

Space Weather Highlights
24-30 April 2000

SWO PRF 1287
02 May 2000

Solar activity was low. C-class flares occurred daily. There were two flares of interest during the period: a C5/1N at 28/1851UT with an associated Type II radio sweep (estimated velocity 500 km/sec) from Region 8967 (N22, L = 296, class/area Eao/220 on 22 April) and a C7/1N at 30/0808UT, also associated with a Type II radio sweep (estimated velocity 700 km/sec), from Region 8976 (S11, L = 236, class/area Dao/060 on 29 April).

Real-time solar wind data were available from the NASA Advanced Composition Explorer (ACE) spacecraft for most of the period. A transition to a coronal hole wind stream occurred during 24 April accompanied by a velocity increase from 400 to 580 km/sec, low proton densities, and periods of southward IMF Bz with maximum deflections to minus 15 nT (GSM). A solar sector boundary passage (positive (away) to negative (toward)) was observed on 27 April accompanied by increased densities (peak to 15 p/cc). Nominal wind conditions were observed during the remainder of the period.

There were no proton events detected at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit reached moderate levels on 29 April. Otherwise, fluxes were normal.

The geomagnetic field was disturbed on 24 April with active periods at middle latitudes and active to minor storm periods at high latitudes. Activity declined to quiet to unsettled levels after 24/1500UT. Quiet to unsettled conditions continued through most of 27 April. Activity increased to unsettled to active levels during 27/2100 - 28/0300UT. Quiet to unsettled conditions occurred during most of the rest of the period with brief, localized active to minor storm intervals detected at high latitudes.

Space Weather Outlook
03 May - 29 May 2000

Solar activity is expected to vary between low and moderate levels with isolated low-level M-class flares possible.

No proton events are expected at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit is expected to be at normal to moderate levels during most of the period.

Geomagnetic field activity is expected to be at mostly quiet to unsettled levels, barring an Earth-directed CME. However, active periods will be possible during 03, 08, 21, and 28 - 29 May.



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	4
24 April	206	222	2680	B7.6	10	0	0	25	1	0	0	0
25 April	203	229	2520	B6.2	6	0	0	12	1	0	0	0
26 April	190	197	2530	B5.5	11	0	0	15	0	0	0	0
27 April	184	163	2020	B5.1	8	0	0	16	0	0	0	0
28 April	183	238	2220	B5.7	2	0	0	2	1	0	0	0
29 April	175	142	1630	B5.8	5	0	0	5	0	0	0	0
30 April	170	126	1570	B6.0	4	0	0	9	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
	24 April	3.3E+5	3.9E+4	3.4E+3		3.2E+5
25 April	6.9E+4	1.5E+4	2.5E+3		3.0E+5	
26 April	1.3E+5	1.3E+4	2.6E+3		3.2E+5	
27 April	2.2E+5	1.4E+4	2.5E+3		2.0E+5	
28 April	1.1E+6	1.5E+4	2.6E+3		2.3E+5	
29 April	2.5E+5	1.3E+4	2.5E+3		2.9E+6	
30 April	6.7E+4	1.1E+4	2.6E+3		1.9E+6	

Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	24 April	14	2-3-3-2-5-2-2-2	18	2-3-4-4-5-2-2-2	21
25 April	7	2-0-1-2-2-2-3-2	12	1-1-1-4-5-1-2-1	6	3-0-1-2-2-2-3-2
26 April	3	0-0-1-1-2-0-1-2	6	0-0-4-3-1-0-0-1	4	1-0-1-2-1-2-2-2
27 April	12	3-2-2-2-3-2-2-4	24	2-3-1-5-5-5-2-3	13	1-3-2-3-3-3-3-4
28 April	11	4-3-3-2-2-2-2-1	19	3-2-5-4-3-2-4-2	17	4-3-4-3-3-3-3-3
29 April	12	3-3-1-2-2-2-3-4	14	2-3-1-4-4-1-1-4	12	3-3-2-2-3-3-3-3
30 April	10	3-3-2-1-2-2-3-2	22	5-5-1-0-3-4-2-4	11	3-4-2-1-3-3-3-2

