Space Weather Highlights **SWO PRF 1288**
01 – 07 May 2000 **09 May 2000**

Solar activity ranged from very low to high levels. Activity was at moderate levels through 03 May by virtue of isolated low-level M-class flares, mostly from Regions 8970 (S14, L = 262, class/area Ekc/1210 on 23 April) and 8971 (N18, L = 264, class/area Eko/910 on 24April). Both regions were large with a minor degree of magnetic complexity and showed gradual decay before crossing the west limb on 03 May. Activity increased to high levels on 04 May due to an M6 x-ray flare from behind the west limb at 04/1108UT. Old Region 8970 was the likely source for this event. The same was true for a long-duration M1 x-ray flare observed at 05/1621UT. Activity dropped to very low levels during the last two days of the period.

Real-time solar wind data were available from the NASA Advanced Composition Explorer (ACE) spacecraft for most of the period. A transient passed the spacecraft around 02/1000UT associated with a velocity jump from 600 to 900 km/sec, a southward turning of IMF Bz with deflections to minus 09 nT (GSM), and a minor density increase. A solar sector boundary passage (toward (negative polarity) to away (positive polarity)) occurred on 07 May.

There were no proton events detected at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit briefly reached high levels on 03 May. Otherwise, fluxes were at normal to moderate levels.

The geomagnetic field was mildly disturbed during 01 - 05 May with quiet to active levels detected globally and brief active to minor storm periods at high latitudes. Activity declined to quiet to unsettled levels during 06 - 07 May.

Space Weather Outlook
10 May - 05 June 2000

Solar activity is expected to vary between low and moderate levels with isolated M-class flares possible sometime during the period.

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.

A geomagnetic field disturbance is expected during 11 - 13 May in response to a partial-halo CME observed on 08 May associated with a large filament disappearance near central meridian in the southern hemisphere. Active to minor storm levels are expected during this disturbance with major storm levels possible at high latitudes. Quiet to unsettled levels are expected during the remainder of the period, barring an Earth-directed CME.

Daily Solar Data

Date	Radio Flux 10.7 cm	Sun spot No.	Sunspot Area (10^{-6} hemi.)	X-ray Background	Flares: X-ray Flux C	M	X	Flares: Optical S	1	2	3	4
01 May	158	121	1530	B4.4	3	1	0	1	0	0	0	0
02 May	153	108	1260	B5.0	3	1	0	1	2	0	0	0
03 May	137	113	710	B4.5	2	1	0	0	0	0	0	0
04 May	135	105	230	B5.0	2	2	0	3	1	0	0	0
05 May	130	122	150	B4.7	2	1	0	4	0	0	0	0
06 May	127	111	140	B5.1	0	0	0	0	0	0	0	0
07 May	131	130	130	B2.3	0	0	0	13	1	0	0	0

Daily Particle Data

Date	Proton Fluence (protons/cm^2-day-sr) >1MeV	>10MeV	>100MeV	Electron Fluence (electrons/cm^2-day-sr) >.6MeV	>2MeV	>4MeV
01 May	1.9E+5	1.3E+4	2.6E+3		4.6E+6	
02 May	2.4E+5	1.2E+4	2.6E+3		8.1E+6	
03 May	2.4E+5	1.0E+4	2.1E+3		3.1E+7	
04 May	1.7E+5	1.2E+4	2.1E+3		2.1E+7	
05 May	2.4E+5	1.3E+4	2.3E+3		1.5E+7	
06 May	8.1E+5	2.2E+4	2.3E+3		1.3E+7	
07 May	9.3E+5	2.6E+4	2.1E+3		2.1E+7	

