}$), time dependent systematic errors (σ_{time}) and the total systematic error ($\sigma_{\mathrm{syst.}}$). Contributions to the time dependent systematic errors are from: the trigger and the reconstruction efficiency. Contributions to the total systematic error are from: the acceptance, the background contamination, the geomagnetic cutoff factor, the event selection, the unfolding, the rigidity resolution function, the absolute rigidity scale, and the time dependent systematic errors. The statistical errors for the ratio are the sum in quadrature of the relative statistical errors of the fluxes multiplied by the ratio. The time dependent systematic errors for the ratio are the sum in quadrature of the relative time dependent systematic errors of the fluxes multiplied by the ratio. The systematic errors from the acceptance for the ratio are added in quadrature. The correlations in the systematic errors from the unfolding and the absolute rigidity scale between the fluxes have been accounted for in calculating the corresponding systematic errors of the ratio. The contributions of the individual sources to the systematic error are added in quadrature to arrive at the total systematic uncertainty on the ratio.

Rigidity	Φ_p	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	Φ_{He}	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	p/He	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$
1.00 – 1.16	$(8.902$	0.039	0.106	$0.392)\times10^2$	–	–	–	–	–	–	–	–
1.16 – 1.33	$(8.731$	0.025	0.076	$0.307)\times10^2$	–	–	–	–	–	–	–	–
1.33 – 1.51	$(8.427$	0.022	0.057	$0.240)\times10^2$	–	–	–	–	–	–	–	–
1.51 – 1.71	$(7.815$	0.016	0.044	$0.202)\times10^2$	–	–	–	–	–	–	–	–
1.71 – 1.92	$(7.098$	0.013	0.035	$0.166)\times10^2$	–	–	–	–	–	–	–	–
1.92 – 2.15	$(6.301$	0.011	0.028	$0.135)\times10^2$	$(7.636$	0.043	0.067	$0.167)\times10^1$	8.252	0.049	0.082	0.241
2.15 – 2.40	$(5.481$	0.009	0.023	$0.109)\times10^2$	$(7.100$	0.037	0.054	$0.137)\times10^1$	7.719	0.042	0.067	0.202
2.40 – 2.67	$(4.726$	0.008	0.019	$0.089)\times10^2$	$(6.386$	0.031	0.046	$0.112)\times10^1$	7.400	0.037	0.061	0.179
2.67 – 2.97	$(4.021$	0.006	0.016	$0.070)\times10^2$	$(5.656$	0.026	0.039	$0.094)\times10^1$	7.109	0.034	0.057	0.162
2.97 – 3.29	$(3.389$	0.005	0.013	$0.056)\times10^2$	$(4.908$	0.021	0.032	$0.079)\times10^1$	6.904	0.031	0.052	0.151
3.29 – 3.64	$(2.828$	0.004	0.011	$0.045)\times10^2$	$(4.168$	0.018	0.025	$0.066)\times10^1$	6.785	0.030	0.049	0.144
3.64 – 4.02	$(2.344$	0.004	0.010	$0.037)\times10^2$	$(3.545$	0.015	0.020	$0.055)\times10^1$	6.613	0.029	0.046	0.137
4.02 – 4.43	$(1.935$	0.003	0.008	$0.030)\times10^2$	$(2.960$	0.012	0.016	$0.045)\times10^1$	6.539	0.028	0.044	0.132
4.43 – 4.88	$(1.579$	0.002	0.006	$0.024)\times10^2$	$(2.452$	0.009	0.013	$0.037)\times10^1$	6.440	0.026	0.042	0.128
4.88 – 5.37	$(1.283$	0.002	0.005	$0.018)\times10^2$	$(2.037$	0.008	0.010	$0.031)\times10^1$	6.299	0.026	0.040	0.124
5.37 – 5.90	$(1.033$	0.001	0.004	$0.015)\times10^2$	$(1.669$	0.006	0.008	$0.025)\times10^1$	6.192	0.025	0.038	0.119
5.90 – 6.47	$(8.344$	0.012	0.029	$0.116)\times10^1$	$(1.368$	0.005	0.007	$0.020)\times10^1$	6.099	0.025	0.037	0.115
6.47 – 7.09	$(6.726$	0.010	0.023	$0.093)\times10^1$	$(1.118$	0.004	0.006	$0.017)\times10^1$	6.015	0.025	0.036	0.113
7.09 – 7.76	$(5.411$	0.008	0.018	$0.074)\times10^1$	$(9.077$	0.035	0.046	$0.135)\times10^0$	5.962	0.025	0.036	0.111
7.76 – 8.48	$(4.338$	0.007	0.015	$0.060)\times10^1$	$(7.393$	0.029	0.039	$0.110)\times10^0$	5.869	0.025	0.037	0.109
8.48 – 9.26	$(3.475$	0.005	0.012	$0.047)\times10^1$	$(6.008$	0.025	0.033	$0.090)\times10^0$	5.784	0.026	0.038	0.107
9.26 – 10.1	$(2.777$	0.005	0.010	$0.037)\times10^1$	$(4.849$	0.021	0.028	$0.073)\times10^0$	5.726	0.027	0.039	0.106
10.1 – 11.0	$(2.225$	0.004	0.008	$0.030)\times10^1$	$(3.933$	0.018	0.024	$0.059)\times10^0$	5.658	0.028	0.040	0.104
11.0 – 12.0	$(1.773$	0.003	0.006	$0.024)\times10^1$	$(3.201$	0.015	0.020	$0.049)\times10^0$	5.539	0.028	0.041	0.103
12.0 – 13.0	$(1.423$	0.003	0.005	$0.019)\times10^1$	$(2.584$	0.013	0.017	$0.040)\times10^0$	5.505	0.030	0.042	0.103
13.0 – 14.1	$(1.147$	0.002	0.005	$0.016)\times10^1$	$(2.129$	0.011	0.015	$0.033)\times10^0$	5.388	0.030	0.043	0.102
14.1 – 15.3	$(9.225$	0.020	0.038	$0.129)\times10^0$	$(1.718$	0.009	0.013	$0.026)\times10^0$	5.370	0.032	0.045	0.102
15.3 – 16.6	$(7.402$	0.016	0.031	$0.105)\times10^0$	$(1.393$	0.008	0.011	$0.022)\times10^0$	5.314	0.032	0.047	0.102

Table continued

TABLE SM LXV: Bartels Rotation 2492 (March 31, 2016 – April 26, 2016). *(Continued).*

Rigidity	Φ_p $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	Φ_{He} $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	p/He $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$
16.6 – 18.0	$(5.935\ 0.013\ 0.026\ 0.085)\times10^{0}$	$(1.120\ 0.007\ 0.009\ 0.018)\times10^{0}$	5.299 0.033 0.049 0.103
18.0 – 19.5	$(4.755\ 0.011\ 0.021\ 0.069)\times10^{0}$	$(9.156\ 0.054\ 0.078\ 0.148)\times10^{-1}$	5.193 0.033 0.050 0.102
19.5 – 21.1	$(3.837\ 0.009\ 0.018\ 0.057)\times10^{0}$	$(7.453\ 0.045\ 0.066\ 0.122)\times10^{-1}$	5.149 0.034 0.052 0.101
21.1 – 22.8	$(3.103\ 0.008\ 0.015\ 0.046)\times10^{0}$	$(6.106\ 0.038\ 0.055\ 0.100)\times10^{-1}$	5.082 0.034 0.052 0.101
22.8 – 24.7	$(2.498\ 0.006\ 0.012\ 0.037)\times10^{0}$	$(4.919\ 0.031\ 0.045\ 0.081)\times10^{-1}$	5.079 0.035 0.053 0.102
24.7 – 26.7	$(2.002\ 0.005\ 0.010\ 0.030)\times10^{0}$	$(4.040\ 0.027\ 0.038\ 0.067)\times10^{-1}$	4.956 0.036 0.053 0.100
26.7 – 28.8	$(1.613\ 0.005\ 0.009\ 0.024)\times10^{0}$	$(3.277\ 0.024\ 0.032\ 0.055)\times10^{-1}$	4.924 0.038 0.054 0.100
28.8 – 31.1	$(1.303\ 0.004\ 0.007\ 0.020)\times10^{0}$	$(2.689\ 0.020\ 0.027\ 0.046)\times10^{-1}$	4.845 0.039 0.054 0.099
31.1 – 33.5	$(1.058\ 0.003\ 0.006\ 0.016)\times10^{0}$	$(2.173\ 0.018\ 0.022\ 0.037)\times10^{-1}$	4.870 0.043 0.056 0.100
33.5 – 36.1	$(8.622\ 0.030\ 0.049\ 0.131)\times10^{-1}$	$(1.801\ 0.016\ 0.019\ 0.032)\times10^{-1}$	4.787 0.045 0.057 0.100
36.1 – 38.9	$(7.000\ 0.026\ 0.041\ 0.107)\times10^{-1}$	$(1.466\ 0.013\ 0.016\ 0.026)\times10^{-1}$	4.775 0.047 0.058 0.101
38.9 – 41.9	$(5.729\ 0.023\ 0.034\ 0.088)\times10^{-1}$	$(1.194\ 0.012\ 0.013\ 0.021)\times10^{-1}$	4.798 0.051 0.060 0.102
41.9 – 45.1	$(4.641\ 0.020\ 0.028\ 0.072)\times10^{-1}$	$(9.824\ 0.102\ 0.110\ 0.176)\times10^{-2}$	4.724 0.053 0.060 0.101
45.1 – 48.5	$(3.811\ 0.017\ 0.024\ 0.060)\times10^{-1}$	$(8.014\ 0.090\ 0.091\ 0.145)\times10^{-2}$	4.755 0.057 0.062 0.103
48.5 – 52.2	$(3.101\ 0.015\ 0.020\ 0.050)\times10^{-1}$	$(6.473\ 0.077\ 0.075\ 0.118)\times10^{-2}$	4.791 0.061 0.064 0.105
52.2 – 56.1	$(2.527\ 0.013\ 0.017\ 0.041)\times10^{-1}$	$(5.387\ 0.068\ 0.064\ 0.099)\times10^{-2}$	4.691 0.064 0.064 0.103
56.1 – 60.3	$(2.053\ 0.011\ 0.014\ 0.034)\times10^{-1}$	$(4.398\ 0.059\ 0.053\ 0.082)\times10^{-2}$	4.668 0.068 0.065 0.104

TABLE SM LXVI: Bartels Rotation 2493 (April 27, 2016 – May 23, 2016). The proton flux Φ_p, helium flux Φ_{He}, and p/He flux ratio as a function of rigidity (in units of GV) at the top of AMS in units of $[\mathrm{m}^2 \cdot \mathrm{sr} \cdot \mathrm{s} \cdot \mathrm{GV}]^{-1}$ including errors due to statistics ($\sigma_{\mathrm{stat.}}$), time dependent systematic errors (σ_{time}) and the total systematic error ($\sigma_{\mathrm{syst.}}$). Contributions to the time dependent systematic errors are from: the trigger and the reconstruction efficiency. Contributions to the total systematic error are from: the acceptance, the background contamination, the geomagnetic cutoff factor, the event selection, the unfolding, the rigidity resolution function, the absolute rigidity scale, and the time dependent systematic errors. The statistical errors for the ratio are the sum in quadrature of the relative statistical errors of the fluxes multiplied by the ratio. The time dependent systematic errors for the ratio are the sum in quadrature of the relative time dependent systematic errors of the fluxes multiplied by the ratio. The systematic errors from the acceptance for the ratio are added in quadrature. The correlations in the systematic errors from the unfolding and the absolute rigidity scale between the fluxes have been accounted for in calculating the corresponding systematic errors of the ratio. The contributions of the individual sources to the systematic error are added in quadrature to arrive at the total systematic uncertainty on the ratio.

Rigidity	Φ_p	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	Φ_{He}	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	p/He	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$
1.00 – 1.16	$(9.199$	0.039	0.121	$0.408)\times10^2$	–	–	–	–	–	–	–	–
1.16 – 1.33	$(9.108$	0.026	0.087	$0.322)\times10^2$	–	–	–	–	–	–	–	–
1.33 – 1.51	$(8.635$	0.023	0.064	$0.247)\times10^2$	–	–	–	–	–	–	–	–
1.51 – 1.71	$(8.001$	0.017	0.049	$0.208)\times10^2$	–	–	–	–	–	–	–	–
1.71 – 1.92	$(7.255$	0.014	0.039	$0.170)\times10^2$	–	–	–	–	–	–	–	–
1.92 – 2.15	$(6.410$	0.012	0.031	$0.138)\times10^2$	$(7.896$	0.046	0.089	$0.181)\times10^1$	8.117	0.049	0.099	0.244
2.15 – 2.40	$(5.585$	0.010	0.025	$0.111)\times10^2$	$(7.241$	0.038	0.072	$0.147)\times10^1$	7.713	0.043	0.084	0.208
2.40 – 2.67	$(4.793$	0.008	0.020	$0.090)\times10^2$	$(6.539$	0.032	0.063	$0.123)\times10^1$	7.330	0.038	0.077	0.184
2.67 – 2.97	$(4.076$	0.007	0.017	$0.071)\times10^2$	$(5.710$	0.027	0.053	$0.102)\times10^1$	7.137	0.035	0.073	0.169
2.97 – 3.29	$(3.424$	0.005	0.014	$0.057)\times10^2$	$(5.008$	0.022	0.041	$0.084)\times10^1$	6.838	0.032	0.063	0.153
3.29 – 3.64	$(2.864$	0.004	0.012	$0.046)\times10^2$	$(4.264$	0.018	0.031	$0.070)\times10^1$	6.717	0.031	0.057	0.146
3.64 – 4.02	$(2.366$	0.004	0.010	$0.037)\times10^2$	$(3.587$	0.015	0.025	$0.058)\times10^1$	6.596	0.030	0.054	0.139
4.02 – 4.43	$(1.948$	0.003	0.008	$0.030)\times10^2$	$(2.986$	0.012	0.020	$0.047)\times10^1$	6.525	0.028	0.052	0.135
4.43 – 4.88	$(1.587$	0.002	0.007	$0.024)\times10^2$	$(2.478$	0.010	0.016	$0.039)\times10^1$	6.406	0.027	0.050	0.131
4.88 – 5.37	$(1.291$	0.002	0.005	$0.019)\times10^2$	$(2.035$	0.008	0.013	$0.032)\times10^1$	6.342	0.026	0.048	0.127
5.37 – 5.90	$(1.040$	0.002	0.004	$0.015)\times10^2$	$(1.681$	0.007	0.011	$0.026)\times10^1$	6.186	0.026	0.045	0.122
5.90 – 6.47	$(8.391$	0.012	0.031	$0.117)\times10^1$	$(1.372$	0.005	0.009	$0.021)\times10^1$	6.115	0.025	0.044	0.118
6.47 – 7.09	$(6.749$	0.010	0.024	$0.094)\times10^1$	$(1.117$	0.004	0.007	$0.017)\times10^1$	6.041	0.025	0.044	0.116
7.09 – 7.76	$(5.413$	0.008	0.019	$0.075)\times10^1$	$(9.121$	0.036	0.058	$0.140)\times10^0$	5.935	0.025	0.043	0.113
7.76 – 8.48	$(4.340$	0.007	0.015	$0.060)\times10^1$	$(7.420$	0.030	0.049	$0.114)\times10^0$	5.849	0.025	0.044	0.111
8.48 – 9.26	$(3.493$	0.006	0.013	$0.048)\times10^1$	$(6.000$	0.025	0.041	$0.093)\times10^0$	5.822	0.026	0.045	0.110
9.26 – 10.1	$(2.782$	0.005	0.010	$0.038)\times10^1$	$(4.914$	0.021	0.035	$0.077)\times10^0$	5.662	0.026	0.045	0.107
10.1 – 11.0	$(2.234$	0.004	0.008	$0.030)\times10^1$	$(3.960$	0.018	0.030	$0.062)\times10^0$	5.641	0.028	0.047	0.107
11.0 – 12.0	$(1.783$	0.003	0.007	$0.024)\times10^1$	$(3.189$	0.015	0.025	$0.051)\times10^0$	5.590	0.028	0.049	0.107
12.0 – 13.0	$(1.428$	0.003	0.006	$0.019)\times10^1$	$(2.590$	0.013	0.022	$0.042)\times10^0$	5.516	0.030	0.051	0.107
13.0 – 14.1	$(1.157$	0.002	0.005	$0.016)\times10^1$	$(2.114$	0.011	0.018	$0.034)\times10^0$	5.472	0.031	0.053	0.108
14.1 – 15.3	$(9.254$	0.020	0.040	$0.130)\times10^0$	$(1.713$	0.009	0.016	$0.028)\times10^0$	5.401	0.032	0.055	0.107
15.3 – 16.6	$(7.426$	0.016	0.033	$0.105)\times10^0$	$(1.402$	0.008	0.014	$0.024)\times10^0$	5.298	0.032	0.056	0.107

Table continued

TABLE SM LXVI: Bartels Rotation 2493 (April 27, 2016 – May 23, 2016). *(Continued).*

Rigidity	Φ_p $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	Φ_{He} $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	p/He $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$
16.6 – 18.0	$(5.982\ 0.014\ 0.027\ 0.086)\times10^{0}$	$(1.131\ 0.007\ 0.012\ 0.020)\times10^{0}$	5.290 0.033 0.059 0.108
18.0 – 19.5	$(4.785\ 0.011\ 0.023\ 0.070)\times10^{0}$	$(9.284\ 0.055\ 0.099\ 0.161)\times10^{-1}$	5.155 0.033 0.060 0.106
19.5 – 21.1	$(3.877\ 0.009\ 0.019\ 0.058)\times10^{0}$	$(7.503\ 0.045\ 0.083\ 0.132)\times10^{-1}$	5.168 0.034 0.062 0.108
21.1 – 22.8	$(3.112\ 0.008\ 0.016\ 0.047)\times10^{0}$	$(6.051\ 0.038\ 0.067\ 0.107)\times10^{-1}$	5.144 0.035 0.063 0.108
22.8 – 24.7	$(2.511\ 0.006\ 0.013\ 0.038)\times10^{0}$	$(4.978\ 0.031\ 0.056\ 0.088)\times10^{-1}$	5.044 0.034 0.062 0.106
24.7 – 26.7	$(2.013\ 0.005\ 0.011\ 0.031)\times10^{0}$	$(4.012\ 0.027\ 0.045\ 0.071)\times10^{-1}$	5.018 0.036 0.063 0.106
26.7 – 28.8	$(1.627\ 0.005\ 0.009\ 0.025)\times10^{0}$	$(3.284\ 0.024\ 0.038\ 0.058)\times10^{-1}$	4.956 0.038 0.063 0.105
28.8 – 31.1	$(1.315\ 0.004\ 0.007\ 0.020)\times10^{0}$	$(2.697\ 0.020\ 0.031\ 0.049)\times10^{-1}$	4.875 0.039 0.063 0.104
31.1 – 33.5	$(1.072\ 0.003\ 0.006\ 0.017)\times10^{0}$	$(2.198\ 0.018\ 0.026\ 0.040)\times10^{-1}$	4.879 0.043 0.064 0.105
33.5 – 36.1	$(8.717\ 0.030\ 0.052\ 0.134)\times10^{-1}$	$(1.786\ 0.015\ 0.021\ 0.033)\times10^{-1}$	4.880 0.046 0.065 0.106
36.1 – 38.9	$(7.055\ 0.026\ 0.043\ 0.109)\times10^{-1}$	$(1.477\ 0.014\ 0.018\ 0.028)\times10^{-1}$	4.778 0.047 0.065 0.105
38.9 – 41.9	$(5.740\ 0.023\ 0.036\ 0.089)\times10^{-1}$	$(1.203\ 0.012\ 0.015\ 0.022)\times10^{-1}$	4.770 0.050 0.066 0.106
41.9 – 45.1	$(4.660\ 0.020\ 0.030\ 0.073)\times10^{-1}$	$(9.931\ 0.103\ 0.126\ 0.188)\times10^{-2}$	4.693 0.053 0.067 0.105
45.1 – 48.5	$(3.794\ 0.017\ 0.025\ 0.060)\times10^{-1}$	$(7.978\ 0.089\ 0.104\ 0.153)\times10^{-2}$	4.756 0.058 0.070 0.108
48.5 – 52.2	$(3.083\ 0.015\ 0.021\ 0.050)\times10^{-1}$	$(6.728\ 0.078\ 0.090\ 0.131)\times10^{-2}$	4.582 0.058 0.069 0.105
52.2 – 56.1	$(2.536\ 0.013\ 0.018\ 0.042)\times10^{-1}$	$(5.275\ 0.067\ 0.073\ 0.104)\times10^{-2}$	4.807 0.066 0.074 0.111
56.1 – 60.3	$(2.055\ 0.011\ 0.014\ 0.034)\times10^{-1}$	$(4.444\ 0.059\ 0.063\ 0.089)\times10^{-2}$	4.625 0.067 0.073 0.109

TABLE SM LXVII: Bartels Rotation 2494 (May 24, 2016 – June 19, 2016). The proton flux Φ_p, helium flux Φ_{He}, and p/He flux ratio as a function of rigidity (in units of GV) at the top of AMS in units of $[\mathrm{m}^2 \cdot \mathrm{sr} \cdot \mathrm{s} \cdot \mathrm{GV}]^{-1}$ including errors due to statistics ($\sigma_{\mathrm{stat.}}$), time dependent systematic errors (σ_{time}) and the total systematic error ($\sigma_{\mathrm{syst.}}$). Contributions to the time dependent systematic errors are from: the trigger and the reconstruction efficiency. Contributions to the total systematic error are from: the acceptance, the background contamination, the geomagnetic cutoff factor, the event selection, the unfolding, the rigidity resolution function, the absolute rigidity scale, and the time dependent systematic errors. The statistical errors for the ratio are the sum in quadrature of the relative statistical errors of the fluxes multiplied by the ratio. The time dependent systematic errors for the ratio are the sum in quadrature of the relative time dependent systematic errors of the fluxes multiplied by the ratio. The systematic errors from the acceptance for the ratio are added in quadrature. The correlations in the systematic errors from the unfolding and the absolute rigidity scale between the fluxes have been accounted for in calculating the corresponding systematic errors of the ratio. The contributions of the individual sources to the systematic error are added in quadrature to arrive at the total systematic uncertainty on the ratio.