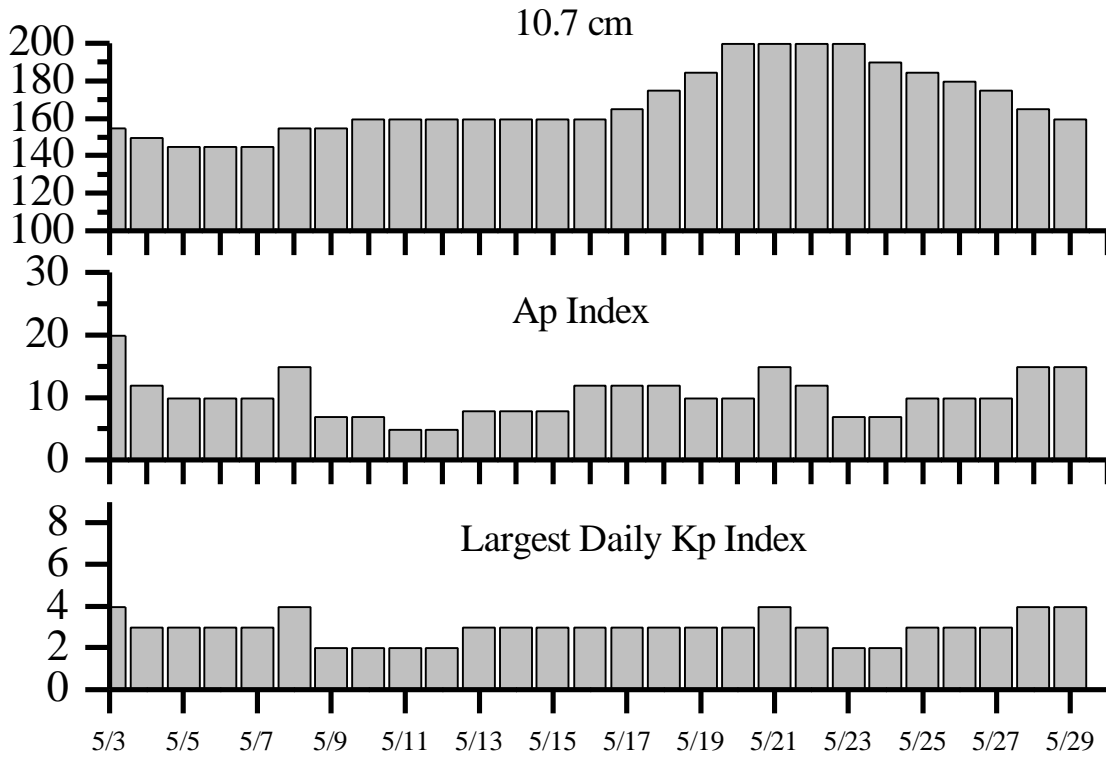


Alerts and Warnings Issued

Date & Time of Issue	Type of Alert or Warning	Date & Time of Event
24 Apr 0019	3 - 245 MHz Bursts	23 Apr
24 Apr 0019	245 MHz Noise Storm	23 Apr
24 Apr 0421	K= 4 Warning	24 Apr 0500 - 1500
24 Apr 0605	K= 4 Observed	24 Apr 03- 06
24 Apr 1550	K= 4 Observed	24 Apr 12- 15
25 Apr 0035	3 - 245 MHz Bursts	24 Apr
25 Apr 0035	245 MHz Noise Storm	24 Apr
26 Apr 0026	1 - 245 MHz Bursts	25 Apr
26 Apr 0026	245 MHz Noise Storm	25 Apr
27 Apr 0022	1 - 245 MHz Bursts	26 Apr
27 Apr 0022	245 MHz Noise Storm	26 Apr
28 Apr 0011	1- 245 MHz Bursts	27 Apr
28 Apr 0011	245 MHz Noise Storm	27 Apr
28 Apr 0302	K= 4 Observed	28 Apr 00 - 03
28 Apr 1919	Type II Radio Emission	28 Apr 1851
29 Apr 0028	2- 245 MHz Bursts	28 Apr
29 Apr 0028	245 MHz Noise Storm	28 Apr
30 Apr 0019	2- 245 MHz Bursts	29 Apr
30 Apr 0019	245 MHz Noise Storm	29 Apr
30 Apr 0922	Type II Radio Emission	30 Apr 0805



