Space Weather Highlights **SWO PRF 1278**
21 - 27 February 2000 29 February 2000

Solar activity varied from low to moderate levels. Region 8869 (S23, L = 116, class/area Fai/520 on 21 February) produced isolated, low-level M-class flares on 21 - 22 February during a period of gradual growth. This region departed the visible disk on 23 February. Activity decreased to mostly low levels during 23 - 25 February with an optically uncorrelated M1 X-ray flare at 24/0111UT. Activity increased to moderate levels on 26 February with an M1/2F parallel-ribbon flare at 26/2352UT from Region 8889 (N21, L = 290, class/area Fso/370 on 26 February). Activity dropped to low levels on the final day of the period as Region 8882 (S15, L = 328, class/area Ekc/800 on 27 February) produced numerous C-class subflares.

Real-time solar wind data were available from the NASA Advanced Composition Explorer (ACE) spacecraft for most of the period. A CME passed the spacecraft during 21 February accompanied by a velocity increase from 340 to 470 km/sec, a brief southward turning of IMF Bz with deflections to minus 16 nT (GSM), and a brief proton density increase. Recurrent positive-polarity coronal hole effects began on 23 February, peaked during 24 - 25 February, then gradually decreased during the remainder of the period. Velocities associated with this wind stream reached peaks of 740 km/sec on 24 - 25 February while densities dropped to 01 to 04 p/cc. IMF Bz showed increased variability during the transition to this stream with southward deflections to minus 16 nT.

There were no proton events detected at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit was at normal levels through 24 February, then increased to moderate to high levels for the rest of the period.

The geomagnetic field was disturbed on 21 February with unsettled to minor storm periods at all latitudes and isolated major storm periods at high latitudes. This disturbance may have been in response to a full-halo CME observed late on 17 February. Activity dropped to quiet levels on 22 February. A recurrent, positive-polarity coronal hole disturbed the field during 23 - 25 February. Unsettled to minor storm levels were observed during this disturbance. Field activity declined to mostly quiet to unsettled levels for the remainder of the period.

Space Weather Outlook
01 March - 27 March 2000

Solar activity is expected to range from low to moderate levels throughout the period with C-class flares being the most likely. Isolated M-class flares will be possible through 08 March. Mostly low activity is expected during 09 - 18 March. Activity is expected to increase to low to moderate levels beginning 19 March.

No proton events are expected at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit is expected to be at moderate to high levels through 02 March. Normal to moderate fluxes are expected during 03 - 22 March. Moderate to high fluxes are expected during the rest of the period.

Geomagnetic field activity is expected to be at quiet to unsettled levels through 03 March. Active periods will be possible during 04 - 05 March due to recurrent coronal hole effects. Quiet to unsettled levels are expected during 06 - 21 March. Active to minor storm levels are expected during 22 - 23 March due to recurrent coronal hole effects. Quiet to unsettled levels are expected for the rest of the period.

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	X-ray Flux M	X-ray Flux X	Optical S	Optical 1	Optical 2	Optical 3	Optical 4
21 February	152	122	1020	B8.0	6	2	0	2	1	1	0	0
22 February	164	129	1050	B8.4	12	3	0	3	0	0	0	0
23 February	185	155	920	C2.6	5	0	0	8	0	0	0	0
24 February	192	181	1290	C2.1	8	1	0	2	0	0	0	0
25 February	210	202	1940	C1.1	6	0	0	9	0	0	0	0
26 February	215	193	2210	B8.7	3	1	0	8	0	1	0	0
27 February	227	201	2510	C4.9	9	0	0	18	1	0	0	0

Daily Particle Data

Date	Proton Fluence (protons/cm^2-day-sr) >1MeV	>10MeV	>100MeV	Electron Fluence (electrons/cm^2-day-sr) >.6MeV	>2MeV	>4MeV
21 February	1.5E+6	2.1E+4	2.5E+3		1.8E+6	
22 February	1.6E+5	1.3E+4	2.6E+3		5.0E+5	
23 February	5.9E+5	1.3E+4	2.8E+3		1.1E+6	
24 February	1.5E+6	1.4E+4	2.9E+3		7.5E+5	
25 February	2.8E+6	1.4E+4	2.9E+3		3.8E+7	
26 February	7.9E+5	1.3E+4	2.8E+3		5.2E+7	
27 February	8.0E+5	1.2E+4	2.8E+3		1.4E+8	

