

Space Weather Highlights
25 – 31 December 2000

SWO PRF 1322
02 January 2001

Solar activity was at low to moderate levels. Moderate levels occurred on 26, 27, and 29 December due to isolated M-class flares from Region 9289 (S07, L = 201, class/area Eki/890 on 30 December). These flares included an M1/Sf at 26/1613 UTC, an M4/1f at 27/1544 UTC, an M1/1f at 29/0223 UTC, and an M1/1f at 29/1848 UTC. This region, which also produced occasional C-class subflares, was large with a minor degree of magnetic complexity. Region 9283 (S11, L - L = 259, class/area Dao/240 on 27 December) also possessed a minor degree of magnetic complexity and produced occasional C-class flares including a C3/Sf at 27/0400 UTC with an associated Type II radio sweep and a long-duration C4/1f at 29/0211 UTC. Region 9283 was slowly decaying at the close of the period. Other events of interest included a spectacular full-halo CME around midday on 28 December, which was determined to be from a source on the back side of the Sun.

Data were available from the Advanced Composition Explorer (ACE) spacecraft for most of the period. No significant disturbances were observed in the solar wind flow. However, solar sector was variable during 26 - 27 December, then transitioned to an away (positive polarity) sector on 28 December. The transition was accompanied by a brief density increase to 20 p/cc and a velocity increase from 350 to 425 km/sec. IMF Bz was variable with a range of plus to minus 09 nT (GSM).

There were no proton events detected at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit was at normal levels during most of the period.

The geomagnetic field was at quiet levels during most of the period. However, unsettled to active levels occurred during 29/0300 - 0600 UTC.

Space Weather Outlook

03 January – 29 January 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 may reach moderate to high levels during 05 - 11 January. Otherwise, normal to moderate fluxes are expected.

Active levels will be possible during 04 - 05 January due to recurrent coronal hole effects. Quiet to unsettled levels are expected during the rest of the period, barring an Earth-directed CME.



Daily Solar Data

Date	Radio Flux 10.7 cm	Sun spot No.	Sunspot Area (10 ⁶ hemi.)	X-ray Background	Flares							
					X-ray Flux			Optical				
					C	M	X	S	1	2	3	4
25 December	187	164	860	B8.4	9	0	0	8	0	0	0	0
26 December	189	189	940	B7.4	12	1	0	1	0	0	0	0
27 December	188	171	1050	B8.1	19	1	0	18	2	0	0	0
28 December	185	159	1490	C1.7	10	0	0	8	2	0	0	0
29 December	182	150	1300	B8.1	5	2	0	7	3	0	0	0
30 December	182	140	1370	B5.9	6	0	0	4	0	0	0	0
31 December	170	153	1250	B6.8	3	0	0	1	0	0	0	0

Daily Particle Data

Date	Proton Fluence (protons/cm ² -day-sr)			Electron Fluence (electrons/cm ² -day-sr)		
	>1MeV	>10MeV	>100MeV	>.6MeV	>2MeV	>4MeV
25 December	8.9E+4	8.6E+3	1.9E+3		5.5E+5	
26 December	5.4E+4	9.8E+3	1.9E+3		2.1E+5	
27 December	1.0E+5	9.4E+3	1.9E+3		4.3E+5	
28 December	7.3E+4	1.4E+4	2.2E+3		5.8E+5	
29 December	1.9E+5	3.6E+4	2.4E+3		1.5E+6	
30 December	1.7E+5	2.9E+4	2.3E+3		7.5E+5	
31 December	6.0E+4	1.6E+4	2.5E+3		9.3E+5	

Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	25 December	6	2-1-1-2-3-2-1-2	10	0-0-0-0-5-4-0-1	6
26 December	4	1-1-1-1-1-2-1-2	4	0-0-2-3-0-0-1-1	4	1-1-0-1-1-2-2-2
27 December	7	2-1-1-1-3-2-2-2	12	1-0-1-3-4-4-3-1	7	1-1-1-1-3-3-3-1
28 December	4	1-1-1-1-3-1-1-0	6	1-0-2-3-3-2-1-0	5	2-1-1-2-3-1-1-0
29 December	6	2-3-2-0-1-2-1-1	7	0-2-3-3-1-2-1-1	6	1-3-2-2-1-1-2-2
30 December	4	2-1-1-2-2-0-0-1	3	0-0-0-2-3-0-1-0	2	1-0-0-1-1-1-1-1
31 December	1	0-0-0-2-1-1-0-0	1	0-0-0-2-0-0-0-0	2	1-0-0-1-1-0-1-0

