

## **Space Weather Highlights 11 - 17 February 2002**

**SWO PRF 1381  
19 February 2002**

Solar activity was low through the period with isolated to occasional C-class flares. Sunspot groups of interest included Regions 9825 (N13, L = 206, Fkc/500 on 14 February) and 9830 (S20, L = 135, Fai/360 on 17 February). Region 9825 produced isolated C-class flares as it gradually developed during the first half of the period, then gradually decayed during the second half of the period (for flare details, please refer to the Optical Flares list). Region 9830 produced C-class flares as it gradually increased in size and complexity during the latter half of the period. By the close of the period, Region 9830 had become large and magnetically complex as multiple delta magnetic configurations developed within its leader spots. One event of note was a partial-halo CME from the southwest quadrant early on 14 February.

Solar wind data were available from the NASA Advanced Compositions Explorer (ACE) spacecraft for most of the period. A high-speed stream associated with a coronal hole was observed during 11 – 13 February. Wind speeds increased to as high as 620 km/sec during 11 – 12 February. This stream subsided by midday on 13 February. A weak CME passage occurred on 17 February. The passage began at approximately 17/0210 UTC followed by increased velocities (peaks to 460 km/sec), densities, and a few brief intervals of southward IMF Bz (maximum deflections to minus 11 nT (GSM)). CME effects began to subside during the latter half of 17 February.

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

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

Geomagnetic field activity was at quiet to unsettled levels during most of the period. However, isolated active conditions occurred on 11 and 17 February. The 11 February activity was due to a high-speed stream associated with a coronal hole. The 17 February activity was preceded by a sudden impulse at 17/0257 UTC (13 nT, as measured by the Boulder USGS magnetometer) and was due to a weak CME passage, likely associated with the partial-halo observed early on 14 February.

## **Space Weather Outlook 20 February - 18 March 2002**

Solar activity is expected to be at low to moderate levels. Isolated low-level M-class flares are likely during the period. Region 9830 could produce a major flare before it crosses the west limb on 27 February.

There is a slight chance for a proton event through the end of February.

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 possible during 06 – 08 March.

Geomagnetic field activity is expected to increase to unsettled to active levels during 04 – 06 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 <sup>-6</sup> hemi.)	X-ray Background	Flares							
					X-ray Flux			Optical				
					C	M	X	S	1	2	3	4
11 February	202	206	1210	B9.5	8	0	0	8	0	0	0	0
12 February	208	182	1130	B9.6	7	0	0	12	1	0	0	0
13 February	204	158	1220	C1.0	10	0	0	10	1	0	0	0
14 February	196	209	1080	C1.0	12	0	0	8	1	0	0	0
15 February	195	156	910	B7.4	8	0	0	6	0	0	0	0
16 February	194	134	710	B6.9	3	0	0	2	0	0	0	0
17 February	197	121	850	B6.9	8	0	0	8	0	0	0	0

### *Daily Particle Data*

Date	Proton Fluence (protons/cm <sup>2</sup> -day-sr)			Electron Fluence (electrons/cm <sup>2</sup> -day-sr)		
	>1MeV	>10MeV	>100MeV	>.6MeV	>2MeV	>4MeV
	11 February	2.0E+5	1.2E+4	3.2E+3		1.1E+7
12 February	6.4E+4	1.3E+4	3.2E+3		7.0E+6	
13 February	2.9E+5	1.3E+4	3.2E+3		8.6E+6	
14 February	1.8E+5	1.1E+4	2.7E+3		9.1E+6	
15 February	5.0E+5	1.2E+4	2.8E+3		1.6E+7	
16 February	3.4E+5	1.2E+4	3.1E+3		1.0E+7	
17 February	3.0E+5	1.3E+4	2.8E+4		1.3E+6	

### *Daily Geomagnetic Data*

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	11 February	8	2-1-2-3-3-2-1-2	26	1-0-2-6-5-5-3-2	13
12 February	5	3-1-2-1-0-1-1-2	6	3-2-2-2-0-1-1-2	6	3-2-2-1-1-2-2-2
13 February	11	2-1-3-3-3-3-2-2	15	1-1-3-4-5-3-2-1	10	2-1-3-3-3-3-2-1
14 February	2	0-0-2-0-1-1-1-0	2	0-0-1-1-0-1-0-1	4	1-0-2-1-1-2-2-1
15 February	3	0-0-0-0-1-3-1-1	4	0-0-0-0-0-4-1-0	4	1-0-0-1-1-2-2-1
16 February	2	1-0-0-0-1-2-1-1	5	0-0-0-0-4-2-1-1	5	2-0-0-1-1-2-2-2
17 February	6	2-2-3-1-1-1-1-1	9	1-1-4-1-3-3-0-1	8	1-3-4-2-2-2-2-2