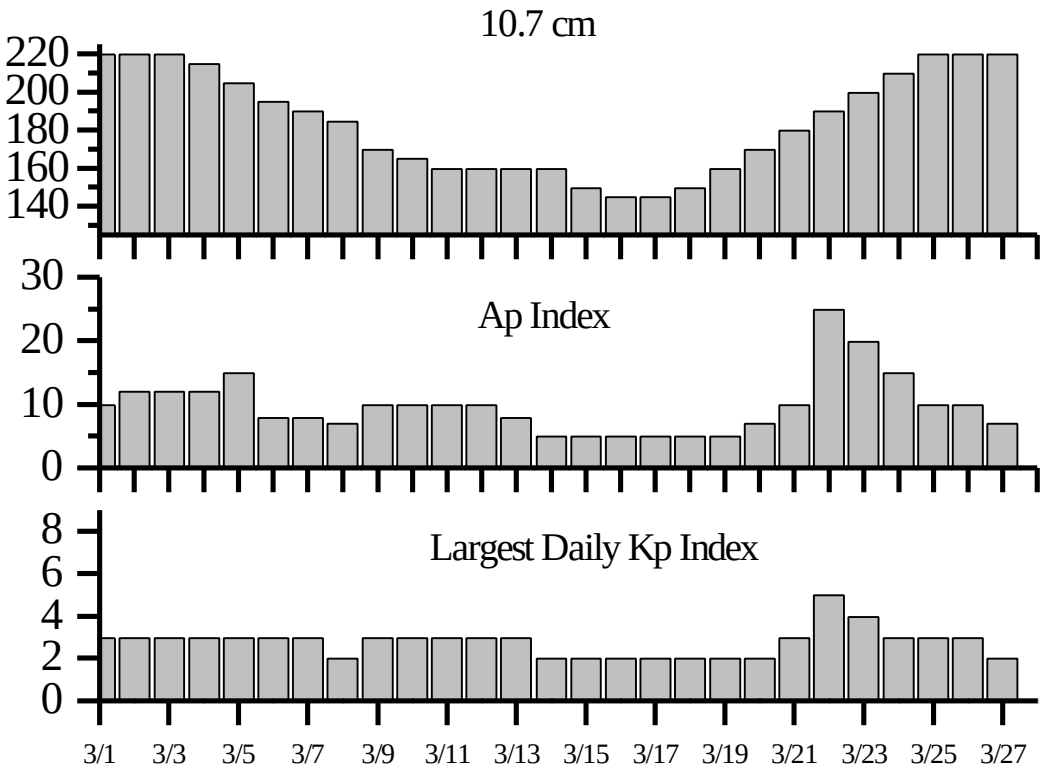
Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg A	Middle Latitude Fredericksburg K-indices	High Latitude College A	High Latitude College K-indices	Estimated Planetary A	Estimated Planetary K-indices
21 February	15	3-4-2-2-3-4-3-2	25	2-3-3-4-5-6-1-1	15	3-4-3-2-3-4-3-2
22 February	5	2-3-0-0-2-1-1-1	5	4-1-0-1-1-1-0-0	5	1-2-0-1-2-2-2-1
23 February	8	2-0-1-2-4-3-1-1	21	1-0-1-4-6-5-1-1	9	3-0-1-2-4-4-2-2
24 February	20	2-4-3-3-4-3-4-4	31	2-3-4-5-5-4-5-4	26	2-4-4-5-4-4-4-4
25 February	14	3-4-4-2-3-2-2-2	27	2-3-5-4-6-3-3-2	18	3-4-4-3-4-3-2-3
26 February	10	2-2-3-2-2-2-3-3	19	2-1-4-5-4-2-3-3	12	3-2-4-3-2-3-3-3
27 February	6	2-1-2-2-2-1-2-2	19	3-2-2-5-5-3-2-2	10	3-1-2-3-2-3-3-2

