

Space Weather Highlights
28 February – 05 March 2000

SWO PRF 1279
07 March 2000

Solar activity varied from low to high levels. Activity was low during 28 February - 01 March with occasional C-class flares. Activity rose to high levels on 02 March due to a pair of major flares from Region 8882 (S16, L = 328, class/area Ekc/1100 on 02 March). The first was an impulsive X1/2B at 02/0828UT with associated Type II and IV radio sweeps. The second was an impulsive M6/SN at 02/1343UT with an associated Type II sweep and a 290 SFU Tenflare. Region 8882 showed increased magnetic complexity prior to the major flare occurrences, but began to slowly decay thereafter. Region 8886 (S14, L = 344, class/area Dso/070 on 29 February) produced an isolated M1/1F flare at 2/0841UT during a period of minor growth. Activity declined to moderate levels on 03 March as Region 8882 (which continued to slowly decay) produced an M3/1B flare at 03/0214UT accompanied by a 240 SFU Tenflare and a Type IV radio sweep. Region 8886 produced an M4/SN flare at 03/1046UT as it crossed the west limb. Activity decreased to low levels during the remainder of the period.

Real-time solar wind data were available from the NASA Advanced Composition Explorer (ACE) spacecraft for most of the period. Coronal hole effects were evident on 28 February with increase velocities (peaks to 720 km/sec), low proton densities, and periods of southward IMF Bz with deflections to minus 09 nT (GSM). A weak interplanetary shock passed the spacecraft late on 01 March with an associated minor velocity increase and a shift to a positive-polarity solar sector. Solar wind conditions were mostly nominal for the remainder of the period.

The greater than 10 MeV proton flux at geosynchronous orbit became slightly enhanced on 02 March in the wake of the X1 flare. Otherwise, fluxes were at background levels.

The greater than 2 MeV electron flux at geosynchronous orbit was at moderate to high levels during 28 - 29 February, then decreased to normal to moderate levels for the balance of the period.

The geomagnetic field was mildly disturbed on 28 February with isolated active periods and brief minor to major storm periods at high latitudes. This disturbance appeared to be coronal hole-related. Activity declined to mostly quiet to unsettled levels on 29 February. A second disturbance occurred during 01 - 02 March due to a weak interplanetary shock passage. Unsettled to active levels occurred during this disturbance with brief minor to major storm periods at high latitudes. Field activity declined to quiet to unsettled levels for the rest of the period.

Space Weather Outlook
08 March - 03 April 2000

Solar activity is expected to range from low to moderate levels throughout the period with C-class flares being the most likely. Chances for isolated major flare activity will increase beginning 19 March with the expected return of old Region 8882.

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. However, high levels are expected during 23 - 26 March.

Geomagnetic field activity is expected to be at quiet to unsettled levels during most of the period (barring an Earth-directed CME). However, active conditions will be possible during 22 - 24 March due to recurrent coronal hole effects.



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
28 February	219	186	2740	B8.4	3	0	0	2	0	0	0	0
29 February	219	211	2960	B7.1	9	0	0	7	2	0	0	0
01 March	233	247	2570	B9.2	9	0	0	3	0	0	0	0
02 March	213	209	2520	B9.9	11	2	1	18	1	1	0	0
03 March	204	189	2040	C1.2	9	2	0	12	3	0	0	0
04 March	200	167	1640	B8.1	6	0	0	6	0	0	0	0
05 March	220	181	1750	C1.1	14	0	0	16	0	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
	28 February	3.6E+5	1.2E+4	2.6E+3		6.0E+7
29 February	2.3E+5	1.2E+4	2.5E+3		8.3E+7	
01 March	2.6E+5	1.1E+4	2.3E+3		1.8E+7	
02 March	1.1E+5	1.9E+4	2.7E+3		1.6E+7	
03 March	1.1E+5	1.9E+4	2.8E+3		2.2E+7	
04 March	9.8E+4	1.2E+4	2.4E+3		1.7E+7	
05 March	8.6E+4	1.2E+4	2.5E+3		1.2E+7	

Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	28 February	12	2-3-2-2-4-3-2-2	26	2-4-3-5-6-3-2-2	12
29 February	5	0-1-2-3-2-1-1-1	12	1-1-5-4-3-1-0-0	6	0-1-3-3-2-2-2-1
01 March	16	2-3-3-4-3-3-2-4	38	1-3-5-6-6-5-3-3	19	2-3-4-4-4-4-3-3
02 March	7	3-3-1-1-2-0-1-2	8	3-3-1-2-3-1-1-1	8	4-3-2-1-2-2-2-2
03 March	5	1-0-0-0-4-0-2-1	4	0-0-0-1-3-2-1-1	5	1-0-0-1-2-3-2-2
04 March	5	1-0-0-0-4-2-1-1	3	0-0-0-0-2-3-1-0	5	1-0-0-0-2-3-2-2
05 March	4	1-2-1-1-1-1-2-1	3	0-0-0-2-1-1-2-2	7	2-2-1-2-2-2-2-3

