

**Space Weather Highlights**  
**08 – 14 January 2001**

**SWO PRF 1324**  
**16 January 2001**

Solar activity was at low to moderate levels during the period. The period began with activity at low levels due to isolated C-class subflares. Activity increased to moderate levels on 09 January due to an M1/1n flare from Region 9306 (N12, L = 055, class/area Fac/510 on 14 January). Region 9306, which showed gradual development through the period, was a large region with a moderate degree of magnetic complexity. Activity remained at moderate levels during 10 January by virtue of an impulsive M3/1n flare at 10/1016 UTC from Region 9302 (N19, L = 088, class/area Cso/110 on 5 January), which was in a short-lived growth phase at the time of the flare. Region 9306 produced a long-duration C5/1n flare at 10/0103 UTC associated with a partial- halo CME, and Type II and IV radio sweeps. Another Type IV radio sweep occurred at 10/0119 UTC. Activity decreased to low levels during 11 - 14 January due to isolated to occasional low-level C-class subflares. A large filament erupted from the northwest limb at approximately 14/0430 UTC. A large coronal mass ejection followed the eruption, but it did not appear to be Earth-directed.

Data were available from the Advanced Composition Explorer (ACE) spacecraft for most of the period. A weak, positive-polarity high speed stream occurred during 10 - 11 January with velocities briefly reaching as high as 510 km/sec during 11 January. A weak shock passed the spacecraft at approximately 13/0200 UTC, presumably associated with the partial-halo CME observed on 10 January.

There were no proton events detected at geosynchronous orbit.

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

Geomagnetic field activity was at quiet to unsettled levels during most of the period. However, an active period occurred during 12/0300 - 0600 UTC.

**Space Weather Outlook**  
**17 January - 12 February 2001**

Solar activity is expected to be at mostly low levels with isolated M-class flares possible sometime during the period.

No proton events are expected during the period.

The greater than 2 MeV electron flux at geosynchronous orbit is expected to be at normal to moderate levels.

Geomagnetic field activity is expected to be at quiet to unsettled levels, barring an Earth-directed CME.



### 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
08 January	167	167	780	B7.4	5	0	0	4	0	0	0	0
09 January	166	140	560	B7.3	5	1	0	3	1	0	0	0
10 January	163	139	480	C1.7	6	1	0	4	2	0	0	0
11 January	166	173	590	B8.0	5	0	0	3	0	0	0	0
12 January	178	173	710	B5.6	6	0	0	3	0	0	0	0
13 January	184	146	860	B6.7	5	0	0	5	0	0	0	0
14 January	176	181	890	B7.7	7	0	0	3	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	>4Me
	08 January	2.3E+5	1.1E+4	2.5E+3		3.0E+5
09 January	4.8E+4	1.2E+4	2.4E+3		9.3E+4	
10 January	1.1E+5	1.1E+4	2.2E+3		1.1E+5	
11 January	7.5E+4	1.2E+4	2.4E+3		1.2E+5	
12 January	8.0E+4	1.2E+4	2.6E+3		6.1E+5	
13 January	1.5E+5	1.2E+4	2.6E+3		1.9E+6	
14 January	2.8E+5	1.2E+4	2.4E+3		1.3E+6	

### Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	08 January	8	2-2-1-1-2-2-3-3	*	*_*_*_*_*-1-2-3	10
09 January	2	1-0-0-1-1-1-1-1	10	2-0-1-3-4-1-4-1	5	1-1-0-1-2-2-2-1
10 January	5	0-0-0-0-1-3-2-3	4	0-0-0-0-1-3-1-2	4	0-0-0-0-1-3-2-2
11 January	4	1-1-1-1-2-2-1-1	6	0-0-0-1-3-3-3-1	5	1-0-0-1-2-2-3-2
12 January	5	2-3-2-2-1-1-0-0	10	2-2-2-5-2-0-0-0	7	2-3-2-3-2-2-1-1
13 January	6	1-1-1-2-3-2-1-1	*	1-0-1-1-*-1-1-0	5	1-0-1-2-3-2-2-1
14 January	6	1-3-2-1-1-1-2-2	7	1-1-2-4-2-0-2-0	8	1-2-2-2-2-3-3-2



*Alerts and Warnings Issued*

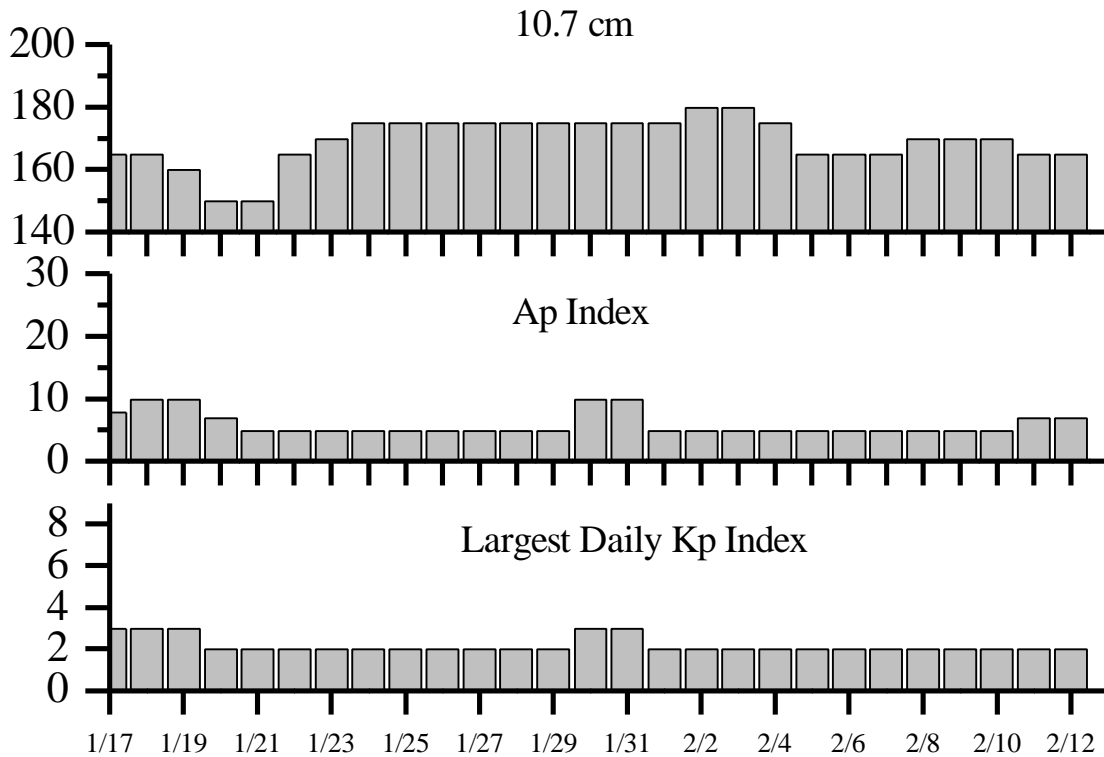
---

<u>Date &amp; Time of Issue</u>	<u>Type of Alert or Warning</u>	<u>Date &amp; Time of Event UT</u>
08 Jan 0031	2 – 245 MHz Radio Bursts	07 Jan
09 Jan 0039	3 – 245 MHz Radio Bursts	08 Jan
09 Jan 0039	245 MHz Radio Noise Storm	08 Jan
09 Jan 2304	Type II Radio Emission	09 Jan 2241
10 Jan 0041	1 – 245 MHz Radio Burst	09 Jan
10 Jan 0101	Type II Radio Emission	10 Jan 0042
10 Jan 0105	Type IV Radio Emission	10 Jan 0051
10 Jan 0206	Type IV Radio Emission	10 Jan 0119
10 Jan 1032	10cm Radio Burst 210 F.U.	10 Jan 1014
11 Jan 1047	3 – 245 MHz Radio Bursts	10 Jan
11 Jan 0546	K= 4 Warning	11 Jan 0550 - 0900
11 Jan 0552	K= 5 Warning	11 Jan 0555 - 0900
11 Jan 0600	K= 5 Observed	11 Jan 03 - 06
11 Jan 1559	CANCELLED K= 5 Observed	11 Jan 03 - 06
12 Jan 0600	K= 4 Observed	12 Jan 03 -06
13 Jan 0046	1 – 245 MHz Radio Burst	12 Jan