Alerts and Warnings Issued

Date & Time of Issue	Type of Alert or Warning	Date & Time of Event
21 Feb 0032	2 – 245MHz Radio Bursts	20 Feb
21 Feb 0039	Type II Radio Emission	20 Feb 2208
21 Feb 0601	K= 4 Observed	21 Feb 03 - 06
21 Feb 0601	K= 4 Warning	21 Feb 0600 - 1500
21 Feb 1757	K= 5 Observed	21 Feb 15 - 18
22 Feb 0017	1 – 245 MHz Radio Burst	21 Feb
23 Feb 0028	3 – 245 MHz Radio Bursts	22 Feb
23 Feb 1724	K= 4 Warning	23/1723 – 25/1500 Feb
23 Feb 1808	K= 4 Observed	23 Feb 15 - 18
23 Feb 2214	A ≥ 20 Watch	24 Feb
23 Feb 2215	A ≥ 20 Watch	25 Feb
24 Feb 0037	2 – 245 MHz Radio Bursts	23 Feb
24 Feb 0037	1 – 245 MHz Radio Noise Storm	23 Feb
24 Feb 1501	K= 5 Warning	24/1505 – 25/1500 Feb
24 Feb 1503	K= 5 Observed	24 Feb 12 - 15
24 Feb 1504	A ≥ 20 Observed	24 Feb 1500
25 Feb 0036	4 – 245 MHz Radio Bursts	24 Feb
25 Feb 0036	1 – 245 MHz Radio Noise Storm	24 Feb
25 Feb 0414	A ≥ 30 Warning	25 Feb 0413 - 1500
25 Feb 0600	A ≥ 30 Observed	25 Feb 0600
25 Feb 1450	K= 4 Warning valid	25/1500 – 26/1500 Feb
25 Feb 1459	A ≥ 30 Observed ENDED	25 Feb 0600
25 Feb 1728	>2MeV Electron Event @ ≥1000pfu	25 Feb 1710
26 Feb 0053	2 – 245 MHz Radio Bursts	25 Feb
26 Feb 0053	1 – 245 MHz Radio Noise Storm	25 Feb
26 Feb 0128	>2MeV Electron Event @ ≥1000pfu CONTINUED	25 Feb 1710
26 Feb 0600	A≥20 Observed ENDED	24 Feb 1500
26 Feb 0927	Type II Sweep	26 Feb 0840
27 Feb 0019	>2MeV Electron Event @ ≥1000pfu CONTINUED	25 Feb 1710
27 Feb 0050	7 – 245 MHz Radio Bursts	26 Feb
27 Feb 0050	1 – 245 MHz Radio Noise Storm	26 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
01 Mar	220	10	3	15 Mar	150	5	2
02	220	12	3	16	145	5	2
03	220	12	3	17	145	5	2
04	215	12	3	18	150	5	2
05	205	15	3	19	160	5	2
06	195	8	3	20	170	7	2
07	190	8	3	21	180	10	3
08	185	7	2	22	190	25	5
09	170	10	3	23	200	20	4
10	165	10	3	24	210	15	3
11	160	10	3	25	220	10	3
12	160	10	3	26	220	10	3
13	160	8	3	27	220	7	2
14	160	5	2				

Energetic Events

Date	Time ()			X-ray		Optical Information			Peak Radio Flux		Sweep Freq Intensity	
	Begin	Max	½ Max	Class	Integ Flux	Imp/ Brtns	Location Lat CMD	Rgn #	245	2695	II	IV
21 Feb	0826	0836	0841	M1.8	.010					24		
21 Feb	2313	2319	2326	M1.2	.006	2B	S19W78	8869				
22 Feb	0842	0856	0904	M1.1	.009	SF	S20W80	8869				
22 Feb	1123	1133	1140	M1.2	.008	SF	S24W79	8869				
22 Feb	1954	2147	2225	M1.1	.069					50		
24 Feb	0103	0111	0117	M1.1	.007							
26 Feb	2333	2352	0103	M1.0	.050	2F	N29E50	8889	210	73		

