

Space Weather Highlights
07 May – 13 May 2007

SEC PRF 1654
15 May 2007

Solar activity was very low during the period. Isolated B-class X-ray flares occurred during most days.

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit reached high levels on 07 May. Geomagnetic field activity ranged from quiet to minor storm levels during 07 - 08 May with a brief period of major storm activity at high latitudes on 07 May. Activity decreased to quiet to unsettled levels on 09 May with a brief period of active levels at high latitudes. Field activity decreased to quiet levels at all latitudes during the rest of the period. The 07 - 09 May activity was the result of a Corotating Interacting Region (CIR) followed by a recurrent coronal hole high-speed stream. The CIR occurred on 07 May and was associated with a solar sector boundary (SSB) change (negative (toward) to positive (away) IMF polarity). A brief proton density increase (peak of 61 p/cc at 07/1007 UTC and minimum IMF Bz -16 at 07/1418 UTC). An increase in solar wind velocities also occurred on 07 May in the wake of the CIR/SSB and eventually reached a peak of 682 km/sec at 08/0534 UTC.

Space Weather Outlook
16 May – 11 June 2007

Solar activity is expected to be at very low to low levels. Region 956 (N02, L=070, class/area C4.0/080 on 14 May) may produce C-class flares before it departs the visible disk on 26 May. There is also a chance for isolated M-class flare from this region.

No proton events are expected at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit is expected to reach high levels during 25 May – 03 June.

Geomagnetic field activity is expected to be at quiet to unsettled levels through 19 May. A recurrent coronal hole high-speed stream is expected to disturb the field during 19 – 20 May with unsettled to active levels likely. Quiet to unsettled conditions are expected during 21 – 23 May. Another round of coronal hole effects are expected during 24 – 27 May with unsettled to minor storm conditions possible. Major storm levels are also possible at high latitudes on 25 May. Quiet to unsettled conditions are expected during 28 May – 02 June. Activity is expected to increase to quiet to active levels during 03 – 04 June due to a recurrent coronal hole high-speed stream. Activity is expected to decrease to mostly quiet levels for the rest of the period.



Daily Solar Data

Date	Radio	Sun	Sunspot	X-ray	Flares							
	Flux	spot	Area	Background	X-ray Flux			Optical				
	10.7 cm	No.	(10 ⁻⁶ hemi.)		C	M	X	S	1	2	3	4
07 May	76	12	190	A2.1	0	0	0	0	0	0	0	0
08 May	73	12	90	A2.3	0	0	0	0	0	0	0	0
09 May	72	18	250	<A1.0	0	0	0	0	0	0	0	0
10 May	71	20	80	<A1.0	0	0	0	0	0	0	0	0
11 May	72	24	150	<A1.0	0	0	0	0	0	0	0	0
12 May	71	21	90	<A1.0	0	0	0	0	0	0	0	0
13 May	74	18	50	<A1.0	0	0	0	0	0	0	0	0

Daily Particle Data

Date	Proton Fluence (protons/cm ² -day-sr)			Electron Fluence (electrons/cm ² -day-sr)		
	>1 MeV	>10 MeV	>100 MeV	>.6 MeV	>2MeV	>4 MeV
07 May	1.7E+6	1.7E+4	4.1E+3		1.6E+7	
08 May	9.9E+5	1.8E+4	4.1E+3		5.9E+6	
09 May	7.1E+5	1.8E+4	3.8E+3		1.4E+7	
10 May	6.5E+5	1.7E+4	4.0E+3		1.8E+7	
11 May	5.1E+5	1.8E+4	4.2E+3		1.5E+7	
12 May	5.3E+5	1.8E+4	4.2E+3		1.6E+7	
13 May	4.8E+5	1.8E+4	4.3E+3		1.4E+7	

