

Space Weather Highlights
07 - 13 Jun 1999

Solar activity ranged from low to moderate levels during the week. Low activity prevailed through 11 June with a few C-class flares each day from a variety of small- to moderate-sized regions. Some of these flares included a C1/SF at 09/0017UT with a Type II radio sweep and a C8 at 11/1157UT associated with an eruptive prominence and a loop prominence system on the northeast limb. Other events of note were optically uncorrelated Type II and Type IV radio sweeps at 11/0039UT and 11/0051UT, respectively, followed by a proton enhancement (see the discussion below). Activity rose to moderate levels on 12 June with an M1/1N flare at 12/1336UT from Region 8583 (S13, L=097, class/area Dso/150 on 12 June) associated with a weak Type II sweep. Activity returned to low

Real-time solar wind data were available from the Advanced Composition Explorer (ACE) spacecraft for most of the period. A coronal hole wind stream was evident during 08 - 09 June with elevated wind speeds (maximum readings around 700 km/sec), increased proton temperatures, increased IMF Bz variability with southerly deflections to minus 12 nT (GSM), and a shift to a toward (negative polarity) solar sector. A small, negative polarity coronal hole appeared to be the source of the high-speed wind stream.

A greater than 10 MeV proton flux enhancement at geo-synchronous altitude was in progress at the beginning of the period and declined to background levels by 08 June. An enhancement at greater than 10 MeV and greater than 100 MeV began early on 11 June following the Type II and IV sweeps mentioned above. The enhancement returned to background levels later that day.

The greater than 2 MeV electron flux at geo-synchronous altitude was at normal levels during most of the period.

The geomagnetic field was disturbed during 08 - 09 June with unsettled to active periods at all latitudes and brief minor storm intervals at high latitudes. This disturbance was likely due to coronal hole influences.

Space Weather Outlook
16 June - 12 July 1999

Solar activity is expected to range from low to moderate levels. Isolated M-class flares are expected sometime during the period. There will also be a slight chance for a major flare sometime during the period.

No significant proton flux enhancements are expected at geo-synchronous altitude.

The greater than 2 MeV electron flux at geo-synchronous altitude is expected to be at normal levels during most of the period.

Geomagnetic field activity is expected to be quiet to unsettled, barring any Earth-directed CME occurrences.



Daily Solar Data

Date	Radio Flux 10.7 cm	Sun spot No. (10 ⁶ hemi.)	Sunspot Area	X-ray Background	Flares							
					X-ray Flux			Optical				
					C	M	X	S	1	2	3	
07 June	158	198	1130	B8.9	5	0	0	6	0	0	0	0
08 June	157	192	1010	B6.3	3	0	0	13	0	0	0	0
09 June	165	204	1100	B5.6	5	0	0	7	0	0	0	0
10 June	161	214	1020	B5.3	3	0	0	9	0	0	0	0
11 June	165	211	1030	B5.7	5	0	0	8	1	0	0	0
12 June	168	233	1240	B5.8	6	1	0	12	1	0	0	0
13 June	168	211	1340	B7.0	7	0	0	25	1	0	0	0

Daily Particle Data

Date	Proton Fluence (protons/cm ² -day-sr)			Electron Fluence (electrons/cm ² -day-sr)		
	>1MeV	>10MeV	>100MeV	>.6MeV	>2MeV	>4MeV
	07 June	2.1E+6	8.9E+4	3.7E+3		3.3E+6
08 June	7.0E+5	3.6E+4	3.5E+3		3.2E+5	
09 June	2.2E+5	2.2E+4	3.7E+3		1.7E+5	
10 June	2.1E+5	1.8E+4	3.3E+3		1.5E+6	
11 June	3.1E+5	7.0E+4	4.8E+3		1.8E+6	
12 June	1.9E+5	1.9E+4	3.9E+3		5.1E+6	
13 June	1.3E+5	1.9E+4	4.4E+3		4.4E+6	

Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	07 June	4	1-1-1-0-1-1-2-2	2	1-1-0-0-0-1-1-2	4
08 June	12	2-3-4-2-2-3-2-2	15	2-4-3-3-3-4-1-2	15	2-3-4-3-3-4-3-2
09 June	11	2-2-1-2-2-4-3-3	17	4-5-1-0-2-4-3-2	13	3-4-1-1-3-4-3-3
10 June	3	2-1-1-0-1-0-1-1	4	3-1-1-1-1-1-0-0	7	3-2-2-1-2-2-3-2
11 June	3	0-0-1-1-1-1-2-2	6	3-1-1-2-1-2-1-2	6	1-1-1-2-2-2-2-3
12 June	5	2-3-0-0-1-1-1-2	10	5-3-1-0-1-1-1-1	7	3-3-1-1-1-2-1-2
13 June	7	2-2-0-0-3-3-2-2	4	2-2-2-1-1-0-1-1	6	3-2-2-1-2-1-2-2

