

**Space Weather Highlights**  
**17 - 23 April 2000**

**SWO PRF 1286**  
**25 April 2000**

Solar activity was low. C-class flares occurred daily. The week's principal flare producer was Region 8963 (N16, L = 002, class/area Dao/080 on 18 April), a relatively small, mixed-polarity region. This region showed minor growth through 20 April, then slowly decayed. One event of note from Region 8963 was a C4 x-ray flare at 18/1153UT with an associated Type II radio sweep.

Real-time solar wind data were available from the NASA Advanced Composition Explorer (ACE) spacecraft for most of the period. Earth was within a positive-polarity (away) solar sector most of the period. IMF Bz varied between plus to minus 05 nT (GSM) during most of the period, but became more variable during 19 April with a range of plus 09 to minus 11 nT. Velocities increased during 19 - 21 April, possibly due to weak coronal hole effects, with peaks to 580 km/sec. Densities were enhanced on 19 April with peak

The greater than 10 MeV proton flux became enhanced around 23/1500UT and remained so through the end of the period. This enhancement may have been associated with an event beyond the west limb near midday on 23 April.

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

Geomagnetic field activity was at quiet to active levels during most of the period. However, the active periods were mostly isolated.

**Space Weather Outlook**  
**26 April - 22 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.



**Daily Solar Data**

Date	Radio Flux 10.7 cm	Sun spot No. (10 <sup>6</sup> hemi.)	Sunspot Area	X-ray Background	Flares							
					X-ray Flux			Optical				
					C	M	X	S	1	2	3	4
17 April	158	166	680	B5.1	4	0	0	0	2	0	0	0
18 April	160	167	710	B4.7	6	0	0	5	0	0	0	0
19 April	168	179	710	B7.2	7	0	0	11	1	0	0	0
20 April	181	179	1110	C1.0	7	0	0	10	0	0	0	0
21 April	187	211	1730	B8.7	13	0	0	9	1	0	0	0
22 April	202	226	2360	B8.9	10	0	0	18	1	0	0	0
23 April	206	252	2860	B7.4	4	0	0	12	0	0	0	0

**Daily Particle Data**

Date	Proton Fluence (protons/cm <sup>2</sup> -day-sr)			Electron Fluence (electrons/cm <sup>2</sup> -day-sr)		
	>1MeV	>10MeV	>100MeV	>.6MeV	>2MeV	>4MeV
	17 April	9.4E+4	1.1E+4	2.8E+3		2.6E+5
18 April	4.9E+4	1.2E+4	2.8E+3		4.1E+5	
19 April	3.6E+4	1.2E+4	2.8E+3		2.8E+5	
20 April	6.3E+4	1.1E+4	2.8E+3		1.2E+6	
21 April	5.4E+4	1.1E+4	2.8E+3		6.8E+5	
22 April	4.1E+4	1.2E+4	2.9E+3		1.1E+6	
23 April	1.3E+5	2.1E+4	3.7E+3		8.1E+5	

**Daily Geomagnetic Data**

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	17 April	11	3-3-4-2-1-1-2-2	28	3-3-7-4-2-2-2-2	14
18 April	5	1-3-1-1-1-1-2-2	*	1-2-1-*-*-1-2-2	7	2-3-1-1-2-3-3-1
19 April	9	2-3-2-1-3-3-1-2	16	3-3-3-3-4-4-2-2	12	3-4-2-2-4-3-2-2
20 April	18	3-4-4-2-4-3-3-2	21	3-3-4-5-5-2-2-1	14	3-3-4-2-3-3-3-2
21 April	7	2-1-1-3-3-2-1-2	10	1-1-1-5-2-2-1-1	10	2-2-1-4-3-2-2-2
22 April	4	1-1-2-1-2-1-1-1	8	0-1-3-4-3-0-1-0	7	2-2-3-2-2-2-2-2
23 April	4	0-1-2-1-1-2-1-2	8	0-1-4-3-2-1-1-2	8	1-1-3-3-2-3-2-2

