Space Weather Highlights
07-13 Feb 2000

Solar activity ranged from low to moderate levels. Region 8858 (N26, L = 200, class/area Eai/170 on 05 February), a small mixed-polarity group, gradually decayed throughout the period, but managed to produce two M-class flares. The first was an M1/1B parallel-ribbon flare at 09/0900UT with an associated Type II radio sweep and a full-halo coronal mass ejection (CME). The second was an M1/1N at 12/0410UT associated with Types II and IV radio sweeps, and a 200 SFU Tenflare. Region 8858 also produced a long-duration C7/1N flare at 10/0208UT accompanied by a 240 SFU Tenflare, Type II radio sweep, and a full-halo CME. Region 8853 (S13, L = 241, class/area Bxo/020 on 06 February) produced a long-duration C7/2F flare at 09/2006UT which was followed by a full-halo CME. Region 8853 was a decaying plage area at the time of this flare. A partial-halo CME was observed on 11 February following a C2 at 11/1234UT from Region 8856 (S14, L = 207, class/area Eso/190 on 05 February).

Real-time solar wind data were available from the NASA Advanced Composition Explorer (ACE) spacecraft for most of the period. A coronal hole signature was evident on 07 - 08 February with elevated velocities (peak 700 km/sec on 07 February) and low proton densities. Nominal solar wind characteristics were observed during 09 - 10 February. Two CME-related shock fronts passed the ACE spacecraft on 11 February. The first shock occurred at 11/0214UT accompanied by abrupt increases in solar wind velocities and densities (peaks to 580 km/sec and 14 p/cc, respectively), and a brief southward turning of IMF Bz with maximum deflections to minus 07 nT (GSM). The second shock front passed the spacecraft at 11/2319UT accompanied by sudden increases in velocity (peak 640 km/sec) and density (30 p/cc), and periods of southward IMF Bz with a maximum deflection to minus 18 nT (GSM).

There was a greater than 10 MeV proton enhancement at geosynchronous orbit on 12 February. Proton fluxes were at background levels during the rest of the period.

The greater than 2 MeV electron flux at geosynchronous orbit was at moderate to high levels during 07 - 11 February, then dropped to mostly normal levels for the remainder of the period.
The geomagnetic field was disturbed during 07 February due to recurrent coronal hole effects with unsettled to active levels at middle latitudes and unsettled to major storm levels at high latitudes. Field activity declined to mostly quiet to unsettled levels during 08 - 10 February. Activity increased to unsettled to active levels on 11 February following a 23 nT sudden impulse (SI) at 11/0301UT (as measured by the Boulder USGS magnetometer). A major geomagnetic storm occurred on 12 February following a sudden storm commencement (SSC) at 11/2353UT (19 nT) with active to severe storm levels detected globally. Activity decreased to quiet to minor storm levels on 13 February as the storm ended. The 11 - 12 February disturbances were due to CME passages at Earth.

Space Weather Outlook
16 Feb - 13 Mar 2000

Solar activity is expected to range from low to moderate levels during the period. Occasional C-class flares are likely throughout the period. Isolated M-class flares will be possible beginning 01 March with the return of previously active longitudes.

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 flux levels are expected during 25 - 28 February and 05 - 08 March.

Geomagnetic field activity is expected to be at mostly quiet to unsettled levels during most of the period. However, active to minor storm levels are expected during 24 - 25 February and 04 - 05 March due to recurrent coronal hole effects.

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
07 February	182	169	710	B7.5	5	0	0	15	1	0	0	0
08 February	174	198	770	B7.5	6	1	0	11	1	0	0	0
09 February	199	189	740	B7.1	7	0	0	11	0	1	0	0
10 February	176	172	730	C1.3	5	0	0	2	1	0	0	0
11 February	170	184	790	B7.3	2	0	0	6	0	0	0	0
12 February	163	157	540	C1.3	1	1	0	0	1	0	0	0
13 February	160	147	520	B5.3	2	0	0	4	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
07 February	1.5E+6	1.2E+4	2.5E+3		4.2E+7	
08 February	4.5E+5	1.2E+4	2.7E+3		1.5E+8	
09 February	2.9E+5	1.2E+4	2.7E+3		1.6E+8	
10 February	2.6E+5	1.3E+4	2.7E+3		8.4E+7	
11 February	5.7E+6	1.7E+4	2.4E+3		4.7E+7	
12 February	9.7E+6	5.2E+4	2.1E+3		1.5E+6	
13 February	1.7E+6	2.1E+4	2.0E+3		5.2E+6	

Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg A	K-indices	High Latitude College A	K-indices	Estimated Planetary A	K-indices
07 February	19	4-3-3-3-3-2-4-4	38	3-3-4-6-6-5-4-3	25	4-3-3-4-5-4-4-3
08 February	10	3-3-1-3-2-3-2-2	*	3-2-*-*-*-*-*-*	12	3-3-1-3-2-3-3-3
09 February	6	1-2-2-1-2-3-1-1	21	1-2-3-1-6-5-2-1	11	1-3-2-1-4-4-3-2
10 February	10	2-2-3-1-1-4-2-2	7	2-1-3-2-2-2-1-2	7	2-2-2-1-2-2-2-3
11 February	10	2-4-2-2-2-1-1-3	20	2-4-1-4-4-4-3-4	13	3-4-2-3-3-3-3-3
12 February	35	5-4-5-6-5-3-2-2	71	4-4-5-8-7-5-4-2	52	5-4-5-7-6-5-4-2
13 February	13	3-2-2-3-3-4-2-2	22	3-1-3-4-5-5-3-2	14	3-2-3-4-3-4-3-3

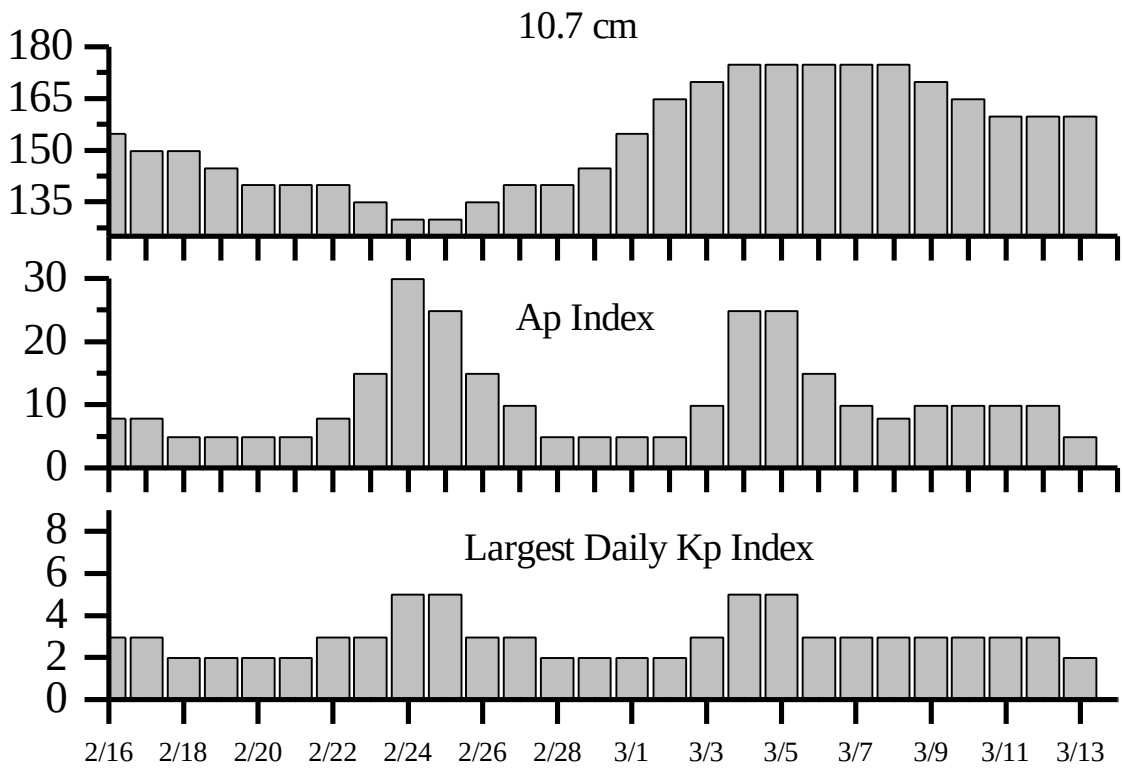
Alerts and Warnings Issued

Date & Time of Issue (UT)	Type of Alert or Warning	Date & Time of Event (UT)
07 Feb 0117	1- 245 MHz Radio Burst	06 Feb
07 Feb 1205	Stratwarm Alert Exists	07 Feb
07 Feb 1442	>2MeV Electron Event @≥1000pfu BEG	07 Feb 1425
07 Feb 1457	K= 4 Warning valid	07 Feb 1500 - 08 Feb 1500
08 Feb 0136	>2MeV Electron Event @≥1000pfu CONTINUED	07 Feb 1425
08 Feb 0300	A ≥20 ENDED	06 Feb 1200
08 Feb 0943	Type II Radio Emission	08 Feb 0857
08 Feb 1303	Stratwarm Alert Exists	08 Feb
09 Feb 0011	>2MeV Electron Event @≥1000pfu CONTINUED	07 Feb 1425
09 Feb 0028	2- 245 MHz Radio Bursts	08 Feb
09 Feb 1147	Stratwarm Alert Exists	09 Feb
09 Feb 1800	K= 4 Observed	09 Feb 15 - 18
10 Feb 0011	>2MeV Electron Event @≥1000pfu CONTINUED	07 Feb 1425
10 Feb 0021	1- 245 MHz Radio Burst	09 Feb
10 Feb 0021	1- 245 MHz Radio Noise Storm	09 Feb
10 Feb 0254	Type II Radio Emission	10 Feb 0148
10 Feb 1257	Stratwarm Alert Exists	10 Feb
10 Feb 2132	10cm Radio Burst 240 F.U. Duration 24 Mins	10 Feb 0144
11 Feb 0011	1- 245 MHz Radio Burst	10 Feb
11 Feb 0016	>2MeV Electron Event @≥1000pfu CONTINUED	07 Feb 1425
11 Feb 0317	Sudden Impulse Observed at Boulder 23 nT	11 Feb 0301
11 Feb 0506	K= 4 Warning valid	11 Feb 0515 - 1500
11 Feb 0600	K= 4 Observed	11 Feb 03 - 06
11 Feb 1218	Stratwarm Alert Exists	11 Feb
