

Solar activity was at low levels during the summary period. Region 508 (S20, L=286, class/area Dko/680 on 20 November) was the most active region during the period. This region contained moderate magnetic complexity with a beta-gamma configuration and produced twenty C-class flares during the period. It also produced the largest flare of the period on 27 November, a C9/Sf at 0820 UTC. Moderately complex Region 501 (N18, L=002 class/area Dhc/410 on 18 November) was in gradual decay as it approached the west limb, and made a quiet exit off the visible disk on 26 November. Region 507 (N10, L=295, class/area Eki/890 on 19 November), though in decay phase, exhibited considerable size and complexity throughout the period. A weak delta configuration persisted; however, activity was limited to very isolated low C-class flares. Late in the period, Region 517 (S07, L=145, class/area Cao/160 on 30 November) rotated onto the visible disk and produced occasional C-class activity. This region continues in a slow growth phase. There have been a number of other smaller regions on the visible disk during the summary period, all of which are unremarkable and simple in magnetic structure. At the time of this report issue, long duration X-ray activity and a strong eruption was observed to occur from near Region 508 on the southwest limb.

Solar wind data were available from the NASA Advanced Composition Explorer (ACE) spacecraft during most of the summary period. The period began with elevated solar wind speeds due to a coronal hole high speed stream. Early on 25 November, wind speeds reached 650 km/s with the Bz component of the IMF remaining predominantly northward. From 25 – 29 November, solar wind speed was in gradual decline to around 375 km/s. Another coronal hole rotated into a geoeffective position on 30 November with wind speed increasing to 500 km/s and Bz turning southward to around -5 nT.

The greater than 10 MeV proton flux was enhanced early in the period following a small proton event on 21 – 22 November, but returned to background levels by 26 November. At the time of this report issue, a greater than 10 MeV proton event is in progress most likely due to the long duration X-ray activity on 02 December. The event began at 1505 UTC on 02 December and current flux levels are at 85 pfu.

The greater than 2 MeV electron flux at geosynchronous orbit reached high levels every day during the summary period, 24 – 30 November.

Geomagnetic activity was at quiet to unsettled levels during the summary period. One period of isolated active conditions was observed on 24 November. Brief periods of minor and major storm levels were observed at higher latitudes on 24 – 25 November due to effects from a coronal hole high speed stream. The coronal hole on 30 November produced no significant geomagnetic response.

Space Weather Outlook **03 December - 29 December 2003**

Solar activity is expected to range from very low to low levels with a chance of moderate level activity. Activity is expected to be at low levels during the first half of the period. Active longitudes are due to return to the visible disk by mid December and may produce moderate levels.

The greater than 10 MeV proton event currently in progress has reached flux levels of 85 pfu at this time and is expected to end by 03 December. There is a slight chance of a proton event after 15 December when active longitudes return to the visible disk.

The greater than 2 MeV electron flux at geosynchronous orbit is expected to reach high levels on 09 - 15 December due to a large trans-equatorial coronal hole.

The geomagnetic field is expected to range from quiet to major storm levels. A large trans-equatorial coronal hole is due to return to a geoeffective position on 06 -13 December and is expected to produce minor to major storming.



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
24 November	177	149	1520	B5.5	6	0	0	2	0	0	0	0
25 November	171	202	1320	B6.4	4	0	0	1	0	0	0	0
26 November	171	209	1320	B6.0	2	0	0	2	0	0	0	0
27 November	175	154	980	B7.0	6	0	0	5	0	0	0	0
28 November	168	185	1500	B6.4	3	0	0	1	0	0	0	0
29 November	166	177	1160	B6.8	8	0	0	2	1	0	0	0
30 November	153	178	1070	B5.9	4	0	0	0	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
24 November	1.3E+7	2.4E+5	1.7E+3		7.1E+7	
25 November	4.4E+6	3.1E+4	1.7E+3		8.7E+7	
26 November	1.0E+6	1.2E+4	2.1E+3		1.2E+8	
27 November	7.0E+5	1.1E+4	2.3E+3		2.2E+8	
28 November	1.3E+6	1.1E+4	2.3E+3		2.1E+8	
29 November	1.1E+6	1.2E+4	2.8E+3		1.4E+8	
30 November	9.4E+5	1.2E+4	2.7E+3		7.1E+7	

Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	24 November	7	2-1-2-2-3-2-1-2	24	3-2-2-2-6-5-3-3	12
25 November	9	3-2-3-2-3-2-1-1	29	3-3-3-5-6-5-2-1	13	3-3-3-3-3-3-3-2
26 November	4	1-1-1-1-2-2-1-1	9	2-2-2-1-4-2-1-2	9	2-2-2-2-3-3-3-2
27 November	3	1-2-0-1-1-1-1-0	5	2-1-1-3-2-0-1-1	10	2-2-2-2-3-3-3-3
28 November	5	3-1-0-2-2-2-1-0	9	0-0-0-3-5-2-1-0	10	2-2-2-3-3-3-2-2
29 November	4	2-1-1-1-1-2-1-1	7	0-1-2-3-4-0-0-1	9	2-2-2-3-3-3-2-2
30 November	7	2-2-1-1-2-2-3-2	14	1-2-0-2-4-4-4-3	10	2-2-2-2-3-3-3-2

