

Space Weather Highlights
10 September - 17 September 2001

SWO PRF 1359
18 September 2001

Solar activity ranged from low to high levels, but the predominate condition was moderate. Isolated, low-level M-class flares occurred during most days (for flare specifics, please refer to the Energetic Events and Flares listings). Activity rose to high levels on 16 September with an M5/2n flare from Region 9608 (S27, L = 109, class/area Fkc/1110 on 10 September) at 16/0353 UTC. Region 9608 was also responsible for an M1/1n flare at 15/1128 UTC associated with a Type II radio sweep and a proton event (see the discussion below). Region 9608 gradually decayed, but remained large and magnetically complex as it approached the west limb at the close of the period. Region 9616 (S11, L = 021, class/area Fso/360 on 14 September) also produced isolated low-level M-class flares during the period. This region was moderate in size and magnetic complexity. It appeared to be gradually decaying as the period ended. Another event of interest was a filament eruption from the northeast quadrant during 11/1346 - 1414 UTC associated with a halo CME.

Solar Wind data were available from the NASA Advanced Composition Explorer (ACE) spacecraft for most of the period. A weak high-speed stream associated with a coronal hole occurred on 11 - 12 September with peak velocities of 500 km/sec. A coronal transient passed Earth during 13 September resulting in relatively minor changes in the solar wind. Another coronal hole-related high speed stream was observed during 15 - 16 September with velocities as high as 650 km/sec.

A brief greater than 10 MeV proton event occurred at geosynchronous orbit following an M1 flare on 15 September. The event began at 15/1435 UTC, reached a maximum of 11 pfu at 15/1455 UTC, and ended at 15/1545 UTC. The greater than 10 MeV flux returned to background levels the next day.

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

The geomagnetic field was disturbed during 11 - 12 September due to coronal hole effects. Active levels occurred during this disturbance. Active to minor storm periods occurred on 13 September as a coronal transient passed Earth. Active periods also occurred beginning late on 14 September and into 15 September due to coronal hole effects. Activity declined to quiet to unsettled levels on the last day of the period.

Space Weather Outlook
19 September - 15 October 2001

Solar activity is expected to be at low to moderate levels. Isolated M-class flares are expected. There will be a slight chance for isolated major flare activity during the period.

There will be a slight chance for a solar proton event during the period.

The greater than 2 MeV electron flux at geosynchronous orbit is expected to be at normal to moderate levels during most of the period. However, high levels will be possible around 03 - 04 October.

The Geomagnetic field is expected to be at active levels during 19 - 20 September and again during 30 September - 01 October. Quiet to unsettled conditions are expected during the remainder of the period.



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
10 September	245	217	2491	C1.7	10	0	0	12	2	0	0	0
11 September	250	180	2380	C2.8	9	3	0	16	0	0	0	0
12 September	235	228	2550	C1.9	7	1	0	9	0	0	0	0
13 September	240	223	2200	C1.7	9	0	0	14	0	0	0	0
14 September	237	216	2020	C2.0	6	1	0	11	0	0	0	0
15 September	219	183	1700	C2.0	7	2	0	4	2	0	0	0
16 September	207	169	1470	C1.6	15	1	0	17	3	1	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
10 September	5.2E+4	1.2E+4	3.2E+3		4.5E+6	
11 September	1.3E+5	1.3E+4	3.3E+3		2.5E+6	
12 September	1.1E+5	1.3E+4	3.1E+3		6.9E+5	
13 September	9.6E+5	1.7E+4	3.3E+3		1.6E+5	
14 September	3.0E+6	1.8E+4	3.1E+3		1.6E+5	
15 September	2.7E+6	2.1E+5	3.5E+3		4.1E+5	
16 September	1.2E+6	5.2E+4	3.0E+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
	10 September	5	2-1-1-1-1-3-1-1	*	1-*-**-*-0-0-0	5
11 September	12	1-2-1-1-4-4-3-3	14	0-4-5-0-3-2-2-2	9	1-0-0-1-3-4-3-3
12 September	9	2-2-4-2-2-1-2-2	31	2-6-6-3-5-2-2-2	13	2-3-4-3-3-3-3-2
13 September	11	2-4-4-2-2-1-2-1	25	2-5-5-5-3-4-2-0	18	3-4-5-4-3-3-3-1
14 September	8	3-2-1-1-3-1-1-3	6	3-2-1-0-2-1-0-3	10	3-1-1-2-3-3-2-4
15 September	10	2-2-1-3-2-3-3-2	*	*-**-*-**-*-*	15	3-2-2-3-4-4-3-3
16 September	7	2-1-1-1-3-3-2-2	*	*-**-*-**-*-*	8	2-1-1-1-3-3-3-2

