

Space Weather Highlights 19 – 25 June 2000

**SWO PRF 1295
27 June 2000**

Solar activity ranged from low to moderate levels. Activity was at low levels during 19 - 20 June due to occasional C-class subflares. Activity increased to moderate levels on 21 June due to an M1/SF flare at 21/0929UT from Region 9042 (N24, L = 282, class/area Fko/420 on 21 June). Solar activity declined to low levels on 22 June. Activity returned to moderate levels on 23 June as Region 9046 (N20, L = 252, class/area Eko/310 on 23 June) produced an M2/2B flare at 23/0407UT with an associated 240 SFU Tenflare and Type II and IV radio sweeps. Region 9042 produced an M3/1F flare at 23/1431UT with an associated 250 SFU Tenflare, Type II and IV radio sweeps, and a partial-halo CME. Solar activity declined to low levels on 24 June. Activity increased to moderate levels on 25 June due to a pair of M-class flares. The first was an M2/SF at 25/0114UT with an associated loop prominence system from Region 9042, at that time, a day beyond the west limb. The second was an M1/2N at 25/0752UT from Region 9046. This region showed slow decay during the second half of the period, and was a small, mixed-polarity spot group at the end of the period.

Real-time solar wind data were available from the NASA Advanced Composition Explorer (ACE) spacecraft for most of the period. Observations indicate a solar sector boundary crossing from an "away" (positive) configuration to a "towards" (negative) configuration between 22/0100 - 1200UT. An apparent shock was detected at ACE at 23/1228UT, when velocity increased from 510 to 620 km/s. Velocity ended the period in the 410 -510 km/s range, densities were 1 to 8 p/cc, and IMF Bz was predominately northward during 24 -25 June with a range of plus 11 to minus 4 nT.

The greater than 10 MeV proton flux at geosynchronous orbit was at background levels for 19 - 22 June. Greater than 10 MeV proton flux enhancements occurred on 23 and 25 June following flare activity from Region 9042. Proton fluxes had returned to background levels by the end of the period.

The greater than 2 MeV electron flux at geosynchronous orbit was at normal levels.

The geomagnetic field was quiet to unsettled for 19 - 20 June. Quiet to active levels were observed during 21 - 22 June. A sudden impulse (SI), with a magnitude of 29 nT (as measured at the Boulder USGS magnetometer), occurred at 23/1305UT. Activity increased to unsettled to minor storm levels following the SI. On 24 June the geomagnetic field activity ranged from quiet to minor storm levels with storm levels limited to the high latitudes. Activity decreased to quiet to active levels on 25 June.

Space Weather Outlook 28 June - 24 July 2000

Solar activity is expected to vary between low and moderate levels during most of the period, with occasional C-class and isolated M-class flares expected. Chances for M-class activity are expected to increase during 02 - 15 July with the return of old Region 9033.

There will be a chance for a proton event at geosynchronous orbit during 02 - 15 July due to the return of old Region 9033.

The greater than 2 MeV electron flux at geosynchronous orbit is expected to be at normal to moderate levels through most of the period. However, there will be a chance for high flux levels during 12 - 13 July.

The geomagnetic field is expected to be at quiet to unsettled levels during most of the period, barring an Earth-directed CME. However, there will be a chance for active levels during 11 - 12 July due to coronal hole effects.



Daily Solar Data

Date	Radio Flux 10.7 cm	Sun spot No.	Sunspot Area (10 ⁶ hemi.)	X-ray Background	Flares							
					X-ray Flux			Optical				
					C	M	X	S	1	2	3	4
19 June	178	194	1320	B7.4	6	0	0	6	0	0	0	0
20 June	184	219	1440	B6.7	6	0	0	10	1	0	0	0
21 June	188	226	1230	B7.9	7	1	0	17	2	0	0	0
22 June	180	187	1260	C1.2	10	0	0	23	0	0	0	0
23 June	175	182	1310	B9.9	4	2	0	23	1	1	0	0
24 June	168	190	1220	B8.1	2	0	0	5	0	0	0	0
25 June	175	177	1120	C1.2	6	2	0	22	1	1	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
19 June	7.1E+5	1.3E+4	2.7E+3		1.5E+7	
20 June	9.6E+4	1.0E+4	2.7E+3		7.6E+6	
21 June	4.2E+4	1.0E+4	2.8E+3		8.3E+6	
22 June	1.2E+6	1.5E+4	3.0E+3		3.2E+6	
23 June	1.3E+7	2.7E+4	3.3E+3		5.5E+6	
24 June	8.6E+5	1.4E+4	2.4E+3		8.3E+5	
25 June	1.8E+6	7.1E+4	2.5E+3		8.3E+5	

Daily Geomagnetic Data

Date	Middle Latitude		High Latitude		Estimated	
	Fredericksburg		College		Planetary	
	A	K-indices	A	K-indices	A	K-indices
19 June	8	3-3-1-1-1-3-1-2	*	*-*-*-*-*-*-*	9	3-3-1-2-2-3-3-2
20 June	9	2-2-2-2-3-3-2-2	*	*-*-*-*3-2-0-1	9	2-2-2-3-3-3-3-2
21 June	6	1-1-0-0-1-1-2-4	5	1-1-1-2-1-1-1-3	8	2-1-1-2-2-3-3-3
22 June	11	4-2-2-3-2-1-3-2	8	3-2-2-2-3-1-2-1	8	3-2-2-3-3-2-3-3
23 June	20	2-3-2-1-5-4-4-4	35	3-4-2-0-7-4-5-3	23	3-4-2-2-4-5-5-4
24 June	10	4-3-3-2-1-1-1-2	25	5-5-4-3-1-1-5-2	17	5-4-5-3-1-2-2-2
25 June	11	2-1-0-1-1-4-3-4	14	2-1-1-4-5-1-2-3	8	3-1-1-1-2-2-3-4