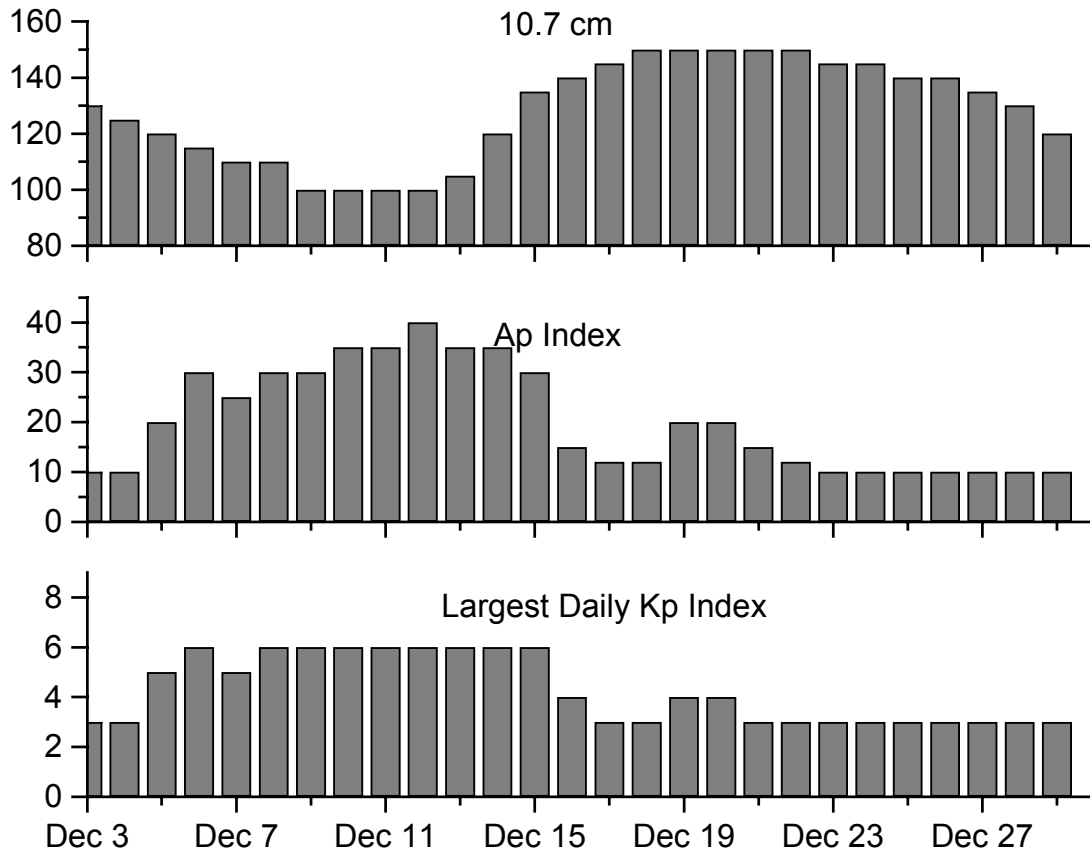


Alerts and Warnings Issued

<u>Date & Time of Issue</u>	<u>Type of Alert or Warning</u>	<u>Date & Time of Event UT</u>
24 Nov 0029	1 - 245 MHz Radio Burst	23 Nov
24 Nov 0057	ALERT: Geomagnetic K= 4	24 Nov 0057
24 Nov 1412	ALERT: Electron 2MeV Integral Flux > 1000pfu	24 Nov 1345
24 Nov 1457	EXTENDED WARNING: Geomagnetic K= 4	23 Nov 2339 -24 Nov 2359
24 Nov 2354	EXTENDED WARNING: Geomagnetic K= 4	23 Nov 2339 -25 Nov 1600
25 Nov 0018	1 - 245 MHz Radio Burst	24 Nov
25 Nov 1236	ALERT: Electron 2MeV Integral Flux > 1000pfu	25 Nov 1220
25 Nov 1414	ALERT: Geomagnetic K= 4	25 Nov 1413
25 Nov 1556	EXTENDED WARNING: Geomagnetic K= 4	23 Nov 2339 - 25Nov 2359
26 Nov 0052	1 - 245 MHz Radio Burst	25 Nov
26 Nov 0002	EXTENDED WARNING: Geomagnetic K= 4	23 Nov 2339 -26 Nov 1600
26 Nov 1017	ALERT: Electron 2MeV Integral Flux > 1000pfu	26 Nov 0955
27 Nov 0017	1 - 245 MHz Radio Burst	26 Nov
27 Nov 0017	1 - 245 MHz Radio Noise Storm	26 Nov
27 Nov 0519	ALERT: Electron 2MeV Integral Flux > 1000pfu	27 Nov 0500
28 Nov 0010	1 - 245 MHz Radio Noise Storm	27 Nov
28 Nov 0519	ALERT: Electron 2MeV Integral Flux > 1000pfu	28 Nov 0500
29 Nov 0537	ALERT: Electron 2MeV Integral Flux > 1000pfu	29 Nov 0515
30 Nov 0942	ALERT: Electron 2MeV Integral Flux > 1000pfu	30 Nov 0920
30 Nov 1644	WARNING: Geomagnetic K=4	30 Nov 1700 - 01Dec 1500



