

Space Weather Highlights
29 January – 04 February 2001

SWO PRF 1327
06 February 2001

Solar activity was at low to moderate levels during the period. Activity was low during 29 January - 02 February with isolated B- and C-class subflares including a C7/Sf flare at 01/0712 UTC from Region 9330 (S25, L = 112, class/area Eso/230 on 31 January). Activity increased to moderate levels on 03 February with an isolated M2/Sf flare at 03/0006 UTC from Region 9334 (N11, L = 075, class/area Eai/220 on 04 February), which rotated into view on 01 February. This flare was associated with Type II and IV radio sweeps and a non-Earth-directed CME. Old Region 9306 (N12, L = 058) returned on 30 January as a small D-type group, now numbered as Region 9335 (N08, L = 064, class/area Dao/130 on 04 February). Activity dropped to low levels on 04 February with isolated, low-level C-class subflares, mostly from Regions 9330 and 9334. Both regions were moderately sized, simply structured, and mildly active as the period ended.

Data were available from the Advanced Composition Explorer (ACE) spacecraft for most of the period. A CME passage occurred during 31 January - 01 February. The CME shock front passed the spacecraft at 31/0742 UTC (followed by a sudden impulse at Earth at 31/0803 UTC) accompanied by a velocity increase from 370 to 500 km/sec; increased densities, briefly peaking at 22 p/cc; and a southward turning of IMF Bz with maximum deflections to minus 14 nT (GSM). Solar wind conditions were nominal during the remainder of the period.

A greater than 10 MeV proton event at geosynchronous orbit began at 28/2025 UTC, reached a peak of 48.9 pfu at 29/0655 UTC, and ended at 30/0035 UTC. The source for this event was an M1/1n flare at 28/1600 UTC from Region 9313 (S04, L = 272, class/area Cso/030 on 28 January). Region 9313 was decaying at the time of this flare and had a relatively quiet west limb passage on 30 January. The greater than 100 MeV proton flux became enhanced with this event, but did not reach event levels.

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

The geomagnetic field was largely undisturbed during 29 - 30 January with the exception of a period of active to minor storm levels during 29/0000 - 0600 UTC. The field was disturbed on 31 January as a CME, associated with an M1/1n flare at 28/1600 UTC, passed Earth. The CME front passed the ACE spacecraft at 31/0742 UTC followed by a sudden impulse at Earth at 31/0803 UTC (17 nT, as measured by the Boulder USGS magnetometer). Activity increased to unsettled to active levels during the rest of the day with minor to major storm periods detected at high latitudes. Activity decreased to mostly quiet levels during 01 - 04 February.

Space Weather Outlook
07 February - 05 March 2001

Solar activity is expected to be at low levels during most of the period. However, there will be a fair chance for an isolated M-class flare 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 ⁶ hemi.)	X-ray Background	Flares							
					X-ray Flux			Optical				
					C	M	X	S	1	2	3	4
29 January	165	142	380	B7.8	4	0	0	2	0	0	0	0
30 January	160	128	470	B5.9	4	0	0	3	0	0	0	0
31 January	153	130	430	B7.4	1	0	0	0	0	0	0	0
01 February	161	141	550	B7.3	5	0	0	8	0	0	0	0
02 February	166	109	450	B7.2	3	1	0	0	1	0	0	0
03 February	164	149	570	C2.4	1	0	0	0	0	0	0	0
04 February	164	164	690	B9.8	9	0	0	9	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	>4Me
29 January	8.0E+7	2.1E+6	5.8E+3		4.2E+6	
30 January	4.6E+7	3.0E+5	3.0E+3		1.8E+6	
31 January	8.4E+6	6.7E+4	2.5E+3		1.4E+6	
01 February	8.8E+5	1.7E+4	2.3E+3		6.2E+5	
02 February	9.6E+4	1.2E+4	2.5E+3		1.3E+6	
03 February	8.8E+4	1.1E+4	2.7E+3		3.0E+6	
04 February	1.4E+5	1.1E+4	2.7E+3		3.0E+6	

Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
29 January	16	5-4-2-1-2-1-3-3	16	5-5-3-2-0-2-2-1	13	4-4-3-1-1-2-2-3
30 January	3	1-3-0-0-1-1-0-0	1	1-1-0-0-0-0-0-0	4	1-3-0-0-1-1-1-1
31 January	11	0-1-3-3-3-3-3-2	34	0-0-4-6-5-6-4-2	18	0-0-4-5-4-4-3-3
01 February	5	2-3-1-1-1-1-1-1	8	1-3-3-2-3-1-1-1	7	1-3-3-2-2-1-1-2
02 February	3	3-1-0-1-0-1-1-0	2	0-1-0-3-0-0-1-1	5	3-2-0-2-1-2-2-1
03 February	0	0-0-0-0-0-0-1-0	0	0-0-0-0-0-0-0-0	2	1-0-0-0-1-1-1-0
04 February	1	0-0-0-1-0-0-1-0	0	0-0-0-0-0-0-1-0	2	0-0-0-0-1-1-1-0