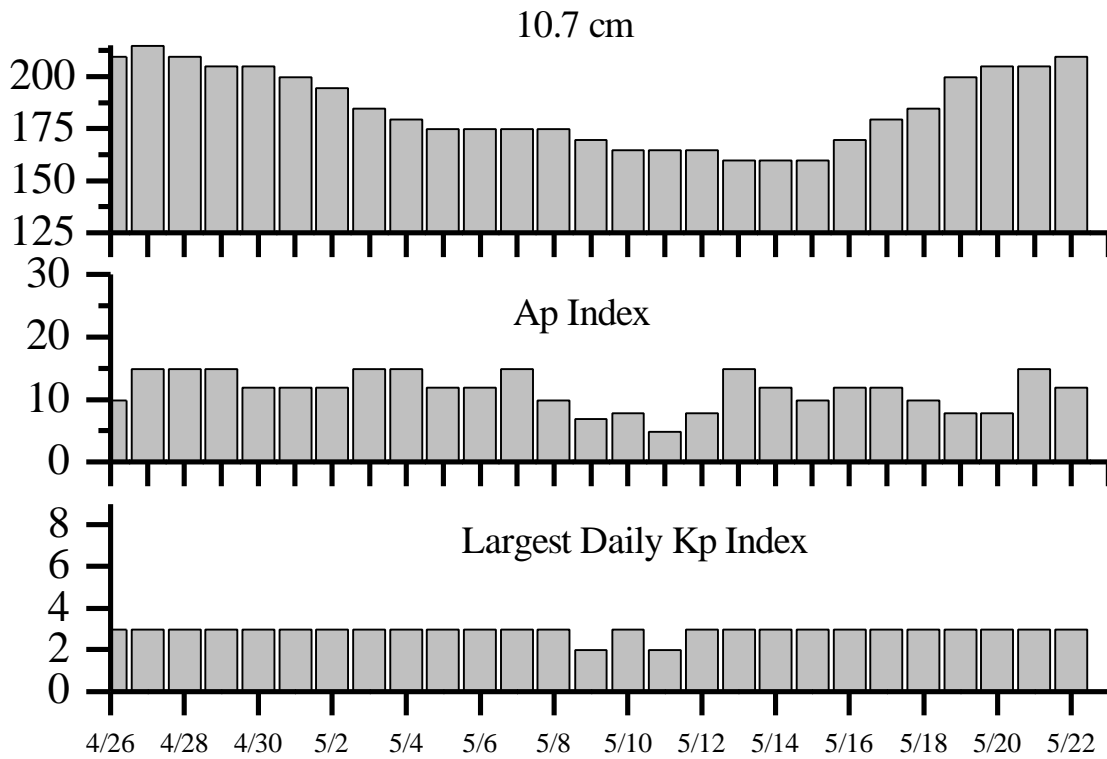


*Alerts and Warnings Issued*

Date & Time of Issue	Type of Alert or Warning	Date & Time of Event
17 Apr 0120	4 – 245 MHz Radio Bursts	16 Apr
17 Apr 0300	A ≥ 20 ENDED	16 Apr 1800
17 Apr 0843	K= 4 Warning	17 Apr 0845 – 1800
17 Apr 0858	K= 4 Observed	17 Apr 06 - 09
18 Apr 0112	1 – 245 MHz Radio Burst	17 Apr
18 Apr 0112	1 – 245 MHz Radio Noise Storm	17 Apr
18 Apr 1255	Type II Radio Emission	18 Apr 1159
19 Apr 0138	5 – 245 MHz Radio Bursts	18 Apr
19 Apr 0138	1 – 245 MHz Radio Noise Storm	18 Apr
19 Apr 1808	K= 4 Observed	19 Apr 15 - 18
20 Apr 0022	10 – 245 MHz Radio Bursts	19 Apr
20 Apr 0022	1 – 245 MHz Radio Noise Storm	19 Apr
20 Apr 0600	K= 4 Warning	20 Apr 09 - 15
20 Apr 0602	K= 4 Observed	20 Apr 03 - 06
20 Apr 1501	K= 4 Observed	20 Apr 12 - 15
20 Apr 2207	Type II Radio Emission	20 Apr 2113
21 Apr 0034	4 – 245 MHz Radio Bursts	20 Apr
21 Apr 0034	1 – 245 MHz Radio Noise Storm	20 Apr
22 Apr 0039	5 – 245 MHz Radio Bursts	21 Apr
22 Apr 0039	1 – 245 MHz Radio Noise Storm	21 Apr
23 Apr 0036	5 – 245 MHz Radio Bursts	22 Apr
23 Apr 0036	1 – 245 MHz Radio Noise Storm	22 Apr