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 Dec	130	10	3	17 Dec	145	12	3
04	125	10	3	18	150	12	3
05	120	20	5	19	150	20	4
06	115	30	6	20	150	20	4
07	110	25	5	21	150	15	3
08	110	30	6	22	150	12	3
09	100	30	6	23	145	10	3
10	100	35	6	24	145	10	3
11	100	35	6	25	140	10	3
12	100	40	6	26	140	10	3
13	105	35	6	27	135	10	3
14	120	35	6	28	130	10	3
15	135	30	6	29	120	10	3
16	140	15	4				



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

No Events observed

Flare List

Date	Time			X-ray Class.	Imp / Brtns	Optical Location Lat CMD	Rgn
	Begin	Max	End				
24 November	0046	0048	0051	C1.7	Sf	S19E14	508
	0441	0456	0459	C2.6			501
	1206	1210	1213	C1.3			508
	1717	1722	1742	C1.1	Sf	S08E59	509
	1852	1852	1900	C2.3			508
	2008	2021	2032	C2.3			509
25 November	0208	0215	0220	C1.2	Sf	S14W05	508
	0558	0600	0610	C3.0			508
	0924	1003	1041	C2.2			508
26 November	1325	1329	1333	C1.3	Sf	S13W14	508
	0310	0316	0320	C1.2			508
	1217	1224	1227	B9.4			508
	1617	1618	1625	C1.7			508
27 November	1714	1716	1718	C1.7	Sf	S19W18	508
	0026	0029	0036	C2.2	Sf	S12E26	509
	0159	0202	0206	C1.1	Sf	S15W23	508
	0636	0646	0651	C1.9			508
	0803	0812	0910	C9.6			508
	0834	0834	0843	C1.1			508
	1841	1844	1854	C2.7			508
2202	2210	2222	C1.2	510			
28 November	0146	0147	0156	C1.7	Sf	S14W36	508
	0546	0555	0608	C1.0	Sf	S20E05	507
	0906	0913	0930	C3.6			508
29 November	0330	U0331	0338	C1.5	Sf	S20E05	510
	0632	0638	0646	C2.0	Sf	S23E02	508
	0656	0659	0702	C1.5			508
	0830	0834	0841	C1.9			507
	1006	1012	1018	C2.6			508
	1445	1448	1451	C1.6			508
	1801	1803	1821	C2.7			510
2106	2107	2119	C4.2	1f			S25E00
30 November	0006	0011	0014	C4.6	Sf	S25E00	517
	0256	0300	0305	C1.1			508
	1007	1011	1013	C1.2			508
	1515	1531	1539	C2.1			508



Region Summary

Date	Location		Sunspot Characteristics				Flares									
	Helio		Area (10 ⁻⁶ 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 501</i>																
13 Nov	N05E65	012	0340	20	Fso	003	B	2								
14 Nov	N04E61	002	0340	08	Dki	011	Bg	4								
15 Nov	N03E48	002	0340	06	Dki	014	Bg	3			1					
16 Nov	N03E35	002	0380	05	Dki	020	Bg	3			2					
17 Nov	N03E22	002	0370	08	Dki	025	Bg	3 2		1						
18 Nov	N03E09	002	0410	10	Dhc	026	Bgd	1 3		2		1				
19 Nov	N03W05	002	0380	09	Dko	022	Bg	3 1		1 2						
20 Nov	N02W18	002	0340	05	Dki	015	Bgd	1 3		1 1		2				
21 Nov	N04W32	004	0310	06	Dki	014	Bgd									
22 Nov	N03W44	003	0250	06	Dki	008	Bg	1			2					
23 Nov	N03W57	003	0250	08	Dki	006	Bg								1	
24 Nov	N03W72	005	0150	04	Dao	003	B	1								
25 Nov	N04W85	004	0120	02	Hsx	001	A									
26 Nov	N04W98	004														
								20 11 0 10 4 3 0 0								

Crossed West Limb.

Absolute heliographic longitude: 002

<i>Region 505</i>																	
17 Nov	S22E58	326	0020	03	Cso	003	B										
18 Nov	S22E45	326	0030	03	Cro	003	B										
19 Nov	S22E32	325	0030	02	Cro	003	B										
20 Nov	S23E19	325	0030	02	Cro	003	B										
21 Nov	S22E07	325	0020	01	Axx	002	A										
22 Nov	S22W06	325	0010	03	Bxo	003	B										
23 Nov	S22W21	327	0010	03	Bxo	002	B										
24 Nov	S22W34	327															
25 Nov	S22W47	327															
26 Nov	S22W60	327															
27 Nov	S22W73	327															
28 Nov	S22W86	327															
								0 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	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 508</i>																		
19 Nov	S17E75	282	0700	11	Eko	005	B											
20 Nov	S20E58	286	0680	10	Dko	018	Bg	1				1						
21 Nov	S18E47	285	0510	16	Fai	027	Bg	1										
22 Nov	S17E34	285	0520	12	Eki	025	Bg											
23 Nov	S17E20	286	0480	12	Ekc	047	Bg	1				2						
24 Nov	S17E08	285	0450	13	Ekc	041	Bg	3				1						
25 Nov	S16W06	285	0270	11	Eac	052	Bg	2				1						
26 Nov	S18W18	284	0360	11	Eki	040	Bg	2				2						
27 Nov	S19W31	283	0180	07	Dao	016	Bg	4				3						
28 Nov	S19W44	283	0200	08	Dai	021	Bg	2				1						
29 Nov	S19W57	283	0260	11	Eac	022	Bg	4										
30 Nov	S19W71	283	0230	08	Dai	015	Bg	3										
								23	0	0	0	11	0	0	0	0	0	

Still on Disk.