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
03 May	155	20	4	17 May	165	12	3
04	150	12	3	18	175	12	3
05	145	10	3	19	185	10	3
06	145	10	3	20	200	10	3
07	145	10	3	21	200	15	4
08	155	15	3	22	200	12	3
09	155	7	2	23	200	7	2
10	160	7	2	24	190	7	2
11	160	5	2	25	185	10	3
12	160	5	2	26	175	10	3
13	160	8	3	27	165	10	3
14	160	8	3	28	160	15	4
15	160	8	3	29	160	15	4
16	160	12	3				



Energetic Events

Date	Time		X-ray		Optical Information			Peak		Sweep Freq		
	Begin	Max	½ Max	Class	Integ Flux	Imp/ Brtns	Location		Radio Flux		Intensity	
							Lat	CMD	245	2695	II	IV
<i>No Events Observed</i>												

Flare List

Date	Time			X-ray Class.	Imp / Brtns	Optical		Rgn
	Begin	Max	End			Lat	CMD	
24 April	0039	0042	0051		SF	N17E42		8971
	0103	0105	0135	C2.7	SF	N20E11		8967
	0218	0222	0236		SF	N23E11		8967
	0322	0326	0330	C1.1				
	0335	0335	0350	C1.6	SF	N33W17		8972
	0748	0748	0757		SF	N16E37		8971
	0837	0838	0845	C1.4	SF	N16E37		8971
	0855	0859	0903	C1.5				
	B1039	U1041	1045		SF	N17E38		8971
	1255	1256	1258	C1.1	SF	N14W69		8963
	1429	1628	1653		SF	N19E32		8971
	1555	1556	1602		SF	N32W33		8972
	1604	1604	1609		SF	N33W32		8972
	1625	1628	1630	C1.0				8964
	1716	1718	1721		SF	N35W75		8964
	1743	1801	1845		1F	N34W28		8972
	1743	1744	1751	C1.9	SF	N33W27		8972
	1759	1802	A1828	C2.9	SN	N33W26		8972
	1848	1901	1916		SF	N33W33		8972
	1935	1935	1940		SF	N33W35		8972
	1945	1946	1959		SF	N33W34		8972
	1957	1958	2006	C2.0	SF	N21W02		8967
	1958	1958	2003		SF	N13W70		8963
2048	2049	2054		SF	N33W34		8972	
2148	2148	2157		SF	N33W35		8972	
2201	2202	2215		SF	N32W37		8972	
2212	2213	2216		SF	N20W40		8962	
2223	2223	2227		SF	N20W40		8962	
2247	2248	2256		SF	N20E30		8971	
25 April	0333	0335	0342	C1.3	SF	S15E27		8970
	0418	0418	0435		SF	N34W30		8972
	0923	0926	A0956	C1.8	SF	N35W34		8972
	1038	1043	1048	C2.7				
	B1054	U1058	A1101		SF	N24W07		8967
	1513	1514	1519		SF	N17E20		8971
	1643	1644	1650		SF	N26W06		8967
1700	1700	1704		SF	N34W38		8972	



Flare List-continued

Date	Time			X-ray Class.	Optical		Rgn
	Begin	Max	End		Imp / Brtns	Location Lat CMD	
25 April	1725	1728	1741		SF	N25W11	8967
	1758	1804	1825	C1.6	1F	N25W11	8967
	1846	1848	1905	C1.6	SF	N35W40	8972
	1856	1858	1914		SF	N24W11	8967
	2215	2217	2232		SF	N35W42	8972
	2309	2314	2322	C2.5			
26 April	2323	2327	2336		SF	N24E16	8971
	0206	0208	0211		SF	S11W53	8968
	0556	0602	0607	C1.6			
	0729	0736	0742		SF	S14W46	8965
	0742	0751	0758	C2.8	SF	S15E10	8970
	0841	0846	0852	C1.2			
	0903	0909	0914	C1.7			
	0920	0920	0935	C6.3	SF	S16E09	8970
	0950	0951	1023		SF	N22W24	8967
	1229	1233	1236	C1.0			
	1243	1256	1305	C1.4	SF	S17E08	8970
	1528	1531	1537	C1.6	SF	S15W44	8965
	1553	1556	1601	B7.5	SF	S17E07	8970
	1642	1643	1713		SF	S18E06	8970
	1714	1714	1720		SF	N24W21	8967
	1847	1905	1932	C2.2	SF	N21W27	8967
	1848	1848	1851		SF	N25W88	8962
	2035	2037	2105		SF	N16E03	8971
	2153	2155	2201	C1.0	SF	N24W24	8967
	2302	2307	2336	C1.2	SF	N21E05	8971
27 April	0146	0146	0150		SF	N23W27	8967
	0317	0320	0322	B9.0			
	0347	0348	0406	C1.0	SF	S15W08	8970
	0441	0444	0447	B7.2			
	0551	0551	0604	C1.7	SF	S16W01	8970
	0617	0619	0628		SF	S11W08	8970
	0645	0645	0648	C1.3	SF	N24W32	8967
	0759	0809	0822	C2.2	SF	S16W02	8970
	0846	0846	0853	C1.1	SF	S17W03	8970
	0921	0925	0942	B9.2			
	1041	1042	1050	C1.3	SF	S17W04	8970
	27 April	1352	1357	1359	B9.4		
1404		1440	1456	B9.8			
1457		1458	1513	C1.1	SF	N23W45	8967
1549		1554	1558		SF	S16W62	8965
1550		1550	1555	B8.8	SF	N19W05	8971