### 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
26 Apr	210	10	3	10 May	165	8	3
27	215	15	3	11	165	5	2
28	210	15	3	12	165	8	3
29	205	15	3	13	160	15	3
30	205	12	3	14	160	12	3
01 May	195	12	3	15	160	10	3
02	185	12	3	16	170	12	3
03	180	15	3	17	180	12	3
04	175	15	3	18	185	10	3
05	175	12	3	19	200	8	3
06	175	12	3	20	205	8	3
07	175	15	3	21	205	15	3
08	175	10	3	22	210	12	3
09	170	7	2				



### *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
<i>No Events Observed</i>												

### *Flare List*

Date	Time			X-ray Class.	Imp / Brtns	Optical Location Lat CMD	Rgn
	Begin	Max	End				
17 April	0024	0031	0108	C2.5	1F	S21E09	8955
	0454	0502	0511	C1.4			
	1727	1736	1753	C3.7	1N	S25E01	8955
	2110	2116	2124	C1.0			
18 April	0242	0248	0251		SF	S22W08	8955
	0508	0515	0521		SF	S23W08	8955
	0559	0609	0619	C1.9			
	0745	0746	0751		SF	N13E16	8963
	0802	0814	0827	C7.8	SF	N16E16	8963
	1147	1153	1158	C4.0			8963
	1245	1248	1259	C1.0			
	1320	1330	1335	C1.8			
19 April	1406	1414	1428	C4.2	SF	N17E12	8963
	B0051	U0054	0059		SF	N24E79	8967
	B0052	U0115	A0120		SF	N15E06	8963
	B0131	U0132	A0151		SF	N21E73	
	0200	0204	0209	C1.2			
	0334	0434	0452	C5.9	SF	N19E73	8967
	0546	0548	0552	C4.3	SF	N15E05	8963
	0600	0600	0614	C4.6	SF	N16E04	8963
	0631	0634	0640	C2.0			
	1336	1336	1340		SF	S17W60	8959
	1342	1355	1419	C3.6	SF	S19W59	8959
	1817	1820	1823		SF	S17W63	8959
	1817	1821	1831		SF	N13E00	8963
	2041	2046	2053		SF	N18W38	8958
20 April	2258	2300	2313	C4.2	1N	N13W05	8963
	0047	0048	A0152		SF	N22W41	8958
	0100	0101	0105	C1.6	SF	N17W05	8963
	0454	0502	0510	C2.0			
	B0719	U0720	0732	C1.8	SF	N22E56	8967
	0814	0815	0820		SF	N21E55	8967
	B1043	U1043	1048	C8.6	SF	N11E61	8969
	B1201	U1201	A1206		SF	N18W70	8959
	1336	1336	1345		SF	S18W75	8959
	1927	1935	2019	C4.7	SF	N15W18	8963
2055	2100	2108	C1.3	SF	S13E43	8966	
2136	U2138	A2209	C1.3	SF	S23W45	8955	