---



## 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
17 Jan	165	8	3	31 Jan	175	10	3
18	165	10	3	01 Feb	175	5	2
19	160	10	3	02	180	5	2
20	150	7	2	03	180	5	2
21	150	5	2	04	175	5	2
22	165	5	2	05	165	5	2
23	170	5	2	06	165	5	2
24	175	5	2	07	165	5	2
25	175	5	2	08	170	5	2
26	175	5	2	09	170	5	2
27	175	5	2	10	170	5	2
28	175	5	2	11	165	7	2
29	175	5	2	12	165	7	2
30	175	10	3				



***Energetic Events***

Date	Time		X-ray		Optical Information			Peak		Sweep Freq		
	Begin	Max	½	Integ	Imp/ Brtns	Location		Rgn #	Radio Flux		Intensity	
			Max	Class		Flux	Lat		CMD	245	2695	II
09 Jan	0645	0650	0652	M1.8	.003	1n	N10E50	9306	73	32		
10 Jan	1012	1016	1018	M3.5	.006	1n	N19E06	9302	580	210		

***Flare List***

Date	Time			X-ray Class.	Imp / Brtns	Optical		Rgn
	Begin	Max	End			Location	Lat CMD	
08 January	0320	0335	0349	C4.2				9289
	0633	0634	0639		Sf	S04W68		9303
	1041	1105	1133	C5.1				9302
	1216	1220	1225	C2.9				
	1338	1342	1344	C2.9				
	1359	1359	1404		Sf	N10E62		
	1521	1532	1537		Sf	N10E63		9306
09 January	1609	1610	1614		Sf	N09E61		9306
	2041	2044	2047	C1.0				
	0113	0117	0124	C1.2				
	0448	0454	0456	C1.7				
	0648	0650	0657	M1.8	1n	N10E50		9306
	0844	0854	0902	C5.1				
	1005	1009	1012		Sf	N10E47		9306
	1200	1205	1211	C1.6				
	1331	1331	1345		Sf	N09E53		9306
	1557	1608	1617	C2.6				
10 January	1703	1705	1712		Sf	N27W16		
	0011	0015	0020	C1.4				
	0034	0058	0138	C5.9	1n	N13E36		9306
	0208	0209	0212		Sf	N11E41		9306
	1015	1015	1023	M3.5	1n	N19E06		9302
	1121	1125	1127	C2.3				
	1419	1419	1423	C1.8	Sf	N10E38		9306
	1803	1804	1813	C2.5	Sn	N17E02		9302
11 January	1946	1947	1950		Sf	N09E35		9306
	2331	2335	2339	C1.1				
	0016	0016	0022	C1.2	Sf	N10W01		9301
	0212	0212	0217	C1.2	Sf	N13E51		9308
	0343	0348	0351	C1.3				
	1352	1426	1452	C1.4				
	1828	1842	1856	C1.8				
	2154	2155	2158	B8.2	Sf	N11E17		9306



*Flare List – continued.*

Date	Time			X-ray Class.	Optical		Rgn
	Begin	Max	End		Imp / Brtns	Location Lat CMD	
12 January	0003	0004	0015	C1.6	Sf	N14E39	9308
	0041	0045	0049	C1.5	Sf	N18W15	9302
	0600	0618	0628	C1.4			
	0701	0706	0712	C1.4			
	1202	1212	1216	C2.1			
	1355	1357	1429		Sf	S13W51	9295
	1634	1718	1836	C1.5			
13 January	1356	1356	1400	C1.2	Sf	N18W36	9302
	1436	1513	1525	C1.6			
	1657	1658	1701	C2.3	Sf	N18W37	9302
	1943	1947	1954	C3.4	Sf	N11W12	9306
	1956	1957	2000		Sf	N11W09	9306
	2011	2012	2031		Sf	N13E13	9308
	2137	2143	2150	C2.0			
14 January	0249	0250	0306	C8.1	Sf	N10W17	9306
	0435	0442	0446		Sf	N08W74	9296
	0659	0703	0709	C1.4			
	0843	0847	0850	C2.4			
	1024	1030	1036	C4.6			
	1213	1217	1223	C1.3			
	1556	1558	1605	C1.7	Sf	N14W19	9306
	2103	2107	2110	C1.5			



### Region Summary

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 9289</i>																	
26 Dec	S07E81	202	0050	04	Dso	002	B		1			1					
27 Dec	S08E64	205	0330	10	Dao	012	B	7	1			10	2				
28 Dec	S06E57	199	0790	12	Eko	020	Bg	4				4	2				
29 Dec	S06E43	200	0770	13	Eko	019	Bg	1	2			2	2				
30 Dec	S07E30	200	0890	13	Eki	024	Bg	1				2					
31 Dec	S07E16	201	0880	13	Eki	040	Bg										
01 Jan	S06E03	201	0890	14	Eki	035	Bg	1				1					
02 Jan	S07W10	201	0690	14	Eki	037	B										
03 Jan	S07W25	203	0590	13	Eko	023	B	1				1					
04 Jan	S07W38	203	0530	12	Eko	019	B	1				1					
05 Jan	S07W52	204	0440	12	Eki	015	B										
06 Jan	S06W67	205	0480	08	Dai	009	B										
07 Jan	S06W83	208	0240	06	Dao	004	B		1								
08 Jan	S07W96	208	0090	04	Dso	002	B		1								
								18	4	0	22	6	0	0	0	0	

Crossed West Limb.

Absolute heliographic longitude: 201

<i>Region 9292</i>																	
30 Dec	N25E63	167	0060	01	Hsx	001	A										
31 Dec	N24E47	170	0000	00	Hrx	001	A					1					
01 Jan	N24E34	170										1					
02 Jan	N24E21	170															
03 Jan	N24E08	170															
04 Jan	N25W04	169	0030	03	Cro	006	B										
05 Jan	N24W18	170	0040	01	Hsx	001	A										
06 Jan	N24W29	167	0010	01	Axx	002	A										
07 Jan	N24W42	167															
08 Jan	N24W55	167															
09 Jan	N24W68	167															
10 Jan	N24W81	167															
								0	0	0	2	0	0	0	0	0	

Crossed West Limb.

Absolute heliographic longitude: 169



**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 9293*

01 Jan	N13E41	163	0040	03	Cao	004	B										
02 Jan	N13E26	165	0040	05	Dso	005	B										
03 Jan	N13E13	165	0030	07	Dao	007	B										
04 Jan	N14W03	168	0020	05	Cso	004	B										
05 Jan	N14W18	170	0000	01	Axx	001	A										
06 Jan	N11W26	164	0010	03	Cso	003	B										
07 Jan	N11W39	164															
08 Jan	N11W52	164															
09 Jan	N11W65	164															
10 Jan	N11W78	164															

0 0 0 0 0 0 0 0

Crossed West Limb.

Absolute heliographic longitude: 168

*Region 9294*

01 Jan	N22E69	135	0040	02	Hsx	001	A										
02 Jan	N22E55	136	0030	02	Hsx	001	A										
03 Jan	N22E43	135	0050	03	Cso	003	B	1			1						
04 Jan	N23E31	134	0040	06	Cso	005	B										
05 Jan	N22E18	134	0030	03	Cso	002	B										
06 Jan	N22E06	132	0020	02	Hsx	002	A										
07 Jan	N22W10	135	0020	01	Hsx	001	A										
08 Jan	N23W20	132	0020	06	Cso	004	B										
09 Jan	N23W33	132	0010	06	Cso	005	B										
10 Jan	N24W47	133	0010	08	Bxo	004	B										
11 Jan	N22W62	135	0000	00	Axx	001	A										
12 Jan	N22W75	135															
13 Jan	N22W88	135															

1 0 0 1 0 0 0 0

Crossed West Limb.