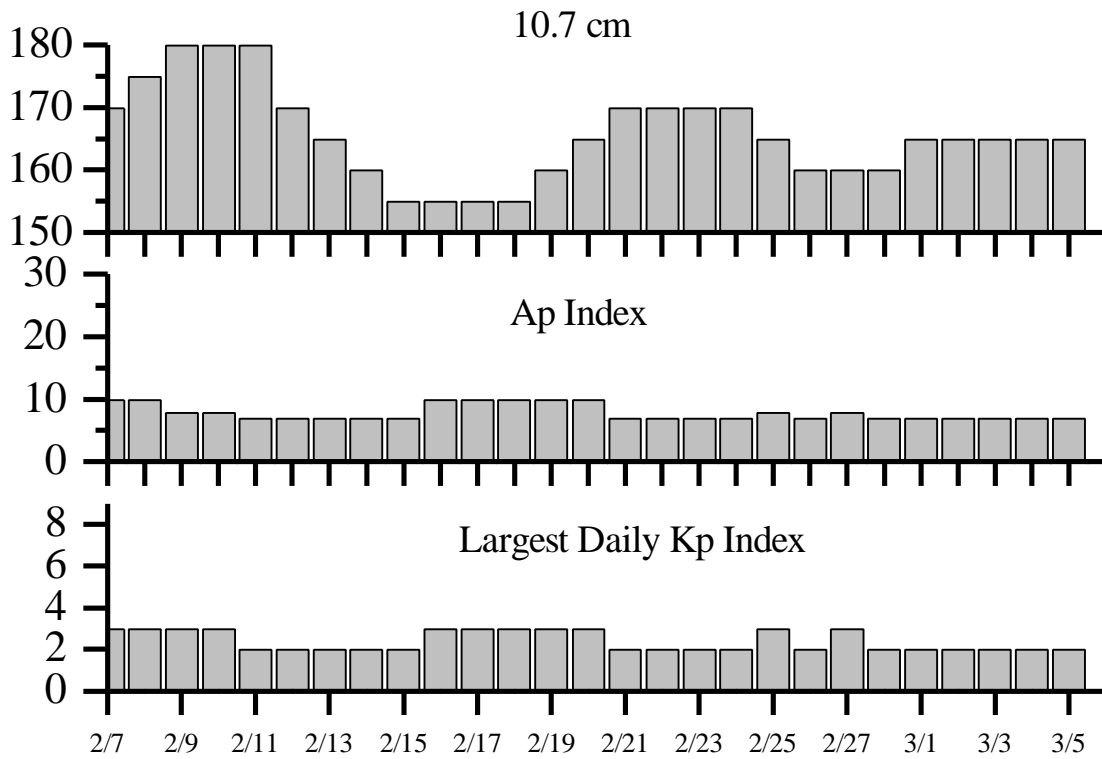


Alerts and Warnings Issued

Date & Time of Issue	Type of Alert or Warning	Date & Time of Event UT
29 Jan 0100	CONTINUED Protons Event >10 MeV >=10pfu	28 Jan 2025
29 Jan 0137	2 – 245 MHz Radio Bursts	28 Jan
29 Jan 0229	K= 4 Warning	29 Jan 0235 to 1200
29 Jan 0300	K= 5 Observed	29 Jan 0000 to 0300
29 Jan 1130	CONTINUED Proton Event >10MeV >=10pfu Warning	28 Jan 1951 - 2359
29 Jan 1140	Stratwarm Alert Exists Monday	
29 Jan 2015	A >=20 Watch	31 Jan
30 Jan 0459	Ended Proton Event >10MeV >=10pfu	30 Jan 0035
30 Jan 0500	CANCELLED Proton Event >10MeV >=10pfu Warning	28 Jan 1951 - 2359
30 Jan 1010	Stratwarm Alert Exists Tuesday	
31 Jan 0104	1 – 245 MHz Radio Burst	30 Jan
31 Jan 0825	Sudden Impulse observed at Boulder	31 Jan 0803
31 Jan 0841	K= 4 Warning valid from	31 Jan 0845 - 2359
31 Jan 0857	K= 5 Warning valid from	31 Jan 09 - 15
31 Jan 0903	K= 4 Observed	31 Jan 06 - 09
31 Jan 1031	Stratwarm Alert Exists Wednesday	
31 Jan 2236	Continued K = 4 Warning	31 Jan 0845 – 01 Feb1500
01 Feb 0251	CANCELLED K= 4 Warning	31 Jan 0845 - 2359
01 Feb 1233	Stratwarm Alert Exists Thursday	
02 Feb 1335	Stratwarm Alert Exists Friday	
03 Feb 0019	Type II Radio Emission	03 Feb 0000
03 Feb 0049	Type IV Radio Emission	03 Feb 0000
03 Feb 1232	Stratwarm Alert Exists Saturday	
04 Feb 1257	Stratwarm Alert Exists Sunday	



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
07 Feb	170	10	3	21 Feb	170	7	2
08	175	10	3	22	170	7	2
09	180	8	3	23	170	7	2
10	180	8	3	24	170	7	2
11	180	7	2	25	165	8	3
12	170	7	2	26	160	7	2
13	165	7	2	27	160	8	3
14	160	7	2	28	160	7	2
15	155	7	2	01 Mar	165	7	2
16	155	10	3	02	165	7	2
17	155	10	3	03	165	7	2
18	155	10	3	04	165	7	2
19	160	10	3	05	165	7	2
20	165	10	3				



Energetic Events

Date	Time		X-ray		Optical Information			Peak		Sweep Freq		
	Begin	Max	½ Max	Class	Integ Flux	Imp/ Brtns	Location Lat CMD	Rgn #	Radio Flux		Intensity	
									245	2695	II	IV
02 Feb	2348	0006	0020	M2.4	.029	1f	N09E72	9334	18	86	2	1