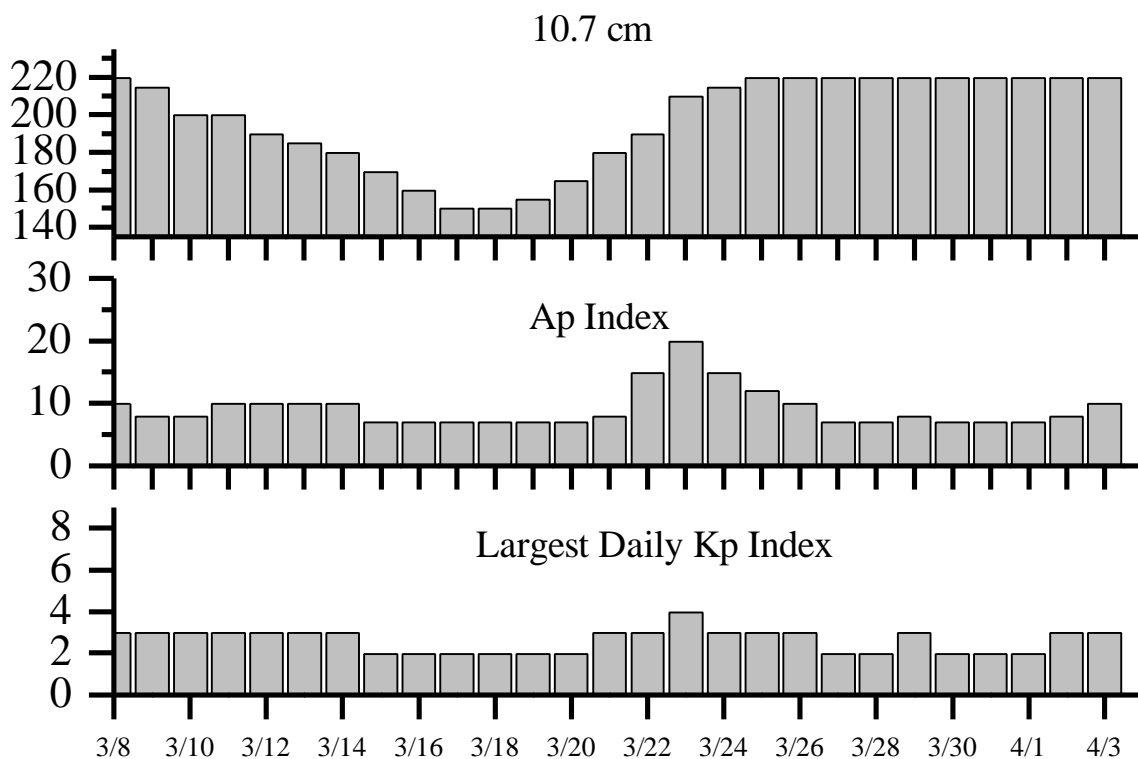


Alerts and Warnings Issued

Date & Time of Issue	Type of Alert or Warning	Date & Time of Event
28 Feb 0115	5 - 245 MHz Bursts	27 Feb
28 Feb 0115	245 MHz Noise Storms	27 Feb
28 Feb 0100	Electron Event ≥ 1000 pfu > 2 MeV CONTINUED	25 Feb 1710
28 Feb 0600	K= 4 Observed	28 Feb 03 - 06
28 Feb 1653	K= 4 Warning	28/1700- 29/1500
28 Feb 1808	K= 4 Observed	28 Feb 15 - 18
29 Feb 0008	Electron Event ≥ 1000 pfu > 2 MeV CONTINUED	25 Feb 1710
29 Feb 0101	3 - 245 MHz Bursts	28 Feb
29 Feb 0101	245 MHz Noise Storms	28 Feb
01 Mar 0017	Electron Event ≥ 1000 pfu > 2 MeV CONTINUED	25 Feb 1710
01 Mar 0125	245 MHz Noise Storms	29 Feb
01 Mar 0450	K= 4 Warning	01 Mar 0500 to 1500
01 Mar 0550	K= 5 Warning	01 Mar 0550 to 1500
01 Mar 0601	K= 4 Observed	01 Mar 03 - 06
01 Mar 1411	K= 5 Warning CONTINUED	01 Mar 0050 - 1500
02 Mar 0027	5 - 245 MHz Bursts	01 Mar
02 Mar 0027	245 MHz Noise Storm	01 Mar
02 Mar 0301	A ≥ 20 Observed	02 Mar 0300
02 Mar 0600	A ≥ 20 Observed ENDED	02 Mar 000
02 Mar 0840	X-Ray event X1.1/2B	02 Mar 0820
02 Mar 0923	Proton Event ≥ 10 pfu > 10 MeV Warning	02 Mar 1000 - 2200
02 Mar 0938	Type II Radio Emission	02 Mar 0827
02 Mar 1357	X-Ray event M6/0F/S19W60	02 Mar 1335
02 Mar 1418	Type II Radio Emission	02 Mar 1341
03 Mar 0222	10cm Radio Burst 300 F.U.	03 Mar 0221
03 Mar 0313	Type IV Radio Emission	03 Mar 0213
04 Mar 0043	4- 245 MHz Bursts	03 Mar
04 Mar 0043	245 MHz Noise Storm	03 Mar
04 Mar 2024	Type II Radio Emission	04 Mar 1818
05 Mar 0045	245 MHz Noise Storm	04 Mar
05 Mar 2346	Type II Radio Emission	05 Mar 2221



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
08 Mar	220	10	3	22 Mar	190	15	3
09	215	8	3	23	210	20	4
10	200	8	3	24	215	15	3
11	200	10	3	25	220	12	3
12	190	10	3	26	220	10	3
13	185	10	3	27	220	7	2
14	180	10	3	28	220	7	2
15	170	7	2	29	220	8	3
16	160	7	2	30	220	7	2
17	150	7	2	31	220	7	2
18	150	7	2	01 Apr	220	7	2
19	155	7	2	02	220	8	3
20	165	7	2	03	220	10	3
21	180	8	3				



Energetic Events

Date	Time ()		X-ray		Optical Information			Peak		Sweep Freq		
	Begin	Max	½ Max	Class	Integ Flux	Imp/ Brtns	Location Lat CMD	Rgn #	Radio Flux		Intensity	
									245	2695	II	IV
02 Mar	0820	0828	0831	X1.1	.036			8882	840	200	2	
02 Mar	0838	0841	0847	M1.1	.005	1F	S14W66	8886			2	
02 Mar	1335	1343	1348	M6.5	.029	SN	S20W58	8882	1100	290	3	
03 Mar	0208	0214	0222	M3.8	.020	1B	S15W60	8882	1100	240		3
03 Mar	1040	1046	1048	M4.0	.008	SN	S12W84	8886		88		

