Space Weather Highlights **SWO PRF 1340**
30 April – 06 May 2001 **08 May 2001**

Solar activity ranged from low to moderate levels. Region 9433 (N17, L = 153, class/area Fki/1070 on 25 April), which had been in a process of gradual decay since producing a major flare on 26 April, crossed the west limb on 01 May. It produced isolated low-level M-class flares during 01 - 02 May as it crossed the west limb (see the Energetic Events list for flare specifics). This region was also responsible for multiple CME events observed from beyond the west limb during 02 - 03 May. Activity decreased to low levels on 03 May with isolated C-class subflares, mostly from Regions 9445 (N25, L = 027, class/area Fai/390 on 01 May) and 9447 (N12, L = 061, class/area Eai/260 on 04 May), both of which were moderate-sized with a slight degree of magnetic complexity. These regions were gradually decaying at the close of the period.

Data were available from the Advanced Composition Explorer (ACE) spacecraft for most of the period. No significant disturbances were observed in the solar wind flow during the period.

There were no proton events during the period.

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

Geomagnetic field activity was at quiet to unsettled levels.

Space Weather Outlook
09 May - 04 June 2001

Solar activity is expected to range from low to moderate levels during the period. Isolated M-class flares will be possible during the period.

No proton events are expected during the period.

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

The geomagnetic field is expected to be at quiet to unsettled levels during 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
30 April	188	178	1250	B9.0	8	0	0	14	0	0	0	0
01 May	210	152	1230	B7.1	6	1	0	16	0	0	0	0
02 May	176	179	1180	C1.3	5	1	0	9	1	0	0	0
03 May	172	157	830	B8.2	6	0	0	11	0	0	0	0
04 May	176	186	1150	B9.3	3	0	0	6	0	0	0	0
05 May	161	151	1080	B7.1	1	1	0	3	1	0	0	0
06 May	155	120	700	B4.0	2	0	0	2	0	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	>4Me
30 April	1.7E+5	1.2E+4	2.1E+3		1.8E+6	
01 May	1.9E+5	1.3E+4	2.3E+3		2.9E+6	
02 May	4.0E+5	1.2E+4	2.5E+3		4.0E+6	
03 May	8.6E+4	1.1E+4	2.7E+3		1.7E+6	
04 May	3.1E+4	1.0E+4	2.6E+3		2.7E+5	
05 May	3.0E+4	1.0E+4	2.7E+3		2.8E+5	
06 May	3.8E+4	1.1E+4	2.9E+3		3.3E+5	

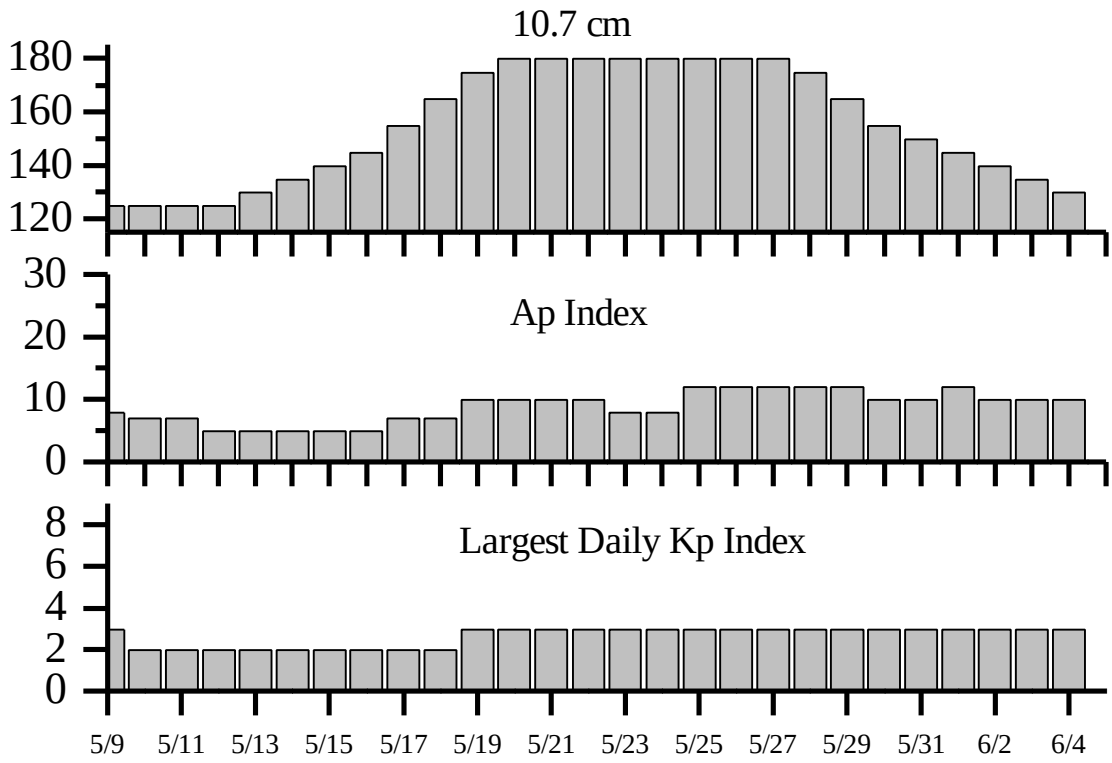
Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg A	K-indices	High Latitude College A	K-indices	Estimated Planetary A	K-indices
30 April	1	1-0-0-0-0-0-2-0	*	*-0-0-0-0-0-1-0	5	1-0-0-0-1-3-3-1
01 May	3	1-0-1-0-2-1-2-1	3	2-0-0-0-0-1-2-1	4	1-0-1-1-2-2-2-2
02 May	4	1-1-2-2-1-1-1-1	8	1-1-2-3-4-1-1-0	6	2-1-3-2-2-2-2-1
03 May	6	2-1-1-2-2-2-2-2	10	2-1-1-4-1-3-1-3	7	1-1-2-3-2-2-3-2
04 May	5	1-2-2-2-1-1-2-2	*	2-2-3-3-*-*-1-3	9	1-3-3-3-2-2-2-2
05 May	2	1-0-1-0-0-1-1-1	*	1-0-1-1-*-0-1-1	5	1-0-1-2-2-2-2-2
06 May	5	1-0-2-2-2-1-2-2	*	0-0-1-*-1-1-1-1	7	1-0-2-2-3-3-2-2