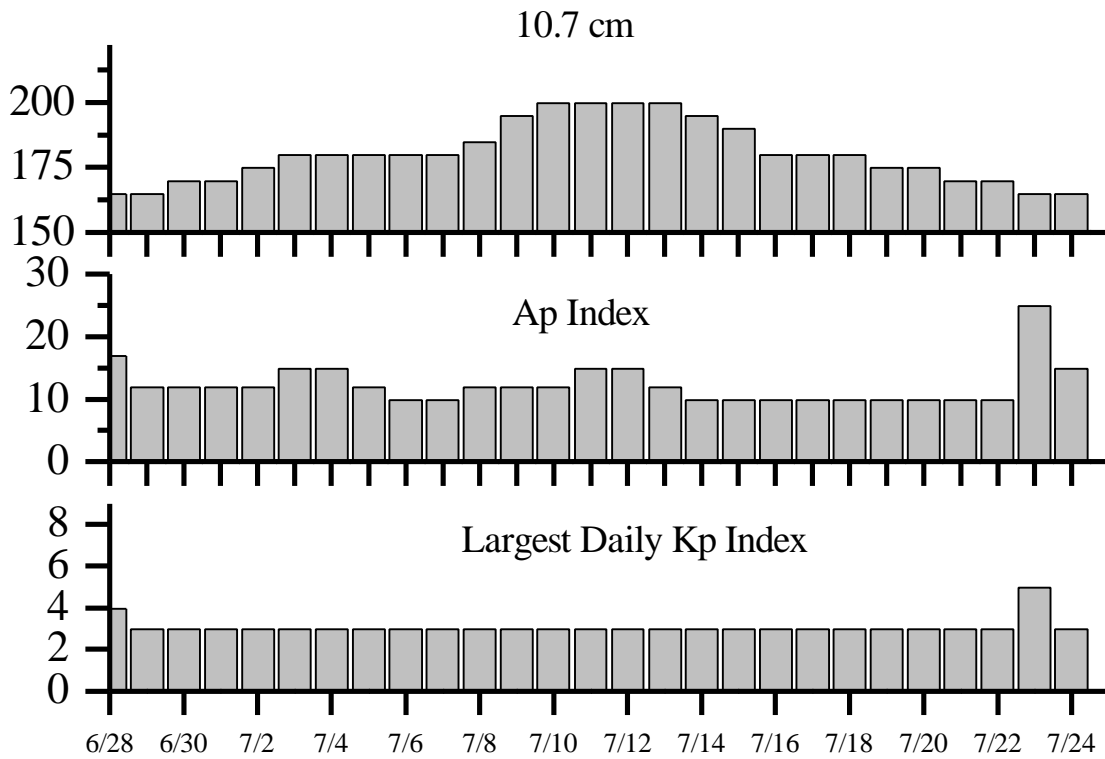


Alerts and Warnings Issued

Date & Time of Issue	Type of Alert or Warning	Date & Time of Event UT
19 Jun 0028	3 - 245 MHz Radio Bursts	18 Jun
20 Jun 0127	14 - 245 MHz Radio Bursts	19 Jun
20 Jun 1953	Type II Radio Emission	20 Jun 1932
21 Jun 0042	16 - 245 MHz Radio Bursts	20 Jun
21 Jun 0844	Type II Radio Emission	21 Jun 0812
22 Jun 0102	33 - 245 MHz Radio Bursts	21 Jun
22 Jun 0102	245 MHz Noise Storm	21 Jun
22 Jun 0100	K= 4 Warning valid	22 Jun 0105 - 1500
22 Jun 0300	K= 4 Observed	22 Jun 00 - 03
23 Jun 0059	13 - 245 MHz Radio Bursts	22 Jun
23 Jun 0417	10cm Radio Burst 340 F.U.	23 Jun 0402
23 Jun 0513	Type II Radio Emission	23 Jun 0412
23 Jun 0520	K= 4 Warning	23 Jun 0525 - 1500
23 Jun 0601	K= 4 Observed	23 Jun 03 - 06
23 Jun 1205	Type IV Radio Emission	23 Jun 0440
23 Jun 1325	Sudden Impulse observed at Boulder	23 Jun 1305
23 Jun 1423	EXTENDED K= 4 Warning	23 Jun 2359
23 Jun 1450	10cm Radio Burst 220 F.U.	23 Jun 1422
23 Jun 1647	Type IV Radio Emission	23 Jun 1419
23 Jun 1713	K= 5 Warning	23 Jun 1713 - 2400
23 Jun 1955	K ≥ 6 Warning	23 Jun 1954 - 2400
23 Jun 1956	A ≥ 20 Watch	24 Jun
23 Jun 2005	A ≥ 20 Watch	25 Jun
23 Jun 2007	A ≥ 20 Watch	26 Jun
23 Jun 2354	K= 4 Warning	24 Jun 00 - 15
24 Jun 0102	1 - 245 MHz Radio Burst	23 Jun
24 Jun 0859	A ≥ 20 Observed	24 Jun 0900
24 Jun 1820	ENDED A ≥ 20 Observed	24 Jun 0900
25 Jun 0013	2 - 245 MHz Bursts	24 Jun