Flare List

Date	Time			X-ray Class.	Optical		Rgn #
	Begin	Max	End		Imp / Brtns	Location Lat CMD	
28 February	0306	0310	0315	C1.6			
	1330	1334	1337	C1.5			
	1344	1352	1404	C2.0			
	1549	1551	1556		SF	N19W39	8881
	1711	1713	1725		SF	S15E40	8891
29 February	0423	0435	0445	C2.3			
	0727	0734	0739		SF	N19E70	
	0959	1003	1008	C1.4			
	B1124	U1125	A1136	C1.2	SF	S14E25	8891
	1450	1458	1504	C3.0	SF	S21E28	8891
	1515	1523	1530	C6.9			8879
	1608	1611	1650	C2.7	SF	S15W29	8882
	1658	1705	1736	C9.4	1F	S15W29	8882
	B1715	1716	1738		1F	S14W29	8882
	1826	1827	1835		SF	S15E26	8891
	1846	1850	1857		SF	S14W32	8882
	2154	2159	2202	C1.8			
	2206	2209	2213	C1.9			
2255	2312	2317		SF	S14E23	8891	
01 March	0025	0031	0038	C2.0			
	0227	0230	0233	C1.4			
	0310	0315	0319	C3.2			
	0601	0604	0606	C1.3			
	1014	1015	1020	C1.5			
	1145	1149	1151	C1.3			
	1641	1708	1755		SF	N20W01	8889
	1718	1719	1738	C5.3	SF	S18W41	8882
1752	1805	1826	C6.9	SF	S14W44	8882	
02 March	B0027	U0049	A0112	C2.6	SF	S11W63	8886
	0211	0216	0221	C2.4			
	0236	0240	0243	C1.7			
	B0358	U0401	0420	C7.2	SF	S11W65	8886



Flare List-continued

Date	Time			X-ray Class.	Optical		Rgn
	Begin	Max	End		Imp / Brtns	Location Lat CMD #23	
02 March	B0747	U0747	0809		SF	S14W02	8891
	0820	0828	0831	X1.1			8882
	0823	0825	A0911		2B	S14W52	8882
	0837	0843	0911	M1.1	1F	S14W66	8886
	B1308	U1308	1326	C5.5	SF	S19W60	8882
	B1340	U1341	1356	M6.5	SN	S20W58	8882
	B1412	1415	1428		SF	S17E04	8891
	1444	1444	1448		SF	S13W74	8886
	1527	1528	1530	C3.5	SF	S17E01	8891
	1611	1613	1617	C2.6	SF	S22W59	8882
	1720	1721	1726		SF	S19W87	8886
	1746	1751	1757	C2.0			
	1822	1827	1831		SF	S21E02	8891
	1829	1830	1835	C6.0	SF	S14W76	8886
	1848	1848	1858	C9.2	SF	S14W77	8886
	2223	2224	2228	C1.5	SF	S13W59	8882
	2256	2256	2301		SF	S16E81	
	2304	2311	2317		SF	S14E92	
	2327	2334	0017		SF	N16W56	8883
	2328	2328	2333	C3.5	SF	S12W78	8886
03 March	0021	0021	0109		SF	N10W59	8883
	0047	0051	0057	C3.6			
	0132	0136	0138	C3.0			
	0148	0149	0152		SF	S14W75	8886
	0203	U0212	A0231		SN	S14W76	8886
	B0211	U0213	A0249	M3.8	1B	S15W60	8882
	0246	0319	0331		1F	S14W76	8886
	0304	0316	0410	C2.16	1F	S14W62	8882
	0547	0550	0554		SF	S22W06	8891
	0550	0550	0618		SF	N19W24	8889
	0630	0633	0639	C1.9			
	0707	0711	0721	C3.9	SF	S13W83	8886
	1043	1049	1055	M4.0	SN	S12W84	8886
	B1151	U1151	1208	C3.7	SF	N19W23	8889
	1646	1650	1653	C1.6			
	1713	1910	1931		SF	S14W69	8882
	1832	1845	1905	C1.56			
	1907	1910	1920		SF	S12E37	8899
	1910	1910	1931		SF	S14W69	8882
	2339	2342	2358	C6.1	SF	S19W76	8882



Flare List-continued

Date	Time			X-ray Class.	Optical		Rgn #
	Begin	Max	End		Imp / Brtns	Location Lat CMD	
04 March	0032	0036	0041	C1.3			
	0331	0333	0334		SF	N15W33	8889
	0408	0409	0412		SF	S16E25	8900
	0541	0542	0557		SF	S16E25	8900
	0620	0628	0708		SF	S17E26	8900
	0825	0827	0838		SF	S16E23	8900
	1115	1120	1124	C2.4			
	1642	1650	1707	C1.6	SF	S11E24	8899
	1811	1832	1859	C1.8			
	2017	2020	2022	C1.5			
05 March	2056	2145	2228	C2.2			8889
	0052	0053	0059		SF	S14E44	8898
	0207	0209	0212		SF	S14E51	8898
	0223	0223	0232		SF	S14E51	8898
	0335	0340	0405	C2.2	SF	S15E44	8898
	0419	0420	0430	C1.9	SF	S14E50	8898
	0431	0433	0444		SF	S14E50	8898
	0507	0517	0523	C3.9	SN	S13E45	8898
	0613	0613	0621		SF	S15E44	8898
	0650	0652	0658	C4.2	SF	S12E41	8898
	0858	0904	0923	C5.1	SF	S14W42	8891
	0929	0941	A0941	C6.8	SF	S13E43	8898
	1229	1232	1234	C2.2			
	1318	1322	1324	C2.0			
	1424	1428	1430	C2.4			
	1523	1526	1528	C3.0			
	1530	1531	1536	C9.6	SF	S13E35	8898
	1608	1609	1612	C2.7	SF	S13E34	8898
	1625	1626	1636	C5.0	SF	S16E38	8898
	B1704	1714	1730		SF	S14E39	8898
1827	1830	1832	C2.0				
2311	2326	A2329		SF	S13E35	8898	



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 8879</i>																							
17 Feb	N21E74	021	0110	02	HSX	001	A																
18 Feb	N22E62	020	0170	03	HSX	001	A																
19 Feb	N22E49	020	0200	03	HSX	001	A																
20 Feb	N22E37	019	0240	03	HSX	001	A																
21 Feb	N22E25	018	0240	02	HSX	001	A																
22 Feb	N22E11	018	0230	03	HAX	001	A																
23 Feb	N23E00	016	0250	08	CHO	011	B							3									
24 Feb	N22W14	017	0260	05	CHO	006	B																
25 Feb	N22W27	017	0270	06	CHO	011	B	1						1									
26 Feb	N22W39	016	0250	05	DSO	007	B																
27 Feb	N23W52	015	0270	07	CSO	009	B	1						2									
28 Feb	N23W65	015	0200	07	CSO	003	B																
29 Feb	N22W79	016	0180	05	HSX	001	A	1															
								3	0	0	0	6	0	0	0	0	0	0					

Crossed West Limb.