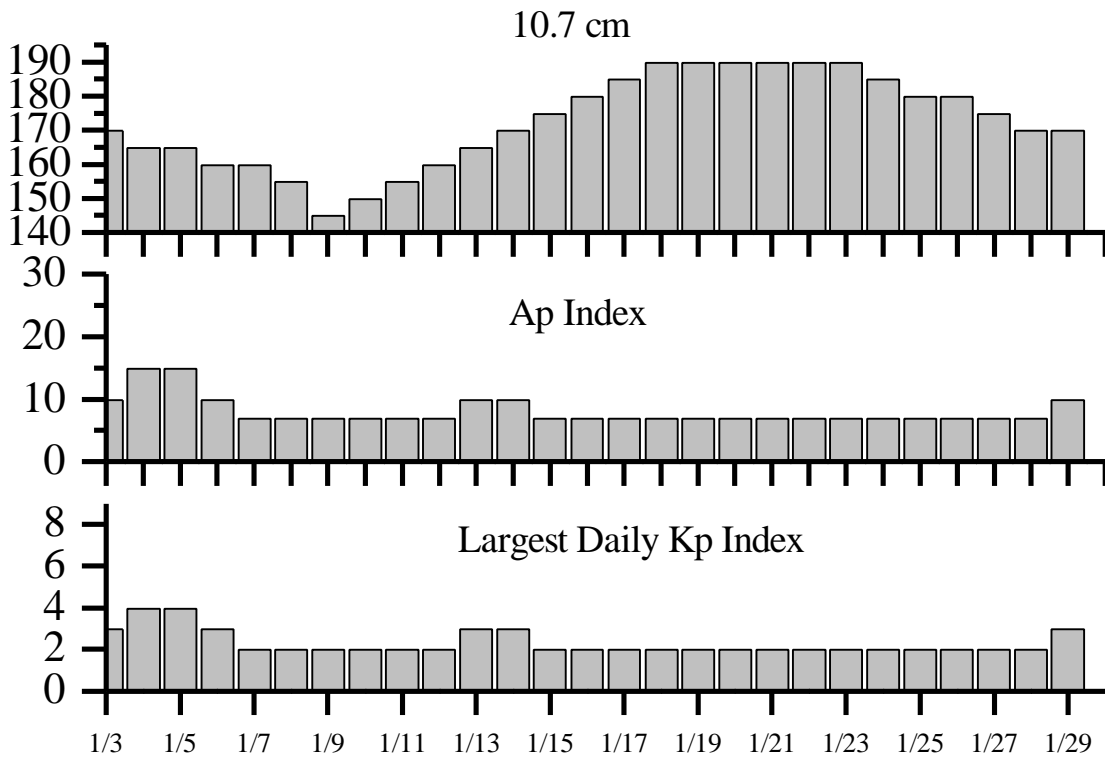


Alerts and Warnings Issued

Date & Time of Issue	Type of Alert or Warning	Date & Time of Event UT
25 Dec 0125	7 – 245 MHz Radio Bursts	24 Dec
25 Dec 0125	245 MHz Noise Storm	24 Dec
27 Dec 0436	Type II Radio Emission	27 Dec 0347
28 Dec 0055	2 – 245 MHz Radio Bursts	27 Dec
28 Dec 1458	Type II Radio Emission	28 Dec 1435
29 Dec 0027	245 MHz Radio Burst	28 Dec
29 Dec 0436	K = 4 Warning	29 Dec 0445 - 1500
29 Dec 0559	K= 4 Observed	29 Dec 0300 - 0600
31 Dec 0010	11 – 245 MHz Radio Bursts	30 Dec
31 Dec 0010	245 MHz Noise Storm	30 Dec



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
03 Jan	170	20	3	17 Jan	185	7	2
04	165	26	4	18	190	7	2
05	165	26	4	19	190	7	2
06	160	20	3	20	190	7	2
07	160	7	2	21	190	7	2
08	155	7	2	22	190	7	2
09	145	7	2	23	190	7	2
10	150	7	2	24	185	7	2
11	155	7	2	25	180	7	2
12	160	7	2	26	180	7	2
13	165	10	3	27	175	7	2
14	170	10	3	28	170	7	2
15	175	7	2	29	170	10	3
16	180	7	2				



Energetic Events

Date	Time		X-ray		Optical Information			Peak		Sweep Freq		
	Begin	Max	1/2 Max	Class	Integ Flux	Imp/ Brtns	Location Lat CMD	Rgn #	Radio Flux		Intensity	
									245	2695	II	IV
26 Dec	1602	1613	1619	M1.3	.008	SF	S09E90	9289				
27 Dec	1530	1544	1553	M4.3	.031	1F	S07E73	9289	58	48		
29 Dec	0210	0223	0242	M1.2	.017	1F	S08E55	9289	65			
29 Dec	1842	1848	1853	M1.2	.005	1F	S09E45	9289				