Flare List

Date	Time			X-ray	Optical		
	Begin	Max	End	Class.	Imp / Brtns	Location Lat CMD	Rgn #
21 February	0043	0044	0050	C3.0	SN	S17W58	8869
	0514	0525	0534	C4.3			
	0727	0730	0735	C1.1			
	0743	0747	0749	C1.2			
	0826	0836	0841	M1.8			
	1325	1327	1334	C1.3			
	1649	1651	1702	C2.1	SF	S21W71	8869
	2000	2003	2005	B8.0			
	2301	0014	0027	C1.9	1F	S16E74	8882
	2308	2318	2347	M1.2	2B	S19W78	8869
22 February	0147	0154	0211	C1.9			
	0441	0452	0457	C6.5			
	0540	0546	0557	C3.4			
	0655	0701	0706	C2.2			
	0731	0736	0742	C2.4			
	0748	0753	0758	C3.2			
	0845	U0850	0902	M1.1	SF	S20W80	8869
	B1131	U1131	A1149	M1.2	SF	S24W79	8869
	1213	1218	1225	C2.9			
	1329	1331	1350	C5.6	SF	N13E66	8883
	1357	1402	1405	C5.7			
	1717	1720	1730	C2.4			
	1750	1753	1818	C3.2			
	1954	2147	2225	M1.1			
23 February	0106	0111	0119	C6.3			
	0259	0304	0308	C3.4			
	B0405	U0406	A0412		SF	N21E08	8879
	0448	0509	0523		SF	N11E60	8883
	0733	0735	0737		SF	S19W90	8869
	1317	1319	1324		SF	N14E51	8883
	1407	1408	1420		SF	N20E04	8879
	1425	1429	1431	C4.8			

Flare List-continued

Date	Time Begin	Time Max	Time End	X-ray	Optical Imp / Class.	Optical Location Brtns	Rgn Lat CMD	#23
23 February	B1435	1504	1519		SF	N12E53	8883	
	1641	1646	1649	C6.8				
	1953	1955	2001		SF	S19W91	8869	
	2055	2103	2119	C5.8				
	2128	2130	2134		SF	N23W02	8879	
24 February	0036	0039	0043	C3.0				
	0048	0052	0055	C3.1				
	0103	0111	0117	M1.1				
	0436	0439	0441	C4.1				
	0701	0703	0706	C2.5				
	0849	0851	0854		SF	N18E72	8889	
	0951	0955	1002	C2.6				
	1435	1438	1441	C3.7				
	1657	1658	1702		SF	N26E72		
	2115	2122	2141	C2.2				
	2154	2158	2202	C1.9				
25 February	0318	0322	0334	C4.4	SF	S17E30	8882	
	0419	0420	0424	C4.6	SF	N20E69	8889	
	0457	0501	0524	C2.3	SF	N23W22	8879	
	0607	0608	0612		SF	N21E67	8889	
	0642	0648	0653		SF	N21E66	8889	
	0755	0802	0809	C2.2				
	B0901	0916	0935	C8.6	SF	N35E52	8888	
	1602	1604	1622	C2.6	SF	N22E62	8889	
	1847	1847	1854		SF	S17E73	8891	
	2037	2040	2045		SF	S11E34	8887	
26 February	0615	0623	0631	C2.6	SF	N21E58	8889	
	1036	1133	1222	C2.5				
	1911	1914	1924		SF	S11E64	8891	
	1920	1921	1926		SF	S12E43	8890	
	2034	2104	2136		SF	N18W17	8881	
	2218	2223	2239	C4.4	SF	S15E72	8891	
	2225	2226	2230		SF	S17E10	8882	
	2311	2312	2316		SF	S18E08	8882	
	2320	2321	2326		SF	S12E68	8891	
	2337	2354	A0051	M1.0	2F	N29E50	8889	
27 February	0330	0330	0334		SF	S14E53	8891	
	0333	0333	0338		SF	N23W47	8879	
	0518	0612	0639	C4.0				
	0556	0557	0605		SF	S16E05	8882	
	0558	0601	0636		SF	N20E44	8889	
	0651	0653	0658	C2.5	1F	N18E34	8889	