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
28 June	165	17	4	12 July	200	15	3
29	165	12	3	13	200	12	3
30	170	12	3	14	195	10	3
01 July	170	12	3	15	190	10	3
02	175	12	3	16	180	10	3
03	180	15	3	17	180	10	3
04	180	15	3	18	180	10	3
05	180	12	3	19	175	10	3
06	180	10	3	20	175	10	3
07	180	10	3	21	170	10	3
08	185	12	3	22	170	10	3
09	195	12	3	23	165	25	5
10	200	12	3	24	165	15	3
11	200	15	3				



Energetic Events

Date	Time		X-ray		Optical Information			Peak		Sweep Freq		
	Begin	Max	½ Max	Class	Integ Flux	Imp/ Brtns	Location Lat CMD	Rgn #	Radio Flux		Intensity	
									245	2695	II	IV
21 Jun	0922	0929	0937	M1.3	.009	SF	N24W42	9042	76			
23 Jun	0400	0407	0412	M2.6	.011	2B	N19W30	9046	340	1	1	
23 Jun	1418	1431	1446	M3.0	.032	1F	N26W72	9042	250	1		
25 Jun	0059	0114	0122	M2.5	.019	SF	N23W90	9042				
25 Jun	0717	0752	0821	M1.9	.043	2N	N16W55	9046	66	33		

Flare List

Date	Time			X-ray Class.	Imp / Brtns	Optical Location Lat CMD	Rgn
	Begin	Max	End				
19 June	0414	0420	0429	C1.7			
	B0500	U0500	A0510		SF	N20W07	9042
	0528	0531	0534	C1.1			
	0646	0650	0656	C1.0			
	0755	0756	0804		SF	N22W06	9042
	1429	1433	1445	C1.9	SF	N19W13	9042
	1555	1605	1651	C1.5	SF	N07W49	9048
	1841	1842	1847		SF	S16W69	9034
20 June	2051	2054	2113	C1.2	SF	N19W15	9042
	0430	0434	0437	C1.1			
	0515	0517	0520		SF	N22W24	9042
	0650	0651	0705	C4.3	SN	N23W23	9042
	1007	1016	1021	C1.6			
	1246	1247	1304		SF	N13E30	9051
	1410	1416	1447		SF	N18E11	9046
	1541	1543	1553		SF	S15W29	9050
	1923	1929	1944	C6.2	1N	N19W28	9042
	1950	1952	2011	C1.6	SF	N19W01	9046
	1951	1951	1955		SF	S21W82	9036
	2035	2036	2047	C3.1	SF	N21W33	9042
	2037	2037	2057		SF	N23W40	9040
21 June	2138	2138	2142		SF	S24W74	9036
	0041	0046	0053	C6.5			
	0253	0257	0301	C1.4			
	0540	0543	0545		SF	S23W79	9036
	0658	0702	0705		SF	S23W79	9036
	0736	0739	0743		SF	S24W80	9036
	0737	0738	0750		SF	N19W41	9042
	0756	0759	0807	C3.9	1N	N19W37	9042
0843	0845	0931	C4.7	SF	N19E20	9051	



Flare List – continued.

Date	Time			X-ray	Optical		Rgn Lat CMD	
	Begin	Max	End		Imp / Class.	Location Brtns		
21 June	0857	0857	0906		SF	N17W04	9046	
	0924	0929	0941	M1.3	SF	N24W42	9042	
	1012	1018	1034		SF	N20W06	9046	
	1224	1225	1231		SF	N22W38	9042	
	1404	1405	1408		SF	N21W44	9042	
	1418	1422	1534	C9.7	1N	N25W44	9042	
	1630	1636	1649		SF	N21W46	9042	
	1858	1859	1906		SF	N22W46	9042	
	1902	1910	2017	C3.2	SF	N23W53	9040	
	1934	1938	1942		SF	N21W46	9042	
	2023	2033	2041		SF	N21W46	9042	
	2216	2230	2306		SF	N21W59	9040	
	2217	2221	2224	C2.1	SF	N22W46	9042	
	22 June	0017	0020	0035	C5.4	SF	N22W49	9042
		0019	0051	0134		SF	N24W55	9040
0030		0043	0101		SF	N20W14	9046	
0111		0114	0127		SF	N23W49	9042	
0149		0155	0201		SF	N22W49	9042	
0325		0325	0328		SF	N19W15	9046	
0531		0531	0543	C1.8	SF	N17W12	9046	
0630		0631	0635	C1.2	SF	N19E09	9051	
0733		0736	0843	C2.1	SF	N21W54	9042	
1013		1014	1032	C4.8	SF	N22W56	9042	
1416		1416	1421		SF	S07W53	9050	
1439		1442	1522		SF	N18W16	9046	
1533		1549	1556		SF	N18W17	9046	
1728		1729	1732		SF	N21W61	9042	
1741		1745	1753	C1.4	SF	N23W84	9040	
1802		1804	1812		SN	N21W61	9042	
1826		1846	1915	C2.4	SF	N23W60	9042	
1827		1827	1831		SF	N22W60	9042	
1920		1920	1925		SF	N23W62	9042	
1939		1942	2008		SF	N19W23	9046	
2008	2014	2022	C1.6					
2053	2059	2103		SF	N19W25	9046		
2208	2209	2212	C1.8	SF	N19W63	9042		
B2337	U2351	2355	C1.6	SF	N22W63	9042		
23 June	0007	0015	0022		SF	N20E57	9055	
	0152	0157	0201	C1.7				
	0231	0231	0234		SF	N22W65	9042	



Flare List – continued.