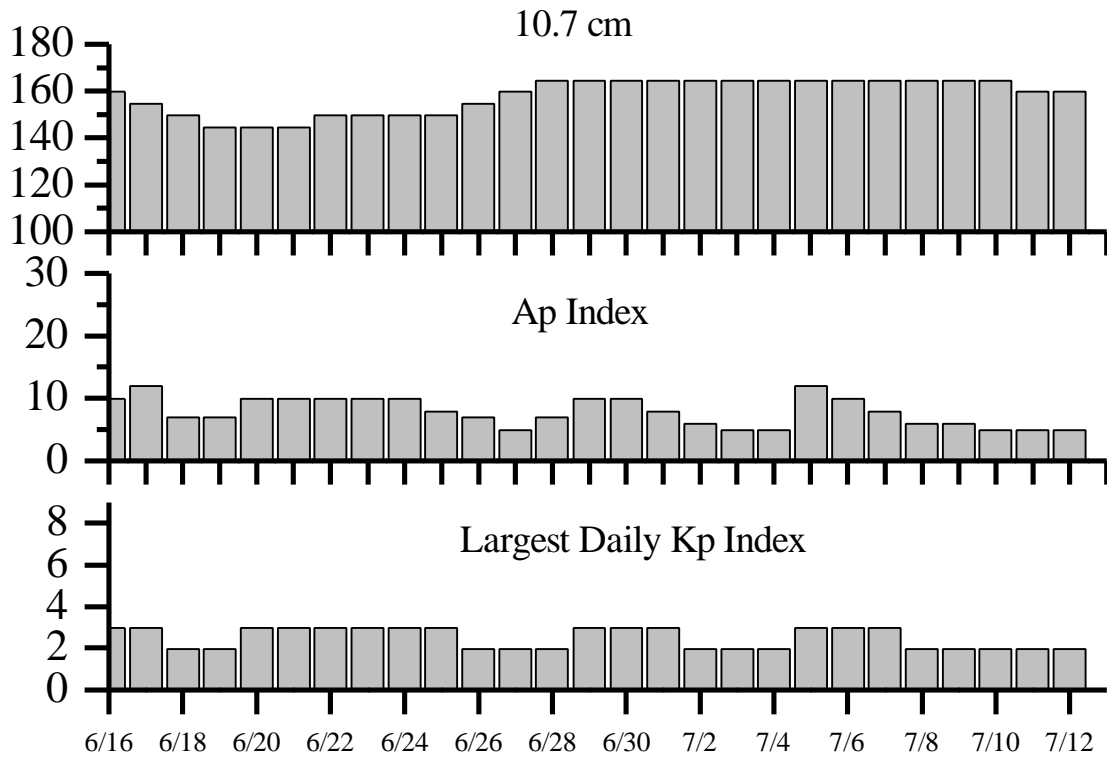


Alerts and Warnings Issued

Date and Time of Issue (UT)	Type of Alert or Warning	Date and Time of Event (UT)
08 Jun 0600	K= 4 Observed	08 Jun 03 - 06
08 Jun 0900	K= 4 Observed	08 Jun 06 - 09
08 Jun 1200	K= 4 Observed	08 Jun 09 -12
09 Jun 0009	1 – 245 MHz Burst	08 Jun
09 Jun 0023	Type II Radio Emission	09 Jun 0025
09 Jun 1800	K= 4 Observed	09 Jun 15 - 18
10 Jun 0010	6 – 245 MHz Bursts	09 Jun
11 Jun 0059	Type II Radio Emission	11 Jun 0039
11 Jun 0304	Type IV Radio Emission	11 Jun 0051
11 Jun 1156	Type II Radio Emission	11 Jun 1116
11 Jun 1156	Type IV Radio Emission	11 Jun 1129
12 Jun 0029	3 – 245 MHz Bursts	11 Jun
12 Jun 1713	Type II Radio Emission	12 Jun 1347



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 Jun	160	10	3	30 Jun	165	10	3
17	155	12	3	01 Jul	165	8	3
18	150	7	2	02	165	6	2
19	145	7	2	03	165	5	2
20	145	10	3	04	165	5	2
21	145	10	3	05	165	12	3
22	150	10	3	06	165	10	3
23	150	10	3	07	165	8	3
24	150	10	3	08	165	6	2
25	150	8	3	09	165	6	2
26	155	7	2	10	165	5	2
27	160	5	2	11	160	5	2
28	165	7	2	12	160	5	2
29	165	10	3				



Energetic Events

Date	Time (UT)			X-ray		Optical Information			Peak		Sweep Freq	
	Begin	Max	Max	Class	Flux	Imp/ Brtns	Location Lat CMD	Rgn #	Radio Flux		Intensity	
									245	2695	II	IV
12 Jun	1319	1336	1344	M1.0	.008	1N	S13E63	8583	18		1	

Flare List

Date	Time			X-ray Class.	Optical Imp / Brtns	Location Lat CMD	Rgn #
	Begin	Max	End				
07 June	No Flares Observed						
	0358	0400	0406		SF	N29E27	8574
	0524	0525	0529		SF	N27E23	8574
	0620	0625	0627		SF	S15W61	8562
	0635	0642	0654		SF	S15W64	8562
	0935	0940	0943	C2.5			
	1031	1034	1037	C1.7			
	1228	1234	1237	C2.2			
	1317	1318	1328	C1.3	SF	S16W65	8562
	1330	1333	1336	C1.1			
	1527	1528	1532		SF	S17W67	8562
08 June	0025	0030	0040		SF	S13W59	8562
	0121	0125	0142		SF	N29E14	8574
	0322	0323	0336		SF	N30E14	8574
	0502	0504	0509		SF	N19W75	8573
	0523	0524	0530		SF	N24E30	8569
	0656	0659	0708		SF	S16E33	8571
	0916	0923	0940	C1.4			
	B1315	U1316	1325	C1.0	SF	N29E09	8574
	1353	1357	1405		SF	S15E28	8570
	1527	1529	1534		SF	N11W74	8558
	1751	1804	1817	C2.6	SF	N31E06	8574
	1902	1906	1912		SF	S20E26	8571
	2101	2105	2107		SF	N30E03	8574
	2106	2106	2109		SF	N20E25	8569
09 June	0010	0021	0036	C1.2	SF	N21E05	8578
	B1149	U1149	1154		SF	S16W88	8562
	1339	1347	1359	C1.8	SF	N30W06	8574
	1407	1424	1510	C1.3	SF	N27W05	8574
	1708	1710	1721	C1.2	SF	N29W06	8574
	1856	1858	1910	C3.0	SF	N30W08	8574
	1922	1927	1942		SF	N30W07	8574
10 June	0023	0023	0028		SF	N21W10	8578
	0117	0117	0125	B9.1	SF	N20E08	8569
	0317	0318	0324	C1.8	SF	N31W11	8574
	0406	0411	0417		SF	N21E07	8569
	B1105	U1107	1111		SF	N20E04	8569