Flare List-continued

Date	Time Begin	Time Max	Time End	X-ray Class.	Optical Imp / Brtns	Optical Location Lat CMD	Rgn #
27 February	0830	0830	0842		SF	S17E00	8882
	B1219	U1219	A1244	C3.3	SF	N24W47	8879
	1424	1426	1430	C1.6	SF	S15E47	8891
	1431	1438	1441		SF	S11E53	8891
	1506	1508	1517		SF	S14E54	8891
	1526	1527	1537	C1.6	SF	S16W01	8882
	1549	1550	1606	C2.5	SF	S16W01	8882
	1626	1626	1635	C1.4	SF	S16W01	8882
	1837	1847	1911		SF	S14E52	8891
	1845	1846	1900		SF	S17W02	8882
	2024	2026	2040		SF	S17W03	8882
	2229	2232	2237		SF	S17W04	8882
	2255	2255	2313	C1.7	SF	S16W05	8882
	2304	2308	2308	C2.1			
	2331	2332	2336		SF	N22E31	8889

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 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				
14 Feb	S24E22	113	0030	11	CSO	005	B								
15 Feb	S23E06	116	0020	06	CSO	004	B				1				
16 Feb	S23W08	116	0090	07	DSO	013	B	1			2				
17 Feb	S22W21	116	0150	10	DAO	022	B		1			1			
18 Feb	S21W35	117	0190	12	EAO	026	B	1			4				
19 Feb	S20W49	118	0300	15	EAI	044	BG	3	1		8	2			
20 Feb	S20W61	117	0480	17	FAI	041	BG	5			6	1			
21 Feb	S19W74	117	0520	17	FAI	032	BG	2	1		2		1		
22 Feb	S20W86	115	0410	17	FAI	017	B		2		2				
								12	5	0	28	4	1	0	0

Crossed West Limb.
Absolute heliographic longitude: 116

Region Summary-continued

Date	Location (° Lat ° CMD)	Helio Lon	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 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								
14 Feb	N19E25	110	0060	02	HSX	001	A								
15 Feb	N19E13	109	0060	02	HSX	001	A								
16 Feb	N19E00	108	0090	02	HSX	001	A								
17 Feb	N19W14	109	0070	02	HSX	001	A								
18 Feb	N19W27	109	0090	02	HSX	001	A								
19 Feb	N18W40	109	0070	01	HSX	001	A								
20 Feb	N18W52	108	0050	02	HAX	001	A								
21 Feb	N20W65	108	0040	01	HSX	001	A								
22 Feb	N18W77	106	0030	01	HSX	001	A								
23 Feb	N19W88	104	0030	02	HSX	001	A								
								0	0	0	0	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 108

			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								
14 Feb	S27E40	095	0050	04	DAO	005	B				1				
15 Feb	S28E28	094	0030	04	CSO	006	B								
16 Feb	S28E16	092	0020	04	CRO	004	B								
17 Feb	S29E02	093	0020	05	BXO	006	B		1				1		
18 Feb	S29W11	093	0010	03	BXO	003	B								
19 Feb	S31W22	091	0000	01	AXX	003	A								
20 Feb	S31W34	090	0000	00	AXX	001	A								
21 Feb	S31W47	090													
22 Feb	S31W60	090													
23 Feb	S31W73	090													
24 Feb	S31W86	090													
								0	1	0	1	0	1	0	0

Crossed West Limb.
Absolute heliographic longitude: 093

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 8874												
14 Feb	S08E54	081	0010	03	BXO	003	B								
15 Feb	S09E40	082	0030	04	DSO	004	B								
16 Feb	S08E27	081	0020	05	BXO	002	B								
17 Feb	S09E13	082													
18 Feb	S09E00	082													
19 Feb	S09W13	082													
20 Feb	S09W26	082													
21 Feb	S09W39	082													
22 Feb	S09W52	082													
23 Feb	S09W65	082													
24 Feb	S09W78	082													
								0	0	0	0	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 082

			Region 8875												
15 Feb	S23E55	067	0010	01	HRX	001	A								
16 Feb	S22E40	068	0020	06	BXO	004	B								
17 Feb	S22E28	067	0020	06	CRO	005	B				1				
18 Feb	S19E14	068	0010	04	BXO	003	B								
19 Feb	S21W01	070	0000	04	BXO	002	B								
20 Feb	S22W13	069	0050	07	CAO	011	B								
21 Feb	S22W27	070	0150	08	DAO	012	B								
22 Feb	S23W41	070	0140	08	DAO	015	B								
23 Feb	S23W54	070	0120	10	CAO	013	BG								
24 Feb	S23W68	071	0060	10	DAO	010	B								
25 Feb	S24W79	069	0050	10	DSO	006	B								
								0	0	0	1	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 070