11 Feb 2332	K= 5 Warning valid	12 Feb 0000 - 1500
12 Feb 0008	Sudden Impulse Observed at Boulder 19 nT	11 Feb 2353
12 Feb 0122	>2MeV Electron Event @≥1000pfu CONTINUED	07 Feb 1425
12 Feb 0302	K= 5 Observed	12 Feb 00 - 03
12 Feb 0446	10cm Radio Burst 200 F.U. Duration 10 Mins	12 Feb 0444
12 Feb 0515	Type II Radio Emission	12 Feb 0406
12 Feb 0515	Type IV Radio Emission	12 Feb 0412
12 Feb 0612	A≥20 Observed	12 Feb 0600
12 Feb 0859	K= 6 Observed	12 Feb 06 - 09
12 Feb 0902	K= 6 Warning valid	12 Feb 0900 - 1500
12 Feb 0917	A≥30 Warning valid	12 Feb 1200 - 13 Feb 0000
12 Feb 1148	A≥30 Observed	12 Feb 1200
12 Feb 1201	K=7 Observed	12 Feb 09 - 12
12 Feb 1348	Stratwarm Alert Exists	12 Feb
12 Feb 1552	A≥50 Warning valid	12 Feb 1546 - 1800
12 Feb 1617	K= 5 Warning valid	12 Feb 1600 - 13 Feb 1500
12 Feb 1800	A≥50 Observed	12 Feb 1800
12 Feb 2009	A≥20 Watch	14 Feb

Alerts and Warnings Issued

Date & Time of Issue (UT)	Type of Alert or Warning	Date & Time of Event (UT)
12 Feb 2009	A≥30 Watch	13 Feb
13 Feb 0038	1- 245 MHz Radio Burst	12 Feb
13 Feb 0103	>2MeV Electron Event @≥1000pfu ENDED	07 Feb 1425
13 Feb 0305	A≥50 ENDED	12 Feb 1800
13 Feb 1156	A≥30 Warning CANCELLED	12 Feb 1200 - 13 Feb 0000
13 Feb 1212	A≥30 ENDED	12 Feb 1200
13 Feb 1349	Stratwarm Alert Exists	13 Feb
13 Feb 1509	A≥20 ENDED	12 Feb 0600
13 Feb 2027	A≥20 Watch CANCELLED	14 Feb

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
16 Feb	155	8	3	01 Mar	155	5	2
17	150	8	3	02	165	5	2
18	150	5	2	03	170	10	3
19	145	5	2	04	175	25	5
20	140	5	2	05	175	25	5
21	140	5	2	06	175	15	3
22	140	8	3	07	175	10	3
23	135	15	3	08	175	8	3
24	130	30	5	09	170	10	3
25	130	25	5	10	165	10	3
26	135	15	3	11	160	10	3
27	140	10	3	12	160	10	3
28	140	5	2	13	160	5	2
29	145	5	2				

Energetic Events

Date	Time (UT)			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
08 Feb	0842	0900	0918	M1.3	.018	1B	N25E26	8858	1500	110	3	
12 Feb	0351	0410	0431	M1.7	.029	1N	N26W23	8858	340	200	1	3