Rigidity	Φ_p $\sigma_{\mathrm{stat.}}$ σ_{time} $\sigma_{\mathrm{syst.}}$	Φ_{He} $\sigma_{\mathrm{stat.}}$ σ_{time} $\sigma_{\mathrm{syst.}}$	p/He $\sigma_{\mathrm{stat.}}$ σ_{time} $\sigma_{\mathrm{syst.}}$
1.00 – 1.16	$(9.728\ 0.042\ 0.112\ 0.427)\times10^2$	– – – –	– – – –
1.16 – 1.33	$(9.530\ 0.027\ 0.080\ 0.334)\times10^2$	– – – –	– – – –
1.33 – 1.51	$(9.122\ 0.023\ 0.059\ 0.259)\times10^2$	– – – –	– – – –
1.51 – 1.71	$(8.358\ 0.016\ 0.045\ 0.216)\times10^2$	– – – –	– – – –
1.71 – 1.92	$(7.591\ 0.014\ 0.036\ 0.177)\times10^2$	– – – –	– – – –
1.92 – 2.15	$(6.683\ 0.011\ 0.029\ 0.143)\times10^2$	$(8.279\ 0.045\ 0.079\ 0.184)\times10^1$	8.072 0.046 0.085 0.237
2.15 – 2.40	$(5.792\ 0.009\ 0.024\ 0.115)\times10^2$	$(7.522\ 0.038\ 0.064\ 0.147)\times10^1$	7.701 0.041 0.072 0.204
2.40 – 2.67	$(4.944\ 0.008\ 0.019\ 0.093)\times10^2$	$(6.790\ 0.032\ 0.056\ 0.122)\times10^1$	7.281 0.036 0.067 0.178
2.67 – 2.97	$(4.196\ 0.006\ 0.016\ 0.073)\times10^2$	$(5.942\ 0.026\ 0.048\ 0.102)\times10^1$	7.061 0.033 0.063 0.163
2.97 – 3.29	$(3.530\ 0.005\ 0.013\ 0.058)\times10^2$	$(5.082\ 0.022\ 0.036\ 0.083)\times10^1$	6.946 0.031 0.055 0.153
3.29 – 3.64	$(2.939\ 0.004\ 0.011\ 0.047)\times10^2$	$(4.333\ 0.018\ 0.027\ 0.069)\times10^1$	6.783 0.030 0.050 0.144
3.64 – 4.02	$(2.422\ 0.004\ 0.010\ 0.038)\times10^2$	$(3.646\ 0.015\ 0.021\ 0.057)\times10^1$	6.643 0.029 0.047 0.138
4.02 – 4.43	$(1.988\ 0.003\ 0.008\ 0.030)\times10^2$	$(3.040\ 0.012\ 0.017\ 0.047)\times10^1$	6.542 0.028 0.045 0.133
4.43 – 4.88	$(1.620\ 0.002\ 0.006\ 0.024)\times10^2$	$(2.513\ 0.010\ 0.014\ 0.038)\times10^1$	6.444 0.026 0.044 0.129
4.88 – 5.37	$(1.312\ 0.002\ 0.005\ 0.019)\times10^2$	$(2.064\ 0.008\ 0.011\ 0.031)\times10^1$	6.354 0.026 0.042 0.125
5.37 – 5.90	$(1.055\ 0.002\ 0.004\ 0.015)\times10^2$	$(1.707\ 0.007\ 0.009\ 0.026)\times10^1$	6.181 0.025 0.040 0.120
5.90 – 6.47	$(8.528\ 0.012\ 0.029\ 0.119)\times10^1$	$(1.390\ 0.005\ 0.008\ 0.021)\times10^1$	6.136 0.025 0.039 0.117
6.47 – 7.09	$(6.824\ 0.010\ 0.022\ 0.094)\times10^1$	$(1.130\ 0.004\ 0.006\ 0.017)\times10^1$	6.039 0.025 0.039 0.114
7.09 – 7.76	$(5.498\ 0.008\ 0.018\ 0.076)\times10^1$	$(9.240\ 0.036\ 0.051\ 0.139)\times10^0$	5.951 0.025 0.038 0.111
7.76 – 8.48	$(4.394\ 0.007\ 0.014\ 0.060)\times10^1$	$(7.465\ 0.030\ 0.042\ 0.112)\times10^0$	5.886 0.025 0.038 0.110
8.48 – 9.26	$(3.521\ 0.006\ 0.012\ 0.048)\times10^1$	$(6.070\ 0.025\ 0.036\ 0.091)\times10^0$	5.801 0.026 0.039 0.108
9.26 – 10.1	$(2.821\ 0.005\ 0.009\ 0.038)\times10^1$	$(4.911\ 0.021\ 0.030\ 0.074)\times10^0$	5.744 0.027 0.040 0.107
10.1 – 11.0	$(2.250\ 0.004\ 0.008\ 0.030)\times10^1$	$(3.956\ 0.018\ 0.025\ 0.060)\times10^0$	5.687 0.028 0.042 0.106
11.0 – 12.0	$(1.797\ 0.003\ 0.006\ 0.024)\times10^1$	$(3.221\ 0.015\ 0.022\ 0.050)\times10^0$	5.580 0.028 0.043 0.104
12.0 – 13.0	$(1.437\ 0.003\ 0.005\ 0.019)\times10^1$	$(2.572\ 0.013\ 0.018\ 0.040)\times10^0$	5.588 0.031 0.045 0.105
13.0 – 14.1	$(1.161\ 0.002\ 0.004\ 0.016)\times10^1$	$(2.123\ 0.011\ 0.016\ 0.033)\times10^0$	5.467 0.031 0.046 0.104
14.1 – 15.3	$(9.335\ 0.020\ 0.037\ 0.130)\times10^0$	$(1.735\ 0.009\ 0.014\ 0.027)\times10^0$	5.381 0.031 0.048 0.103
15.3 – 16.6	$(7.470\ 0.016\ 0.030\ 0.105)\times10^0$	$(1.409\ 0.008\ 0.012\ 0.023)\times10^0$	5.302 0.032 0.049 0.103

Table continued

TABLE SM LXVII: Bartels Rotation 2494 (May 24, 2016 – June 19, 2016). *(Continued).*

Rigidity	Φ_p $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	Φ_{He} $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	p/He $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$
16.6 – 18.0	$(6.015\ 0.014\ 0.025\ 0.086)\times10^{0}$	$(1.141\ 0.007\ 0.010\ 0.019)\times10^{0}$	5.273 0.033 0.051 0.104
18.0 – 19.5	$(4.825\ 0.011\ 0.021\ 0.070)\times10^{0}$	$(9.280\ 0.055\ 0.085\ 0.153)\times10^{-1}$	5.199 0.033 0.053 0.103
19.5 – 21.1	$(3.875\ 0.009\ 0.017\ 0.057)\times10^{0}$	$(7.451\ 0.045\ 0.071\ 0.124)\times10^{-1}$	5.200 0.034 0.054 0.104
21.1 – 22.8	$(3.126\ 0.008\ 0.015\ 0.046)\times10^{0}$	$(6.126\ 0.038\ 0.059\ 0.102)\times10^{-1}$	5.103 0.034 0.054 0.103
22.8 – 24.7	$(2.505\ 0.006\ 0.012\ 0.037)\times10^{0}$	$(4.961\ 0.031\ 0.048\ 0.083)\times10^{-1}$	5.050 0.034 0.054 0.102
24.7 – 26.7	$(2.013\ 0.005\ 0.010\ 0.030)\times10^{0}$	$(4.097\ 0.027\ 0.040\ 0.069)\times10^{-1}$	4.913 0.035 0.054 0.099
26.7 – 28.8	$(1.636\ 0.005\ 0.008\ 0.025)\times10^{0}$	$(3.269\ 0.024\ 0.032\ 0.055)\times10^{-1}$	5.004 0.039 0.056 0.102
28.8 – 31.1	$(1.314\ 0.004\ 0.007\ 0.020)\times10^{0}$	$(2.695\ 0.020\ 0.027\ 0.046)\times10^{-1}$	4.876 0.040 0.055 0.100
31.1 – 33.5	$(1.065\ 0.003\ 0.006\ 0.016)\times10^{0}$	$(2.200\ 0.018\ 0.023\ 0.038)\times10^{-1}$	4.841 0.042 0.056 0.100
33.5 – 36.1	$(8.617\ 0.030\ 0.047\ 0.131)\times10^{-1}$	$(1.794\ 0.016\ 0.019\ 0.032)\times10^{-1}$	4.804 0.045 0.057 0.100
36.1 – 38.9	$(6.977\ 0.026\ 0.039\ 0.106)\times10^{-1}$	$(1.447\ 0.013\ 0.016\ 0.026)\times10^{-1}$	4.821 0.048 0.058 0.102
38.9 – 41.9	$(5.732\ 0.023\ 0.033\ 0.088)\times10^{-1}$	$(1.208\ 0.012\ 0.013\ 0.021)\times10^{-1}$	4.744 0.050 0.059 0.101
41.9 – 45.1	$(4.640\ 0.020\ 0.028\ 0.071)\times10^{-1}$	$(9.979\ 0.104\ 0.113\ 0.180)\times10^{-2}$	4.650 0.052 0.060 0.100
45.1 – 48.5	$(3.819\ 0.017\ 0.023\ 0.060)\times10^{-1}$	$(7.849\ 0.089\ 0.092\ 0.143)\times10^{-2}$	4.865 0.059 0.064 0.106
48.5 – 52.2	$(3.096\ 0.015\ 0.019\ 0.049)\times10^{-1}$	$(6.613\ 0.078\ 0.080\ 0.122)\times10^{-2}$	4.682 0.060 0.063 0.103
52.2 – 56.1	$(2.528\ 0.013\ 0.016\ 0.041)\times10^{-1}$	$(5.428\ 0.069\ 0.068\ 0.102)\times10^{-2}$	4.657 0.064 0.065 0.104
56.1 – 60.3	$(2.056\ 0.011\ 0.013\ 0.034)\times10^{-1}$	$(4.576\ 0.060\ 0.059\ 0.087)\times10^{-2}$	4.492 0.064 0.064 0.101

TABLE SM LXVIII: Bartels Rotation 2495 (June 20, 2016 – July 16, 2016). The proton flux Φ_p, helium flux Φ_{He}, and p/He flux ratio as a function of rigidity (in units of GV) at the top of AMS in units of $[\mathrm{m}^2 \cdot \mathrm{sr} \cdot \mathrm{s} \cdot \mathrm{GV}]^{-1}$ including errors due to statistics ($\sigma_{\mathrm{stat.}}$), time dependent systematic errors (σ_{time}) and the total systematic error ($\sigma_{\mathrm{syst.}}$). Contributions to the time dependent systematic errors are from: the trigger and the reconstruction efficiency. Contributions to the total systematic error are from: the acceptance, the background contamination, the geomagnetic cutoff factor, the event selection, the unfolding, the rigidity resolution function, the absolute rigidity scale, and the time dependent systematic errors. The statistical errors for the ratio are the sum in quadrature of the relative statistical errors of the fluxes multiplied by the ratio. The time dependent systematic errors for the ratio are the sum in quadrature of the relative time dependent systematic errors of the fluxes multiplied by the ratio. The systematic errors from the acceptance for the ratio are added in quadrature. The correlations in the systematic errors from the unfolding and the absolute rigidity scale between the fluxes have been accounted for in calculating the corresponding systematic errors of the ratio. The contributions of the individual sources to the systematic error are added in quadrature to arrive at the total systematic uncertainty on the ratio.

Rigidity	Φ_p $\sigma_{\mathrm{stat.}}$ σ_{time} $\sigma_{\mathrm{syst.}}$	Φ_{He} $\sigma_{\mathrm{stat.}}$ σ_{time} $\sigma_{\mathrm{syst.}}$	p/He $\sigma_{\mathrm{stat.}}$ σ_{time} $\sigma_{\mathrm{syst.}}$
1.00 – 1.16	$(9.696\ 0.040\ 0.118\ 0.428)\times10^2$	– – – –	– – – –
1.16 – 1.33	$(9.445\ 0.027\ 0.085\ 0.333)\times10^2$	– – – –	– – – –
1.33 – 1.51	$(9.020\ 0.023\ 0.063\ 0.257)\times10^2$	– – – –	– – – –
1.51 – 1.71	$(8.336\ 0.016\ 0.048\ 0.216)\times10^2$	– – – –	– – – –
1.71 – 1.92	$(7.509\ 0.014\ 0.038\ 0.176)\times10^2$	– – – –	– – – –
1.92 – 2.15	$(6.622\ 0.011\ 0.031\ 0.142)\times10^2$	$(8.129\ 0.045\ 0.075\ 0.179)\times10^1$	8.146 0.047 0.084 0.239
2.15 – 2.40	$(5.729\ 0.009\ 0.025\ 0.114)\times10^2$	$(7.502\ 0.038\ 0.061\ 0.146)\times10^1$	7.637 0.041 0.071 0.201
2.40 – 2.67	$(4.904\ 0.008\ 0.020\ 0.092)\times10^2$	$(6.643\ 0.032\ 0.051\ 0.118)\times10^1$	7.382 0.037 0.064 0.180
2.67 – 2.97	$(4.146\ 0.006\ 0.017\ 0.072)\times10^2$	$(5.834\ 0.026\ 0.043\ 0.098)\times10^1$	7.107 0.034 0.059 0.163
2.97 – 3.29	$(3.479\ 0.005\ 0.014\ 0.058)\times10^2$	$(5.054\ 0.022\ 0.034\ 0.082)\times10^1$	6.884 0.031 0.054 0.151
3.29 – 3.64	$(2.894\ 0.004\ 0.012\ 0.046)\times10^2$	$(4.265\ 0.018\ 0.027\ 0.068)\times10^1$	6.786 0.030 0.051 0.145
3.64 – 4.02	$(2.389\ 0.004\ 0.010\ 0.038)\times10^2$	$(3.602\ 0.015\ 0.021\ 0.056)\times10^1$	6.632 0.029 0.048 0.138
4.02 – 4.43	$(1.963\ 0.003\ 0.008\ 0.030)\times10^2$	$(2.993\ 0.012\ 0.017\ 0.046)\times10^1$	6.557 0.028 0.046 0.133
4.43 – 4.88	$(1.602\ 0.002\ 0.007\ 0.024)\times10^2$	$(2.483\ 0.010\ 0.014\ 0.038)\times10^1$	6.451 0.026 0.044 0.129
4.88 – 5.37	$(1.300\ 0.002\ 0.005\ 0.019)\times10^2$	$(2.054\ 0.008\ 0.011\ 0.031)\times10^1$	6.327 0.026 0.042 0.125
5.37 – 5.90	$(1.049\ 0.002\ 0.004\ 0.015)\times10^2$	$(1.687\ 0.006\ 0.009\ 0.025)\times10^1$	6.215 0.025 0.040 0.120
5.90 – 6.47	$(8.432\ 0.012\ 0.030\ 0.118)\times10^1$	$(1.377\ 0.005\ 0.007\ 0.020)\times10^1$	6.122 0.025 0.039 0.116
6.47 – 7.09	$(6.793\ 0.010\ 0.024\ 0.094)\times10^1$	$(1.120\ 0.004\ 0.006\ 0.017)\times10^1$	6.067 0.025 0.039 0.115
7.09 – 7.76	$(5.448\ 0.008\ 0.019\ 0.075)\times10^1$	$(9.173\ 0.035\ 0.050\ 0.138)\times10^0$	5.940 0.025 0.038 0.111
7.76 – 8.48	$(4.370\ 0.007\ 0.015\ 0.060)\times10^1$	$(7.471\ 0.030\ 0.042\ 0.112)\times10^0$	5.849 0.025 0.039 0.109
8.48 – 9.26	$(3.511\ 0.006\ 0.012\ 0.048)\times10^1$	$(6.050\ 0.025\ 0.036\ 0.091)\times10^0$	5.804 0.026 0.040 0.108
9.26 – 10.1	$(2.803\ 0.005\ 0.010\ 0.038)\times10^1$	$(4.917\ 0.021\ 0.030\ 0.075)\times10^0$	5.701 0.026 0.041 0.106
10.1 – 11.0	$(2.236\ 0.004\ 0.008\ 0.030)\times10^1$	$(3.950\ 0.018\ 0.026\ 0.060)\times10^0$	5.660 0.028 0.042 0.105
11.0 – 12.0	$(1.790\ 0.003\ 0.007\ 0.024)\times10^1$	$(3.199\ 0.015\ 0.022\ 0.049)\times10^0$	5.594 0.028 0.044 0.105
12.0 – 13.0	$(1.441\ 0.003\ 0.006\ 0.020)\times10^1$	$(2.604\ 0.013\ 0.019\ 0.041)\times10^0$	5.534 0.030 0.045 0.105
13.0 – 14.1	$(1.159\ 0.002\ 0.005\ 0.016)\times10^1$	$(2.127\ 0.011\ 0.016\ 0.033)\times10^0$	5.449 0.031 0.047 0.104
14.1 – 15.3	$(9.278\ 0.020\ 0.039\ 0.130)\times10^0$	$(1.711\ 0.009\ 0.014\ 0.027)\times10^0$	5.422 0.032 0.049 0.104
15.3 – 16.6	$(7.445\ 0.016\ 0.032\ 0.105)\times10^0$	$(1.399\ 0.008\ 0.012\ 0.023)\times10^0$	5.322 0.032 0.050 0.104

Table continued

TABLE SM LXVIII: Bartels Rotation 2495 (June 20, 2016 – July 16, 2016). *(Continued).*