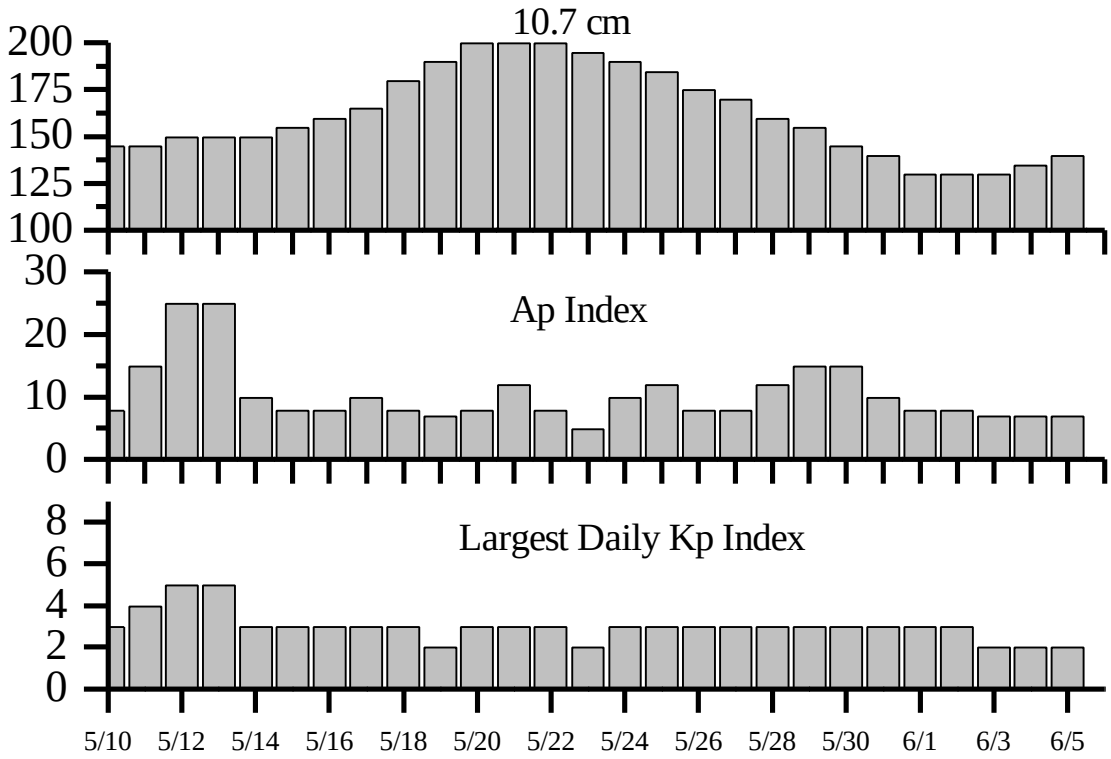
Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg A	K-indices	High Latitude College A	K-indices	Estimated Planetary A	K-indices
01 May	12	1-4-2-3-3-2-3-2		5-6-5-3-*-4-2-2	14	2-4-4-2-3-3-3-3
02 May	13	3-2-1-3-4-3-3-2	24	3-2-3-5-5-4-3-3	18	3-2-3-4-4-3-3-4
03 May	13	2-3-4-1-2-3-3-3	18	5-3-3-3-1-3-3-3	15	3-3-4-2-2-4-4-3
04 May	5	1-1-1-2-2-1-2-2	12	3-2-1-4-4-2-1-1	8	2-1-2-3-3-3-2-2
05 May	12	2-2-3-2-2-4-3-2	17	1-3-4-4-5-2-2-1	14	3-2-4-3-3-3-3-3
06 May	8	3-2-1-1-2-1-2-3	19	2-3-3-5-5-3-1-1	12	3-3-3-2-3-2-2-2
07 May	6	2-3-2-1-1-0-2-2	3	2-2-2-0-0-0-1-0	7	2-3-1-1-2-2-2-1

Alerts and Warnings Issued

Date & Time of Issue	Type of Alert or Warning	Date & Time of Event
01 May 0017	4 - 245 MHz Bursts	30 Apr
01 May 0017	245 MHz Noise Storms	30 Apr
01 May 1750	K= 4 Warning	01/1750 - 02/0000 May
01 May 1800	K= 4 Observed	01 May 15 -18
02 May 0010	10 - 245 MHz Bursts	01 May
02 May 0010	245 MHz Noise Storms	01 May
02 May 1159	K= 4 Observed	02 May 09- 12
02 May 1337	K= 4 Warning	02/1340 - 03/0000 May
02 May 1500	K= 4 Observed	02 May 12 - 15
02 May 1520	10cm Radio Burst	02 May 1445
03 May 0014	13 - 245 MHz Bursts	02 May
03 May 1441	Electron Event >2MeV >=1000pfu	03 May 1420
03 May 1640	K = 4 Warning	03/1640 - 04/0000
03 May 1800	K= 5 Observed	03 May 15 - 18
03 May 2100	K= 4 Observed	03 May 18- 21
04 May 0028	1 - 245 MHz Bursts	03 May
04 May 0020	CONTINUED Electron Event >2MeV >=1000pfu	03 May 1420
04 May 1122	X-Ray event M6.8	04 May 1057
05 May 0858	K= 4 Observed	05 May 06- 09
05 May 1806	K= 4 Observed	05 May 15- 18
05 May 0008	3 - 245 MHz Bursts	04 May
06 May 0300	K= 4 Observed	06 May 00- 03

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
10 May	145	8	3	24 May	190	10	3
11	145	15	4	25	185	12	3
12	150	25	5	26	175	8	3
13	150	25	5	27	170	8	3
14	150	10	3	28	160	12	3
15	155	8	3	29	155	15	3
16	160	8	3	30	145	15	3
17	165	10	3	31	140	10	3
18	180	8	3	01 Jun	130	8	3
19	190	7	2	02	130	8	3
20	200	8	3	03	130	7	2
21	200	12	3	04	135	7	2
22	200	8	3	05	140	7	2
23	195	5	2				

Energetic Events

Date	Time			X-ray		Optical Information			Peak Radio Flux		Sweep Freq Intensity	
	Begin	Max	½ Max	Class	Integ Flux	Imp/ Brtns	Location Lat CMD	Rgn #	245	2695	II	IV
01 May	1016	1027	1034	M1.1	.007				130	29		
02 May	1442	1451	1456	M2.8	.014	1N	N22W68	8971	1100	250		
03 May	2247	2310	2321	M1.1	.013			8970	89			
04 May	0432	0451	0502	M2.8	.032	1N	S14W90	8977	200	25		
04 May	1057	1108	1114	M6.8	.034				400	100		
05 May	1519	1621	1728	M1.5	.086				44			

