Space Weather Highlights **SWO PRF 1383**
25 February - 03 March 2002 **05 March 2002**

Solar activity was at low to moderate levels. Activity was at moderate levels on 25 February with an optically uncorrelated M1.0 flare. Region 9830 (S20, L= 135, class/area Fkc/530 on 20 February) was in a decay phase at the start of the summary period. On 25 February, Region 9830 simplified in magnetic complexity from a beta-gamma-delta to a beta-gamma configuration and on 26 February rotated beyond the west limb. Activity also at moderate levels on 27 and 28 February with the largest event an M2.2 flare associated with an eruptive prominence (S24W90) off the southwest limb at 28/0012 UTC. The source of this event was mostly likely Region 9839 (S18, L=111, class/area Eao/250 on 27 February), which was transiting the west limb at the time. This region reached it's maximum size and complexity on 27 February as it approached the west limb and taking into account limb effects, it is uncertain as to whether or not it was in a decay phase as it rotated beyond the west limb. Region 9845 (N18, L= 016, class/area Fki/390 on 03 March) had shown gradual growth throughout the period and developed a beta-gamma magnetic configuration on 01 March. This region also produced a C9 flare at 01/0012 UTC, as determined by SOHO/LASCO imagery. Two Type II Radio Sweeps were recorded on 01 March at 0214 UTC (1200 km/s) and 0542 UTC (742 km/s). The most likely source of the 0214 UTC Type II was Region 9839 beyond the southwest limb. The most likely source of the 0542 UTC Type II was a C7/Sf flare at 01/0530 UTC from Region 9848 (S20, L=029, class/area Dso/060 on 26 February). On 02-03 March activity was low with only minor C-class flares. On 02 March a large eruptive prominence was observed lifting off the southeast limb at 02/1415 UTC with an associated CME seen by LASCO C2 imagery. No earth directed component was noted.

Solar wind data were available from NASA Advanced Composition Explorer (ACE) spacecraft for most of the summary period. A weak shock passage was detected at ACE early on 28 February and resulted in a solar wind speed increase to approximately 400 km/s. Wind speed then decreased to a range of 300-350 km/s by 03 March. Late on 03 March a sector boundary crossing was observed and wind speed increased with peak values around 400 km/s.

There were no proton events at geosynchronous orbit during the period.

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

The geomagnetic field was at quiet to unsettled levels early in the period. A 28 nT sudden impulse was recorded at the Boulder magnetometer at 28/0500 UTC and resulted in active to minor storm conditions on 28 February. This activity was due to the weak CME shock passage mentioned above. A Sustained southward IMF early on 01 March resulted in minor storm levels at mid latitudes and active conditions elsewhere for the first 3 hour period on 01 March. Conditions returned to quiet to unsettled later in the day on 01 March and throughout 02 March. High-speed stream effects from a recurrent coronal hole commenced on 03 March resulting in quiet to active conditions.

Space Weather Outlook
06 March - 01 April 2002

Solar activity is expected to be low to moderate levels. On 07 March, early in the forecast period, old Region 9825 is due to return and isolated M-class flares are possible. Old Region 9839 is due to return on 27 March and may result in isolated M-class flares.

The greater than 2 MeV electrons flux may reach high level during 06 - 08 March due to high speed stream effects. Otherwise normal to moderate levels are expected.

There will be a slight chance of a proton event during the period, with the return of old Region 9825 early in the period and the return of old Region 9839 later in the forecast period.

The geomagnetic field is expected to be at active levels for the first day or two of the forecast period due to high speed stream effects. Quiet to unsettled levels should prevail for the remainder of the period. The return of the large coronal hole late in the period may produce active conditions.

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
25 February	211	237	1010	C1.2	13	1	0	29	0	0	0	0
26 February	208	223	1180	C1.6	7	0	0	7	0	0	0	0
27 February	199	192	1100	C1.5	5	2	0	8	0	0	0	0
28 February	204	188	970	C5.0	5	0	0	8	0	0	0	0
01 March	188	153	860	C1.4	10	0	0	4	0	0	0	0
02 March	191	153	670	C1.1	5	0	0	5	0	0	0	0
03 March	183	169	790	B9.8	3	0	0	0	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	>4MeV
25 February	1.4E+5	1.1E+4	2.5E+3		3.6E+5	
26 February	1.1E+5	1.1E+4	2.4E+3		2.6E+5	
27 February	7.8E+4	1.2E+4	2.7E+3		3.6E+5	
28 February	1.5E+5	1.1E+4	2.3E+3		1.2E+5	
01 March	5.5E+4	1.1E+4	2.4E+3		6.1E+4	
02 March	4.3E+4	1.1E+4	2.5E+3		6.3E+4	
03 March	3.9E+4	1.1E+4	2.5E+3		7.4E+4	