Alerts and Warnings Issued

Date & Time of Issue	Type of Alert or Warning	Date & Time of Event UT
01 May 0018	6 - 245 MHz Bursts	30 Apr
02 May 0123	3 - 245 MHz Bursts	01 May
03 May 0058	1- 245 MHz Burst	02 May
04 May 0020	1 - 245 MHz Burst	03 May
05 May 0101	245 MHz Noise Storm	04 May

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
09 May	125	8	3	23 May	180	8	3
10	125	7	2	24	180	8	3
11	125	7	2	25	180	12	3
12	125	5	2	26	180	12	3
13	130	5	2	27	180	12	3
14	135	5	2	28	175	12	3
15	140	5	2	29	165	12	3
16	145	5	2	30	155	10	3
17	155	7	2	31	150	10	3
18	165	7	2	01 June	145	12	3
19	175	10	3	02	140	10	3
20	180	10	3	03	135	10	3
21	180	10	3	04	130	10	3
22	180	10	3				

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	1858	1917	1945	M2.4	.045	SF	N22W77	9433		110		
02 May	0032	0040	0047	M1.8	.011			9433		82		
05 May	0842	0856	0915	M1.0	.014	1F	N25W06	9445				

Flare List

Date	Time			X-ray	Optical		Rgn
	Begin	Max	End	Class.	Imp / Brtns	Location Lat CMD	
30 April	0236	0237	0243	C2.6	SF	N22W59	9433
	0404	0405	0408		SF	N22W60	9433
	0539	0540	0545		SF	N22W59	9433
	0721	0721	0728	C5.1	SF	N27E59	9445
	1023	1023	1027	C3.6	SF	N27E58	9445
	1055	1108	1120	C2.2			
	1157	1157	1212	C1.6	SF	N18W60	9433
	1310	1310	1313		SF	N17W75	9433
	1315	1315	1318	C1.9	SF	N25E58	9445
	1338	1338	1344		SF	N21E55	9445
	1356	1358	1405		SF	N21E55	9445
	1445	1448	1452	C2.1			
	1521	1522	1526	C2.5	SF	N26E55	9445
	1621	1623	1625		SF	N19W59	9433
	1733	1748	1753		SF	N22E52	9445
	1734	1737	1934		SF	N30E68	9445
01 May	0210	0211	0215		SF	N21W68	9433
	0528	0528	0531		SF	N21W71	9433
	0550	0552	0556		SF	N20W72	9433
	0850	0851	0854		SF	N20W74	9433
	1002	1004	1011	C2.3	SF	N07W09	9441
	1113	1115	1133		SF	N05W12	9441
	1206	1210	1215	C1.3			
	1429	1439	1520	C1.7	SF	N19W78	9433
	1503	1516	1527	C2.2	SF	N06W13	9441
	1650	1650	A1720		SF	N07W12	9441
	1652	1654	1743	C2.0	SF	N23E42	9445
	1656	1656	1659		SF	N22W77	9433
	1725	1727	1753	C4.2	SF	N07W13	9441
	1844	1847	1903		SF	N23E41	9445
	1910	1911	2028	M2.4	SF	N22W77	9433
	1942	1943	1954		SF	N22E36	9445
	2012	2016	2027		SF	N23E40	9445

Flare List – continued.

Date	Time Begin	Time Max	Time End	X-ray Class.	Optical Imp / Brtns	Optical Location Lat CMD	Rgn
02 May	0023	0029	0039		SF	N25E41	9445
	0031	0031	0036		SF	N08W17	9441
	0032	0040	0047	M1.8			9433
	0043	0047	0054		SF	N06W19	9441
	0056	0058	A0139		SF	N06W18	9441
	0118	0120	0123		SF	N28E40	9445
	0233	0233	0300	C2.7	SF	N24E35	9445
	0628	0630	0702	C8.7	1F	N06W22	9441
	1040	1046	1049	C1.9			
	1053	1056	1108		SF	N23E29	9445
	1119	1120	1129		SF	N07W23	9441
	1127	1128	1134		SF	N23E30	9445
	1708	1720	1734	C1.9			
	1928	1933	1943	C2.4			
03 May	0018	0043	0056	C2.3			
	0054	0056	0104		SF	N11W15	9447
	0402	0407	0420	C2.3	SF	N26E25	9445
	B0509	U0512	0519		SF	N11W20	9447
	0544	0548	0552	C1.6			
	0739	0739	0743		SF	N11W22	9447
	0822	0830	0844	C2.9	SF	N13W21	9447
	1107	1108	1115		SF	N12W25	9447
	1211	1218	1224		SF	N29E22	9445
	1356	1358	1359		SF	N24E19	9445
	1532	1533	1537		SF	N29E19	9445
	1549	1551	A1558	C2.3	SF	N12W28	9447
	2040	2040	2048		SF	N24E12	9445
	2116	2141	2157	C2.3			
04 May	1046	1048	1058	C1.4	SF	N25E07	9445
	1436	1504	1552		SF	N25E03	9445
	1442	1447	1510	C4.1	SF	N12W35	9447
	1530	1530	1535		SF	N25E07	9445
	1541	1549	1555		SF	N24W03	9445
	1818	1926	2000	C3.0			
	1904	1905	1910		SF	N12W38	9447
05 May	0457	0458	0511		SF	N29E37	9448
	0512	0514	0517		SF	N30E37	9448
	0845	0855	A0920	M1.0	1F	N25W06	9445
	1811	1814	1853	C6.3	SF	N24W13	9445
	2100	2115	2121	B9.3			

Flare List – continued.