Daily Geomagnetic Data

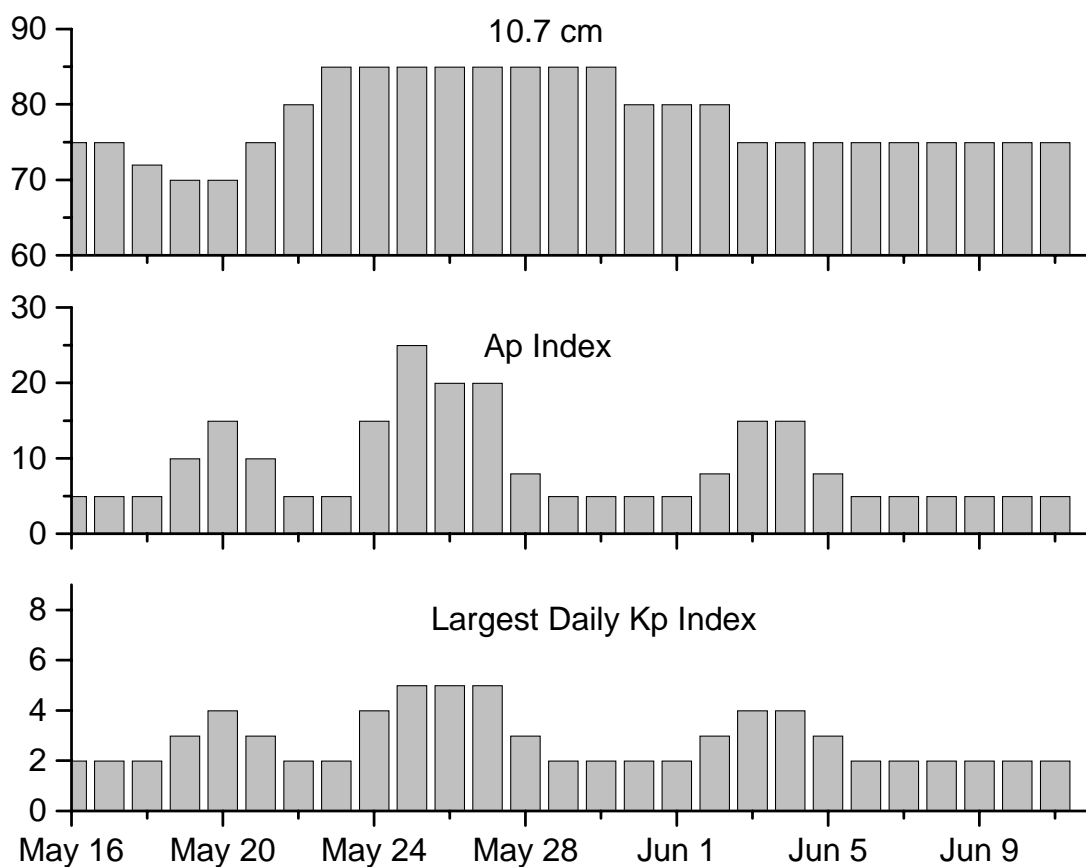
Date	Middle Latitude		High Latitude		Estimated	
	Fredericksburg		College		Planetary	
	A	K-indices	A	K-indices	A	K-indices
07 May	11	1-0-3-2-3-3-3-3	23	1-1-3-4-3-6-3-4	18	1-1-3-2-3-5-4-4
08 May	11	2-4-3-2-3-1-2-2	24	3-4-5-5-4-3-2-1	14	2-4-4-2-2-2-3-3
09 May	3	1-1-1-1-1-1-1-1	10	2-3-3-4-2-1-1-1	5	1-2-2-1-1-1-1-1
10 May	2	1-0-0-0-0-1-2-1	2	1-1-0-1-0-1-1-1	3	1-0-0-0-1-1-1-2
11 May	2	0-0-0-0-1-1-1-1	2	0-1-0-0-0-0-2-1	2	0-0-0-0-1-1-1-1
12 May	2	0-2-0-1-1-1-0-0	2	2-1-0-1-0-0-0-1	3	1-1-0-0-0-0-0-1
13 May	2	0-2-1-0-1-0-0-0	2	1-1-1-0-0-0-0-1	3	1-2-1-0-1-0-1-1

Alerts and Warnings Issued

Date & Time of Issue	Type of Alert or Warning	Date & Time of Event UTC
07 May 0833	WARNING: Geomagnetic K = 4	07 May 0834 – 1600
07 May 1447	WARNING: Geomagnetic K = 5	07 May 1447 – 08/1600
07 May 1614	ALERT: Geomagnetic K = 4	07 May 1614
07 May 1705	ALERT: Geomagnetic K = 5	07 May 1704
09 May 0015	WARNING: Geomagnetic K = 4	09 May 0015 – 1600