Absolute heliographic longitude: 016

Region 8881

21 Feb	N19E53	350	0010	07	BXO	003	B														
22 Feb	N19E40	349	0020	08	CRO	004	B														
23 Feb	N20E24	352	0040	07	CSO	010	B														
24 Feb	N19E11	352	0050	08	DAO	006	B														
25 Feb	N19W03	353	0040	08	CRO	008	B														
26 Feb	N19W17	354	0040	08	DAO	010	B							1							
27 Feb	N19W31	354	0050	07	DSO	008	B														
28 Feb	N19W44	354	0050	08	DSO	006	B							1							
29 Feb	N19W58	355	0060	08	CSO	005	B														
01 Mar	N19W71	355	0060	10	CSO	003	B														
								0	0	0	2	0	0	0	0	0	0				

Crossed West Limb.

Absolute heliographic longitude: 353



Region Summary-continued

Date	Location		Sunspot Characteristics					Flares										
	(° Lat ° CMD)	Helio Lon	Area (10 ⁶ hemi)	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical							
								C	M	X	S	1	2	3	4			
	<i>Region</i>	<i>8886</i>																
23 Feb	S14E31	345	0000	03	BXO	002	B											
24 Feb	S14E18	345	0010	03	BXO	005	B											
25 Feb	S14E06	344	0030	04	CRO	005	B											
26 Feb	S14W09	346	0000	03	BXO	002	B											
27 Feb	S14W24	347	0030	04	CSO	008	B											
28 Feb	S13W37	347	0040	05	CSO	008	B											
29 Feb	S13W51	348	0070	06	DSO	005	B											
01 Mar	S13W64	348	0050	06	BXO	009	B	1										
02 Mar	S13W77	348	0060	07	CSO	007	B	4	1		7	1						
03 Mar	S12W87	344	0030	00	AXX	001	A	1	1		4	1						
								6	2	0	11	2	0	0	0	0		

Crossed West Limb.

Absolute heliographic longitude: 344

Region 8887

24 Feb	S10E46	317	0030	04	DSO	004	B											
25 Feb	S11E32	318	0020	01	HSX	001	A				1							
26 Feb	S11E19	318	0020	01	HSX	002	A											
27 Feb	S11E06	317	0010	03	BXO	005	B											
28 Feb	S11W04	314																
29 Feb	S11W17	314																
01 Mar	S11W30	314																
								0	0	0	1	0	0	0	0	0		

Still on Disk.

Absolute heliographic longitude: 314

Region 8888

24 Feb	N36E56	307	0040	02	HSX	001	A											
25 Feb	N36E42	308	0050	03	CSO	002	B	1			1							
26 Feb	N36E30	307	0030	03	CSO	002	B											
27 Feb	N36E18	305	0030	04	CAO	003	B											
28 Feb	N36E06	304	0030	03	CSO	002	B											
29 Feb	N37W07	304	0040	03	CSO	003	B											
01 Mar	N37W20	304	0000	01	AXX	002	A											
02 Mar	N37W27	298	0000	09	BXO	002	B											
03 Mar	N37W40	298																
04 Mar	N37W53	298																
05 Mar	N37W66	298																
								1	0	0	1	0	0	0	0	0		

Still on Disk.

Absolute heliographic longitude: 304



Region Summary-continued

Date	Location		Sunspot Characteristics					Flares															
	(° Lat ° CMD)	Helio	Area (10 ⁶ hemi)	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical												
		Lon						C	M	X	S	1	2	3	4								
<i>Region 8889</i>																							
24 Feb	N20E67	296	0180	10	ESO	002	B					1											
25 Feb	N21E58	292	0350	15	EHO	004	B	2				4											
26 Feb	N21E45	292	0370	16	FSO	007	B	1	1			1		1									
27 Feb	N21E33	290	0350	15	EAO	005	B	1				2	1										
28 Feb	N21E19	291	0370	16	FSO	006	B																
29 Feb	N21E06	291	0380	17	FSO	010	B																
01 Mar	N20W07	291	0330	17	FAO	010	B					1											
02 Mar	N20W20	291	0250	17	FSO	012	BG																
03 Mar	N20W33	290	0190	17	FSO	010	B	1				2											
04 Mar	N20W47	291	0150	14	ESO	006	B	1				1											
05 Mar	N20W61	292	0180	13	EAO	003	B																
								6	1	0	12	1	1	0	0								

Still on Disk.

Absolute heliographic longitude: 291

Region 8890

24 Feb	S11E65	298	0000	00	AXX	001	A														
25 Feb	S11E51	299	0000	00	AXX	001	A														
26 Feb	S11E38	299										1									
27 Feb	S11E25	299																			
28 Feb	S11E12	299																			
29 Feb	S11W01	299																			
01 Mar	S11W14	299																			
								0	0	0	1	0	0	0	0	0					

Still on Disk.