Date	Time Begin	Time Max	Time End	X-ray Class.	Optical Imp / Brtns	Optical Location Lat CMD	Rgn
06 May	1046	1059	1108	B8.0			
	1140	1148	1158	C2.8			
	1917	1920	1923	B5.9			
	1936	2011	2028	C7.9	SF	N24W28	9445
	2030	2030	2037		SF	N25W23	9445

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 9433														
18 Apr	N14E74	160	0150	06	DAO	002	B								
19 Apr	N17E64	157	0590	19	FHO	017	B	2			3				
20 Apr	N17E52	155	0700	16	FHO	017	BG	2	2		1	3			
21 Apr	N16E40	154	0790	22	FKI	035	BG	4			5				
22 Apr	N17E26	155	0760	19	FKI	047	BGD	8	1		9	1			
23 Apr	N17E14	154	0880	21	FKI	048	BGD	3	2		4	1	1		
24 Apr	N17E02	153	1000	23	FKI	076	BGD	4	5		9	5			
25 Apr	N16W15	156	1070	25	FKI	082	BGD	8	1		16	1	1		
26 Apr	N17W25	153	0890	25	FKI	064	BGD	3	1		5	1	1		
27 Apr	N17W38	153	0910	24	FKI	045	BGD	5	1		12	1			
28 Apr	N17W50	152	0780	23	FKI	039	BGD	2			4	1			
29 Apr	N18W63	152	0780	25	FKI	030	BGD	1			2				
30 Apr	N17W74	149	0440	27	FAI	022	BG	2			6				
01 May	N19W82	144	0300	09	DKI	007	BG	1	1		7				
02 May	N20W91	140	0090	05	DKI	003	BG		1						
								45	15	0	83	1	3	0	0

Crossed West Limb.
Absolute heliographic longitude: 153

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	X-ray M	X-ray X	Optical S	Optical 1	Optical 2	Optical 3	Optical 4
	Region 9436														
21 Apr	S11E72	122	0070	02	HSX	001	A								
22 Apr	S10E59	122	0100	02	HSX	001	A								
23 Apr	S12E46	122	0130	06	DSO	004	B								
24 Apr	S11E32	123	0150	05	CSO	003	B								
25 Apr	S10E20	121	0120	02	HSX	001	A								
26 Apr	S10E07	121	0160	02	HSX	001	A								
27 Apr	S10W06	121	0160	02	HSX	001	A								
28 Apr	S10W19	121	0140	02	HAX	001	A								
29 Apr	S09W33	122	0110	02	HSX	001	A								
30 Apr	S10W46	121	0130	02	HSX	001	A								
01 May	S11W59	121	0130	02	HSX	001	A								
02 May	S11W72	121	0100	02	HSX	001	A								
03 May	S11W85	121	0050	02	HSX	001	A								
04 May	S08W99	122	0050	00	HSX	001	A								
								0	0	0	0	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 121

Date	Location (° Lat ° CMD)	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 9437														
21 Apr	N08E76	118	0050	02	HSX	001	A								
22 Apr	N10E61	120	0060	01	HAX	001	A								
23 Apr	N09E48	120	0060	02	HAX	001	A								
24 Apr	N09E34	121	0050	02	HSX	001	A								
25 Apr	N08E19	122	0050	04	CAO	007	B								
26 Apr	N09E07	121	0040	05	CSO	009	B				1				
27 Apr	N09W05	120	0030	03	CAO	005	B								
28 Apr	N10W19	121	0020	02	CSO	002	B								
29 Apr	N10W32	121	0010	01	AXX	002	A								
30 Apr	N09W45	120	0020	01	AXX	003	A								
01 May	N09W58	120													
								0	0	0	1	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 120

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	X-ray M	X-ray X	Optical S	Optical 1	Optical 2	Optical 3	Optical 4
			Region 9438												
24 Apr	S13E22	133	0010	01	AXX	001	A								
25 Apr	S13E09	133													
27 Apr	S13W17	133													
28 Apr	S12W30	133													
29 Apr	S12W42	131													
30 Apr	S12W55	131													
01 May	S12W68	131													
								0	0	0	0	0	0	0	0
Crossed West Limb.															
Absolute heliographic longitude:		133													
			Region 9440												
26 Apr	N07E18	110	0010	03	BXO	006	B								
27 Apr	N08E05	110	0030	04	DRO	006	B								
28 Apr	N08W08	110	0030	04	DAO	004	B								
29 Apr	N08W21	110													
30 Apr	N08W34	110													
01 May	N08W47	110													
02 May	N08W60	110													
03 May	N08W73	110													
								0	0	0	0	0	0	0	0
Crossed West Limb.															
Absolute heliographic longitude:		110													
			Region 9441												
26 Apr	N08E51	077	0030	04	CSO	004	B				1				
27 Apr	N08E38	077	0150	07	DAO	015	B				4				
28 Apr	N07E23	079	0190	07	DAO	016	B								
29 Apr	N07E11	078	0190	10	DAI	028	B								
30 Apr	N07W04	079	0240	12	EAO	029	B								
01 May	N06W16	078	0250	12	ESI	025	B	3			5				
02 May	N07W29	078	0290	13	EAI	026	B	1	1		4	1			
03 May	N07W44	080	0220	12	EAO	013	BG								
04 May	N06W57	080	0200	10	DAO	010	BG								
05 May	N05W73	083	0150	06	CAO	004	B								
06 May	N05W87	084													
								4	1	0	14	1	0	0	0
Still on Disk.															
Absolute heliographic longitude:		079													