Absolute heliographic longitude: 285

<i>Region 509</i>																		
24 Nov	S10E56	237	0110	05	Cso	002	B	1				1						
25 Nov	S10E43	236	0120	06	Cso	010	B	1										
26 Nov	S11E28	238	0080	05	Cao	007	B											
27 Nov	S11E15	237	0050	03	Dso	006	B	1				1						
28 Nov	S11E02	237	0070	04	Dao	004	B											
29 Nov	S11W11	237	0070	06	Dso	004	B											
30 Nov	S11W24	236	0040	02	Hax	002	A											
								3	0	0	0	2	0	0	0	0	0	

Still on Disk.

Absolute heliographic longitude: 237

<i>Region 510</i>																		
24 Nov	S22E62	231	0060	02	Hsx	001	A											
25 Nov	S22E50	229	0080	07	Dso	007	B											
26 Nov	S23E36	230	0110	07	Dao	019	B											
27 Nov	S23E24	228	0080	08	Cso	013	B											
28 Nov	S23E11	228	0150	10	Dai	026	B											
29 Nov	S23W02	228	0100	11	Eai	028	B	3				2	1					
30 Nov	S23W16	228	0090	10	Dai	027	B											
								3	0	0	0	2	1	0	0	0	0	

Still on Disk.

Absolute heliographic longitude: 228



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 511

25 Nov	S14E24	255	0040	06	Dso	006	B											
26 Nov	S14E11	255	0060	07	Dao	022	B											
27 Nov	S15W02	254	0050	07	Dso	006	B											
28 Nov	S15W15	254	0050	08	Dso	006	B											
29 Nov	S15W30	256	0030	06	Cso	007	B											
30 Nov	S15W44	256	0030	05	Bxo	006	B											
																		0 0 0 0 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 254

Region 512

25 Nov	N06E31	248	0020	03	Cso	003	B											
26 Nov	N06E18	248	0020	05	Cso	006	B											
27 Nov	N06E04	248	0030	07	Cso	006	B											
28 Nov	N06W09	248	0300	06	Bxo	008	B											
29 Nov	N06W22	248	0010	01	Axx	002	A											
30 Nov	N06W36	248	0010	01	Hsx	001	A											
																		0 0 0 0 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 248

Region 513

26 Nov	N09E71	195	0040	03	Hsx	001	A											
27 Nov	N13E58	194	0050	02	Hsx	001	A											
28 Nov	N13E45	194	0050	02	Hsx	001	A											
29 Nov	N13E32	194	0080	02	Hsx	001	A											
30 Nov	N13E18	194	0070	02	Hsx	002	A											
																		0 0 0 0 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 194

Region 514

27 Nov	S16W46	298	0000	01	Axx	001	A											
28 Nov	S15W59	298	0010	01	Axx	001	A											
29 Nov	S15W72	298																
30 Nov	S15W85	298																
																		0 0 0 0 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 298



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 515

28 Nov S02E68	171	0050	01	Hrx	002	A												
29 Nov S02E55	171	0080	05	Dso	007	B												
30 Nov S02E42	171	0030	06	Bxo	008	B												
							0	0	0	0	0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 171

Region 516

28 Nov S17E70	169	0050	02	Hsx	001	A												
29 Nov S17E57	169	0070	03	Cso	005	B												
30 Nov S17E44	168	0090	05	Dao	007	B												
							0	0	0	0	0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 168

Region 517

30 Nov S07E67	145	0160	07	Cao	002	B	1											
							1	0	0	0	0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 145