Flare List

Date	Time			X-ray Class.	Imp / Brtns	Optical Location Lat CMD	Rgn	
	Begin	Max	End					
25 December	0056	0108	0116	C1.6				
	0358	0358	0402		SF	S15E48	9283	
	0541	0545	0551	C1.2				
	0559	0602	0613	C2.9	SF	S13E50	9283	
	0633	0634	0640	C2.1	SF	N12E06	9280	
	0845	0845	0850	B9.5	SF	S12E46	9283	
	0936	1002	1013	C1.4				
	1216	1223	1243	C1.8	SF	S11E48	9283	
	1405	1422	1425	C1.2	SF	S13E43	9283	
	1557	1605	1615	C5.4	SF	S12E42	9283	
	1632	1635	1651	C3.2	SF	S10E43	9283	
	26 December	0025	0041	0049	C1.2			
		0413	0416	0421	C1.1			9283
0431		0438	0445	C3.4				
0523		0531	0539	C2.4			9283	
0609		0615	0626	C5.0				
0859		0902	0908	C1.1				
1043		1056	1111	C5.4			9283	
1118		1122	1132	C6.8				
1606		1606	1618	M1.3	SF	S09E90	9289	
1741		1753	1803	C1.5				
1928		1933	1939	C2.9				
2024		2028	2033	C2.5				
2340		2350	0004	C4.0				
27 December	0156	0201	0213	C2.4	SF	S08E81	9289	
	0227	0228	0230	C1.7	SF	S08E19	9283	
	0303	0309	0320	C3.0	1F	S08E80	9289	
	0355	0405	0419	C3.2	SF	S07E17	9283	
	0423	0425	0437	C2.8	SF	S08E20	9283	
	0443	0446	0449		SF	S08E79	9289	
	0529	0529	0534		SF	S15E24	9283	
	0558	0613	0627	C4.8				
	0713	0717	0722	C1.6				
	0725	0729	0734	C1.8				
0812	0817	0824	C3.2	SF	S08E79	9289		



Flare List – continued.

Date	Time			X-ray Class.	Optical		Rgn	
	Begin	Max	End		Imp / Brtns	Location Lat CMD		
27 December	0934	1028	1036	C2.6				
	1056	1108	1134		C2.5			
	1213	1215	1230		SF	S14E21	9283	
	1439	1444	1503	C1.6				
	1536	1549	1612	M4.3	1F	S07E73	9289	
	1556	1557	1602		SF	S10E17	9283	
	1738	1739	1745	C3.3	SF	S15E17	9283	
	1819	1820	1826	C4.1	SF	S08E72	9289	
	1900	1900	1909	C2.0	SF	S07E71	9289	
	1909	1911	1919		SF	S07E70	9289	
	2014	2015	2020		SF	S08E71	9289	
	2036	2038	2040	C2.3	SF	S08E60	9289	
	2043	2043	2049		SF	S07E71	9289	
	2103	2111	2127	C4.5				
	2211	2218	2245	C5.8	SF	S14E16	9283	
	2303	2311	2324	C5.2	SF	S07E68	9289	
	28 December	0145	0151	0159	C3.8			
		0207	0208	0213		SF	N12W38	9280
		0217	0220	0225	C3.5	SF	S08E66	9289
		0246	0251	0258	C4.5	SF	S08E67	9289
0410		0416	0443	C5.1	1F	S08E67	9289	
0500		0503	0510	C1.3				
0527		0529	0534		SF	S07E65	9289	
0729		0734	0740		SF	S08E66	9289	
0912		0915	0926	B9.7				
1321		1326	1405	C2.7	1F	S07E60	9289	
1424		1425	1432	C2.3	SF	S07W74	9279	
1530		1533	1536	C1.0				
1627		1627	1636	B8.7	SF	S12E05	9283	
1825		1826	1838	C1.3	SF	S15E05	9283	
2001		2005	2010	C1.2				
29 December		0120	0125	0127		SF	S11W03	9283
		0136	0235	0323	C4.0	1F	S09W02	9283
	0211	0221	0244	M1.2	1F	S08E55	9289	
	0414	0418	0423	C2.5	SF	S15W02	9283	
	0824	0828	0831	C1.2				
	1025	1029	1031	C1.1				
	B1101	U1101	A1121	C2.5	SF	S08E50	9289	
	1402	1413	1440		SF	S15W08	9283	



Flare List – continued.

Date	Time			X-ray Class.	Optical		Rgn
	Begin	Max	End		Imp / Brtns	Location Lat CMD	

Flare List

Begin Date	Begin	Time (UT)		X-ray Class.	Importance and Brightness	Locatio Lat. CMD	Region No.
		Max	End				
29 December	1402	1402	1410		SF	N30E14	9290
	1712	1725	1802		SF	S09W66	9279
	1844	1849	1858	M1.2	1F	S09E45	9289
	2217	2218	2220		SF	S08E37	9289
30 December	0336	0354	0400	C1.0			
	1023	1039	1101	C5.4	SF	S11W23	9283
	1215	1217	1220		SF	S09E38	9289
	1415	1420	1426	C1.3			
	1451	1458	1511	C2.1	SF	S07E35	9289
	1608	1617	1625	C1.3			
	1726	1731	1736	C1.3			
	1914	1921	1925		SF	S15W23	9283
31 December	0111	0119	0124	C1.1			
	0431	0435	0438	C1.1			
	0649	0650	0656	B6.4	SF	N21E67	
	1938	1957	2009	C1.1			