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	X-ray M	X-ray X	Optical S	Optical 1	Optical 2	Optical 3	Optical 4
			Region 9442												
26 Apr	N28E59	069	0040	02	HSX	001	A								
27 Apr	N28E47	068	0060	01	HSX	001	A								
28 Apr	N28E34	068	0070	02	HAX	001	A								
29 Apr	N28E22	067	0060	01	HSX	001	A								
30 Apr	N28E09	066	0050	02	HSX	001	A								
01 May	N29W05	067	0060	06	CSO	004	B								
02 May	N27W17	066	0060	01	HSX	001	A								
03 May	N27W30	066	0050	01	HSX	001	A								
04 May	N27W41	064	0040	01	HSX	001	A								
05 May	N27W53	063	0030	01	HSX	001	A								
06 May	N26W69	065	0050	01	HSX	001	A								
								0	0	0	0	0	0	0	0
Still on Disk.															
Absolute heliographic longitude:		067													
			Region 9443												
27 Apr	S10E21	094	0010	03	BXO	003	B								
28 Apr	S10E08	094													
29 Apr	S10W05	094													
30 Apr	S10W18	094													
01 May	S10W31	094													
								0	0	0	0	0	0	0	0
Still on Disk.															
Absolute heliographic longitude:		094													
			Region 9444												
28 Apr	S11E67	035	0060	02	HSX	003	A				2				
29 Apr	S11E52	037	0050	05	CSO	006	B								
30 Apr	S11E38	037	0020	05	BXO	004	B								
01 May	S09E24	038	0020	04	BXO	003	B								
02 May	S11E13	036	0000	01	AXX	002	A								
03 May	S11W01	037	0010	02	AXX	004	A								
04 May	S11W16	039	0000	00	AXX	001	A								
05 May	S11W29	039													
06 May	S11W42	039													
								0	0	0	2	0	0	0	0
Still on Disk.															
Absolute heliographic longitude:		037													

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 9445												
28 Apr	N23E76	026	0060	05	CAO	004	B								
29 Apr	N24E61	028	0190	10	DAO	010	B	3			8				
30 Apr	N24E48	027	0330	15	EAO	021	B	4			8				
01 May	N26E37	025	0390	17	FAI	028	B	1	1		4				
02 May	N25E23	026	0330	18	FAI	040	BG	1			5				
03 May	N25E10	026	0240	20	FAI	030	BG	1			5				
04 May	N25W04	027	0300	19	FAI	037	BG	1			4				
05 May	N24W16	026	0220	20	FAI	033	BG	1	1		1	1			
06 May	N23W30	026	0180	20	FAI	034	BG	1			2				
								13	2	0	37	1	0	0	0

Still on Disk.
Absolute heliographic longitude: 027

			Region 9446												
29 Apr	S05W22	111	0010	03	CRO	003	B								
30 Apr	S05W36	111	0010	04	BXO	004	B								
01 May	S05W49	111													
								0	0	0	0	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 111

			Region 9447												
30 Apr	N12E15	060	0010	03	BXO	003	B								
01 May	N12E01	061	0010	03	CRO	003	B								
02 May	N12W13	062	0060	06	DSO	013	B								
03 May	N12W27	063	0090	10	DAO	021	B	2			6				
04 May	N12W41	064	0260	12	EAI	026	BG	1			2				
05 May	N12W55	065	0260	13	EAI	017	BG								
06 May	N11W71	067	0200	14	EAO	006	B								
								3	0	0	8	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 061

			Region 9448												
01 May	N22E73	349	0070	02	HSX	001	A								
02 May	N22E60	349	0140	03	HAX	002	A								
03 May	N21E47	349	0100	04	CAO	006	B								
04 May	N20E34	349	0120	04	CAO	005	B								
05 May	N21E22	348	0110	04	CAO	007	B				2				
06 May	N21E07	349	0100	02	HAX	004	A								
								0	0	0	2	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 349