Flare List

Date	Time			X-ray Class.	Optical Imp / Brtns	Location Lat CMD	Rgn
	Begin	Max	End				
29 January	0422	0423	0448	C1.8	Sf	S10E60	9329
	1335	1341	1353	C1.6			
	B1525	U1539	1604	C5.7	Sf	S09E57	9329
	1741	1804	1825	C2.1			
30 January	0048	0055	0109	C3.7			
	0605	0611	0613		Sf	N24E78	
	1432	U1433	1447		Sf	S04W48	9321
	1501	1513	1525	C2.2			
	1903	1904	1906	C2.0	Sf	N23E74	9330
31 January	2218	2237	2307	C2.6			
	2315	2350	2356	C1.3			
01 February	0710	0711	0718	C7.9	Sf	N28E55	9330
	1259	1259	1306	C2.6	Sf	N26E53	9330
	1558	1559	1602		Sf	N10E88	9334
	1606	1607	1610		Sf	N10E89	9334
	1710	1710	1723	C4.1	Sf	N28E51	9330
	1849	1849	1854		Sf	N10E79	9334
	2030	2054	2121	C1.5			
	2246	2250	2254	C1.3			
	2336	2337	2344		Sf	N10E74	9334
	2356	2359	0002		Sf	N08E74	9334
02 February	0226	0230	0234	C1.3			
	0847	0918	1033	C2.3			
	1909	2037	2207	C3.3			
	B2359	0004	0036	M2.4	1f	N09E72	9334
03 February	1536	1619	1706	C1.3			
04 February	0020	0022	0032	C1.7	Sf	N26E20	9330
	0202	0204	0214		Sf	N25E18	9330
	0244	0251	0338	C1.7	Sf	N15E43	9334
	0615	0616	0620	C2.0	Sf	S17E70	9338
	0818	0823	0827	C1.7			
	0837	0838	0850	C2.5	Sf	N23E13	9330
	0926	0927	0930	C1.4	Sf	S10E83	9339
	1229	1231	1246	C1.0	Sf	S12E83	9339
	1244	1244	1251	C1.0	Sf	N12E39	9334
	2312	2312	2317	C1.3	Sf	N10E35	9334



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	4			
<i>Region 9313</i>																		
18 Jan	S08E72	267	0120	10	Dao	014	B											
19 Jan	S07E57	269	0190	11	Eao	016	B		1			2						
20 Jan	S07E42	271	0220	12	Eao	014	Bg		2				1	2				
21 Jan	S07E28	272	0160	10	Dao	011	B	1				2						
22 Jan	S07E15	272	0190	12	Eai	019	B	1				1						
23 Jan	S06E01	272	0100	11	Cao	020	Bg					2						
24 Jan	S07W12	272	0130	10	Dai	034	Bg					2						
25 Jan	S07W27	274	0130	14	Eai	027	Bg	1				2						
26 Jan	S07W40	274	0140	13	Eso	020	B	2				3						
27 Jan	S06W52	273	0120	09	Dai	013	Bg											
28 Jan	S04W65	272	0030	09	Cso	007	B	1	1			1	1					
29 Jan	S04W79	273	0020	05	Dro	003	B											
								6	4	0	15	2	2	0	0			

Crossed West Limb.

Absolute heliographic longitude: 272

Region 9316

19 Jan	S17E75	251	0100	02	Hsx	003	A											
20 Jan	S17E64	249	0200	09	Dso	007	B											
21 Jan	S16E50	250	0130	07	Dao	004	B											
22 Jan	S16E38	249	0130	06	Dao	006	B											
23 Jan	S16E23	250	0100	07	Cao	008	B											
24 Jan	S15E11	249	0100	06	Cao	009	B											
25 Jan	S16W03	250	0080	05	Cao	010	B											
26 Jan	S17W16	250	0060	07	Cao	009	B											
27 Jan	S16W29	250	0040	06	Dao	005	B											
28 Jan	S14W44	251	0000	01	Axx	001	A											
29 Jan	S15W58	252	0010	01	Bxo	002	B											
30 Jan	S15W71	252																
31 Jan	S15W84	252																
								0	0	0	0	0	0	0	0	0	0	

Crossed West Limb.

Absolute heliographic longitude: 250



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	4			
<i>Region 9321</i>																		
21 Jan	S05E69	231	0100	09	Dao	003	B											
22 Jan	S06E53	234	0100	07	Dao	007	B											
23 Jan	S06E43	230	0160	09	Dao	018	B						1					
24 Jan	S06E31	229	0180	09	Dai	024	B	1					2					
25 Jan	S05E16	231	0160	09	Dao	019	B											
26 Jan	S04E03	231	0250	09	Dao	023	B											
27 Jan	S05W10	231	0250	10	Dai	028	B	1					1					
28 Jan	S04W24	231	0300	10	Dao	020	B	1					2					
29 Jan	S03W37	231	0210	12	Eai	027	B											
30 Jan	S06W51	232	0150	11	Eai	020	B							1				
31 Jan	S04W66	234	0080	12	Eao	013	B											
01 Feb	S04W81	236	0110	10	Dao	006	B											
02 Feb	S04W94	236																
								3	0	0	0	7	0	0	0	0	0	

Crossed West Limb.

Absolute heliographic longitude: 231

<i>Region 9322</i>																		
23 Jan	S23E00	273	0010	04	Bxo	006	B											
24 Jan	S22W16	276	0020	06	Cro	007	B						1					
25 Jan	S22W32	279	0040	03	Hsx	004	A											
26 Jan	S22W44	278	0040	05	Cso	005	B											
27 Jan	S22W56	277	0050	06	Dso	005	B											
28 Jan	S22W68	275	0010	01	Axx	002	A											
29 Jan	S22W80	274	0010	01	Axx	001	A											
								0	0	0	0	1	0	0	0	0	0	

Crossed West Limb.