Date	Time			X-ray	Optical		Rgn Lat CMD
	Begin	Max	End		Imp / Class.	Location Brtns	
23 June	0242	0244	0252	C4.3	SF	N22W65	9042
	0402	0406	0447	M2.6	2B	N19W30	9046
	0518	0518	0523	C6.3	SF	N21W69	9042
	0752	0753	0757		SF	N19W30	9046
	1149	1150	1153		SF	N22W74	9040
	1202	1209	1213		SF	N22W74	9042
	1219	1224	1231		SF	N20W88	9042
	1234	1234	1237		SF	N20W88	9042
	1335	1335	1342		SF	N23W72	9042
	1407	1408	1413		SF	N23W72	9042
	1420	1430	1504	M3.0	1F	N26W72	9042
	1436	1437	1440		SF	S36W21	9049
	1459	1501	1503		SF	N20W89	9042
	1527	1533	1539		SF	S37W17	9049
	1801	1812	1817		SF	S36W19	9049
	1823	1827	1839		SF	S38W20	9049
	1943	1945	1947		SF	S36W18	9049
	2028	2029	2032		SF	S36W18	9049
	2037	2042	2049		SF	S35W23	9049
	B2214	2218	2222	C7.7	SF	N22W74	9042
	2217	2218	2228		SF	N17W35	9046
	2240	2241	2243		SF	N23W81	9042
	2246	2246	2305		SF	N23W76	9042
24 June	0031	0044	0120		SF	N22W32	9046
	0803	0804	0815	C1.2	SF	S35W28	9049
	1358	1401	1402		SF	N09E13	9054
	1541	1548	1558		SF	N09E12	9054
	1605	1606	1607		SF	N22W80	9042
2014	2019	2025	C1.3				
25 June	0046	0046	0112		SF	S14W31	9058
	B0107	U0107	0114	M2.5	SF	N23W90	9042
	0117	0122	0135		SF	N11E08	9054
	0526	0534	0537	C1.3			
	0607	0611	0614	C3.9			
	0720	0746	0911	M1.9	2N	N16W55	9046
	0839	0844	0852		SF	N16W56	9046
	1355	1358	1459	C7.7	1N	S36W42	9049
	1412	1418	1438		SF	S15W38	9058
	1412	1437	1524		SF	N10E01	9054
	1447	1455	1500		SF	S14W39	9058
1505	1517	1521	SF		S15W37	9058	



Flare List – continued.

Date	Time			X-ray	Imp / Class.	Optical	Rgn Lat CMD
	Begin	Max	End			Location Brtns	
25 June	1601	1601	1605		SF	S19E82	
	1713	1714	1730		SF	S11W43	9058
	1905	1912	1921	C1.8			
	1956	2006	2012		SF	N11W03	9054
	2002	2006	2017		SF	S35W45	9049
	2122	2126	2129	C1.1			
	2146	2148	2151		SF	N10W04	9054
	2150	2203	2205		SF	S16E78	9062
	2200	2208	2247		SF	N11W04	9054
	2249	2253	2259		SF	S14W43	9058
	2250	2251	2307		SF	S35W45	9049
	2250	2253	2258		SF	S15E77	9062
	2318	2337	0029		SF	S15E77	9062
	2323	2324	2345		SF	N18W61	9046
	2330	2332	2337		SF	S16W41	9058
	2332	2332	2344	C1.9	SF	N09W07	9054

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	4			
<i>Region 9036</i>																		
08 Jun	S23E73	345	0080	02	HSX	001	A											
09 Jun	S23E60	343	0170	03	HAX	002	A											
10 Jun	S24E52	338	0220	14	CAO	009	B	1				8						
11 Jun	S23E40	337	0280	11	EAO	011	B	1				2						
12 Jun	S22E28	336	0290	14	EAO	012	B	1				1						
13 Jun	S22E13	338	0240	09	DAO	012	B											
14 Jun	S23W03	340	0240	09	DAO	008	B											
15 Jun	S20W17	341	0230	06	DAO	012	B					2						
16 Jun	S20W30	341	0250	06	DHO	008	B					1						
17 Jun	S19W43	341	0170	05	CSO	006	B											
18 Jun	S20W57	342	0150	02	HSX	002	A											
19 Jun	S18W70	342	0150	04	CAO	004	B											
20 Jun	S17W83	341	0180	02	HSX	001	A					2						
21 Jun	S19W91	335	0060	01	HSX	001	A					3						
								3	0	0	19	0	0	0	0	0	0	

Crossed West Limb.