Flare List

Date	Time			X-ray	Optical		Rgn
	Begin	Max	End	Class.	Imp / Brtns	Location Lat CMD	
01 May	0211	0211	0215	B7.5	SF	S13W28	8976
	0221	0226	0231	C1.4			
	1016	1027	1034	M1.1			
	1058	1102	1104	C1.0			
	1253	1301	1308	C1.3			
02 May	0107	0113	0116	C4.1			
	0713	0717	0735	C2.0	1F	N16W68	8971
	1445	1446	1505	M2.8	1N	N22W68	8971
	1641	1643	1652	C2.0	SF	S16W75	8970
03 May	0032	0043	0054	C1.9			
	0214	0222	0227	B8.8			
	0423	0426	0430	B9.1			
	0856	0901	0908	B7.9			
	2142	2147	2149	C1.1			
	2247	2310	2321	M1.1			8970
04 May	0027	0034	0039	C1.0			
	0437	0442	0448	M2.8	1N	S14W90	8977
	1057	1108	1114	M6.8			
	1116	1118	1120		SF	S25W82	8975
	1517	1518	1521		SF	N20W70	8978
	1911	1922	1938	C1.2	SF	S20E10	8982
05 May	0226	0228	0249	C2.7	SF	S21E05	8982
	0931	0946	1003	C1.2			
	1519	1621	1728	M1.5			
	1952	1953	2000		SF	S18W04	8982
	2017	2019	A2039		SF	S17W20	8980
	2052	2053	2113		SF	N24E46	8983
06 May	0932	0936	0939	B5.3			
	0945	1022	1133	B9.4			8983

Flare List – continued.

Date	Time Begin	Time Max	Time End	X-ray Class.	Optical Imp / Brtns	Optical Location Lat CMD	Rgn
07 May	0004	0004	0008	B3.5	SF	N26E30	8983
	1212	1213	1217	B4.0	SF	N11E16	8987
	1526	1526	1530		SF	N12E13	8987
	1643	1643	1657		SF	N16E65	8990
	1659	1700	1703		SF	N15E65	8990
	1710	1721	1730		SF	N15E65	8990
	1851	1851	1854		SF	N15E65	8990
	2134	2143	2247		1F	N15E62	8990
	2136	2140	2145		SF	N25E18	8983
	2137	2141	2145		SF	N17E40	8989
	2247	2248	2254		SF	N15E60	8990
	2255	2257	2303		SF	N16E61	8990
	2322	2322	2329		SF	N14E58	8990
	2330	2348	0015		SF	N15E60	8990

Region Summary

Date	Location (° Lat ° CMD)	Location Helio Lon	Sunspot Characteristics Area (10^{-6} hemi)	Extent (helio)	Spot Class	Spot Count	Mag Class	Flares X-ray C	X-ray M	X-ray X	Optical S	Optical 1	Optical 2	Optical 3	Optical 4
			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				
01 May	S13W64	264	0550	08	DKO	015	BG								
02 May	S13W78	264	0350	07	DAO	006	B	1			1				
03 May	S14W92	265	0170	03	HAX	001	A		1						
								17	1	0	28	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 262

Region Summary-continued

Date	Location (° Lat ° CMD)	Helio Lon	Sunspot Characteristics Area (10^{-6} hemi)	Extent (helio)	Spot Class	Spot Count	Mag Class	Flares X-ray C	M	X	Optical S	1	2	3	4
			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				
01 May	N20W61	261	0860	13	EKO	009	BG								
02 May	N19W74	260	0640	14	EKO	009	B	1	1			2			
03 May	N18W85	258	0370	09	CKO	006	B								
								5	1	0	25	2	0	0	0
Crossed West Limb.															
Absolute heliographic longitude:		264													
			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			
01 May	S12W37	237	0040	06	CSO	007	B				1				
02 May	S12W49	235	0040	05	CSO	005	B								
03 May	S12W63	236	0040	01	HSX	001	A								
04 May	S12W74	234	0030	01	HRX	001	A								
05 May	S12W82	229	0020	07	BXO	003	B								
06 May	S13W94	228	0030	06	BXO	002	B								
								2	0	0	2	1	0	0	0
Crossed West Limb.															
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								
01 May	S13W47	247	0020	05	CSO	007	B								
02 May	S13W61	247	0010	05	BXO	005	B								
03 May	S13W75	248	0020	04	CRO	003	B								
04 May	S13W91	251	0050	02	HSX	001	A		1			1			
								0	1	0	0	1	0	0	0
Crossed West Limb.															
Absolute heliographic longitude:		243													

Region Summary-continued

	Location		Sunspot Characteristics					Flares							
		Helio	Area	Extent	Spot	Spot	Mag	X-ray			Optical				
Date	(° Lat ° CMD)	Lon	(10^{-6} hemi)	(helio)	Class	Count	Class	C	M	X	S	1	2	3	4
	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								
01 May	N20W33	233	0030	07	CSO	007	B								
02 May	N20W46	232	0170	06	CSO	007	B								
03 May	N20W61	234	0060	02	HRX	002	A								
04 May	N20W74	234	0040	04	BXO	006	B				1				
05 May	N21W87	234	0030	05	BXO	002	B								
								0	0	0	1	0	0	0	0
Crossed West Limb.															
Absolute heliographic longitude:		235													
	Region 8979														
28 Apr	N21E47	192	0000	00	AXX	001	A								
29 Apr	N21E34	192													
30 Apr	N21E21	192													
01 May	N21E08	192													
02 May	N21W05	192													
03 May	N21W18	192													
04 May	N21W31	192													
05 May	N21W44	192													
06 May	N21W57	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								
01 May	S16E31	169	0010	02	HSX	001	A								
02 May	S16E18	168	0020	01	HSX	001	A								
03 May	S16E05	168	0020	04	BXO	006	B								
04 May	S15W08	168	0010	01	AXX	002	A								
05 May	S16W20	167	0010	03	BXO	004	B				1				
06 May	S17W34	168	0020	04	CRO	007	B								
07 May	S16W48	168	0020	04	BXO	005	B								
								0	0	0	1	0	0	0	0
Still on Disk.															
Absolute heliographic longitude:		168													