Absolute heliographic longitude: 132





**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 9295</i>																		
02 Jan	S12E73	118	0070	02	Hsx	001	A											
03 Jan	S14E60	119	0060	10	Cso	002	B											
04 Jan	S13E45	120	0080	02	Hsx	001	A											
05 Jan	S14E30	122	0080	04	Cao	003	B											
06 Jan	S14E19	119	0070	03	Cao	004	B											
07 Jan	S13E05	120	0050	02	Cso	002	B											
08 Jan	S13W08	120	0040	02	Hax	002	A											
09 Jan	S13W21	120	0030	03	Cso	004	B											
10 Jan	S13W34	120	0020	01	Hsx	001	A											
11 Jan	S12W47	120	0010	01	Hsx	001	A											
12 Jan	S12W60	119	0030	01	Hsx	001	A											1
13 Jan	S12W72	118	0020	00	Hrx	001	A											
14 Jan	S13W84	117	0000	00	Axx	001	A											
										0	0	0	1	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 120

<i>Region 9296</i>																		
02 Jan	N10E76	116	0070	02	Hax	001	A											
03 Jan	N08E59	119	0100	09	Cso	004	B											
04 Jan	N08E47	118	0070	02	Hsx	001	A											
05 Jan	N08E34	118	0150	02	Hsx	001	A											1
06 Jan	N09E22	116	0130	03	Cso	002	B											
07 Jan	N08E08	117	0130	03	Hsx	001	A											
08 Jan	N08W06	118	0150	03	Hsx	004	A											
09 Jan	N08W18	117	0170	03	Hax	003	A											
10 Jan	N08W31	117	0110	03	Cao	006	B											
11 Jan	N08W45	118	0090	03	Hax	005	A											
12 Jan	N09W59	118	0070	02	Hax	002	A											
13 Jan	N08W72	118	0050	02	Hsx	002	A											
14 Jan	N08W84	117	0030	02	Dso	002	B											1
										0	0	0	2	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 118



**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 9297*

04 Jan	N24W16	181	0030	04	Cso	004	B										
05 Jan	N23W28	180	0080	07	Dao	006	B										
06 Jan	N23W41	179	0080	08	Dao	012	B										
07 Jan	N23W55	180	0080	09	Dso	011	B										
08 Jan	N24W71	183	0070	02	Hsx	001	A										
09 Jan	N23W86	185	0030	01	Hsx	001	A										

0 0 0 0 0 0 0 0 0

Crossed West Limb.

Absolute heliographic longitude: 181

*Region 9298*

04 Jan	S22W04	169	0010	02	Axx	002	A										
05 Jan	S22W17	169															
06 Jan	S22W30	169															
07 Jan	S22W43	169															
08 Jan	S22W56	169															
09 Jan	S22W69	169															
10 Jan	S22W82	169															

0 0 0 0 0 0 0 0 0

Crossed West Limb.

Absolute heliographic longitude: 169

*Region 9299*

04 Jan	N09E39	126	0010	02	Axx	002	A										
05 Jan	N09E26	126	0000	00	Axx	001	A										
06 Jan	N09E13	126	0000	00		000											
07 Jan	N10W03	128	0010	02	Bxo	002	B										
08 Jan	N10W16	128															
09 Jan	N10W29	128															
10 Jan	N10W42	128															
11 Jan	N10W55	128															
12 Jan	N10W68	128															
13 Jan	N10W81	128															

0 0 0 0 0 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 128





**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 9302</i>																				
05 Jan	N19E66	086	0110	09	Cso	005	B	2				3								
06 Jan	N19E52	086	0090	08	Dso	005	B	1				1								
07 Jan	N20E39	086	0080	06	Cso	005	B	1												
08 Jan	N18E25	087	0070	03	Dso	003	B	1												
09 Jan	N18E12	087	0090	03	Cso	002	B													
10 Jan	N18W02	088	0080	04	Dso	008	B	1	1			1	1							
11 Jan	N18W15	088	0070	03	Cao	007	B													
12 Jan	N19W28	087	0050	03	Cao	006	B	1				1								
13 Jan	N19W41	087	0060	04	Cao	003	B	2				2								
14 Jan	N19W54	087	0030	04	Cso	004	B													
									9	1	0	8	1	0	0	0	0			

Still on Disk.

Absolute heliographic longitude: 088

*Region 9303*

06 Jan	S04W47	185	0040	04	Dso	004	B													
07 Jan	S04W62	187	0090	06	Dao	007	B													
08 Jan	S04W75	187	0160	08	Dao	005	B					1								
09 Jan	S04W90	189	0060	02	Hsx	001	A													
									0	0	0	1	0	0	0	0	0			

Crossed West Limb.

Absolute heliographic longitude: 185

*Region 9304*

07 Jan	N11E58	067	0080	16	Fso	007	B													
08 Jan	N12E44	068	0040	10	Dso	007	B													
09 Jan	N11E29	070	0050	09	Dao	006	B													
10 Jan	N11E14	072	0050	09	Dso	005	B													
11 Jan	N12W01	074	0030	02	Hax	003	A													
12 Jan	N11W16	075	0030	01	Cao	002	B													
13 Jan	N11W30	076	0030	01	Hsx	001	A													
14 Jan	N11W44	077	0030	01	Hsx	001	A													
									0	0	0	0	0	0	0	0	0			

Still on Disk.

Absolute heliographic longitude: 074





**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	
<b>Region 9309</b>																
11 Jan	N10W14	087	0070	05	Dao	010	B									
12 Jan	N10W26	085	0060	05	Dao	007	B									
13 Jan	N10W39	085	0060	03	Cso	002	B									
14 Jan	N09W51	084	0040	02	Cso	003	B									
								0	0	0	0	0	0	0	0	0
Still on Disk.																
Absolute heliographic longitude: 087																
<b>Region 9310</b>																
14 Jan	N26E52	341	0030	02	Cso	002	B									
								0	0	0	0	0	0	0	0	0
Still on Disk.																
Absolute heliographic longitude: 341																