Flare List-continued

Date	Time			X-ray	Optical		Rgn Lat CMD #	
	Begin	Max	End		Imp / Class.	Location Brtns		
10 June	1449	1451	1459		SF	N19W21	8578	
	1503	1503	1509		SF	N19E00	8569	
	2056	2057	2120	C1.9	SF	N28W25	8574	
	2107	2108	2115		SF	N19W21	8578	
	2252	2257	2304	C1.4				
11 June	0105	0110	0116	C1.0				
	0505	0508	0525		SF	N25E42		
	0553	0554	0604		SF	N18W08	8569	
	0736	0738	0757	C1.4	SF	N33W26	8574	
	1107	1157	1231	C8.8				
	1417	1418	1424		SF	N27W32	8574	
	1810	1813	1852	C3.9	1F	N18W16	8569	
	1832	1833	1843		SF	N26E34	8582	
	1952	1953	1959		SF	N20W20	8569	
	2134	2136	2145	C1.3	SF	N18W18	8569	
	2150	2151	2153		SF	S19W18	8571	
	2250	2253	2255	B9.2				
	12 June	0106	0107	0114	C1.0	SF	N20W23	8569
0212		0214	0219		SF	S15E69	8583	
0302		0302	0306		SF	S12E71	8583	
0934		0936	0941		SF	N25E26	8582	
1105		1110	1114	C1.2				
1235		1244	1257		SF	S14E64	8583	
1323		1333	1356	M1.0	1N	S13E63	8583	
1714		1714	1720		SF	S11E65	8583	
1854		1856	1902		SF	N17W32	8569	
1919		1921	1930		SF	S12E59	8583	
B2122		U2122	A214		SF	N23W35	8569	
B2122		U2122	A214	C4.1	SF	N27W43	8574	
B2215		U2215	2228	C3.2	SF	S12E58	8583	
2250		2257	2302	C3.5				
2355		0004	0014	C2.0	SF	N18W33	8569	
13 June		0023	0025	0027		SF	S14E56	8583
		0057	0058	0109	C1.0	SF	N18W34	8569
	0158	0158	0203		SF	N18W35	8569	
	0244	0244	0248		SF	S13E55	8583	
	0301	0304	0308		SF	S13E55	8583	



Flare List-continued

Date	Time			X-ray	Optical		Rgn Lat CMD #
	Begin	Max	End		Imp / Class.	Location Brtns	
13 June	0416	0416	0420		SF	N25E16	8582
	0431	0431	0435		SF	N18W37	8569
	0438	0441	0446		SF	N18W37	8569
	0554	0556	0558		SF	N18W37	8569
	0636	0643	0656	C2.9	SF	S28W35	8576
	0637	0644	0648		SF	S13E53	8583
	0740	0743	0755	C2.3	SF	N18W40	8569
	0815	0816	0820		SF	N25E14	8582
	0916	0916	0927		SF	N25E14	8582
	1118	1119	1122		SF	N16W43	8569
	1224	1225	1244	C2.1	1F	N25E11	8582
	1249	1252	1305		SF	N17W42	8569
	1307	1311	1333	C2.4	SF	N17W42	8569
	1445	1450	1515		SF	N26E09	8582
	1529	1529	1533		SF	S19W40	8571
	1543	1543	1610		SF	N24E07	8582
	1619	1623	1636		SF	N25E09	8582
	1638	1638	1644	C1.4	SF	N16W46	8569
	1647	1651	1703		SF	N25E09	8582
	1747	1805	1819	C1.8			
	1934	1937	1942		SF	N26E07	8582
	2345	2345	0005		SF	N19W62	8578



Region Summary

Date	Location		Sunspot Characteristics					Flares						
	° Lat ° CMD	Helio	Area (10 ⁶ hemi)	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical			
		Lon						C	M	X	S	1	2	3

Region 8555

26 May	N16E75	304	0050	02	HSX	001	A											
27 May	N15E61	305	0060	02	HAX	001	A											
28 May	N17E49	304	0050	01	HSX	001	A											
29 May	N17E35	305	0050	02	HSX	001	A											
30 May	N16E22	305	0050	01	HSX	001	A											
31 May	N17E08	306	0040	04	CSO	003	B											
01 Jun	N17W06	306	0040	04	CSO	003	B											
02 Jun	N16W18	305	0040	04	CAO	004	B											
03 Jun	N16W30	304	0030	02	HSX	001	A											
04 Jun	N15W44	305	0020	02	HSX	001	A											
05 Jun	N16W57	305	0010	01	AXX	001	A											
06 Jun	N16W70	305																
07 Jun	N16W83	305																
									0	0	0	0	0	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 306