*Flare List-continued*

Date	Time			X-ray Class.	Imp / Brtns	Optical	Rgn
	Begin	Max	End			Location Lat CMD	
21 April	0056	0058	0109	C2.3	SF	N13W19	8963
	0234	0237	0247	C1.3			
	0323	0327	0334	C1.3			
	0524	0527	0537	C1.7	SF	S23W49	8955
	0926	0928	0933	C1.7	SF	N18W24	8963
	1507	1508	1519	C1.2	SF	N15W27	8963
	1521	1523	1527	C1.4	SF	N14W27	8963
	1753	1758	1806	C4.8			8970
	1910	1922	1953	C1.8	SF	N15W31	8963
	2034	2039	2046	C1.2	SF	N15W32	8963
	2144	2146	2207	C1.9	SF	N23E39	8967
	2231	2235	A2305	C1.8	1F	S24W58	8955
	2332	2337	A0029	C2.0	SF	N15W33	8963
	22 April	0002	0004	A0029		SF	N34E03
0240		0301	0341	C3.0	SF	N17W33	8963
0536		0537	0541		SF	S15E50	8970
B0554		0554	0623	C3.6	SF	N15W35	8963
1556		1556	1609	C2.0	SF	N16E50	8971
1621		1622	1625		SF	N35W04	8972
1750		1752	1754		SF	S14E62	8970
1802		1811	1829	C2.6	SF	S13E62	8970
1839		1841	1850	C1.9	SF	S13E62	8970
1851		1856	1917		SF	N15W44	8963
1908		1910	1914		SF	S15E42	8970
1911		1915	1921	C2.7	SF	N35W06	8972
1926		1939	1949		SF	N33W08	8972
2026		2026	2043	C1.4	SF	N33W09	8972
2125		2129	2131	C1.9	SF	N34W08	8972
2151		2152	2159	C3.3	SF	N35W06	8972
2213		2213	2216		SF	S15E41	8970
2224		2229	2243		SF	S15E21	8966
2353		2355	0004	C7.1	1N	N34W10	8972
23 April	0108	0125	0136	C4.7			
	0504	0515	0525	C1.2			
	0600	0610	0617	C2.1	SF	N22E20	8967
	1338	1338	1354		SF	N18E48	8971
	1346	1352	1356		SF	N34W17	8972
	1348	1349	1400	C2.7	SF	S13E49	8970
	1536	1537	1629		SF	N18E48	8971
	1548	1606	1617		SF	N23E17	8967
	1702	1704	1712		SF	N17E47	8971
	2017	2019	2027		SF	N18E45	8971



**Flare List-continued**

Date	Time			X-ray Class.	Imp / Brtns	Optical	Rgn
	Begin	Max	End			Location Lat CMD	
23 April	2023	2030	2038		SF	N24E14	8967
	2057	2059	2102		SF	N18E44	8971
	2204	2204	2212		SF	N17E46	8971
	2217	2217	2223		SF	N18E45	8971

**Region Summary**

Date	Location		Sunspot Characteristics				Flares							
	( ° Lat ° CMD)	Helio Lon	Area (10 <sup>6</sup> hemi)	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical			
		C						M	X	S	1	2	3	4

*Region 8949*

05 Apr	S18E76	107	0050	02	HSX	002	A										
06 Apr	S19E68	102	0110	02	HSX	001	A										
07 Apr	S18E56	101	0190	11	CSO	004	B										
08 Apr	S19E43	101	0200	11	EAO	006	B										
09 Apr	S20E27	104	0150	08	CAO	006	B										
10 Apr	S19E13	104	0130	07	CSO	006	B										
11 Apr	S19W05	109	0100	08	CSO	009	B										
12 Apr	S19W14	104	0110	05	CSO	006	B										
13 Apr	S19W27	104	0100	04	CAO	004	B										
14 Apr	S19W40	104	0100	02	HSX	002	A										
15 Apr	S19W52	103	0050	02	HAX	002	A										
16 Apr	S19W65	102	0070	02	HAX	002	A										
17 Apr	S20W79	103	0080	02	HAX	002	A										
18 Apr	S17W91	102	0060	02	HSX	001	A										

0 0 0 0 0 0 0 0 0

Crossed West Limb.