Rigidity	Φ_p $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	Φ_{He} $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	p/He $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$
16.6 – 18.0	$(5.972\ 0.013\ 0.027\ 0.086)\times10^{0}$	$(1.138\ 0.007\ 0.010\ 0.019)\times10^{0}$	5.247 0.032 0.052 0.104
18.0 – 19.5	$(4.804\ 0.011\ 0.022\ 0.070)\times10^{0}$	$(9.203\ 0.054\ 0.085\ 0.152)\times10^{-1}$	5.220 0.033 0.054 0.104
19.5 – 21.1	$(3.860\ 0.009\ 0.018\ 0.057)\times10^{0}$	$(7.516\ 0.045\ 0.072\ 0.126)\times10^{-1}$	5.136 0.033 0.055 0.103
21.1 – 22.8	$(3.113\ 0.008\ 0.015\ 0.046)\times10^{0}$	$(6.091\ 0.038\ 0.059\ 0.102)\times10^{-1}$	5.111 0.034 0.056 0.103
22.8 – 24.7	$(2.497\ 0.006\ 0.013\ 0.037)\times10^{0}$	$(4.960\ 0.031\ 0.048\ 0.084)\times10^{-1}$	5.034 0.034 0.055 0.102
24.7 – 26.7	$(2.009\ 0.005\ 0.011\ 0.031)\times10^{0}$	$(4.033\ 0.027\ 0.040\ 0.068)\times10^{-1}$	4.982 0.036 0.056 0.102
26.7 – 28.8	$(1.617\ 0.005\ 0.009\ 0.024)\times10^{0}$	$(3.254\ 0.023\ 0.033\ 0.055)\times10^{-1}$	4.968 0.039 0.057 0.102
28.8 – 31.1	$(1.317\ 0.004\ 0.007\ 0.020)\times10^{0}$	$(2.743\ 0.020\ 0.028\ 0.047)\times10^{-1}$	4.800 0.039 0.055 0.099
31.1 – 33.5	$(1.060\ 0.003\ 0.006\ 0.016)\times10^{0}$	$(2.191\ 0.018\ 0.023\ 0.038)\times10^{-1}$	4.838 0.043 0.057 0.100
33.5 – 36.1	$(8.613\ 0.030\ 0.051\ 0.132)\times10^{-1}$	$(1.809\ 0.016\ 0.019\ 0.032)\times10^{-1}$	4.762 0.044 0.057 0.099
36.1 – 38.9	$(7.050\ 0.026\ 0.042\ 0.108)\times10^{-1}$	$(1.454\ 0.013\ 0.015\ 0.026)\times10^{-1}$	4.849 0.048 0.059 0.102
38.9 – 41.9	$(5.706\ 0.023\ 0.035\ 0.088)\times10^{-1}$	$(1.193\ 0.012\ 0.013\ 0.021)\times10^{-1}$	4.783 0.051 0.059 0.102
41.9 – 45.1	$(4.639\ 0.020\ 0.029\ 0.072)\times10^{-1}$	$(9.842\ 0.103\ 0.107\ 0.174)\times10^{-2}$	4.714 0.053 0.059 0.101
45.1 – 48.5	$(3.777\ 0.017\ 0.025\ 0.060)\times10^{-1}$	$(8.107\ 0.090\ 0.089\ 0.144)\times10^{-2}$	4.659 0.056 0.059 0.101
48.5 – 52.2	$(3.125\ 0.015\ 0.021\ 0.050)\times10^{-1}$	$(6.565\ 0.078\ 0.073\ 0.118)\times10^{-2}$	4.760 0.061 0.062 0.103
52.2 – 56.1	$(2.541\ 0.013\ 0.017\ 0.042)\times10^{-1}$	$(5.382\ 0.068\ 0.061\ 0.097)\times10^{-2}$	4.721 0.065 0.062 0.103
56.1 – 60.3	$(2.047\ 0.011\ 0.014\ 0.034)\times10^{-1}$	$(4.516\ 0.060\ 0.052\ 0.082)\times10^{-2}$	4.533 0.065 0.061 0.099

TABLE SM LXIX: Bartels Rotation 2496 (July 17, 2016 – August 12, 2016). The proton flux Φ_p, helium flux Φ_{He}, and p/He flux ratio as a function of rigidity (in units of GV) at the top of AMS in units of $[\mathrm{m}^2 \cdot \mathrm{sr} \cdot \mathrm{s} \cdot \mathrm{GV}]^{-1}$ including errors due to statistics ($\sigma_{\mathrm{stat.}}$), time dependent systematic errors (σ_{time}) and the total systematic error ($\sigma_{\mathrm{syst.}}$). Contributions to the time dependent systematic errors are from: the trigger and the reconstruction efficiency. Contributions to the total systematic error are from: the acceptance, the background contamination, the geomagnetic cutoff factor, the event selection, the unfolding, the rigidity resolution function, the absolute rigidity scale, and the time dependent systematic errors. The statistical errors for the ratio are the sum in quadrature of the relative statistical errors of the fluxes multiplied by the ratio. The time dependent systematic errors for the ratio are the sum in quadrature of the relative time dependent systematic errors of the fluxes multiplied by the ratio. The systematic errors from the acceptance for the ratio are added in quadrature. The correlations in the systematic errors from the unfolding and the absolute rigidity scale between the fluxes have been accounted for in calculating the corresponding systematic errors of the ratio. The contributions of the individual sources to the systematic error are added in quadrature to arrive at the total systematic uncertainty on the ratio.

Rigidity	Φ_p	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	Φ_{He}	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	p/He	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$
1.00 – 1.16	$(9.648$	0.040	0.128	$0.429)\times10^2$	–	–	–	–	–	–	–	–
1.16 – 1.33	$(9.524$	0.027	0.092	$0.337)\times10^2$	–	–	–	–	–	–	–	–
1.33 – 1.51	$(9.025$	0.023	0.067	$0.258)\times10^2$	–	–	–	–	–	–	–	–
1.51 – 1.71	$(8.362$	0.016	0.052	$0.217)\times10^2$	–	–	–	–	–	–	–	–
1.71 – 1.92	$(7.535$	0.014	0.041	$0.177)\times10^2$	–	–	–	–	–	–	–	–
1.92 – 2.15	$(6.615$	0.011	0.032	$0.142)\times10^2$	$(8.153$	0.045	0.078	$0.181)\times10^1$	8.113	0.047	0.087	0.239
2.15 – 2.40	$(5.755$	0.009	0.026	$0.115)\times10^2$	$(7.507$	0.038	0.063	$0.147)\times10^1$	7.667	0.041	0.073	0.203
2.40 – 2.67	$(4.925$	0.008	0.021	$0.093)\times10^2$	$(6.689$	0.032	0.055	$0.121)\times10^1$	7.363	0.037	0.069	0.181
2.67 – 2.97	$(4.179$	0.006	0.018	$0.073)\times10^2$	$(5.854$	0.026	0.047	$0.101)\times10^1$	7.139	0.034	0.065	0.166
2.97 – 3.29	$(3.494$	0.005	0.015	$0.058)\times10^2$	$(5.044$	0.022	0.035	$0.082)\times10^1$	6.927	0.031	0.056	0.153
3.29 – 3.64	$(2.902$	0.004	0.013	$0.047)\times10^2$	$(4.297$	0.018	0.026	$0.068)\times10^1$	6.754	0.030	0.050	0.144
3.64 – 4.02	$(2.402$	0.004	0.011	$0.038)\times10^2$	$(3.614$	0.015	0.021	$0.056)\times10^1$	6.647	0.029	0.048	0.138
4.02 – 4.43	$(1.973$	0.003	0.009	$0.030)\times10^2$	$(2.999$	0.012	0.017	$0.046)\times10^1$	6.579	0.028	0.047	0.134
4.43 – 4.88	$(1.610$	0.002	0.007	$0.024)\times10^2$	$(2.501$	0.010	0.014	$0.038)\times10^1$	6.438	0.026	0.045	0.129
4.88 – 5.37	$(1.302$	0.002	0.005	$0.019)\times10^2$	$(2.059$	0.008	0.011	$0.031)\times10^1$	6.322	0.026	0.043	0.125
5.37 – 5.90	$(1.051$	0.002	0.004	$0.015)\times10^2$	$(1.685$	0.006	0.009	$0.026)\times10^1$	6.235	0.026	0.041	0.121
5.90 – 6.47	$(8.463$	0.012	0.032	$0.119)\times10^1$	$(1.379$	0.005	0.007	$0.020)\times10^1$	6.138	0.025	0.040	0.117
6.47 – 7.09	$(6.818$	0.010	0.025	$0.095)\times10^1$	$(1.122$	0.004	0.006	$0.017)\times10^1$	6.078	0.025	0.039	0.115
7.09 – 7.76	$(5.468$	0.008	0.020	$0.076)\times10^1$	$(9.125$	0.035	0.049	$0.137)\times10^0$	5.992	0.025	0.039	0.112
7.76 – 8.48	$(4.383$	0.007	0.016	$0.061)\times10^1$	$(7.482$	0.030	0.041	$0.111)\times10^0$	5.858	0.025	0.038	0.109
8.48 – 9.26	$(3.503$	0.006	0.013	$0.048)\times10^1$	$(6.040$	0.025	0.034	$0.090)\times10^0$	5.799	0.026	0.039	0.108
9.26 – 10.1	$(2.802$	0.005	0.011	$0.038)\times10^1$	$(4.935$	0.021	0.029	$0.074)\times10^0$	5.679	0.026	0.040	0.105
10.1 – 11.0	$(2.245$	0.004	0.009	$0.030)\times10^1$	$(3.976$	0.018	0.024	$0.060)\times10^0$	5.646	0.027	0.041	0.105
11.0 – 12.0	$(1.792$	0.003	0.007	$0.024)\times10^1$	$(3.202$	0.015	0.021	$0.049)\times10^0$	5.598	0.028	0.043	0.104
12.0 – 13.0	$(1.436$	0.003	0.006	$0.020)\times10^1$	$(2.592$	0.013	0.018	$0.040)\times10^0$	5.541	0.030	0.044	0.104
13.0 – 14.1	$(1.162$	0.002	0.005	$0.016)\times10^1$	$(2.110$	0.011	0.015	$0.033)\times10^0$	5.508	0.031	0.046	0.105
14.1 – 15.3	$(9.345$	0.020	0.041	$0.132)\times10^0$	$(1.716$	0.009	0.013	$0.026)\times10^0$	5.448	0.032	0.047	0.104
15.3 – 16.6	$(7.455$	0.016	0.034	$0.106)\times10^0$	$(1.398$	0.008	0.011	$0.022)\times10^0$	5.333	0.032	0.049	0.103

Table continued

TABLE SM LXIX: Bartels Rotation 2496 (July 17, 2016 – August 12, 2016). *(Continued).*

Rigidity	Φ_p $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	Φ_{He} $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	p/He $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$
16.6 – 18.0	(5.975 0.013 0.028 0.086)$\times 10^{0}$	(1.129 0.007 0.009 0.018)$\times 10^{0}$	5.295 0.033 0.050 0.104
18.0 – 19.5	(4.829 0.011 0.024 0.071)$\times 10^{0}$	(9.326 0.055 0.081 0.151)$\times 10^{-1}$	5.178 0.033 0.051 0.102
19.5 – 21.1	(3.861 0.009 0.020 0.058)$\times 10^{0}$	(7.498 0.045 0.067 0.123)$\times 10^{-1}$	5.149 0.033 0.053 0.102
21.1 – 22.8	(3.121 0.008 0.016 0.047)$\times 10^{0}$	(6.110 0.038 0.055 0.101)$\times 10^{-1}$	5.108 0.034 0.054 0.102
22.8 – 24.7	(2.521 0.006 0.014 0.038)$\times 10^{0}$	(4.985 0.031 0.046 0.082)$\times 10^{-1}$	5.057 0.034 0.054 0.102
24.7 – 26.7	(2.003 0.005 0.011 0.031)$\times 10^{0}$	(4.016 0.027 0.038 0.066)$\times 10^{-1}$	4.986 0.036 0.054 0.101
26.7 – 28.8	(1.627 0.005 0.009 0.025)$\times 10^{0}$	(3.276 0.024 0.031 0.054)$\times 10^{-1}$	4.964 0.038 0.055 0.101
28.8 – 31.1	(1.310 0.004 0.008 0.020)$\times 10^{0}$	(2.709 0.020 0.026 0.046)$\times 10^{-1}$	4.837 0.039 0.055 0.099
31.1 – 33.5	(1.068 0.003 0.006 0.017)$\times 10^{0}$	(2.201 0.018 0.022 0.037)$\times 10^{-1}$	4.851 0.042 0.056 0.100
33.5 – 36.1	(8.620 0.030 0.054 0.133)$\times 10^{-1}$	(1.799 0.016 0.018 0.031)$\times 10^{-1}$	4.790 0.045 0.057 0.100
36.1 – 38.9	(7.022 0.026 0.045 0.109)$\times 10^{-1}$	(1.467 0.013 0.015 0.026)$\times 10^{-1}$	4.786 0.047 0.059 0.101
38.9 – 41.9	(5.717 0.023 0.037 0.089)$\times 10^{-1}$	(1.199 0.012 0.013 0.021)$\times 10^{-1}$	4.766 0.050 0.060 0.102
41.9 – 45.1	(4.620 0.020 0.031 0.073)$\times 10^{-1}$	(9.885 0.103 0.111 0.177)$\times 10^{-2}$	4.674 0.053 0.061 0.101
45.1 – 48.5	(3.777 0.017 0.026 0.060)$\times 10^{-1}$	(7.956 0.089 0.093 0.145)$\times 10^{-2}$	4.747 0.058 0.064 0.105
48.5 – 52.2	(3.104 0.015 0.022 0.050)$\times 10^{-1}$	(6.574 0.078 0.079 0.122)$\times 10^{-2}$	4.722 0.060 0.066 0.105
52.2 – 56.1	(2.524 0.013 0.018 0.042)$\times 10^{-1}$	(5.391 0.068 0.067 0.102)$\times 10^{-2}$	4.682 0.064 0.067 0.105
56.1 – 60.3	(2.074 0.012 0.015 0.035)$\times 10^{-1}$	(4.396 0.059 0.057 0.084)$\times 10^{-2}$	4.718 0.069 0.070 0.108

TABLE SM LXX: Bartels Rotation 2497 (August 13, 2016 – September 8, 2016). The proton flux Φ_p, helium flux Φ_{He}, and p/He flux ratio as a function of rigidity (in units of GV) at the top of AMS in units of $[\mathrm{m}^2 \cdot \mathrm{sr} \cdot \mathrm{s} \cdot \mathrm{GV}]^{-1}$ including errors due to statistics ($\sigma_{\mathrm{stat.}}$), time dependent systematic errors (σ_{time}) and the total systematic error ($\sigma_{\mathrm{syst.}}$). Contributions to the time dependent systematic errors are from: the trigger and the reconstruction efficiency. Contributions to the total systematic error are from: the acceptance, the background contamination, the geomagnetic cutoff factor, the event selection, the unfolding, the rigidity resolution function, the absolute rigidity scale, and the time dependent systematic errors. The statistical errors for the ratio are the sum in quadrature of the relative statistical errors of the fluxes multiplied by the ratio. The time dependent systematic errors for the ratio are the sum in quadrature of the relative time dependent systematic errors of the fluxes multiplied by the ratio. The systematic errors from the acceptance for the ratio are added in quadrature. The correlations in the systematic errors from the unfolding and the absolute rigidity scale between the fluxes have been accounted for in calculating the corresponding systematic errors of the ratio. The contributions of the individual sources to the systematic error are added in quadrature to arrive at the total systematic uncertainty on the ratio.

Rigidity	Φ_p	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	Φ_{He}	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	p/He	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$
1.00 – 1.16	$(9.970$	0.043	0.110	$0.437)\times10^2$	–	–	–	–	–	–	–	–
1.16 – 1.33	$(9.762$	0.028	0.079	$0.342)\times10^2$	–	–	–	–	–	–	–	–
1.33 – 1.51	$(9.302$	0.024	0.058	$0.263)\times10^2$	–	–	–	–	–	–	–	–
1.51 – 1.71	$(8.613$	0.017	0.045	$0.222)\times10^2$	–	–	–	–	–	–	–	–
1.71 – 1.92	$(7.739$	0.015	0.036	$0.181)\times10^2$	–	–	–	–	–	–	–	–
1.92 – 2.15	$(6.820$	0.012	0.029	$0.145)\times10^2$	$(8.402$	0.047	0.081	$0.187)\times10^1$	8.117	0.048	0.086	0.239
2.15 – 2.40	$(5.890$	0.010	0.023	$0.117)\times10^2$	$(7.712$	0.040	0.066	$0.151)\times10^1$	7.637	0.041	0.072	0.202
2.40 – 2.67	$(5.027$	0.008	0.019	$0.094)\times10^2$	$(6.820$	0.033	0.057	$0.123)\times10^1$	7.371	0.037	0.067	0.181
2.67 – 2.97	$(4.248$	0.007	0.016	$0.074)\times10^2$	$(6.055$	0.027	0.049	$0.104)\times10^1$	7.016	0.034	0.063	0.162
2.97 – 3.29	$(3.555$	0.005	0.013	$0.059)\times10^2$	$(5.174$	0.022	0.036	$0.084)\times10^1$	6.871	0.031	0.054	0.151
3.29 – 3.64	$(2.953$	0.004	0.011	$0.047)\times10^2$	$(4.383$	0.019	0.027	$0.070)\times10^1$	6.738	0.030	0.049	0.143
3.64 – 4.02	$(2.431$	0.004	0.009	$0.038)\times10^2$	$(3.683$	0.015	0.021	$0.058)\times10^1$	6.601	0.029	0.046	0.137
4.02 – 4.43	$(1.997$	0.003	0.008	$0.030)\times10^2$	$(3.062$	0.012	0.017	$0.047)\times10^1$	6.522	0.028	0.045	0.132
4.43 – 4.88	$(1.628$	0.002	0.006	$0.024)\times10^2$	$(2.542$	0.010	0.014	$0.039)\times10^1$	6.406	0.026	0.044	0.128
4.88 – 5.37	$(1.315$	0.002	0.005	$0.019)\times10^2$	$(2.076$	0.008	0.012	$0.031)\times10^1$	6.334	0.026	0.042	0.125
5.37 – 5.90	$(1.062$	0.002	0.004	$0.015)\times10^2$	$(1.697$	0.007	0.009	$0.026)\times10^1$	6.257	0.026	0.040	0.121
5.90 – 6.47	$(8.517$	0.012	0.028	$0.118)\times10^1$	$(1.403$	0.005	0.008	$0.021)\times10^1$	6.069	0.025	0.039	0.115
6.47 – 7.09	$(6.845$	0.010	0.022	$0.095)\times10^1$	$(1.142$	0.004	0.006	$0.017)\times10^1$	5.993	0.025	0.038	0.113
7.09 – 7.76	$(5.515$	0.008	0.017	$0.076)\times10^1$	$(9.342$	0.036	0.052	$0.141)\times10^0$	5.903	0.025	0.038	0.110
7.76 – 8.48	$(4.414$	0.007	0.014	$0.060)\times10^1$	$(7.563$	0.030	0.043	$0.113)\times10^0$	5.836	0.025	0.038	0.109
8.48 – 9.26	$(3.524$	0.006	0.011	$0.048)\times10^1$	$(6.123$	0.025	0.036	$0.092)\times10^0$	5.756	0.026	0.039	0.107
9.26 – 10.1	$(2.819$	0.005	0.009	$0.038)\times10^1$	$(4.957$	0.022	0.031	$0.075)\times10^0$	5.687	0.027	0.040	0.106
10.1 – 11.0	$(2.253$	0.004	0.008	$0.030)\times10^1$	$(4.024$	0.018	0.026	$0.061)\times10^0$	5.598	0.028	0.041	0.104
11.0 – 12.0	$(1.800$	0.003	0.006	$0.024)\times10^1$	$(3.240$	0.015	0.022	$0.050)\times10^0$	5.556	0.028	0.043	0.104
12.0 – 13.0	$(1.445$	0.003	0.005	$0.020)\times10^1$	$(2.634$	0.014	0.019	$0.041)\times10^0$	5.487	0.030	0.044	0.104
13.0 – 14.1	$(1.163$	0.002	0.004	$0.016)\times10^1$	$(2.128$	0.011	0.016	$0.033)\times10^0$	5.467	0.031	0.046	0.104
14.1 – 15.3	$(9.314$	0.020	0.036	$0.130)\times10^0$	$(1.744$	0.010	0.014	$0.027)\times10^0$	5.341	0.032	0.047	0.102
15.3 – 16.6	$(7.498$	0.017	0.029	$0.105)\times10^0$	$(1.432$	0.008	0.012	$0.023)\times10^0$	5.237	0.032	0.048	0.102