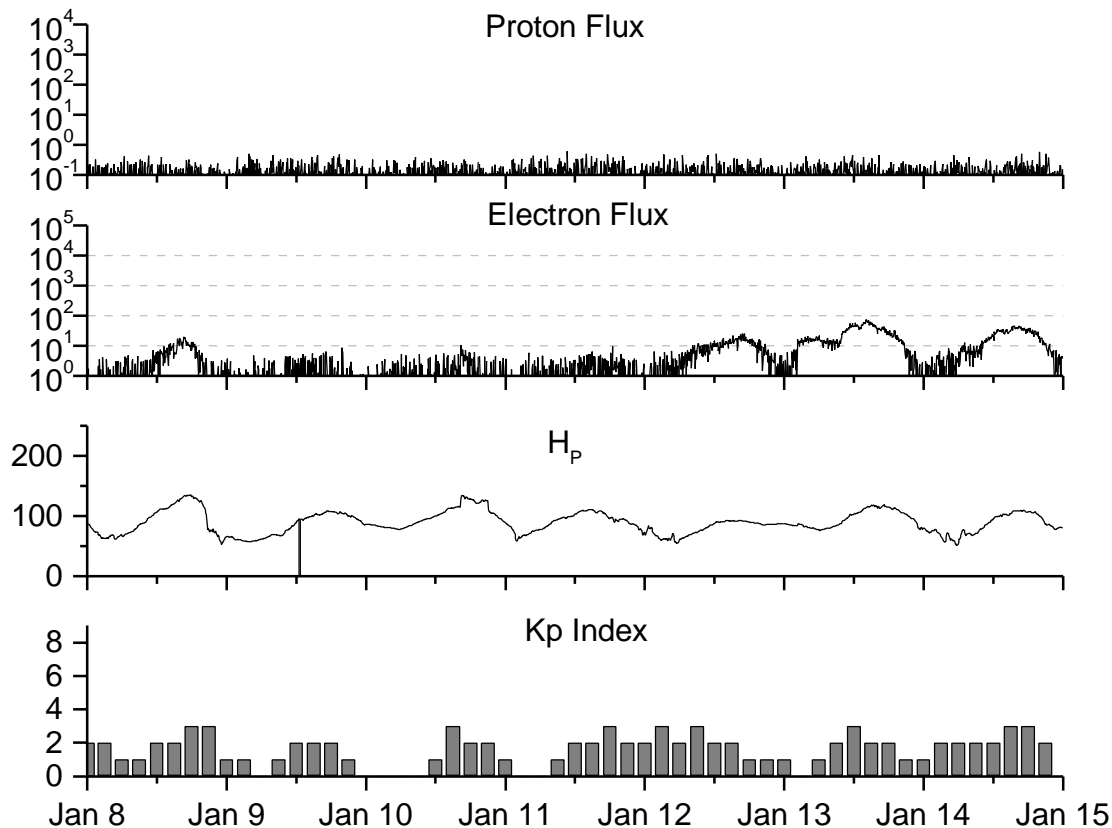


**Recent Solar Indices (preliminary)  
of the observed monthly mean values**

Month	Sunspot Numbers					Radio Flux		Geomagnetic	
	Observed values		Ratio	Smooth values		*Penticton	Smooth	Planetary	Smooth
	SWO	RI	RI/SWO	SWO	RI	10.7 cm	Value	Ap	Value
<b>1999</b>									
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	85.5	117.2	145.8	12	12.2
May	140.5	106.4	0.76	131.7	90.5	148.6	149.9	08	12.4
June	208.3	137.7	0.66	136.0	93.1	169.8	152.9	07	12.4
July	169.2	113.5	0.67	138.0	94.3	165.6	154.4	10	12.6
August	136.1	93.7	0.69	142.8	97.5	170.8	156.3	15	12.9
September	107.4	71.5	0.67	150.0	102.3	135.7	161.0	19	12.8
October	167.7	116.7	0.70	158.5	107.8	164.8	167.2	19	12.7
November	199.3	133.2	0.67	164.7	110.9	191.5	171.5	14	13.1
December	123.5	86.4	0.69	165.9	111.0	169.8	173.4	10	13.8
<b>2000</b>									
January	140.8	90.1	0.64	168.0	112.8	158.1	175.5	13	14.5
February	161.9	112.9	0.70	172.1	116.6	173.2	176.8	15	15.1
March	203.6	138.5	0.68	175.4	119.8	208.2	178.4	09	15.1
April	193.4	125.3	0.65	176.3	120.7	184.2	180.5	15	14.9
May	188.8	120.8	0.64	173.1	118.9	184.5	180.1	15	14.8
June	190.3	124.9	0.66	172.0	118.6	179.8	179.7	15	14.8
July	236.7	169.1	0.71			204.7		21	
August	166.6	130.5	0.78			163.1		18	
September	157.9	109.9	0.70			182.1		16	
October	138.9	100.1	0.72			167.8		16	
November	149.9	106.5	0.71			178.8		16	
December	146.4	104.5	0.71			173.8		07	

**NOTE:** All smoothed values after September 1999 and monthly values after March 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 08 January 2001*

*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.

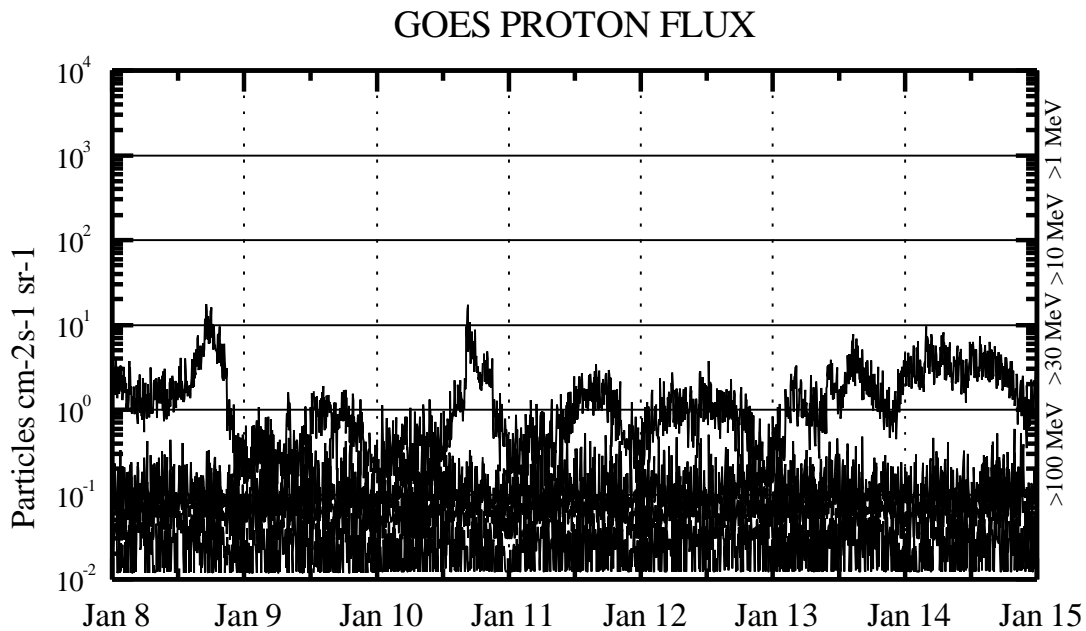
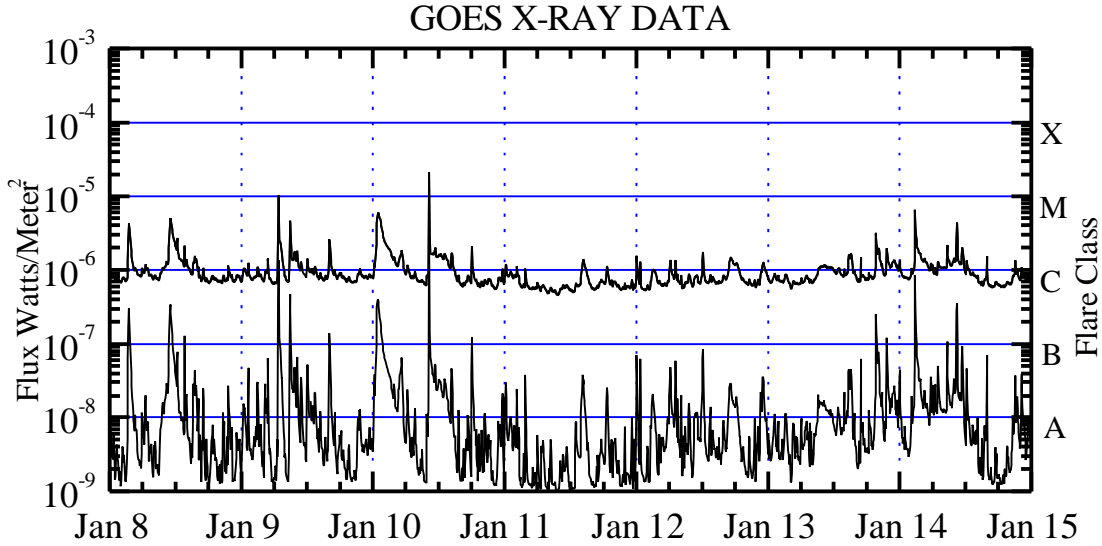
*H<sub>p</sub>* plot contains the five minute averaged magnetic field H - component in nanoteslas (nT) as measured by GOES-8. The H component is parallel to the spin axis of the satellite, which is nearly parallel to the Earth's rotation axis.

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



**Space Weather Highlights**  
**08 – 14 January 2001**

**SWO PRF 1324**  
**16 January 2001**

Solar activity was at low to moderate levels during the period. The period began with activity at low levels due to isolated C-class subflares. Activity increased to moderate levels on 09 January due to an M1/1n flare from Region 9306 (N12, L = 055, class/area Fac/510 on 14 January). Region 9306, which showed gradual development through the period, was a large region with a moderate degree of magnetic complexity. Activity remained at moderate levels during 10 January by virtue of an impulsive M3/1n flare at 10/1016 UTC from Region 9302 (N19, L = 088, class/area Cso/110 on 5 January), which was in a short-lived growth phase at the time of the flare. Region 9306 produced a long-duration C5/1n flare at 10/0103 UTC associated with a partial- halo CME, and Type II and IV radio sweeps. Another Type IV radio sweep occurred at 10/0119 UTC. Activity decreased to low levels during 11 - 14 January due to isolated to occasional low-level C-class subflares. A large filament erupted from the northwest limb at approximately 14/0430 UTC. A large coronal mass ejection followed the eruption, but it did not appear to be Earth-directed.

Data were available from the Advanced Composition Explorer (ACE) spacecraft for most of the period. A weak, positive-polarity high speed stream occurred during 10 - 11 January with velocities briefly reaching as high as 510 km/sec during 11 January. A weak shock passed the spacecraft at approximately 13/0200 UTC, presumably associated with the partial-halo CME observed on 10 January.

There were no proton events detected at geosynchronous orbit.

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

Geomagnetic field activity was at quiet to unsettled levels during most of the period. However, an active period occurred during 12/0300 - 0600 UTC.

**Space Weather Outlook**  
**17 January - 12 February 2001**

Solar activity is expected to be at mostly low levels with isolated M-class flares possible sometime during the period.