Absolute heliographic longitude: 109

*Region 8951*

07 Apr	N11E74	083	0060	02	HSX	001	A										
08 Apr	N13E64	080	0120	05	DSO	002	B					2					
09 Apr	N12E53	078	0130	05	CSO	003	B										
10 Apr	N11E39	078	0100	02	HSX	001	A										
11 Apr	N11E24	080	0100	04	CSO	003	B										
12 Apr	N11E11	079	0090	05	CSO	003	B					2					
13 Apr	N12W03	080	0100	05	CSO	006	B										
14 Apr	N12W18	082	0100	04	CSO	005	B										
15 Apr	N12W31	082	0100	04	DSO	006	B										
16 Apr	N11W44	081	0110	05	DSO	008	B										
17 Apr	N12W57	081	0080	03	CSO	004	B										
18 Apr	N12W71	082	0070	01	CSO	002	B										
19 Apr	N12W84	082	0040	02	HSX	001	A										

0 0 0 4 0 0 0 0

Crossed West Limb.

Absolute heliographic longitude: 080



**Region Summary-continued**

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

*Region 8952*

07 Apr	S24E49	108	0010	03	BXO	002	B											
08 Apr	S23E36	108	0000	00	AXX	001	A											
09 Apr	S23E22	109	0000	00	AXX	001	A											
10 Apr	S26E08	110																
11 Apr	S26W05	110																
12 Apr	S26W18	110																
13 Apr	S26W31	110																
14 Apr	S26W44	110																
15 Apr	S26W57	110																
16 Apr	S26W70	110																
17 Apr	S26W83	110																

0 0 0 0 0 0 0 0

Crossed West Limb.

Absolute heliographic longitude: 110

*Region 8953*

09 Apr	S14E72	059	0030	04	CSO	002	B											
10 Apr	S17E56	061	0060	09	DSO	009	B											
11 Apr	S17E41	063	0070	08	DSO	007	B											
12 Apr	S16E31	059	0080	08	DSO	016	B											
13 Apr	S15E20	057	0060	03	CSO	004	B											
14 Apr	S14E07	057	0040	05	CSO	007	B											
15 Apr	S16W06	057	0020	05	CRO	004	B											
16 Apr	S14W20	057	0020	05	CAO	006	B											
17 Apr	S13W34	058	0010	01	HRX	001	A											
18 Apr	S13W47	058	0010	00	AXX	001	A											
19 Apr	S12W61	059	0000	00	AXX	001	A											
20 Apr	S12W74	059																
21 Apr	S12W87	059																

0 0 0 0 0 0 0 0

Crossed West Limb.

Absolute heliographic longitude: 057





**Region Summary-continued**

Date	Location		Sunspot Characteristics				Flares											
	( ° Lat ° CMD)	Helio	Area (10 <sup>6</sup> hemi)	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical							
		Lon						C	M	X	S	1	2	3	4			
<i>Region 8954</i>																		
10 Apr	N31E66	051	0000	01	AXX	002	A											
11 Apr	N30E53	051	0020	07	CAO	005	B											1
12 Apr	N31E40	050	0030	10	CRO	007	B											
13 Apr	N30E29	048	0010	08	BXO	004	B											
14 Apr	N31E14	050	0000	07	BXO	002	B											
15 Apr	N32W01	052	0000	00	AXX	001	A											
16 Apr	N32W14	052																1
17 Apr	N32W27	052																
18 Apr	N32W40	052																
19 Apr	N32W53	052																
20 Apr	N32W66	052																
21 Apr	N32W79	052																
								0	0	0	2	0	0	0	0	0	0	

Crossed West Limb.

Absolute heliographic longitude: 052

<i>Region 8955</i>																		
10 Apr	S22E77	040	0040	01	HSX	001	A											
11 Apr	S22E71	033	0220	13	ESO	006	B											2
12 Apr	S22E57	033	0260	12	ESO	009	B											2
13 Apr	S22E46	031	0380	13	EKO	011	B											1
14 Apr	S22E33	031	0340	13	EAO	009	B											1
15 Apr	S22E20	031	0350	13	EAO	019	B	4	2				6	2				
16 Apr	S21E07	030	0350	13	EAO	014	BG	4					3	2				
17 Apr	S22W06	030	0320	14	EAO	013	BG	2						2				
18 Apr	S22W19	030	0300	15	EAO	014	BG							2				
19 Apr	S21W32	030	0260	14	EAO	011	B											
20 Apr	S21W46	031	0170	13	EAO	010	B	1					1					
21 Apr	S21W58	029	0120	13	EAO	011	B	2					1	1				
22 Apr	S21W71	029	0060	11	ESO	007	B											
23 Apr	S20W84	029	0030	11	CSO	002	B											
								13	2	0	18	7	0	0	0	0	0	

Still on Disk.