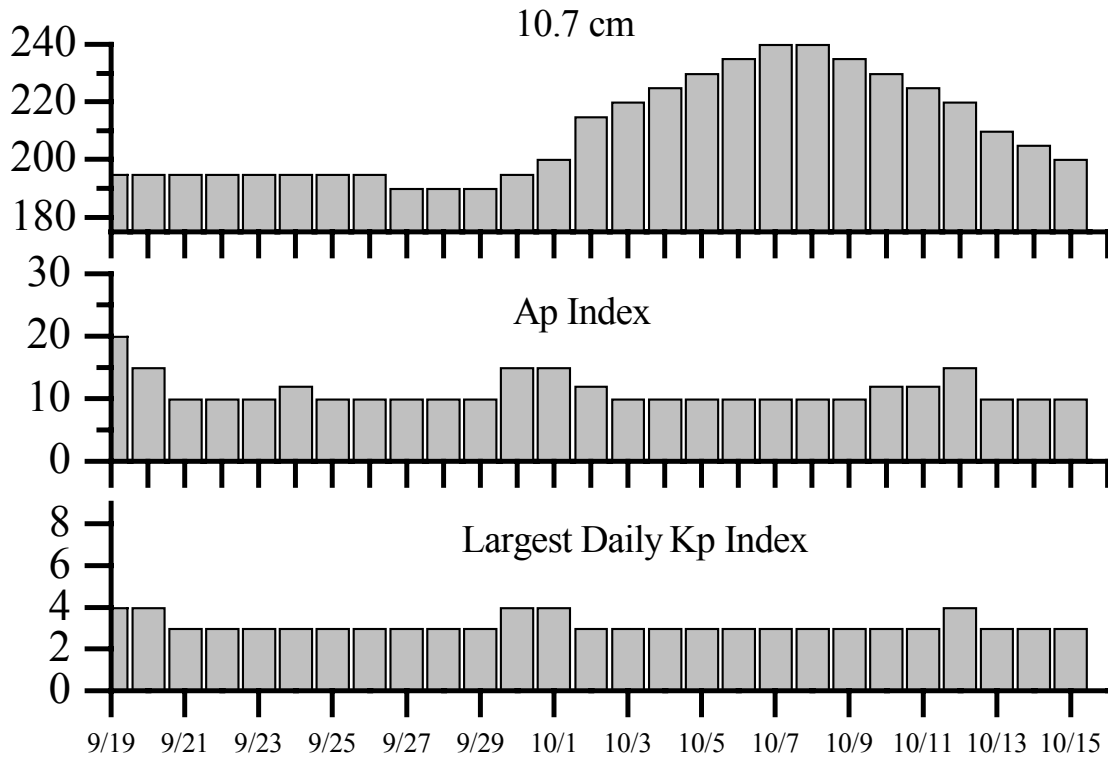


Alerts and Warnings Issued

<u>Date & Time of Issue</u>	<u>Type of Alert or Warning</u>	<u>Date & Time of Event UT</u>
10 Sep 0018	4 – 245 MHz Radio Bursts	09 Sep
11 Sep 0040	245 MHz Radio Burst	10 Sep
11 Sep 1500	K = 4 Observed	11 Sep 1200 – 1500
11 Sep 1519	K = 4 Warning	11 Sep 1520 – 2359
11 Sep 1801	K = 4 Observed	11 Sep 1500 – 1800
11 Sep 2320	EXTENDED K = 4 Warning	11/1520 – 12/1500 Sep
12 Sep 0024	6 – 245 MHz Radio Bursts	11 Sep
12 Sep 2207	Type II Radio Emission	12 Sep 2139
13 Sep 0021	2 – 245 MHz Radio Bursts	12 Sep
13 Sep 0524	K = 4 Warning	13 Sep 0525 – 1500
13 Sep 0600	K = 4 Observed	13 Sep 0300 – 0600
13 Sep 1453	K = 4 Warning	13/0525 – 14/1500 Sep
13 Sep 1721	Type II Radio Emission	13 Sep 1612
13 Sep 2048	Type II Radio Emission	13 Sep 1953
14 Sep 0052	8 – 245 MHz Radio Bursts	13 Sep
14 Sep 0218	Sudden Impulse observed at Boulder	14 Sep 0210
14 Sep 2346	K = 4 Warning	14/2347 – 15/1500 Sep
15 Sep 0004	K = 4 Observed	14 Sep 2100 – 0000
15 Sep 0033	245 MHz Burst	14 Sep
15 Sep 0033	245 MHz Noise Storm	14 Sep
15 Sep 1238	Type II Radio Emission	15 Sep 1129
15 Sep 1357	Proton Event $>10\text{MeV} \geq 10\text{pfu}$ Warning	15/1415 – 16/1500 Sep
15 Sep 1448	EXTENDED K = 4 Warning	14/2347 – 16/0100 Sep
15 Sep 1451	Protons Event $>10\text{ MeV} \geq 10\text{pfu}$	15 Sep 1435