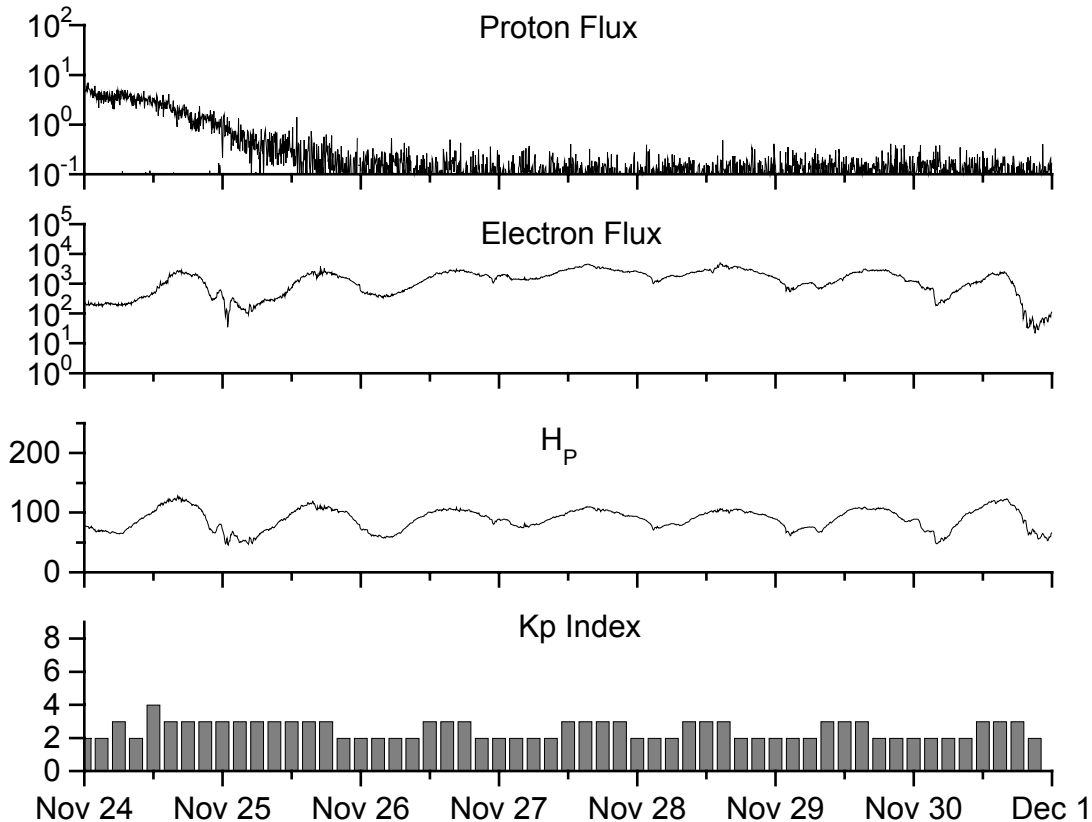


**Recent Solar Indices (preliminary)
of the observed monthly mean values**

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
2001									
December	217.5	132.2	0.61	184.5	114.6	235.6	193.9	09	12.2
2002									
January	189.0	114.1	0.60	184.8	113.5	227.3	194.6	08	12.3
February	194.5	107.4	0.55	188.6	114.7	205.0	197.2	10	12.8
March	153.1	98.4	0.64	188.9	113.3	180.3	195.7	10	12.9
April	194.9	120.7	0.62	186.2	110.5	189.8	191.5	15	13.2
May	204.1	120.8	0.59	183.6	108.9	178.4	188.0	15	13.3
June	146.0	88.3	0.60	179.9	106.3	148.7	183.0	11	13.5
July	183.5	99.6	0.54	175.4	102.7	173.5	176.3	11	13.7
August	191.0	116.4	0.61	169.2	98.7	183.9	169.5	16	14.2
September	206.4	109.6	0.53	163.4	94.6	175.8	164.1	14	15.0
October	153.9	97.5	0.63	158.8	90.5	167.0	159.4	23	15.6
November	159.8	95.5	0.60	150.9	85.2	168.7	154.8	16	16.3
December	147.9	80.8	0.55	144.6	82.1	158.6	150.9	13	17.0
2003									
January	149.3	79.7	0.53	141.7	81.0	144.0	149.2	13	18.2
February	87.0	46.0	0.53	136.4	78.5	124.5	144.7	17	18.9
March	119.7	61.1	0.51	128.1	74.2	132.2	139.5	21	19.4
April	119.7	60.0	0.50	121.5	70.3	126.3	136.3	20	20.0
May	89.6	55.2	0.62	118.3	67.8	129.3	135.0	26	21.0
June	118.4	77.4	0.65			129.4		24	
July	132.8	85.0	0.64			127.8		20	
August	114.3	72.7	0.64			122.1		23	
September	82.6	48.8	0.59			112.3		19	
October	118.9	65.6	0.55			153.1		32	
November	118.9	67.2	0.57			153.1		31	

NOTE: All smoothed values after September 2002 and monthly values after March 2003 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 23, RI = 120.8, occurred April 2000. *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 24 November 2003