Region Summary

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

Region 9268

13 Dec	S16E75	019	0070	02	HSX	001	A										
14 Dec	S15E60	021	0060	01	HSX	001	A										
15 Dec	S18E49	019	0100	02	HSX	001	A										
16 Dec	S18E36	018	0110	02	HSX	001	A										
17 Dec	S18E23	018	0110	02	HSX	001	A										
18 Dec	S18E09	019	0080	02	HSX	001	A										
19 Dec	S18W04	019	0090	02	HSX	001	A										
20 Dec	S18W16	018	0090	02	HSX	001	A										
21 Dec	S18W29	017	0070	03	HSX	002	A										
22 Dec	S18W43	018	0080	04	CSO	004	B										
23 Dec	S18W56	018	0080	02	HSX	001	A										
24 Dec	S18W70	019	0080	02	HSX	001	A										
25 Dec	S16W83	019	0060	02	HSX	001	A										
26 Dec	S16W95	018	0060	01	HSX	001	A										

0 0 0 0 0 0 0 0

Crossed West Limb.

Absolute heliographic longitude: 19

Region 9273

15 Dec	N20E68	000	0120	05	DAO	003	B										
16 Dec	N19E56	358	0060	04	CAO	005	B										
17 Dec	N19E43	358	0030	01	HSX	002	A										
18 Dec	N20E31	357	0010	04	BXO	004	B										
19 Dec	N20E20	355	0010	01	BXO	005	B										
20 Dec	N20E07	355	0010	04	BXO	006	B										
21 Dec	N20W05	353	0010	04	BXO	005	B										
22 Dec	N20W20	355	0000	02	AXX	002	A										
23 Dec	N20W33	355															
24 Dec	N20W46	355															
25 Dec	N20W59	355															
26 Dec	N20W72	355															
27 Dec	N20W85	355															

0 0 0 0 0 0 0 0

Crossed West Limb.

Absolute heliographic longitude: 353



Region Summary- continued.

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

Region 9278

17 Dec	N09E67	334	0040	01	HRX	002	A											
18 Dec	N09E51	337	0090	09	DAO	008	B	2				5						
19 Dec	N09E37	338	0090	10	DAI	017	B	3				5						
20 Dec	N09E23	339	0090	09	DAI	022	B	2				1	1					
21 Dec	N09E09	339	0080	11	EAO	015	B											
22 Dec	N09W05	340	0070	09	DAO	012	B											
23 Dec	N09W19	341	0050	08	DAO	008	B											
24 Dec	N10W31	340	0040	10	CSO	005	B											
25 Dec	N09W44	340																
26 Dec	N09W57	340																
27 Dec	N09W70	340																
28 Dec	N09W83	340																
29 Dec	N09W96	340																
								7	0	0	11	1	0	0	0	0		

Crossed West Limb.

Absolute heliographic longitude: 340

Region 9279

18 Dec	S11E62	326	0060	02	HAX	002	A	1				1	1					
19 Dec	S11E54	321	0190	10	DSO	010	B					1						
20 Dec	S13E41	321	0170	16	FSO	008	B	2				2						
21 Dec	S13E28	320	0130	16	CSO	006	B					1						
22 Dec	S13E11	324	0110	13	ESO	009	B					1						
23 Dec	S12W03	325	0110	12	CSO	008	B											
24 Dec	S10W21	330	0060	03	HSX	002	A											
25 Dec	S09W35	331	0080	02	HSX	001	A											
26 Dec	S09W49	332	0080	02	HSX	001	A											
27 Dec	S10W64	333	0080	01	HSX	001	A											
28 Dec	S12W77	333	0090	02	HSX	001	A	1				1						
29 Dec	S10W92	335	0060	02	HSX	001	A					1						
								4	0	0	8	1	0	0	0	0		

Crossed West Limb.

Absolute heliographic longitude: 325



Region Summary- continued.

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

Region 9284

23 Dec	N05W07	329	0020	04	CSO	005	B										
24 Dec	N06W20	329	0020	03	CSO	004	B										
25 Dec	N06W33	329															
26 Dec	N06W46	329															
27 Dec	N06W59	329															
28 Dec	N06W72	329															
29 Dec	N06W85	329															
30 Dec	N06W98	329															
																	0 0 0 0 0 0 0 0

Crossed West Limb.

Absolute heliographic longitude: 329

Region 9285

24 Dec	N06E59	250	0050	06	CRO	002	B	1				4					
25 Dec	N06E47	249	0030	05	CSO	006	B										
26 Dec	N06E33	250	0050	05	DAO	013	B										
27 Dec	N08E20	249	0040	06	CSO	012	B										
28 Dec	N07E06	250	0020	04	BXO	006	B										
29 Dec	N06W07	250	0010	03	AXX	003	A										
30 Dec	N07W19	249	0020	03	CSO	004	B										
31 Dec	N07W32	249	0010	01	HSX	001	A										
																	1 0 0 4 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 250

Region 9286

24 Dec	N30W47	356	0030	04	CRO	002	B										
25 Dec	N31W62	358	0010	02	BXO	002	B										
26 Dec	N31W75	358	0010	01	HRX	001	A										
27 Dec	N31W88	358															
																	0 0 0 0 0 0 0 0

Crossed West Limb.