Region 8557

27 May	S28E73	293	0090	06	DSO	005	B	2		2								
28 May	S29E56	297	0030	06	DRO	004	B	1		4								
29 May	S30E46	294	0130	03	CAO	007	B			1								
30 May	S30E34	293	0070	03	DAO	005	A											
31 May	S30E21	293	0030	03	HAX	005	A											
01 Jun	S29E08	292	0020	06	CRO	009	B	1		3	1							
02 Jun	S27W06	293	0010	05	BXO	004	B			1								
03 Jun	S27W19	293						1		1	1							
04 Jun	S27W32	293						1		3								
05 Jun	S27W45	293																
06 Jun	S27W58	293																
07 Jun	S27W71	293																
08 Jun	S27W84	293																
									6	0	0	15	2	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 293



Region Summary- continued.

Date	Location		Sunspot Characteristics					Flares										
	° Lat ° CMD)	Helio	Area (10 ⁶ hemi)	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical							
		Lon						C	M	X	S	1	2	3	4			
<i>Region 8558</i>																		
28 May	N14E68	285	0020	02	HRX	001	A						1					
29 May	N16E56	284	0120	09	DSI	012	B							1				
30 May	N16E43	284	0300	09	DAI	029	B	1						6				
31 May	N16E30	284	0410	08	DSO	019	B											
01 Jun	N15E18	282	0570	08	DKI	021	B											
02 Jun	N15E04	283	0600	09	DKI	023	B							1				
03 Jun	N16W09	283	0600	09	DKI	023	B											
04 Jun	N16W22	283	0390	09	DKI	024	B											
05 Jun	N16W35	283	0330	09	DAI	023	B											
06 Jun	N16W49	283	0210	08	DSO	017	B	1						3				
07 Jun	N16W62	283	0180	07	DAO	009	B											
08 Jun	N15W76	6284	0120	07	DAO	004	B							1				
09 Jun	N15W92	287	0080	04	CAO	002	B											
								2	0	0	13	0	0	0	0	0		

Crossed West Limb.

Absolute heliographic longitude: 283

Region 8562

31 May	S15E22	292	0050	05	CAO	013	B	2						3				
01 Jun	S16E09	291	0190	07	DAI	026	B	1						4	1			
02 Jun	S16W05	292	0340	08	DAI	032	BG	2						2	1			
03 Jun	S15W18	292	0420	09	DKI	029	BG	5	1					13	2			
04 Jun	S16W31	292	0420	10	DKI	024	B	1						2				
05 Jun	S15W45	293	0410	10	DAI	026	B	1						1				
06 Jun	S15W57	291	0300	13	EAO	022	BG							2				
07 Jun	S16W70	291	0280	11	EAO	015	B	1						4				
08 Jun	S15W83	291	0230	12	EAO	008	B							1				
								13	1	0	32	4	0	0	0	0		

Crossed West Limb.

Absolute heliographic longitude: 292



Region Summary- continued.

Date	Location		Sunspot Characteristics					Flares						
	(° Lat ° CMD)	Helio	Area (10 ⁶ hemi)	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical			
		Lon						C	M	X	S	1	2	3

Region 8563

31 May	S25E63	251	0010	05	BXO	003	B											
01 Jun	S26E51	249	0010	08	BXO	007	B	1				1	1					
02 Jun	S26E38	249	0020	07	BXO	007	B											
03 Jun	S25E25	249	0010	05	BXO	003	B											
04 Jun	S24E11	250	0010	04	BXO	003	B											
05 Jun	S24W04	252	0000	04	BXO	004	B											
06 Jun	S24W17	251	0010	05	BXO	006	B											
07 Jun	S23W31	252	0010	04	BXO	004	B											
08 Jun	S23W44	252																
09 Jun	S23W57	252																
10 Jun	S23W70	252																
11 Jun	S23W83	252																

Crossed West Limb.

Absolute heliographic longitude: 252

Region 8564

01 Jun	S15E68	232	0020	01	HSX	001	A											
02 Jun	S16E53	234	0040	03	CSO	002	B											
03 Jun	S14E40	234	0030	02	HSX	001	A											
04 Jun	S14E27	234	0020	02	HSX	001	A											
05 Jun	S15E13	235	0020	01	HSX	001	A											
06 Jun	S15E00	234	0020	01	HSX	001	A											
07 Jun	S15W13	234	0010	01	HRX	002	A											
08 Jun	S15W26	234	0010	03	BXO	004	B											
09 Jun	S14W40	235	0010	01	AXX	001	A											
10 Jun	S16W54	235	0010	04	BXO	002	B											
11 Jun	S16W67	235																
12 Jun	S16W80	235																

Still on Disk.

Absolute heliographic longitude: 234



Region Summary- continued.

Date	Location		Sunspot Characteristics				Flares							
	(° Lat ° CMD)	Helio	Area (10 ⁶ hemi)	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical			
		Lon						C	M	X	S	1	2	3

	<i>Region</i>	8565																	
02 Jun	S07E42	245	0020	03	CRO	004	B												
03 Jun	S07E29	245																	
04 Jun	S07E16	245																	
05 Jun	S07E03	245																	
06 Jun	S07W10	245																	
07 Jun	S07W23	245																	
08 Jun	S07W36	245																	
09 Jun	S07W49	245																	

Crossed West Limb.