Absolute heliographic longitude: 030





**Region Summary-continued**

Date	Location		Sunspot Characteristics				Flares											
	( ° Lat ° CMD)	Helio Lon	Area (10 <sup>6</sup> hemi)	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical							
								C	M	X	S	1	2	3	4			
<i>Region 8959</i>																		
12 Apr	S19E29	061	0070	06	DAO	010	B											
13 Apr	S17E14	063	0090	07	DAO	007	B											
14 Apr	S18E03	061	0080	09	DAO	006	B											
15 Apr	S17W13	064	0060	10	CAO	009	B											
16 Apr	S17W25	061	0040	09	CSO	014	B	1			1							
17 Apr	S17W34	058	0020	05	CRO	006	B											
18 Apr	S16W48	059	0010	05	CRO	005	B											
19 Apr	S15W63	061	0010	06	BXO	003	B	1			3							
20 Apr	S16W78	063	0010	01	AXX	002	A				2							
21 Apr	S15W92	063	0030	03	BXO	003	B											
								2	0	0	6	0	0	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 061

<i>Region 8960</i>																		
13 Apr	N19W15	092	0010	03	BXO	003	B											
14 Apr	N19W31	095	0040	07	CSO	011	B				2							
15 Apr	N19W43	094	0040	08	CSO	012	B				1							
16 Apr	N20W57	094	0050	09	CSO	008	B											
17 Apr	N19W74	098	0020	01	HRX	001	A											
18 Apr	N20W86	097	0010	00	HRX	001	A											
								0	0	0	3	0	0	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 092

<i>Region 8961</i>																		
13 Apr	S25E07	070	0010	04	BXO	002	B											
14 Apr	S25W06	070																
15 Apr	S25W19	070									1							
16 Apr	S25W32	070																
17 Apr	S27W47	071	0010	02	AXX	002	A											
18 Apr	S27W60	071																
19 Apr	S27W73	071																
20 Apr	S27W86	071																
								0	0	0	1	0	0	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 070







**Region Summary-continued**

Date	Location		Sunspot Characteristics				Flares											
	(° Lat ° CMD)	Helio	Area (10 <sup>6</sup> hemi)	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical							
		Lon						C	M	X	S	1	2	3	4			
<i>Region 8968</i>																		
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											
										0	0	0	0	0	0	0	0	0
Still on Disk.																		
Absolute heliographic longitude: 330																		
<i>Region 8969</i>																		
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											
										1	0	0	1	0	0	0	0	0
Still on Disk.																		
Absolute heliographic longitude: 285																		
<i>Region 8970</i>																		
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						
								4	0	0	0	7	0	0	0	0	0	0
Still on Disk.																		
Absolute heliographic longitude: 262																		
<i>Region 8971</i>																		
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						
										1	0	0	8	0	0	0	0	0
Still on Disk.																		
Absolute heliographic longitude: 264																		
<i>Region 8972</i>																		
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						
								6	0	0	0	8	1	0	0	0	0	0
Still on Disk.																		
Absolute heliographic longitude: 328																		



**Region Summary-continued**

Date	Location		Sunspot Characteristics				Flares										
	( ° Lat ° CMD)	Helio	Area (10 <sup>6</sup> hemi)	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical						
		Lon						C	M	X	S	1	2	3	4		
<i>Region 8973</i>																	
22 Apr	N20W12	330	0010	03	BXO	003	B										
23 Apr	N20W26	331	0070	05	DAO	007	B										
								0	0	0	0	0	0	0	0	0	0
Still on Disk.																	
Absolute heliographic longitude: 330																	
<i>Region 8974</i>																	
23 Apr	S21W36	341	0000	00	AXX	001	A										
								0	0	0	0	0	0	0	0	0	0
Still on Disk.																	
Absolute heliographic longitude: 341																	
<i>Region 8975</i>																	
23 Apr	S25E50	255	0000	00	AXX	001	A										
								0	0	0	0	0	0	0	0	0	0
Still on Disk.																	
Absolute heliographic longitude: 255																	