Absolute heliographic longitude: 299

Region 8891

25 Feb	S14E71	279	0510	10	DHO	008	B					1									
26 Feb	S15E60	277	0720	12	EKC	015	B	1				3									
27 Feb	S16E48	275	0870	12	EKI	015	B	1				5									
28 Feb	S15E35	275	0990	11	EKI	019	BG					1									
29 Feb	S16E21	276	1030	11	EKI	026	BG	2				4									
01 Mar	S16E08	276	0900	12	EKC	045	BG														
02 Mar	S15W04	275	1000	11	EKC	039	BG	1				4									
03 Mar	S15W17	274	0830	11	EKC	033	BG					1									
04 Mar	S15W29	273	0780	14	EKI	028	B														
05 Mar	S16W43	274	0730	10	DKC	031	BG	1				1									
								6	0	0	20	0	0	0	0	0					

Still on Disk.

Absolute heliographic longitude: 275



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 8892

26 Feb	N05E64	273	0040	01	HSX	001	A										
27 Feb	N06E53	270	0020	01	HSX	002	A										
28 Feb	N06E39	271	0030	03	CSO	004	B										
29 Feb	N05E27	270	0010	03	CSO	002	B										
01 Mar	N06E14	270	0010	03	BXO	003	B										
02 Mar	N07E01	270	0010	05	BXO	007	B										
03 Mar	N06W12	269	0010	01	AXX	002	A										
04 Mar	N06W25	269															
05 Mar	N06W38	269															

0 0 0 0 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 270

Region 8893

26 Feb	S20W26	003	0000	00	AXX	001	A										
27 Feb	S20W39	002	0000	04	BXO	003	B										
28 Feb	S19W54	004	0000	00	AXX	001	A										
29 Feb	S19W67	004	0000	00	AXX	001	A										
01 Mar	S19W80	004															

0 0 0 0 0 0 0 0

Crossed West Limb.

Absolute heliographic longitude: 003

Region 8894

28 Feb	S33W66	016	0020	01	AXX	002	A										
29 Feb	S34W83	020	0010	00	AXX	001	A										
01 Mar	N19E51	233	0130	10	DAO	019	B										

0 0 0 0 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 233

Region 8895

29 Feb	N13W48	345	0010	04	BXO	003	B										
01 Mar	N14W62	346	0000	03	BXO	002	B										

0 0 0 0 0 0 0 0

Crossed West Limb.

Absolute heliographic longitude: 345



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 8896

29 Feb	N18E62	235	0050	08	DSO	003	B												
01 Mar	N18E52	232	0080	10	DSO	008	B												
02 Mar	N19E39	232	0050	10	CSO	012	B												
03 Mar	N19E26	231	0040	10	CSO	012	B												
04 Mar	N19E12	232	0040	07	CSO	006	B												
05 Mar	N19W03	234	0030	06	CSO	005	B												
												0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 234

Region 8897

01 Mar	S35W12	296	0000	03	BXO	002	B												
02 Mar	S35W26	297	0010	05	BXO	003	B												
03 Mar	S35W38	295	0030	07	CSO	005	B												
04 Mar	S36W51	295	0070	08	DSO	005	B												
05 Mar	S36W64	295	0110	09	DSO	003	B												
												0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 296

Region 8898

02 Mar	S15E71	200	0010	01	AXX	001	A											
03 Mar	S16E60	197	0030	07	BXO	003	B											
04 Mar	S15E48	196	0050	07	DSO	006	B											
05 Mar	S13E34	197	0140	07	DAO	014	B	8			15							
								8	0	0	15	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 197

Region 8899

03 Mar	S11E33	224	0010	03	BXO	004	B				1							
04 Mar	S11E19	225	0030	04	BXO	007	B	1			1							
05 Mar	S10E06	225	0020	04	DAO	009	B											
								1	0	0	2	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 225

Region 8900

04 Mar	S15E16	228	0030	05	DSO	009	B				4							
05 Mar	S16E02	229	0230	09	DAI	022	B											
								0	0	0	4	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 229



Region Summary-continued

Location		Sunspot Characteristics					Flares							
Date	(° 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 8901