Flare List-continued

Date	Time			X-ray Class.	Optical		Rgn
	Begin	Max	End		Imp / Brtns	Location Lat CMD	
27 April	1829	1830	1835	C1.2	SF	N19W06	8971
	2131	2136	2140		SF	S17W09	8970
	2316	2319	2325		SF	S16W64	8965
	2335	2340	2343		SF	S16W63	8965
	2340	2350	0010		SF	S18W10	8970
28 April	0431	0434	0437	C1.0			
	1850	1853	1911	C5.2	1N	N19W60	8967
	2218	2219	2227		SF	S17W24	8970
	2344	2346	2349		SF	N33W86	8972
29 April	0007	0013	0023	C1.2			
	0331	0414	0510	C1.8			
	0527	0527	0534	C2.0	SF	S12W26	8970
	1055	1101	1108	B9.0			
	1158	1206	1219	C3.0	SF	S11W06	8976
	1342	1342	1345	C1.0	SF	S14W31	8970
	1702	1710	1739		SF	N20W35	8971
	2358	0002	0004		SF	S14W37	8970
30 April	0033	0033	0037	C1.5	SF	S12W38	8970
	0434	0517	0630	C2.5			
	0755	0800	0916	C7.7	1N	S11W18	8976
	1607	1615	1623	B8.2	SF	N19W48	8971
	1636	1638	1646	B7.6	SF	N18W49	8971
	1851	1851	1856	B5.8	SF	S12W47	8970
	2013	2029	2037	C1.1			
	2045	2045	2052	B7.9	SF	N18W49	8971
	2127	2131	2141		SF	S22E46	
	2222	2231	2239		SF	N21W42	8971
	2248	2307	2322		SF	S22E46	
	2350	2356	0007		SF	S22E45	



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 8962</i>																					
13 Apr	N21E76	001	0070	03	HSX	001	A														
14 Apr	N22E62	002	0060	02	HSX	001	A														
15 Apr	N22E49	002	0060	02	HSX	001	A														
16 Apr	N23E36	001	0070	04	CSO	002	B														
17 Apr	N24E24	000	0060	02	HAX	001	A														
18 Apr	N23E11	000	0050	01	HSX	001	A														
19 Apr	N23W01	359	0030	01	HSX	001	A														
20 Apr	N23W15	360	0030	01	HSX	001	A														
21 Apr	N23W27	358	0030	02	HSX	001	A														
22 Apr	N24W40	358	0020	01	HSX	001	A														
23 Apr	N24W53	358	0020	01	HSX	001	A														
24 Apr	N24W65	357	0010	00	AXX	001	A													2	
25 Apr	N25W78	357	0000	00	AXX	001	A														
												0	0	0	2	0	0	0	0	0	

Crossed West Limb.