No proton events are expected during the period.

The greater than 2 MeV electron flux at geosynchronous orbit is expected to be at normal to moderate levels.

Geomagnetic field activity is expected to be at quiet to unsettled levels, barring an Earth-directed CME.



### 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
08 January	167	167	780	B7.4	5	0	0	4	0	0	0	0
09 January	166	140	560	B7.3	5	1	0	3	1	0	0	0
10 January	163	139	480	C1.7	6	1	0	4	2	0	0	0
11 January	166	173	590	B8.0	5	0	0	3	0	0	0	0
12 January	178	173	710	B5.6	6	0	0	3	0	0	0	0
13 January	184	146	860	B6.7	5	0	0	5	0	0	0	0
14 January	176	181	890	B7.7	7	0	0	3	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	>4Me
	08 January	2.3E+5	1.1E+4	2.5E+3		3.0E+5
09 January	4.8E+4	1.2E+4	2.4E+3		9.3E+4	
10 January	1.1E+5	1.1E+4	2.2E+3		1.1E+5	
11 January	7.5E+4	1.2E+4	2.4E+3		1.2E+5	
12 January	8.0E+4	1.2E+4	2.6E+3		6.1E+5	
13 January	1.5E+5	1.2E+4	2.6E+3		1.9E+6	
14 January	2.8E+5	1.2E+4	2.4E+3		1.3E+6	

### Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	08 January	8	2-2-1-1-2-2-3-3	*	*_*_*_*_*-1-2-3	10
09 January	2	1-0-0-1-1-1-1-1	10	2-0-1-3-4-1-4-1	5	1-1-0-1-2-2-2-1
10 January	5	0-0-0-0-1-3-2-3	4	0-0-0-0-1-3-1-2	4	0-0-0-0-1-3-2-2
11 January	4	1-1-1-1-2-2-1-1	6	0-0-0-1-3-3-3-1	5	1-0-0-1-2-2-3-2
12 January	5	2-3-2-2-1-1-0-0	10	2-2-2-5-2-0-0-0	7	2-3-2-3-2-2-1-1
13 January	6	1-1-1-2-3-2-1-1	*	1-0-1-1-*-1-1-0	5	1-0-1-2-3-2-2-1
14 January	6	1-3-2-1-1-1-2-2	7	1-1-2-4-2-0-2-0	8	1-2-2-2-2-3-3-2



*Alerts and Warnings Issued*

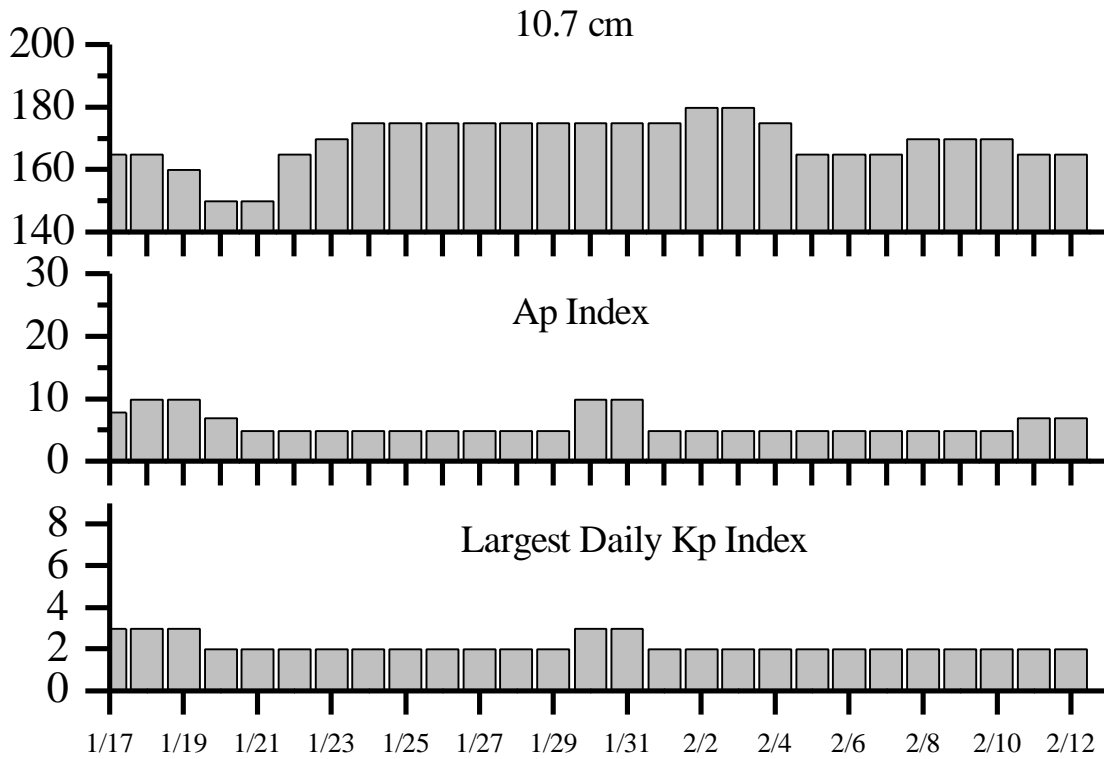
---

<u>Date &amp; Time of Issue</u>	<u>Type of Alert or Warning</u>	<u>Date &amp; Time of Event UT</u>
08 Jan 0031	2 – 245 MHz Radio Bursts	07 Jan
09 Jan 0039	3 – 245 MHz Radio Bursts	08 Jan
09 Jan 0039	245 MHz Radio Noise Storm	08 Jan
09 Jan 2304	Type II Radio Emission	09 Jan 2241
10 Jan 0041	1 – 245 MHz Radio Burst	09 Jan
10 Jan 0101	Type II Radio Emission	10 Jan 0042
10 Jan 0105	Type IV Radio Emission	10 Jan 0051
10 Jan 0206	Type IV Radio Emission	10 Jan 0119
10 Jan 1032	10cm Radio Burst 210 F.U.	10 Jan 1014
11 Jan 1047	3 – 245 MHz Radio Bursts	10 Jan
11 Jan 0546	K= 4 Warning	11 Jan 0550 - 0900
11 Jan 0552	K= 5 Warning	11 Jan 0555 - 0900
11 Jan 0600	K= 5 Observed	11 Jan 03 - 06
11 Jan 1559	CANCELLED K= 5 Observed	11 Jan 03 - 06
12 Jan 0600	K= 4 Observed	12 Jan 03 -06
13 Jan 0046	1 – 245 MHz Radio Burst	12 Jan

---



**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
17 Jan	165	8	3	31 Jan	175	10	3
18	165	10	3	01 Feb	175	5	2
19	160	10	3	02	180	5	2
20	150	7	2	03	180	5	2
21	150	5	2	04	175	5	2
22	165	5	2	05	165	5	2
23	170	5	2	06	165	5	2
24	175	5	2	07	165	5	2
25	175	5	2	08	170	5	2
26	175	5	2	09	170	5	2
27	175	5	2	10	170	5	2
28	175	5	2	11	165	7	2
29	175	5	2	12	165	7	2
30	175	10	3				



***Energetic Events***

Date	Time		X-ray		Optical Information			Peak		Sweep Freq		
	Begin	Max	½	Integ	Imp/ Brtns	Location Lat CMD	Rgn #	Radio Flux		Intensity		
			Max					Class	Flux	245	2695	II
09 Jan	0645	0650	0652	M1.8	.003	1n	N10E50	9306	73	32		
10 Jan	1012	1016	1018	M3.5	.006	1n	N19E06	9302	580	210		