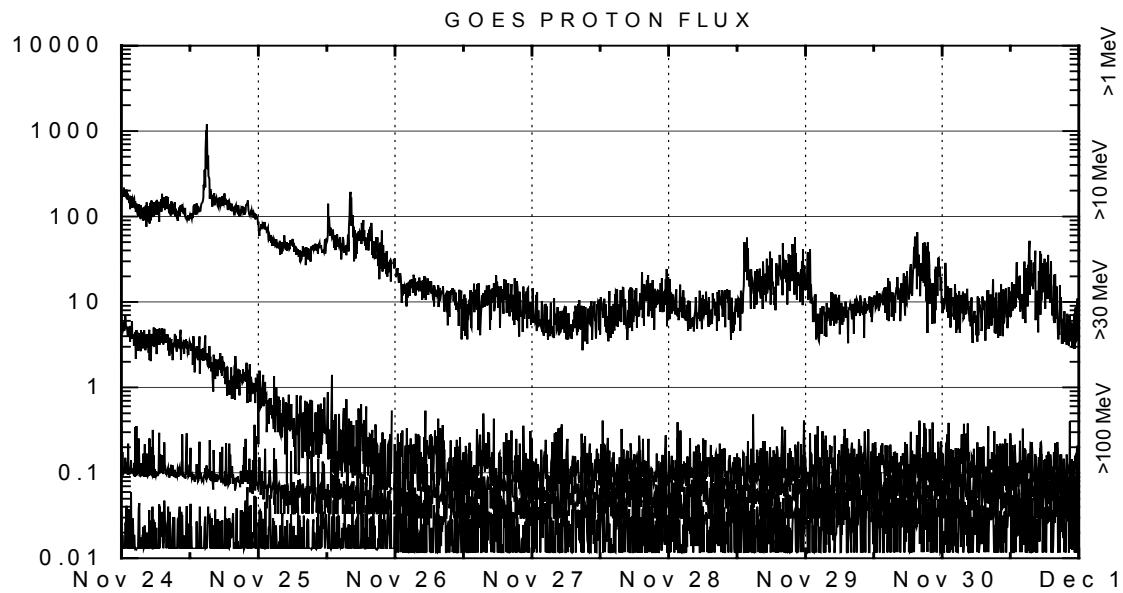
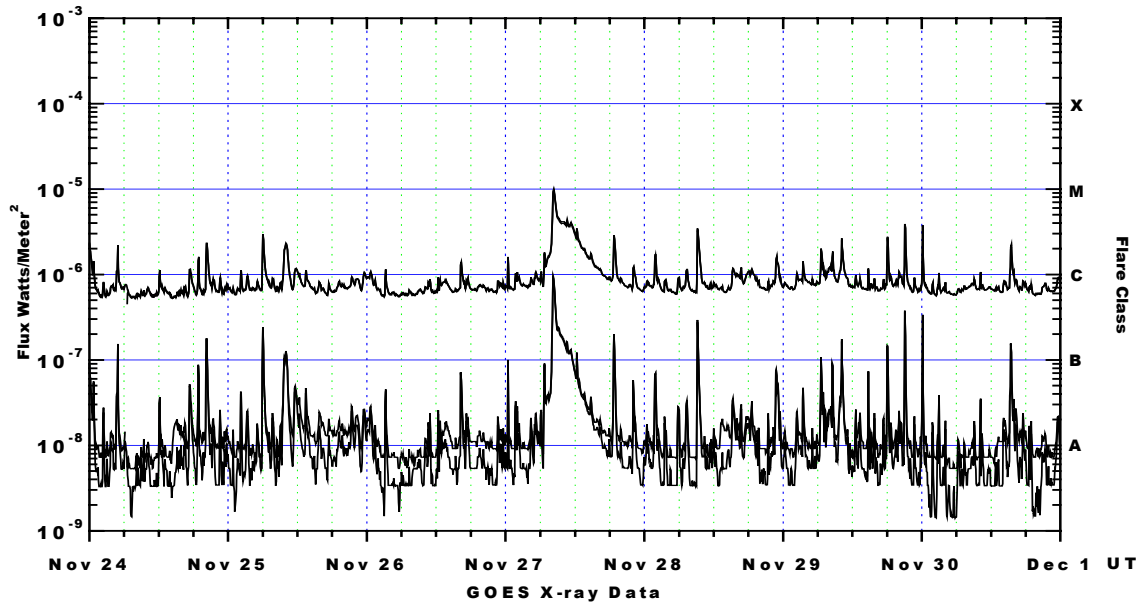
Protons plot contains the five-minute averaged integral proton flux (protons/cm²-sec -sr) as measured by GOES-11 (W113) for each of three energy thresholds: greater than 10, 50, and 100 MeV.

Electrons plot contains the five-minute averaged integral electron flux (electrons/cm²-sec -sr) with energies greater than 2 MeV at GOES-12.

H_p plot contains the five minute averaged magnetic field H - component in nanoteslas (nT) as measured by GOES-12. 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 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_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

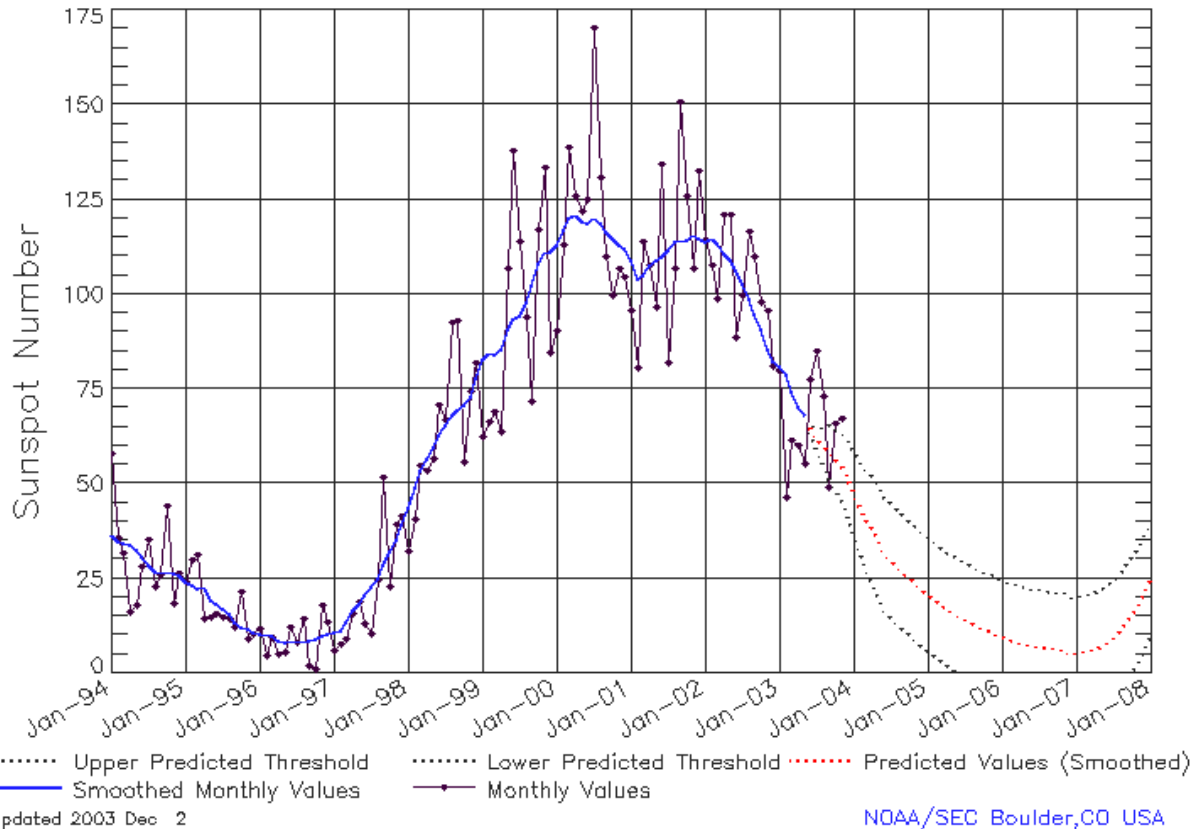
X-ray plot contains five-minute averaged x-ray flux (watts/m²) as measured by GOES 12 and 10 in two wavelength bands, .05 - .4 and .1 - .8 nm. The letters A, B, C, M and X refer to x-ray event levels for the .1 - .8 nm band.