*Alerts and Warnings Issued*

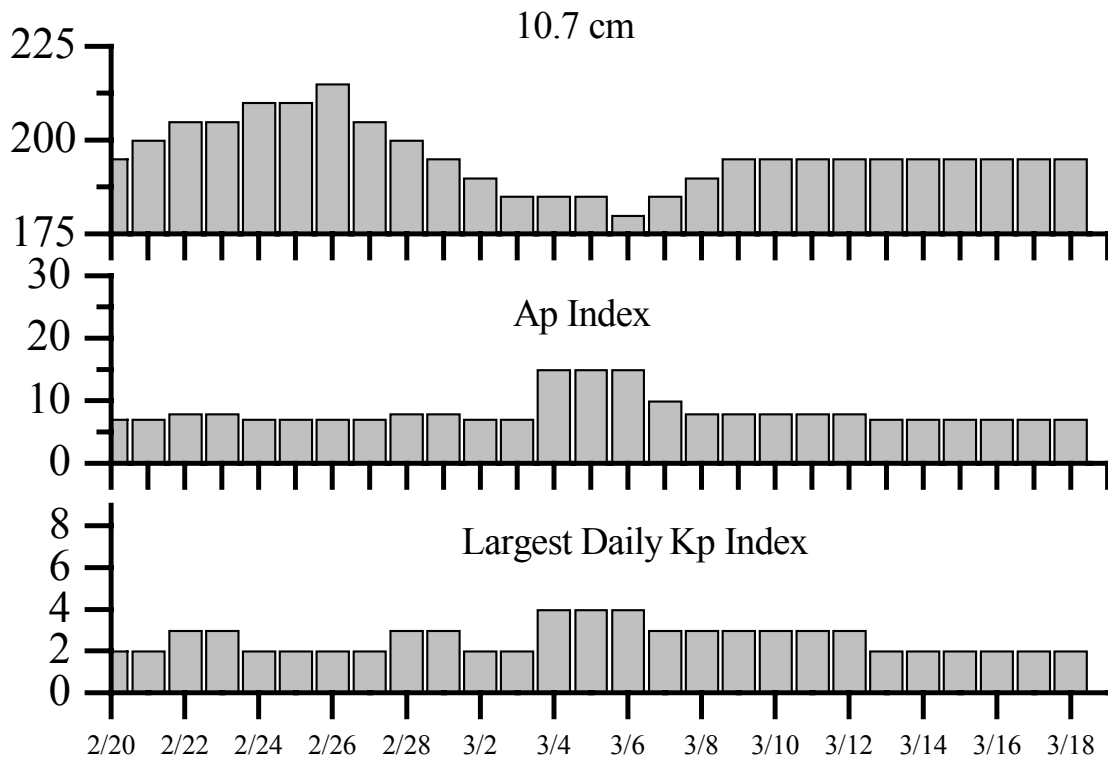
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<u>Date &amp; Time of Issue</u>	<u>Type of Alert or Warning</u>	<u>Date &amp; Time of Event UT</u>
11 Feb 1732	K= 4 Warning	11 Feb 1735 - 12 Feb 1500
11 Feb 1803	K= 4 Observed	11 Feb 1500 - 1800
12 Feb 0023	1 - 245 MHz Radio Noise Storm	11 Feb
12 Feb 1237	Stratwarm Alert exists Tuesday	
13 Feb 0012	2 - 245 MHz Bursts	12 Feb
13 Feb 0012	1 - 245 MHz Radio Noise Storm	12 Feb
13 Feb 1340	Stratwarm Alert EXISTS Wednesday	
13 Feb 1804	K= 4 Observed	13 Feb 1500 - 1800
14 Feb 0051	3 - 245 MHz Bursts	13 Feb
14 Feb 0051	1 - 245 MHz Radio Noise Storm	13 Feb
14 Feb 1350	Stratwarm Alert EXISTS Thursday	
15 Feb 0050	6 - 245 MHz Bursts	14 Feb
15 Feb 1332	Stratwarm Alert Exists Friday	
16 Feb 0126	Type II Radio Emission	16 Feb 0053
16 Feb 1126	Stratwarm Alert EXISTS Saturday	
17 Feb 0053	2 - 245 MHz Bursts	16 Feb
17 Feb 0307	Sudden Impulse observed at Boulder	17 Feb 0257
17 Feb 1248	Stratwarm Alert EXISTS Sunday	

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**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
20 Feb	195	7	2	06 Mar	180	15	4
21	200	7	2	07	185	10	3
22	205	8	3	08	190	8	3
23	205	8	3	09	195	8	3
24	210	7	2	10	195	8	3
25	210	7	2	11	195	8	3
26	215	7	2	12	195	8	3
27	205	7	2	13	195	7	2
28	200	8	3	14	195	7	2
01 Mar	195	8	3	15	195	7	2
02	190	7	2	16	195	7	2
03	185	7	2	17	195	7	2
04	185	15	4	18	195	7	2
05	185	15	4				