Absolute heliographic longitude: 245

	<i>Region</i>	8566																	
02 Jun	N23E74	213	0010	00	HSX	001	A												
03 Jun	N23E63	211	0020	01	HRX	001	A												
04 Jun	N22E50	211	0010	00	AXX	001	A												
05 Jun	N22E37	211	0000	00	AXX	001	A												
06 Jun	N24E26	208	0000	03	BXO	003	B												
07 Jun	N24E14	207	0000	00	AXX	001	A												
08 Jun	N24E01	207																	
09 Jun	N24W12	207																	
10 Jun	N24W25	207																	
11 Jun	N24W38	207																	
12 Jun	N24W51	207																	
13 Jun	N24W64	207																	

Still on Disk.

Absolute heliographic longitude: 207

	<i>Region</i>	8567																	
03 Jun	S14W04	278	0010	04	CSO	004	B												
04 Jun	S14W18	279	0020	06	BXO	008	B												
05 Jun	S14W32	280	0020	08	CRO	008	B												
06 Jun	S14W43	277	0000	05	BXO	003	B												
07 Jun	S13W56	277	0000	00	AXX	001	A												
08 Jun	S13W69	277																	
09 Jun	S13W82	277																	

Crossed West Limb.

Absolute heliographic longitude: 278



Region Summary- continued.

Date	Location		Sunspot Characteristics					Flares						
	(° Lat ° CMD)	Helio Lon	Area (10 ⁶ hemi)	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical			
								C	M	X	S	1	2	3

Region 8569

04 Jun	N18E73	188	0060	05	CAO	002	B												
05 Jun	N21E59	189	0100	07	CAO	005	B												
06 Jun	N18E47	187	0090	09	CSO	008	B					1							
07 Jun	N18E35	186	0120	09	CAO	009	B												
08 Jun	N18E20	188	0080	11	ESO	006	B					2							
09 Jun	N19E06	189	0130	11	EAO	014	B												
10 Jun	N19W07	188	0220	14	EAI	029	BG					4							
11 Jun	N19W20	188	0260	17	FAC	038	BG	2				3	1						
12 Jun	N20W32	186	0310	17	FAI	040	BG	2				4							
13 Jun	N19W45	186	0360	15	EKI	029	BG	4				10							
								8	0	0	24	1	0	0	0				

Still on Disk.

Absolute heliographic longitude: 189

Region 8570

04 Jun	S14E74	187	0040	01	HSX	001	A												
05 Jun	S14E60	188	0050	01	HSX	001	A												
06 Jun	S14E48	186	0050	02	HSX	001	A												
07 Jun	S14E34	187	0040	02	HAX	001	A												
08 Jun	S13E21	187	0050	02	HSX	001	A					1							
09 Jun	S13E08	187	0060	02	HSX	002	A												
10 Jun	S13W05	186	0050	01	HSX	002	A												
11 Jun	S13W18	186	0030	01	HSX	002	A												
12 Jun	S15W34	188	0030	01	HSX	002	A												
13 Jun	S14W45	186	0020	01	HSX	002	A												
								0	0	0	1	0	0	0	0				

Still on Disk.

Absolute heliographic longitude: 186

Region 8571

05 Jun	S19E60	188	0030	02	HRX	003	A					2							
06 Jun	S19E48	186	0150	07	CAO	011	B												
07 Jun	S19E36	185	0230	06	CAO	010	B												
08 Jun	S19E23	185	0210	06	DAO	015	B					2							
09 Jun	S19E09	186	0130	06	DSO	013	B												
10 Jun	S20W05	186	0050	04	CSO	008	B												
11 Jun	S19W17	185	0040	06	CSO	003	B					1							
12 Jun	S19W31	185	0030	03	CSO	004	B												
13 Jun	S19W44	185	0020	03	CSO	004	B					1							
								0	0	0	6	0	0	0	0				

Still on Disk.

Absolute heliographic longitude: 186



Region Summary- continued.

Date	Location		Sunspot Characteristics				Flares							
	(° Lat ° CMD)	Helio Lon	Area (10 ⁶ hemi)	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical			
								C	M	X	S	1	2	3

Region 8572

05 Jun	N26W58	306	0010	05	CRO	002	B											
06 Jun	N26W69	303	0000	04	BXO	003	B						2					
07 Jun	N26W82	303																
										0	0	0	2	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 306

Region 8573

05 Jun	N18W45	293	0000	00	AXX	001	A											
06 Jun	N18W59	293																
07 Jun	N18W72	293																
08 Jun	N18W85	293											1					
										0	0	0	1	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 293

Region 8574

05 Jun	N30E40	208	0010	05	CRO	003	B											
06 Jun	N29E28	206	0050	07	DAO	013	B						8					
07 Jun	N28E14	207	0220	10	DAO	016	B						2					
08 Jun	N28E01	207	0260	11	EAI	025	B	2					5					
09 Jun	N29W12	207	0300	13	EAI	027	B	4					5					
10 Jun	N29W25	206	0250	12	EAI	025	B	2					2					
11 Jun	N29W37	205	0160	12	ESO	018	BG	1					2					
12 Jun	N30W50	204	0170	13	EAO	011	B	1					1					
13 Jun	N30W63	204	0100	12	CSO	006	B											
										10	0	0	25	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 207

Region 8575

06 Jun	N13E32	202	0000	01	AXX	002	A											
07 Jun	N14E23	198	0030	06	CRO	003	B											
08 Jun	N14E07	201	0010	07	BXO	004	B											
09 Jun	N13W07	202	0010	03	BXO	002	B											
10 Jun	N14W18	199	0010	03	BXO	003	B											
11 Jun	N13W31	199	0010	04	CRO	005	B											
12 Jun	N14W45	199	0010	04	BXO	006	B											
13 Jun	N14W57	198	0010	03	BXO	003	B											
										0	0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 201



Region Summary- continued.