Absolute heliographic longitude: 340



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 9037</i>																	
10 Jun	N18E51	339	0020	01	HSX	001	A					1					
11 Jun	N19E36	341	0100	05	DSO	008	B					1					
12 Jun	N21E24	340	0240	08	DAO	011	B										
13 Jun	N21E10	341	0180	08	DSO	016	B					1					
14 Jun	N20W04	341	0160	10	DAO	014	B										
15 Jun	N21W17	341	0090	09	DAO	014	B										
16 Jun	N22W28	339	0040	06	CSO	008	B										
17 Jun	N21W40	338	0010	00	HRX	001	A										
18 Jun	N22W52	337	0010	00	HRX	001	A					1					
19 Jun	N22W65	337															
20 Jun	N22W78	337															
								0	0	0	4	0	0	0	0	0	

Crossed West Limb.

Absolute heliographic longitude: 341

<i>Region 9040</i>																	
11 Jun	N19E73	304	0090	02	HSX	001	A										
12 Jun	N19E60	304	0140	02	HSX	001	A										
13 Jun	N18E47	304	0100	03	HAX	002	A										
14 Jun	N17E33	304	0100	04	CAO	006	B 2	1									
15 Jun	N18E21	303	0080	05	CAO	010	B	1	1			1	1				
16 Jun	N18E07	304	0080	04	CAO	006	B					1					
17 Jun	N19W05	303	0060	03	CAO	003	B										
18 Jun	N20W17	302	0050	04	CSO	006	B										
19 Jun	N20W31	303	0020	05	CSO	004	B										
20 Jun	N20W44	302	0050	04	DSO	005	B					1					
21 Jun	N19W58	302	0060	04	CRO	003	B	1				2					
22 Jun	N18W73	304	0050	02	BXO	002	B	1				2					
23 Jun	N18W86	304										1					
								3	1	0	10	2	0	0	0	0	

Crossed West Limb.

Absolute heliographic longitude: 303



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	4								
<i>Region 9042</i>																							
12 Jun	N21E76	288	0060	02	HSX	003	A	3				4	1										
13 Jun	N20E69	282	0320	10	EAI	008	B	3				11											
14 Jun	N21E56	281	0570	14	EKI	020	BG	1				6											
15 Jun	N20E43	281	0680	15	EKI	029	BG		1			4											
16 Jun	N20E29	282	0690	13	EKI	035	BG																
17 Jun	N22E16	282	0550	17	FKI	036	BG	1				3											
18 Jun	N21E03	282	0470	17	FKI	042	BG					1											
19 Jun	N23W11	283	0410	18	FKI	034	BG	2				4											
20 Jun	N24W24	282	0420	19	FKO	046	BG	3				3	1										
21 Jun	N23W38	282	0240	20	FAO	036	BG	3	1			9	2										
22 Jun	N23W54	285	0150	20	FAO	019	BG	6				12	1										
23 Jun	N23W72	290	0220	13	EAI	013	B	3	1			12	1										
24 Jun	N22W89	294	0120	10	DSO	009	B					1											
								25	3	0	70	6	0	0	0	0							

Crossed West Limb.

Absolute heliographic longitude: 282

<i>Region 9043</i>																			
13 Jun	N26E04	347	0020	04	CRO	004	B												
14 Jun	N25W12	349	0010	03	BXO	003	B												
15 Jun	N25W25	349																	
16 Jun	N25W38	349																	
17 Jun	N25W51	349																	
18 Jun	N25W64	349																	
19 Jun	N25W77	349																	
								0	0	0	0	0	0	0	0	0	0	0	

Crossed West Limb.

Absolute heliographic longitude: 347

<i>Region 9045</i>																			
14 Jun	S15E19	318	0010	05	BXO	006	B												
15 Jun	S15E04	320	0010	04	DRO	005	B												
16 Jun	S14W07	318	0000	00	AXX	001	A												
17 Jun	S14W20	318																	
18 Jun	S17W33	318	0010	03	BXO	003	B												
19 Jun	S17W46	318																	
20 Jun	S17W59	318																	
21 Jun	S17W72	318																	
22 Jun	S17W85	318																	
								0	0	0	0	0	0	0	0	0	0		

Crossed West Limb.

Absolute heliographic longitude: 320



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 9046</i>																							
14 Jun	N15E82	255	0090	02	HSX	001	A																
15 Jun	N18E69	255	0370	08	DKO	005	B						1										
16 Jun	N18E57	254	0570	08	DKI	017	BG																
17 Jun	N19E44	254	0540	10	DKO	011	B						2										
18 Jun	N19E31	254	0580	09	DKI	030	BG						1										
19 Jun	N21E19	253	0570	09	DKI	026	B																
20 Jun	N21E06	252	0540	10	DHI	026	B	1					2										
21 Jun	N21W07	251	0390	10	DKO	029	BG	1					2										
22 Jun	N20W21	252	0310	14	EKO	019	BG	1					7										
23 Jun	N21W34	252	0220	12	EAO	018	BG		1				2		1								
24 Jun	N21W48	253	0150	10	DSO	013	B						1										
25 Jun	N21W61	252	0110	07	CSO	008	B		1				2		1								
									3	2	0	20	0	2	0	0							

Still on Disk.