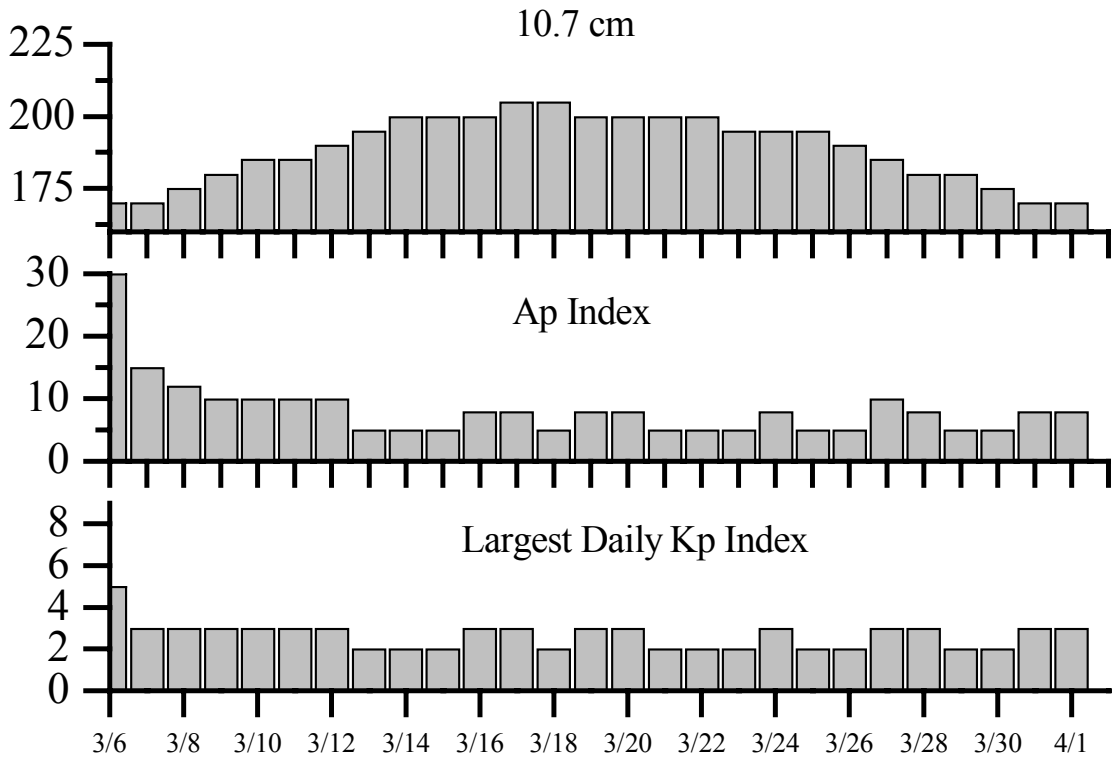
Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg A	K-indices	High Latitude College A	K-indices	Estimated Planetary A	K-indices
25 February	4	1-0-2-1-2-2-1-1	12	0-0-1-5-4-3-1-1	7	1-0-2-2-3-3-2-2
26 February	8	2-2-2-2-2-2-3-2	11	1-1-4-4-3-1-1-1	8	2-2-3-2-2-2-2-3
27 February	4	2-0-1-1-2-1-1-1	5	3-1-0-2-2-1-1-1	4	2-0-1-1-2-2-2-2
28 February	15	1-4-3-2-3-2-3-4	19	1-2-3-4-5-2-3-4	17	1-3-4-3-3-3-3-5
01 March	9	5-2-2-1-2-1-0-0	9	4-1-3-2-2-1-0-2	11	4-3-3-2-2-2-2-1
02 March	4	1-1-1-1-1-2-1-2	3	1-1-0-0-1-2-1-1	5	1-1-1-1-1-3-3-2
03 March	10	2-1-2-1-3-2-2-4	15	1-0-4-3-4-4-2-3	10	1-1-3-2-3-3-3-4

Alerts and Warnings Issued

Date & Time of Issue	Type of Alert or Warning	Date & Time of Event UT
25 Feb 1339	Stratwarm Alert Exists Monday	
26 Feb 0012	1 - 245 MHz Radio Burst	25 Feb
26 Feb 1125	10cm Radio Burst 220 s.f.u.	26 Feb 1026
26 Feb 1341	Stratwarm Alert Exists Tuesday	
26 Feb 1414	Type II Radio Emission	26 Feb 1357
27 Feb 0012	3 - 245 MHz Radio Bursts	26 Feb
27 Feb 0501	Type II Radio Emission	27 Feb 0452
27 Feb 1300	Stratwarm Alert Exists Wednesday	
28 Feb 0052	1 - 245 MHz Bursts	27 Feb
28 Feb 0504	Sudden Impulse observed at Boulder	28 Feb 0500
28 Feb 1302	Stratwarm Alert Exists Thursday	
28 Feb 2345	K= 4 Warning	28 Feb 2357 - 01 Mar 1500
01 Mar 0050	3 - 245 MHz Radio Bursts	28 Feb
01 Mar 0050	245 MHz Radio Noise Storm	28 Feb
01 Mar 0000	K= 4 Observed	28 Feb 2100 - 0000
01 Mar 0454	Type II Radio Emission	01 Mar 0214
01 Mar 0556	Type II Radio Emission	01 Mar 0542
01 Mar 1312	Stratwarm Alert Exists Friday	
02 Mar 0028	1 - 245 MHz Radio Burst	01 Mar
02 Mar 1329	Stratwarm Alert Exists Saturday	
03 Mar 0021	2 - 245 MHz Radio Bursts	02 Mar
03 Mar 1318	Stratwarm Alert Exists Sunday	
03 Mar 2131	A ≥ 20 Watch	06 Mar
03 Mar 2346	K= 4 Warning	03 Mar 2350 - 04 Mar 1800

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
06 Mar	170	30	5	20 Mar	200	8	3
07	170	15	3	21	200	5	2
08	175	12	3	22	200	5	2
09	180	10	3	23	195	5	2
10	185	10	3	24	195	8	3
11	185	10	3	25	195	5	2
12	190	10	3	26	190	5	2
13	195	5	2	27	185	10	3
14	200	5	2	28	180	8	3
15	200	5	2	29	180	5	2
16	200	5	2	30	175	5	2
17	200	8	3	31	170	8	3
18	205	8	3	01 Apr	170	8	3
19	205	5	2				

Energetic Events

Date	Time			X-ray		Optical Information				Peak Radio Flux		Sweep Freq Intensity	
	Begin	Max	½ Max	Class	Integ Flux	Imp/Location Brtns	Lat	CMD	Rgn #	245	2695	II	IV
25 Feb	0247	0257	0300	M1.0	.004								
27 Feb	1550	1558	1604	M1.6	.009	Sf	S18	W69	9839				
27 Feb	2356	0012	0048	M2.2	.047								