Absolute heliographic longitude: 273

<i>Region 9323</i>																		
23 Jan	S29E03	270	0000	02	Bxo	002	B											
24 Jan	S28W10	270	0020	05	Dao	004	B											
25 Jan	S29W23	270	0010	05	Cro	003	B											
26 Jan	S29W34	268	0020	06	Cro	004	B						1					
27 Jan	S29W47	268																
28 Jan	S29W60	268																
29 Jan	S29W73	268																
30 Jan	S29W86	268																
								0	0	0	0	1	0	0	0	0	0	

Crossed West Limb.

Absolute heliographic longitude: 270



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 9324

23 Jan	N10E42	231	0060	02	Bxo	004	B											
24 Jan	N09E29	231	0030	03	Cso	004	B											
25 Jan	N10E16	231	0010	01	Bxo	003	B											
26 Jan	N10E02	232	0000	00	Bxo	002	B											
27 Jan	N09W11	232																
28 Jan	N09W25	233																
29 Jan	N09W38	233																
30 Jan	N09W51	233																
31 Jan	N09W64	233																
01 Feb	N09W77	233																
02 Feb	N09W90	233																

0 0 0 0 0 0 0 0

Crossed West Limb.

Absolute heliographic longitude: 232

Region 9325

25 Jan	N10E64	183	0050	03	Cso	004	B											
26 Jan	N10E50	184	0050	01	Hsx	002	A		1				1					
27 Jan	N11E37	184	0060	05	Dso	006	B	1					1					
28 Jan	N10E25	182	0050	05	Cso	006	B						1					
29 Jan	N09E10	184	0050	05	Dao	007	B											
30 Jan	N10W04	185	0030	05	Cso	004	B											
31 Jan	N09W17	185	0020	06	Cao	005	B											
01 Feb	N10W32	187	0030	02	Cao	003	B											
02 Feb	N10W48	190	0010	01	Hsx	001	A											
03 Feb	N11W60	189	0000	00	Axx	001	A											
04 Feb	N11W74	190	0000	00	Axx	001	A											

1 1 0 2 1 0 0 0

Still on Disk.

Absolute heliographic longitude: 185

Region 9326

26 Jan	N27W27	261	0020	04	Cso	001	B											
27 Jan	N27W40	261	0050	06	Dso	005	B	1										
28 Jan	N28W53	260	0040	06	Cso	003	B											
29 Jan	N26W68	262	0010	01	Axx	002	A											
30 Jan	N26W81	262																

1 0 0 0 0 0 0 0

Crossed West Limb.

Absolute heliographic longitude: 261



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 9331

30 Jan	N13E27	154	0050	03	Dao	003	B											
31 Jan	N13E13	155	0010	01	Axx	003	A											
01 Feb	N13E00	155	0010	01	Bxo	003	B											
02 Feb	N13W13	155																
03 Feb	N13W26	155																
04 Feb	N13W39	155																
																		0 0 0 0 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 155

Region 9332

30 Jan	N08E24	157	0020	03	Cso	003	B											
31 Jan	N08E10	158	0020	03	Cro	007	B											
01 Feb	N08W03	158	0040	04	Dso	008	B											
02 Feb	N08W19	161	0030	06	Dao	005	B											
03 Feb	N09W32	161	0020	05	Cro	004	B											
04 Feb	N09W45	161	0000	00		000												
																		0 0 0 0 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 158

Region 9333

01 Feb	N24W10	165	0020	04	Cso	005	B											
02 Feb	N25W24	166	0030	06	Dao	005	B											
03 Feb	N26W39	168	0030	03	Cao	003	B											
04 Feb	N25W50	166	0030	07	Cso	005	B											
																		0 0 0 0 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 165

Region 9334

01 Feb	N12E78	077	0060	02	Hsx	001	A											5
02 Feb	N11E67	075	0200	15	Eso	006	B		1			1	1					
03 Feb	N11E54	075	0210	11	Eso	009	B											
04 Feb	N11E41	075	0220	14	Eai	018	B	3				3						
								3	1	0	9	1	0	0	0			

Still on Disk.

Absolute heliographic longitude: 075



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	4							
<i>Region 9335</i>																						
03 Feb	N09E68	061	0100	10	Dao	005	B															
04 Feb	N08E52	064	0130	09	Dao	009	B															
																					0 0 0 0 0 0 0 0	
Still on Disk.																						
Absolute heliographic longitude: 064																						
<i>Region 9336</i>																						
03 Feb	S10W01	130	0000	00	Axx	001	A															
04 Feb	S10W17	133	0010	01	Bxo	003	B															
																						0 0 0 0 0 0 0 0
Still on Disk.																						
Absolute heliographic longitude: 130																						
<i>Region 9337</i>																						
03 Feb	S27E76	053	0000	01	Axx	001	A															
04 Feb	S27E60	056	0020	01	Hsx	001	A															
																						0 0 0 0 0 0 0 0
Still on Disk.																						
Absolute heliographic longitude: 056																						
<i>Region 9338</i>																						
04 Feb	S17E59	057	0030	01	Hrx	002	A	1				1										
								1	0	0	1	0	0	0	0							0 0 0 0 0 0
Still on Disk.																						
Absolute heliographic longitude: 057																						
<i>Region 9339</i>																						
04 Feb	S12E74	042	0070	07	Hsx	003	A	2				2										
								2	0	0	2	0	0	0	0							0 0 0 0 0 0
Still on Disk.																						
Absolute heliographic longitude: 042																						