Proton plot contains the five-minute averaged integral proton flux (protons/cm²-sec-sr) as measured by GOES-11 (W113) 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.



ISES Solar Cycle Sunspot Number Progression

Data Through 30 Nov 03



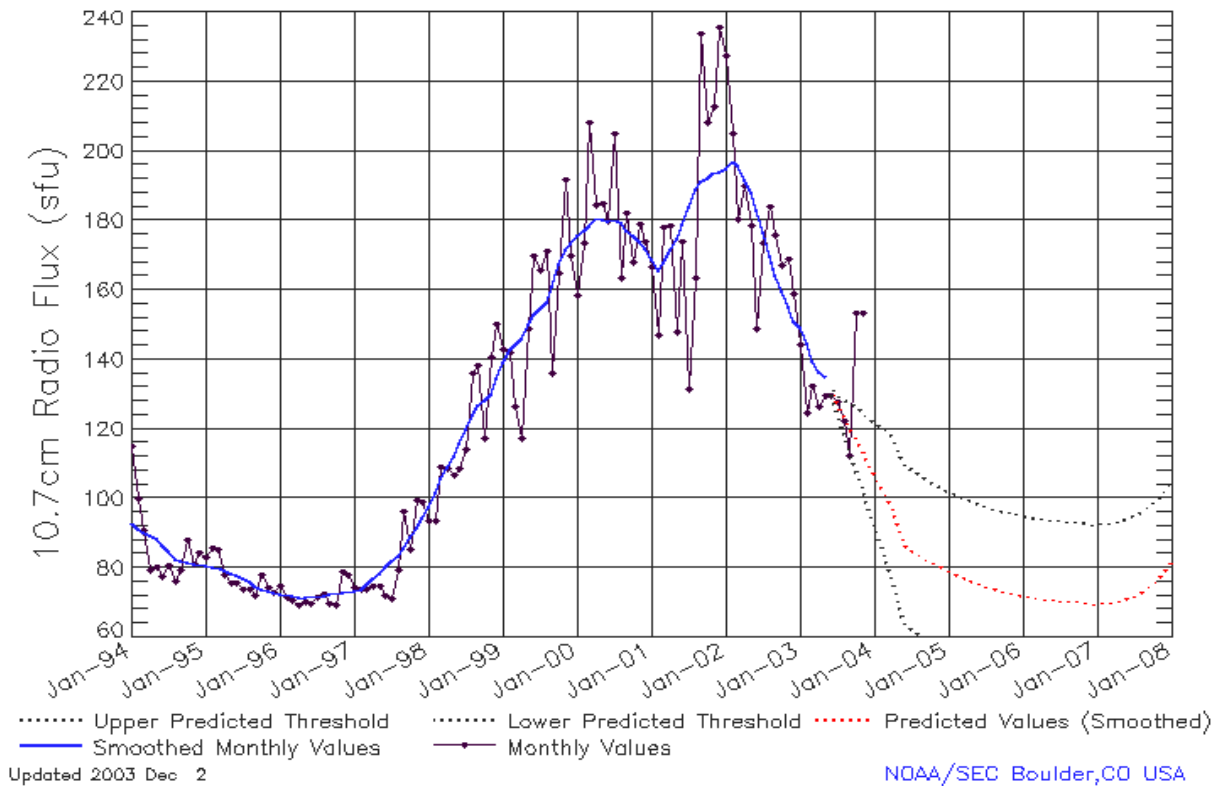
SEC Prediction of Smoothed Sunspot Number