### *Energetic Events*

Date	Time		X-ray		Optical Information			Peak		Sweep Freq		
	Begin	Max	1/2 Max	Class	Integ Flux	Imp/Location		Rgn #	Radio Flux		Intensity	
						Brtns	Lat CMD		245	2695	II	IV

*No Energetic Events*

### *Flare List*

Date	Time			X-ray Class.	Imp / Brtns	Optical Location		Rgn
	Begin	Max	End			Lat	CMD	
11 February	0049	0051	0057	C1.6	Sf	S12W11	9821	
	0122	0128	0135	C2.0				
	0202	0208	0214	C1.8				
	0303	0303	0312		Sf	S13W13	9821	
	0313	0330	0352	C2.1	Sf	S14W12	9821	
	0453	0453	0506		Sf	S13W15	9821	
	0720	0722	0728		Sf	N16E45	9825	
	0922	0929	0947	C2.0			9822	
	1353	1356	1407	C1.2	Sf	S13W19	9821	
	2143	2143	2149	C1.5	Sf	N10E48	9825	
	2255	2258	2306	C2.3	Sf	N14E37	9825	
	12 February	0214	0221	0231	C2.0			
0252		0259	0335	C5.2	Sf	S13W30	9821	
0442		0447	0504	C1.4				
0852		0853	0909	C2.3	Sf	N11E40	9825	
0951		0953	1004		Sf	S27W38	9811	
1031		1031	1043		Sf	S13W33	9821	
1119		1123	1132		Sf	N15E32	9825	
1232		1240	1256	C3.0	Sf	N13E27	9825	
1236		1238	1247		Sf	S26W38	9811	
1316		1316	1322		Sf	N17E29	9825	
1424		1438	1543	C5.8	1f	N13E36	9825	
1550		1552	1601		Sf	S12W35	9821	
1620		1622	1629		Sf	S25W41	9811	
1642		1645	1650		Sf	S13W35	9821	
2132	2136	2151	C5.0	Sf	S25W42	9811		
13 February	0041	0047	0106	C1.9	Sf	N17E22	9825	
	0125	0133	0147	C2.6	Sf	N15E20	9825	
	0249	0315	0339		Sf	N11E24	9825	
	0548	0551	0554	C1.7				
	0640	0642	0646		Sf	N16E18	9825	
	0658	0712	0801	C7.8	1n	N17E18	9825	
	0854	0855	0916	C2.8	Sf	N11E23	9825	
	0935	0947	0952	C3.2	Sf	N17E13	9822	
	0942	0952	1015		Sf	N16E17	9825	



*Flare List - continued.*

Date	Time			X-ray Class.	Optical		Rgn
	Begin	Max	End		Imp / Brtns	Location Lat CMD	
13 February	1001	1004	1014		Sf	N17E13	9822
	1228	1231	1236	C1.3			
	1330	1330	1335		Sf	N11E20	9825
	1603	1607	1610	C1.4			
	2245	2251	2254	C1.4			
14 February	2333	2335	2340	C2.0	Sf	N12E14	9825
	0110	0110	0116		Sf	N15W05	9822
	0117	0118	0123	C1.8	Sf	S21W02	9826
	0138	0141	0153	C4.5	1f	N18E04	9822
	0347	0347	0355	C2.4	Sf	N12E11	9825
	0604	0612	0622	C2.6			
	0629	0629	0633		Sf	N16E06	9825
	0834	0834	0839	C1.5	Sf	N11E13	9825
	0946	0950	0955	C2.6			
	1008	1010	1023	C3.1	Sf	N12E08	9825
	1033	1035	1037	C2.5			
	1102	1106	1109	C2.9			
	1352	1354	1409	C3.9	Sf	N12E05	9825
	1606	1609	1612	C1.8			
1706	1708	1713	C1.7	Sf	N11E04	9825	
15 February	0024	0025	0028	C2.1	Sf	S03E76	9829
	0156	0207	0216	C1.9	Sf	N20W12	9822
	0210	0210	0215		Sf	N09W09	9825
	0311	0312	0415	C1.6	Sf	N21W09	9825
	0612	0619	0628	C1.3			
	0713	0714	0730	C1.9	Sf	N21W11	9825
	0758	0813	0821	C1.2			
	0953	0958	1002	C1.3			
1731	1733	1742	C1.9	Sf	S09W77	9821	
16 February	0036	0048	0051	C1.7			
	1019	1025	1031	C2.0			
	2227	2228	2231		Sf	S17E45	9830
	2241	2242	A2313		Sf	S29W68	9819
2326	2332	2338	C2.7				
17 February	0240	0240	0243		Sf	S18E39	9830
	0318	0318	0326		Sf	S18E38	9830
	0620	0624	0627		Sf	S16E39	9830
	0728	0743	0801		Sf	S17E36	9830
	1020	1037	1109	C3.1			