15 Sep 2020	A ≥ 20 Watch	18 Sep
16 Sep 0032	245 MHz Radio Noise Storm	15 Sep
16 Sep 0100	CONTINUED Protons Event $>10\text{ MeV} \geq 10\text{pfu}$	15 Sep 1435
16 Sep 0440	X-Ray event M5.6/2N/S29W54	16 Sep 0353
16 Sep 1743	ENDED Protons Event $>10\text{ MeV} \geq 10\text{pfu}$	15 Sep 1545



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
19 Sep	195	20	4	03 Oct	220	10	3
20	195	15	4	04	225	10	3
21	195	10	3	05	230	10	3
22	195	10	3	06	235	10	3
23	195	10	3	07	240	10	3
24	195	12	3	08	240	10	3
25	195	10	3	09	235	10	3
26	195	10	3	10	230	12	3
27	190	10	3	11	225	12	3
28	190	10	3	12	220	15	4
29	190	10	3	13	210	10	3
30	195	15	4	14	205	10	3
01 Oct	200	15	4	15	200	10	3
02	215	12	3				



Energetic Events

Date	Time		X-ray		Optical Information			Peak		Sweep Freq		
	Begin	Max	1/2 Max	Class	Integ Flux	Imp/Location		Rgn #	Radio Flux		Intensity	
						Brtns	Lat CMD		245	2695	II	IV
11 Sep	0049	0111	0123	M2.6	.036				86			
11 Sep	0653	0704	0722	M1.2	.016							
11 Sep	2025	2036	2043	M4.5	.030	Sf	S12E88	9616	390	26		
12 Sep	0435	0444	0452	M1.0	.007							
14 Sep	2141	2150	2200	M3.7	.027			9616	640	920		
15 Sep	1104	1128	1154	M1.5	.037	1n	S21W49	9608	37	99	1	
15 Sep	1544	1559	1610	M1.3	.014	1f	S13E27	9616	38	140		
16 Sep	0339	0353	0418	M5.6	.088	2n	S29W54	9608		41		