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 8876														
15 Feb	S13E62	060	0000	04	BXO	003	B								
16 Feb	S13E48	060	0050	05	CSO	007	B								
17 Feb	S12E33	062	0040	05	DSO	004	B								
18 Feb	S12E20	062	0020	04	BXO	004	B								
19 Feb	S12E06	063	0020	04	BXO	004	B								
20 Feb	S11W04	060	0010	01	BXO	003	B								
21 Feb	S11W17	060													
22 Feb	S11W30	060													
23 Feb	S11W43	060													
24 Feb	S11W56	060													
25 Feb	S11W69	060													
								0	0	0	0	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 060

	Region 8877														
16 Feb	S26E28	080	0010	01	HRX	001	A								
17 Feb	S25E12	083													
18 Feb	S22E10	072	0010	01	HAX	001	A								
19 Feb	S22W03	072													
20 Feb	S22W16	072													
21 Feb	S22W27	070													
22 Feb	S22W40	070													
23 Feb	S22W53	070													
24 Feb	S22W66	070													
25 Feb	S22W79	070													
								0	0	0	0	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 072

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 8879														
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				
								2	0	0	6	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 016

	Region 8880														
20 Feb	S08W69	125	0010	04	BXO	003	B								
21 Feb	S06W81	124	0010	04	BXO	002	B								
								0	0	0	0	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 125

	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								
								0	0	0	1	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 353

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 8882														
21 Feb	S16E70	333	0050	02	HSX	001	A					1			
22 Feb	S15E58	331	0180	08	DAO	007	B	1							
23 Feb	S15E46	330	0320	10	DKO	014	B								
24 Feb	S15E34	329	0500	09	DKI	019	B								
25 Feb	S15E21	329	0490	11	EKI	019	B	1			1				
26 Feb	S16E07	330	0650	11	EKI	022	BGD				2				
27 Feb	S16W05	328	0800	11	EKC	026	B	4			9				
								6	0	0	12	1	0	0	0
Still on Disk.															
Absolute heliographic longitude:		328													
	Region 8883														
22 Feb	N13E60	329	0020	01	HRX	001	A	1			1				
23 Feb	N13E47	329	0100	08	DSO	010	B				3				
24 Feb	N13E34	329	0140	08	DSO	014	B								
25 Feb	N13E21	329	0120	08	DSO	016	B								
26 Feb	N13E07	330	0090	09	DSO	014	B								
27 Feb	N12W08	331	0080	06	CSO	007	B								
								1	0	0	4	0	0	0	0
Still on Disk.															
Absolute heliographic longitude:		330													
	Region 8884														
22 Feb	S11W74	103	0020	03	BXO	003	B								
23 Feb	S10W85	101	0060	05	DSO	002	B								
								0	0	0	0	0	0	0	0
Crossed West Limb.															
Absolute heliographic longitude:		103													
	Region 8885														
23 Feb	N11W43	059	0000	03	BXO	002	B								
24 Feb	N12W55	058	0020	07	BXO	003	B								
25 Feb	N11W70	060	0010	01	AXX	001	A								
26 Feb	N11W83	060													
								0	0	0	0	0	0	0	0
Still on Disk.															
Absolute heliographic longitude:		059													

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 8886														
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								
								0	0	0	0	0	0	0	0
Still on Disk.															
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								
								0	0	0	1	0	0	0	0
Still on Disk.															
Absolute heliographic longitude:		317													
	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								
								1	0	0	1	0	0	0	0
Still on Disk.															
Absolute heliographic longitude:		305													
	Region 8889														
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			
								4	1	0	8	1	1	0	0
Still on Disk.															
Absolute heliographic longitude:		290													
	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													
								0	0	0	1	0	0	0	0
Still on Disk.															
Absolute heliographic longitude:		299													