Table continued

TABLE SM LXX: Bartels Rotation 2497 (August 13, 2016 – September 8, 2016). *(Continued).*

Rigidity	Φ_p $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	Φ_{He} $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	p/He $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$
16.6 – 18.0	$(6.031\ 0.014\ 0.025\ 0.086)\times10^{0}$	$(1.141\ 0.007\ 0.010\ 0.019)\times10^{0}$	5.286 0.033 0.051 0.104
18.0 – 19.5	$(4.812\ 0.011\ 0.020\ 0.070)\times10^{0}$	$(9.400\ 0.056\ 0.086\ 0.155)\times10^{-1}$	5.119 0.033 0.052 0.101
19.5 – 21.1	$(3.873\ 0.009\ 0.017\ 0.057)\times10^{0}$	$(7.644\ 0.047\ 0.073\ 0.128)\times10^{-1}$	5.066 0.033 0.053 0.101
21.1 – 22.8	$(3.132\ 0.008\ 0.014\ 0.046)\times10^{0}$	$(6.176\ 0.039\ 0.060\ 0.104)\times10^{-1}$	5.071 0.034 0.054 0.102
22.8 – 24.7	$(2.516\ 0.006\ 0.012\ 0.037)\times10^{0}$	$(5.029\ 0.032\ 0.049\ 0.085)\times10^{-1}$	5.002 0.034 0.054 0.101
24.7 – 26.7	$(2.017\ 0.005\ 0.010\ 0.030)\times10^{0}$	$(4.065\ 0.028\ 0.040\ 0.068)\times10^{-1}$	4.963 0.036 0.054 0.100
26.7 – 28.8	$(1.630\ 0.005\ 0.008\ 0.024)\times10^{0}$	$(3.308\ 0.024\ 0.033\ 0.056)\times10^{-1}$	4.928 0.038 0.055 0.100
28.8 – 31.1	$(1.319\ 0.004\ 0.007\ 0.020)\times10^{0}$	$(2.743\ 0.021\ 0.028\ 0.047)\times10^{-1}$	4.810 0.039 0.054 0.099
31.1 – 33.5	$(1.067\ 0.004\ 0.005\ 0.016)\times10^{0}$	$(2.222\ 0.018\ 0.023\ 0.038)\times10^{-1}$	4.801 0.043 0.056 0.099
33.5 – 36.1	$(8.679\ 0.030\ 0.046\ 0.131)\times10^{-1}$	$(1.825\ 0.016\ 0.019\ 0.032)\times10^{-1}$	4.755 0.045 0.056 0.099
36.1 – 38.9	$(7.070\ 0.026\ 0.038\ 0.107)\times10^{-1}$	$(1.501\ 0.014\ 0.016\ 0.027)\times10^{-1}$	4.709 0.047 0.057 0.099
38.9 – 41.9	$(5.719\ 0.023\ 0.032\ 0.087)\times10^{-1}$	$(1.224\ 0.012\ 0.014\ 0.021)\times10^{-1}$	4.673 0.050 0.058 0.100
41.9 – 45.1	$(4.648\ 0.020\ 0.026\ 0.071)\times10^{-1}$	$(9.862\ 0.104\ 0.113\ 0.178)\times10^{-2}$	4.713 0.054 0.060 0.101
45.1 – 48.5	$(3.811\ 0.018\ 0.022\ 0.059)\times10^{-1}$	$(8.151\ 0.092\ 0.097\ 0.150)\times10^{-2}$	4.676 0.057 0.062 0.102
48.5 – 52.2	$(3.091\ 0.015\ 0.018\ 0.049)\times10^{-1}$	$(6.464\ 0.078\ 0.079\ 0.120)\times10^{-2}$	4.782 0.062 0.065 0.105
52.2 – 56.1	$(2.531\ 0.013\ 0.015\ 0.041)\times10^{-1}$	$(5.441\ 0.070\ 0.069\ 0.103)\times10^{-2}$	4.653 0.064 0.065 0.104
56.1 – 60.3	$(2.061\ 0.012\ 0.013\ 0.034)\times10^{-1}$	$(4.463\ 0.060\ 0.058\ 0.086)\times10^{-2}$	4.619 0.068 0.067 0.104

TABLE SM LXXI: Bartels Rotation 2498 (September 9, 2016 – October 5, 2016). The proton flux Φ_p, helium flux Φ_{He}, and p/He flux ratio as a function of rigidity (in units of GV) at the top of AMS in units of $[\mathrm{m}^2 \cdot \mathrm{sr} \cdot \mathrm{s} \cdot \mathrm{GV}]^{-1}$ including errors due to statistics ($\sigma_{\mathrm{stat.}}$), time dependent systematic errors (σ_{time}) and the total systematic error ($\sigma_{\mathrm{syst.}}$). Contributions to the time dependent systematic errors are from: the trigger and the reconstruction efficiency. Contributions to the total systematic error are from: the acceptance, the background contamination, the geomagnetic cutoff factor, the event selection, the unfolding, the rigidity resolution function, the absolute rigidity scale, and the time dependent systematic errors. The statistical errors for the ratio are the sum in quadrature of the relative statistical errors of the fluxes multiplied by the ratio. The time dependent systematic errors for the ratio are the sum in quadrature of the relative time dependent systematic errors of the fluxes multiplied by the ratio. The systematic errors from the acceptance for the ratio are added in quadrature. The correlations in the systematic errors from the unfolding and the absolute rigidity scale between the fluxes have been accounted for in calculating the corresponding systematic errors of the ratio. The contributions of the individual sources to the systematic error are added in quadrature to arrive at the total systematic uncertainty on the ratio.

Rigidity	Φ_p	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	Φ_{He}	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	p/He	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$
1.00 – 1.16	$(1.052$	0.005	0.014	$0.047)\times10^3$	–	–	–	–	–	–	–	–
1.16 – 1.33	$(1.026$	0.003	0.010	$0.036)\times10^3$	–	–	–	–	–	–	–	–
1.33 – 1.51	$(9.700$	0.024	0.073	$0.278)\times10^2$	–	–	–	–	–	–	–	–
1.51 – 1.71	$(8.910$	0.018	0.055	$0.231)\times10^2$	–	–	–	–	–	–	–	–
1.71 – 1.92	$(7.997$	0.015	0.043	$0.188)\times10^2$	–	–	–	–	–	–	–	–
1.92 – 2.15	$(6.989$	0.012	0.034	$0.150)\times10^2$	$(8.705$	0.049	0.088	$0.195)\times10^1$	8.029	0.047	0.090	0.238
2.15 – 2.40	$(6.023$	0.010	0.027	$0.120)\times10^2$	$(7.940$	0.041	0.071	$0.157)\times10^1$	7.586	0.041	0.076	0.202
2.40 – 2.67	$(5.132$	0.008	0.022	$0.097)\times10^2$	$(7.020$	0.033	0.061	$0.128)\times10^1$	7.311	0.037	0.071	0.181
2.67 – 2.97	$(4.332$	0.007	0.018	$0.075)\times10^2$	$(6.085$	0.028	0.051	$0.106)\times10^1$	7.119	0.034	0.067	0.166
2.97 – 3.29	$(3.629$	0.006	0.015	$0.060)\times10^2$	$(5.237$	0.023	0.039	$0.086)\times10^1$	6.929	0.032	0.059	0.154
3.29 – 3.64	$(3.002$	0.005	0.013	$0.048)\times10^2$	$(4.450$	0.019	0.029	$0.072)\times10^1$	6.747	0.030	0.053	0.145
3.64 – 4.02	$(2.469$	0.004	0.011	$0.039)\times10^2$	$(3.733$	0.016	0.023	$0.059)\times10^1$	6.614	0.029	0.051	0.139
4.02 – 4.43	$(2.023$	0.003	0.009	$0.031)\times10^2$	$(3.097$	0.013	0.019	$0.048)\times10^1$	6.532	0.028	0.049	0.134
4.43 – 4.88	$(1.647$	0.002	0.007	$0.025)\times10^2$	$(2.550$	0.010	0.015	$0.039)\times10^1$	6.458	0.027	0.048	0.131
4.88 – 5.37	$(1.327$	0.002	0.005	$0.019)\times10^2$	$(2.091$	0.008	0.012	$0.032)\times10^1$	6.348	0.026	0.045	0.126
5.37 – 5.90	$(1.070$	0.002	0.004	$0.015)\times10^2$	$(1.714$	0.007	0.010	$0.026)\times10^1$	6.242	0.026	0.043	0.122
5.90 – 6.47	$(8.544$	0.012	0.032	$0.120)\times10^1$	$(1.403$	0.005	0.008	$0.021)\times10^1$	6.091	0.025	0.042	0.117
6.47 – 7.09	$(6.872$	0.010	0.025	$0.096)\times10^1$	$(1.140$	0.004	0.007	$0.017)\times10^1$	6.028	0.025	0.042	0.115
7.09 – 7.76	$(5.525$	0.008	0.020	$0.076)\times10^1$	$(9.291$	0.036	0.055	$0.141)\times10^0$	5.947	0.025	0.041	0.112
7.76 – 8.48	$(4.422$	0.007	0.016	$0.061)\times10^1$	$(7.519$	0.030	0.046	$0.114)\times10^0$	5.882	0.025	0.042	0.111
8.48 – 9.26	$(3.545$	0.006	0.013	$0.049)\times10^1$	$(6.136$	0.025	0.039	$0.094)\times10^0$	5.778	0.026	0.043	0.109
9.26 – 10.1	$(2.830$	0.005	0.010	$0.038)\times10^1$	$(4.959$	0.021	0.033	$0.076)\times10^0$	5.707	0.026	0.044	0.107
10.1 – 11.0	$(2.257$	0.004	0.009	$0.031)\times10^1$	$(3.955$	0.018	0.028	$0.061)\times10^0$	5.708	0.028	0.046	0.108
11.0 – 12.0	$(1.800$	0.003	0.007	$0.024)\times10^1$	$(3.235$	0.015	0.024	$0.051)\times10^0$	5.564	0.028	0.047	0.105
12.0 – 13.0	$(1.447$	0.003	0.006	$0.020)\times10^1$	$(2.617$	0.013	0.020	$0.042)\times10^0$	5.529	0.030	0.049	0.106
13.0 – 14.1	$(1.165$	0.002	0.005	$0.016)\times10^1$	$(2.127$	0.011	0.018	$0.034)\times10^0$	5.478	0.031	0.051	0.106
14.1 – 15.3	$(9.338$	0.020	0.041	$0.131)\times10^0$	$(1.727$	0.010	0.015	$0.028)\times10^0$	5.407	0.032	0.052	0.106
15.3 – 16.6	$(7.509$	0.017	0.034	$0.107)\times10^0$	$(1.411$	0.008	0.013	$0.023)\times10^0$	5.322	0.032	0.054	0.106

Table continued

TABLE SM LXXI: Bartels Rotation 2498 (September 9, 2016 – October 5, 2016). *(Continued).*

Rigidity	Φ_p $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	Φ_{He} $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	p/He $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$
16.6 – 18.0	$(6.019\ 0.014\ 0.028\ 0.087)\times10^{0}$	$(1.147\ 0.007\ 0.011\ 0.019)\times10^{0}$	5.248 0.033 0.056 0.106
18.0 – 19.5	$(4.819\ 0.011\ 0.023\ 0.071)\times10^{0}$	$(9.171\ 0.055\ 0.092\ 0.155)\times10^{-1}$	5.254 0.034 0.058 0.107
19.5 – 21.1	$(3.895\ 0.009\ 0.019\ 0.058)\times10^{0}$	$(7.658\ 0.046\ 0.080\ 0.132)\times10^{-1}$	5.086 0.033 0.059 0.104
21.1 – 22.8	$(3.132\ 0.008\ 0.016\ 0.047)\times10^{0}$	$(6.134\ 0.039\ 0.064\ 0.106)\times10^{-1}$	5.106 0.035 0.059 0.105
22.8 – 24.7	$(2.518\ 0.006\ 0.013\ 0.038)\times10^{0}$	$(5.028\ 0.032\ 0.053\ 0.087)\times10^{-1}$	5.008 0.034 0.059 0.104
24.7 – 26.7	$(2.017\ 0.005\ 0.011\ 0.031)\times10^{0}$	$(4.101\ 0.027\ 0.044\ 0.071)\times10^{-1}$	4.918 0.035 0.059 0.102
26.7 – 28.8	$(1.625\ 0.005\ 0.009\ 0.025)\times10^{0}$	$(3.263\ 0.024\ 0.035\ 0.057)\times10^{-1}$	4.980 0.039 0.060 0.104
28.8 – 31.1	$(1.320\ 0.004\ 0.008\ 0.020)\times10^{0}$	$(2.703\ 0.020\ 0.029\ 0.047)\times10^{-1}$	4.885 0.040 0.060 0.103
31.1 – 33.5	$(1.070\ 0.003\ 0.006\ 0.017)\times10^{0}$	$(2.209\ 0.018\ 0.024\ 0.039)\times10^{-1}$	4.842 0.042 0.060 0.102
33.5 – 36.1	$(8.643\ 0.030\ 0.052\ 0.133)\times10^{-1}$	$(1.820\ 0.016\ 0.020\ 0.033)\times10^{-1}$	4.749 0.044 0.060 0.101
36.1 – 38.9	$(7.091\ 0.026\ 0.044\ 0.110)\times10^{-1}$	$(1.461\ 0.013\ 0.017\ 0.026)\times10^{-1}$	4.855 0.048 0.063 0.105
38.9 – 41.9	$(5.732\ 0.023\ 0.037\ 0.089)\times10^{-1}$	$(1.223\ 0.012\ 0.014\ 0.022)\times10^{-1}$	4.688 0.049 0.062 0.102
41.9 – 45.1	$(4.633\ 0.020\ 0.030\ 0.072)\times10^{-1}$	$(9.889\ 0.103\ 0.118\ 0.181)\times10^{-2}$	4.684 0.053 0.064 0.103
45.1 – 48.5	$(3.786\ 0.017\ 0.025\ 0.060)\times10^{-1}$	$(8.155\ 0.091\ 0.099\ 0.151)\times10^{-2}$	4.642 0.056 0.064 0.103
48.5 – 52.2	$(3.070\ 0.015\ 0.021\ 0.050)\times10^{-1}$	$(6.745\ 0.079\ 0.084\ 0.127)\times10^{-2}$	4.552 0.058 0.065 0.102
52.2 – 56.1	$(2.519\ 0.013\ 0.018\ 0.042)\times10^{-1}$	$(5.422\ 0.069\ 0.069\ 0.103)\times10^{-2}$	4.646 0.064 0.068 0.105
56.1 – 60.3	$(2.078\ 0.012\ 0.015\ 0.035)\times10^{-1}$	$(4.418\ 0.059\ 0.058\ 0.085)\times10^{-2}$	4.704 0.068 0.070 0.108

TABLE SM LXXII: Bartels Rotation 2499 (October 6, 2016 – November 1, 2016). The proton flux Φ_p, helium flux Φ_{He}, and p/He flux ratio as a function of rigidity (in units of GV) at the top of AMS in units of $[\mathrm{m}^2 \cdot \mathrm{sr} \cdot \mathrm{s} \cdot \mathrm{GV}]^{-1}$ including errors due to statistics ($\sigma_{\mathrm{stat.}}$), time dependent systematic errors (σ_{time}) and the total systematic error ($\sigma_{\mathrm{syst.}}$). Contributions to the time dependent systematic errors are from: the trigger and the reconstruction efficiency. Contributions to the total systematic error are from: the acceptance, the background contamination, the geomagnetic cutoff factor, the event selection, the unfolding, the rigidity resolution function, the absolute rigidity scale, and the time dependent systematic errors. The statistical errors for the ratio are the sum in quadrature of the relative statistical errors of the fluxes multiplied by the ratio. The time dependent systematic errors for the ratio are the sum in quadrature of the relative time dependent systematic errors of the fluxes multiplied by the ratio. The systematic errors from the acceptance for the ratio are added in quadrature. The correlations in the systematic errors from the unfolding and the absolute rigidity scale between the fluxes have been accounted for in calculating the corresponding systematic errors of the ratio. The contributions of the individual sources to the systematic error are added in quadrature to arrive at the total systematic uncertainty on the ratio.

Rigidity	Φ_p	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	Φ_{He}	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	p/He	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$
1.00 – 1.16	1.131×10^3	0.005	0.015	0.050	–	–	–	–	–	–	–	–
1.16 – 1.33	1.090×10^3	0.003	0.011	0.039	–	–	–	–	–	–	–	–
1.33 – 1.51	1.024×10^3	0.003	0.008	0.029	–	–	–	–	–	–	–	–
1.51 – 1.71	9.346×10^2	0.019	0.059	0.243	–	–	–	–	–	–	–	–
1.71 – 1.92	8.340×10^2	0.016	0.046	0.196	–	–	–	–	–	–	–	–
1.92 – 2.15	7.251×10^2	0.013	0.036	0.156	8.967×10^1	0.051	0.093	0.202	8.087	0.049	0.093	0.241
2.15 – 2.40	6.225×10^2	0.011	0.029	0.124	8.210×10^1	0.043	0.075	0.163	7.582	0.042	0.078	0.203
2.40 – 2.67	5.298×10^2	0.009	0.023	0.100	7.313×10^1	0.035	0.065	0.134	7.244	0.037	0.072	0.180
2.67 – 2.97	4.434×10^2	0.007	0.019	0.077	6.243×10^1	0.029	0.054	0.109	7.102	0.035	0.069	0.166
2.97 – 3.29	3.699×10^2	0.006	0.016	0.062	5.356×10^1	0.023	0.040	0.089	6.907	0.032	0.060	0.154
3.29 – 3.64	3.051×10^2	0.005	0.013	0.049	4.545×10^1	0.019	0.030	0.073	6.713	0.030	0.053	0.144
3.64 – 4.02	2.501×10^2	0.004	0.011	0.040	3.759×10^1	0.016	0.023	0.059	6.654	0.030	0.051	0.140
4.02 – 4.43	2.047×10^2	0.003	0.009	0.031	3.151×10^1	0.013	0.019	0.049	6.497	0.028	0.049	0.133
4.43 – 4.88	1.667×10^2	0.002	0.007	0.025	2.590×10^1	0.010	0.016	0.040	6.438	0.027	0.048	0.130
4.88 – 5.37	1.344×10^2	0.002	0.006	0.019	2.129×10^1	0.008	0.013	0.033	6.315	0.026	0.046	0.126
5.37 – 5.90	1.080×10^2	0.002	0.004	0.015	1.719×10^1	0.007	0.010	0.026	6.281	0.026	0.044	0.123
5.90 – 6.47	8.648×10^1	0.013	0.033	0.121	1.408×10^1	0.005	0.008	0.021	6.140	0.026	0.042	0.118
6.47 – 7.09	6.943×10^1	0.010	0.026	0.097	1.147×10^1	0.004	0.007	0.017	6.054	0.025	0.042	0.115
7.09 – 7.76	5.569×10^1	0.008	0.020	0.077	9.289×10^0	0.036	0.054	0.141	5.995	0.025	0.041	0.113
7.76 – 8.48	4.468×10^1	0.007	0.016	0.062	7.614×10^0	0.030	0.046	0.115	5.868	0.025	0.041	0.110
8.48 – 9.26	3.565×10^1	0.006	0.013	0.049	6.182×10^0	0.026	0.038	0.094	5.767	0.026	0.042	0.108
9.26 – 10.1	2.847×10^1	0.005	0.011	0.039	4.980×10^0	0.022	0.032	0.076	5.717	0.027	0.043	0.107
10.1 – 11.0	2.275×10^1	0.004	0.009	0.031	4.032×10^0	0.018	0.027	0.062	5.644	0.028	0.044	0.106
11.0 – 12.0	1.807×10^1	0.003	0.007	0.025	3.258×10^0	0.015	0.023	0.051	5.547	0.028	0.045	0.105
12.0 – 13.0	1.452×10^1	0.003	0.006	0.020	2.648×10^0	0.014	0.020	0.042	5.484	0.030	0.047	0.105
13.0 – 14.1	1.170×10^1	0.002	0.005	0.016	2.124×10^0	0.011	0.017	0.034	5.508	0.032	0.049	0.106
14.1 – 15.3	9.401×10^0	0.020	0.042	0.133	1.733×10^0	0.010	0.014	0.027	5.425	0.032	0.051	0.105
15.3 – 16.6	7.517×10^0	0.017	0.034	0.107	1.411×10^0	0.008	0.012	0.023	5.328	0.033	0.052	0.105