Absolute heliographic longitude: 359

Region 8963

13 Apr	N15E74	003	0060	02	HAX	001	A														
14 Apr	N16E62	002	0040	02	HSX	003	A														
15 Apr	N16E49	002	0010	02	AXX	002	A														
16 Apr	N16E36	001	0020	02	HRX	004	A														
17 Apr	N16E22	002	0040	04	CRO	007	B														
18 Apr	N16E09	002	0080	04	DAO	012	B	3				3									
19 Apr	N15W04	002	0080	06	CAO	022	B	3				4	1								
20 Apr	N16W18	003	0060	04	CAO	011	B	2				2									
21 Apr	N16W31	002	0040	04	CRO	008	B	7				7									
22 Apr	N17W44	002	0030	03	CSO	007	B	2				3									
23 Apr	N17W57	002	0020	03	BXO	002	B														
24 Apr	N17W70	002	0000	04	BXO	002	B	1				2									
25 Apr	N17W83	002																			
												18	0	0	21	1	0	0	0	0	

Crossed West Limb.

Absolute heliographic longitude: 002



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 8966

18 Apr	S13E65	306	0060	02	HSX	001	A											
19 Apr	S13E52	306	0070	02	HSX	001	A											
20 Apr	S13E38	307	0040	02	HSX	002	A	1				1						
21 Apr	S13E25	306	0040	02	HAX	002	A											
22 Apr	S14E10	308	0010	03	CRO	004	B						1					
23 Apr	S13W01	306	0000	03	BXO	003	B											
24 Apr	S12W15	307	0000	03	BXO	003	B											
25 Apr	S12W29	308	0000	01	BXO	002	B											
26 Apr	S13W39	305	0020	03	BXO	007	B											
27 Apr	S13W52	305																
										1	0	0	2	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 306

Region 8967

18 Apr	N21E75	296	0030	02	AXX	001	A											
19 Apr	N22E65	293	0150	11	EAO	003	B	1				2						
20 Apr	N21E49	296	0200	12	EAO	006	B	1				2						
21 Apr	N22E36	295	0160	13	EAO	009	B	1				1						
22 Apr	N22E23	295	0220	12	EAO	013	B											
23 Apr	N22E09	296	0180	14	EAO	013	B	1				3						
24 Apr	N22W04	296	0180	15	EAO	011	B	2				3						
25 Apr	N23W16	295	0130	16	FAO	014	B	1				4	1					
26 Apr	N23W30	296	0160	16	FAO	015	B	2				4						
27 Apr	N23W42	294	0100	16	FSO	007	B	2				3						
28 Apr	N24W54	293	0090	17	FSO	004	B	1						1				
29 Apr	N23W77	303	0060	01	HSX	002	A											
30 Apr	N23W92	305	0060	02	HSX	001	A											
										12	0	0	22	2	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 296



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

Region 8968

19 Apr	S13E28	330	0020	03	BXO	004	B											
20 Apr	S13E14	331	0090	06	DAO	011	B											
21 Apr	S12E01	330	0180	08	DAO	011	B											
22 Apr	S13W12	330	0190	08	DAO	009	B											
23 Apr	S13W26	331	0170	06	DAO	008	B											
24 Apr	S13W39	331	0130	06	DSO	009	B											
25 Apr	S13W52	331	0070	07	DSO	006	B											
26 Apr	S13W66	332	0060	06	CSO	005	B				1							
27 Apr	S11W79	331	0020	05	CRO	004	B											
28 Apr	S11W91	330	0030	05	BXO	003	B											
											0	0	0	1	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 330

Region 8969

20 Apr	N13E62	283	0080	01	HRX	001	A	1			1							
21 Apr	N12E47	284	0020	01	HRX	002	A											
22 Apr	N11E34	284	0040	04	CSO	003	B											
23 Apr	N12E20	285	0020	01	HSX	002	A											
24 Apr	N12E07	285	0020	01	HSX	001	A											
25 Apr	N12W06	285	0000	00	AXX	001	A											
26 Apr	N11W20	286	0010	02	AXX	003	A											
27 Apr	N12W40	292	0000	00	AXX	001	A											
											1	0	0	1	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 285

Region 8970

20 Apr	S14E77	268	0350	03	HKX	002	A											
21 Apr	S15E68	263	0630	12	EKO	007	B	1										
22 Apr	S15E56	262	1010	12	EKI	015	B	2			6							
23 Apr	S15E43	262	1210	13	EKC	031	BD	1			1							
24 Apr	S15E30	262	1060	14	EKI	027	BG											
25 Apr	S15E18	261	1080	13	EKC	041	BG	1			1							
26 Apr	S15E04	262	1090	14	EKC	042	BG	3			5							
27 Apr	S14W10	262	0990	15	EKC	044	BG	5			8							
28 Apr	S13W22	261	1020	15	EKC	049	BG				1							
29 Apr	S15W36	262	0780	12	EKC	029	B	2			3							
30 Apr	S14W51	264	0650	11	EKO	021	BG	1			2							
											16	0	0	27	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 262