Absolute heliographic longitude: 252

Region 9047

15 Jun	S32E30	294	0010	12	BXO	007	B														
16 Jun	S32E17	294																			
17 Jun	S32E04	294																			
18 Jun	S27W04	289	0010	03	BXO	003	B														
19 Jun	S27W17	289																			
20 Jun	S27W30	289																			
21 Jun	S27W43	289																			
22 Jun	S27W56	289																			
23 Jun	S27W69	289																			
24 Jun	S27W82	289																			
									0	0	0	0	0	0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 294

Region 9048

16 Jun	N07W13	324	0010	01	AXX	002	A														
17 Jun	N07W27	325	0020	04	DAO	004	B	1					1								
18 Jun	N06W40	325	0090	07	DAO	011	B														
19 Jun	N08W54	326	0090	08	DSO	006	B	1					1								
20 Jun	N09W69	327	0050	08	DSO	004	B														
21 Jun	N08W85	329	0030	01	HSX	001	A														
									2	0	0	2	0	0	0	0	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 324



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 9049</i>																		
16 Jun	S40E65	246	0050	04	BXO	004	B											
17 Jun	S38E52	246	0040	07	CRO	004	B						1					
18 Jun	S38E41	244	0040	07	CSO	008	B											
19 Jun	S36E25	247	0020	07	CSO	004	B											
20 Jun	S36E09	249	0020	01	HSX	002	A											
21 Jun	S36E00	244	0000	00	AXX	001	A											
22 Jun	S37W08	239	0030	04	DRO	007	B											
23 Jun	S37W21	239	0080	08	DSO	012	B		1				7					
24 Jun	S36W34	239	0110	12	ESI	016	B	1					1					
25 Jun	S35W48	239	0080	13	CAO	010	B	1					2	1				
								2	1	0	11	1	0	0	0	0		

Still on Disk.

Absolute heliographic longitude: 244

Region 9050

17 Jun	S13E06	292	0010	02	CRO	003	B											
18 Jun	S15W08	293	0020	05	DSO	007	B											
19 Jun	S14W21	293	0020	07	BXO	006	B											
20 Jun	S11W35	293	0040	07	DSO	009	B						1					
21 Jun	S08W48	292	0090	06	DSO	016	B											
22 Jun	S08W62	293	0140	09	DAO	017	B						1					
23 Jun	S09W75	293	0130	12	ESO	008	B											
24 Jun	S07W92	297	0060	08	CSO	002	B											
								0	0	0	2	0	0	0	0	0		

Crossed West Limb.

Absolute heliographic longitude: 292

Region 9051

17 Jun	N16E61	237	0010	00	HRX	001	A											
18 Jun	N16E49	236	0010	00	HRX	001	A											
19 Jun	N18E37	235	0010	00	AXX	001	A											
20 Jun	N17E24	234	0000	00	AXX	001	A						1					
21 Jun	N18E10	234	0000	00	AXX	001	A	1					1					
22 Jun	N16W05	236	0010	04	BXO	006	B	1					1					
23 Jun	N13W18	236																
24 Jun	N13W31	236																
25 Jun	N13W44	236																
								2	0	0	3	0	0	0	0	0		

Still on Disk.

Absolute heliographic longitude: 236



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 9052

18 Jun	S29W10	295	0010	03	BXO	005	B												
19 Jun	S27W25	297	0020	05	CAO	007	B												
20 Jun	S26W39	297	0100	08	DAO	012	B												
21 Jun	S26W52	296	0120	09	DSO	004	B												
22 Jun	S27W66	297	0130	10	CSO	003	B												
23 Jun	S27W84	302	0090	07	HSX	001	A												
												0	0	0	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 295

Region 9053

19 Jun	N04E48	224	0010	03	BXO	002	B												
20 Jun	N04E34	224	0010	01	HRX	001	A												
21 Jun	N04E20	224	0000	00	AXX	001	A												
22 Jun	N04E07	224																	
23 Jun	N04W06	224																	
24 Jun	N04W19	224																	
25 Jun	N04W32	224																	
												0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 224

Region 9054

20 Jun	N09E64	194	0030	07	CSO	002	B											
21 Jun	N11E47	197	0030	01	HSX	001	A											
22 Jun	N11E32	199	0030	01	HSX	001	A											
23 Jun	N11E21	197	0030	08	BXO	008	B											
24 Jun	N12E11	194	0040	08	DSO	010	B										2	
25 Jun	N12W04	195	0130	06	DAO	017	B	1									6	
								1	0	0	8	0	0	0	0	0	0	

Still on Disk.

Absolute heliographic longitude:

Region 9055

21 Jun	N19E70	174	0080	01	HSX	001	A												
22 Jun	N20E56	175	0090	02	HSX	001	A												
23 Jun	N19E44	174	0080	02	HSX	001	A										1		
24 Jun	N19E30	175	0110	02	HSX	001	A												
25 Jun	N19E17	174	0070	02	HSX	002	A												
												0	0	0	1	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 174



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 9056

21 Jun	S15E68	176	0130	02	HSX	001	A											
22 Jun	S14E54	177	0180	03	HSX	001	A											
23 Jun	S15E42	176	0250	03	HAX	001	A											
24 Jun	S14E28	177	0250	04	HAX	002	A											
25 Jun	S14E15	176	0230	03	HSX	001	A											
												0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 176

Region 9057

22 Jun	N14E72	159	0140	04	HSX	001	A											
23 Jun	N14E60	158	0180	04	HAX	001	A											
24 Jun	N13E46	159	0240	03	HHX	001	A											
25 Jun	N13E33	158	0200	03	HSX	001	A											
												0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 158

Region 9058

23 Jun	S14W15	233	0020	03	CRO	005	B											
24 Jun	S14W29	234	0050	05	DSO	007	B											
25 Jun	S14W41	232	0140	07	DAO	016	B				7							
												0	0	0	7	0	0	0

Still on Disk.