Flare List

Date	Time Begin	Time Max	Time End	X-ray Class.	Optical Imp / Brtns	Optical Location Lat CMD	Optical Rgn #
07 February	0133	0136	0140		SF	N25E37	8858
	0416	0420	0459		SF	N25E35	8858
	0633	0635	0639		SF	N27E36	8858
	0942	0950	0957		SF	N27W54	8851
	1534	1542	1551		SF	N05W38	8861
	1552	1554	1556		SF	N06W37	8861
	1633	1637	1728	C4.4	SF	N06W38	8861
	1719	1729	1745		SF	N20W58	8851
	1814	1831	1842	C2.5	SF	N07W39	8861
	2002	2006	2009	C1.3			
	2309	2309	2319		SF	N27W61	8851
	2314	2317	2320		SF	N25E25	8858
	2315	2315	2317		SF	N07W40	8861
	2315	2316	2318		SF	S34E12	8854
	2320	2330	0008	C4.3	1F	N07W40	8861
	2324	2327	2328		SF	S15E22	8856
	2325	2326	2328		SF	S34E12	8854
08 February	0045	0047	0101	C1.1	SF	N07W41	8861
	0122	0126	0141		SF	N25E24	8858
	0145	0203	0223	C1.4	SF	N07W41	8861
	0232	0233	0237		SF	N25E23	8858
	0232	0234	0249		SF	N07W42	8861
	0300	0301	0311		SF	N07W42	8861
	0347	0349	0352		SF	N25E23	8858
	0444	0446	0448		SF	N25E22	8858
	0524	0526	0533	C1.6	SF	S17E23	8856
	0843	0856	0959	M1.3	1B	N25E26	8858
	1213	1216	1221	C1.9			
	1232	1235	1243	C3.3	SF	N27E21	8858
	1507	1509	1546		SF	N05W51	8861
	1727	1747	1803	C1.5			

Flare List-continued

Date	Time			X-ray	Optical		
	Begin	Max	End	Class.	Imp / Brtns	Location Lat CMD	Rgn #
09 February	0014	0015	0027		SF	N25E12	8858
	0044	0052	0136	C6.6	SN	N30E16	8858
	0114	0118	0122	C5.2			
	0217	0218	0227	C1.2	SF	N07W56	8861
	0323	0323	0328		SF	S16W66	8857
	0357	0405	0412		SF	N07W59	8861
	0400	0422	0432		SF	N27W76	8851
	0456	0458	0511		SF	N20W37	8860
	0607	0607	0618		SF	S25E43	
	1551	1551	1556	C1.7	SF	N05W65	8861
	1657	1703	1708	C2.3			
	1711	1715	1719	C1.6			
	1926	1939	2143	C7.4	2F	S17W40	8853
	2324	2335	2340		SF	N44W28	8864
	2342	2358	0028	C2.7	SF	S21E32	8868
10 February	0020	0153	0324	C7.3	1N	N31E04	8858
	0046	0109	0128	C2.3	SF	S25E32	8868
	0945	0946	0953		SF	N08W75	8861
	2034	2037	2041	C1.3			
	2213	2228	2247	C2.1			
11 February	0000	0000	0007		SF	S25E59	8869
	1225	1234	1244	C2.3			
	1457	1459	1507	C1.8	SF	N24W18	8858
	1719	1722	1738		SF	S15E37	8863
	1934	1935	1939		SF	N24W21	8858
	1946	1947	1950		SF	N24W20	8858
	1955	1956	1959		SF	N24W21	8858
12 February	0410	0415	0505	M1.7	1N	N26W23	8858
	0650	0702	0728	C1.9			
13 February	0306	0313	0326		SF	S24E47	8869
	0327	0328	0335		SF	S25E44	8869
	0537	0537	0552	C1.1	SF	N30W39	8858
	2054	2055	2059	B7.6	SF	S15W35	8871
	2115	2334	0115	C1.1			

Region Summary

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 8848												
26 Jan	S07E78	307	0010	00	AXX	001	A								
27 Jan	S08E66	306	0030	06	CAO	003	B				2				
28 Jan	S09E54	305	0080	08	CAO	005	B	1			3				
29 Jan	S09E41	305	0100	08	CSO	006	B								
30 Jan	S09E27	306	0070	08	CSO	005	B	1			1				
31 Jan	S09E13	306	0070	05	CSO	004	B								
01 Feb	S09W01	307	0080	06	CSO	005	B				1				
02 Feb	S08W16	310	0070	03	CSO	003	B								
03 Feb	S08W29	309	0090	04	CSO	006	B				1				
04 Feb	S08W43	310	0050	02	HSX	001	A								
05 Feb	S08W56	309	0080	02	HSX	002	A								
06 Feb	S08W70	310	0090	04	CSO	004	B								
07 Feb	S10W83	310	0010	00	BXO	002	B								
								2	0	0	8	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 307

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 8850												
30 Jan	S18E25	308	0010	02	BXO	002	B								
31 Jan	S17E11	308	0010	03	BXO	002	B								
01 Feb	S17W02	308													
04 Feb	S17W41	308													
05 Feb	S17W54	308													
06 Feb	S17W67	308													
07 Feb	S17W80	308													
								0	0	0	0	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 308