**Flare List - continued.**

Date	Time			X-ray Class.	Imp / Brtns	Optical		Rgn
	Begin	Max	End			Location Lat CMD		
17 February	1341	1349	1356	C1.8				
	1403	1422	1434	C1.8				
	1452	1457	1515	C1.7	Sf	S20E34	9830	
	1721	1725	1730	C1.1				
	1901	1933	1948	C1.9	Sf	S19E30	9830	
	2018	2021	2029	C2.3	Sf	S18E30	9830	
	2214	2216	2220		Sf	S17E28	9830	
	2231	2253	2318	C1.6				

**Region Summary**

Date	Location		Sunspot Characteristics				Flares											
	Helio		Area (10 <sup>-6</sup> hemi)	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical							
	(° Lat ° CMD)	Lon						C	M	X	S	1	2	3	4			
<i>Region 9807</i>																		
30 Jan	S27E74	330	0160	14	Eso	005	B											
31 Jan	S26E64	327	0370	12	Eko	007	B											
01 Feb	S27E51	326	0320	13	Eai	013	Bg											
02 Feb	S27E38	326	0210	13	Eai	016	Bg											
03 Feb	S27E26	326	0120	13	Esi	026	B	2			3							
04 Feb	S27E13	326	0090	14	Eai	027	B											
05 Feb	S25E01	325	0120	13	Eao	018	B											
06 Feb	S27W11	323	0030	12	Cao	009	B											
07 Feb	S27W22	321	0020	10	Cso	008	B											
08 Feb	S27W34	320	0010	08	Cso	007	B											
09 Feb	S27W47	320																
10 Feb	S27W60	320																
11 Feb	S27W73	320																
12 Feb	S27W86	320																
								2	0	0	3	0	0	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 325



**Region Summary - continued.**

Date	Location		Sunspot Characteristics				Flares											
	( ° Lat ° CMD)	Helio Lon	Area (10 <sup>-6</sup> hemi)	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical							
								C	M	X	S	1	2	3	4			
<i>Region 9809</i>																		
31 Jan	S06E68	323	0130	05	Dso	002	B											
01 Feb	S06E55	322	0120	05	Dao	003	B											
02 Feb	S06E42	322	0120	06	Dso	003	B											
03 Feb	S06E29	323	0060	06	Dso	005	B											
04 Feb	S06E16	323	0100	09	Dso	006	B		2				1					
05 Feb	S06E03	323	0100	09	Dso	007	B	1				1	1					
06 Feb	S04W11	323	0090	06	Dso	008	B						1					
07 Feb	S05W24	323	0080	07	Dso	007	B	1										
08 Feb	S04W38	324	0060	06	Dso	005	B											
09 Feb	S05W50	323	0060	05	Cso	002	B											
10 Feb	S05W63	323	0040	01	Hsx	001	A											
11 Feb	S06W76	323	0040	01	Hsx	001	A											
12 Feb	S06W91	324	0030	02	Hax	001	A											
									2	2	0	2	2	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 323

<i>Region 9810</i>																		
01 Feb	N10E81	296	0110	02	Hax	002	A											
02 Feb	N09E68	296	0200	04	Cso	002	B											
03 Feb	N09E55	297	0200	04	Cao	003	B											
04 Feb	N09E42	297	0230	04	Dao	004	B											
05 Feb	N10E26	300	0190	04	Dko	003	B											
06 Feb	N11E13	299	0130	04	Cao	006	B											
07 Feb	N10E01	298	0170	03	Hax	003	A											
08 Feb	N11W14	300	0130	05	Dao	010	B											
09 Feb	N10W27	300	0150	08	Cso	009	B											
10 Feb	N10W41	301	0120	03	Cso	003	B											
11 Feb	N10W54	301	0100	03	Cso	003	B											
12 Feb	N10W68	301	0070	02	Hsx	001	A											
13 Feb	N10W84	304	0090	02	Hax	001	A											
14 Feb	N10W95	302	0060	02	Hsx	001	A											
									0	0	0	0	0	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 298





**Region Summary- continued.**

Date	Location		Sunspot Characteristics				Flares											
	( ° Lat ° CMD)	Helio	Area (10 <sup>-6</sup> hemi)	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical							
		Lon						C	M	X	S	1	2	3	4			
<i>Region 9811</i>																		
02 Feb	S27E83	281	0090	02	Hax	001	A											
03 Feb	S27E70	282	0120	08	Cso	004	B											
04 Feb	S28E57	282	0290	07	Dao	007	B											
05 Feb	S25E45	281	0240	07	Dao	012	B											
06 Feb	S25E32	280	0200	06	Dao	012	B	2				2						
07 Feb	S26E20	279	0140	06	Dao	011	B											
08 Feb	S26E06	280	0140	06	Dao	012	B											
09 Feb	S27W05	278	0130	06	Cao	013	B	1				1						
10 Feb	S26W20	280	0100	04	Dso	005	B		1			2		1				
11 Feb	S26W32	279	0070	05	Dao	008	B											
12 Feb	S26W45	278	0040	05	Cso	004	B	1				4						
13 Feb	S25W60	280	0030	01	Hsx	001	A											
14 Feb	S24W71	278	0020	01	Hsx	001	A											
15 Feb	S24W84	278																
								4	1	0	9	0	1	0	0			

Crossed West Limb.