	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	119	116	114	113	112
	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)
2001	109	104	105	108	109	110	112	114	114	114	116	115
	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)
2002	114	115	113	110	109	106	103	99	95	91	85	82
	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)
2003	81	79	74	70	68	65	62	60	59	57	55	52
	(***)	(***)	(***)	(***)	(***)	(1)	(3)	(5)	(7)	(8)	(9)	(10)
2004	48	43	41	38	35	31	30	28	27	25	24	22
	(11)	(12)	(13)	(14)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)
2005	21	20	18	17	16	15	14	13	12	12	11	10
	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)
2006	10	9	8	8	8	7	7	7	7	6	6	5
	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)
2007	5	6	6	6	7	8	10	11	13	16	18	21
	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)



ISES Solar Cycle F10.7cm Radio Flux Progression

Data Through 30 Nov 03



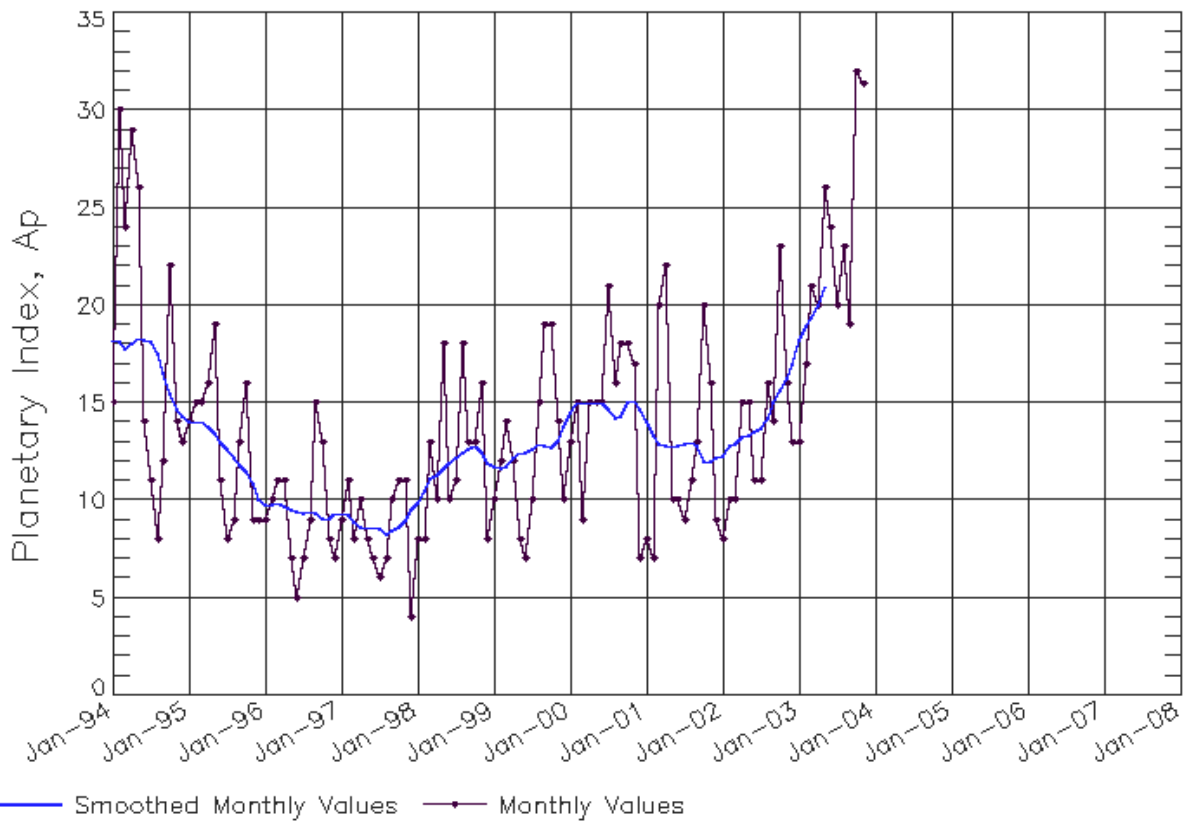
SEC Prediction of Smoothed F10.7cm Radio Flux

	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 (***)	177 (***)	176 (***)	174 (***)	172 (***)
2001	169 (***)	166 (***)	168 (***)	172 (***)	175 (***)	179 (***)	184 (***)	189 (***)	191 (***)	192 (***)	194 (***)	194 (***)
2002	195 (***)	197 (***)	196 (***)	192 (***)	188 (***)	183 (***)	176 (***)	170 (***)	164 (***)	159 (***)	155 (***)	151 (***)
2003	149 (***)	145 (***)	140 (***)	136 (***)	135 (***)	132 (1)	127 (3)	124 (5)	121 (7)	117 (9)	114 (11)	110 (13)
2004	107 (15)	104 (17)	101 (19)	97 (21)	91 (22)	87 (23)	85 (23)	84 (23)	83 (23)	82 (23)	81 (23)	80 (23)
2005	79 (23)	78 (23)	78 (23)	77 (23)	76 (23)	75 (23)	75 (23)	74 (23)	74 (23)	73 (23)	73 (23)	73 (23)
2006	72 (23)	72 (23)	71 (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)



ISES Solar Cycle Ap Progression

Data Through 30 Nov 03



Updated 2003 Dec 2

NOAA/SEC Boulder, CO USA