Absolute heliographic longitude: 233

Region 9059

23 Jun	N14E30	188	0010	04	BXO	004	B											
24 Jun	N15E17	188	0040	05	DSO	007	B											
25 Jun	N15E04	187	0020	05	CRO	007	B											
												0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 187

Region 9060

24 Jun	S34E59	146	0000	00	AXX	001	A											
25 Jun	S32E46	145	0010	03	BXO	002	B											
												0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 145



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 9061

24 Jun	S15E72	133	0050	02	HSX	001	A													
25 Jun	S15E59	132	0050	01	HSX	001	A													
									0	0	0	0	0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 132

Region 9062

25 Jun	S19E72	119	0080	03	DSO	002	B													

Still on Disk.

Absolute heliographic longitude: 119

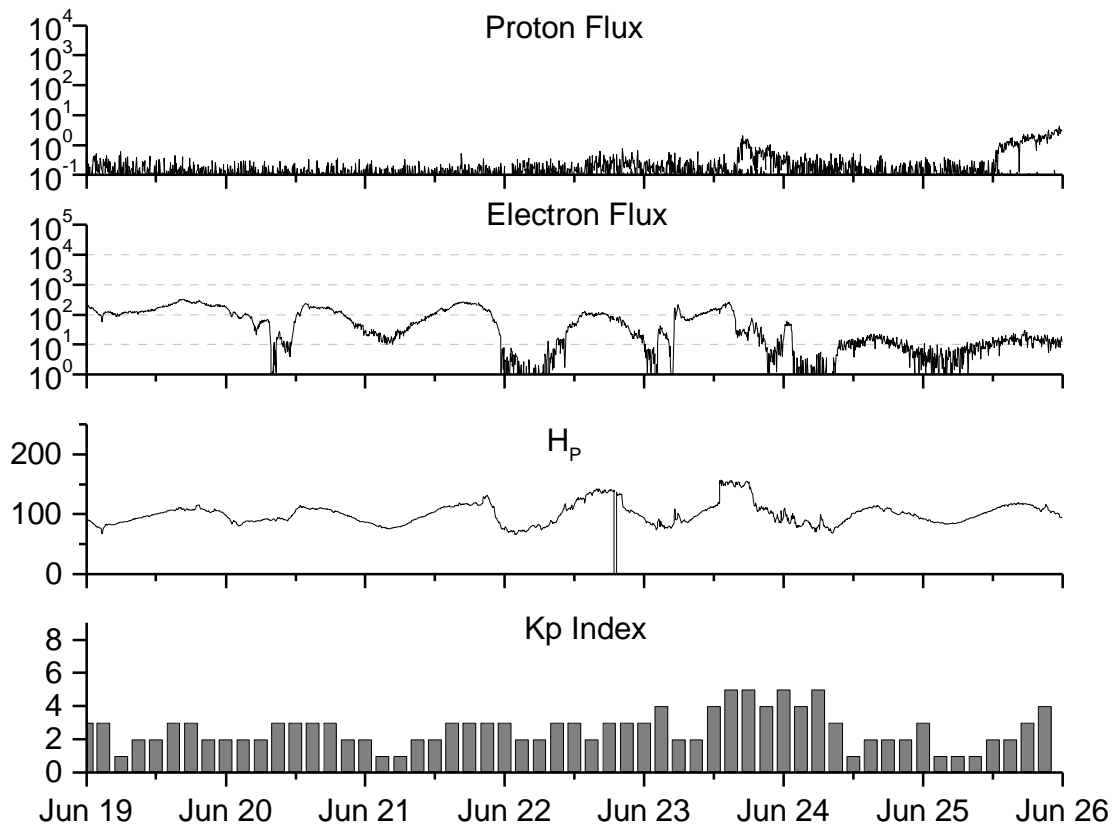


**Recent Solar Indices (preliminary)
of the observed monthly mean values**

Month	Sunspot Numbers				Radio Flux		Geomagnetic		
	Observed values		Ratio	Smooth values		*Penticton	Smooth	Planetary	Smooth
	SWO	RI	RI/SWO	SWO	RI	10.7 cm	Value	Ap	Value
1998									
June	93.6	70.7	0.76	85.9	62.5	108.4	115.8	10	11.9
July	98.3	66.6	0.68	90.3	65.5	114.0	120.3	11	12.2
August	118.6	92.2	0.78	93.7	67.8	136.0	124.1	18	12.4
September	119.0	92.9	0.78	96.1	69.5	138.3	126.8	13	12.6
October	77.0	55.5	0.72	97.7	70.5	117.3	127.9	13	12.8
November	99.5	74.0	0.74	101.3	73.0	140.2	130.0	16	12.4
December	120.8	81.9	0.68	108.8	77.9	150.1	134.3	08	11.9
1999									
January	94.3	62.0	0.66	116.5	82.6	142.6	139.0	10	11.7
February	93.4	66.3	0.71	120.2	84.6	142.0	142.6	12	11.6
March	100.5	68.8	0.68	120.5	83.8	126.3	144.0	14	11.7
April	92.9	63.7	0.69	123.8	85.5	117.2	145.8	12	12.2
May	140.5	106.4	0.76	131.7	90.5	148.6	149.9	08	12.4
June	208.3	137.7	0.66	136.0	93.1	169.8	152.9	07	12.4
July	169.2	113.5	0.67	138.0	94.4	165.6	154.4	10	12.6
August	136.1	93.7	0.69	142.8	97.5	170.8	156.3	15	12.9
September	107.4	71.5	0.66	150.0	102.3	135.7	161.0	19	12.8
October	167.7	116.7	0.69	158.5	107.7	164.8	167.2	19	12.7
November	199.3	133.2	0.67	164.7	110.9	191.5	171.5	14	13.2
December	123.5	86.4	0.70			169.8		10	
2000									
January	140.8	90.2	0.64			158.1		13	
February	161.9	112.3	0.69			173.2		15	
March	203.6	138.2	0.68			208.2		09	
April	193.4	125.3	0.65			184.2		15	
May	188.8	120.8	0.64			184.5		16	