Absolute heliographic longitude: 356



Region Summary- continued.

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

Region 9287

25 Dec	S16E60	236	0010	06	DRO	007	B											
26 Dec	S16E45	238	0020	04	DRO	003	B											
27 Dec	S16E30	239	0000	00	AXX	001	A											
28 Dec	S16E17	239																
29 Dec	S16E04	239																
30 Dec	S16W09	239																
31 Dec	S16W22	239																
										0	0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 239

Region 9288

26 Dec	S21E26	257	0010	03	DRO	002	B											
27 Dec	S21E13	256	0000	03	AXX	002	A											
28 Dec	S21E00	256																
29 Dec	S21W13	256																
30 Dec	S21W26	256																
31 Dec	S21W39	256																
										0	0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 256

Region 9289

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											
								13	4	0	19	6	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 201

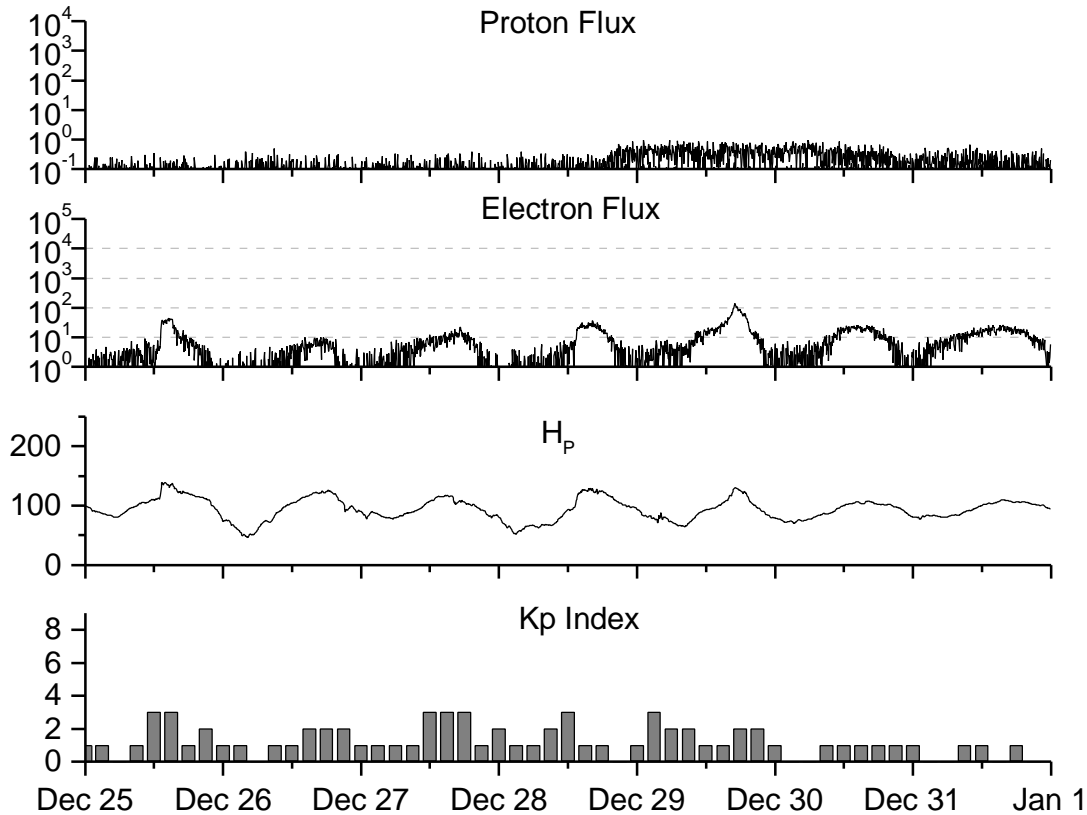


**Recent Solar Indices (preliminary)
of the observed monthly mean values**

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
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	85.5	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
2000									
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 25 December 2000*

Protons plot contains the five-minute averaged integral proton flux (protons/cm²-sec -sr) as measured by GOES-8 (W75) for each of three energy thresholds: greater than 10, 50, and 100 MeV.