Flare List

Date	Time Begin	Max	End	X-ray Class.	Optical Imp / Brtns	Location Lat CMD	Rgn
25 February	0124	0124	0127		Sf	N21E19	9844
	0247	0257	0300	M1.0			
	0427	0430	0435		Sf	N21E13	9844
	0446	0451	0501	C2.2			
	0523	0530	0533		Sf	S04W47	9846
	0626	0631	0636	C1.6			
	0718	0719	0724	C2.4	Sf	S13W67	9830
	0739	0740	0742		Sf	S03W49	9846
	0753	0759	0818		Sf	S02W48	9846
	0821	0837	0841		Sf	S02W47	9846
	0841	0857	0915		Sf	S02W48	9846
	0931	0939	1017	C2.2	Sf	S04W40	9846
	1026	1028	1031		Sf	S02W49	9846
	1037	1039	1042	C3.5	Sf	S02W51	9846
	1051	1053	1058		Sf	S14W71	9830
	1203	1203	1215	C2.7	Sf	S01W51	9846
	1308	1309	1320		Sf	S02W51	9846
	1444	1444	1447		Sf	S03W50	9846
	1554	1554	1557	C3.3	Sf	S16W72	9830
	1619	1620	1629	C3.0	Sf	S04W44	9846
	1725	1727	1738		Sf	S01W51	9846
	1758	1802	1827		Sf	S02W51	9846
	1801	1816	1825		Sf	S02W52	9846
	1900	1902	1907		Sf	S02W52	9846
	1936	1938	1957		Sf	S02W53	9846
	1945	1947	1950	C3.2	Sf	S15W71	9830
	2010	2012	2014		Sf	S14W74	9830
	2044	2044	2051		Sf	S07W58	9829
	2126	2127	2131	C4.1	Sf	S14W75	9830
	2221	2221	2224	C2.3	Sf	S02W54	9846
	2249	2250	2253	C2.0	Sf	S18W78	9830
	2334	2336	2340	C3.0	Sf	S04W48	9846
26 February	0039	0056	0108	C7.0			
	0652	0652	0658		Sf	N13E40	9845
	0654	0656	0702	C4.4	Sf	S18W53	9839
	1027	1027	1030	C9.6	Sf	S13W89	9830

Flare List - continued.

Date	Time Begin	Time Max	Time End	X-ray Class.	Optical Imp / Brtns	Optical Location Lat CMD	Rgn
26 February	1249	1254	1301	C1.7			
	B1355	U1356	1407	C3.5	Sf	N13E36	9845
	1458	1459	1504		Sf	S20W55	9839
	1512	1632	1721	C6.1			
	1526	1527	1537		Sf	S19W46	9842
	1917	1917	1927	C2.3	Sf	N11W06	9837
27 February	0048	0048	0057	C7.1	Sf	S19W61	9839
	0311	0346	0413	C6.8			
	0446	0452	0505		Sf	N13E26	9845
	0614	0620	0631	C3.1			
	1153	1153	1158		Sf	N23W15	9844
	1255	1302	1323	C4.3			
	1327	1328	1334		Sf	S17W68	9839
	1341	1345	1357		Sf	S17W68	9839
	1405	1405	1410		Sf	N23W14	9844
	1556	1603	1611	M1.6	Sf	S18W69	9839
	2052	2053	2109	C7.9	Sf	S18W73	9839
	2356	0012	0048	M2.2			
28 February	0238	0238	0245		Sf	N22W24	9844
	0523	0532	0557		Sf	N22W25	9844
	0711	0711	0721		Sf	S19E02	9848
	0925	0927	0938	C4.0	Sf	S21E02	9848
	1206	1209	1212	C4.2			
	1413	1416	1418	C5.5			
	1656	1656	1700		Sf	N19W84	
	1704	1706	1710		Sf	N19W84	
	1714	1715	1718		Sf	N19W85	
	1908	1910	1921	C7.6	Sf	N22W30	9844
	2230	2240	2300	C7.4			
01 March	0005	0012	0020	C9.7			
	0435	0439	0441	C2.1			
	0528	0530	0538	C7.2	Sf	S20W09	9848
	0956	0959	1001	C3.2			
	1111	1117	1127	C3.1			
	1404	1409	1415	C1.8			
	1437	1437	1451	C2.8	Sf	S07E65	9851
	1528	1532	1536	C2.0			
	1600	1600	1608		Sf	N16E04	9845
01 March	1621	1630	1649	C5.6	Sf	S08E62	9851
	1708	1714	1719	C4.7			
02 March	0759	0759	0803	C1.3	Sf	N13W21	9845
	0923	0924	0927	C1.6	Sf	N24W53	9844

Flare List - continued.

Date	Time Begin	X-ray Max	X-ray End	Imp /Location Class.	Optical Brtns	Optical Lat CMD	Rgn
02 March	1138	1142	1152	C1.7	Sf	S13W25	9847
	1156	1157	1201		Sf	S13W26	9847
	1255	1259	1303	C1.1			
	2013	2016	2028	C4.4	Sf	N14W23	9845
03 March	0201	0207	0214	C3.2			
	0248	0256	0306	C2.0			
	1816	1833	1851	C2.3			

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 9829													
14 Feb	S07E74	133	0020	06	Cro	004	B								
15 Feb	S06E62	132	0040	09	Dso	003	B	1			1				
16 Feb	S06E52	129	0040	12	Eso	004	B								
17 Feb	S05E36	131	0050	08	Cso	005	B								
18 Feb	S05E23	131						1				1			
19 Feb	S05E10	131													
20 Feb	S06W01	129	0000	00	Axx	001	A								
21 Feb	S11W12	127									1				
22 Feb	S11W25	127													
23 Feb	S09W39	127													
24 Feb	S09W52	127													
25 Feb	S09W65	127									1				
26 Feb	S09W78	127													
								2	0	0	3	1	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 129

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 9830												
14 Feb	S22E73	134	0030	01	Hrx	001	A								
15 Feb	S21E58	136	0050	10	Dso	011	B								
16 Feb	S20E44	137	0210	17	Fai	021	B				1				
17 Feb	S18E32	135	0360	18	Fai	028	Bg	3			8				
18 Feb	S18E20	134	0480	20	Fki	043	Bg		1		3				
19 Feb	S20E07	134	0610	19	Fkc	046	Bgd				5				
20 Feb	S20W07	135	0530	22	Fkc	049	Bgd	2	1		4	2			
21 Feb	S19W22	137	0530	20	Fki	029	Bgd	1	1		1		1		
22 Feb	S19W34	136	0440	20	Fki	032	Bgd	1			4				
23 Feb	S19W49	137	0480	16	Fai	034	Bgd	4			5				
24 Feb	S17W64	139	0650	17	Fkc	020	Bgd	3			3				
25 Feb	S18W79	141	0310	15	Eai	015	Bg	5			7				
26 Feb	S17W92	141	0170	12	Eao	004	Bg	1			1				
								20	3	0	42	2	1	0	0

Crossed West Limb.
Absolute heliographic longitude: 134

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 9834												
19 Feb	N03E55	086	0010	02	Bxo	002	B								
20 Feb	N03E42	086													
21 Feb	N03E27	088	0010	00	Hsx	001	A								
22 Feb	N03E13	089	0010	00	Hsx	002	A								
23 Feb	N03E00	089													
24 Feb	N03W13	089													
25 Feb	N03W26	089													
26 Feb	N03W39	089													
								0	0	0	0	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 089