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 8851												
30 Jan	N27E42	291	0020	05	BXO	003	B								
31 Jan	N27E29	290	0070	07	DAO	006	B	1			1				
01 Feb	N27E16	290	0130	09	DAO	014	B								
02 Feb	N26E03	291	0110	10	DSO	018	B								
03 Feb	N26W10	290	0120	10	DSO	019	B								
04 Feb	N25W22	289	0150	10	DSO	019	B	2			4				
05 Feb	N25W35	288	0130	11	ESO	020	B	1			3				
06 Feb	N24W48	288	0080	10	DSO	012	B	2			5				
07 Feb	N23W61	288	0070	08	DAO	009	B				3				
08 Feb	N20W74	288	0020	06	BXO	005	B								
09 Feb	N24W85	286	0010	06	BXO	002	B				1				
								6	0	0	17	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 291

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 8852												
31 Jan	N10E14	305	0020	05	CRO	005	B								
01 Feb	N10E00	306	0030	07	CRO	010	B								
02 Feb	N10W12	306	0010	05	BXO	005	B								
03 Feb	N10W25	306													
04 Feb	N10W38	306													
05 Feb	N10W51	306													
06 Feb	N10W64	306													
07 Feb	N10W77	306													
								0	0	0	0	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 306

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 8853												
01 Feb	S10E64	242	0000	00	AXX	001	A								
02 Feb	S10E52	242	0010	02	AXX	002	A								
03 Feb	S11E41	239	0020	02	BXO	003	B								
04 Feb	S12E29	238	0010	02	AXX	003	A								
05 Feb	S13E14	239	0010	03	BXO	002	B								
06 Feb	S13W01	241	0020	03	BXO	005	B								
07 Feb	S15W15	242	0020	02	DSO	002	B								
08 Feb	S13W27	241	0010	01	AXX	002	A								
09 Feb	S13W40	241						1					1		
10 Feb	S13W53	241													
11 Feb	S13W66	241													
12 Feb	S13W79	241													
								1	0	0	0	0	1	0	0

Still on Disk.
Absolute heliographic longitude: 241

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 8854												
01 Feb	S33E81	225	0020	02	HSX	001	A								
02 Feb	S35E70	224	0080	03	HAX	001	A								
03 Feb	S34E59	221	0100	12	CAO	005	B				1				
04 Feb	S35E46	221	0100	04	DAO	003	B								
05 Feb	S34E35	218	0080	07	DAO	005	B								
06 Feb	S34E23	217	0040	08	CSO	006	B								
07 Feb	S34E09	218	0020	03	CSO	003	B				2				
08 Feb	S33W03	217	0010	03	CSO	004	B								
09 Feb	S34W15	216	0010	03	BXO	004	B								
10 Feb	S34W31	219	0020	04	CRO	004	B								
11 Feb	S34W44	219													
12 Feb	S34W57	219													
13 Feb	S34W70	219													
								0	0	0	3	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 217

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 8855														
02 Feb	N15E57	237	0020	08	BXO	003	B								
03 Feb	N17E41	239	0000	05	BXO	002	B								
04 Feb	N17E28	239													
05 Feb	N17E15	220													
06 Feb	N17E02	220						1			1				
07 Feb	N18W13	240	0000	03	BXO	002	B								
08 Feb	N17W26	240	0010	04	BXO	003	B								
09 Feb	N18W39	240	0010	04	BXO	004	B								
10 Feb	N17W55	243	0000	00	AXX	001	A								
11 Feb	N18W74	248	0010	00	AXX	002	A								
12 Feb	N18W87	248	0000	00	AXX	001	A								
								1	0	0	1	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 220

	Region 8856														
02 Feb	S13E81	213	0040	02	HSX	001	A								
03 Feb	S13E69	211	0180	13	ESO	003	B								
04 Feb	S13E59	208	0120	13	ESO	003	B								
05 Feb	S13E46	207	0190	11	ESO	003	B								
06 Feb	S13E32	208	0120	11	EAO	004	B								
07 Feb	S14E19	208	0110	13	ESO	006	B				1				
08 Feb	S14E07	207	0110	11	EAO	008	B	1			1				
09 Feb	S14W07	208	0070	10	DSO	008	B								
10 Feb	S13W19	207	0060	10	DSO	007	B								
11 Feb	S14W34	208	0060	11	EAO	004	B								
12 Feb	S14W48	209	0040	10	DSO	004	B								
13 Feb	S16W61	209	0040	10	DSO	004	B								
								1	0	0	2	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 207