Region Summary-continued

Date	Location (° Lat ° CMD)	Helio Lon	Sunspot Characteristics Area (10^{-6} hemi)	Extent (helio)	Spot Class	Spot Count	Mag Class	Flares X-ray C	M	X	Optical S	1	2	3	4
			Region 8981												
01 May	S23E30	170	0020	02	CSO	005	B								
02 May	S23E17	169	0030	05	CRO	005	B								
03 May	S22E03	170	0030	07	CSO	010	B								
04 May	S22W10	170	0030	08	CRO	012	B								
05 May	S22W25	172	0020	09	CSO	004	B								
06 May	S23W35	169	0010	08	CRO	003	B								
07 May	S22W43	163	0010	01	AXX	002	A								
								0	0	0	0	0	0	0	0
Still on Disk.															
Absolute heliographic longitude:		170													
			Region 8982												
03 May	S20E19	154	0000	03	BXO	004	B								
04 May	S20E07	153	0020	05	BXO	010	B	1			1				
05 May	S19W05	152	0010	03	CSO	003	B	1			2				
06 May	S19W19	153	0010	03	CRO	003	B								
07 May	S19W32	153													
								2	0	0	3	0	0	0	0
Still on Disk.															
Absolute heliographic longitude:		152													
			Region 8983												
04 May	N25E58	102	0050	05	CAO	003	B								
05 May	N24E44	103	0030	05	CSO	004	B				1				
06 May	N25E34	100	0030	03	CSO	004	B								
07 May	N26E19	101	0030	06	BXO	010	B				2				
								0	0	0	3	0	0	0	0
Still on Disk.															
Absolute heliographic longitude:		101													
			Region 8984												
05 May	S16E13	134	0010	08	BXO	005	B								
06 May	S14W04	138	0010	04	BXO	003	B								
07 May	S13W14	134	0010	03	BXO	004	B								
								0	0	0	0	0	0	0	0
Still on Disk.															
Absolute heliographic longitude:		138													