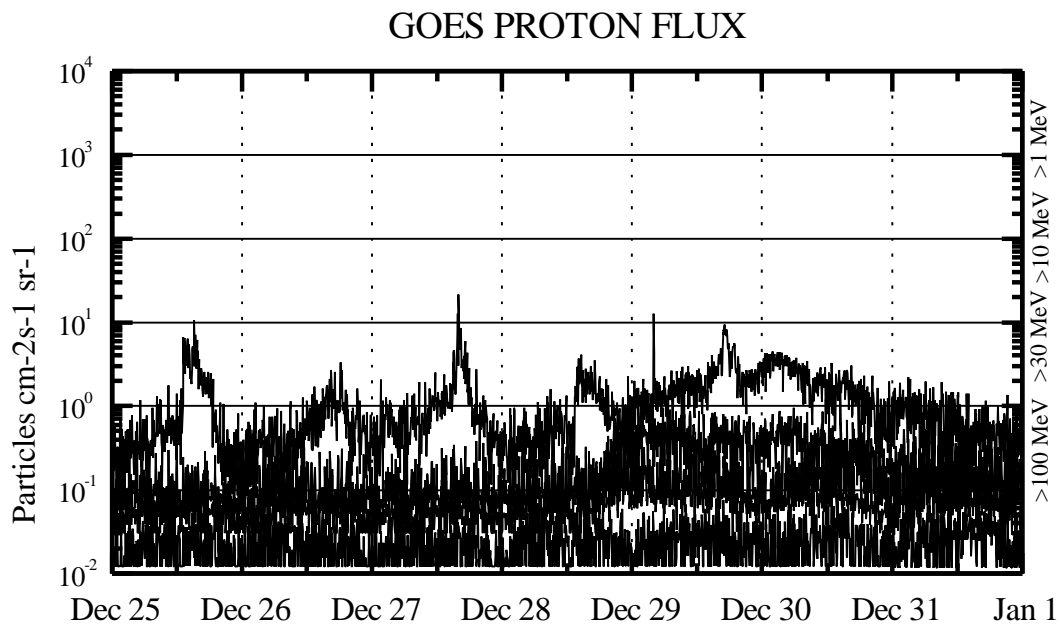
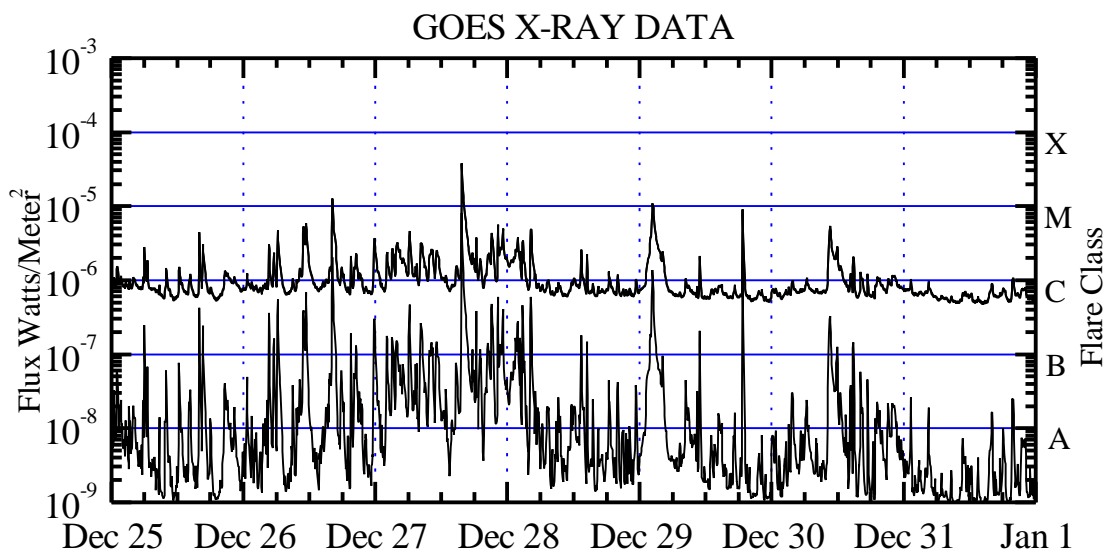
Electrons plot contains the five-minute averaged integral electron flux (electrons/cm² -sec -sr) with energies greater than 2 MeV at GOES-8.

H_p 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_p 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 K_p 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_p are “ global ” parameters that are applicable to a first order approximation over large areas. H_{parallel} is subject to more localized phenomena and the measurements generally are applicable to within a few degrees of longitude of the measuring satellite.