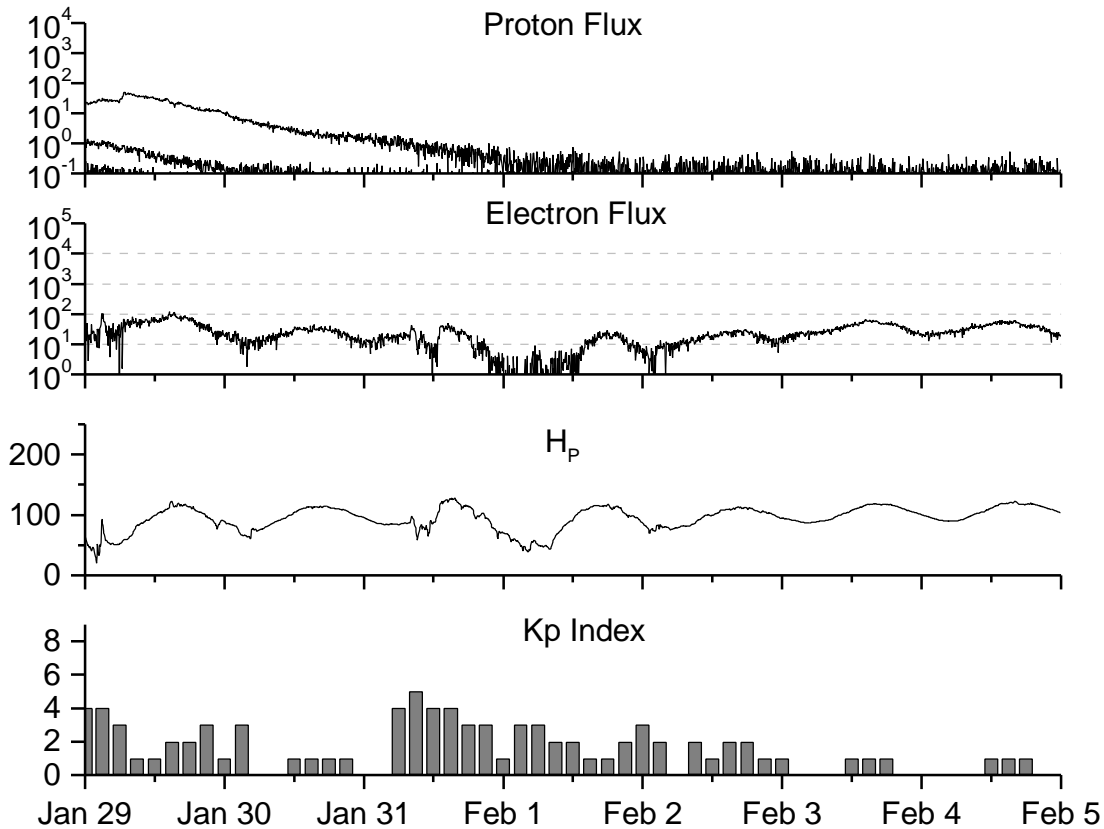


**Recent Solar Indices (preliminary)
of the observed monthly mean values**

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									
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	110.0	191.5	171.5	14	13.1
December	123.5	86.4	0.69	165.9	111.1	169.8	173.4	10	13.8
2000									
January	140.8	90.1	0.64	168.0	112.9	158.1	175.5	13	14.5
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			163.1		16	
September	157.9	109.9	0.70			182.1		18	
October	138.9	100.1	0.72			167.7		18	
November	149.9	106.5	0.71			178.8		17	
December	146.4	104.5	0.71			173.6		08	
2001									
January	142.7	95.1	0.67			166.7		08	

NOTE: All smoothed values after December 1999 and monthly values after June 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 29 January 2001*

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.