***Flare List***

Date	Time			X-ray Class.	Imp / Brtns	Optical		Rgn
	Begin	Max	End			Location Lat CMD		
08 January	0320	0335	0349	C4.2				9289
	0633	0634	0639		Sf	S04W68		9303
	1041	1105	1133	C5.1				9302
	1216	1220	1225	C2.9				
	1338	1342	1344	C2.9				
	1359	1359	1404		Sf	N10E62		
	1521	1532	1537		Sf	N10E63		9306
09 January	1609	1610	1614		Sf	N09E61		9306
	2041	2044	2047	C1.0				
	0113	0117	0124	C1.2				
	0448	0454	0456	C1.7				
	0648	0650	0657	M1.8	1n	N10E50		9306
	0844	0854	0902	C5.1				
	1005	1009	1012		Sf	N10E47		9306
	1200	1205	1211	C1.6				
	1331	1331	1345		Sf	N09E53		9306
	1557	1608	1617	C2.6				
10 January	1703	1705	1712		Sf	N27W16		
	0011	0015	0020	C1.4				
	0034	0058	0138	C5.9	1n	N13E36		9306
	0208	0209	0212		Sf	N11E41		9306
	1015	1015	1023	M3.5	1n	N19E06		9302
	1121	1125	1127	C2.3				
	1419	1419	1423	C1.8	Sf	N10E38		9306
	1803	1804	1813	C2.5	Sn	N17E02		9302
11 January	1946	1947	1950		Sf	N09E35		9306
	2331	2335	2339	C1.1				
	0016	0016	0022	C1.2	Sf	N10W01		9301
	0212	0212	0217	C1.2	Sf	N13E51		9308
	0343	0348	0351	C1.3				
	1352	1426	1452	C1.4				
	1828	1842	1856	C1.8				
	2154	2155	2158	B8.2	Sf	N11E17		9306



*Flare List – continued.*

Date	Time			X-ray Class.	Optical		Rgn
	Begin	Max	End		Imp / Brtns	Location Lat CMD	
12 January	0003	0004	0015	C1.6	Sf	N14E39	9308
	0041	0045	0049	C1.5	Sf	N18W15	9302
	0600	0618	0628	C1.4			
	0701	0706	0712	C1.4			
	1202	1212	1216	C2.1			
	1355	1357	1429		Sf	S13W51	9295
	1634	1718	1836	C1.5			
13 January	1356	1356	1400	C1.2	Sf	N18W36	9302
	1436	1513	1525	C1.6			
	1657	1658	1701	C2.3	Sf	N18W37	9302
	1943	1947	1954	C3.4	Sf	N11W12	9306
	1956	1957	2000		Sf	N11W09	9306
	2011	2012	2031		Sf	N13E13	9308
	2137	2143	2150	C2.0			
14 January	0249	0250	0306	C8.1	Sf	N10W17	9306
	0435	0442	0446		Sf	N08W74	9296
	0659	0703	0709	C1.4			
	0843	0847	0850	C2.4			
	1024	1030	1036	C4.6			
	1213	1217	1223	C1.3			
	1556	1558	1605	C1.7	Sf	N14W19	9306
	2103	2107	2110	C1.5			



### Region Summary

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 9289</i>																	
26 Dec	S07E81	202	0050	04	Dso	002	B		1			1					
27 Dec	S08E64	205	0330	10	Dao	012	B	7	1			10	2				
28 Dec	S06E57	199	0790	12	Eko	020	Bg	4				4	2				
29 Dec	S06E43	200	0770	13	Eko	019	Bg	1	2			2	2				
30 Dec	S07E30	200	0890	13	Eki	024	Bg	1				2					
31 Dec	S07E16	201	0880	13	Eki	040	Bg										
01 Jan	S06E03	201	0890	14	Eki	035	Bg	1				1					
02 Jan	S07W10	201	0690	14	Eki	037	B										
03 Jan	S07W25	203	0590	13	Eko	023	B	1				1					
04 Jan	S07W38	203	0530	12	Eko	019	B	1				1					
05 Jan	S07W52	204	0440	12	Eki	015	B										
06 Jan	S06W67	205	0480	08	Dai	009	B										
07 Jan	S06W83	208	0240	06	Dao	004	B		1								
08 Jan	S07W96	208	0090	04	Dso	002	B		1								
								18	4	0	22	6	0	0	0	0	

Crossed West Limb.

Absolute heliographic longitude: 201

<i>Region 9292</i>																	
30 Dec	N25E63	167	0060	01	Hsx	001	A										
31 Dec	N24E47	170	0000	00	Hrx	001	A					1					
01 Jan	N24E34	170										1					
02 Jan	N24E21	170															
03 Jan	N24E08	170															
04 Jan	N25W04	169	0030	03	Cro	006	B										
05 Jan	N24W18	170	0040	01	Hsx	001	A										
06 Jan	N24W29	167	0010	01	Axx	002	A										
07 Jan	N24W42	167															
08 Jan	N24W55	167															
09 Jan	N24W68	167															
10 Jan	N24W81	167															
								0	0	0	2	0	0	0	0	0	

Crossed West Limb.

Absolute heliographic longitude: 169





**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 9293*

01 Jan	N13E41	163	0040	03	Cao	004	B											
02 Jan	N13E26	165	0040	05	Dso	005	B											
03 Jan	N13E13	165	0030	07	Dao	007	B											
04 Jan	N14W03	168	0020	05	Cso	004	B											
05 Jan	N14W18	170	0000	01	Axx	001	A											
06 Jan	N11W26	164	0010	03	Cso	003	B											
07 Jan	N11W39	164																
08 Jan	N11W52	164																
09 Jan	N11W65	164																
10 Jan	N11W78	164																

0 0 0 0 0 0 0 0

Crossed West Limb.

Absolute heliographic longitude: 168

*Region 9294*

01 Jan	N22E69	135	0040	02	Hsx	001	A											
02 Jan	N22E55	136	0030	02	Hsx	001	A											
03 Jan	N22E43	135	0050	03	Cso	003	B	1			1							
04 Jan	N23E31	134	0040	06	Cso	005	B											
05 Jan	N22E18	134	0030	03	Cso	002	B											
06 Jan	N22E06	132	0020	02	Hsx	002	A											
07 Jan	N22W10	135	0020	01	Hsx	001	A											
08 Jan	N23W20	132	0020	06	Cso	004	B											
09 Jan	N23W33	132	0010	06	Cso	005	B											
10 Jan	N24W47	133	0010	08	Bxo	004	B											
11 Jan	N22W62	135	0000	00	Axx	001	A											
12 Jan	N22W75	135																
13 Jan	N22W88	135																

1 0 0 1 0 0 0 0

Crossed West Limb.

Absolute heliographic longitude: 132



**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 9295</i>																		
02 Jan	S12E73	118	0070	02	Hsx	001	A											
03 Jan	S14E60	119	0060	10	Cso	002	B											
04 Jan	S13E45	120	0080	02	Hsx	001	A											
05 Jan	S14E30	122	0080	04	Cao	003	B											
06 Jan	S14E19	119	0070	03	Cao	004	B											
07 Jan	S13E05	120	0050	02	Cso	002	B											
08 Jan	S13W08	120	0040	02	Hax	002	A											
09 Jan	S13W21	120	0030	03	Cso	004	B											
10 Jan	S13W34	120	0020	01	Hsx	001	A											
11 Jan	S12W47	120	0010	01	Hsx	001	A											
12 Jan	S12W60	119	0030	01	Hsx	001	A											1
13 Jan	S12W72	118	0020	00	Hrx	001	A											
14 Jan	S13W84	117	0000	00	Axx	001	A											
								0	0	0	0	1	0	0	0	0	0	

Still on Disk.

Absolute heliographic longitude: 120

<i>Region 9296</i>																		
02 Jan	N10E76	116	0070	02	Hax	001	A											
03 Jan	N08E59	119	0100	09	Cso	004	B											
04 Jan	N08E47	118	0070	02	Hsx	001	A											
05 Jan	N08E34	118	0150	02	Hsx	001	A											1
06 Jan	N09E22	116	0130	03	Cso	002	B											
07 Jan	N08E08	117	0130	03	Hsx	001	A											
08 Jan	N08W06	118	0150	03	Hsx	004	A											
09 Jan	N08W18	117	0170	03	Hax	003	A											
10 Jan	N08W31	117	0110	03	Cao	006	B											
11 Jan	N08W45	118	0090	03	Hax	005	A											
12 Jan	N09W59	118	0070	02	Hax	002	A											
13 Jan	N08W72	118	0050	02	Hsx	002	A											
14 Jan	N08W84	117	0030	02	Dso	002	B											1
								0	0	0	0	2	0	0	0	0	0	

Still on Disk.

Absolute heliographic longitude: 118



**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 9297*

04 Jan	N24W16	181	0030	04	Cso	004	B										
05 Jan	N23W28	180	0080	07	Dao	006	B										
06 Jan	N23W41	179	0080	08	Dao	012	B										
07 Jan	N23W55	180	0080	09	Dso	011	B										
08 Jan	N24W71	183	0070	02	Hsx	001	A										
09 Jan	N23W86	185	0030	01	Hsx	001	A										

0 0 0 0 0 0 0 0 0

Crossed West Limb.