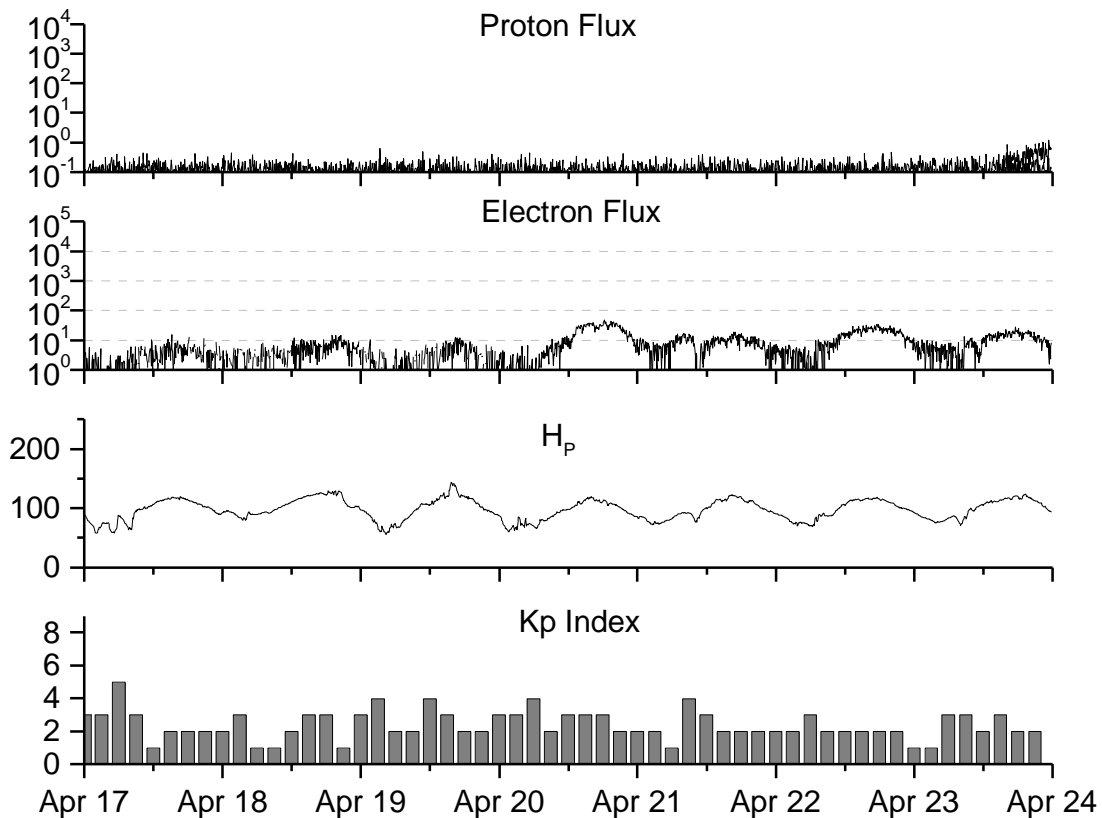
**Recent Solar Indices (preliminary)  
of the observed monthly mean values**

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
<b>1998</b>									
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
<b>1999</b>									
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	
<b>2000</b>									
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 17 Apr 2000*

*Protons* plot contains the five-minute averaged integral proton flux (protons/cm<sup>2</sup>-sec -sr) as measured by GOES-8 (W75) for each of three energy thresholds: greater than 10, 50, and 100 MeV.