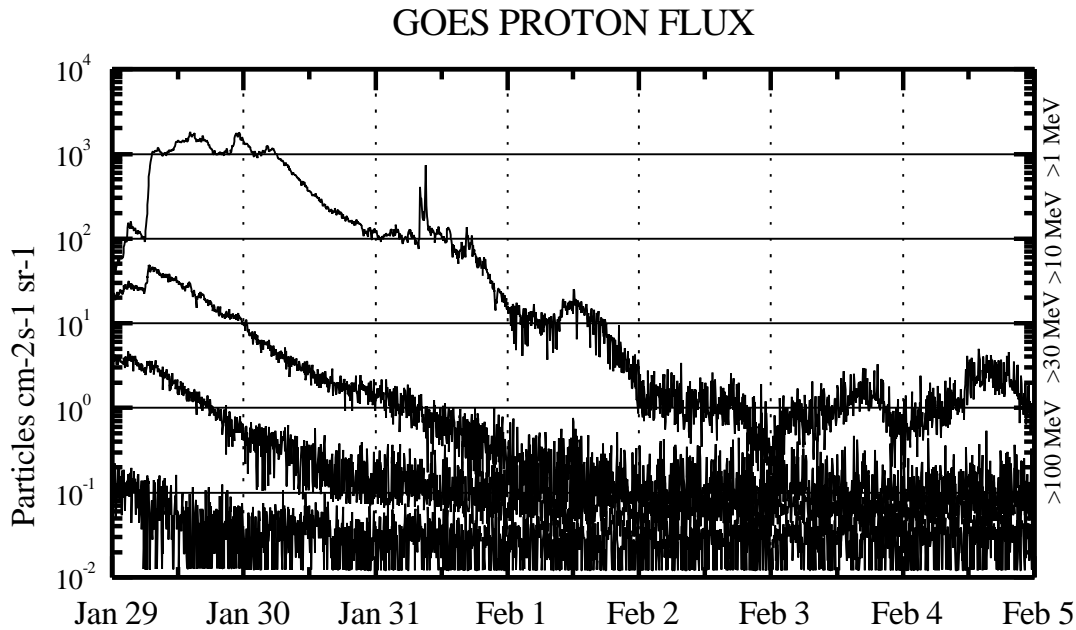
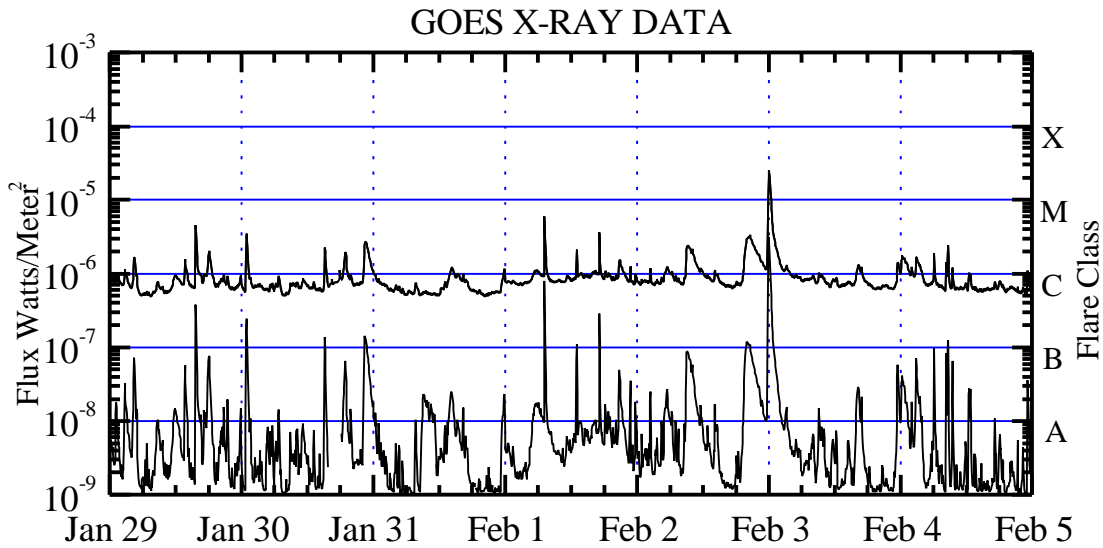
Electrons plot contains the five-minute averaged integral electron flux (electrons/cm²-sec -sr) with energies greater than 2 MeV at GOES-8.

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_p is subject to more localized phenomena and the measurements generally are applicable to within a few degrees of longitude of the measuring satellite.



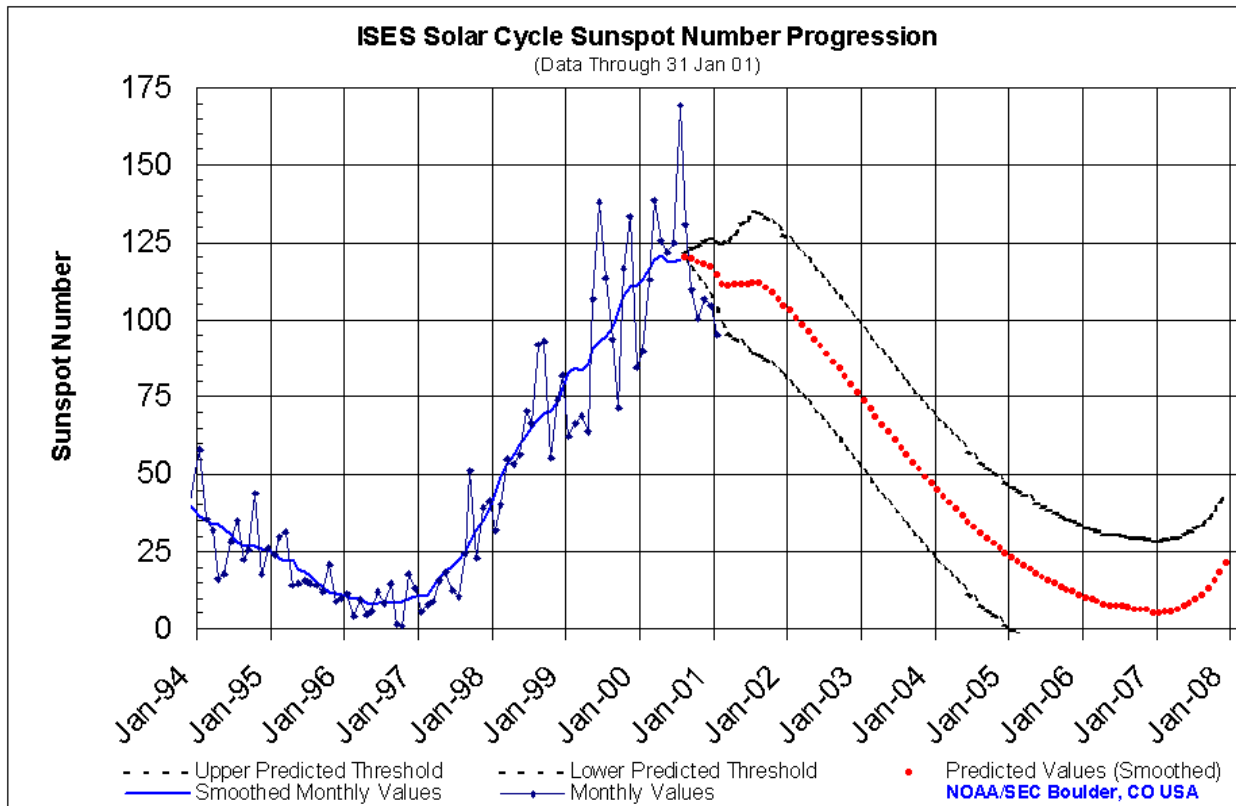


Weekly GOES Satellite X-ray and Proton Plots

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.