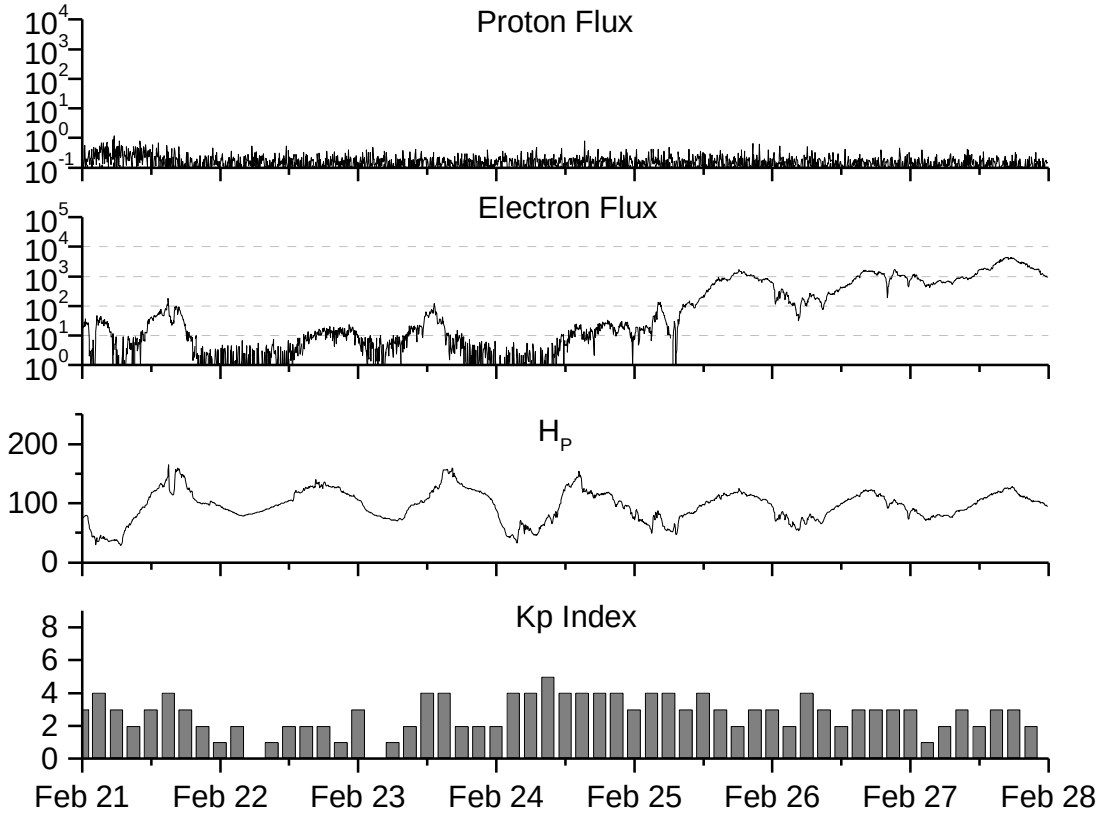
Region Summary-continued

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 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				
								2	0	0	9	0	0	0	0
Still on Disk.															
Absolute heliographic longitude:		275													
	Region 8892														
26 Feb	N05E64	273	0040	01	HSX	001	A								
27 Feb	N06E53	270	0020	01	HSX	002	A								
								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								
								0	0	0	0	0	0	0	0
Still on Disk.															
Absolute heliographic longitude:		003													