Twenty-seven Day Outlook



Date	Radio Flux 10.7 cm	Planetary A Index	Largest Kp Index	Date	Radio Flux 10.7 cm	Planetary A Index	Largest Kp Index
16 May	75	5	2	30 May	85	5	2
17	75	5	2	31	80	5	2
18	72	5	2	01 June	80	5	2
19	70	10	3	02	80	8	3
20	70	15	4	03	75	15	4
21	75	10	3	04	75	15	4
22	80	5	5	05	75	8	3
23	85	5	5	06	75	5	2
24	85	15	4	07	75	5	2
25	85	25	5	08	75	5	2
26	85	20	5	09	75	5	2
27	85	20	5	10	75	5	2
28	85	8	3	11	75	5	2
29	85	5	2				



Energetic Events

Energy Events											
Date	Time			X-ray		Optical Information			Peak		Sweep Freq
	$\frac{1}{2}$			Integ		Imp/	Location	Rgn	Radio Flux		Intensity
	Begin	Max	Max	Class	Flux	Brtns	Lat CMD	#	245	2695	II IV

No Events Observed

Flare List

Date	Time			Optical	Imp / Brtns	Location Lat CMD	Rgn
	Begin	Max	End	X-ray Class.			
07 May	0609	0612	0615	B1.1			
	0700	0703	0705	B1.0			
	1140	1143	1145	B1.2			
	1212	1215	1217	B1.0			
	1420	1425	1429	B1.0			
08 May	0551	0556	0603	B1.2			
	0749	0805	0814	B1.3			
	1007	1011	1014	B1.2			
	1320	1325	1328	B2.0			
	2059	2106	2109	B1.9			
	2129	2138	2143	B1.0			
	2308	2316	2323	B2.4			
09 May	0137	0156	0208	B7.7			
	1336	1401	1428	B6.3			
10 May	<i>No Flares Observed</i>						
11 May	2118	2122	2125	B1.5			
12 May	0315	0320	0323	B1.1			
	0507	0514	0533	B2.5			
	1334	1340	1344	B1.8			
13 May	<i>No Flares Observed</i>						



Region Summary

Location			Sunspot Characteristics												
Date	(° Lat ° CMD)	Helio Lon	Flares					X-ray			Optical				
			Area (10 ⁻⁶ hemi)	Extent (helio)	Spot Class	Spot Count	Mag Class	C	M	X	S	1	2	3	4
Region 953															
25 Apr	S14E73	310	0230	04	Hsx	004	B								
26 Apr	S10E61	309	0450	11	Hkx	007	A								
27 Apr	S10E49	308	0500	07	Dkc	008	Bd				1				
28 Apr	S10E36	308	0520	08	Dkc	010	Bg								
29 Apr	S10E23	308	0500	05	Dki	008	Bgd								
30 Apr	S10E09	308	0480	05	Dki	013	Bgd				1				
01 May	S12W04	308	0440	07	Cko	008	Bg								
02 May	S10W17	308	0420	07	Cko	010	B	1					1		
03 May	S11W30	308	0380	07	Cko	010	B				1				
04 May	S10W44	308	0330	06	Cko	009	B								
05 May	S10W57	307	0260	05	Cko	008	B	1					1		
06 May	S10W69	305	0120	05	Cao	004	B								
07 May	S11W82	305	0190	03	Hkx	002	A								
08 May	S11W98	308	0090	03	Axx	002	A								
								2	0	0	3	2	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 308

Region 954

30 Apr S05E29	288	0030	04	Cao	005	B									
01 MayS06E16	288	0040	03	Bxo	004	B									
02 MayS06E01	290	0030	03	Bxo	003	B									
03 MayS07W12	290	0020	02	Bxo	003	B									
04 MayS07W25	290														
05 MayS07W38	290														
06 MayS07W51	290														
07 MayS07W64	290														
08 MayS07W77	290														
								0	0	0	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 290

Region 955

09 MayS10E22	175	0250	05	Dao	008	B									
10 MayS09E08	176	0080	06	Dso	010	B									
11 MayS09W06	176	0150	08	Dao	014	B									
12 MayS09W21	178	0090	08	Dao	011	B									
13 MayS09W35	179	0050	10	Cao	008	B									
								0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 176