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 9837												
20 Feb	N07E69	059	0060	03	Hsx	001	A								
21 Feb	N08E57	058	0140	03	Hax	001	A								
22 Feb	N09E44	058	0120	04	Cao	006	B	1			2				
23 Feb	N09E32	056	0080	04	Dao	008	B								
24 Feb	N10E18	057	0080	05	Dao	008	B								
25 Feb	N09E03	059	0040	03	Dao	006	B								
26 Feb	N09W09	058	0020	04	Dso	004	B	1			1				
27 Feb	N10W23	059	0000	01	Axx	002	A								
28 Feb	N10W31	053	0010	02	Axx	002	A								
01 Mar	N10W44	053													
02 Mar	N10W57	053													
03 Mar	N10W70	053													
								2	0	0	3	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 059

			Region 9838												
21 Feb	N05W18	133	0020	03	Cro	004	B								
22 Feb	N05W31	133	0020	04	Cso	004	B								
23 Feb	N05W45	133	0030	05	Cro	005	B								
24 Feb	N06W58	133													
25 Feb	N06W71	133													
								0	0	0	0	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 133

			Region 9839												
21 Feb	S16E06	109	0010	01	Bxo	003	B								
22 Feb	S17W06	108	0000	00	Axx	001	A								
23 Feb	S18W20	108	0030	04	Cso	006	B	1			2				
24 Feb	S17W35	110	0080	06	Dai	014	B				1				
25 Feb	S17W48	110	0130	09	Dai	016	B								
26 Feb	S17W62	111	0170	09	Dai	016	B	1			2				
27 Feb	S18W75	111	0250	11	Eao	011	B	2	1		5				
28 Feb	S18W84	106	0100	09	Dao	005	B								
01 Mar	S18W97	106													
								4	1	0	10	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 109

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 9840												
21 Feb	S12E72	043	0020	02	Axx	002	A								
22 Feb	S12E58	044	0020	04	Cso	002	B								
23 Feb	S11E46	042	0040	03	Cso	002	B								
24 Feb	S11E33	042	0020	01	Hsx	001	A								
25 Feb	S11E20	042	0010	01	Hsx	002	A								
26 Feb	S11E07	042													
27 Feb	S11W06	042													
28 Feb	S11W19	042													
01 Mar	S11W32	042													
02 Mar	S14W52	048	0000	01	Axx	001	A								
03 Mar	S16W64	047	0010	04	Bxo	004	B								
								0	0	0	0	0	0	0	0
Still on Disk.															
Absolute heliographic longitude: 042															
			Region 9841												
22 Feb	S21W20	122	0060	05	Dao	006	B								
23 Feb	S20W33	121	0070	05	Dao	009	B	1			2				
24 Feb	S20W47	122	0070	07	Dao	007	B	1			1				
25 Feb	S21W60	122	0030	08	Dso	005	B								
26 Feb	S22W70	119	0020	01	Hsx	001	A								
27 Feb	S22W83	119													
								2	0	0	3	0	0	0	0
Crossed West Limb.															
Absolute heliographic longitude: 122															
			Region 9842												
22 Feb	S18E03	099	0010	02	Axx	002	A								
23 Feb	S18W11	099	0010	01	Hrx	002	A								
24 Feb	S19W23	098	0020	03	Cso	005	B								
25 Feb	S19W36	098	0090	07	Dao	016	B								
26 Feb	S19W49	098	0240	08	Dko	013	B				1				
27 Feb	S19W63	099	0210	09	Dao	006	B								
28 Feb	S18W73	095	0130	09	Dao	004	B								
01 Mar	S19W87	096	0090	08	Dao	004	B								
								0	0	0	1	0	0	0	0
Crossed West Limb.															
Absolute heliographic longitude: 099															

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 9843												
22 Feb	S26E58	044	0020	02	Axx	003	A								
23 Feb	S26E46	042	0050	04	Cao	004	B								
24 Feb	S25E33	042	0020	06	Cro	002	B								
25 Feb	S26E18	044	0020	04	Cso	004	B								
26 Feb	S26E06	043	0030	05	Cso	007	B								
27 Feb	S26W08	044	0020	06	Dso	010	B								
28 Feb	S26W20	042	0060	08	Dso	012	B								
01 Mar	S26W33	042	0110	09	Dao	011	B								
02 Mar	S26W47	043	0100	09	Dao	012	B								
03 Mar	S25W60	043	0050	09	Dao	007	B								
								0	0	0	0	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 043

			Region 9844												
23 Feb	N22E33	055	0040	06	Cso	004	B								
24 Feb	N22E18	057	0100	07	Dso	010	B	2			6				
25 Feb	N22E05	057	0130	09	Dai	018	B				2				
26 Feb	N22W08	057	0120	08	Dai	020	B								
27 Feb	N22W21	057	0190	09	Dai	022	B				2				
28 Feb	N22W34	056	0230	10	Dai	024	B	1			3				
01 Mar	N22W48	057	0160	10	Dai	012	B								
02 Mar	N22W61	057	0130	10	Dao	010	B	1			1				
03 Mar	N23W76	059	0100	06	Cao	005	B								
								4	0	0	14	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 057

			Region 9845												
23 Feb	N15E71	017	0080	02	Hax	002	A								
24 Feb	N15E58	017	0060	01	Hax	002	A				1				
25 Feb	N17E47	015	0080	07	Dao	004	B								
26 Feb	N17E35	014	0130	10	Dao	011	B	1			2				
27 Feb	N17E21	015	0160	11	Eai	022	B				1				
28 Feb	N18E08	014	0320	13	Eai	025	B								
01 Mar	N17W04	013	0390	13	Eki	020	B				1				
02 Mar	N18W18	014	0370	14	Eki	024	Bg	2			2				
03 Mar	N18W33	016	0390	16	Fki	026	Bg								
								3	0	0	7	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 013

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 9846												
24 Feb	S04W37	112	0020	05	Dao	005	B								
25 Feb	S04W53	115	0090	08	Dao	010	B	6			19				
26 Feb	S03W68	117	0180	09	Dao	008	B								
27 Feb	S03W82	118	0180	11	Eao	003	B								
28 Feb	S05W91	113	0030	06	Dao	003	B								
								6	0	0	19	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 112