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 8857												
03 Feb	S19E04	276	0010	04	BXO	004	B								
04 Feb	S18W10	277	0040	06	DAO	005	B								
05 Feb	S18W23	276	0010	04	BXO	003	B								
06 Feb	S17W36	276	0010	06	CRO	007	B	1			2				
07 Feb	S18W48	275	0040	07	DRO	010	B								
08 Feb	S18W59	273	0030	03	DRO	009	B								
09 Feb	S17W71	272	0010	04	BXO	003	B				1				
10 Feb	S17W84	272													
								1	0	0	3	0	0	0	0
Crossed West Limb.															
Absolute heliographic longitude:		276													
			Region 8858												
03 Feb	N24E72	208	0030	02	HRX	001	A								
04 Feb	N26E64	203	0090	10	DSO	005	B	4	1		6	1			
05 Feb	N26E53	200	0170	13	EAI	011	B	2		1	11			1	
06 Feb	N27E40	200	0120	12	EAO	021	B	2			2				
07 Feb	N27E27	200	0110	10	DSO	019	B				4				
08 Feb	N28E14	200	0100	10	CAO	017	B	1	1		5	1			
09 Feb	N27E01	200	0070	10	CAO	016	B	1			2				
10 Feb	N27W10	198	0050	10	DSO	012	B	1				1			
11 Feb	N24W25	199	0040	11	CAO	010	B	1			4				
12 Feb	N25W38	199	0040	10	DSO	007	B		1			1			
13 Feb	N24W50	198	0020	06	CSO	004	B	1			1				
								13	3	1	35	4	0	1	0
Still on Disk.															
Absolute heliographic longitude:		200													
			Region 8860												
04 Feb	N26E06	261	0010	03	BXO	005	B								
05 Feb	N26W07	260	0010	03	BXO	003	B								
06 Feb	N30W20	260	0000	00	AXX	001	A								
07 Feb	N30W33	260													
08 Feb	N30W46	260													
09 Feb	N30W59	260									1				
10 Feb	N30W72	260													
								0	0	0	1	0	0	0	0
Crossed West Limb.															
Absolute heliographic longitude:		261													

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 8861												
05 Feb	N08W15	268	0010	01	AXX	002	A								
06 Feb	N07W27	267	0020	05	DRO	012	B	2			5				
07 Feb	N08W40	267	0220	07	DAO	015	B	3			5	1			
08 Feb	N07W53	267	0290	08	DAO	013	B	2			5				
09 Feb	N07W68	269	0350	10	DAO	016	B	2			3				
10 Feb	N08W78	266	0320	07	DAO	007	B				1				
11 Feb	N08W95	269	0240	12	EAO	002	B								
								9	0	0	19	1	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 268

			Region 8862												
06 Feb	S04E75	165	0090	03	HSX	001	A								
07 Feb	S05E61	166	0110	02	HAX	001	A								
08 Feb	S05E48	166	0150	02	HAX	001	A								
09 Feb	S06E35	166	0140	02	HSX	002	A								
10 Feb	S06E21	167	0140	02	HSX	001	A								
11 Feb	S06E08	166	0150	03	HSX	002	A								
12 Feb	S06W06	167	0140	02	HSX	001	A								
13 Feb	S06W19	167	0150	02	HSX	001	A								
								0	0	0	0	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 167

			Region 8863												
08 Feb	S14E70	144	0040	06	CSO	003	B								
09 Feb	S14E57	144	0040	02	HSX	002	A								
10 Feb	S15E44	144	0000	01	AXX	001	A								
11 Feb	S16E30	144	0000	00	AXX	002	A				1				
12 Feb	S16E17	144													
13 Feb	S16E04	144													
								0	0	0	1	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 144

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 8864												
08 Feb	N44W16	230	0000	00	AXX	001	A								
09 Feb	N44W29	230									1				
10 Feb	N44W38	226	0020	05	BXO	003	B								
11 Feb	N43W54	228	0000	00	AXX	001	A								
12 Feb	N44W67	228	0000	00	AXX	001	A								
13 Feb	N44W80	228													
								0	0	0	1	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 230

			Region 8865												
08 Feb	S12E22	192	0000	00	AXX	001	A								
09 Feb	S12E09	192													
10 Feb	S12W04	192													
11 Feb	S12W17	192													
12 Feb	S12W30	192													
13 Feb	S12W43	192													
								0	0	0	0	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 192

			Region 8866												
08 Feb	N18E64	150	0000	00	AXX	001	A								
09 Feb	N15E51	150	0000	00	AXX	001	A								
10 Feb	N15E38	150													
11 Feb	N15E25	150													
12 Feb	N15E12	150													
13 Feb	N15W01	150													
								0	0	0	0	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 150

			Region 8867												
09 Feb	S14E32	169	0010	04	BXO	004	B								
10 Feb	S15E19	169	0000	04	BXO	003	B								
11 Feb	S16E08	166	0020	04	BXO	007	B								
12 Feb	S16W07	168	0020	04	BXO	009	B								
13 Feb	S16W19	167	0030	08	CRO	012	B								
								0	0	0	0	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 8868												
09 Feb	S24E33	168	0020	05	CRO	007	B				1				
10 Feb	S23E21	167	0040	08	CSO	011	B	2			1				
11 Feb	S24E07	167	0060	08	DSO	013	B								
12 Feb	S24W07	168	0070	09	DSO	009	B								
13 Feb	S24W21	169	0050	05	CSO	006	B								
								2	0	0	2	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 167