Absolute heliographic longitude: 278

<i>Region 9814</i>																		
03 Feb	N07E15	337	0010	04	Bxo	004	B											
04 Feb	N07E02	337	0010	00	Hrx	001	A											
05 Feb	N07W13	339	0010	01	Axx	002	A											
06 Feb	N07W26	339																
07 Feb	N07W39	339																
08 Feb	N08W51	337	0020	03	Cso	003	B											
09 Feb	N06W63	336	0010	01	Axx	001	A											
10 Feb	N06W76	336																
11 Feb	N06W89	336																
								0	0	0	0	0	0	0	0	0		

Crossed West Limb.

Absolute heliographic longitude: 337



***Region Summary - continued.***

Date	Location		Sunspot Characteristics				Flares							
	( ° Lat ° CMD)	Helio Lon	Area (10 <sup>-6</sup> hemi)	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical			
							C	M	X	S	1	2	3	4

*Region 9815*

03 Feb	N12E70	282	0080	03	Hsx	001	A								
04 Feb	N10E57	282	0080	02	Hax	002	A								
05 Feb	N12E43	283	0070	03	Cao	003	B								
06 Feb	N12E30	282	0100	03	Cao	007	B	1			1				
07 Feb	N12E17	282	0080	05	Cao	010	B	1							
08 Feb	N11E02	284	0060	06	Dao	013	B								
09 Feb	N11W09	282	0020	06	Bxo	009	B								
10 Feb	N11W24	284	0040	05	Bxo	005	B								
11 Feb	N11W37	284													
12 Feb	N11W50	284													
13 Feb	N11W63	284													
14 Feb	N11W76	284													
15 Feb	N11W89	284													
									2	0	0	1	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 284

*Region 9817*

05 Feb	S07E23	303	0020	03	Bxo	003	B								
06 Feb	S06E07	305	0000	00	Axx	001	A								
07 Feb	S06W06	305													
08 Feb	S06W19	305													
09 Feb	S06W32	305													
10 Feb	S06W45	305													
11 Feb	S06W58	305													
12 Feb	S06W71	305													
13 Feb	S06W84	305													
									0	0	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 305



**Region Summary - continued.**

Date	Location		Sunspot Characteristics				Flares							
	( ° Lat ° CMD)	Helio	Area (10 <sup>-6</sup> hemi)	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical			
		Lon						C	M	X	S	1	2	3

*Region 9818*

05 Feb	N06E54	272	0020	00	Axx	001	A											
06 Feb	N07E40	272	0010	02	Axx	002	A											
07 Feb	N07E27	272																
08 Feb	N07E14	272																
09 Feb	N06E01	272	0020	03	Hsx	002	A											
10 Feb	N06W12	272																
11 Feb	N06W25	272																
12 Feb	N06W38	272																
13 Feb	N06W51	272																
14 Feb	N06W64	272																
15 Feb	N06W77	272																

0 0 0 0 0 0 0 0

Crossed West Limb.

Absolute heliographic longitude: 272

*Region 9819*

05 Feb	S29E68	258	0050	01	Hsx	002	A											
06 Feb	S30E57	255	0050	03	Cao	004	B											
07 Feb	S31E43	256	0030	05	Cso	005	B											
08 Feb	S30E33	253	0020	03	Cro	004	B											
09 Feb	S31E19	254	0010	04	Cro	003	B											
10 Feb	S30E04	256	0020	06	Bxo	005	B											
11 Feb	S30W06	253	0020	03	Dso	002	B											
12 Feb	S30W19	253																
13 Feb	S29W33	253	0020	03	Cso	003	B											
14 Feb	S29W44	251	0020	01	Hsx	001	A											
15 Feb	S29W57	251	0010	01	Axx	001	A											
16 Feb	S28W72	253	0010	01	Axx	001	A											
17 Feb	S31W83	250	0010	02	Bxo	002	B											

0 0 0 1 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 256



**Region Summary - continued.**

Date	Location		Sunspot Characteristics				Flares							
	( ° Lat ° CMD)	Helio Lon	Area (10 <sup>-6</sup> hemi)	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical			
							C	M	X	S	1	2	3	4