			Region 9847												
24 Feb	S14E50	025	0050	04	Cso	007	B								
25 Feb	S14E37	025	0060	07	Dao	006	B								
26 Feb	S14E24	025	0040	06	Cso	008	B								
27 Feb	S14E10	026	0010	04	Bxo	004	B								
28 Feb	S13W01	023	0010	01	Axx	002	A								
01 Mar	S14W15	024	0010	04	Bxo	004	B								
02 Mar	S13W30	026	0000	00	Axx	001	A	1			2				
03 Mar	S13W43	026													
								1	0	0	2	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 023

			Region 9848												
25 Feb	S20E33	029	0020	04	Cso	004	B								
26 Feb	S20E20	029	0060	05	Dso	010	B								
27 Feb	S20E05	031	0050	05	Dao	008	B								
28 Feb	S20W07	029	0050	06	Dso	008	B	1			2				
01 Mar	S20W21	030	0030	07	Cao	004	B	1			1				
02 Mar	S19W34	030	0020	07	Bxo	005	B								
03 Mar	S19W45	028	0000	01	Axx	001	A								
								2	0	0	3	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 031

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 9849												
25 Feb	N23E69	353	0000	00	Axx	001	A								
26 Feb	N23E55	354	0000	00	Axx	001	A								
27 Feb	N23E42	354													
28 Feb	N23E29	354													
01 Mar	N23E16	354													
02 Mar	N23E03	354													
								0	0	0	0	0	0	0	0
Still on Disk.															
Absolute heliographic longitude:		354													
			Region 9850												
27 Feb	N27W51	087	0030	03	Cao	004	B								
28 Feb	N27W64	086	0030	03	Cro	003	B								
01 Mar	N26W74	083	0010	02	Axx	002	A								
02 Mar	N26W87	083													
								0	0	0	0	0	0	0	0
Crossed West Limb.															
Absolute heliographic longitude:		087													
			Region 9851												
01 Mar	S07E56	313	0050	06	Dso	005	B	2			2				
02 Mar	S05E42	314	0040	08	Dso	008	B								
03 Mar	S06E29	314	0040	08	Cao	007	B								
								2	0	0	2	0	0	0	0
Still on Disk.															
Absolute heliographic longitude:		314													
			Region 9852												
01 Mar	N16E66	303	0010	01	Axx	001	A								
02 Mar	N15E52	304	0000	00	Axx	001	A								
03 Mar	N15E39	304													
								0	0	0	0	0	0	0	0
Still on Disk.															
Absolute heliographic longitude:		304													
			Region 9853												
02 Mar	S24E69	287	0010	01	Hrx	001	A								
03 Mar	S23E54	289	0050	02	Hax	003	A								
								0	0	0	0	0	0	0	0
Still on Disk.															
Absolute heliographic longitude:		289													

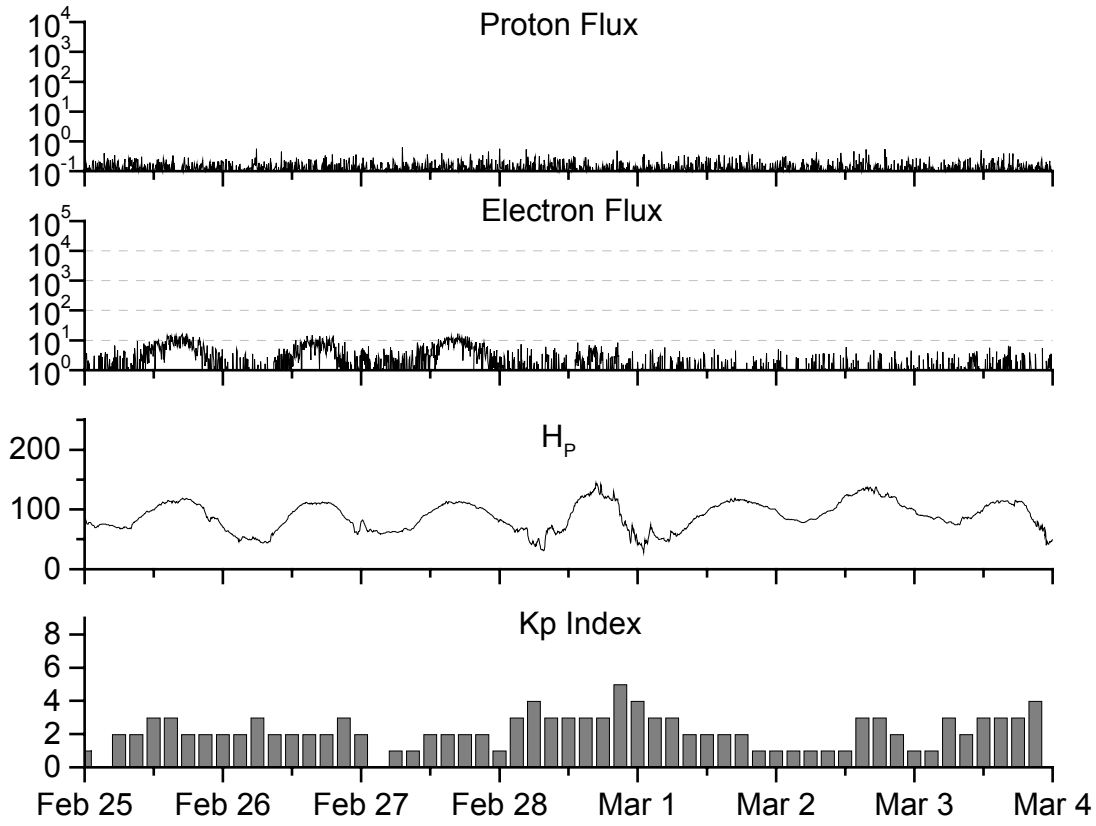
Region Summary - continued.