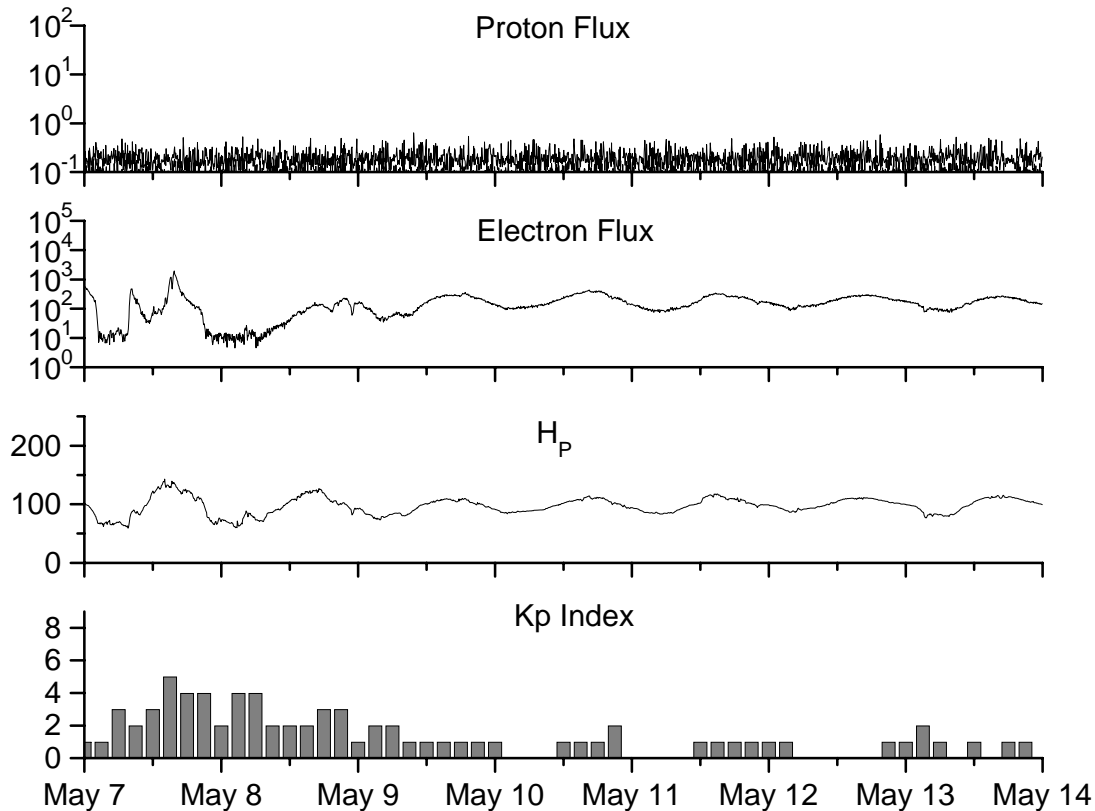


**Recent Solar Indices (preliminary)
of the observed monthly mean values**

Month	Sunspot Numbers			Radio Flux		Geomagnetic			
	Observed values	Ratio	Smooth values	*Penticton	Smooth	Planetary	Smooth		
	SEC	RI	RI/SEC	SEC	RI	10.7 cm	Value	Ap	Value
2005									
May	65.4	42.6	0.65	48.3	29.0	99.5	93.2	20	14.8
June	59.8	39.6	0.66	47.9	28.9	93.7	91.9	13	13.9
July	71.0	39.9	0.56	48.1	29.2	96.6	90.9	16	13.1
August	65.6	36.4	0.55	45.4	27.5	90.7	89.3	16	12.2
September	39.2	22.1	0.56	42.9	25.9	90.8	87.8	21	11.8
October	13.0	8.5	0.65	42.6	25.5	76.7	87.4	7	11.6
November	32.2	18.0	0.56	42.1	24.9	86.3	86.7	8	11.1
December	62.6	41.2	0.66	40.1	23.0	90.8	85.4	7	10.4
2006									
January	28.0	15.4	0.55	37.2	20.8	83.8	84.0	6	9.9
February	5.3	4.7	0.89	33.4	18.7	76.6	82.6	6	9.2
March	21.3	10.8	0.51	31.0	17.4	75.5	81.6	8	8.4
April	55.2	30.2	0.55	30.6	17.1	89.0	80.9	11	7.9
May	39.6	22.2	0.56	30.7	17.3	81.0	80.8	8	7.9
June	37.7	13.9	0.37	28.9	16.3	80.1	80.6	9	8.3
July	22.6	12.2	0.54	27.2	15.3	75.8	80.3	7	8.7
August	22.8	12.9	0.57	27.6	15.6	79.0	80.3	9	8.7
September	25.2	14.5	0.58	27.7	15.6	77.8	80.2	8	8.7
October	15.7	10.4	0.66	25.2	14.2	74.3	79.4	8	8.6
November	31.5	21.5	0.68			86.4		9	
December	22.2	13.6	0.61			84.3		15	
2007									
January	26.6	16.9	0.64			83.5		6	
February	17.2	10.6	0.62			77.8		6	
March	9.7	4.8	0.49			72.3		7	
April	6.9	3.7	0.54			72.4		9	