*Region 9820*

07 Feb	N15E46	253	0020	04	Cso	003	B								
08 Feb	N15E30	256	0020	02	Hsx	002	A								
09 Feb	N14E15	258	0010	01	Axx	001	A								
10 Feb	N14E01	259	0010	00	Axx	001	A								
11 Feb	N14W12	259													
12 Feb	N14W25	259													
13 Feb	N14W38	259													
14 Feb	N14W51	259													
15 Feb	N14W64	259													
16 Feb	N14W77	259													
17 Feb	N14W90	259													
											0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 259

*Region 9821*

08 Feb	S14E16	270	0030	05	Dso	011	B								
09 Feb	S14E03	270	0080	08	Dso	026	B	3		3					
10 Feb	S14W11	271	0280	11	Esi	033	Bg	2		3					
11 Feb	S13W25	272	0310	12	Eai	032	Bg	3		5					
12 Feb	S13W38	271	0350	11	Eki	030	B	1		4					
13 Feb	S13W53	273	0330	09	Dai	014	B								
14 Feb	S12W66	273	0260	10	Dao	012	B								
15 Feb	S11W81	275	0110	05	Dso	004	B	1		1					
								10	0	0	16	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 270

*Region 9822*

08 Feb	N18E69	217	0150	09	Dao	009	B								
09 Feb	N17E56	217	0070	06	Cso	005	B	1		1					
10 Feb	N17E40	220	0070	05	Cso	007	B								
11 Feb	N18E26	221	0040	05	Cao	007	B	1							
12 Feb	N18E12	221	0030	07	Cso	004	B								
13 Feb	N17W05	225	0010	03	Bxo	004	B	1		2					
14 Feb	N17W18	225	0010	02	Bxo	004	B	1		1	1				
15 Feb	N17W31	225						1		1					
16 Feb	N17W44	225													
17 Feb	N17W57	225													
								5	0	0	5	1	0	0	0

Still on Disk.

Absolute heliographic longitude: 225



**Region Summary - continued.**

Date	Location		Sunspot Characteristics				Flares							
	Helio		Area (10 <sup>-6</sup> hemi)	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical			
	(° Lat ° CMD)	Lon						C	M	X	S	1	2	3

*Region 9823*

09 Feb	S05E24	249	0020	03	Cso	004	B										
10 Feb	S05E09	251	0030	06	Cso	007	B										
11 Feb	S04W05	252	0050	06	Dao	007	B										
12 Feb	S04W19	252	0120	06	Cao	004	B										
13 Feb	S04W36	256	0020	01	Hax	002	A										
14 Feb	S02W50	257	0010	01	Hsx	001	A										
15 Feb	S03W62	256	0020	01	Hsx	001	A										
16 Feb	S03W75	256															
17 Feb	S03W88	256															

0 0 0 0 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 252

*Region 9824*

09 Feb	N21E67	206	0100	02	Hsx	001	A										
10 Feb	N21E54	206	0130	03	Hsx	001	A										
11 Feb	N21E41	206	0130	03	Hax	001	A										
12 Feb	N22E30	203	0140	03	Hax	001	A										
13 Feb	N22E16	204	0180	03	Hsx	001	A										
14 Feb	N22E04	203	0130	03	Hsx	001	A										
15 Feb	N23W09	203	0180	03	Hsx	001	A										
16 Feb	N23W22	203	0140	04	Cso	002	B										
17 Feb	N23W35	202	0140	01	Hsx	001	A										

0 0 0 0 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 203

*Region 9825*

09 Feb	N12E69	204	0320	13	Eko	006	B					1					
10 Feb	N12E57	203	0480	13	Eki	012	B	1					1				
11 Feb	N12E43	204	0380	14	Eki	016	B	2					3				
12 Feb	N13E30	203	0310	13	Eki	030	Bg	3					4	1			
13 Feb	N14E16	204	0460	17	Fai	038	Bg	5					8	1			
14 Feb	N13E01	206	0500	18	Fkc	053	Bg	5					6				
15 Feb	N14W13	207	0500	18	Fac	053	Bg	2					3				
16 Feb	N13W24	205	0290	18	Fai	032	Bg										
17 Feb	N12W36	203	0290	17	Fai	024	Bg										

18 0 0 25 3 0 0 0

Still on Disk.