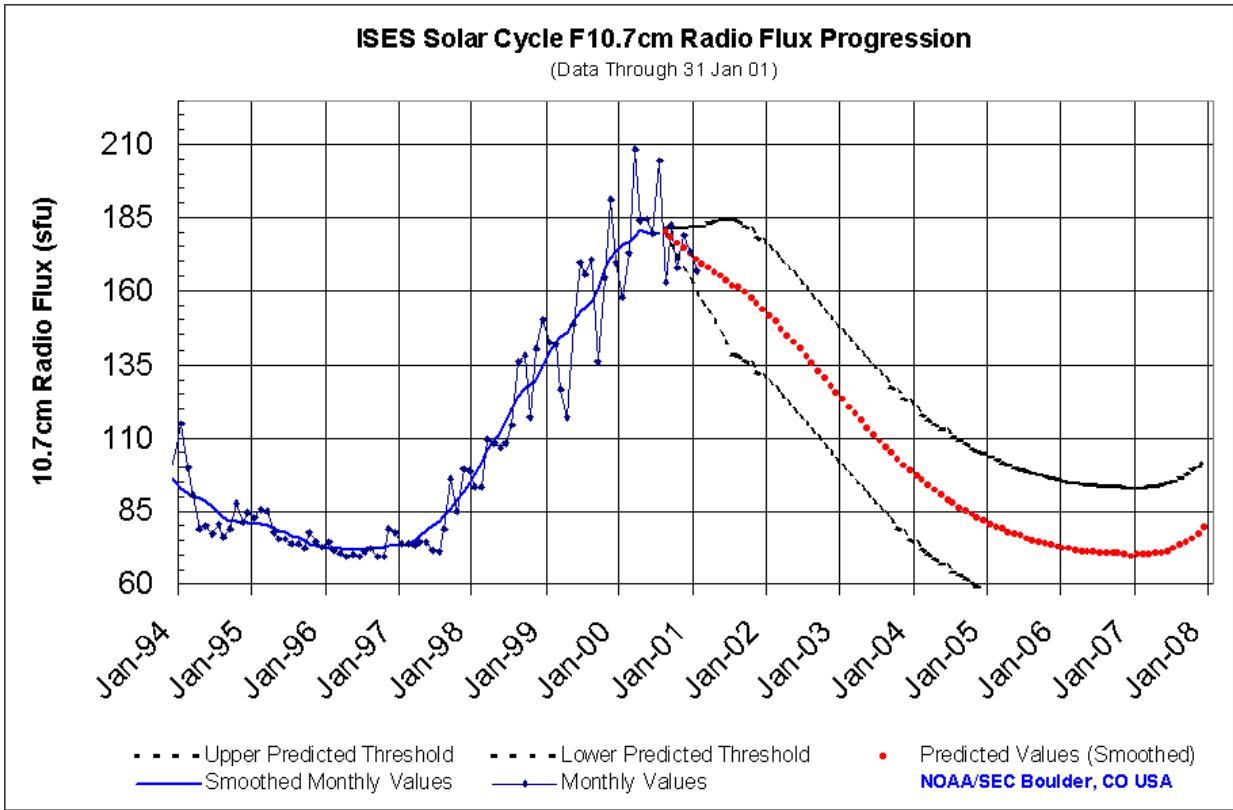




SEC Prediction of Smoothed Sunspot Number

	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	120	120	120	118	118	117
	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(1)	(3)	(5)	(7)	(9)
2001	115	111	111	111	111	111	112	112	110	109	107	105
	(11)	(13)	(15)	(17)	(19)	(21)	(23)	(23)	(23)	(23)	(23)	(23)
2002	103	101	98	96	94	91	89	86	84	81	79	76
	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)
2003	74	71	69	66	64	61	59	56	54	52	49	47
	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)
2004	45	43	41	39	37	35	33	31	29	28	26	25
	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)
2005	23	22	20	19	18	17	16	15	14	13	12	11
	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)
2006	10	9	9	8	8	7	7	7	7	6	6	5
	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)
2007	5	6	6	6	7	8	10	11	13	16	18	21
	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)