Table continued

TABLE SM LXXII: Bartels Rotation 2499 (October 6, 2016 – November 1, 2016). *(Continued).*

Rigidity	Φ_p $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	Φ_{He} $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	p/He $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$
16.6 – 18.0	$(6.024\ 0.014\ 0.029\ 0.087)\times10^{0}$	$(1.148\ 0.007\ 0.010\ 0.019)\times10^{0}$	5.249 0.033 0.054 0.105
18.0 – 19.5	$(4.847\ 0.011\ 0.024\ 0.071)\times10^{0}$	$(9.258\ 0.055\ 0.088\ 0.155)\times10^{-1}$	5.236 0.034 0.056 0.105
19.5 – 21.1	$(3.887\ 0.009\ 0.020\ 0.058)\times10^{0}$	$(7.553\ 0.046\ 0.075\ 0.128)\times10^{-1}$	5.146 0.034 0.057 0.104
21.1 – 22.8	$(3.139\ 0.008\ 0.016\ 0.047)\times10^{0}$	$(6.146\ 0.039\ 0.062\ 0.105)\times10^{-1}$	5.107 0.035 0.058 0.105
22.8 – 24.7	$(2.522\ 0.006\ 0.014\ 0.038)\times10^{0}$	$(5.059\ 0.032\ 0.051\ 0.086)\times10^{-1}$	4.985 0.034 0.057 0.103
24.7 – 26.7	$(2.038\ 0.005\ 0.011\ 0.031)\times10^{0}$	$(4.037\ 0.027\ 0.042\ 0.069)\times10^{-1}$	5.049 0.037 0.059 0.104
26.7 – 28.8	$(1.632\ 0.005\ 0.009\ 0.025)\times10^{0}$	$(3.301\ 0.024\ 0.035\ 0.057)\times10^{-1}$	4.944 0.038 0.059 0.103
28.8 – 31.1	$(1.321\ 0.004\ 0.008\ 0.020)\times10^{0}$	$(2.676\ 0.020\ 0.028\ 0.047)\times10^{-1}$	4.939 0.040 0.060 0.104
31.1 – 33.5	$(1.070\ 0.004\ 0.006\ 0.017)\times10^{0}$	$(2.209\ 0.018\ 0.024\ 0.039)\times10^{-1}$	4.844 0.043 0.060 0.102
33.5 – 36.1	$(8.711\ 0.030\ 0.054\ 0.134)\times10^{-1}$	$(1.799\ 0.016\ 0.020\ 0.032)\times10^{-1}$	4.843 0.045 0.062 0.103
36.1 – 38.9	$(7.074\ 0.026\ 0.045\ 0.110)\times10^{-1}$	$(1.486\ 0.014\ 0.017\ 0.027)\times10^{-1}$	4.760 0.047 0.062 0.103
38.9 – 41.9	$(5.739\ 0.023\ 0.037\ 0.089)\times10^{-1}$	$(1.195\ 0.012\ 0.014\ 0.021)\times10^{-1}$	4.803 0.051 0.064 0.105
41.9 – 45.1	$(4.657\ 0.020\ 0.031\ 0.073)\times10^{-1}$	$(9.990\ 0.104\ 0.121\ 0.185)\times10^{-2}$	4.662 0.053 0.064 0.103
45.1 – 48.5	$(3.830\ 0.018\ 0.026\ 0.061)\times10^{-1}$	$(8.119\ 0.091\ 0.102\ 0.153)\times10^{-2}$	4.717 0.057 0.067 0.106
48.5 – 52.2	$(3.085\ 0.015\ 0.021\ 0.050)\times10^{-1}$	$(6.614\ 0.078\ 0.086\ 0.126)\times10^{-2}$	4.664 0.060 0.068 0.106
52.2 – 56.1	$(2.532\ 0.013\ 0.018\ 0.042)\times10^{-1}$	$(5.374\ 0.069\ 0.072\ 0.104)\times10^{-2}$	4.711 0.065 0.071 0.108
56.1 – 60.3	$(2.077\ 0.012\ 0.015\ 0.035)\times10^{-1}$	$(4.367\ 0.059\ 0.060\ 0.086)\times10^{-2}$	4.757 0.070 0.074 0.111

TABLE SM LXXIII: Bartels Rotation 2500 (November 2, 2016 – November 28, 2016). The proton flux Φ_p, helium flux Φ_{He}, and p/He flux ratio as a function of rigidity (in units of GV) at the top of AMS in units of $[\mathrm{m}^2 \cdot \mathrm{sr} \cdot \mathrm{s} \cdot \mathrm{GV}]^{-1}$ including errors due to statistics ($\sigma_{\mathrm{stat.}}$), time dependent systematic errors (σ_{time}) and the total systematic error ($\sigma_{\mathrm{syst.}}$). Contributions to the time dependent systematic errors are from: the trigger and the reconstruction efficiency. Contributions to the total systematic error are from: the acceptance, the background contamination, the geomagnetic cutoff factor, the event selection, the unfolding, the rigidity resolution function, the absolute rigidity scale, and the time dependent systematic errors. The statistical errors for the ratio are the sum in quadrature of the relative statistical errors of the fluxes multiplied by the ratio. The time dependent systematic errors for the ratio are the sum in quadrature of the relative time dependent systematic errors of the fluxes multiplied by the ratio. The systematic errors from the acceptance for the ratio are added in quadrature. The correlations in the systematic errors from the unfolding and the absolute rigidity scale between the fluxes have been accounted for in calculating the corresponding systematic errors of the ratio. The contributions of the individual sources to the systematic error are added in quadrature to arrive at the total systematic uncertainty on the ratio.

Rigidity	Φ_p	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	Φ_{He}	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	p/He	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$
1.00 – 1.16	$(1.186$	0.005	0.014	$0.052)\times10^3$	–	–	–	–	–	–	–	–
1.16 – 1.33	$(1.144$	0.003	0.010	$0.040)\times10^3$	–	–	–	–	–	–	–	–
1.33 – 1.51	$(1.075$	0.003	0.007	$0.030)\times10^3$	–	–	–	–	–	–	–	–
1.51 – 1.71	$(9.769$	0.019	0.053	$0.252)\times10^2$	–	–	–	–	–	–	–	–
1.71 – 1.92	$(8.641$	0.016	0.042	$0.202)\times10^2$	–	–	–	–	–	–	–	–
1.92 – 2.15	$(7.518$	0.013	0.033	$0.161)\times10^2$	$(9.415$	0.051	0.086	$0.207)\times10^1$	7.985	0.045	0.081	0.234
2.15 – 2.40	$(6.428$	0.010	0.027	$0.128)\times10^2$	$(8.480$	0.042	0.069	$0.165)\times10^1$	7.580	0.040	0.069	0.200
2.40 – 2.67	$(5.442$	0.009	0.021	$0.102)\times10^2$	$(7.459$	0.035	0.057	$0.133)\times10^1$	7.296	0.036	0.063	0.177
2.67 – 2.97	$(4.540$	0.007	0.018	$0.079)\times10^2$	$(6.428$	0.028	0.047	$0.108)\times10^1$	7.063	0.033	0.059	0.162
2.97 – 3.29	$(3.772$	0.006	0.015	$0.062)\times10^2$	$(5.445$	0.023	0.037	$0.088)\times10^1$	6.928	0.031	0.054	0.152
3.29 – 3.64	$(3.120$	0.005	0.012	$0.050)\times10^2$	$(4.617$	0.019	0.029	$0.074)\times10^1$	6.759	0.030	0.050	0.144
3.64 – 4.02	$(2.552$	0.004	0.010	$0.040)\times10^2$	$(3.855$	0.016	0.023	$0.060)\times10^1$	6.619	0.029	0.048	0.138
4.02 – 4.43	$(2.081$	0.003	0.008	$0.032)\times10^2$	$(3.176$	0.013	0.018	$0.049)\times10^1$	6.552	0.028	0.046	0.133
4.43 – 4.88	$(1.688$	0.002	0.007	$0.025)\times10^2$	$(2.613$	0.010	0.015	$0.040)\times10^1$	6.461	0.026	0.045	0.130
4.88 – 5.37	$(1.362$	0.002	0.005	$0.019)\times10^2$	$(2.138$	0.008	0.012	$0.032)\times10^1$	6.369	0.026	0.042	0.126
5.37 – 5.90	$(1.090$	0.002	0.004	$0.015)\times10^2$	$(1.747$	0.007	0.009	$0.026)\times10^1$	6.236	0.025	0.040	0.120
5.90 – 6.47	$(8.751$	0.013	0.030	$0.122)\times10^1$	$(1.429$	0.005	0.008	$0.021)\times10^1$	6.126	0.025	0.039	0.116
6.47 – 7.09	$(7.010$	0.010	0.024	$0.097)\times10^1$	$(1.153$	0.004	0.006	$0.017)\times10^1$	6.082	0.025	0.039	0.115
7.09 – 7.76	$(5.597$	0.008	0.019	$0.077)\times10^1$	$(9.426$	0.036	0.052	$0.142)\times10^0$	5.938	0.024	0.038	0.111
7.76 – 8.48	$(4.489$	0.007	0.015	$0.062)\times10^1$	$(7.655$	0.030	0.044	$0.115)\times10^0$	5.864	0.025	0.039	0.109
8.48 – 9.26	$(3.583$	0.006	0.012	$0.049)\times10^1$	$(6.144$	0.025	0.037	$0.093)\times10^0$	5.832	0.026	0.040	0.109
9.26 – 10.1	$(2.865$	0.005	0.010	$0.039)\times10^1$	$(5.021$	0.022	0.032	$0.076)\times10^0$	5.707	0.026	0.041	0.106
10.1 – 11.0	$(2.284$	0.004	0.008	$0.031)\times10^1$	$(4.058$	0.018	0.027	$0.062)\times10^0$	5.629	0.027	0.042	0.105
11.0 – 12.0	$(1.821$	0.003	0.007	$0.025)\times10^1$	$(3.264$	0.015	0.023	$0.051)\times10^0$	5.580	0.028	0.044	0.104
12.0 – 13.0	$(1.457$	0.003	0.005	$0.020)\times10^1$	$(2.627$	0.013	0.019	$0.041)\times10^0$	5.547	0.031	0.046	0.105
13.0 – 14.1	$(1.180$	0.002	0.005	$0.016)\times10^1$	$(2.145$	0.011	0.016	$0.034)\times10^0$	5.498	0.031	0.047	0.105
14.1 – 15.3	$(9.438$	0.020	0.038	$0.132)\times10^0$	$(1.755$	0.010	0.014	$0.027)\times10^0$	5.377	0.031	0.048	0.104
15.3 – 16.6	$(7.568$	0.017	0.032	$0.107)\times10^0$	$(1.421$	0.008	0.012	$0.023)\times10^0$	5.325	0.032	0.050	0.104

Table continued

TABLE SM LXXIII: Bartels Rotation 2500 (November 2, 2016 – November 28, 2016). *(Continued).*

Rigidity	Φ_p $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	Φ_{He} $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	p/He $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$
16.6 – 18.0	$(6.047\ 0.014\ 0.026\ 0.086)\times10^{0}$	$(1.153\ 0.007\ 0.010\ 0.019)\times10^{0}$	5.244 0.032 0.052 0.104
18.0 – 19.5	$(4.842\ 0.011\ 0.022\ 0.070)\times10^{0}$	$(9.267\ 0.055\ 0.087\ 0.154)\times10^{-1}$	5.225 0.033 0.054 0.104
19.5 – 21.1	$(3.900\ 0.009\ 0.018\ 0.057)\times10^{0}$	$(7.597\ 0.046\ 0.075\ 0.128)\times10^{-1}$	5.133 0.033 0.056 0.103
21.1 – 22.8	$(3.151\ 0.008\ 0.015\ 0.047)\times10^{0}$	$(6.269\ 0.039\ 0.062\ 0.106)\times10^{-1}$	5.026 0.033 0.056 0.102
22.8 – 24.7	$(2.527\ 0.006\ 0.012\ 0.038)\times10^{0}$	$(5.054\ 0.032\ 0.051\ 0.086)\times10^{-1}$	4.999 0.034 0.056 0.102
24.7 – 26.7	$(2.024\ 0.005\ 0.010\ 0.031)\times10^{0}$	$(4.101\ 0.027\ 0.042\ 0.070)\times10^{-1}$	4.935 0.036 0.057 0.101
26.7 – 28.8	$(1.639\ 0.005\ 0.009\ 0.025)\times10^{0}$	$(3.316\ 0.024\ 0.035\ 0.057)\times10^{-1}$	4.942 0.038 0.058 0.102
28.8 – 31.1	$(1.317\ 0.004\ 0.007\ 0.020)\times10^{0}$	$(2.674\ 0.020\ 0.029\ 0.047)\times10^{-1}$	4.923 0.040 0.059 0.103
31.1 – 33.5	$(1.072\ 0.004\ 0.006\ 0.017)\times10^{0}$	$(2.200\ 0.018\ 0.024\ 0.039)\times10^{-1}$	4.874 0.043 0.060 0.103
33.5 – 36.1	$(8.723\ 0.030\ 0.049\ 0.133)\times10^{-1}$	$(1.852\ 0.016\ 0.021\ 0.034)\times10^{-1}$	4.710 0.044 0.060 0.100
36.1 – 38.9	$(7.091\ 0.026\ 0.041\ 0.108)\times10^{-1}$	$(1.475\ 0.014\ 0.017\ 0.027)\times10^{-1}$	4.808 0.048 0.062 0.104
38.9 – 41.9	$(5.713\ 0.023\ 0.034\ 0.088)\times10^{-1}$	$(1.228\ 0.012\ 0.015\ 0.022)\times10^{-1}$	4.654 0.049 0.062 0.101
41.9 – 45.1	$(4.644\ 0.020\ 0.028\ 0.072)\times10^{-1}$	$(9.833\ 0.103\ 0.119\ 0.182)\times10^{-2}$	4.723 0.054 0.064 0.104
45.1 – 48.5	$(3.800\ 0.017\ 0.023\ 0.059)\times10^{-1}$	$(7.920\ 0.090\ 0.098\ 0.148)\times10^{-2}$	4.798 0.059 0.066 0.107
48.5 – 52.2	$(3.091\ 0.015\ 0.019\ 0.049)\times10^{-1}$	$(6.489\ 0.077\ 0.082\ 0.123)\times10^{-2}$	4.763 0.061 0.067 0.107
52.2 – 56.1	$(2.541\ 0.013\ 0.016\ 0.041)\times10^{-1}$	$(5.407\ 0.069\ 0.070\ 0.103)\times10^{-2}$	4.699 0.065 0.068 0.106
56.1 – 60.3	$(2.079\ 0.012\ 0.014\ 0.034)\times10^{-1}$	$(4.374\ 0.059\ 0.058\ 0.084)\times10^{-2}$	4.753 0.070 0.070 0.108

TABLE SM LXXIV: Bartels Rotation 2501 (November 29, 2016 – December 25, 2016). The proton flux Φ_p, helium flux Φ_{He}, and p/He flux ratio as a function of rigidity (in units of GV) at the top of AMS in units of $[\mathrm{m}^2 \cdot \mathrm{sr} \cdot \mathrm{s} \cdot \mathrm{GV}]^{-1}$ including errors due to statistics ($\sigma_{\mathrm{stat.}}$), time dependent systematic errors (σ_{time}) and the total systematic error ($\sigma_{\mathrm{syst.}}$). Contributions to the time dependent systematic errors are from: the trigger and the reconstruction efficiency. Contributions to the total systematic error are from: the acceptance, the background contamination, the geomagnetic cutoff factor, the event selection, the unfolding, the rigidity resolution function, the absolute rigidity scale, and the time dependent systematic errors. The statistical errors for the ratio are the sum in quadrature of the relative statistical errors of the fluxes multiplied by the ratio. The time dependent systematic errors for the ratio are the sum in quadrature of the relative time dependent systematic errors of the fluxes multiplied by the ratio. The systematic errors from the acceptance for the ratio are added in quadrature. The correlations in the systematic errors from the unfolding and the absolute rigidity scale between the fluxes have been accounted for in calculating the corresponding systematic errors of the ratio. The contributions of the individual sources to the systematic error are added in quadrature to arrive at the total systematic uncertainty on the ratio.

Rigidity	Φ_p	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	Φ_{He}	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	p/He	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$
1.00 – 1.16	$(1.233$	0.005	0.015	$0.054)\times10^3$	–	–	–	–	–	–	–	–
1.16 – 1.33	$(1.180$	0.003	0.011	$0.042)\times10^3$	–	–	–	–	–	–	–	–
1.33 – 1.51	$(1.103$	0.003	0.008	$0.031)\times10^3$	–	–	–	–	–	–	–	–
1.51 – 1.71	$(9.950$	0.019	0.058	$0.257)\times10^2$	–	–	–	–	–	–	–	–
1.71 – 1.92	$(8.779$	0.015	0.045	$0.206)\times10^2$	–	–	–	–	–	–	–	–
1.92 – 2.15	$(7.610$	0.013	0.036	$0.163)\times10^2$	$(9.526$	0.050	0.082	$0.207)\times10^1$	7.988	0.044	0.078	0.233
2.15 – 2.40	$(6.490$	0.010	0.029	$0.129)\times10^2$	$(8.558$	0.042	0.065	$0.165)\times10^1$	7.584	0.039	0.066	0.199
2.40 – 2.67	$(5.481$	0.008	0.023	$0.103)\times10^2$	$(7.534$	0.034	0.053	$0.132)\times10^1$	7.275	0.035	0.060	0.176
2.67 – 2.97	$(4.586$	0.007	0.019	$0.080)\times10^2$	$(6.509$	0.028	0.044	$0.108)\times10^1$	7.045	0.033	0.056	0.160
2.97 – 3.29	$(3.791$	0.006	0.016	$0.063)\times10^2$	$(5.549$	0.023	0.035	$0.089)\times10^1$	6.832	0.030	0.052	0.149
3.29 – 3.64	$(3.135$	0.005	0.013	$0.050)\times10^2$	$(4.688$	0.019	0.028	$0.074)\times10^1$	6.688	0.029	0.049	0.142
3.64 – 4.02	$(2.560$	0.004	0.011	$0.040)\times10^2$	$(3.876$	0.016	0.021	$0.060)\times10^1$	6.604	0.028	0.047	0.137
4.02 – 4.43	$(2.093$	0.003	0.009	$0.032)\times10^2$	$(3.204$	0.013	0.017	$0.049)\times10^1$	6.534	0.027	0.045	0.132
4.43 – 4.88	$(1.693$	0.002	0.007	$0.026)\times10^2$	$(2.636$	0.010	0.014	$0.040)\times10^1$	6.423	0.026	0.043	0.128
4.88 – 5.37	$(1.365$	0.002	0.006	$0.020)\times10^2$	$(2.161$	0.008	0.011	$0.032)\times10^1$	6.317	0.025	0.040	0.124
5.37 – 5.90	$(1.093$	0.002	0.004	$0.016)\times10^2$	$(1.756$	0.007	0.009	$0.026)\times10^1$	6.227	0.025	0.038	0.120
5.90 – 6.47	$(8.779$	0.013	0.032	$0.123)\times10^1$	$(1.420$	0.005	0.007	$0.021)\times10^1$	6.182	0.025	0.038	0.117
6.47 – 7.09	$(7.061$	0.010	0.025	$0.098)\times10^1$	$(1.163$	0.004	0.006	$0.017)\times10^1$	6.070	0.025	0.037	0.114
7.09 – 7.76	$(5.629$	0.008	0.020	$0.078)\times10^1$	$(9.511$	0.036	0.048	$0.141)\times10^0$	5.918	0.024	0.037	0.110
7.76 – 8.48	$(4.501$	0.007	0.016	$0.062)\times10^1$	$(7.689$	0.030	0.041	$0.114)\times10^0$	5.854	0.025	0.037	0.109
8.48 – 9.26	$(3.597$	0.006	0.013	$0.049)\times10^1$	$(6.224$	0.025	0.034	$0.093)\times10^0$	5.779	0.025	0.038	0.107
9.26 – 10.1	$(2.878$	0.005	0.011	$0.039)\times10^1$	$(5.001$	0.022	0.029	$0.075)\times10^0$	5.754	0.027	0.040	0.107
10.1 – 11.0	$(2.298$	0.004	0.009	$0.031)\times10^1$	$(4.065$	0.018	0.025	$0.061)\times10^0$	5.653	0.027	0.041	0.105
11.0 – 12.0	$(1.833$	0.003	0.007	$0.025)\times10^1$	$(3.271$	0.015	0.021	$0.050)\times10^0$	5.605	0.028	0.042	0.104
12.0 – 13.0	$(1.465$	0.003	0.006	$0.020)\times10^1$	$(2.630$	0.013	0.018	$0.040)\times10^0$	5.568	0.031	0.044	0.105
13.0 – 14.1	$(1.179$	0.002	0.005	$0.017)\times10^1$	$(2.163$	0.011	0.015	$0.033)\times10^0$	5.451	0.031	0.045	0.103
14.1 – 15.3	$(9.480$	0.020	0.041	$0.133)\times10^0$	$(1.757$	0.010	0.013	$0.027)\times10^0$	5.395	0.032	0.046	0.103
15.3 – 16.6	$(7.570$	0.017	0.034	$0.107)\times10^0$	$(1.439$	0.008	0.011	$0.023)\times10^0$	5.260	0.032	0.047	0.102