Absolute heliographic longitude: 206



**Region Summary - continued.**

Date	Location		Sunspot Characteristics				Flares							
	( ° Lat ° CMD)	Helio Lon	Area (10 <sup>-6</sup> hemi)	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical			
							C	M	X	S	1	2	3	4

*Region 9826*

10 Feb	S23E39	221	0020	03	Cao	005	B									
11 Feb	S23E25	222	0040	06	Dso	007	B									
12 Feb	S22E12	221	0030	07	Cso	006	B									
13 Feb	S23W02	222	0080	04	Dso	004	B									
14 Feb	S22W15	222	0010	04	Bxo	005	B	1			1					
15 Feb	S22W28	222														
16 Feb	S22W41	222														
17 Feb	S22W54	222														
								1	0	0	1	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 222

*Region 9827*

11 Feb	S25W43	290	0010	00	Axx	001	A									
12 Feb	S25W56	290														
13 Feb	S25W69	290														
14 Feb	S25W82	290														
								0	0	0	0	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 290

*Region 9828*

11 Feb	S15E50	197	0020	01	Hsx	001	A									
12 Feb	S16E38	195	0010	00	Axx	001	A									
13 Feb	S16E25	195	0000	00		000										
14 Feb	S16E10	197	0010	02	Cso	005	B									
15 Feb	S16W04	198	0000	01	Bxo	002	B									
16 Feb	S15W18	199	0010	02	Bxo	002	B									
17 Feb	S15W31	199														
								0	0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 198

*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									
								1	0	0	1	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 131



***Region Summary - continued.***

Date	Location		Sunspot Characteristics				Flares							
	( ° Lat ° CMD)	Helio Lon	Area (10 <sup>-6</sup> hemi)	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical			
							C	M	X	S	1	2	3	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				
								3	0	0	9	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 135

*Region 9831*

16 Feb	S11W41	222	0010	03	Bxo	002	B								
17 Feb	S11W52	219	0000	00	Axx	001	A								
								0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 222



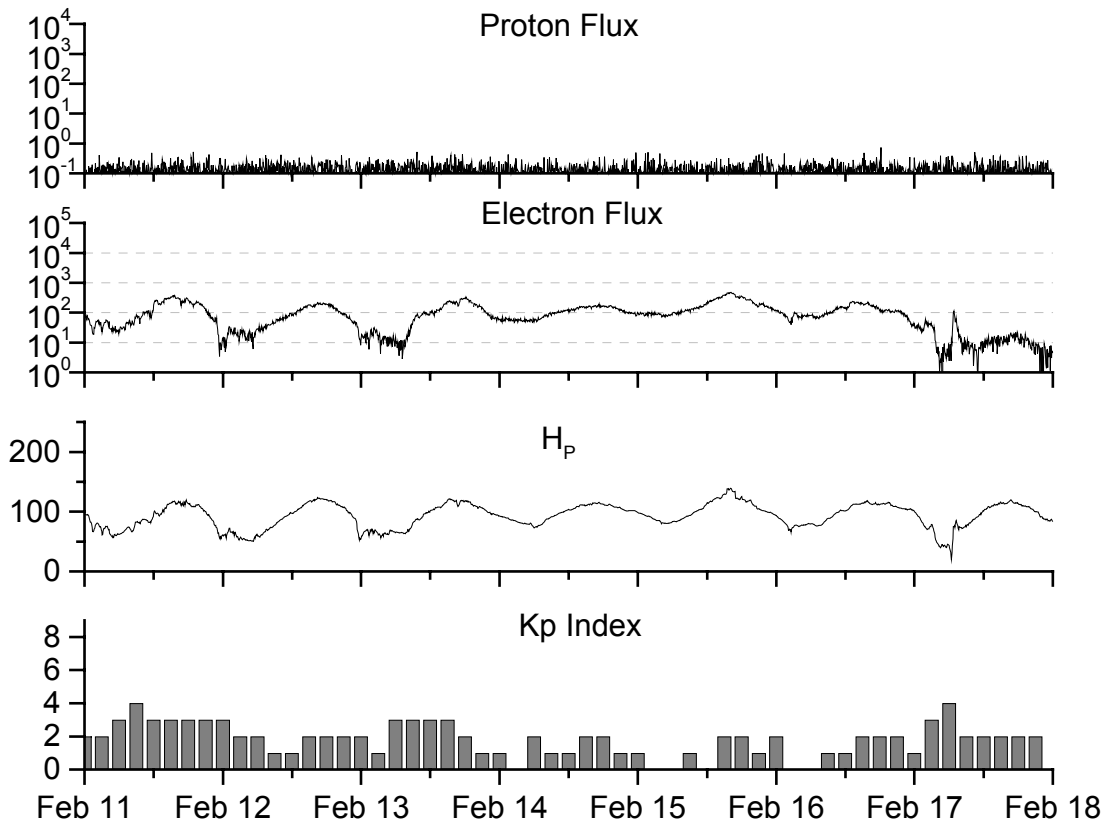
**Recent Solar Indices (preliminary)  
of the observed monthly mean values**

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
<b>2000</b>									
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
<b>2001</b>									
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			163.2		13	
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	
<b>2002</b>									
January	189.0	113.9	0.60			226.4		07	