Date	Location		Sunspot Characteristics				Flares							
	(° Lat ° CMD)	Helio	Area (10 ⁶ hemi)	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical			
		Lon						C	M	X	S	1	2	3

Region 8576

06 Jun	S29E52	182	0010	06	BXO	004	B											
07 Jun	S29E40	181	0010	06	BXO	007	B											
08 Jun	S29E26	182	0010	08	BXO	007	B											
09 Jun	S29E10	185	0010	07	BXO	003	B											
10 Jun	S28W07	188	0000	00	AXX	001	A											
11 Jun	S29W18	186	0010	04	BXO	003	B											
12 Jun	S28W29	183	0060	08	DRO	014	B											
13 Jun	S28W40	181	0080	09	DAI	016	B	1				1						
								1	0	0	0	1	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 188

Region 8577

08 Jun	N19W37	245	0010	02	BXO	003	B											
09 Jun	N19W52	247	0050	04	CRO	005	B											
10 Jun	N19W64	245	0020	03	BXO	004	B											
11 Jun	N19W77	245	0000	02	AXX	002	A											
									0	0	0	0	0	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 245

Region 8578

08 Jun	N19E04	204	0020	03	CRO	005	B											
09 Jun	N19W09	204	0070	07	DAO	010	B	1				1						
10 Jun	N19W23	204	0150	08	DAO	014	B					3						
11 Jun	N19W37	205	0130	09	DSO	008	B											
12 Jun	N20W49	203	0110	09	DSO	008	B											
13 Jun	N20W62	203	0140	09	CAO	007	B					1						
								1	0	0	0	5	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 204



Region Summary- continued.

Date	Location		Sunspot Characteristics					Flares						
	° Lat ° CMD	Helio	Area (10 ⁶ hemi)	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical			
		Lon						C	M	X	S	1	2	3

Region 8579

09 Jun	N12E10	185	0010	04	BXO	003	B										
10 Jun	N12W06	187	0000	00	AXX	001	A										
11 Jun	N10W19	187	0000	00	AXX	001	A										
12 Jun	N10W32	187															
13 Jun	N10W45	187															
								0	0	0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 187

Region 8580

09 Jun	S19E67	128	0240	03	HAX	002	A										
10 Jun	S19E54	127	0260	04	HKX	004	A										
11 Jun	S20E42	126	0300	03	HKX	002	A										
12 Jun	S20E28	126	0250	03	HKX	002	A										
13 Jun	S20E15	126	0270	04	CKO	006	B										
								0	0	0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 126

Region 8581

10 Jun	S38W02	183	0000	00	AXX	001	A										
11 Jun	S38W15	183															
12 Jun	S38W28	183															
13 Jun	S38W41	183															
								0	0	0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 183

Region 8582

11 Jun	N26E31	137	0010	06	BXO	007	B					1					
12 Jun	N26E18	136	0020	07	BXO	010	B					1					
13 Jun	N26E06	135	0060	07	DAI	012	B	1			8	1					
								1	0	0	10	1	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 135

Region 8583

11 Jun	S12E68	100	0080	02	HSX	002	A										
12 Jun	S13E56	098	0150	09	DSO	008	B	1	1		6	1	1				
13 Jun	S13E44	097	0140	10	DAO	012	B				4						
								1	1	0	10	1	1	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 097



Region Summary- continued.

Date	Location		Sunspot Characteristics				Flares							
	(° Lat ° CMD)	Helio	Area (10 ⁶ hemi)	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical			
		Lon						C	M	X	S	1	2	3