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 8971

21 Apr	N18E67	264	0400	15	EKO	003	B											
22 Apr	N17E54	264	0600	16	FKO	012	BG	1				1						
23 Apr	N18E41	264	0860	16	FKO	016	BG					7						
24 Apr	N18E28	264	0910	15	EKO	015	B	1				6						
25 Apr	N18E16	263	0830	16	FKO	024	B					2						
26 Apr	N18E02	264	0850	15	EKI	022	B	1				2						
27 Apr	N18W11	263	0710	16	FKO	017	B	1				2						
28 Apr	N18W22	261	0780	17	FKO	024	BG											
29 Apr	N18W36	262	0670	15	EKO	009	B					1						
30 Apr	N21W48	261	0730	14	EKO	011	B					4						
								4	0	0	0	25	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 264

Region 8972

21 Apr	N32E03	328	0020	06	CSO	004	B											
22 Apr	N33W10	328	0110	08	DAO	013	B	5				7	1					
23 Apr	N34W21	326	0200	10	DAO	016	B	1				1						
24 Apr	N34W34	326	0220	11	EAO	016	B	3				11	1					
25 Apr	N34W47	326	0240	13	EAO	011	B	2				5						
26 Apr	N34W60	326	0230	13	EAO	005	B											
27 Apr	N35W72	324	0150	12	EAO	004	B											
28 Apr	N36W85	324	0180	12	EAO	004	B					1						
								11	0	0	0	25	2	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 328

Region 8973

22 Apr	N20W12	330	0010	03	BXO	003	B											
23 Apr	N20W26	331	0070	05	DAO	007	B											
24 Apr	N21W39	331	0110	08	DSO	010	B											
25 Apr	N22W52	331	0130	08	DAO	010	B											
26 Apr	N22W64	330	0080	08	CAO	005	B											
27 Apr	N22W81	333	0040	05	CAO	002	B											
28 Apr	N22W93	332	0030	05	BXO	002	B											
								0	0	0	0	0	0	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 330



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 8974

23 Apr	S21W36	341	0000	00	AXX	001	A											
24 Apr	S21W50	342	0000	00	AXX	001	A											
25 Apr	S12W63	342	0000	00	AXX	001	A											
26 Apr	S12W76	342																
27 Apr	S12W89	342																
												0	0	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 341

Region 8975

23 Apr	S25E50	255	0000	00	AXX	001	A											
24 Apr	S25E37	255																
25 Apr	S25E24	255																
26 Apr	S25E11	255																
27 Apr	S25W02	255																
												0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 255

Region 8976

28 Apr	S11E03	236	0040	06	DSO	011	B											
29 Apr	S11W14	240	0060	06	DAO	009	B	1			1							
30 Apr	S11W25	238	0060	09	DAO	011	BG	1				1						
								2	0	0	1	1	0	0	0			

Still on Disk.

Absolute heliographic longitude: 236

Region 8977

28 Apr	S14W04	243	0010	03	BXO	004	B											
29 Apr	S13W20	246	0010	05	BXO	005	B											
30 Apr	S13W32	245	0020	04	CSO	005	B											
												0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 243

Region 8978

28 Apr	N19E04	235	0020	04	BXO	008	B											
29 Apr	N19W10	236	0040	04	CSO	006	B											
30 Apr	N19W22	235	0030	05	CSO	006	B											
												0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 235



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 8979

28 Apr	N21E47	192	0000	00	AXX	001	A										
29 Apr	N21E34	192															
30 Apr	N21E21	192															

0 0 0 0 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 192

Region 8980

28 Apr	S16E71	168	0000	00	AXX	001	A										
29 Apr	S16E58	168	0010	01	HSX	001	A										
30 Apr	S17E44	169	0020	01	HRX	001	A										