NOTE: All smoothed values after September 2002 and monthly values after March 2003 are preliminary estimates. The lowest smoothed sunspot index number for Cycle 22, RI = 8.0, occurred in May 1996. The highest smoothed sunspot number for Cycle 23, RI = 120.8, occurred April 2000. *After June 1991, the 10.7 cm radio flux data source is Penticton, B.C. Canada. Prior to that, it was Ottawa.





Weekly Geosynchronous Satellite Environment Summary
Week Beginning 07 May 2007

Protons plot contains the five-minute averaged integral proton flux (protons/cm²-sec-sr) as measured by GOES-11 (W135) for each of three energy thresholds: greater than 10, 50, and 100 MeV.

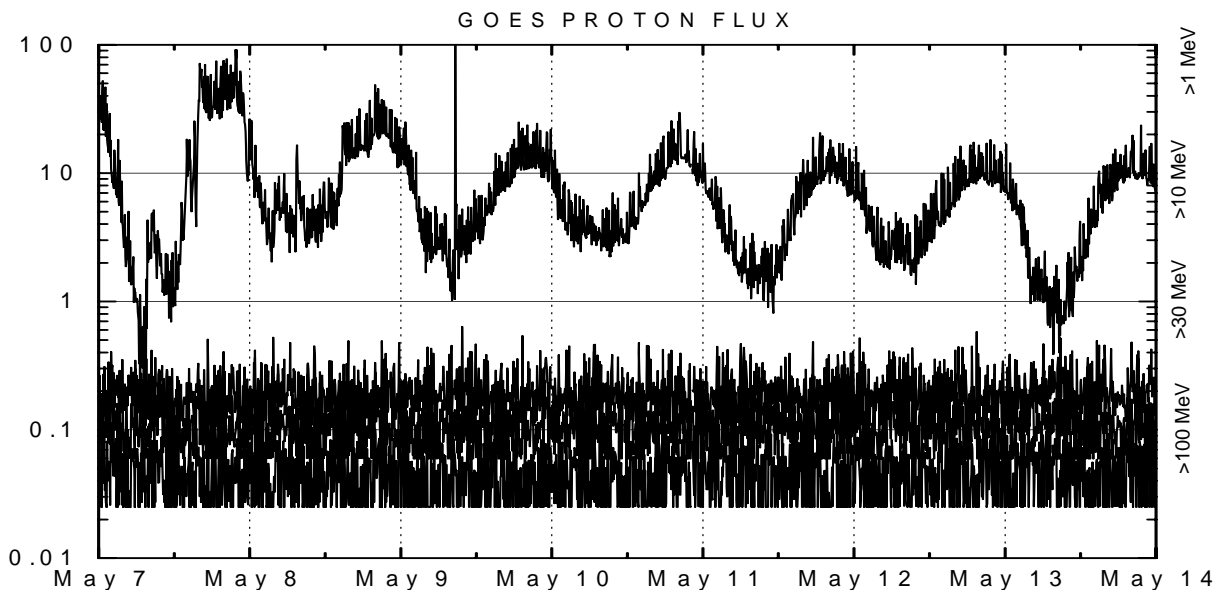
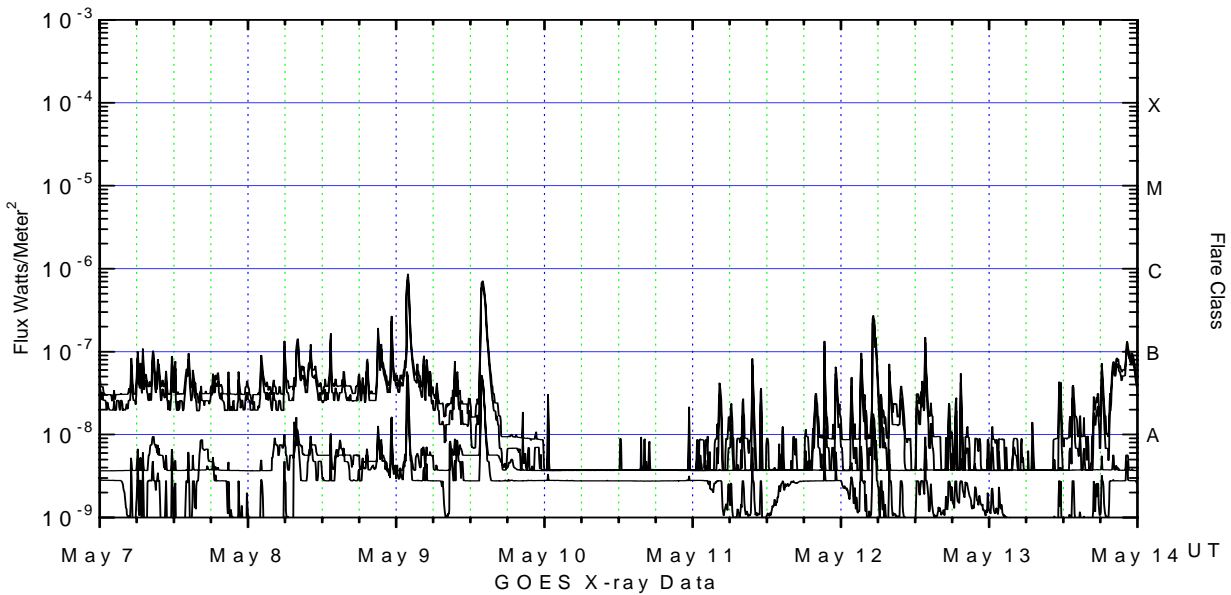
Electrons plot contains the five-minute averaged integral electron flux (electrons/cm²-sec-sr) with energies greater than 2 MeV at GOES-12 (W075).