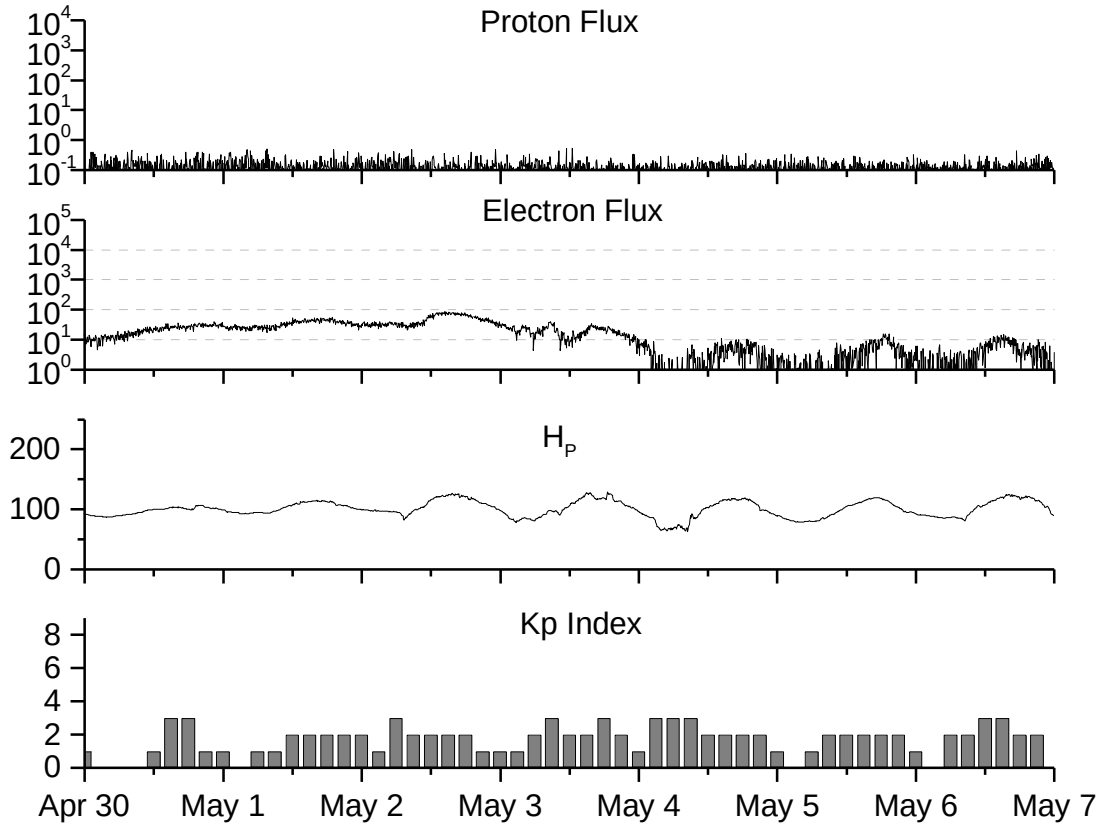
Region Summary - continued.

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 9449												
02 May	S15E69	340	0110	02	HSX	001	A								
03 May	S16E57	339	0070	02	HSX	001	A								
04 May	S17E44	339	0080	02	HSX	001	A								
05 May	S17E31	339	0090	02	HAX	002	A								
06 May	S17E17	339	0080	02	HAX	002	A								
								0	0	0	0	0	0	0	0
Still on Disk.															
Absolute heliographic longitude:		339													
			Region 9450												
04 May	S03W07	030	0020	02	CRO	003	B								
05 May	S03W20	030	0060	04	CAO	006	B								
06 May	S03W36	032	0020	01	HSX	002	A								
								0	0	0	0	0	0	0	0
Still on Disk.															
Absolute heliographic longitude:		030													
			Region 9451												
04 May	S22E76	307	0080	03	HAX	001	A								
05 May	S22E65	305	0160	03	HAX	001	A								
06 May	S20E52	304	0070	02	HAX	001	A								
								0	0	0	0	0	0	0	0
Still on Disk.															
Absolute heliographic longitude:		304													

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
					1999				
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	94.3	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	0.67	150.0	102.3	135.7	161.0	19	12.8
October	167.7	116.7	0.70	158.5	107.8	164.8	167.2	19	12.7
November	199.3	133.2	0.67	164.7	110.0	191.5	171.5	14	13.1
December	123.5	86.4	0.69	165.9	111.1	169.8	173.4	10	13.8
					2000				
January	140.8	90.1	0.64	168.0	112.9	158.1	175.5	13	14.5
February	161.9	112.9	0.70	172.1	116.7	173.2	176.8	15	15.0
March	203.6	138.5	0.68	175.4	119.9	208.2	178.4	09	15.0
April	193.4	125.5	0.65	176.3	120.8	184.2	180.5	15	15.0
May	188.8	121.6	0.64	173.1	119.0	184.5	180.0	15	15.0
June	190.3	124.9	0.66	172.0	118.7	179.8	179.7	15	15.1
July	236.7	169.1	0.71	173.0	119.7	204.7	180.2	21	14.8
August	166.6	130.5	0.78	171.8	118.6	163.1	179.5	16	14.2
September	157.9	109.9	0.70	169.0	116.2	182.1	177.1	18	14.2
October	138.9	100.1	0.72	166.2	114.4	167.7	175.6	18	14.6
November	149.9	106.5	0.71			178.8		17	
December	146.4	104.5	0.71			173.6		08	
					2001				
January	142.7	95.1	0.67			166.7		08	
February	131.0	80.1	0.61			147.3		06	
March	166.7	114.2	0.69			177.7		17	
April	163.6	108.2	0.66			178.3		18	

NOTE: All smoothed values after December 1999 and monthly values after June 2000 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 30 April 2001