Flare List

Date	Time			X-ray Class.	Optical		Rgn
	Begin	Max	End		Imp / Brtns	Location Lat CMD	
10 September	0312	0315	0317	C3.4			
	0351	0412	0425	C4.0			
	0514	0515	0521	C8.7	1n	S24E13	9608
	0539	0543	0547	C6.8			
	0821	0825	0836	C6.9	Sf	S32E19	9608
	1418	1419	1431	C1.9	Sf	S24E08	9608
	1450	1523	1550	C8.1	Sf	S16W05	9607
	1502	1516	1551		Sf	S33E19	9608
	1520	1521	1536		Sf	S11E24	9610
	1807	1812	1818	C2.3	Sf	S11E23	9610
	1909	1912	1914		Sf	S32E10	9608
	1941	1942	1948		Sf	S13E25	9610
	1954	1955	2011		Sf	S13E25	9610
	2023	2031	2046	C2.4	1f	S30E18	9608
	2103	2107	2109		Sf	S31E19	9608
	2311	2312	2314		Sf	S25E02	9608
	2340	2348	2357	C3.6	Sf	S30E15	9608
11 September	0012	0016	0022	C3.9	Sf	S30E13	9608
	0017	0027	0044		Sf	S12E22	9610
	0031	0032	0038	C9.5	Sf	S28E09	9608
	0049	0111	0123	M2.6			
	0332	0349	0405	C5.1			
	0613	0614	0618		Sf	S23E02	9608
	0653	0704	0722	M1.2			
	0836	0838	0843		Sf	S13E16	9610
	0933	0937	0939	C9.7			
	0947	0951	0955	C3.3			
	1129	1129	1137		Sf	S12E16	9610
	1230	1233	1235	C2.9			
	1247	1248	1300		Sf	S27E09	9608
1416	1439	1530	C3.2	Sf	N13E35	9615	
1428	1428	1433		Sf	S27E06	9608	



Flare List- continued

Date	Time			X-ray Class.	Optical		Rgn
	Begin	Max	End		Imp / Brtns	Location Lat CMD	
11 September	1512	1512	1525		Sf	S23W09	9608
	1718	U1721	1753		Sf	S12E11	9610
	1830	1846	1852		Sf	S29E06	9608
	1928	1928	1935		Sf	S10E09	9610
	1936	1939	1945		Sf	S12E08	9610
	1950	1954	1958	C4.6			
	2028	2029	2033	M4.5	Sf	S12E88	9616
	2232	2232	2241	C4.8	Sf	S09E06	9610
12 September	0052	0056	0059	C3.5			
	0435	0444	0452	M1.0			
	0648	0649	0656	C4.9	Sf	S30W08	9608
	0844	0911	0939	C4.7			
	1028	1033	1038	C3.8			
	1055	1055	1104		Sf	S30W01	9608
	1105	1106	1113		Sf	S30W05	9608
	1116	1119	1122	C3.0			
	1314	1318	1332	C3.4			
	1340	1340	1349		Sf	N12W85	9611
	2105	2149	2211	C9.6			
	2229	2232	2239		Sf	S29W18	9608
	2229	2232	2311		Sf	S16W62	9606
	2242	2245	2259		Sf	S26W12	9608
	2257	2258	2302		Sf	S14W03	9610
	2319	2319	2332		Sf	S25W24	9608
13 September	0034	0037	0041	C3.7			
	0121	0125	0128	C7.0			
	0212	0214	0221	C6.6	Sf	S12E69	9616
	0357	0358	0403	C4.6	Sf	S25W19	9608
	B0552	U0616	0646		Sf	S27W25	9608
	0710	0710	0724		Sf	S31W22	9608
	0920	0923	0928		Sf	S09W12	9610
	1119	1120	1151		Sf	S29W26	9608
	1215	1218	1231		Sf	S29W27	9608
	1305	1305	1310	C2.4	Sf	S15W10	9610
	1311	1312	1315	C2.4	Sf	S14W10	9610
	1345	1345	1354		Sf	N19W36	9612
	1410	1414	1428		Sf	S30W26	9608
	1433	1434	1443		Sf	N20W36	9612
	1447	1447	1454		Sf	S26W27	9608
	1600	1601	1613	C7.0	Sn	S15W11	9610
1948	1951	1954	C5.8				
2303	2309	2315	C2.4				