NOTE: All smoothed values after June 1999 and monthly values after December 1999 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 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 12 June 2000

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.

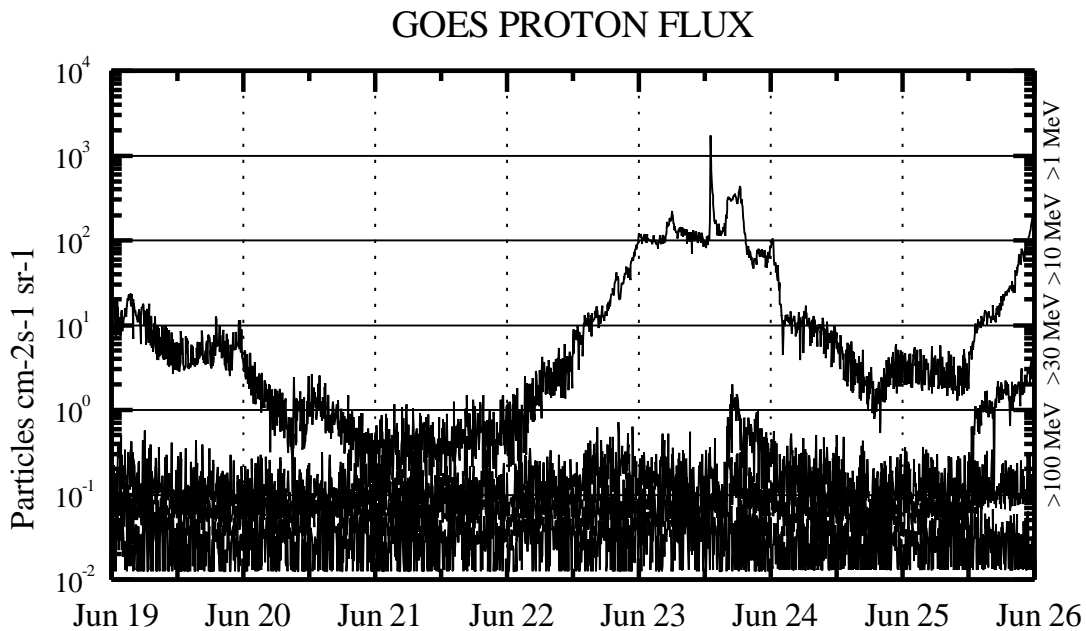
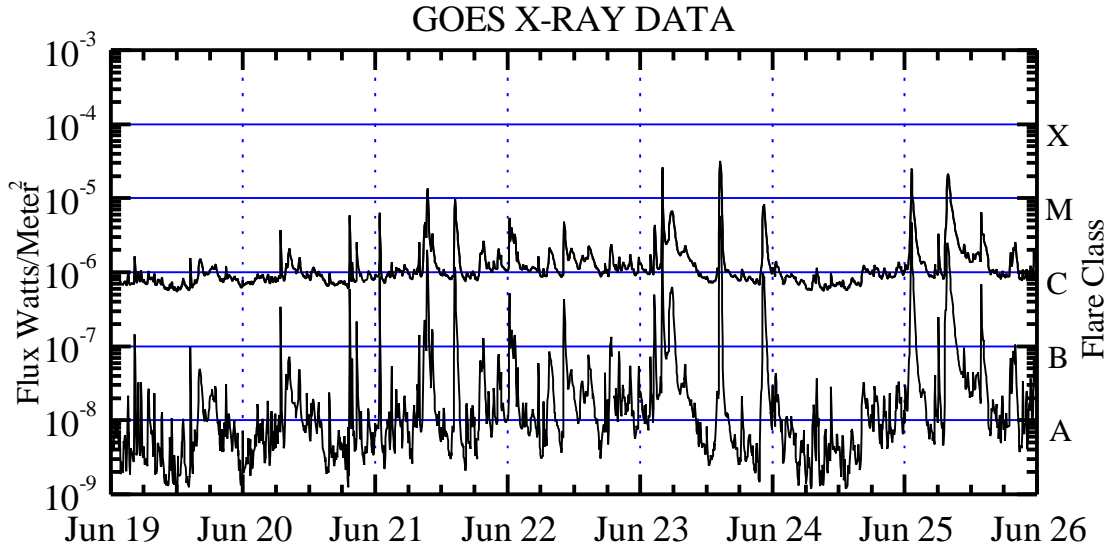
Electrons plot contains the five-minute averaged integral electron flux (electrons/cm²-sec -sr) with energies greater than 2 MeV at GOES-8.

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.