05 Mar	S13E71	160	0010	02	AXX	002	A								
								0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 160

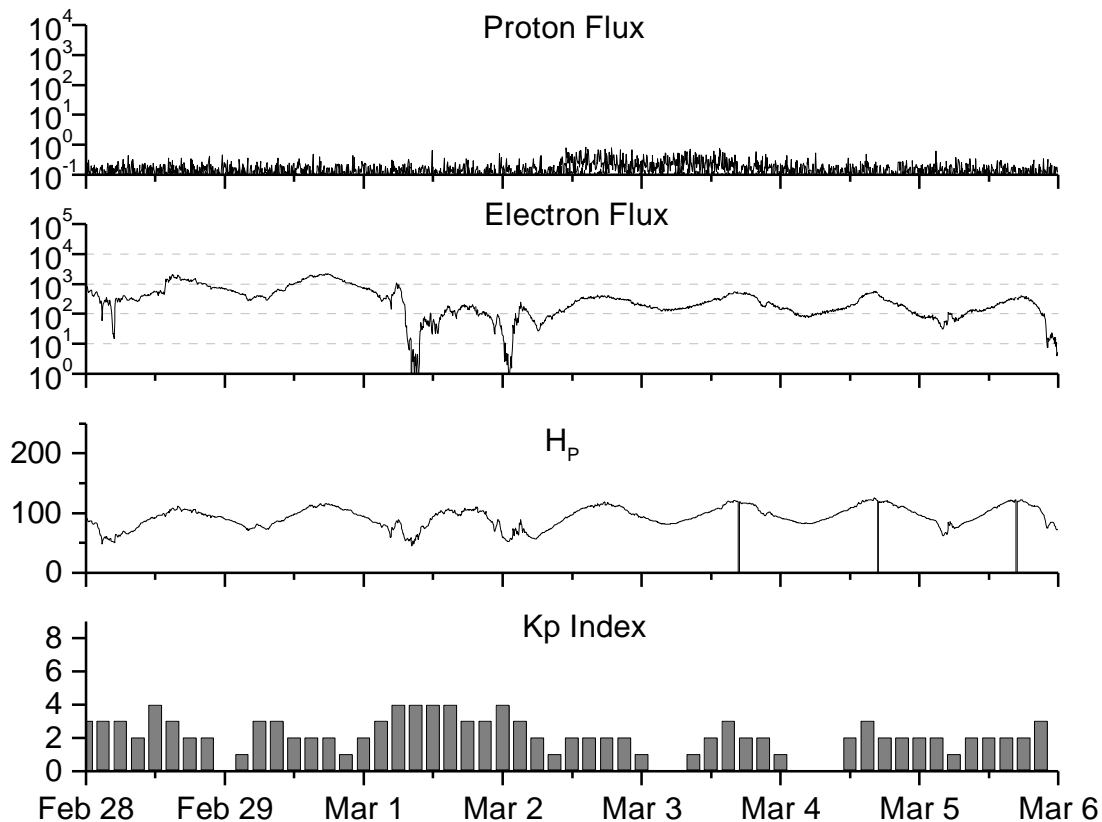


**Recent Solar Indices (preliminary)
of the observed monthly mean values**

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									
February	54.4	40.3	0.74	67.4	48.9	93.4	101.7	08	10.5
March	81.8	54.8	0.67	73.3	53.4	109.1	105.8	13	11.1
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			135.7		19	
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	

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 28 February 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.

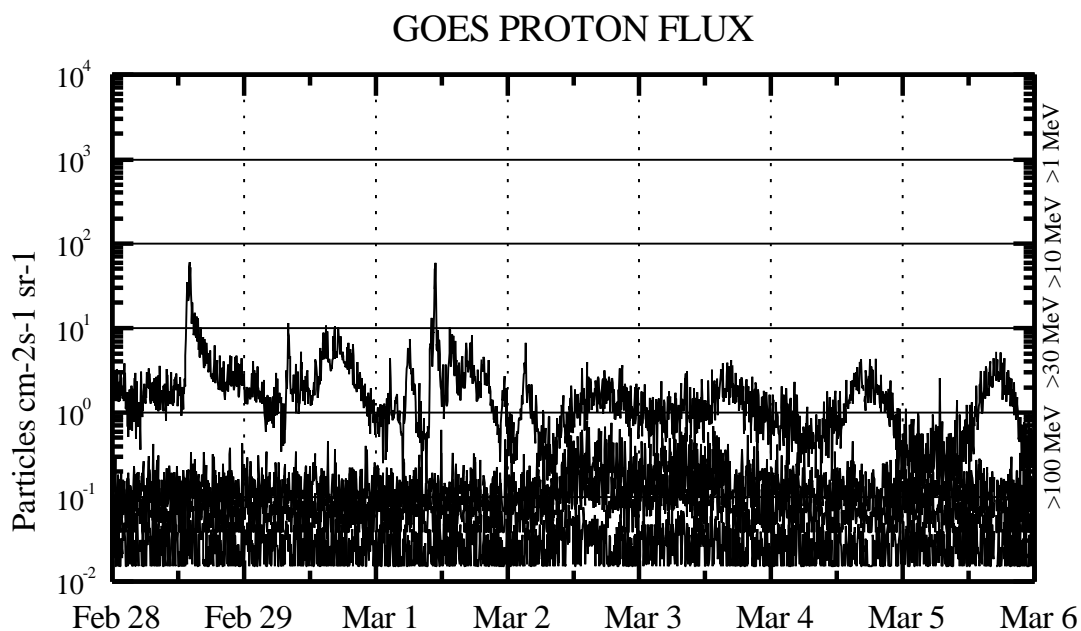
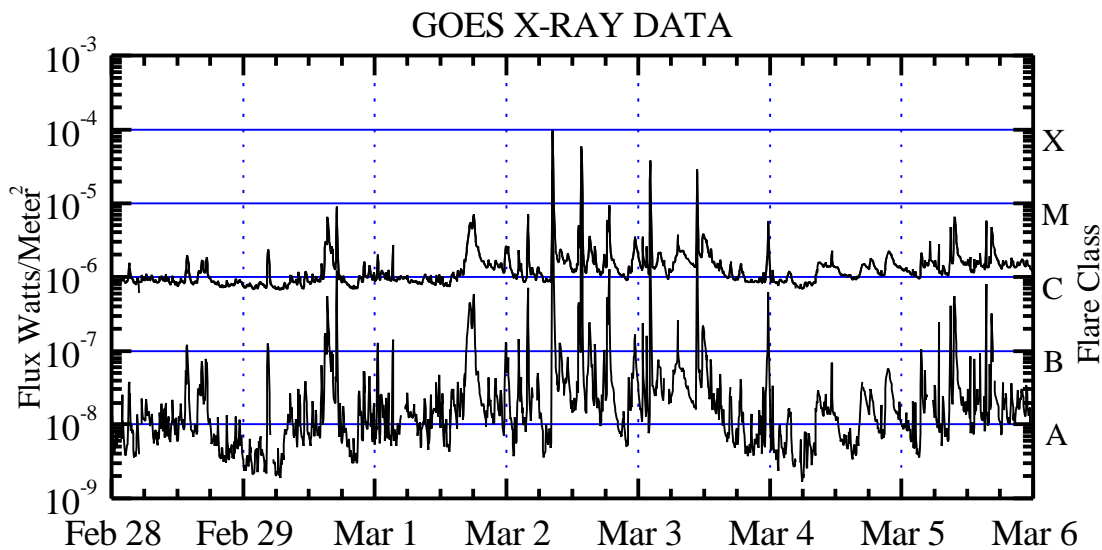
Electrons plot contains the five-minute averaged integral electron flux (electrons/cm²-sec -sr) with energies greater than 2 MeV at GOES-8.

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.