Flare List- continued

Date	Time			X-ray Class.	Optical		Rgn
	Begin	Max	End		Imp / Brtns	Location Lat CMD	
14 September	0553	0555	0638	C5.8	Sf	S10E46	9616
	0905	0905	0914	C3.7	Sf	S10E48	9616
	1145	1147	1151		Sf	S14E47	9616
	1146	1147	1153		Sf	S11E47	9616
	1355	1356	1404	C2.6	Sf	S15W24	9610
	B1603	U1603	A1637	C3.2	Sf	S31W42	9608
	1816	1817	1823		Sf	S28W40	9608
	1842	1842	1851		Sf	S13W28	9610
	1842	1843	1851	C5.5	Sf	S31W36	9608
	1859	1900	1903		Sf	S31W32	9608
	B1904	U1906	A2040		Sf	S32W35	9608
	2141	2150	2200	M3.7			9616
	2255	2305	2321	C6.7			
	15 September	0050	0054	0058	C3.8		
0101		0110	0121	C6.5			
0519		0526	0537	C4.7			
1103		1109	1237	M1.5	1n	S21W49	9608
1547		1609	1636	M1.3	1f	S13E27	9616
1600		1601	1603		Sf	S17W43	9608
2030		2034	2130	C8.8	Sf	S29W59	9608
B2117		U2120	A2138	C5.4	Sf	S13E25	9616
B2135		U2135	A2138		Sf	S11E20	9608
2216		2227	2231	C2.6			
2349	2358	0008	C2.2				
16 September	0009	0021	0032	C2.9			
	0033	0034	0037	C2.5			
	0054	0055	0058		Sf	S15W48	9610
	0223	0231	0235	C1.6			
	0245	0247	0300	C5.8	Sf	N10E75	9620
	0303	0313	0327	C5.9			
	0341	0352	0514	M5.6	2n	S29W54	9608
	0618	0624	0641	C4.5	Sf	S27W66	9608
	0742	0744	0802	C4.5	1f	S13E18	9616
	0912	0913	0926	C2.9	Sf	S26W59	9608
	1020	1049	1105	C2.8			
	1337	1337	1346	C8.9	Sf	N15W09	9619
	1345	1350	1424		1f	S13E15	9616
	16 September	1358	1359	1408		Sf	S29W61
1401		1404	1425		Sf	S13E15	9616
1547		1547	1551		Sf	S30W58	9608
1606		1608	1628	C3.1	Sf	S27W65	9608
1629		1633	1637		Sf	S27W66	9608
1644		1647	1653	C2.9	Sf	S29W70	9608



Flare List- continued

Date	Time			X-ray Class.	Optical		Rgn
	Begin	Max	End		Imp / Brtns	Location Lat CMD	
16 September	1647	1647	1657		Sf	N17W10	9619
	1658	1700	1709		Sf	N17W10	9619
	1709	1713	1733	C4.8	Sf	S27W65	9608
	1750	1754	1815		Sf	N17W11	9619
	1841	1842	1923	C3.5	Sf	S13E12	9616
	2126	2127	2132		Sf	N19W80	9612
	2341	2346	0002	C4.1	1f	S13E11	9616

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

Region 9603

02 Sep	S08E64	157	0040	02	Hsx	001	A								
03 Sep	S09E49	159	0020	01	Hsx	002	A								
04 Sep	S08E36	159	0030	01	Hsx	001	A								
05 Sep	S08E23	159	0020	01	Hsx	001	A								
06 Sep	S08E10	159	0010	01	Hrx	001	A								
07 Sep	S08W03	159	0010	01	Hrx	001	A								
08 Sep	S08W16	159													
09 Sep	S08W29	159													
10 Sep	S08W42	159													
11 Sep	S08W55	159													
12 Sep	S08W68	159													
13 Sep	S08W81	159													

0 0 0 0 0 0 0 0

Crossed West Limb.

Absolute heliographic longitude: 159



Region Summary - continued.

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 9605</i>																		
03 Sep	S20E53	155	0020	03	Cso	003	B											
04 Sep	S19E39	156	0070	05	Cso	006	B	1				1						
05 Sep	S20E25	157	0030	05	Cso	004	B											
06 Sep	S18E12	157	0120	07	Dao	009	B	1				1						
07 Sep	S19W02	158	0120	07	Dao	016	B											
08 Sep	S18W15	157	0070	01	Hsx	002	A											1
09 Sep	S19W30	159	0050	07	Dso	005	B											
10 Sep	S19W45	161	0020	02	Hrx	001	A											
11 Sep	S21W58	161																
12 Sep	S16W70	161																
13 Sep	S16W83	161																
								2	0	0	3	0	0	0	0	0	0	

Crossed West Limb.