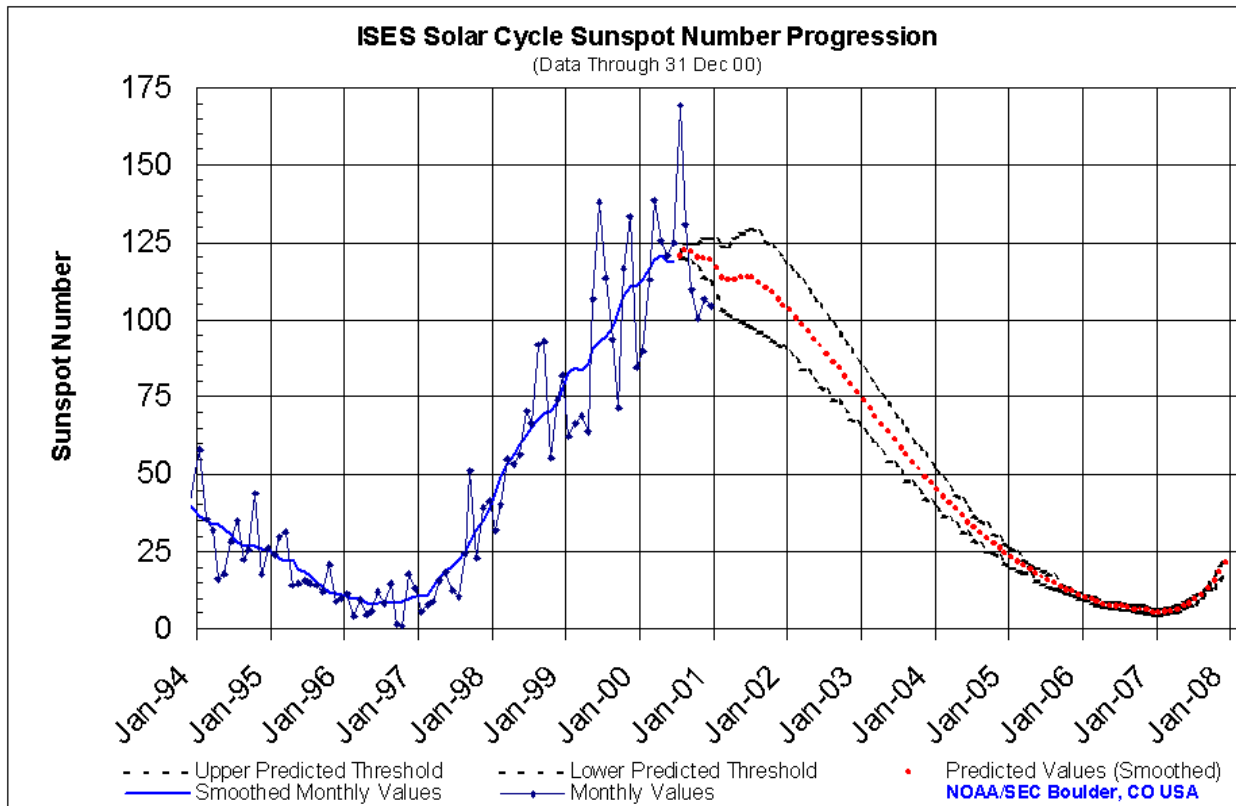


Weekly GOES Satellite X-ray and Proton Plots

X-ray plot contains five-minute averaged x-ray flux (watts/m²) as measured by GOES 8 and 10 in two wavelength bands, .05 - .4 and .1 - .8 nm. The letters A, B, C, M and X refer to x-ray event levels for the .1 - .8 nm band.

Proton plot contains the five-minute averaged integral proton flux (protons/cm²-sec-sr) as measured by GOES-8 (W75) for each of the energy thresholds: >1, >10, >30 and >100 MeV. P10 event threshold is 10 pfu (protons/cm²-sec-sr) at greater than 10 MeV.