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 9854												
03 Mar	N11W09	352	0020	03	Cso	008	B	0	0	0	0	0	0	0	0
Still on Disk.															
Absolute heliographic longitude:		352													
			Region 9855												
03 Mar	N12E24	319	0020	03	Cao	007	B	0	0	0	0	0	0	0	0
Still on Disk.															
Absolute heliographic longitude:		319													
			Region 9856												
03 Mar	S06E74	269	0110	02	Hax	001	A	0	0	0	0	0	0	0	0
Still on Disk.															
Absolute heliographic longitude:		269													

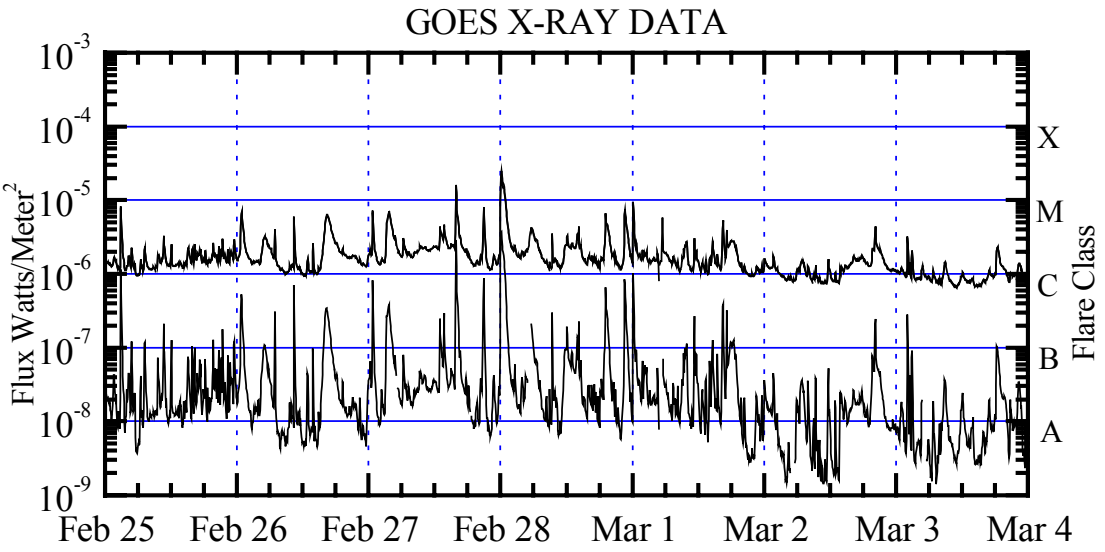
Recent Solar Indices (preliminary)
of the observed monthly mean values

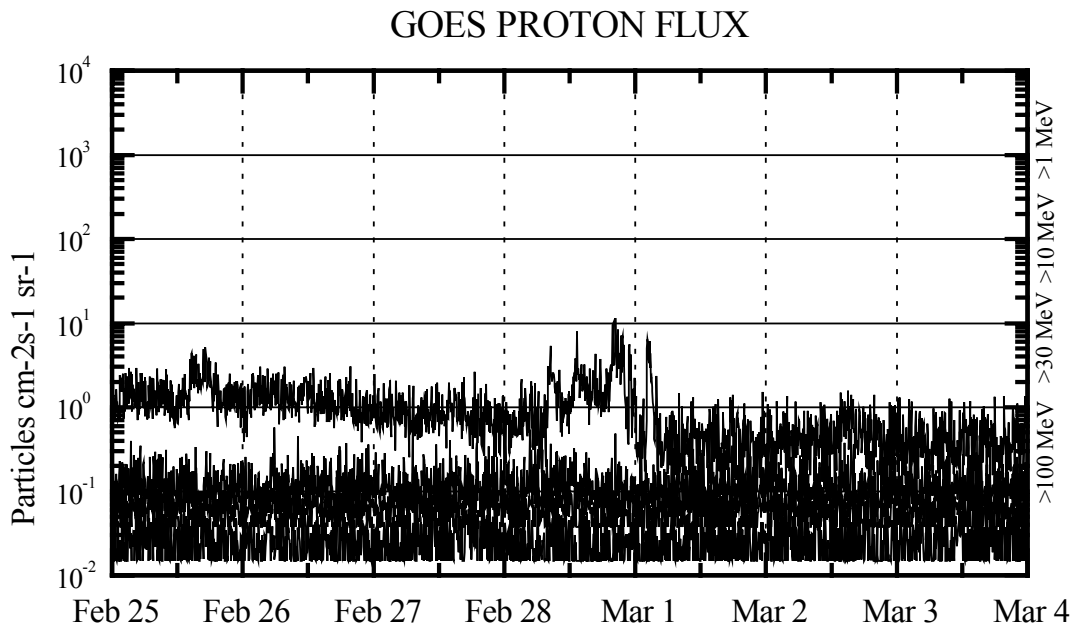
	Sunspot Numbers					Radio Flux		Geomagnetic	
	Observed values		Ratio	Smooth values		*Penticton	Smooth	Planetary	Smooth
Month	SWO	RI	RI/SWO	SWO	RI	10.7 cm	Value	Ap	Value
					2000				
February	161.9	112.9	0.70	172.1	116.7	173.2	176.8	15	15.0
March	203.6	138.5	0.68	175.4	119.9	208.2	178.4	09	15.0
April	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	162.7	112.7	178.8	173.6	17	14.6
December	146.4	104.5	0.71	160.8	112.1	173.6	172.0	08	14.4
					2001				
January	142.7	95.1	0.67	156.3	108.8	166.7	168.8	08	13.8
February	131.0	80.1	0.61	151.4	104.2	147.3	165.8	06	13.3
March	166.7	114.2	0.69	154.0	104.9	177.7	167.9	17	12.9
April	163.6	108.2	0.66	159.4	107.7	178.3	171.7	18	12.7
May	135.1	97.3	0.72	163.1	108.8	148.7	174.8	12	12.5
June	196.7	134.0	0.68	167.2	109.9	173.7	178.8	12	12.4
July	124.6	82.2	0.66	172.1	111.8	131.3	183.9	11	12.4
August	159.4	106.8	0.67	176.7	113.8	163.2	188.8	13	12.5
September	229.1	150.7	0.66			233.3		12	
October	197.4	125.6	0.64			208.2		18	
November	178.6	106.5	0.60			212.5		14	
December	217.5	131.8	0.61			236.6		08	
					2002				
January	189.0	113.9	0.60			226.4		07	
February	194.5	108.0	0.56			205.1		09	

NOTE: All smoothed values after June 1999 and monthly values after December 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 25 February 2002
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 Air Force Weather Agency) 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.