Absolute heliographic longitude: 158

<i>Region 9606</i>																		
03 Sep	S17E57	151	0040	07	Dso	002	B											
04 Sep	S17E45	150	0150	07	Dao	010	B	3	1			9	1					
05 Sep	S17E32	150	0210	08	Dao	019	B			1		3	1					
06 Sep	S17E19	150	0360	11	Eki	025	Bg											1
07 Sep	S18E05	151	0270	12	Eki	033	Bg											
08 Sep	S18W07	149	0220	11	Eai	030	B	1										2
09 Sep	S18W22	151	0210	11	Eao	033	B											
10 Sep	S18W36	152	0210	10	Dao	018	B											
11 Sep	S19W50	153	0150	07	Cao	003	B											
12 Sep	S17W64	154	0130	03	Hsx	002	A											1
13 Sep	S17W79	155	0090	03	Hax	001	A											
14 Sep	S17W92	155																
								4	2	0	16	2	0	0	0	0	0	

Crossed West Limb.

Absolute heliographic longitude: 151



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 9607</i>																			
04 Sep	S16E68	127	0210	11	Eao	004	B												
05 Sep	S15E55	127	0230	15	Eao	009	B												
06 Sep	S15E42	127	0220	15	Eai	013	B	1					4						
07 Sep	S16E29	127	0180	16	Fao	031	B												
08 Sep	S17E17	125	0300	15	Eai	027	Bg	1					3						
09 Sep	S17E03	126	0260	15	Eai	025	Bg	1	1				1	1					
10 Sep	S17W09	125	0200	15	Eao	020	Bg	1					1						
11 Sep	S17W24	127	0150	12	Eao	009	B												
12 Sep	S16W39	129	0120	09	Cao	007	B												
13 Sep	S16W51	127	0080	05	Cao	005	B												
14 Sep	S18W63	126	0070	02	Hax	001	A												
15 Sep	S17W78	128	0060	02	Hsx	002	A												
16 Sep	S17W91	128																	
								4	1	0	9	1	0	0	0				

Still on Disk.

Absolute heliographic longitude: 126

<i>Region 9608</i>																			
05 Sep	S24E70	112	0320	15	Eao	006	B		1				5						
06 Sep	S26E56	113	0720	22	Fki	018	Bg						4						
07 Sep	S26E45	111	0850	24	Fki	035	Bg						5						
08 Sep	S26E33	109	0940	26	Fkc	047	Bg	1	1				7						
09 Sep	S27E18	111	1050	27	Fkc	060	Bg	6	5				9	3					
10 Sep	S27E07	109	1110	26	Fkc	052	Bgd	5					7	2					
11 Sep	S27W07	110	1030	27	Fki	044	Bgd	2					7						
12 Sep	S26W18	108	1000	30	Fkc	048	Bgd	1					6						
13 Sep	S25W33	109	0960	29	Fki	034	Bg	1					7						
14 Sep	S28W44	107	1020	32	Fkc	034	Bg	2					5						
15 Sep	S28W54	104	0620	24	Fki	020	Bg	1	1				3	1					
16 Sep	S29W64	101	0550	17	Fki	015	Bg	7	1				8	1					
								26	9	0	73	3	4	0	0				

Still on Disk.

Absolute heliographic longitude: 109



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 9610</i>																							
06 Sep	S10E71	098	0070	02	Hax	001	A	1				5											
07 Sep	S13E60	096	0280	13	Eko	011	B	1				2											
08 Sep	S14E48	094	0330	13	Eao	014	B																
09 Sep	S14E34	095	0410	12	Eao	026	B																
10 Sep	S13E22	094	0540	12	Eki	028	B	1				4											
11 Sep	S14E08	095	0540	14	Eki	037	Bg	1				7											
12 Sep	S13W05	095	0580	14	Ekc	060	Bg					1											
13 Sep	S13W18	094	0510	15	Eac	049	Bg	3				4											
14 Sep	S14W31	094	0400	15	Eac	048	Bg	1				2											
15 Sep	S13W46	096	0430	13	Eki	024	Bg																
16 Sep	S12W59	096	0240	11	Eao	014	B					1											
								8	0	0	0	26	0	0	0	0	0	0	0	0			

Still on Disk.