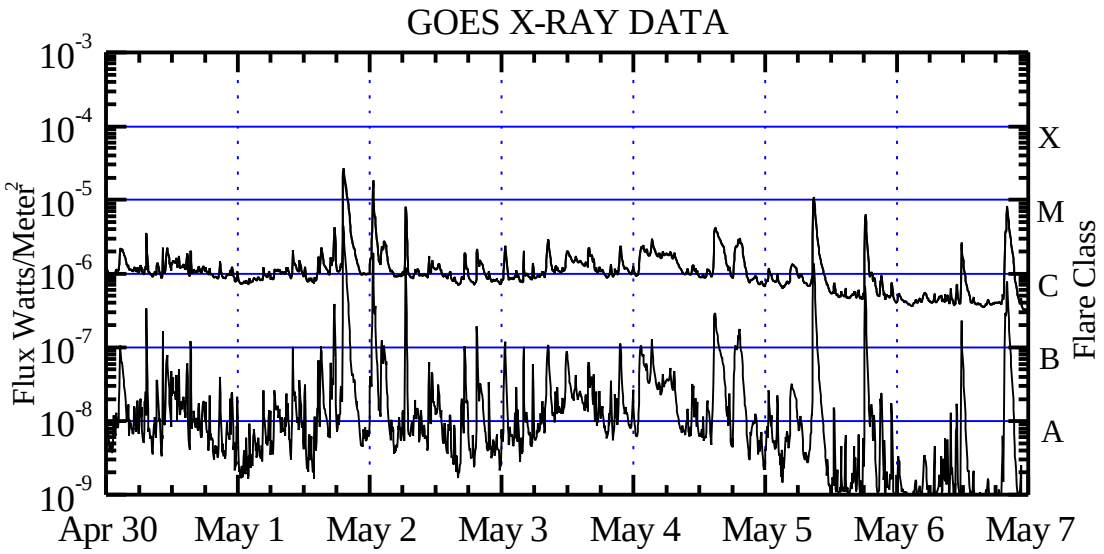
Protons plot contains the five-minute averaged integral proton flux (protons/cm^2–sec –sr) as measured by GOES-8 (W75) for each of three energy thresholds: greater than 10, 50, and 100 MeV.

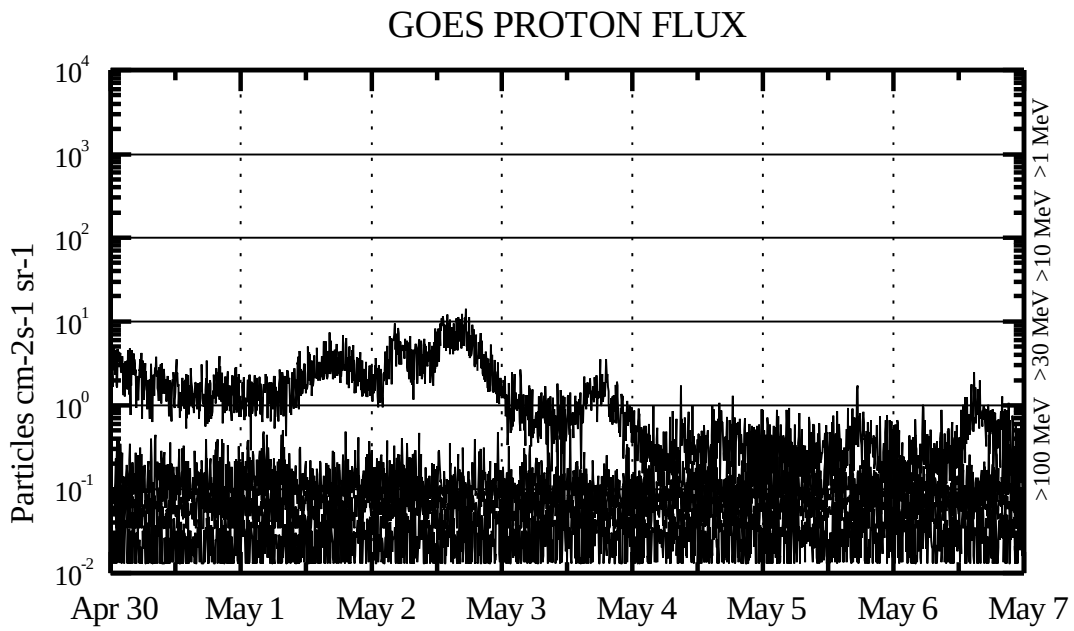
Electrons plot contains the five-minute averaged integral electron flux (electrons/cm^2 –sec –sr) with energies greater than 2 MeV at GOES-8.

Hp 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.

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.