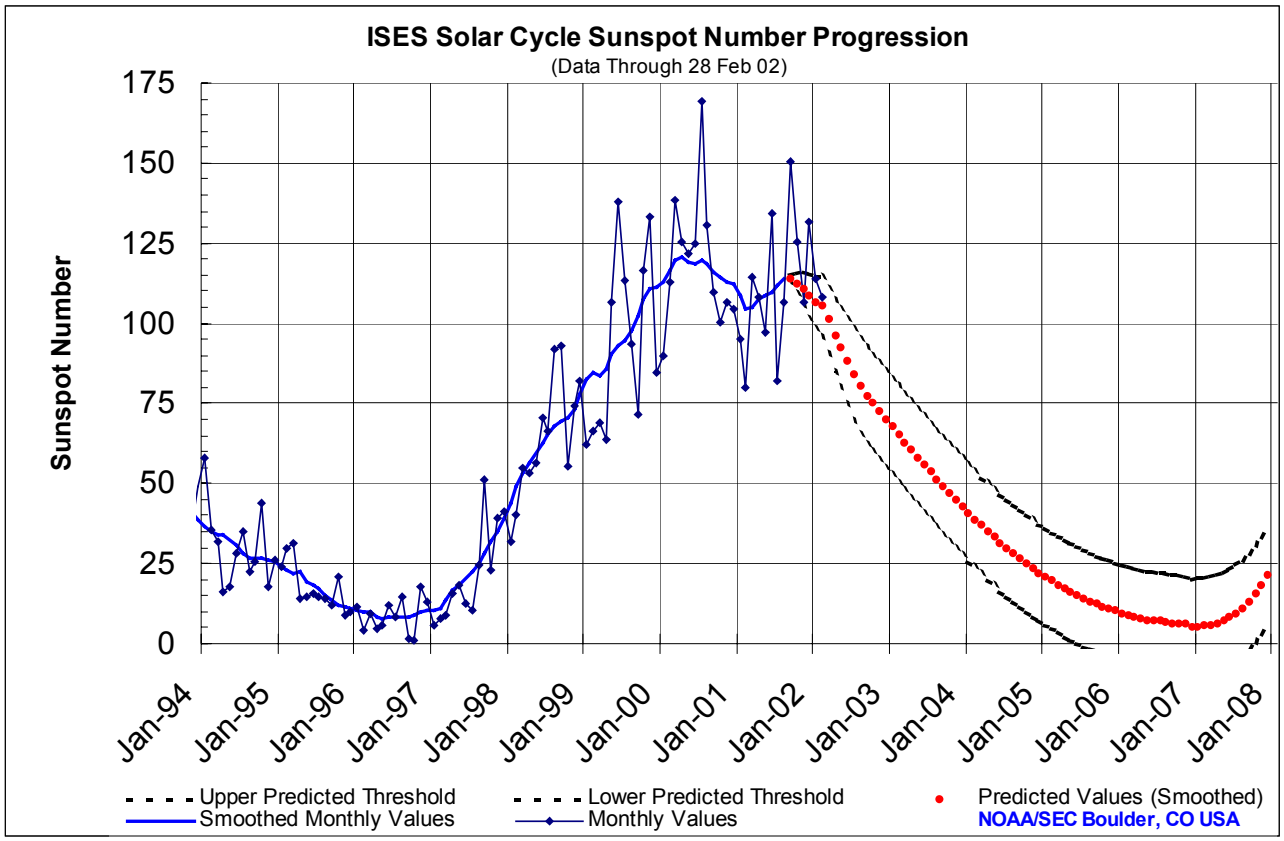




W*eekly GOES Satellite X-ray and Proton Plots*

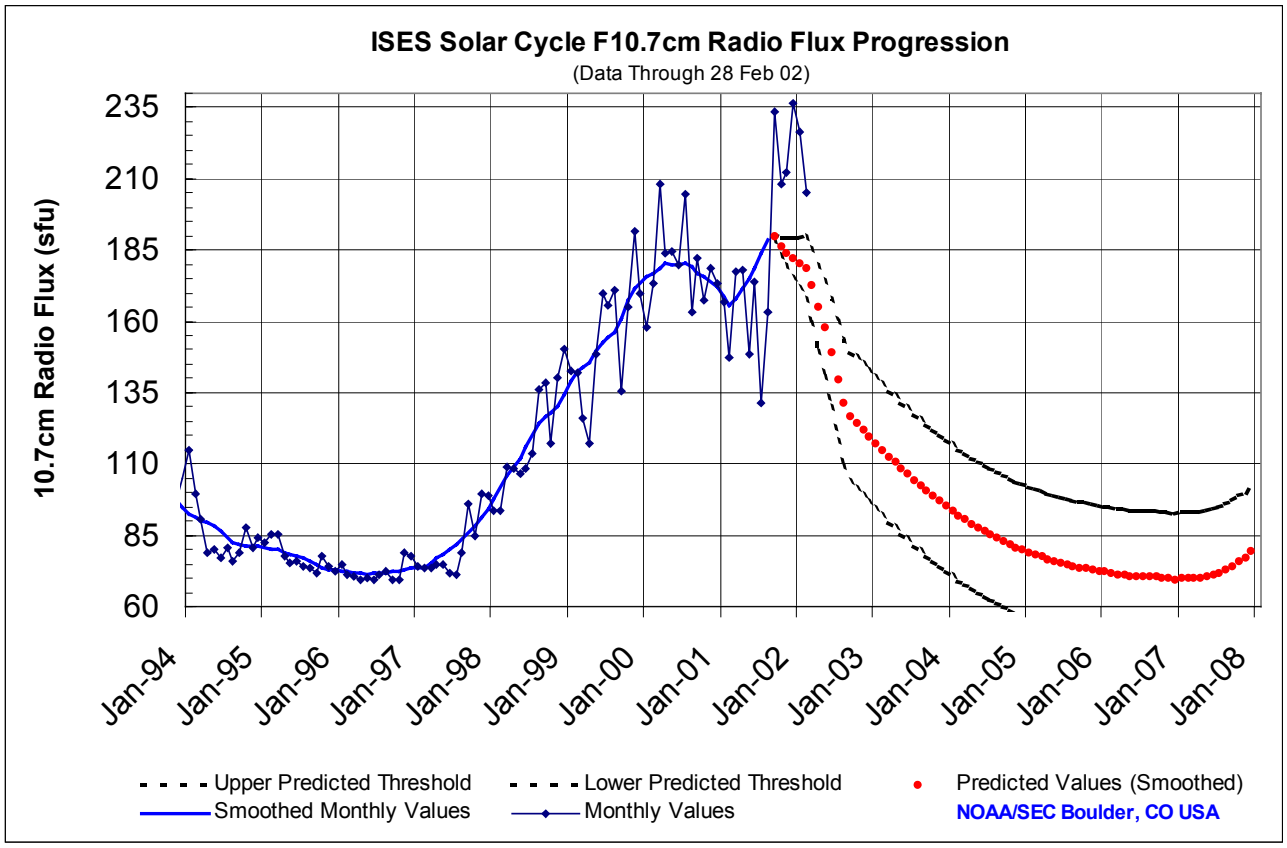
X-ray plot contains five-minute averaged x-ray flux (watts/m$^{2)}$ as measured by GOES 8 and 10 in two wavelength bands, .05 -. 4 and .1 - .8 nm. The letters A, B, C, M and X refer to x-ray event levels for the .1 - .8 nm band.