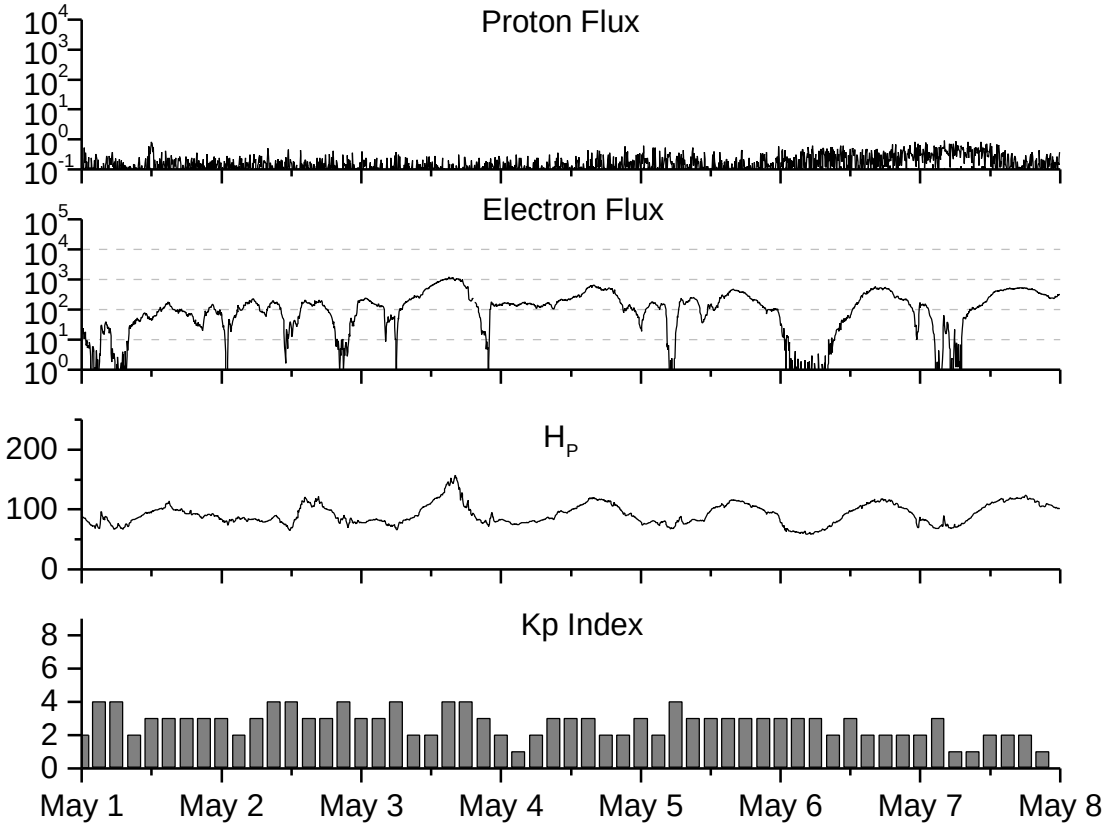
Region Summary-continued

Date	Location (° Lat ° CMD)	Helio Lon	Sunspot Characteristics: Area (10^{-6} hemi)	Extent (helio)	Spot Class	Spot Count	Mag Class	Flares: X-ray C	M	X	Optical S	1	2	3	4
	Region 8985														
05 May	N13E51	096	0010	03	BXO	003	B								
06 May	N12E38	096	0020	03	BXO	004	B								
07 May	N12E25	096													
								0	0	0	0	0	0	0	0
Still on Disk.															
Absolute heliographic longitude:		096													
	Region 8986														
05 May	S19E45	102	0010	03	BXO	004	B								
06 May	S19E32	102	0010	05	BXO	005	B								
07 May	S16E17	103	0010	03	BXO	003	B								
								0	0	0	0	0	0	0	0
Still on Disk.															
Absolute heliographic longitude:		103													
	Region 8987														
07 May	N12E10	110	0010	02	AXX	006	A				2				
								0	0	0	2	0	0	0	0
Still on Disk.															
Absolute heliographic longitude:		110													
	Region 8988														
07 May	N08W04	124	0010	03	BXO	003	B								
								0	0	0	0	0	0	0	0
Still on Disk.															
Absolute heliographic longitude:		124													
	Region 8989														
07 May	N17E38	082	0020	04	BXO	005	B				1				
								0	0	0	1	0	0	0	0
Still on Disk.															
Absolute heliographic longitude:		082													
	Region 8990														
07 May	N14E63	057	0010	02	AXX	002	A				8	1			
								0	0	0	8	1	0	0	0
Still on Disk.															
Absolute heliographic longitude:		057													

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

	Sunspot Numbers					Radio Flux		Geomagnetic	
	Observed values		Ratio	Smooth values		*Penticton	Smooth	Planetary	Smooth
Month	SWO	RI	RI/SWO	SWO	RI	10.7 cm	Value	Ap	Value
				1998					
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	12.6
August	136.1	93.7	0.69	142.8	97.5	170.8	156.4	15	12.8
September	107.4	70.9	0.66	150.0	102.3	135.7	161.1	19	12.6
October	167.7	116.4	0.69	158.5	107.7	164.9	167.3	19	12.5
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		13	
February	161.9	112.3	0.69			173.7		13	
March	203.6	138.2	0.68			208.2		09	
April	193.4	125.3	0.65			184.2		15	

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 01 May 2000

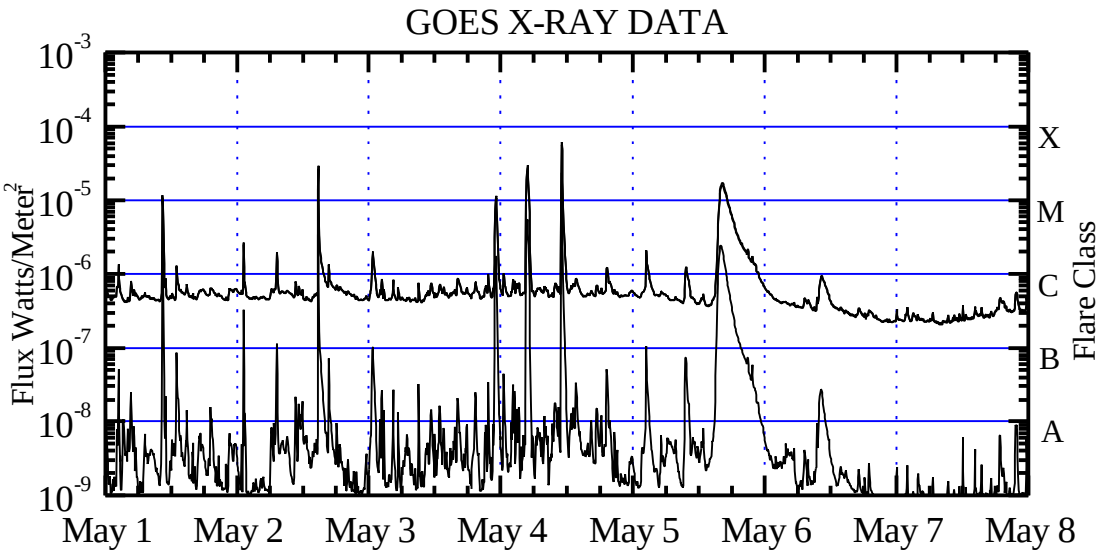
Protons plot contains the five-mine averaged integral proton flux (protons/cm^2–sec –sr) as measured by GOES-8 (W75) for each of three energy thresholds: greater than 10, 50, and 100 MeV.