Region 8584

12 Jun N25W22 176 0010 03 BXO 005 B

13 Jun N25W35 176

0 0 0 0 0 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 176

Region 8585

12 Jun N38E77 077 0090 07 DSO 003 B

13 Jun N38E67 074 0140 08 DAO 004 B

0 0 0 0 0 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 074



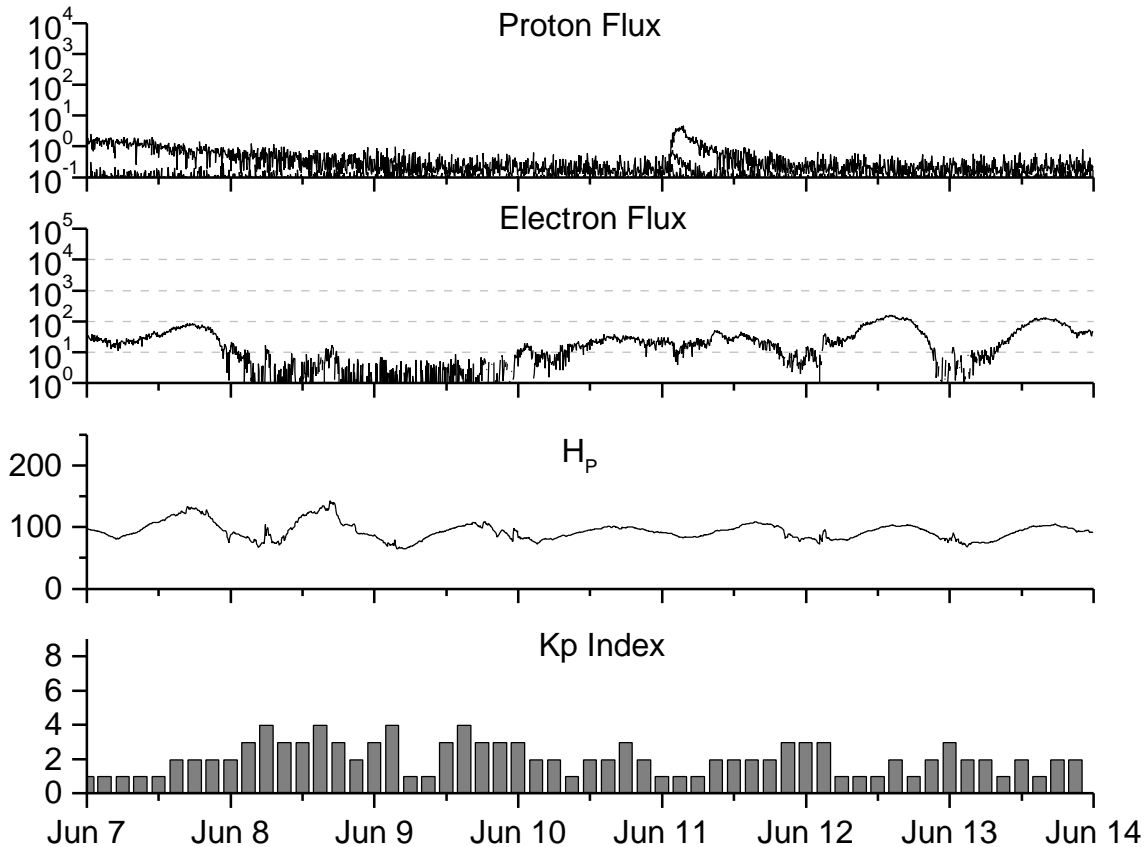
**Recent Solar Indices (preliminary)
of the observed monthly mean values**

Month	Sunspot Numbers			Radio Flux		Geomagnetic			
	Observed values SWO	Ratio RI	Ratio RI/SWO	Smooth values SWO	Smooth values RI	*Penticton 10.7 cm	Smooth Value	Planetary Ap	Smooth Value
1997									
June	22.1	12.7	0.57	29.0	20.3	71.7	80.1	07	08.6
July	17.0	10.4	0.61	32.4	22.6	71.1	81.8	06	08.5
August	36.7	24.4	0.66	35.9	25.0	79.0	83.4	07	08.3
September	52.8	51.3	0.88	40.5	28.3	96.2	85.7	10	08.4
October	33.6	22.8	0.68	45.4	31.8	84.9	88.6	11	08.6
November	53.5	39.0	0.73	49.3	35.0	99.5	91.3	11	09.0
December	57.9	41.2	0.71	54.2	39.0	98.8	94.2	05	09.5
1998									
January	51.8	31.9	0.62	60.6	43.7	93.4	97.5	08	09.9
February	54.4	40.3	0.74	67.4	48.8	93.4	101.7	08	10.5
March	81.8	54.8	0.67	73.3	53.4	109.1	105.8	13	11.1
April	73.6	53.4	0.73	77.7	56.5	108.3	109.1	10	11.3
May	74.3	56.3	0.76	81.4	59.3	106.7	112.4	18	11.6
June	93.6	70.7	0.76	85.9	62.4	108.4	116.2	10	11.9
July	98.3	66.2	0.67	90.3	65.4	114.0	120.3	11	12.2
August	118.6	91.7	0.77	93.7	67.8	136.0	124.1	18	12.4
September	119.0	92.9	0.78	96.1	69.4	138.4	126.8	13	12.5
October	77.0	55.6	0.72	97.7	70.5	117.3	127.9	13	12.5
November	99.5	73.6	0.74	101.3	73.0	140.2	130.0	16	12.3
December	120.8	81.6	0.68			150.1		08	
1999									
January	94.3	62.4	0.66			142.6		10	
February	93.4	66.1	0.70			142.0		11	
March	100.5	69.1	0.70			126.3		13	
April	92.9	63.9	0.69			117.3		12	
May	140.5	106.3	0.76			148.4		10	

NOTE: All smoothed values after January 1998 and monthly values after September 1998 are preliminary estimates.

The lowest smoothed sunspot indices number for Cycle 22, RI = 8.0, occurred in May 1996. The highest smoothed sunspot number for Cycle 22, RI= 158.5, occurred July 1989. * 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 June 1999

Protons plot contains the five-minute averaged integral proton flux (protons/cm²-sec -sr) as measured by GOES-8 (W75) for each of three energy thresholds: greater than 10, 50, and 100 MeV.