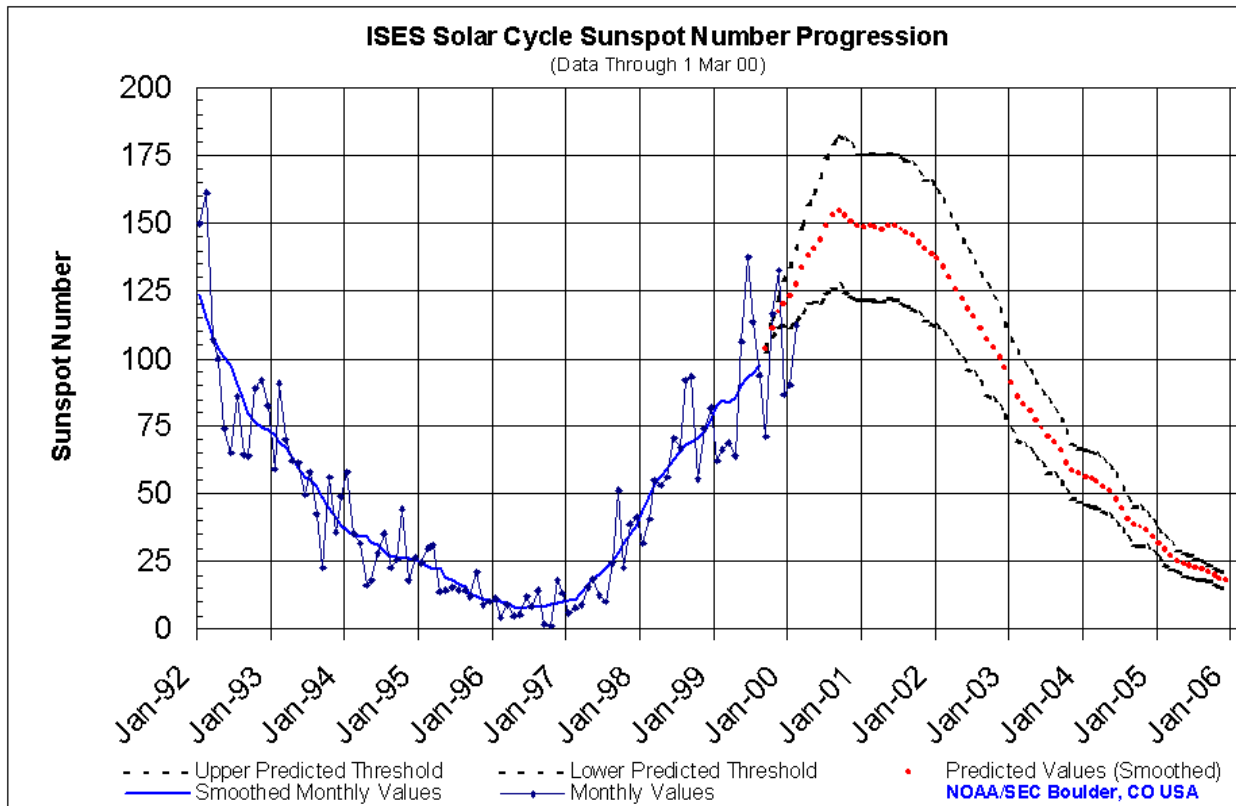


Weekly GOES Satellite X-ray and Proton Plots

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.