Table continued

TABLE SM LXXIV: Bartels Rotation 2501 (November 29, 2016 – December 25, 2016). *(Continued).*

Rigidity	Φ_p $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	Φ_{He} $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	p/He $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$
16.6 – 18.0	$(6.084\ 0.014\ 0.028\ 0.087)\times10^{0}$	$(1.143\ 0.007\ 0.009\ 0.019)\times10^{0}$	5.322 0.033 0.050 0.104
18.0 – 19.5	$(4.850\ 0.011\ 0.023\ 0.071)\times10^{0}$	$(9.449\ 0.055\ 0.082\ 0.153)\times10^{-1}$	5.133 0.032 0.051 0.101
19.5 – 21.1	$(3.900\ 0.009\ 0.019\ 0.058)\times10^{0}$	$(7.564\ 0.046\ 0.068\ 0.124)\times10^{-1}$	5.156 0.034 0.053 0.102
21.1 – 22.8	$(3.148\ 0.008\ 0.016\ 0.047)\times10^{0}$	$(6.200\ 0.039\ 0.057\ 0.102)\times10^{-1}$	5.077 0.034 0.053 0.102
22.8 – 24.7	$(2.533\ 0.006\ 0.013\ 0.038)\times10^{0}$	$(5.155\ 0.032\ 0.048\ 0.085)\times10^{-1}$	4.914 0.033 0.052 0.099
24.7 – 26.7	$(2.031\ 0.005\ 0.011\ 0.031)\times10^{0}$	$(4.052\ 0.027\ 0.038\ 0.067)\times10^{-1}$	5.011 0.036 0.054 0.101
26.7 – 28.8	$(1.639\ 0.005\ 0.009\ 0.025)\times10^{0}$	$(3.334\ 0.024\ 0.032\ 0.055)\times10^{-1}$	4.915 0.038 0.054 0.100
28.8 – 31.1	$(1.322\ 0.004\ 0.008\ 0.020)\times10^{0}$	$(2.686\ 0.020\ 0.026\ 0.045)\times10^{-1}$	4.921 0.040 0.055 0.101
31.1 – 33.5	$(1.066\ 0.003\ 0.006\ 0.017)\times10^{0}$	$(2.204\ 0.018\ 0.022\ 0.037)\times10^{-1}$	4.834 0.043 0.055 0.099
33.5 – 36.1	$(8.694\ 0.030\ 0.052\ 0.133)\times10^{-1}$	$(1.768\ 0.016\ 0.018\ 0.031)\times10^{-1}$	4.918 0.046 0.058 0.102
36.1 – 38.9	$(7.050\ 0.026\ 0.043\ 0.109)\times10^{-1}$	$(1.498\ 0.014\ 0.015\ 0.026)\times10^{-1}$	4.706 0.047 0.056 0.099
38.9 – 41.9	$(5.718\ 0.023\ 0.036\ 0.089)\times10^{-1}$	$(1.192\ 0.012\ 0.012\ 0.020)\times10^{-1}$	4.798 0.051 0.058 0.101
41.9 – 45.1	$(4.664\ 0.020\ 0.030\ 0.073)\times10^{-1}$	$(9.979\ 0.104\ 0.106\ 0.175)\times10^{-2}$	4.674 0.053 0.058 0.099
45.1 – 48.5	$(3.822\ 0.018\ 0.025\ 0.060)\times10^{-1}$	$(8.079\ 0.091\ 0.087\ 0.143)\times10^{-2}$	4.731 0.057 0.060 0.102
48.5 – 52.2	$(3.107\ 0.015\ 0.021\ 0.050)\times10^{-1}$	$(6.684\ 0.079\ 0.073\ 0.119)\times10^{-2}$	4.648 0.059 0.060 0.100
52.2 – 56.1	$(2.540\ 0.013\ 0.018\ 0.042)\times10^{-1}$	$(5.370\ 0.069\ 0.060\ 0.096)\times10^{-2}$	4.729 0.065 0.062 0.103
56.1 – 60.3	$(2.074\ 0.012\ 0.015\ 0.034)\times10^{-1}$	$(4.361\ 0.059\ 0.049\ 0.079)\times10^{-2}$	4.756 0.070 0.063 0.104

TABLE SM LXXV: Bartels Rotation 2502 (December 26, 2016 – January 21, 2017). The proton flux Φ_p, helium flux Φ_{He}, and p/He flux ratio as a function of rigidity (in units of GV) at the top of AMS in units of $[\mathrm{m}^2 \cdot \mathrm{sr} \cdot \mathrm{s} \cdot \mathrm{GV}]^{-1}$ including errors due to statistics ($\sigma_{\mathrm{stat.}}$), time dependent systematic errors (σ_{time}) and the total systematic error ($\sigma_{\mathrm{syst.}}$). Contributions to the time dependent systematic errors are from: the trigger and the reconstruction efficiency. Contributions to the total systematic error are from: the acceptance, the background contamination, the geomagnetic cutoff factor, the event selection, the unfolding, the rigidity resolution function, the absolute rigidity scale, and the time dependent systematic errors. The statistical errors for the ratio are the sum in quadrature of the relative statistical errors of the fluxes multiplied by the ratio. The time dependent systematic errors for the ratio are the sum in quadrature of the relative time dependent systematic errors of the fluxes multiplied by the ratio. The systematic errors from the acceptance for the ratio are added in quadrature. The correlations in the systematic errors from the unfolding and the absolute rigidity scale between the fluxes have been accounted for in calculating the corresponding systematic errors of the ratio. The contributions of the individual sources to the systematic error are added in quadrature to arrive at the total systematic uncertainty on the ratio.

Rigidity	Φ_p	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	Φ_{He}	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	p/He	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$
1.00 – 1.16	$(1.265$	0.005	0.016	$0.056)\times10^3$	–	–	–	–	–	–	–	–
1.16 – 1.33	$(1.198$	0.003	0.011	$0.042)\times10^3$	–	–	–	–	–	–	–	–
1.33 – 1.51	$(1.122$	0.003	0.008	$0.032)\times10^3$	–	–	–	–	–	–	–	–
1.51 – 1.71	$(1.012$	0.002	0.006	$0.026)\times10^3$	–	–	–	–	–	–	–	–
1.71 – 1.92	$(8.914$	0.016	0.047	$0.209)\times10^2$	–	–	–	–	–	–	–	–
1.92 – 2.15	$(7.695$	0.013	0.038	$0.165)\times10^2$	$(9.549$	0.051	0.087	$0.210)\times10^1$	8.058	0.045	0.083	0.236
2.15 – 2.40	$(6.573$	0.011	0.030	$0.131)\times10^2$	$(8.670$	0.043	0.070	$0.168)\times10^1$	7.582	0.039	0.070	0.200
2.40 – 2.67	$(5.525$	0.009	0.024	$0.104)\times10^2$	$(7.611$	0.035	0.061	$0.136)\times10^1$	7.260	0.035	0.066	0.178
2.67 – 2.97	$(4.609$	0.007	0.020	$0.080)\times10^2$	$(6.560$	0.029	0.051	$0.112)\times10^1$	7.025	0.033	0.063	0.162
2.97 – 3.29	$(3.822$	0.006	0.017	$0.064)\times10^2$	$(5.612$	0.024	0.037	$0.091)\times10^1$	6.810	0.030	0.054	0.150
3.29 – 3.64	$(3.150$	0.005	0.014	$0.051)\times10^2$	$(4.659$	0.019	0.027	$0.074)\times10^1$	6.761	0.030	0.050	0.144
3.64 – 4.02	$(2.577$	0.004	0.012	$0.041)\times10^2$	$(3.925$	0.016	0.022	$0.061)\times10^1$	6.564	0.029	0.047	0.136
4.02 – 4.43	$(2.102$	0.003	0.009	$0.032)\times10^2$	$(3.218$	0.013	0.017	$0.049)\times10^1$	6.533	0.028	0.046	0.133
4.43 – 4.88	$(1.702$	0.002	0.008	$0.026)\times10^2$	$(2.641$	0.010	0.014	$0.040)\times10^1$	6.442	0.026	0.045	0.129
4.88 – 5.37	$(1.372$	0.002	0.006	$0.020)\times10^2$	$(2.175$	0.008	0.012	$0.033)\times10^1$	6.309	0.026	0.043	0.125
5.37 – 5.90	$(1.101$	0.002	0.004	$0.016)\times10^2$	$(1.773$	0.007	0.009	$0.027)\times10^1$	6.212	0.025	0.041	0.120
5.90 – 6.47	$(8.835$	0.013	0.034	$0.124)\times10^1$	$(1.439$	0.006	0.007	$0.021)\times10^1$	6.139	0.025	0.040	0.117
6.47 – 7.09	$(7.063$	0.010	0.027	$0.099)\times10^1$	$(1.180$	0.004	0.006	$0.018)\times10^1$	5.988	0.024	0.039	0.113
7.09 – 7.76	$(5.671$	0.008	0.021	$0.079)\times10^1$	$(9.475$	0.037	0.050	$0.142)\times10^0$	5.985	0.025	0.039	0.112
7.76 – 8.48	$(4.517$	0.007	0.017	$0.062)\times10^1$	$(7.705$	0.031	0.041	$0.114)\times10^0$	5.862	0.025	0.038	0.109
8.48 – 9.26	$(3.612$	0.006	0.014	$0.050)\times10^1$	$(6.254$	0.026	0.035	$0.093)\times10^0$	5.775	0.025	0.039	0.107
9.26 – 10.1	$(2.880$	0.005	0.011	$0.039)\times10^1$	$(5.051$	0.022	0.029	$0.076)\times10^0$	5.703	0.026	0.040	0.106
10.1 – 11.0	$(2.306$	0.004	0.009	$0.031)\times10^1$	$(4.082$	0.019	0.025	$0.061)\times10^0$	5.648	0.028	0.041	0.105
11.0 – 12.0	$(1.830$	0.003	0.007	$0.025)\times10^1$	$(3.272$	0.015	0.021	$0.050)\times10^0$	5.593	0.028	0.042	0.104
12.0 – 13.0	$(1.463$	0.003	0.006	$0.020)\times10^1$	$(2.669$	0.014	0.018	$0.041)\times10^0$	5.481	0.030	0.043	0.103
13.0 – 14.1	$(1.182$	0.002	0.005	$0.017)\times10^1$	$(2.173$	0.011	0.015	$0.033)\times10^0$	5.440	0.031	0.045	0.103
14.1 – 15.3	$(9.503$	0.020	0.043	$0.134)\times10^0$	$(1.752$	0.010	0.013	$0.027)\times10^0$	5.424	0.032	0.047	0.104
15.3 – 16.6	$(7.605$	0.017	0.036	$0.109)\times10^0$	$(1.431$	0.008	0.011	$0.023)\times10^0$	5.316	0.032	0.048	0.103

Table continued

TABLE SM LXXV: Bartels Rotation 2502 (December 26, 2016 – January 21, 2017). *(Continued).*

Rigidity	Φ_p $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	Φ_{He} $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	p/He $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$
16.6 – 18.0	$(6.110\ 0.014\ 0.030\ 0.088)\times10^{0}$	$(1.154\ 0.007\ 0.009\ 0.019)\times10^{0}$	5.295 0.033 0.050 0.104
18.0 – 19.5	$(4.866\ 0.011\ 0.025\ 0.072)\times10^{0}$	$(9.400\ 0.055\ 0.080\ 0.151)\times10^{-1}$	5.177 0.033 0.051 0.102
19.5 – 21.1	$(3.924\ 0.009\ 0.020\ 0.059)\times10^{0}$	$(7.643\ 0.046\ 0.067\ 0.124)\times10^{-1}$	5.134 0.033 0.052 0.102
21.1 – 22.8	$(3.152\ 0.008\ 0.017\ 0.047)\times10^{0}$	$(6.286\ 0.039\ 0.056\ 0.103)\times10^{-1}$	5.013 0.033 0.052 0.100
22.8 – 24.7	$(2.540\ 0.006\ 0.014\ 0.038)\times10^{0}$	$(5.085\ 0.032\ 0.046\ 0.083)\times10^{-1}$	4.995 0.034 0.053 0.100
24.7 – 26.7	$(2.031\ 0.005\ 0.012\ 0.031)\times10^{0}$	$(4.098\ 0.028\ 0.037\ 0.067)\times10^{-1}$	4.955 0.036 0.053 0.100
26.7 – 28.8	$(1.649\ 0.005\ 0.010\ 0.025)\times10^{0}$	$(3.318\ 0.024\ 0.031\ 0.055)\times10^{-1}$	4.969 0.039 0.054 0.100
28.8 – 31.1	$(1.328\ 0.004\ 0.008\ 0.021)\times10^{0}$	$(2.758\ 0.021\ 0.026\ 0.046)\times10^{-1}$	4.815 0.039 0.054 0.098
31.1 – 33.5	$(1.073\ 0.004\ 0.007\ 0.017)\times10^{0}$	$(2.213\ 0.018\ 0.021\ 0.037)\times10^{-1}$	4.848 0.043 0.055 0.099
33.5 – 36.1	$(8.760\ 0.031\ 0.056\ 0.136)\times10^{-1}$	$(1.805\ 0.016\ 0.018\ 0.031)\times10^{-1}$	4.854 0.046 0.057 0.101
36.1 – 38.9	$(7.080\ 0.026\ 0.047\ 0.110)\times10^{-1}$	$(1.477\ 0.014\ 0.015\ 0.026)\times10^{-1}$	4.792 0.048 0.057 0.101
38.9 – 41.9	$(5.773\ 0.023\ 0.039\ 0.091)\times10^{-1}$	$(1.210\ 0.012\ 0.012\ 0.021)\times10^{-1}$	4.770 0.051 0.059 0.101
41.9 – 45.1	$(4.684\ 0.020\ 0.033\ 0.074)\times10^{-1}$	$(9.923\ 0.104\ 0.106\ 0.174)\times10^{-2}$	4.721 0.054 0.060 0.101
45.1 – 48.5	$(3.815\ 0.018\ 0.027\ 0.061)\times10^{-1}$	$(8.324\ 0.092\ 0.092\ 0.148)\times10^{-2}$	4.583 0.055 0.060 0.100
48.5 – 52.2	$(3.129\ 0.015\ 0.023\ 0.051)\times10^{-1}$	$(6.623\ 0.079\ 0.076\ 0.120)\times10^{-2}$	4.725 0.061 0.064 0.104
52.2 – 56.1	$(2.540\ 0.013\ 0.019\ 0.042)\times10^{-1}$	$(5.385\ 0.069\ 0.064\ 0.099)\times10^{-2}$	4.717 0.065 0.066 0.105
56.1 – 60.3	$(2.079\ 0.012\ 0.016\ 0.035)\times10^{-1}$	$(4.461\ 0.060\ 0.055\ 0.083)\times10^{-2}$	4.660 0.068 0.067 0.105

TABLE SM LXXVI: Bartels Rotation 2503 (January 22, 2017 – February 17, 2017). The proton flux Φ_p, helium flux Φ_{He}, and p/He flux ratio as a function of rigidity (in units of GV) at the top of AMS in units of $[\mathrm{m}^2 \cdot \mathrm{sr} \cdot \mathrm{s} \cdot \mathrm{GV}]^{-1}$ including errors due to statistics ($\sigma_{\mathrm{stat.}}$), time dependent systematic errors (σ_{time}) and the total systematic error ($\sigma_{\mathrm{syst.}}$). Contributions to the time dependent systematic errors are from: the trigger and the reconstruction efficiency. Contributions to the total systematic error are from: the acceptance, the background contamination, the geomagnetic cutoff factor, the event selection, the unfolding, the rigidity resolution function, the absolute rigidity scale, and the time dependent systematic errors. The statistical errors for the ratio are the sum in quadrature of the relative statistical errors of the fluxes multiplied by the ratio. The time dependent systematic errors for the ratio are the sum in quadrature of the relative time dependent systematic errors of the fluxes multiplied by the ratio. The systematic errors from the acceptance for the ratio are added in quadrature. The correlations in the systematic errors from the unfolding and the absolute rigidity scale between the fluxes have been accounted for in calculating the corresponding systematic errors of the ratio. The contributions of the individual sources to the systematic error are added in quadrature to arrive at the total systematic uncertainty on the ratio.