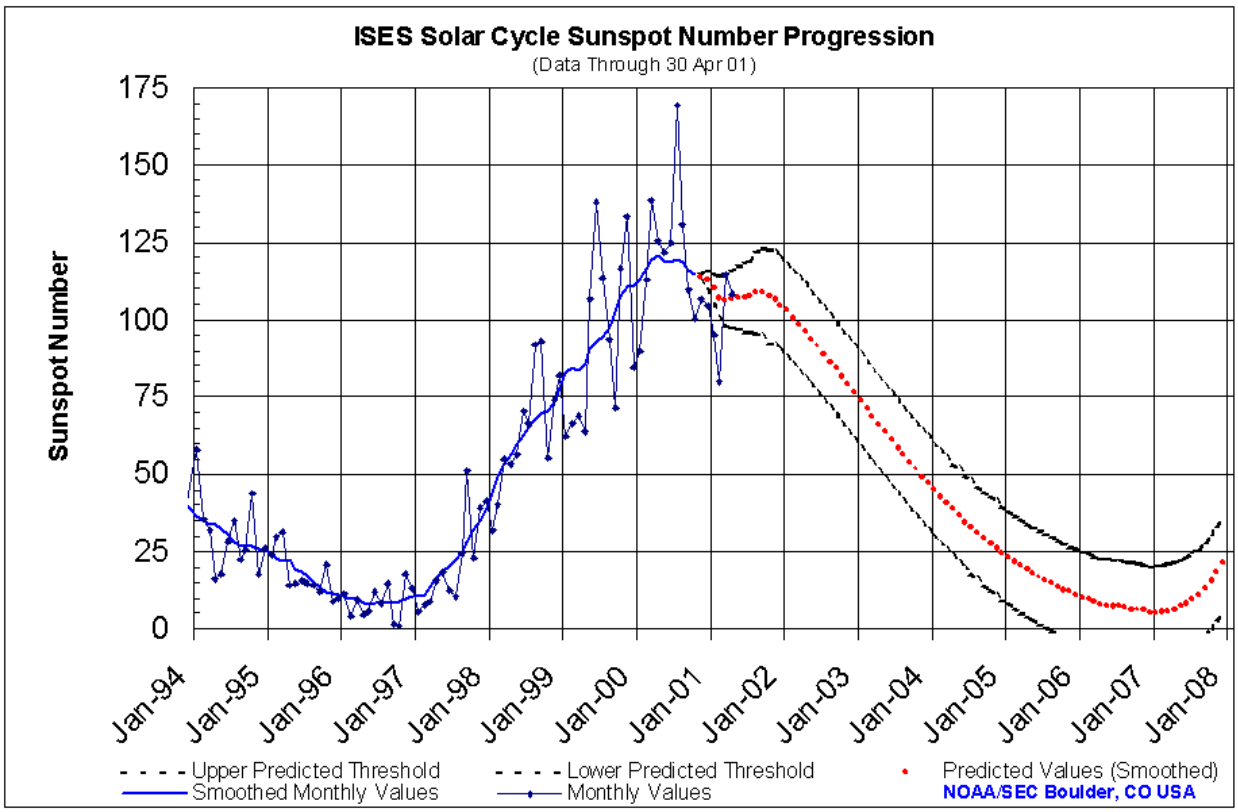




W*eekly GOES Satellite X-ray and Proton Plots*

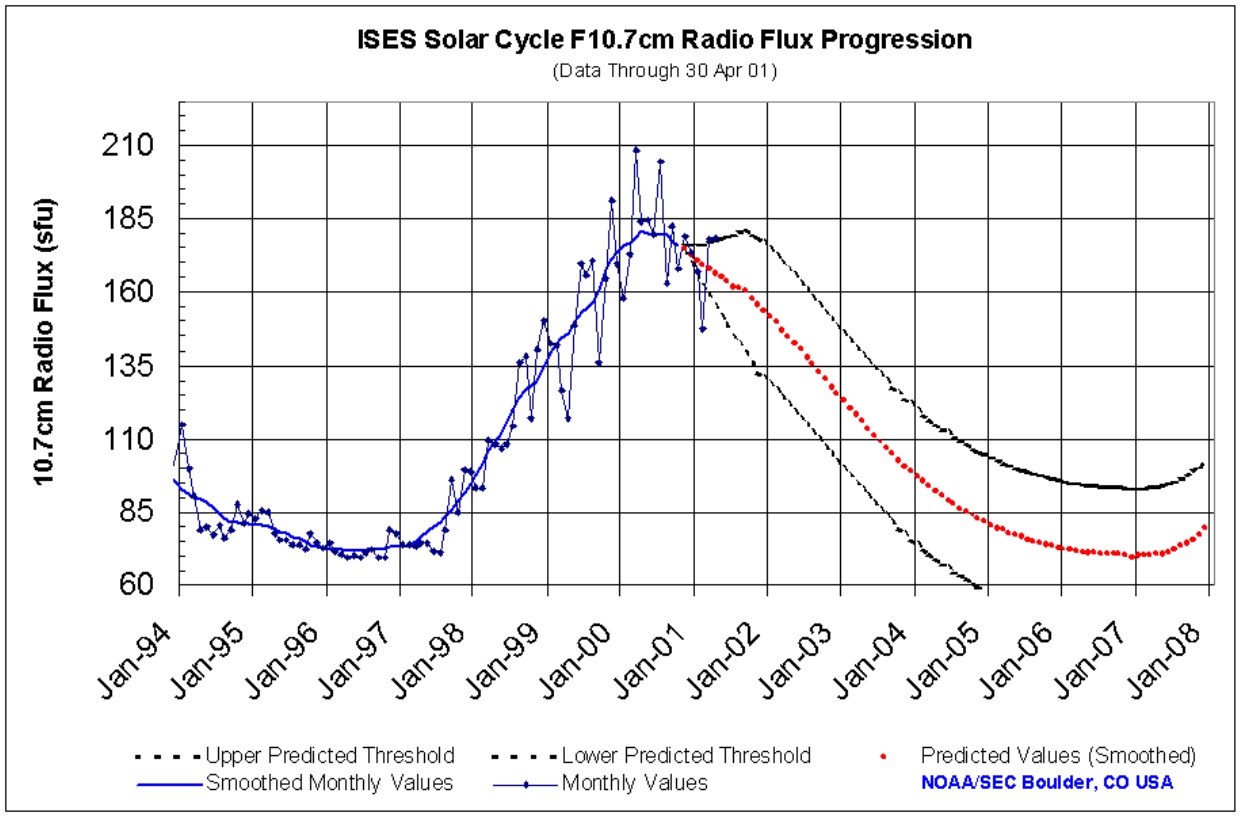
X-ray plot contains five-minute averaged x-ray flux (watts/m$^{2)}$ as measured by GOES 8 and 10 in two wavelength bands, .05 -. 4 and .1 - .8 nm. The letters A, B, C, M and X refer to x-ray event levels for the .1 - .8 nm band.

Proton plot contains the five-minute 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.