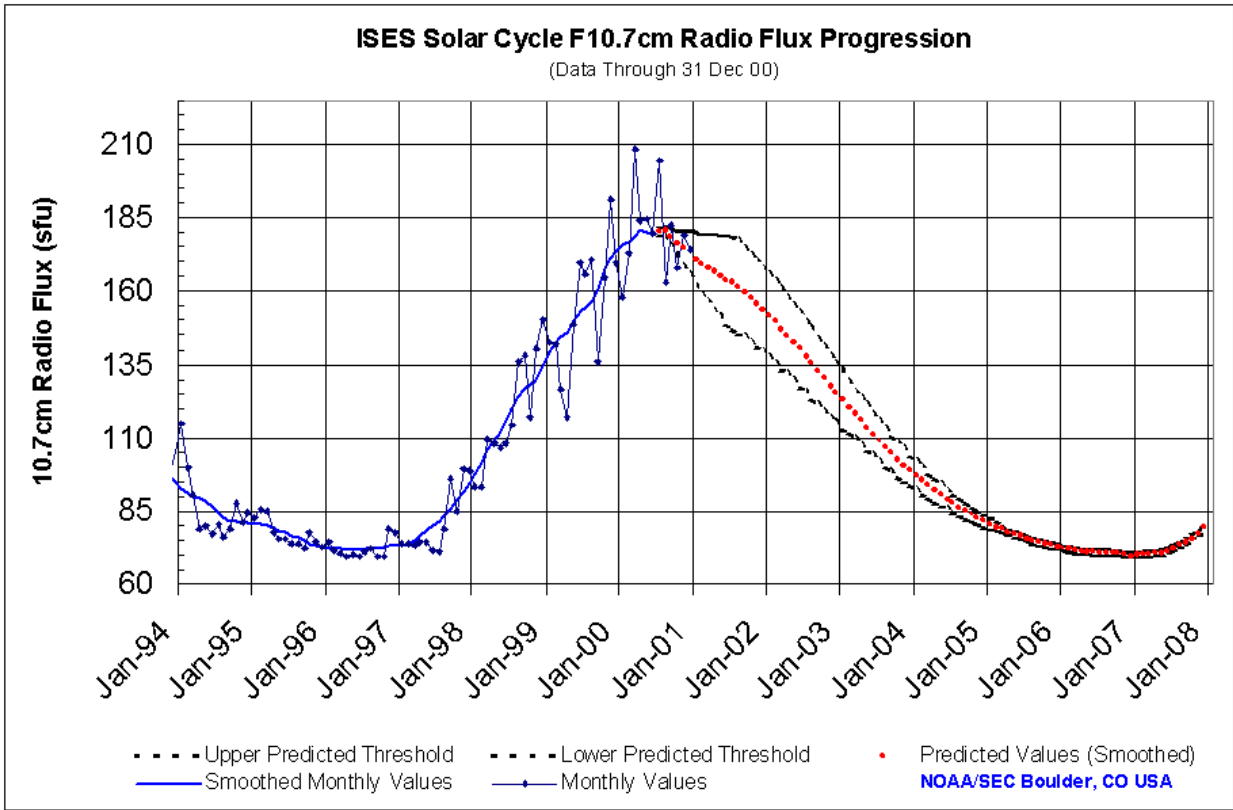




SEC Prediction of Smoothed Sunspot Number

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1998	44	49	53	57	59	63	66	68	70	71	73	78
	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)
1999	83	85	84	86	91	93	94	97	102	108	111	111
	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)
2000	113	117	120	121	119	119	121	122	122	120	120	119
	(***)	(***)	(***)	(***)	(***)	(***)	(1)	(2)	(3)	(4)	(6)	(7)
2001	117	114	113	113	113	113	114	112	110	109	107	105
	(9)	(10)	(11)	(13)	(14)	(15)	(16)	(16)	(15)	(15)	(15)	(14)
2002	103	101	98	96	94	91	89	86	84	81	79	76
	(14)	(14)	(14)	(13)	(13)	(13)	(12)	(12)	(11)	(11)	(11)	(10)
2003	74	71	69	66	64	61	59	56	54	52	49	47
	(10)	(10)	(9)	(9)	(9)	(8)	(8)	(8)	(7)	(7)	(7)	(6)
2004	45	43	41	39	37	35	33	31	29	28	26	25
	(6)	(6)	(5)	(5)	(5)	(4)	(4)	(4)	(4)	(3)	(3)	(3)
2005	23	22	20	19	18	17	16	15	14	13	12	11
	(3)	(3)	(2)	(2)	(2)	(2)	(2)	(2)	(1)	(1)	(1)	(1)
2006	10	9	9	8	8	7	7	7	7	6	6	5
	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
2007	5	6	6	6	7	8	10	11	13	16	18	21
	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(2)	(2)	(3)





SEC Prediction of Smoothed F10.7cm Radio Flux

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1998	98 (***)	102 (***)	106 (***)	109 (***)	112 (***)	116 (***)	120 (***)	124 (***)	127 (***)	128 (***)	130 (***)	134 (***)
1999	139 (***)	143 (***)	144 (***)	146 (***)	150 (***)	153 (***)	154 (***)	156 (***)	161 (***)	167 (***)	172 (***)	173 (***)
2000	175 (***)	176 (***)	178 (***)	181 (***)	180 (***)	180 (***)	180 (1)	181 (2)	179 (3)	176 (4)	175 (6)	173 (7)
2001	171 (9)	169 (10)	168 (11)	167 (13)	165 (14)	164 (15)	163 (16)	161 (16)	159 (15)	158 (15)	156 (15)	154 (14)
2002	152 (14)	149 (14)	147 (14)	145 (13)	143 (13)	140 (13)	138 (12)	135 (12)	133 (11)	130 (11)	128 (11)	125 (10)
2003	123 (10)	120 (9)	118 (8)	116 (8)	113 (8)	111 (7)	109 (7)	107 (7)	105 (6)	103 (6)	101 (6)	99 (5)
2004	97 (5)	95 (5)	94 (4)	92 (4)	90 (4)	89 (3)	88 (3)	86 (3)	85 (3)	84 (2)	83 (2)	82 (2)
2005	81 (2)	80 (2)	79 (1)	78 (1)	77 (1)	76 (1)	76 (1)	75 (1)	75 (1)	74 (1)	73 (1)	73 (1)
2006	72 (1)	72 (1)	72 (1)	71 (1)	71 (1)	71 (1)	71 (1)	71 (1)	70 (1)	70 (1)	70 (1)	70 (1)
2007	70 (1)	70 (1)	70 (1)	70 (1)	71 (1)	71 (1)	72 (1)	73 (1)	74 (1)	76 (1)	77 (1)	79 (2)