Rigidity	Φ_p	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	Φ_{He}	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	p/He	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$
1.00 – 1.16	$(1.300$	0.005	0.016	$0.057)\times10^3$	–	–	–	–	–	–	–	–
1.16 – 1.33	$(1.238$	0.003	0.011	$0.044)\times10^3$	–	–	–	–	–	–	–	–
1.33 – 1.51	$(1.144$	0.003	0.008	$0.033)\times10^3$	–	–	–	–	–	–	–	–
1.51 – 1.71	$(1.033$	0.002	0.006	$0.027)\times10^3$	–	–	–	–	–	–	–	–
1.71 – 1.92	$(9.085$	0.016	0.047	$0.213)\times10^2$	–	–	–	–	–	–	–	–
1.92 – 2.15	$(7.843$	0.013	0.037	$0.168)\times10^2$	$(9.818$	0.051	0.098	$0.219)\times10^1$	7.988	0.044	0.088	0.236
2.15 – 2.40	$(6.653$	0.010	0.030	$0.133)\times10^2$	$(8.792$	0.042	0.078	$0.174)\times10^1$	7.567	0.038	0.075	0.201
2.40 – 2.67	$(5.594$	0.009	0.024	$0.105)\times10^2$	$(7.734$	0.035	0.067	$0.141)\times10^1$	7.233	0.034	0.070	0.179
2.67 – 2.97	$(4.663$	0.007	0.020	$0.081)\times10^2$	$(6.660$	0.029	0.056	$0.116)\times10^1$	7.001	0.032	0.066	0.163
2.97 – 3.29	$(3.859$	0.006	0.016	$0.064)\times10^2$	$(5.598$	0.023	0.041	$0.092)\times10^1$	6.892	0.030	0.059	0.153
3.29 – 3.64	$(3.182$	0.005	0.014	$0.051)\times10^2$	$(4.704$	0.019	0.031	$0.076)\times10^1$	6.764	0.029	0.053	0.145
3.64 – 4.02	$(2.594$	0.004	0.012	$0.041)\times10^2$	$(3.949$	0.016	0.024	$0.062)\times10^1$	6.569	0.028	0.050	0.138
4.02 – 4.43	$(2.119$	0.003	0.009	$0.033)\times10^2$	$(3.257$	0.013	0.020	$0.051)\times10^1$	6.505	0.027	0.049	0.133
4.43 – 4.88	$(1.717$	0.002	0.007	$0.026)\times10^2$	$(2.652$	0.010	0.016	$0.041)\times10^1$	6.475	0.026	0.048	0.131
4.88 – 5.37	$(1.376$	0.002	0.006	$0.020)\times10^2$	$(2.156$	0.008	0.013	$0.033)\times10^1$	6.384	0.026	0.046	0.127
5.37 – 5.90	$(1.107$	0.002	0.004	$0.016)\times10^2$	$(1.789$	0.007	0.010	$0.027)\times10^1$	6.187	0.025	0.044	0.121
5.90 – 6.47	$(8.864$	0.013	0.033	$0.124)\times10^1$	$(1.450$	0.005	0.008	$0.022)\times10^1$	6.111	0.025	0.042	0.117
6.47 – 7.09	$(7.094$	0.010	0.026	$0.099)\times10^1$	$(1.181$	0.004	0.007	$0.018)\times10^1$	6.009	0.024	0.042	0.115
7.09 – 7.76	$(5.693$	0.008	0.021	$0.079)\times10^1$	$(9.492$	0.036	0.057	$0.144)\times10^0$	5.998	0.025	0.042	0.113
7.76 – 8.48	$(4.545$	0.007	0.017	$0.063)\times10^1$	$(7.738$	0.030	0.048	$0.117)\times10^0$	5.874	0.025	0.042	0.111
8.48 – 9.26	$(3.624$	0.006	0.014	$0.050)\times10^1$	$(6.277$	0.026	0.040	$0.096)\times10^0$	5.774	0.025	0.043	0.108
9.26 – 10.1	$(2.893$	0.005	0.011	$0.039)\times10^1$	$(5.082$	0.022	0.034	$0.078)\times10^0$	5.693	0.026	0.044	0.107
10.1 – 11.0	$(2.311$	0.004	0.009	$0.031)\times10^1$	$(4.133$	0.019	0.029	$0.064)\times10^0$	5.593	0.027	0.045	0.105
11.0 – 12.0	$(1.835$	0.003	0.007	$0.025)\times10^1$	$(3.298$	0.015	0.024	$0.052)\times10^0$	5.565	0.028	0.047	0.105
12.0 – 13.0	$(1.472$	0.003	0.006	$0.020)\times10^1$	$(2.669$	0.014	0.021	$0.042)\times10^0$	5.515	0.030	0.048	0.106
13.0 – 14.1	$(1.184$	0.002	0.005	$0.017)\times10^1$	$(2.187$	0.011	0.018	$0.035)\times10^0$	5.416	0.030	0.050	0.105
14.1 – 15.3	$(9.509$	0.020	0.042	$0.134)\times10^0$	$(1.780$	0.010	0.015	$0.028)\times10^0$	5.343	0.031	0.052	0.104
15.3 – 16.6	$(7.604$	0.017	0.035	$0.108)\times10^0$	$(1.419$	0.008	0.013	$0.023)\times10^0$	5.357	0.032	0.054	0.106

Table continued

TABLE SM LXXVI: Bartels Rotation 2503 (January 22, 2017 – February 17, 2017). *(Continued).*

Rigidity	Φ_p $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	Φ_{He} $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	p/He $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$
16.6 – 18.0	$(6.072\ 0.014\ 0.029\ 0.088)\times10^{0}$	$(1.161\ 0.007\ 0.011\ 0.020)\times10^{0}$	5.231 0.032 0.055 0.105
18.0 – 19.5	$(4.901\ 0.011\ 0.024\ 0.072)\times10^{0}$	$(9.386\ 0.055\ 0.092\ 0.158)\times10^{-1}$	5.222 0.033 0.058 0.106
19.5 – 21.1	$(3.913\ 0.009\ 0.020\ 0.058)\times10^{0}$	$(7.699\ 0.046\ 0.079\ 0.132)\times10^{-1}$	5.083 0.033 0.058 0.104
21.1 – 22.8	$(3.162\ 0.008\ 0.017\ 0.047)\times10^{0}$	$(6.084\ 0.038\ 0.063\ 0.105)\times10^{-1}$	5.197 0.035 0.060 0.107
22.8 – 24.7	$(2.534\ 0.006\ 0.014\ 0.038)\times10^{0}$	$(5.106\ 0.032\ 0.053\ 0.088)\times10^{-1}$	4.962 0.033 0.058 0.103
24.7 – 26.7	$(2.041\ 0.005\ 0.011\ 0.031)\times10^{0}$	$(4.096\ 0.027\ 0.043\ 0.071)\times10^{-1}$	4.984 0.036 0.060 0.104
26.7 – 28.8	$(1.641\ 0.005\ 0.010\ 0.025)\times10^{0}$	$(3.338\ 0.024\ 0.036\ 0.058)\times10^{-1}$	4.918 0.038 0.060 0.103
28.8 – 31.1	$(1.322\ 0.004\ 0.008\ 0.020)\times10^{0}$	$(2.716\ 0.020\ 0.030\ 0.048)\times10^{-1}$	4.868 0.039 0.061 0.103
31.1 – 33.5	$(1.073\ 0.004\ 0.007\ 0.017)\times10^{0}$	$(2.208\ 0.018\ 0.025\ 0.039)\times10^{-1}$	4.861 0.043 0.062 0.104
33.5 – 36.1	$(8.699\ 0.030\ 0.055\ 0.134)\times10^{-1}$	$(1.788\ 0.016\ 0.021\ 0.033)\times10^{-1}$	4.864 0.046 0.064 0.105
36.1 – 38.9	$(7.045\ 0.026\ 0.045\ 0.109)\times10^{-1}$	$(1.490\ 0.014\ 0.018\ 0.027)\times10^{-1}$	4.728 0.047 0.063 0.103
38.9 – 41.9	$(5.753\ 0.023\ 0.038\ 0.090)\times10^{-1}$	$(1.208\ 0.012\ 0.015\ 0.022)\times10^{-1}$	4.760 0.050 0.066 0.105
41.9 – 45.1	$(4.681\ 0.020\ 0.032\ 0.074)\times10^{-1}$	$(9.803\ 0.103\ 0.123\ 0.184)\times10^{-2}$	4.775 0.054 0.068 0.107
45.1 – 48.5	$(3.807\ 0.017\ 0.026\ 0.061)\times10^{-1}$	$(8.123\ 0.091\ 0.105\ 0.155)\times10^{-2}$	4.687 0.057 0.069 0.107
48.5 – 52.2	$(3.126\ 0.015\ 0.022\ 0.051)\times10^{-1}$	$(6.493\ 0.077\ 0.087\ 0.126)\times10^{-2}$	4.815 0.062 0.073 0.111
52.2 – 56.1	$(2.537\ 0.013\ 0.018\ 0.042)\times10^{-1}$	$(5.259\ 0.067\ 0.072\ 0.104)\times10^{-2}$	4.825 0.067 0.075 0.112
56.1 – 60.3	$(2.077\ 0.012\ 0.015\ 0.035)\times10^{-1}$	$(4.440\ 0.060\ 0.063\ 0.089)\times10^{-2}$	4.677 0.068 0.075 0.111

TABLE SM LXXVII: Bartels Rotation 2504 (February 18, 2017 – March 16, 2017). Days from March 6 to March 8, 2017 are not included because AMS was performing detector studies in that interval. The proton flux Φ_p, helium flux Φ_{He}, and p/He flux ratio as a function of rigidity (in units of GV) at the top of AMS in units of $[\mathrm{m}^2 \cdot \mathrm{sr} \cdot \mathrm{s} \cdot \mathrm{GV}]^{-1}$ including errors due to statistics ($\sigma_{\mathrm{stat.}}$), time dependent systematic errors (σ_{time}) and the total systematic error ($\sigma_{\mathrm{syst.}}$). Contributions to the time dependent systematic errors are from: the trigger and the reconstruction efficiency. Contributions to the total systematic error are from: the acceptance, the background contamination, the geomagnetic cutoff factor, the event selection, the unfolding, the rigidity resolution function, the absolute rigidity scale, and the time dependent systematic errors. The statistical errors for the ratio are the sum in quadrature of the relative statistical errors of the fluxes multiplied by the ratio. The time dependent systematic errors for the ratio are the sum in quadrature of the relative time dependent systematic errors of the fluxes multiplied by the ratio. The systematic errors from the acceptance for the ratio are added in quadrature. The correlations in the systematic errors from the unfolding and the absolute rigidity scale between the fluxes have been accounted for in calculating the corresponding systematic errors of the ratio. The contributions of the individual sources to the systematic error are added in quadrature to arrive at the total systematic uncertainty on the ratio.

Rigidity	Φ_p	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	Φ_{He}	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	p/He	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$
1.00 – 1.16	$(1.334$	0.005	0.016	$0.059)\times10^3$	–	–	–	–	–	–	–	–
1.16 – 1.33	$(1.266$	0.004	0.011	$0.045)\times10^3$	–	–	–	–	–	–	–	–
1.33 – 1.51	$(1.167$	0.003	0.008	$0.033)\times10^3$	–	–	–	–	–	–	–	–
1.51 – 1.71	$(1.048$	0.002	0.006	$0.027)\times10^3$	–	–	–	–	–	–	–	–
1.71 – 1.92	$(9.167$	0.018	0.048	$0.215)\times10^2$	–	–	–	–	–	–	–	–
1.92 – 2.15	$(7.933$	0.015	0.038	$0.170)\times10^2$	$(9.943$	0.058	0.103	$0.224)\times10^1$	7.979	0.049	0.091	0.237
2.15 – 2.40	$(6.713$	0.012	0.030	$0.134)\times10^2$	$(8.946$	0.049	0.082	$0.178)\times10^1$	7.503	0.043	0.077	0.201
2.40 – 2.67	$(5.654$	0.010	0.024	$0.106)\times10^2$	$(7.849$	0.040	0.071	$0.145)\times10^1$	7.204	0.039	0.072	0.179
2.67 – 2.97	$(4.685$	0.008	0.020	$0.082)\times10^2$	$(6.691$	0.032	0.059	$0.118)\times10^1$	7.001	0.036	0.068	0.164
2.97 – 3.29	$(3.880$	0.006	0.016	$0.065)\times10^2$	$(5.678$	0.026	0.043	$0.094)\times10^1$	6.832	0.033	0.059	0.152
3.29 – 3.64	$(3.194$	0.005	0.014	$0.051)\times10^2$	$(4.765$	0.022	0.032	$0.077)\times10^1$	6.702	0.032	0.054	0.144
3.64 – 4.02	$(2.607$	0.004	0.011	$0.041)\times10^2$	$(3.986$	0.018	0.025	$0.063)\times10^1$	6.541	0.031	0.050	0.137
4.02 – 4.43	$(2.118$	0.003	0.009	$0.033)\times10^2$	$(3.270$	0.014	0.020	$0.051)\times10^1$	6.477	0.030	0.049	0.133
4.43 – 4.88	$(1.717$	0.003	0.007	$0.026)\times10^2$	$(2.664$	0.011	0.016	$0.041)\times10^1$	6.446	0.029	0.048	0.131
4.88 – 5.37	$(1.383$	0.002	0.006	$0.020)\times10^2$	$(2.205$	0.009	0.013	$0.034)\times10^1$	6.271	0.028	0.045	0.125
5.37 – 5.90	$(1.110$	0.002	0.004	$0.016)\times10^2$	$(1.782$	0.007	0.011	$0.027)\times10^1$	6.229	0.028	0.044	0.122
5.90 – 6.47	$(8.887$	0.014	0.033	$0.124)\times10^1$	$(1.461$	0.006	0.009	$0.022)\times10^1$	6.082	0.027	0.042	0.117
6.47 – 7.09	$(7.102$	0.011	0.026	$0.099)\times10^1$	$(1.180$	0.005	0.007	$0.018)\times10^1$	6.018	0.027	0.042	0.115
7.09 – 7.76	$(5.708$	0.009	0.020	$0.079)\times10^1$	$(9.498$	0.040	0.057	$0.144)\times10^0$	6.010	0.027	0.042	0.114
7.76 – 8.48	$(4.547$	0.007	0.016	$0.063)\times10^1$	$(7.796$	0.033	0.048	$0.118)\times10^0$	5.832	0.027	0.041	0.110
8.48 – 9.26	$(3.634$	0.006	0.013	$0.050)\times10^1$	$(6.317$	0.028	0.040	$0.096)\times10^0$	5.753	0.027	0.042	0.108
9.26 – 10.1	$(2.898$	0.005	0.011	$0.039)\times10^1$	$(5.113$	0.024	0.034	$0.079)\times10^0$	5.667	0.028	0.043	0.107
10.1 – 11.0	$(2.319$	0.004	0.009	$0.031)\times10^1$	$(4.105$	0.020	0.029	$0.063)\times10^0$	5.648	0.030	0.045	0.106
11.0 – 12.0	$(1.840$	0.004	0.007	$0.025)\times10^1$	$(3.349$	0.017	0.025	$0.052)\times10^0$	5.493	0.030	0.046	0.104
12.0 – 13.0	$(1.474$	0.003	0.006	$0.020)\times10^1$	$(2.658$	0.015	0.020	$0.042)\times10^0$	5.544	0.033	0.048	0.106
13.0 – 14.1	$(1.184$	0.003	0.005	$0.017)\times10^1$	$(2.178$	0.012	0.018	$0.035)\times10^0$	5.439	0.033	0.050	0.105
14.1 – 15.3	$(9.514$	0.022	0.041	$0.134)\times10^0$	$(1.765$	0.010	0.015	$0.028)\times10^0$	5.391	0.034	0.052	0.105

Table continued

TABLE SM LXXVII: Bartels Rotation 2504 (February 18, 2017 – March 16, 2017). *(Continued).*

Rigidity	Φ_p $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	Φ_{He} $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	p/He $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$
15.3 – 16.6	$(7.625\ 0.018\ 0.034\ 0.108)\times10^{0}$	$(1.423\ 0.009\ 0.013\ 0.023)\times10^{0}$	5.360 0.035 0.054 0.106
16.6 – 18.0	$(6.124\ 0.015\ 0.028\ 0.088)\times10^{0}$	$(1.153\ 0.007\ 0.011\ 0.019)\times10^{0}$	5.312 0.036 0.056 0.106
18.0 – 19.5	$(4.876\ 0.012\ 0.023\ 0.071)\times10^{0}$	$(9.420\ 0.060\ 0.092\ 0.159)\times10^{-1}$	5.176 0.035 0.056 0.105
19.5 – 21.1	$(3.929\ 0.010\ 0.019\ 0.058)\times10^{0}$	$(7.660\ 0.050\ 0.078\ 0.131)\times10^{-1}$	5.130 0.036 0.058 0.104
21.1 – 22.8	$(3.157\ 0.008\ 0.016\ 0.047)\times10^{0}$	$(6.135\ 0.042\ 0.063\ 0.105)\times10^{-1}$	5.146 0.038 0.059 0.106
22.8 – 24.7	$(2.538\ 0.007\ 0.013\ 0.038)\times10^{0}$	$(4.999\ 0.034\ 0.052\ 0.086)\times10^{-1}$	5.077 0.038 0.059 0.105
24.7 – 26.7	$(2.030\ 0.006\ 0.011\ 0.031)\times10^{0}$	$(4.081\ 0.030\ 0.043\ 0.070)\times10^{-1}$	4.973 0.039 0.059 0.103
26.7 – 28.8	$(1.636\ 0.005\ 0.009\ 0.025)\times10^{0}$	$(3.325\ 0.026\ 0.035\ 0.057)\times10^{-1}$	4.920 0.041 0.059 0.102
28.8 – 31.1	$(1.312\ 0.004\ 0.008\ 0.020)\times10^{0}$	$(2.720\ 0.022\ 0.029\ 0.047)\times10^{-1}$	4.824 0.043 0.059 0.101
31.1 – 33.5	$(1.068\ 0.004\ 0.006\ 0.017)\times10^{0}$	$(2.228\ 0.020\ 0.024\ 0.039)\times10^{-1}$	4.796 0.046 0.060 0.101
33.5 – 36.1	$(8.675\ 0.033\ 0.053\ 0.133)\times10^{-1}$	$(1.811\ 0.017\ 0.020\ 0.033)\times10^{-1}$	4.790 0.049 0.061 0.102
36.1 – 38.9	$(7.075\ 0.029\ 0.044\ 0.109)\times10^{-1}$	$(1.487\ 0.015\ 0.017\ 0.027)\times10^{-1}$	4.759 0.051 0.062 0.103
38.9 – 41.9	$(5.726\ 0.025\ 0.036\ 0.089)\times10^{-1}$	$(1.204\ 0.013\ 0.014\ 0.022)\times10^{-1}$	4.757 0.055 0.063 0.104
41.9 – 45.1	$(4.681\ 0.022\ 0.031\ 0.073)\times10^{-1}$	$(9.790\ 0.112\ 0.118\ 0.181)\times10^{-2}$	4.781 0.059 0.065 0.105
45.1 – 48.5	$(3.797\ 0.019\ 0.025\ 0.060)\times10^{-1}$	$(8.128\ 0.099\ 0.101\ 0.152)\times10^{-2}$	4.672 0.061 0.066 0.105
48.5 – 52.2	$(3.107\ 0.016\ 0.021\ 0.050)\times10^{-1}$	$(6.651\ 0.085\ 0.085\ 0.126)\times10^{-2}$	4.672 0.065 0.068 0.106
52.2 – 56.1	$(2.532\ 0.014\ 0.018\ 0.042)\times10^{-1}$	$(5.409\ 0.075\ 0.071\ 0.105)\times10^{-2}$	4.682 0.070 0.070 0.107
56.1 – 60.3	$(2.057\ 0.013\ 0.015\ 0.034)\times10^{-1}$	$(4.558\ 0.066\ 0.062\ 0.089)\times10^{-2}$	4.513 0.071 0.069 0.105

TABLE SM LXXVIII: Bartels Rotation 2505 (March 17, 2017 – April 12, 2017). The proton flux Φ_p, helium flux Φ_{He}, and p/He flux ratio as a function of rigidity (in units of GV) at the top of AMS in units of $[\mathrm{m}^2 \cdot \mathrm{sr} \cdot \mathrm{s} \cdot \mathrm{GV}]^{-1}$ including errors due to statistics ($\sigma_{\mathrm{stat.}}$), time dependent systematic errors (σ_{time}) and the total systematic error ($\sigma_{\mathrm{syst.}}$). Contributions to the time dependent systematic errors are from: the trigger and the reconstruction efficiency. Contributions to the total systematic error are from: the acceptance, the background contamination, the geomagnetic cutoff factor, the event selection, the unfolding, the rigidity resolution function, the absolute rigidity scale, and the time dependent systematic errors. The statistical errors for the ratio are the sum in quadrature of the relative statistical errors of the fluxes multiplied by the ratio. The time dependent systematic errors for the ratio are the sum in quadrature of the relative time dependent systematic errors of the fluxes multiplied by the ratio. The systematic errors from the acceptance for the ratio are added in quadrature. The correlations in the systematic errors from the unfolding and the absolute rigidity scale between the fluxes have been accounted for in calculating the corresponding systematic errors of the ratio. The contributions of the individual sources to the systematic error are added in quadrature to arrive at the total systematic uncertainty on the ratio.