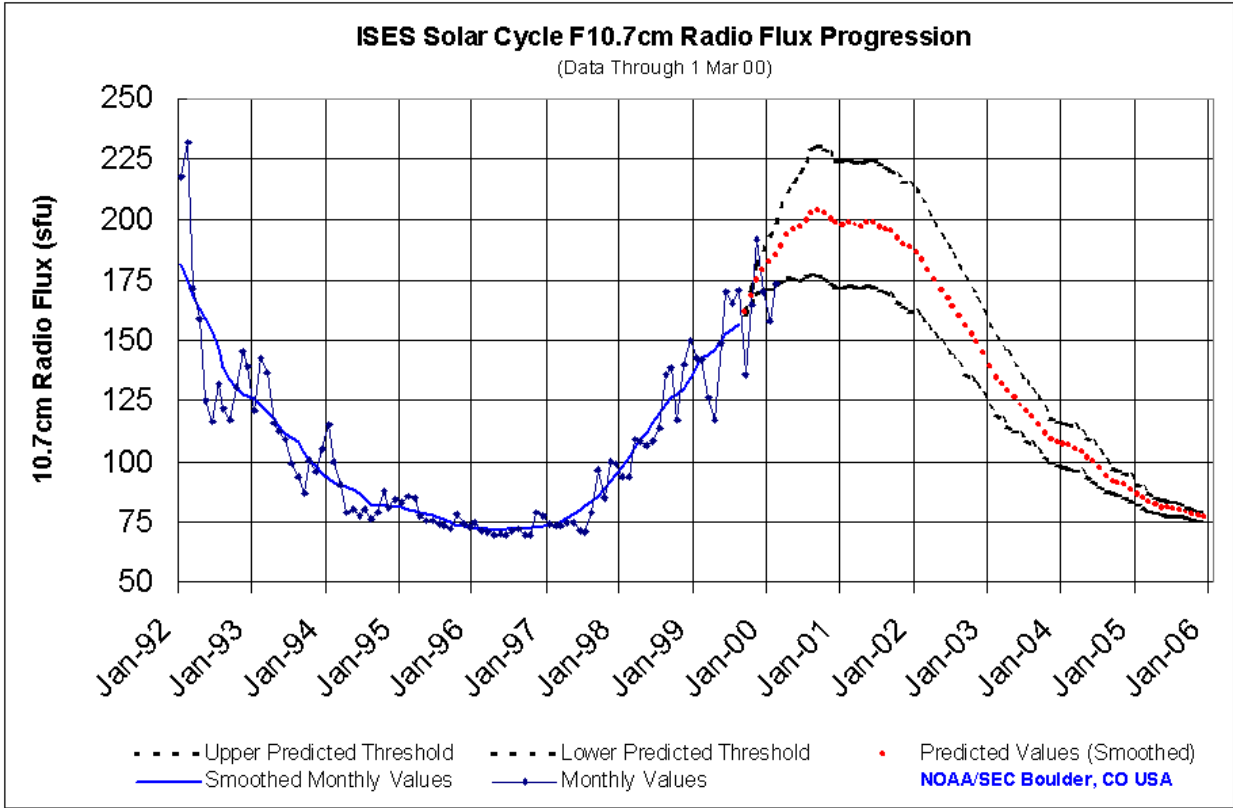




SEC Prediction of Smoothed Sunspot Number

	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 (***)	103 (1)	111 (3)	117 (6)	120 (8)
2000	123 (11)	127 (13)	133 (16)	138 (18)	140 (20)	144 (23)	149 (25)	153 (27)	154 (28)	153 (28)	151 (28)	148 (27)
2001	148 (27)	149 (27)	148 (27)	148 (27)	149 (27)	149 (27)	147 (27)	146 (27)	145 (27)	143 (26)	140 (26)	139 (26)
2002	137 (25)	134 (25)	130 (24)	125 (23)	122 (22)	118 (22)	115 (21)	111 (20)	107 (20)	104 (19)	100 (18)	96 (17)
2003	91 (17)	86 (16)	83 (15)	81 (15)	77 (14)	74 (13)	71 (13)	69 (12)	66 (12)	62 (11)	59 (10)	57 (10)
2004	56 (10)	56 (10)	55 (10)	53 (9)	51 (9)	48 (9)	44 (8)	41 (7)	38 (7)	38 (7)	36 (6)	34 (6)
2005	31 (5)	29 (5)	27 (5)	25 (4)	24 (4)	23 (4)	23 (4)	22 (4)	21 (3)	20 (3)	19 (3)	18 (3)

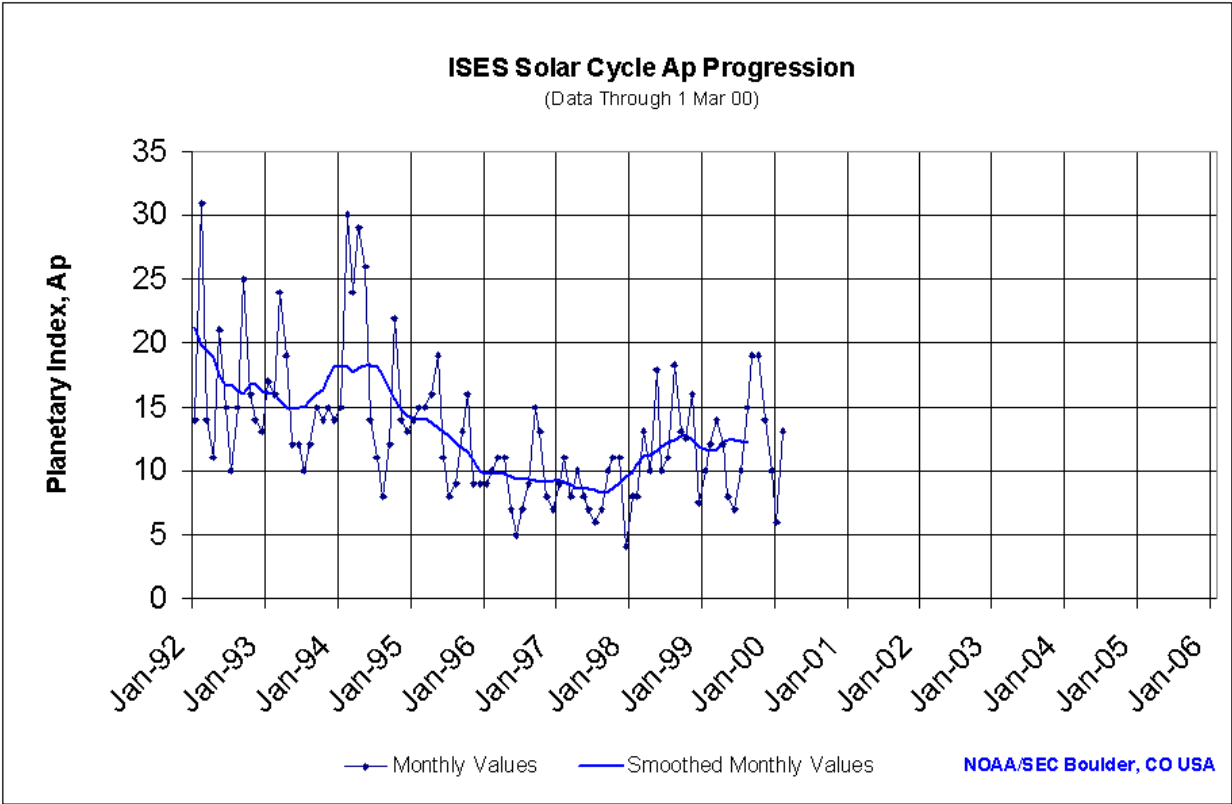




SEC Prediction of Smoothed F10.7cm Radio Flux

	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 (1)	168 (3)	175 (6)	179 (8)
2000	182 (11)	185 (13)	189 (16)	194 (18)	196 (20)	197 (23)	200 (24)	203 (26)	204 (27)	202 (27)	200 (27)	198 (26)
2001	198 (26)	198 (26)	198 (26)	197 (26)	198 (26)	198 (26)	197 (26)	196 (26)	195 (26)	192 (26)	190 (26)	188 (26)
2002	187 (25)	184 (25)	179 (24)	175 (23)	171 (22)	167 (22)	164 (21)	160 (20)	156 (20)	153 (19)	149 (18)	145 (17)
2003	140 (17)	135 (16)	132 (15)	130 (15)	126 (14)	123 (12)	120 (12)	118 (11)	115 (11)	112 (10)	110 (9)	108 (9)
2004	107 (9)	106 (9)	105 (9)	104 (8)	102 (8)	100 (8)	97 (7)	94 (6)	92 (5)	91 (5)	90 (5)	88 (5)
2005	87 (4)	85 (4)	83 (4)	82 (3)	81 (3)	81 (3)	80 (3)	80 (3)	79 (2)	78 (2)	78 (2)	77 (2)





Solar Radio Flux (10.7 cm)



Space Environment Center

February 2000
(Month 41)

Preliminary data