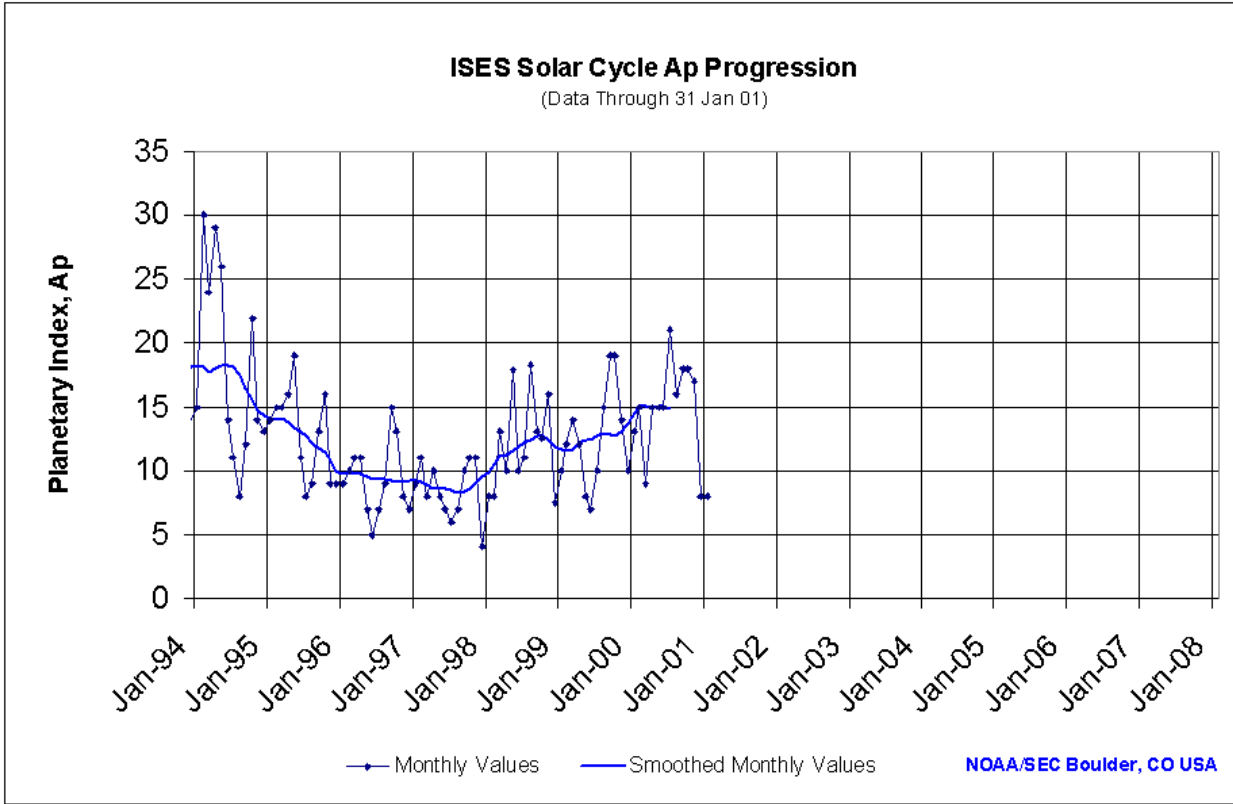




SEC Prediction of Smoothed F10.7cm Radio Flux

	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 (***)	180 (1)	179 (3)	176 (5)	175 (7)	173 (9)
2001	171 (11)	169 (13)	168 (15)	167 (17)	165 (19)	163 (21)	162 (23)	161 (23)	159 (23)	158 (23)	156 (23)	154 (23)
2002	152 (23)	149 (23)	147 (23)	145 (23)	143 (23)	140 (23)	138 (23)	135 (23)	133 (23)	130 (23)	128 (23)	125 (23)
2003	123 (23)	120 (23)	118 (23)	116 (23)	113 (23)	111 (23)	109 (23)	107 (23)	105 (23)	103 (23)	101 (23)	99 (23)
2004	97 (23)	95 (23)	94 (23)	92 (23)	90 (23)	89 (23)	88 (23)	86 (23)	85 (23)	84 (23)	83 (23)	82 (23)
2005	81 (23)	80 (23)	79 (23)	78 (23)	77 (23)	76 (23)	76 (23)	75 (23)	75 (23)	74 (23)	73 (23)	73 (23)
2006	72 (23)	72 (23)	72 (23)	71 (23)	71 (23)	71 (23)	71 (23)	71 (23)	70 (23)	70 (23)	70 (23)	70 (23)
2007	70 (23)	70 (23)	70 (23)	70 (23)	71 (23)	71 (23)	72 (23)	73 (23)	74 (23)	76 (23)	77 (23)	79 (23)





Sudden Storm Commencements and Impulses



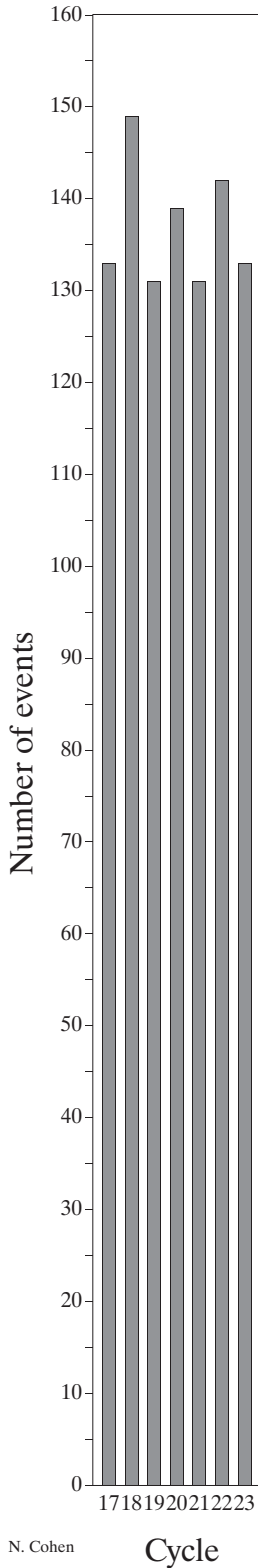
Space Environment Center



January 2001
(Month 52)

 Preliminary data

Comparison of Cycles at current month in cycle



N. Cohen