			Region 8869												
10 Feb	S25E70	118	0020	02	HAX	001	A								
11 Feb	S26E61	113	0070	09	CAO	005	B				1				
12 Feb	S24E48	113	0050	11	CSO	005	B								
13 Feb	S24E36	112	0040	11	ESO	005	B				2				
								0	0	0	3	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 112

			Region 8870												
10 Feb	N20E77	111	0060	02	HSX	001	A								
11 Feb	N18E64	110	0060	02	HAX	001	A								
12 Feb	N20E51	110	0060	02	HSX	001	A								
13 Feb	N20E38	110	0080	02	HSX	001	A								
								0	0	0	0	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 110

			Region 8871												
11 Feb	S14W09	183	0010	01	AXX	003	A								
12 Feb	S14W24	185	0030	04	CSO	005	B								
13 Feb	S15W35	183	0030	05	CSO	008	B				1				
								0	0	0	1	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 183

			Region 8872												
11 Feb	S28E79	095	0070	04	HSX	002	A								
12 Feb	S27E65	096	0090	04	DAO	004	B								
13 Feb	S26E53	095	0070	04	DAO	005	B								
								0	0	0	0	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 95

Region Summary - continued

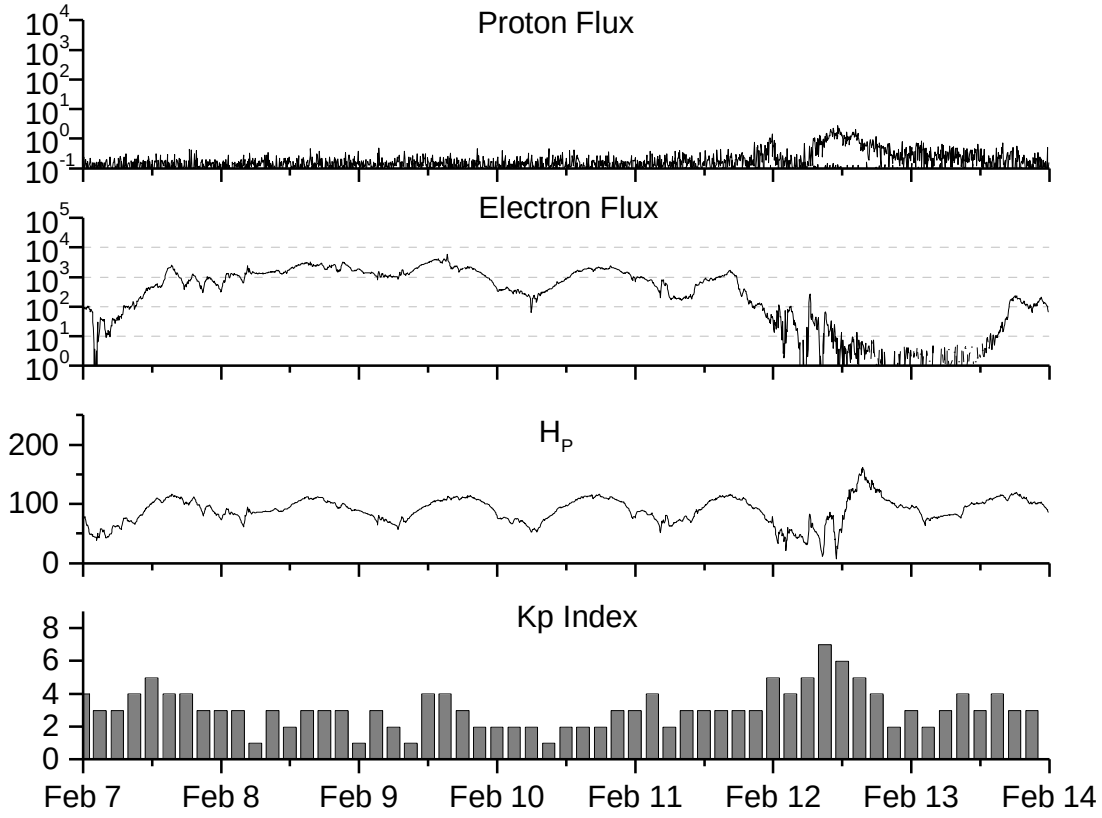
Date	Location (° Lat ° CMD)	Helio Lon	Sunspot Characteristics: Area (10^{-6} hemi)	Extent (helio)	Spot Class	Spot Count	Mag Class	Flares: X-ray C	X-ray M	X-ray X	Optical S	Optical 1	Optical 2	Optical 3	Optical 4
			Region 8873												
13 Feb	S18E66	082	0010	04	BXO	003	B	0	0	0	0	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 82