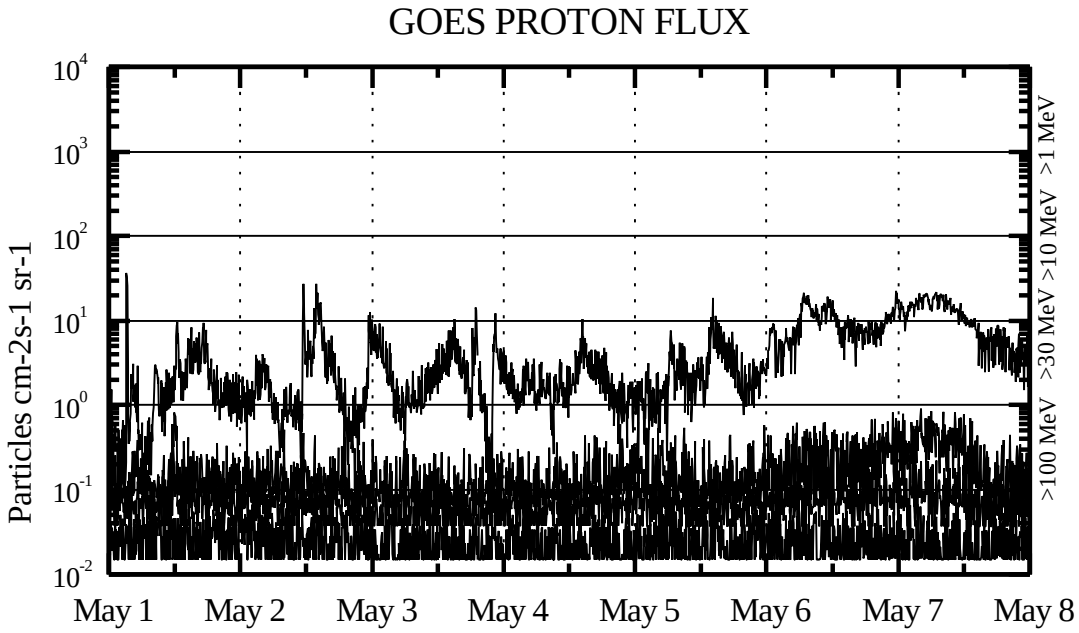
Electrons plot contains the five-mine averaged integral electron flux (electrons/cm^2–sec –sr) with energies greater than 2 MeV at GOES-8.

Hp plot contains the five mine 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.

Kp 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 Kp 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 Kp are " global " parameters that are applicable to a first order approximation over large areas. Hparallel is subject to more localized phenomena and the measurements generally are applicable to within a few degrees of longitude of the measuring satellite.