Rigidity	Φ_p $\sigma_{\mathrm{stat.}}$ σ_{time} $\sigma_{\mathrm{syst.}}$	Φ_{He} $\sigma_{\mathrm{stat.}}$ σ_{time} $\sigma_{\mathrm{syst.}}$	p/He $\sigma_{\mathrm{stat.}}$ σ_{time} $\sigma_{\mathrm{syst.}}$
1.00 – 1.16	$(1.339\ 0.006\ 0.015\ 0.059)\times10^3$	– – – –	– – – –
1.16 – 1.33	$(1.266\ 0.003\ 0.010\ 0.044)\times10^3$	– – – –	– – – –
1.33 – 1.51	$(1.170\ 0.003\ 0.007\ 0.033)\times10^3$	– – – –	– – – –
1.51 – 1.71	$(1.042\ 0.002\ 0.006\ 0.027)\times10^3$	– – – –	– – – –
1.71 – 1.92	$(9.150\ 0.017\ 0.044\ 0.214)\times10^2$	– – – –	– – – –
1.92 – 2.15	$(7.838\ 0.014\ 0.034\ 0.167)\times10^2$	$(9.881\ 0.054\ 0.120\ 0.231)\times10^1$	7.932 0.046 0.102 0.240
2.15 – 2.40	$(6.636\ 0.011\ 0.027\ 0.132)\times10^2$	$(8.952\ 0.045\ 0.097\ 0.186)\times10^1$	7.413 0.039 0.086 0.202
2.40 – 2.67	$(5.588\ 0.009\ 0.022\ 0.105)\times10^2$	$(7.832\ 0.037\ 0.082\ 0.150)\times10^1$	7.135 0.035 0.080 0.181
2.67 – 2.97	$(4.649\ 0.007\ 0.018\ 0.081)\times10^2$	$(6.661\ 0.030\ 0.067\ 0.121)\times10^1$	6.981 0.033 0.075 0.167
2.97 – 3.29	$(3.852\ 0.006\ 0.015\ 0.064)\times10^2$	$(5.630\ 0.024\ 0.050\ 0.097)\times10^1$	6.842 0.031 0.067 0.155
3.29 – 3.64	$(3.162\ 0.005\ 0.012\ 0.050)\times10^2$	$(4.712\ 0.020\ 0.038\ 0.079)\times10^1$	6.709 0.030 0.060 0.147
3.64 – 4.02	$(2.587\ 0.004\ 0.010\ 0.041)\times10^2$	$(3.905\ 0.016\ 0.030\ 0.064)\times10^1$	6.626 0.029 0.057 0.141
4.02 – 4.43	$(2.096\ 0.003\ 0.008\ 0.032)\times10^2$	$(3.236\ 0.013\ 0.024\ 0.052)\times10^1$	6.476 0.028 0.054 0.135
4.43 – 4.88	$(1.704\ 0.002\ 0.007\ 0.026)\times10^2$	$(2.666\ 0.010\ 0.019\ 0.043)\times10^1$	6.389 0.026 0.053 0.131
4.88 – 5.37	$(1.372\ 0.002\ 0.005\ 0.020)\times10^2$	$(2.159\ 0.008\ 0.015\ 0.034)\times10^1$	6.355 0.026 0.051 0.129
5.37 – 5.90	$(1.097\ 0.002\ 0.004\ 0.015)\times10^2$	$(1.767\ 0.007\ 0.012\ 0.028)\times10^1$	6.209 0.026 0.049 0.123
5.90 – 6.47	$(8.793\ 0.013\ 0.030\ 0.122)\times10^1$	$(1.443\ 0.006\ 0.010\ 0.022)\times10^1$	6.095 0.025 0.047 0.119
6.47 – 7.09	$(7.049\ 0.010\ 0.024\ 0.098)\times10^1$	$(1.173\ 0.005\ 0.008\ 0.018)\times10^1$	6.009 0.025 0.047 0.117
7.09 – 7.76	$(5.664\ 0.008\ 0.019\ 0.078)\times10^1$	$(9.502\ 0.037\ 0.068\ 0.149)\times10^0$	5.960 0.025 0.047 0.115
7.76 – 8.48	$(4.524\ 0.007\ 0.015\ 0.062)\times10^1$	$(7.711\ 0.031\ 0.057\ 0.121)\times10^0$	5.867 0.025 0.048 0.113
8.48 – 9.26	$(3.619\ 0.006\ 0.012\ 0.049)\times10^1$	$(6.252\ 0.026\ 0.048\ 0.099)\times10^0$	5.788 0.026 0.049 0.111
9.26 – 10.1	$(2.887\ 0.005\ 0.010\ 0.039)\times10^1$	$(5.046\ 0.022\ 0.041\ 0.081)\times10^0$	5.722 0.027 0.050 0.110
10.1 – 11.0	$(2.301\ 0.004\ 0.008\ 0.031)\times10^1$	$(4.107\ 0.019\ 0.035\ 0.066)\times10^0$	5.604 0.027 0.051 0.109
11.0 – 12.0	$(1.839\ 0.003\ 0.007\ 0.025)\times10^1$	$(3.297\ 0.016\ 0.029\ 0.054)\times10^0$	5.577 0.028 0.054 0.109
12.0 – 13.0	$(1.470\ 0.003\ 0.005\ 0.020)\times10^1$	$(2.672\ 0.014\ 0.025\ 0.045)\times10^0$	5.502 0.030 0.056 0.109
13.0 – 14.1	$(1.181\ 0.002\ 0.005\ 0.016)\times10^1$	$(2.182\ 0.012\ 0.022\ 0.037)\times10^0$	5.411 0.031 0.058 0.109
14.1 – 15.3	$(9.491\ 0.020\ 0.038\ 0.132)\times10^0$	$(1.738\ 0.010\ 0.018\ 0.030)\times10^0$	5.461 0.032 0.061 0.111
15.3 – 16.6	$(7.579\ 0.017\ 0.031\ 0.107)\times10^0$	$(1.417\ 0.008\ 0.016\ 0.025)\times10^0$	5.349 0.033 0.063 0.111

Table continued

TABLE SM LXXVIII: Bartels Rotation 2505 (March 17, 2017 – April 12, 2017). *(Continued).*

Rigidity	Φ_p $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	Φ_{He} $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	p/He $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$
16.6 – 18.0	$(6.088\ 0.014\ 0.026\ 0.087)\times10^{0}$	$(1.144\ 0.007\ 0.013\ 0.021)\times10^{0}$	5.320 0.033 0.065 0.112
18.0 – 19.5	$(4.887\ 0.011\ 0.022\ 0.071)\times10^{0}$	$(9.291\ 0.055\ 0.112\ 0.169)\times10^{-1}$	5.260 0.034 0.068 0.112
19.5 – 21.1	$(3.933\ 0.009\ 0.018\ 0.058)\times10^{0}$	$(7.565\ 0.046\ 0.095\ 0.140)\times10^{-1}$	5.199 0.034 0.069 0.112
21.1 – 22.8	$(3.150\ 0.008\ 0.015\ 0.047)\times10^{0}$	$(6.208\ 0.039\ 0.078\ 0.116)\times10^{-1}$	5.074 0.034 0.068 0.110
22.8 – 24.7	$(2.536\ 0.006\ 0.012\ 0.038)\times10^{0}$	$(5.010\ 0.032\ 0.064\ 0.094)\times10^{-1}$	5.061 0.035 0.069 0.110
24.7 – 26.7	$(2.034\ 0.005\ 0.010\ 0.031)\times10^{0}$	$(4.056\ 0.027\ 0.052\ 0.076)\times10^{-1}$	5.015 0.037 0.069 0.110
26.7 – 28.8	$(1.644\ 0.005\ 0.009\ 0.025)\times10^{0}$	$(3.247\ 0.024\ 0.042\ 0.061)\times10^{-1}$	5.065 0.040 0.071 0.111
28.8 – 31.1	$(1.327\ 0.004\ 0.007\ 0.020)\times10^{0}$	$(2.694\ 0.020\ 0.035\ 0.051)\times10^{-1}$	4.925 0.040 0.069 0.109
31.1 – 33.5	$(1.074\ 0.004\ 0.006\ 0.017)\times10^{0}$	$(2.219\ 0.018\ 0.029\ 0.043)\times10^{-1}$	4.839 0.043 0.069 0.108
33.5 – 36.1	$(8.708\ 0.031\ 0.048\ 0.132)\times10^{-1}$	$(1.801\ 0.016\ 0.024\ 0.035)\times10^{-1}$	4.836 0.045 0.071 0.109
36.1 – 38.9	$(7.064\ 0.026\ 0.040\ 0.108)\times10^{-1}$	$(1.470\ 0.014\ 0.020\ 0.029)\times10^{-1}$	4.804 0.048 0.071 0.109
38.9 – 41.9	$(5.742\ 0.023\ 0.034\ 0.088)\times10^{-1}$	$(1.198\ 0.012\ 0.017\ 0.023)\times10^{-1}$	4.795 0.051 0.073 0.110
41.9 – 45.1	$(4.670\ 0.020\ 0.028\ 0.072)\times10^{-1}$	$(9.846\ 0.104\ 0.141\ 0.197)\times10^{-2}$	4.743 0.054 0.074 0.110
45.1 – 48.5	$(3.806\ 0.018\ 0.023\ 0.059)\times10^{-1}$	$(7.917\ 0.090\ 0.116\ 0.160)\times10^{-2}$	4.807 0.059 0.076 0.113
48.5 – 52.2	$(3.114\ 0.015\ 0.019\ 0.049)\times10^{-1}$	$(6.554\ 0.078\ 0.098\ 0.135)\times10^{-2}$	4.752 0.061 0.077 0.113
52.2 – 56.1	$(2.540\ 0.013\ 0.016\ 0.041)\times10^{-1}$	$(5.380\ 0.069\ 0.083\ 0.112)\times10^{-2}$	4.720 0.065 0.078 0.113
56.1 – 60.3	$(2.079\ 0.012\ 0.013\ 0.034)\times10^{-1}$	$(4.498\ 0.060\ 0.071\ 0.095)\times10^{-2}$	4.622 0.067 0.079 0.112

TABLE SM LXXIX: Bartels Rotation 2506 (April 13, 2017 – May 9, 2017). The proton flux Φ_p, helium flux Φ_{He}, and p/He flux ratio as a function of rigidity (in units of GV) at the top of AMS in units of $[\mathrm{m}^2 \cdot \mathrm{sr} \cdot \mathrm{s} \cdot \mathrm{GV}]^{-1}$ including errors due to statistics ($\sigma_{\mathrm{stat.}}$), time dependent systematic errors (σ_{time}) and the total systematic error ($\sigma_{\mathrm{syst.}}$). Contributions to the time dependent systematic errors are from: the trigger and the reconstruction efficiency. Contributions to the total systematic error are from: the acceptance, the background contamination, the geomagnetic cutoff factor, the event selection, the unfolding, the rigidity resolution function, the absolute rigidity scale, and the time dependent systematic errors. The statistical errors for the ratio are the sum in quadrature of the relative statistical errors of the fluxes multiplied by the ratio. The time dependent systematic errors for the ratio are the sum in quadrature of the relative time dependent systematic errors of the fluxes multiplied by the ratio. The systematic errors from the acceptance for the ratio are added in quadrature. The correlations in the systematic errors from the unfolding and the absolute rigidity scale between the fluxes have been accounted for in calculating the corresponding systematic errors of the ratio. The contributions of the individual sources to the systematic error are added in quadrature to arrive at the total systematic uncertainty on the ratio.

Rigidity	Φ_p	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	Φ_{He}	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$	p/He	$\sigma_{\mathrm{stat.}}$	σ_{time}	$\sigma_{\mathrm{syst.}}$
1.00 – 1.16	$(1.337$	0.006	0.019	$0.060)\times10^3$	–	–	–	–	–	–	–	–
1.16 – 1.33	$(1.259$	0.003	0.013	$0.045)\times10^3$	–	–	–	–	–	–	–	–
1.33 – 1.51	$(1.160$	0.003	0.009	$0.033)\times10^3$	–	–	–	–	–	–	–	–
1.51 – 1.71	$(1.043$	0.002	0.007	$0.027)\times10^3$	–	–	–	–	–	–	–	–
1.71 – 1.92	$(9.102$	0.017	0.052	$0.215)\times10^2$	–	–	–	–	–	–	–	–
1.92 – 2.15	$(7.823$	0.014	0.041	$0.168)\times10^2$	$(9.785$	0.054	0.092	$0.216)\times10^1$	7.995	0.046	0.086	0.236
2.15 – 2.40	$(6.603$	0.011	0.032	$0.132)\times10^2$	$(8.785$	0.045	0.074	$0.172)\times10^1$	7.516	0.040	0.073	0.199
2.40 – 2.67	$(5.521$	0.009	0.026	$0.104)\times10^2$	$(7.689$	0.036	0.063	$0.139)\times10^1$	7.180	0.036	0.068	0.177
2.67 – 2.97	$(4.620$	0.007	0.021	$0.081)\times10^2$	$(6.605$	0.030	0.053	$0.113)\times10^1$	6.995	0.033	0.064	0.162
2.97 – 3.29	$(3.793$	0.006	0.017	$0.063)\times10^2$	$(5.550$	0.024	0.039	$0.090)\times10^1$	6.834	0.031	0.057	0.151
3.29 – 3.64	$(3.122$	0.005	0.015	$0.050)\times10^2$	$(4.656$	0.020	0.029	$0.074)\times10^1$	6.705	0.030	0.052	0.144
3.64 – 4.02	$(2.555$	0.004	0.012	$0.041)\times10^2$	$(3.889$	0.016	0.023	$0.061)\times10^1$	6.570	0.029	0.050	0.138
4.02 – 4.43	$(2.076$	0.003	0.010	$0.032)\times10^2$	$(3.206$	0.013	0.018	$0.050)\times10^1$	6.476	0.028	0.048	0.132
4.43 – 4.88	$(1.684$	0.002	0.008	$0.026)\times10^2$	$(2.635$	0.010	0.015	$0.040)\times10^1$	6.389	0.026	0.047	0.129
4.88 – 5.37	$(1.356$	0.002	0.006	$0.020)\times10^2$	$(2.153$	0.008	0.012	$0.033)\times10^1$	6.296	0.026	0.045	0.125
5.37 – 5.90	$(1.083$	0.002	0.005	$0.015)\times10^2$	$(1.759$	0.007	0.010	$0.027)\times10^1$	6.157	0.026	0.042	0.120
5.90 – 6.47	$(8.697$	0.013	0.035	$0.123)\times10^1$	$(1.431$	0.006	0.008	$0.021)\times10^1$	6.078	0.025	0.041	0.116
6.47 – 7.09	$(6.997$	0.010	0.028	$0.098)\times10^1$	$(1.166$	0.005	0.006	$0.017)\times10^1$	6.001	0.025	0.041	0.114
7.09 – 7.76	$(5.596$	0.008	0.022	$0.078)\times10^1$	$(9.436$	0.037	0.052	$0.142)\times10^0$	5.930	0.025	0.040	0.112
7.76 – 8.48	$(4.478$	0.007	0.017	$0.062)\times10^1$	$(7.671$	0.031	0.044	$0.115)\times10^0$	5.838	0.025	0.040	0.109
8.48 – 9.26	$(3.582$	0.006	0.014	$0.049)\times10^1$	$(6.208$	0.026	0.037	$0.094)\times10^0$	5.770	0.026	0.041	0.108
9.26 – 10.1	$(2.856$	0.005	0.012	$0.039)\times10^1$	$(5.044$	0.022	0.031	$0.076)\times10^0$	5.663	0.026	0.042	0.106
10.1 – 11.0	$(2.284$	0.004	0.010	$0.031)\times10^1$	$(4.065$	0.019	0.026	$0.062)\times10^0$	5.618	0.028	0.043	0.105
11.0 – 12.0	$(1.818$	0.003	0.008	$0.025)\times10^1$	$(3.259$	0.016	0.022	$0.050)\times10^0$	5.579	0.029	0.045	0.105
12.0 – 13.0	$(1.456$	0.003	0.006	$0.020)\times10^1$	$(2.649$	0.014	0.019	$0.041)\times10^0$	5.496	0.031	0.046	0.105
13.0 – 14.1	$(1.175$	0.002	0.005	$0.017)\times10^1$	$(2.177$	0.012	0.016	$0.034)\times10^0$	5.397	0.031	0.048	0.104
14.1 – 15.3	$(9.429$	0.020	0.045	$0.134)\times10^0$	$(1.750$	0.010	0.014	$0.027)\times10^0$	5.388	0.032	0.050	0.104
15.3 – 16.6	$(7.561$	0.017	0.037	$0.108)\times10^0$	$(1.420$	0.008	0.012	$0.023)\times10^0$	5.323	0.033	0.051	0.104

Table continued

TABLE SM LXXIX: Bartels Rotation 2506 (April 13, 2017 – May 9, 2017). *(Continued).*

Rigidity	Φ_p $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	Φ_{He} $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$	p/He $\sigma_{\text{stat.}}$ σ_{time} $\sigma_{\text{syst.}}$
16.6 – 18.0	$(6.058\ 0.014\ 0.031\ 0.088)\times10^{0}$	$(1.160\ 0.007\ 0.010\ 0.019)\times10^{0}$	5.222 0.033 0.053 0.104
18.0 – 19.5	$(4.884\ 0.011\ 0.026\ 0.072)\times10^{0}$	$(9.278\ 0.056\ 0.085\ 0.153)\times10^{-1}$	5.264 0.034 0.056 0.105
19.5 – 21.1	$(3.905\ 0.009\ 0.021\ 0.059)\times10^{0}$	$(7.691\ 0.047\ 0.073\ 0.128)\times10^{-1}$	5.077 0.033 0.056 0.102
21.1 – 22.8	$(3.147\ 0.008\ 0.018\ 0.048)\times10^{0}$	$(6.151\ 0.039\ 0.059\ 0.103)\times10^{-1}$	5.117 0.035 0.057 0.104
22.8 – 24.7	$(2.524\ 0.006\ 0.015\ 0.038)\times10^{0}$	$(5.004\ 0.032\ 0.049\ 0.084)\times10^{-1}$	5.044 0.035 0.057 0.103
24.7 – 26.7	$(2.029\ 0.005\ 0.012\ 0.031)\times10^{0}$	$(4.064\ 0.028\ 0.040\ 0.068)\times10^{-1}$	4.993 0.036 0.057 0.103
26.7 – 28.8	$(1.645\ 0.005\ 0.010\ 0.025)\times10^{0}$	$(3.311\ 0.024\ 0.033\ 0.056)\times10^{-1}$	4.968 0.039 0.058 0.103
28.8 – 31.1	$(1.322\ 0.004\ 0.008\ 0.021)\times10^{0}$	$(2.710\ 0.021\ 0.027\ 0.046)\times10^{-1}$	4.879 0.040 0.058 0.102
31.1 – 33.5	$(1.074\ 0.004\ 0.007\ 0.017)\times10^{0}$	$(2.207\ 0.018\ 0.023\ 0.038)\times10^{-1}$	4.867 0.043 0.059 0.102
33.5 – 36.1	$(8.782\ 0.031\ 0.059\ 0.137)\times10^{-1}$	$(1.824\ 0.016\ 0.019\ 0.032)\times10^{-1}$	4.815 0.045 0.060 0.102
36.1 – 38.9	$(7.113\ 0.027\ 0.049\ 0.112)\times10^{-1}$	$(1.474\ 0.014\ 0.016\ 0.026)\times10^{-1}$	4.827 0.048 0.062 0.104
38.9 – 41.9	$(5.723\ 0.023\ 0.040\ 0.090)\times10^{-1}$	$(1.196\ 0.012\ 0.013\ 0.021)\times10^{-1}$	4.784 0.051 0.063 0.104
41.9 – 45.1	$(4.668\ 0.020\ 0.034\ 0.074)\times10^{-1}$	$(9.969\ 0.104\ 0.114\ 0.180)\times10^{-2}$	4.683 0.053 0.063 0.103
45.1 – 48.5	$(3.813\ 0.018\ 0.028\ 0.061)\times10^{-1}$	$(8.121\ 0.091\ 0.095\ 0.148)\times10^{-2}$	4.695 0.057 0.065 0.104
48.5 – 52.2	$(3.120\ 0.015\ 0.023\ 0.051)\times10^{-1}$	$(6.450\ 0.078\ 0.078\ 0.120)\times10^{-2}$	4.837 0.063 0.069 0.109
52.2 – 56.1	$(2.542\ 0.013\ 0.020\ 0.043)\times10^{-1}$	$(5.300\ 0.068\ 0.066\ 0.100)\times10^{-2}$	4.795 0.067 0.070 0.109
56.1 – 60.3	$(2.097\ 0.012\ 0.016\ 0.036)\times10^{-1}$	$(4.454\ 0.060\ 0.057\ 0.085)\times10^{-2}$	4.707 0.069 0.071 0.108