H_p plot contains the five minute averaged magnetic field H - component in nanoteslas (nT) as measured by GOES-12. The H component is parallel to the spin axis of the satellite, which is nearly parallel to the Earth's rotation axis.

K_p plot contains the estimated planetary 3-hour K-index (derived by the Air Force Weather Agency) in real time from magnetometers at Meanook, Canada; Sitka, AK; Glenlea, Canada; St. Johns, Canada; Ottawa, Canada; Newport, WA; Fredericksburg, VA; Boulder, CO; Fresno, CA and Hartland, UK. These data are made available through cooperation from the Geological Survey of Canada (GSC), British Geological Survey (BGS) and the US Geological Survey. These may differ from the final K_p values derived from a more extensive network of magnetometers.

The data included here are those now available in real time at the SEC and are incomplete in that they do not include the full set of parameters and energy ranges known to cause satellite operating anomalies. The proton and electron fluxes and K_p are "global" parameters that are applicable to a first order approximation over large areas. H parallel is subject to more localized phenomena and the measurements generally are applicable to within a few degrees of longitude of the measuring satellite.





Weekly GOES Satellite X-ray and Proton Plots

X-ray plot contains five-minute averaged x-ray flux (watts/m²) as measured by GOES 10 (W060) and GOES 11 (W135) in two wavelength bands, .05 - .4 and .1 - .8 nm. The letters A, B, C, M and X refer to x-ray event levels for the .1 - .8 nm band.

Proton plot contains the five-minute averaged integral proton flux (protons/cm²-sec-sr) as measured by GOES-11 (W135) for each of the energy thresholds: >1, >10, >30 and >100 MeV. P10 event threshold is 10 pfu (protons/cm²-sec-sr) at greater than 10 MeV.