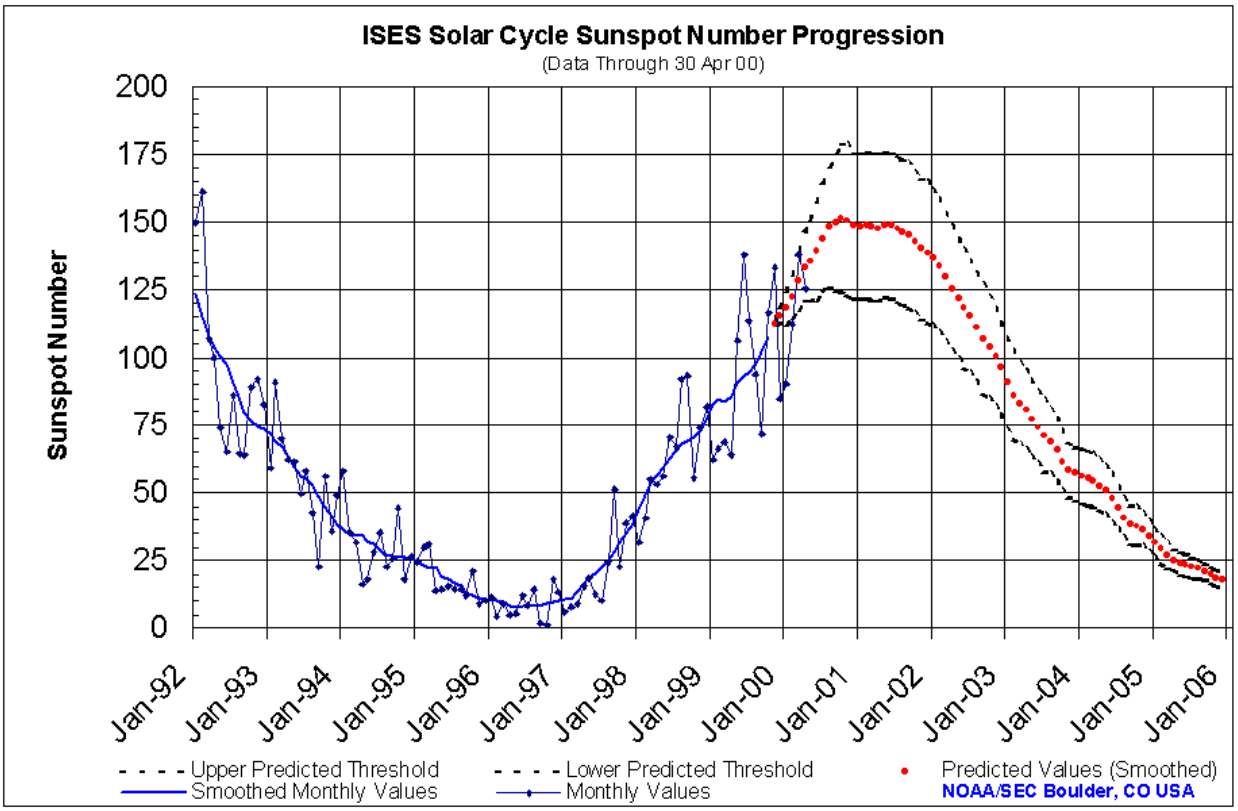




Weekly GOES Satellite X-ray and Proton Plots

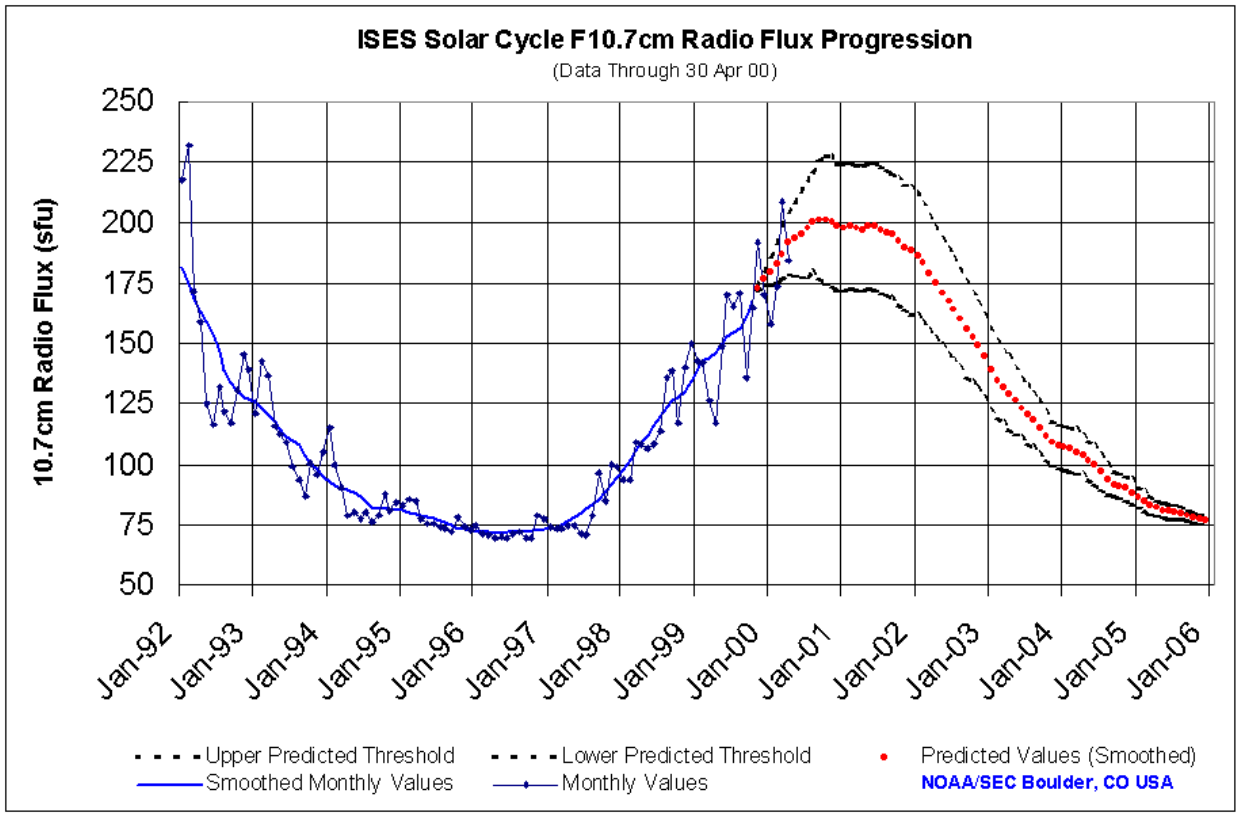
X-ray plot contains five mine averaged x-ray flux (watts/m$^{2)}$ as measured by GOES 8 and 10 in two wavelength bands, .05 -. 4 and .1 - .8 nm. The letters A, B, C, M and X refer to x-ray event levels for the .1 - .8 nm band.

Proton plot contains the five mine averaged integral proton flux (protons/cm^2 –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^2-sec-sr) at greater than 10 MeV.



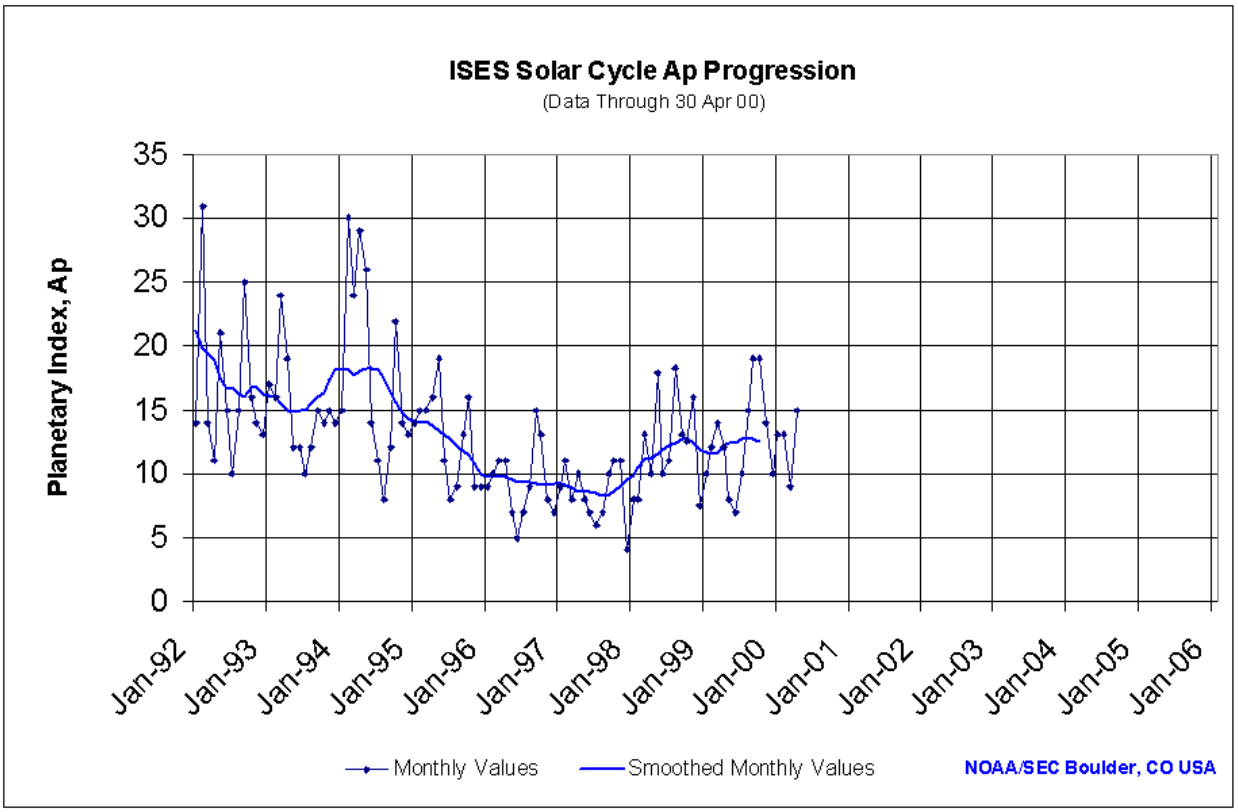
SEC Prediction of Smoothed Sunspot Number