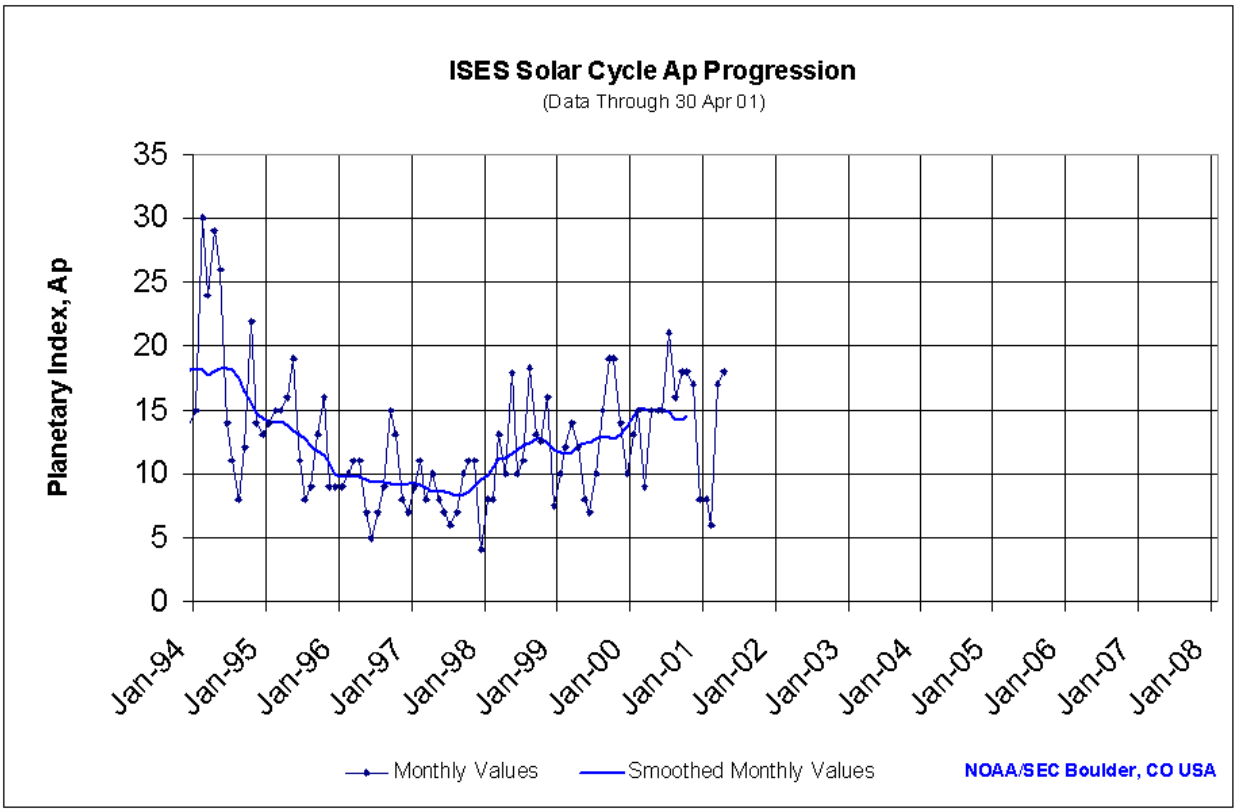
SEC Prediction of Smoothed Sunspot Number

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1998	44	49	53	57	59	63	66	68	70	71	73	78
	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)
1999	83	85	84	86	91	93	94	97	102	108	111	111
	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)
2000	113	117	120	121	119	119	120	119	116	114	**114**	**113**
	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(1)	(3)
2001	**110**	**107**	**106**	**107**	**107**	**107**	**107**	**109**	**109**	**108**	**107**	**105**
	(5)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(15)	(15)
2002	**103**	**101**	**98**	**96**	**94**	**91**	**89**	**86**	**84**	**81**	**79**	**76**
	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)
2003	**74**	**71**	**69**	**66**	**64**	**61**	**59**	**56**	**54**	**52**	**49**	**47**
	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)
2004	**45**	**43**	**41**	**39**	**37**	**35**	**33**	**31**	**29**	**28**	**26**	**25**
	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)
2005	**23**	**22**	**20**	**19**	**18**	**17**	**16**	**15**	**14**	**13**	**12**	**11**
	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)
2006	**10**	**9**	**9**	**8**	**8**	**7**	**7**	**7**	**7**	**6**	**6**	**5**
	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)
2007	**5**	**6**	**6**	**6**	**7**	**8**	**10**	**11**	**13**	**16**	**18**	**21**
	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)



SEC Prediction of Smoothed F10.7cm Radio Flux

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1998	98	102	106	109	112	116	120	124	127	128	130	134
	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)
1999	139	143	144	146	150	153	154	156	161	167	172	173
	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)
2000	175	176	178	181	180	180	180	180	177	176	**175**	**173**
	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(1)	(3)
2001	**171**	**169**	**168**	**167**	**165**	**163**	**162**	**161**	**160**	**158**	**156**	**154**
	(5)	(7)	(9)	(11)	(13)	(15)	(17)	(19)	(21)	(22)	(23)	(23)
2002	**152**	**149**	**147**	**145**	**143**	**140**	**138**	**135**	**133**	**130**	**128**	**125**
	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)
2003	**123**	**120**	**118**	**116**	**113**	**111**	**109**	**107**	**105**	**103**	**101**	**99**
	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)
2004	**97**	**95**	**94**	**92**	**90**	**89**	**88**	**86**	**85**	**84**	**83**	**82**
	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)
2005	**81**	**80**	**79**	**78**	**77**	**76**	**76**	**75**	**75**	**74**	**73**	**73**
	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)
2006	**72**	**72**	**72**	**71**	**71**	**71**	**71**	**71**	**70**	**70**	**70**	**70**
	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)
2007	**70**	**70**	**70**	**70**	**71**	**71**	**72**	**73**	**74**	**76**	**77**	**79**
	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)


ISES Solar Cycle Ap Progression
(Data Through 30 Apr 01)
Planetary Index, Ap
35
30
25
20
15
10
5
0
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
Jan-07
Jan-08
Monthly Values
Smoothed Monthly Values
NOAA/SEC Boulder, CO USA