Absolute heliographic longitude: 181

*Region 9298*

04 Jan	S22W04	169	0010	02	Axx	002	A										
05 Jan	S22W17	169															
06 Jan	S22W30	169															
07 Jan	S22W43	169															
08 Jan	S22W56	169															
09 Jan	S22W69	169															
10 Jan	S22W82	169															

0 0 0 0 0 0 0 0 0

Crossed West Limb.

Absolute heliographic longitude: 169

*Region 9299*

04 Jan	N09E39	126	0010	02	Axx	002	A										
05 Jan	N09E26	126	0000	00	Axx	001	A										
06 Jan	N09E13	126	0000	00		000											
07 Jan	N10W03	128	0010	02	Bxo	002	B										
08 Jan	N10W16	128															
09 Jan	N10W29	128															
10 Jan	N10W42	128															
11 Jan	N10W55	128															
12 Jan	N10W68	128															
13 Jan	N10W81	128															

0 0 0 0 0 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 128



**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 9300*

04 Jan	S14E55	110	0010	01	Axx	002	A												
05 Jan	S13E44	108	0000	00	Axx	001	A												
06 Jan	S13E32	106	0020	03	Cso	004	B												
07 Jan	S14E18	107	0020	03	Cro	006	B												
08 Jan	S13E06	106	0010	03	Bxo	004	B												
09 Jan	S13W06	106																	
10 Jan	S13W19	106																	
11 Jan	S13W32	106																	
12 Jan	S13W45	106																	
13 Jan	S13W58	106																	
14 Jan	S13W71	106																	
								0	0	0	0	0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 106

*Region 9301*

04 Jan	N07E73	092	0020	01	Axx	002	A	1					1						
05 Jan	N07E61	091	0040	01	Hsx	001	A												
06 Jan	N07E48	090	0040	06	Cao	003	B												
07 Jan	N08E34	091	0040	05	Dso	004	B												
08 Jan	N08E22	090	0020	04	Cso	002	B												
09 Jan	N07E06	093	0010	01	Hsx	001	A												
10 Jan	N08W06	092	0020	05	Cso	003	B												
11 Jan	N08W20	093	0030	01	Hsx	001	A	1					1						
12 Jan	N09W32	091	0030	03	Cso	004	B												
13 Jan	N08W45	091	0040	04	Cso	004	B												
14 Jan	N08W58	091	0020	06	Cso	004	B												
								2	0	0	0	2	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 093



**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 9302</i>																	
05 Jan	N19E66	086	0110	09	Cso	005	B	2			3						
06 Jan	N19E52	086	0090	08	Dso	005	B	1			1						
07 Jan	N20E39	086	0080	06	Cso	005	B	1									
08 Jan	N18E25	087	0070	03	Dso	003	B	1									
09 Jan	N18E12	087	0090	03	Cso	002	B										
10 Jan	N18W02	088	0080	04	Dso	008	B	1	1		1	1					
11 Jan	N18W15	088	0070	03	Cao	007	B										
12 Jan	N19W28	087	0050	03	Cao	006	B	1			1						
13 Jan	N19W41	087	0060	04	Cao	003	B	2			2						
14 Jan	N19W54	087	0030	04	Cso	004	B										
									9	1	0	8	1	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 088

<i>Region 9303</i>																	
06 Jan	S04W47	185	0040	04	Dso	004	B										
07 Jan	S04W62	187	0090	06	Dao	007	B										
08 Jan	S04W75	187	0160	08	Dao	005	B				1						
09 Jan	S04W90	189	0060	02	Hsx	001	A										
									0	0	0	1	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 185

<i>Region 9304</i>																	
07 Jan	N11E58	067	0080	16	Fso	007	B										
08 Jan	N12E44	068	0040	10	Dso	007	B										
09 Jan	N11E29	070	0050	09	Dao	006	B										
10 Jan	N11E14	072	0050	09	Dso	005	B										
11 Jan	N12W01	074	0030	02	Hax	003	A										
12 Jan	N11W16	075	0030	01	Cao	002	B										
13 Jan	N11W30	076	0030	01	Hsx	001	A										
14 Jan	N11W44	077	0030	01	Hsx	001	A										
									0	0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 074



**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 9305*

07 Jan	S07E64	061	0020	02	Cro	002	B											
08 Jan	S07E50	062	0000	00	Axx	001	A											
09 Jan	S07E37	062																
10 Jan	S07E24	062																
11 Jan	S07E10	063	0010	01	Axx	002	A											
12 Jan	S06W04	063	0010	01	Axx	002	A											
13 Jan	S06W17	063																
14 Jan	S06W30	063																
										0	0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 063

*Region 9306*

08 Jan	N12E58	054	0110	10	Dai	012	B					2						
09 Jan	N11E43	056	0090	10	Dai	015	B		1			2	1					
10 Jan	N11E31	055	0170	13	Eai	018	Bg	2				3	1					
11 Jan	N12E14	059	0220	14	Eai	034	Bg					1						
12 Jan	N12E04	055	0330	15	Eai	044	Bg											
13 Jan	N13W13	059	0420	17	Fai	042	Bg	1				2						
14 Jan	N12W25	058	0510	17	Fac	060	Bg	2				2						
								5	1	0	12	2	0	0	0	0		

Still on Disk.

Absolute heliographic longitude: 055

*Region 9307*

09 Jan	S13W59	158	0020	03	Hsx	002	A											
10 Jan	S13W72	158	0000	01	Axx	001	A											
11 Jan	S13W85	158																
										0	0	0	0	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 158

*Region 9308*

10 Jan	N14E52	034	0020	06	Cso	003	B											
11 Jan	N14E39	034	0060	09	Dso	009	B	1				1						
12 Jan	N14E25	034	0100	08	Dao	015	B	1				1						
13 Jan	N16E11	035	0180	09	Dao	011	B					1						
14 Jan	N15W01	034	0200	09	Dao	014	B											
								2	0	0	3	0	0	0	0	0		

Still on Disk.

Absolute heliographic longitude: 034



**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		
<b>Region 9309</b>																	
11 Jan	N10W14	087	0070	05	Dao	010	B										
12 Jan	N10W26	085	0060	05	Dao	007	B										
13 Jan	N10W39	085	0060	03	Cso	002	B										
14 Jan	N09W51	084	0040	02	Cso	003	B										
									0	0	0	0	0	0	0	0	0
Still on Disk.																	
Absolute heliographic longitude: 087																	
<b>Region 9310</b>																	
14 Jan	N26E52	341	0030	02	Cso	002	B										
									0	0	0	0	0	0	0	0	0
Still on Disk.																	
Absolute heliographic longitude: 341																	



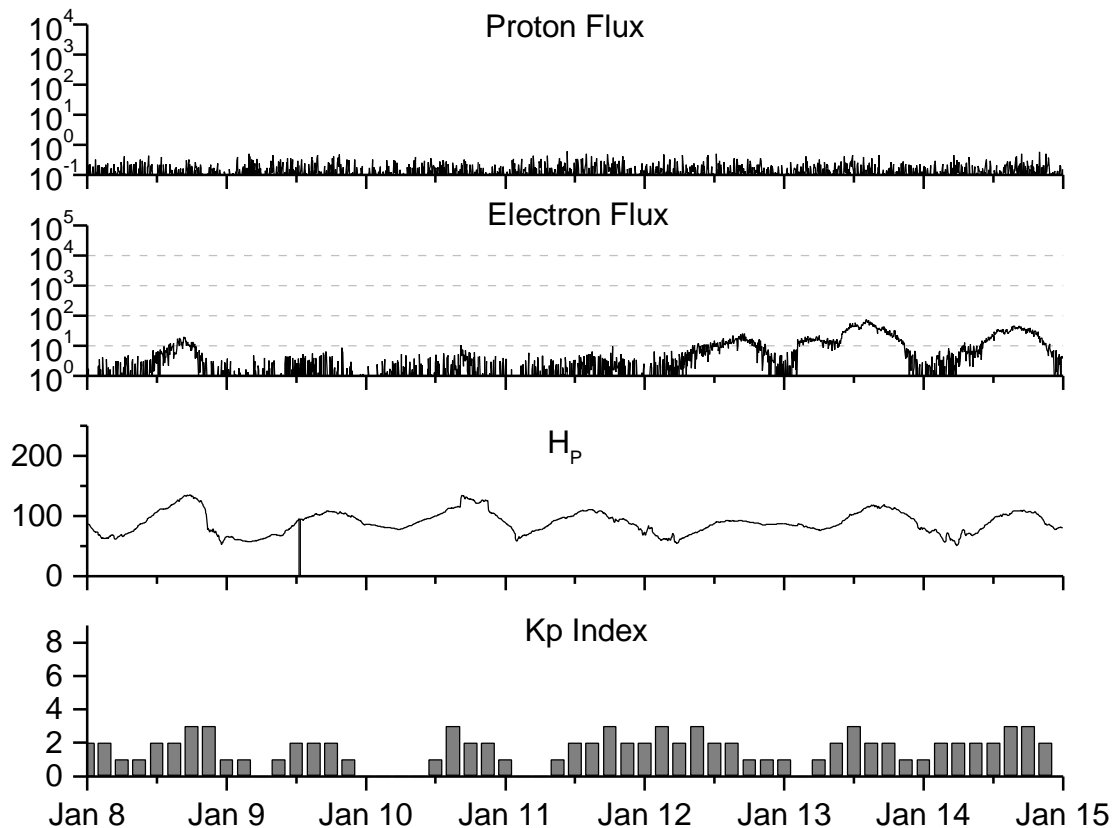
**Recent Solar Indices (preliminary)  
of the observed monthly mean values**