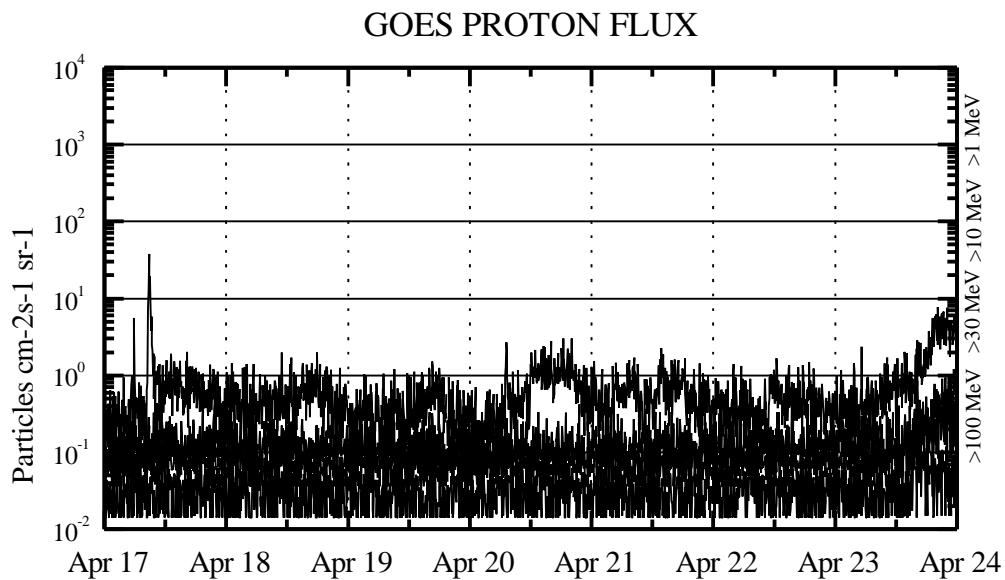
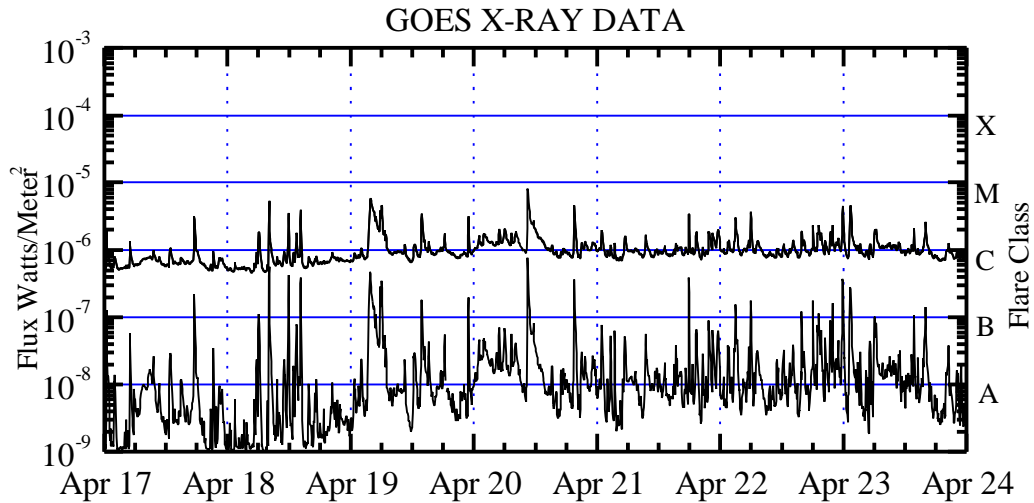
*Electrons* plot contains the five-minute averaged integral electron flux (electrons/cm<sup>2</sup>-sec -sr) with energies greater than 2 MeV at GOES-8.

*H<sub>p</sub>* 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<sub>p</sub>* plot contains the estimated planetary 3-hour K-index (derived by the USAF 55<sup>th</sup> 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<sub>p</sub> 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<sub>p</sub> are "global" parameters that are applicable to a first order approximation over large areas. H<sub>p</sub> 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/m<sup>2</sup>) 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/cm<sup>2</sup>-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/cm<sup>2</sup>-sec-sr) at greater than 10 MeV.



# Quiet ( $A_p \leq 7$ ) Geomagnetic Conditions



Space Environment Center

Comparison of Cycles at current month in cycle