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1996	10	10	10	9	8	9	8	8	8	9	10	10
	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)
1997	11	11	14	17	18	20	23	25	28	32	35	39
	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)
1998	44	49	53	57	59	63	66	68	70	71	73	78
	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)
1999	83	85	84	85	90	93	94	98	102	108	**112**	**115**
	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(1)	(3)
2000	**118**	**122**	**128**	**133**	**136**	**139**	**144**	**148**	**150**	**151**	**151**	**148**
	(6)	(8)	(11)	(13)	(15)	(18)	(20)	(22)	(25)	(27)	(28)	(27)
2001	**148**	**149**	**148**	**148**	**149**	**149**	**147**	**146**	**145**	**143**	**140**	**139**
	(27)	(27)	(27)	(27)	(27)	(27)	(27)	(27)	(27)	(26)	(26)	(26)
2002	**137**	**134**	**130**	**125**	**122**	**118**	**115**	**111**	**107**	**104**	**100**	**96**
	(25)	(25)	(24)	(23)	(22)	(22)	(21)	(20)	(20)	(19)	(18)	(17)
2003	**91**	**86**	**83**	**81**	**77**	**74**	**71**	**69**	**66**	**62**	**59**	**57**
	(17)	(16)	(15)	(15)	(14)	(13)	(13)	(12)	(12)	(11)	(10)	(10)
2004	**56**	**56**	**55**	**53**	**51**	**48**	**44**	**41**	**38**	**38**	**36**	**34**
	(10)	(10)	(10)	(9)	(9)	(9)	(8)	(7)	(7)	(7)	(6)	(6)
2005	**31**	**29**	**27**	**25**	**24**	**23**	**23**	**22**	**21**	**20**	**19**	**18**
	(5)	(5)	(5)	(4)	(4)	(4)	(4)	(4)	(3)	(3)	(3)	(3)



SEC Prediction of Smoothed F10.7cm Radio Flux

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1996	72	72	72	72	71	72	72	72	72	73	73	73
	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)
1997	73	74	75	77	78	80	82	83	86	89	91	94
	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)
1998	98	102	106	109	112	116	120	124	127	128	130	134
	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)
1999	139	143	144	146	150	153	154	156	161	167	**173**	**177**
	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(1)	(3)
2000	**180**	**183**	**187**	**192**	**193**	**195**	**198**	**200**	**201**	**201**	**200**	**198**
	(6)	(8)	(11)	(13)	(15)	(18)	(20)	(21)	(24)	(26)	(27)	(26)
2001	**198**	**198**	**198**	**197**	**198**	**198**	**197**	**196**	**195**	**192**	**190**	**188**
	(26)	(26)	(26)	(26)	(26)	(26)	(26)	(26)	(26)	(26)	(26)	(26)
2002	**187**	**184**	**179**	**175**	**171**	**167**	**164**	**160**	**156**	**153**	**149**	**145**
	(25)	(25)	(24)	(23)	(22)	(22)	(21)	(20)	(20)	(19)	(18)	(17)
2003	**140**	**135**	**132**	**130**	**126**	**123**	**120**	**118**	**115**	**112**	**110**	**108**
	(17)	(16)	(15)	(15)	(14)	(12)	(12)	(11)	(11)	(10)	(9)	(9)
2004	**107**	**106**	**105**	**104**	**102**	**100**	**97**	**94**	**92**	**91**	**90**	**88**
	(9)	(9)	(9)	(8)	(8)	(8)	(7)	(6)	(5)	(5)	(5)	(5)
2005	**87**	**85**	**83**	**82**	**81**	**81**	**80**	**80**	**79**	**78**	**78**	**77**
	(4)	(4)	(4)	(3)	(3)	(3)	(3)	(3)	(2)	(2)	(2)	(2)


ISES Solar Cycle Ap Progression
(Data Through 30 Apr 00)
Planetary Index, Ap
35
30
25
20
15
10
5
0
Jan-92
Jan-93
Jan-94
Jan-95
Jan-96
Jan-97
Jan-98
Jan-99
Jan-00
Jan-01
Jan-02
Jan-03
Jan-04
Jan-05
Jan-06
Monthly Values
Smoothed Monthly Values
NOAA/SEC Boulder, CO USA