0 0 0 0 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 169

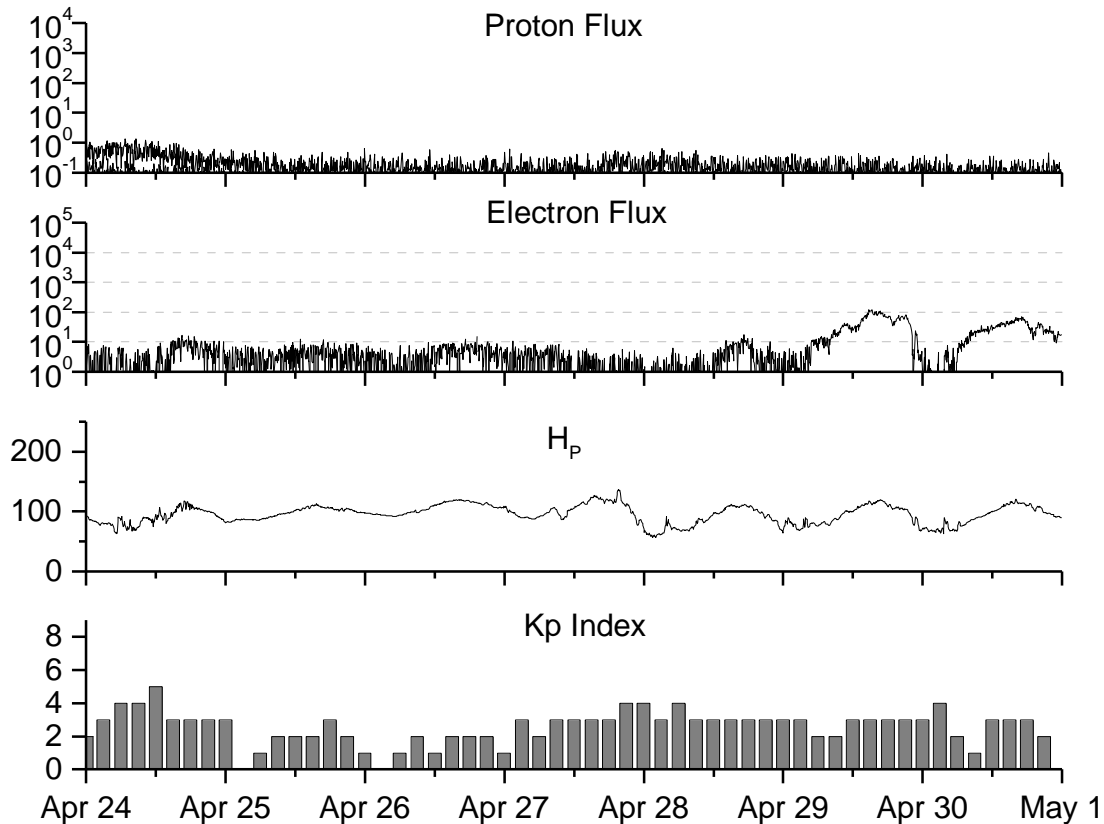


**Recent Solar Indices (preliminary)
of the observed monthly mean values**

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
1998									
April	73.6	53.4	0.73	77.7	56.5	108.3	108.9	10	11.3
May	74.3	56.3	0.76	81.4	59.4	106.7	112.0	18	11.6
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	85.4	117.2	145.8	12	12.2
May	140.5	106.3	0.76	131.7	90.4	148.6	150.0	08	12.4
June	208.3	137.4	0.66	136.0	93.0	169.8	152.9	07	12.4
July	169.2	113.5	0.67	138.0	94.4	165.6	154.4	10	12.3
August	136.1	93.7	0.69	142.8	97.5	170.8	156.4	15	12.2
September	107.4	70.9	0.66	150.0	102.3	135.7	161.1	19	12.0
October	167.7	116.4	0.69			164.9		19	
November	199.3	132.7	0.67			191.7		14	
December	123.5	86.4	0.70			169.8		10	
2000									
January	140.8	90.2	0.64			158.3		06	
February	161.9	112.3	0.69			173.7		13	
March	203.6	138.2	0.68			208.2		09	

NOTE: All smoothed values after November 1998 and monthly values after June 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 24 Apr 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.