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				
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			170.8		15	
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	

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 07 February 2000

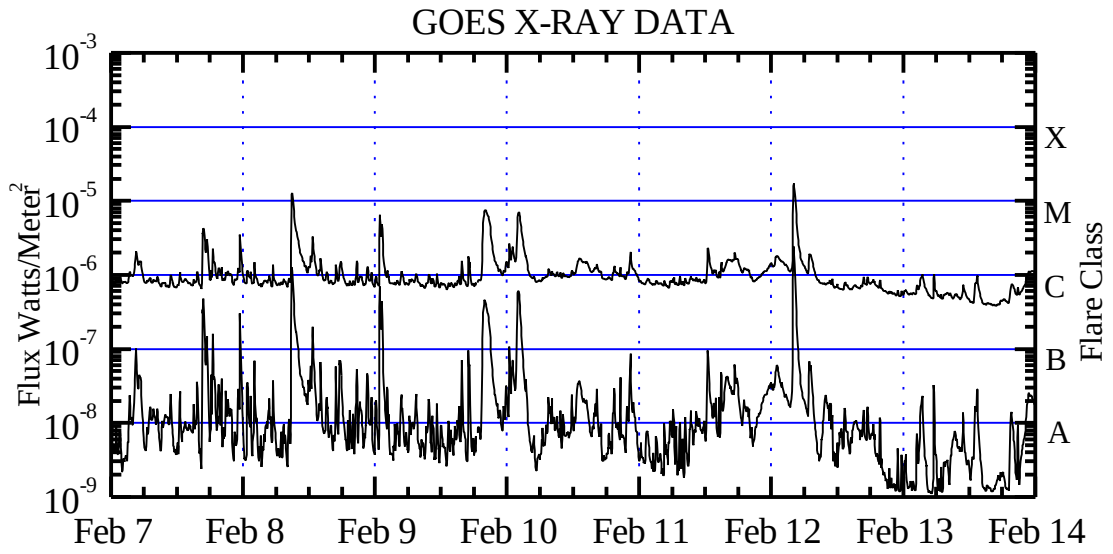
Protons plot contains the five-minute averaged integral proton flux (protons/cm^2 –sec –sr) as measured by GOES-8 (W75) for each of three energy thresholds: greater than 10, 50, and 100 MeV.

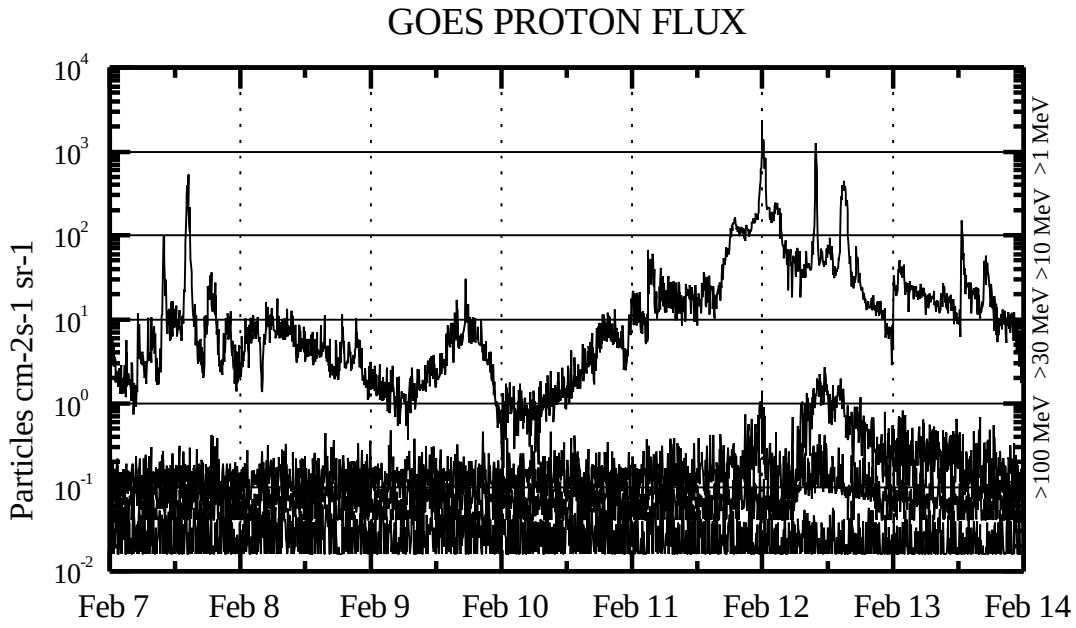
Electrons plot contains the five-minute averaged integral electron flux (electrons/cm^2 –sec –sr) with energies greater than 2 MeV at GOES-8.

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.





Weekly 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/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/cm^2-sec-sr) at greater than 10 MeV.