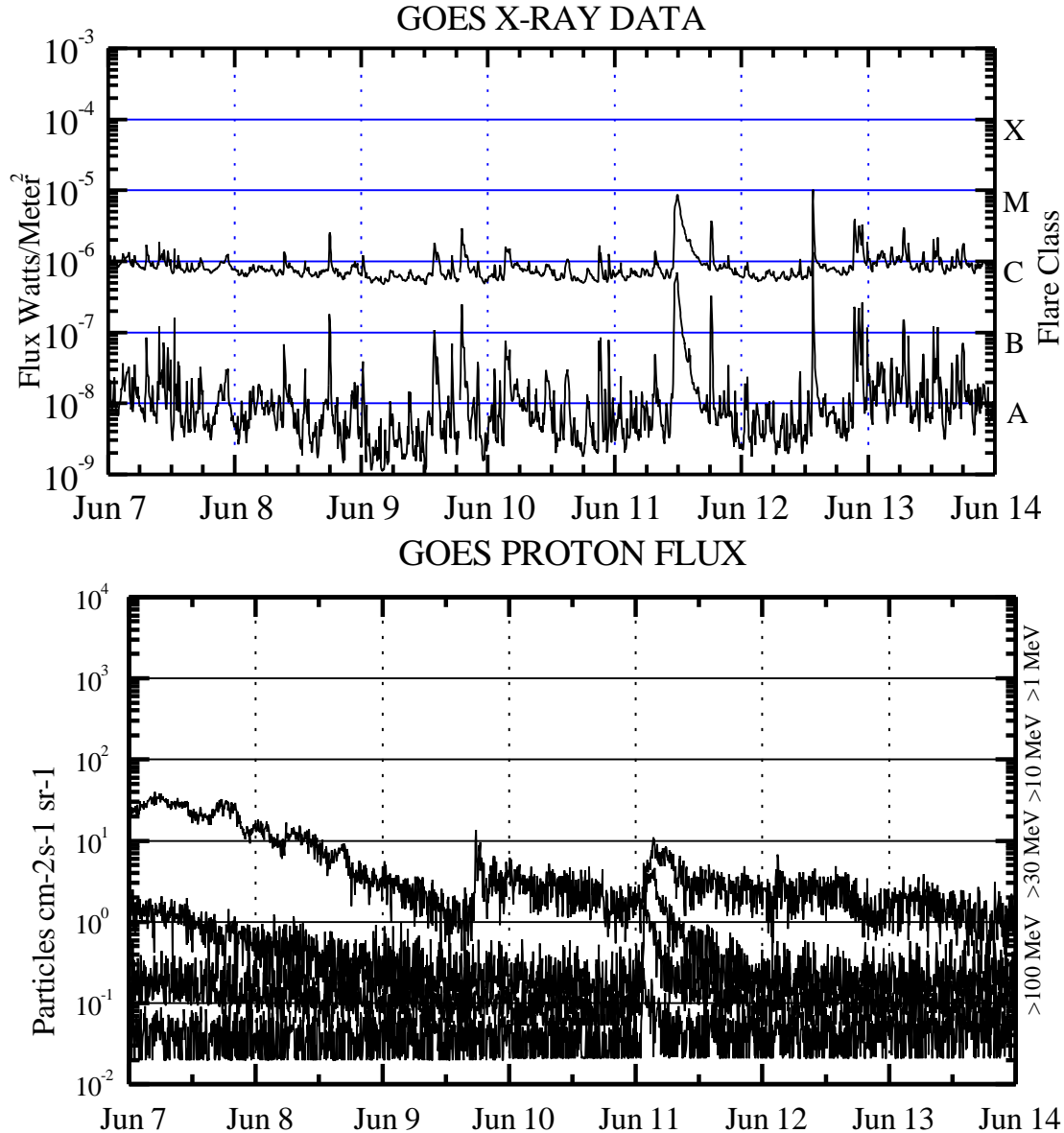
Electrons plot contains the five-minute averaged integral electron flux (electrons/cm²-sec -sr) with energies greater than 2 MeV at GOES-8.

H_p plot contains the five minute averaged magnetic field H - component in nanoteslas (nT) as measured by GOES-8. 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 USAF 55th Space Weather Squadron) 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 Heartland, UK. These data are made available through cooperation from the Geological Survey of Canada (GSC) 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 SWO 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_p 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 8 and 10 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-8 (W75) 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.

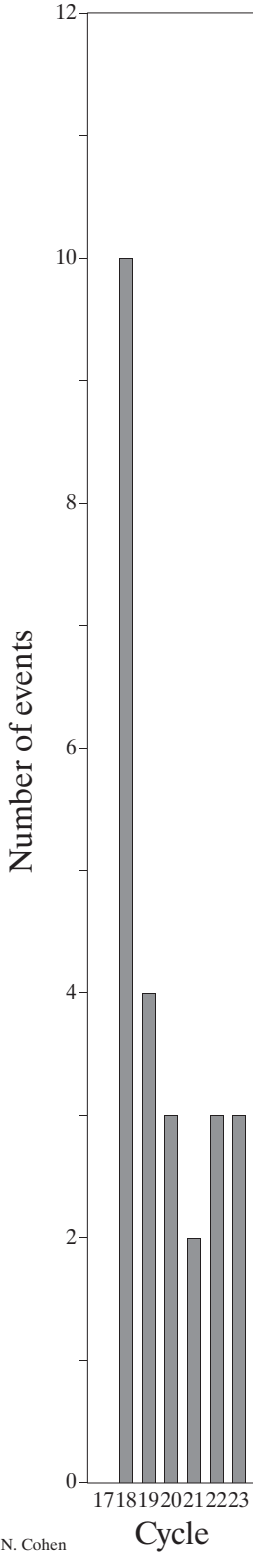


Severe Storm ($A_p \geq 100$) Geomagnetic Conditions



Space Environment Center

Comparison of Cycles at current month in cycle



N. Cohen