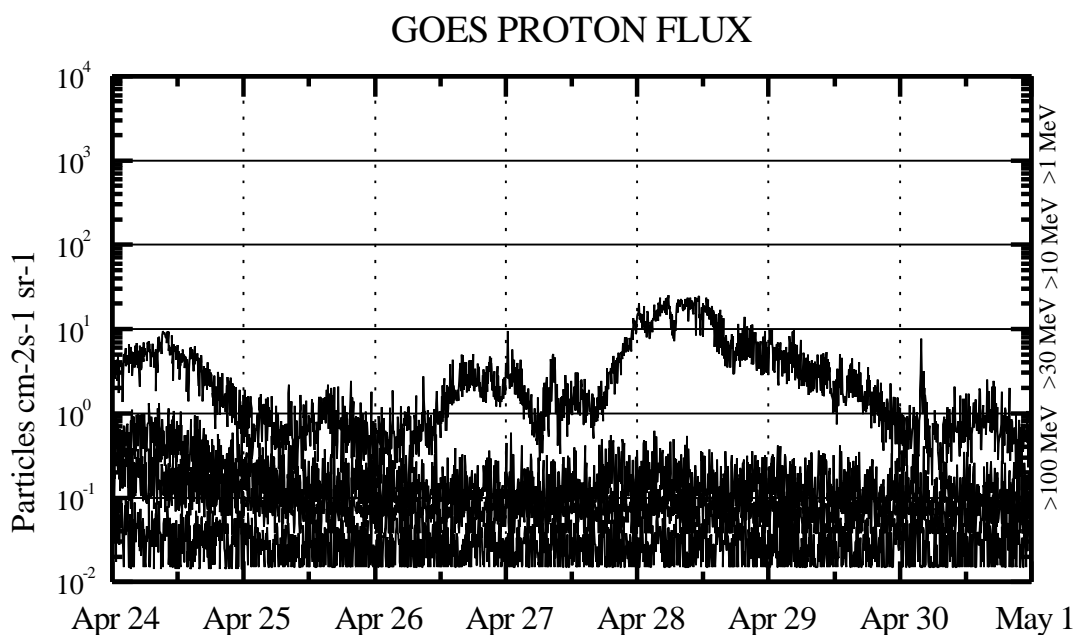
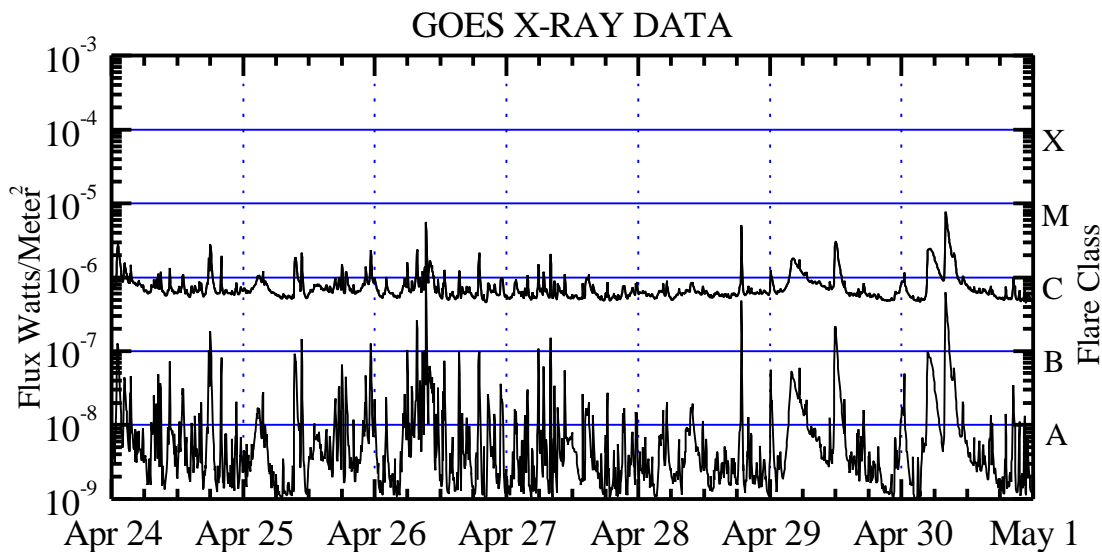
Electrons plot contains the five-minute averaged integral electron flux (electrons/cm²-sec -sr) with energies greater than 2 MeV at GOES-8.

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.