Month	Sunspot Numbers				Radio Flux		Geomagnetic		
	Observed values		Ratio	Smooth values		*Penticton	Smooth	Planetary	Smooth
	SWO	RI	RI/SWO	SWO	RI	10.7 cm	Value	Ap	Value
<b>1999</b>									
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	85.5	117.2	145.8	12	12.2
May	140.5	106.4	0.76	131.7	90.5	148.6	149.9	08	12.4
June	208.3	137.7	0.66	136.0	93.1	169.8	152.9	07	12.4
July	169.2	113.5	0.67	138.0	94.3	165.6	154.4	10	12.6
August	136.1	93.7	0.69	142.8	97.5	170.8	156.3	15	12.9
September	107.4	71.5	0.67	150.0	102.3	135.7	161.0	19	12.8
October	167.7	116.7	0.70	158.5	107.8	164.8	167.2	19	12.7
November	199.3	133.2	0.67	164.7	110.9	191.5	171.5	14	13.1
December	123.5	86.4	0.69	165.9	111.0	169.8	173.4	10	13.8
<b>2000</b>									
January	140.8	90.1	0.64	168.0	112.8	158.1	175.5	13	14.5
February	161.9	112.9	0.70	172.1	116.6	173.2	176.8	15	15.1
March	203.6	138.5	0.68	175.4	119.8	208.2	178.4	09	15.1
April	193.4	125.3	0.65	176.3	120.7	184.2	180.5	15	14.9
May	188.8	120.8	0.64	173.1	118.9	184.5	180.1	15	14.8
June	190.3	124.9	0.66	172.0	118.6	179.8	179.7	15	14.8
July	236.7	169.1	0.71			204.7		21	
August	166.6	130.5	0.78			163.1		18	
September	157.9	109.9	0.70			182.1		16	
October	138.9	100.1	0.72			167.8		16	
November	149.9	106.5	0.71			178.8		16	
December	146.4	104.5	0.71			173.8		07	

**NOTE:** All smoothed values after September 1999 and monthly values after March 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 08 January 2001*

*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.

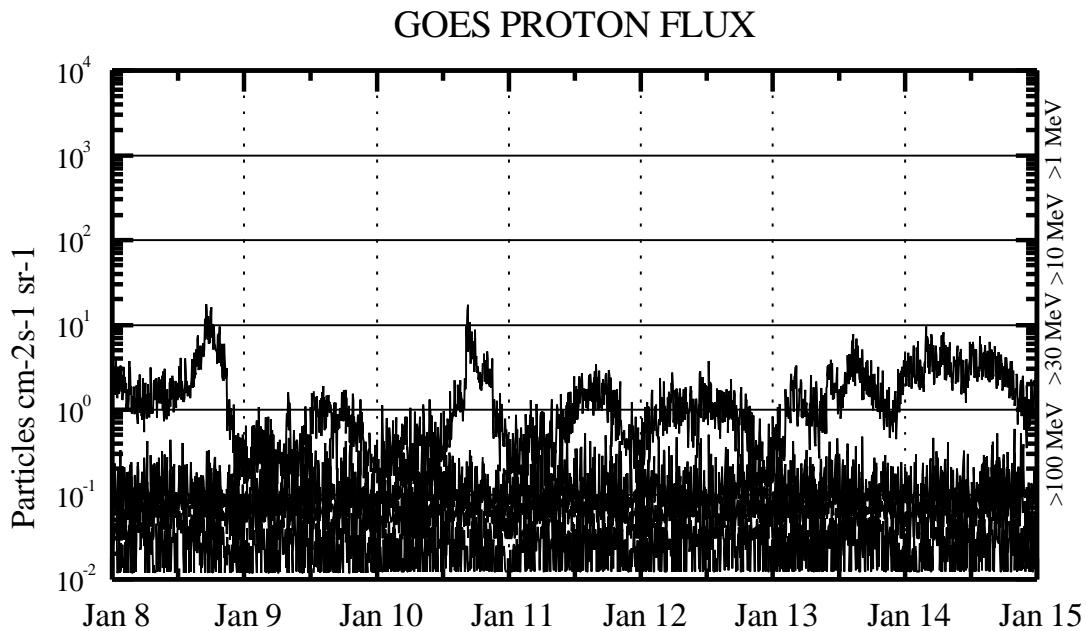
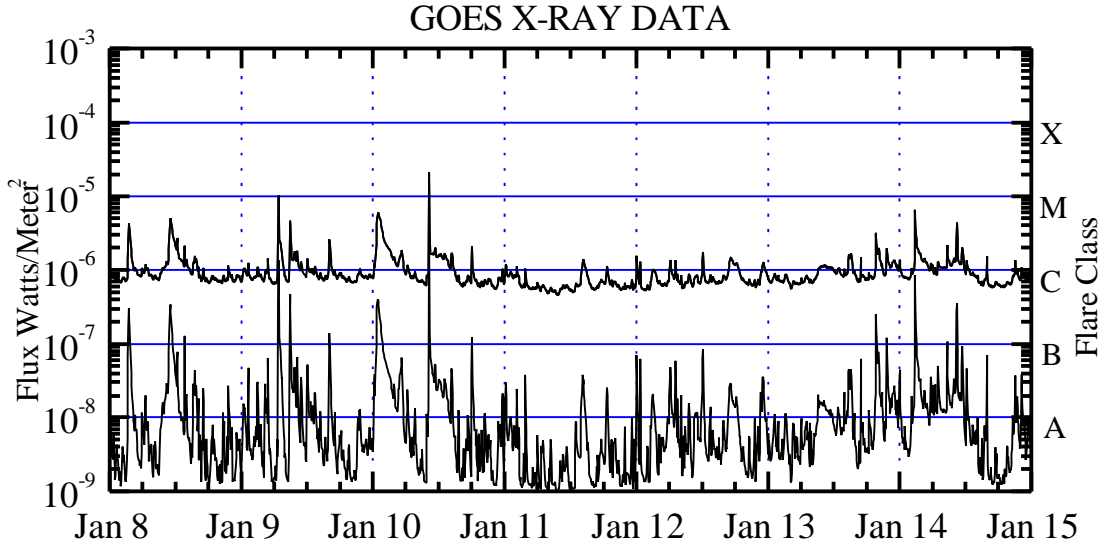
*Electrons* plot contains the five-minute averaged integral electron flux (electrons/cm<sup>2</sup>-sec -sr) with energies greater than 2 MeV at GOES-8.

*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 USAF 55<sup>th</sup> Space Weather Squadron) in real time from magnetometers at Meanook, Canada; Sitka, AK; Glenlea, Canada; St. Johns, Canada; Ottawa, Canada; Newport, WA; Fredericksburg, VA; Boulder, CO; Fresno, CA and Heartland, UK. These data are made available through cooperation from the Geological Survey of Canada (GSC) and the US Geological Survey. These may differ from the final K<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.