**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 11 February 2002*

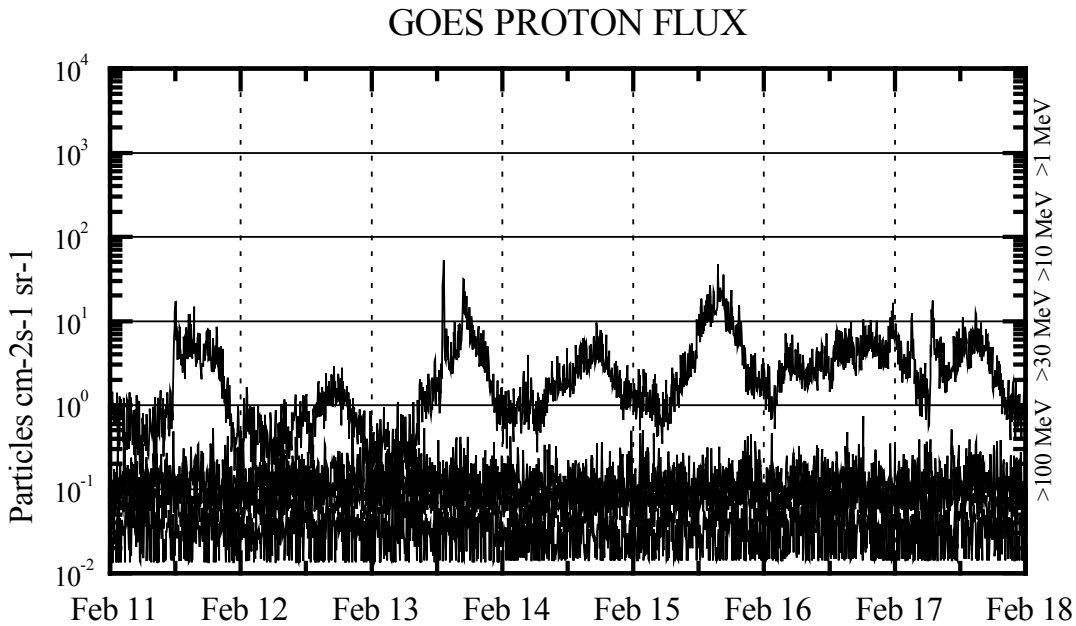
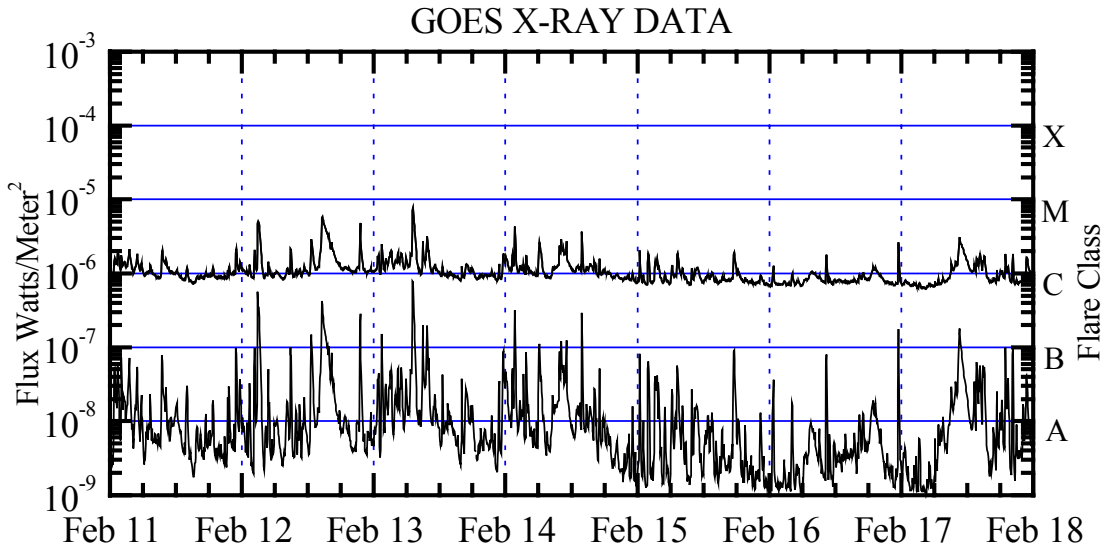
*Protons* plot contains the five-minute averaged integral proton flux (protons/cm<sup>2</sup>-sec-sr) as measured by GOES-8 (W75) for each of three energy thresholds: greater than 10, 50, and 100 MeV.

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

*H<sub>p</sub>* 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<sub>p</sub>* 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 K<sub>p</sub> 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<sub>p</sub> are "global" parameters that are applicable to a first order approximation over large areas. H<sub>p</sub> 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<sup>2</sup>) 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<sup>2</sup>-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<sup>2</sup>-sec-sr) at greater than 10 MeV.