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 21 February 2000

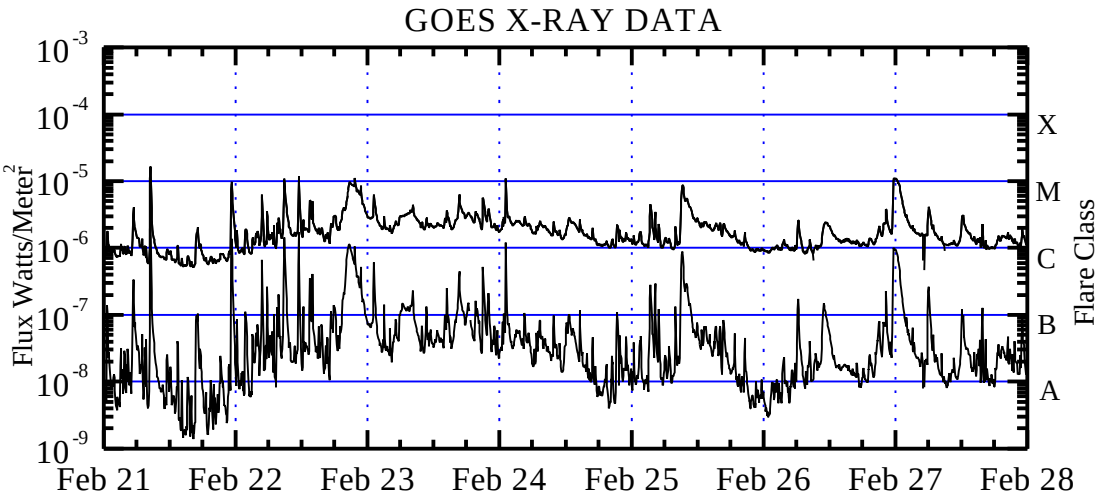
Protons plot contains the five-mine averaged integral proton flux (protons/cm^2–sec –sr) as measured by GOES-8 (W75) for each of three energy thresholds: greater than 10, 50, and 100 MeV.

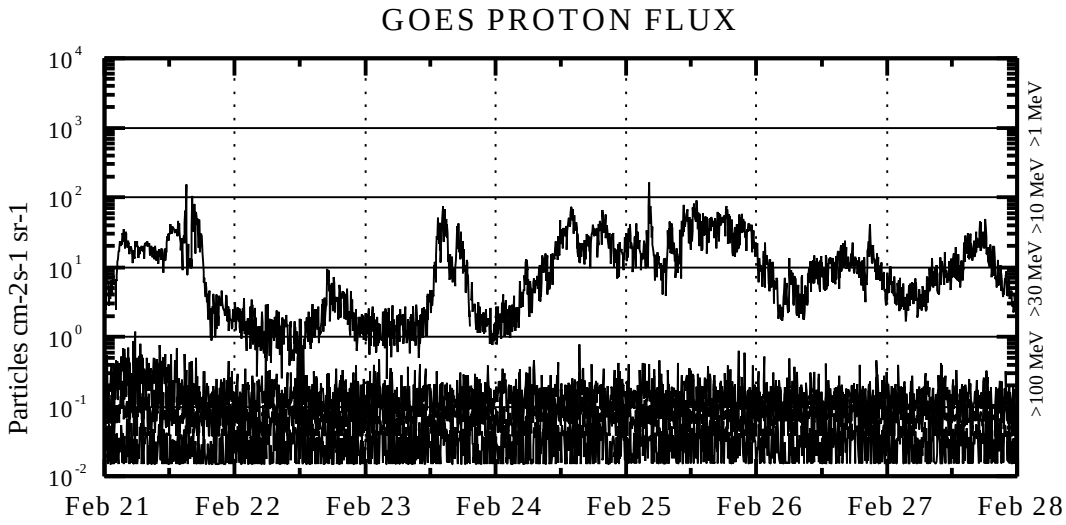
Electrons plot contains the five-mine averaged integral electron flux (electrons/cm^2–sec –sr) with energies greater than 2 MeV at GOES-8.

Hp plot contains the five mine averaged magnetic field H - component in nanoteslas (nT) as measured by GOES-8. The H component is parallel to the spin axis of the satellite, which is nearly parallel to the Earth's rotation axis.

Kp plot contains the estimated planetary 3-hour K-index (derived by the USAF 55th Space Weather Squadron) in real time from magnetometers at Meanook, Canada; Sitka, AK; Glenlea, Canada; St. Johns, Canada; Ottawa, Canada; Newport, WA; Fredericksburg, VA; Boulder, CO; Fresno, CA and Heartland, UK. These data are made available through cooperation from the Geological Survey of Canada (GSC) and the US Geological Survey. These may differ from the final Kp values derived from a more extensive network of magnetometers.

The data included here are those now available in real time at the SWO and are incomplete in that they do not include the full set of parameters and energy ranges known to cause satellite operating anomalies. The proton and electron fluxes and Kp are " global " parameters that are applicable to a first order approximation over large areas. Hparallel is subject to more localized phenomena and the measurements generally are applicable to within a few degrees of longitude of the measuring satellite.





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

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

Proton plot contains the five mine averaged integral proton flux (protons/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.