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.



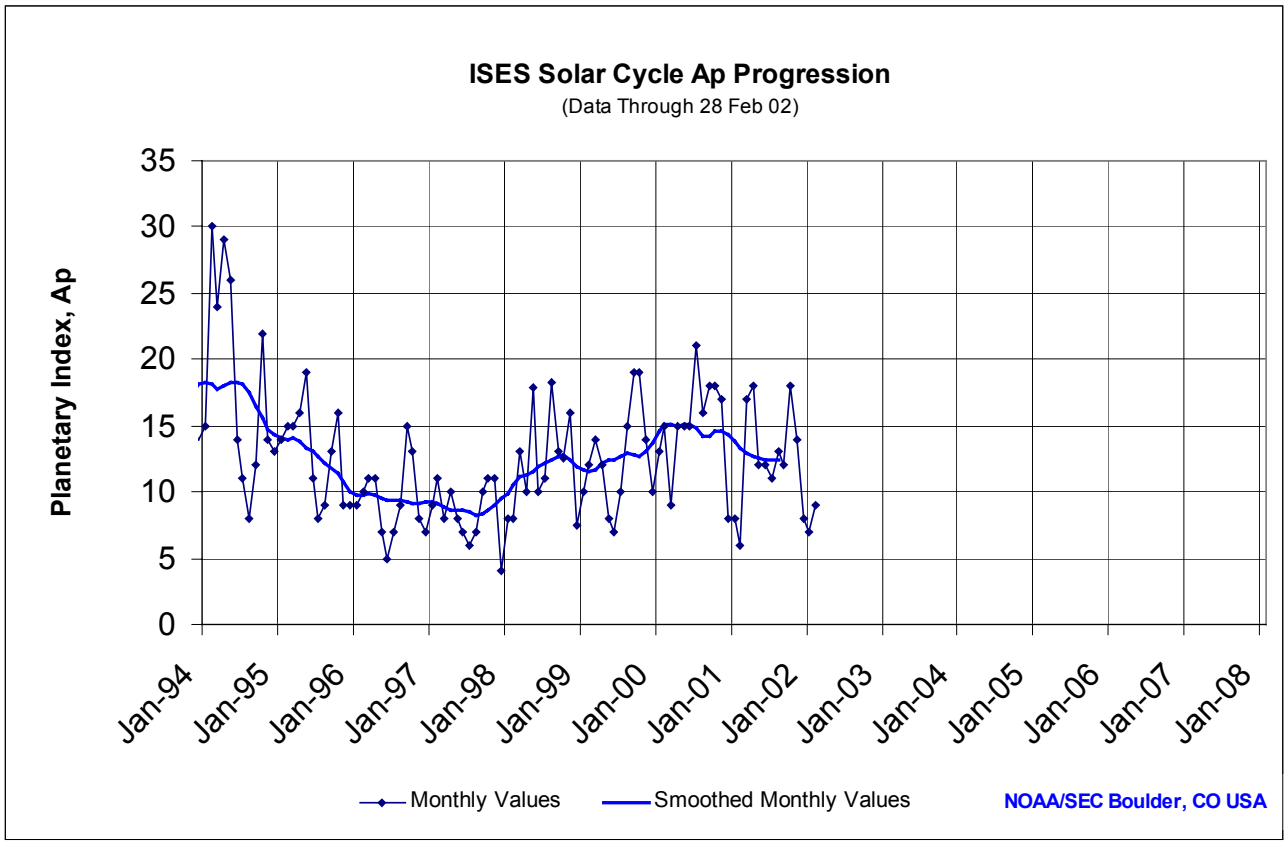
SEC Prediction of Smoothed Sunspot Number

	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	113	112
	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)
2001	109	104	105	108	109	110	112	114	**114**	**112**	**111**	**109**
	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(1)	(3)	(5)	(7)
2002	**106**	**105**	**101**	**96**	**92**	**89**	**84**	**80**	**77**	**75**	**73**	**70**
	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(15)	(15)	(15)	(15)
2003	**68**	**65**	**63**	**61**	**58**	**56**	**54**	**51**	**49**	**47**	**45**	**43**
	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)
2004	**41**	**39**	**37**	**35**	**33**	**31**	**30**	**28**	**27**	**25**	**24**	**22**
	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)
2005	**21**	**20**	**18**	**17**	**16**	**15**	**14**	**13**	**12**	**12**	**11**	**10**
	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)
2006	**10**	**9**	**8**	**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	174	172
	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)
2001	169	166	168	172	175	179	184	189	**190**	**186**	**184**	**182**
	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(1)	(3)	(5)	(7)
2002	**180**	**179**	**173**	**165**	**158**	**149**	**140**	**131**	**126**	**124**	**122**	**120**
	(9)	(11)	(13)	(15)	(17)	(19)	(21)	(22)	(23)	(23)	(23)	(23)
2003	**117**	**115**	**113**	**111**	**109**	**107**	**104**	**103**	**101**	**99**	**97**	**95**
	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)
2004	**94**	**92**	**91**	**89**	**88**	**87**	**85**	**84**	**83**	**82**	**81**	**80**
	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)
2005	**79**	**78**	**78**	**77**	**76**	**75**	**75**	**74**	**74**	**73**	**73**	**73**
	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)
2006	**72**	**72**	**71**	**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 28 Feb 02)
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