Absolute heliographic longitude: 095

Region 9611

07 Sep	N10W23	179	0030	03	Cao	007	B													
08 Sep	N10W37	179	0130	07	Dao	011	B	1				3								
09 Sep	N10W51	180	0170	07	Dao	010	B													
10 Sep	N10W64	180	0370	08	Dko	009	B													
11 Sep	N09W76	179	0390	09	Dko	006	B													
12 Sep	N09W88	178	0210	07	Dao	007	B					1								
								1	0	0	0	4	0	0	0	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 179

Region 9612

07 Sep	N22E40	116	0050	06	Dao	003	B													
08 Sep	N22E27	115	0030	07	Dro	005	B													
09 Sep	N21E12	117	0040	10	Dso	013	B													
10 Sep	N21E00	116	0040	08	Cso	008	B													
11 Sep	N22W13	116	0080	07	Dao	010	B													
12 Sep	N22W26	116	0070	09	Dao	010	B													
13 Sep	N19W40	116	0070	10	Dao	012	B					2								
14 Sep	N18W55	118	0050	09	Dao	013	B													
15 Sep	N20W68	118	0110	09	Dao	010	B													
16 Sep	N17W80	117	0060	05	Cro	002	B					1								
								0	0	0	0	3	0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 116



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 9614

08 Sep	N13W19	161	0000	01	Hrx	001	A											
09 Sep	N15W34	163	0010	02	Axx	003	A											
10 Sep	N15W47	163																
11 Sep	N15W60	163																
12 Sep	N15W73	163																
13 Sep	N15W86	163																
												0	0	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 161

Region 9615

08 Sep	N12E64	078	0000	00	Axx	001	A											
09 Sep	N11E49	080	0010	01	Axx	001	A											
10 Sep	N11E36	080	0001	01	Axx	001	A											
11 Sep	N11E23	080								1			1					
12 Sep	N11E10	080																
13 Sep	N11W03	080																
14 Sep	N11W16	080																
15 Sep	N11W29	080																
16 Sep	N11W42	080																
												1	0	0	1	0	0	0

Still on Disk.

Absolute heliographic longitude: 080

Region 9616

11 Sep	S12E80	023	0040	02	Hax	001	A			1			1					
12 Sep	S11E69	021	0260	13	Eao	009	B											
13 Sep	S10E55	021	0320	19	Fao	016	Bg			1			1					
14 Sep	S10E44	019	0360	16	Fso	021	Bg			2	1		4					
15 Sep	S12E30	020	0320	16	Fai	026	Bg			1	1		1	1				
16 Sep	S12E16	021	0280	17	Fhi	029	Bg			2			2	3				
										6	3	0	9	4	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 021



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 9617</i>																						
12 Sep	N10E71	019	0180	05	Dao	005	B															
13 Sep	N11E56	020	0120	05	Cao	006	B															
14 Sep	N11E43	020	0070	04	Dao	006	B															
15 Sep	N08E30	020	0060	05	Dso	007	B															
16 Sep	N13E17	020	0040	04	Cso	004	B															
																					0 0 0 0 0 0 0 0	
Still on Disk.																						
Absolute heliographic longitude: 020																						
<i>Region 9618</i>																						
13 Sep	S21W26	102	0030	08	Dso	006	B															
14 Sep	S22W40	103	0030	07	Dso	007	B															
15 Sep	S20W53	103	0060	05	Dro	006	B															
16 Sep	S21W68	105	0020	09	Bxo	004	B															
																						0 0 0 0 0 0 0 0
Still on Disk.																						
Absolute heliographic longitude: 102																						
<i>Region 9619</i>																						
13 Sep	N17E21	055	0020	04	Bxo	004	B															
14 Sep	N16E08	055	0020	05	Cao	006	B															
15 Sep	N16W06	056	0040	07	Dso	008	B															
16 Sep	N17W18	055	0030	08	Cso	007	B	1				4										
								1	0	0	4	0	0	0	0							
Still on Disk.																						
Absolute heliographic longitude: 056																						
<i>Region 9620</i>																						
16 Sep	N12E70	327	0130	02	Hsx	003	A	1				1										
								1	0	0	1	0	0	0	0							
Still on Disk.																						
Absolute heliographic longitude: 327																						
<i>Region 9621</i>																						
16 Sep	N16E76	321	0120	02	Hsx	001	A															
																						0 0 0 0 0 0 0 0
Still on Disk.																						
Absolute heliographic longitude: 321																						

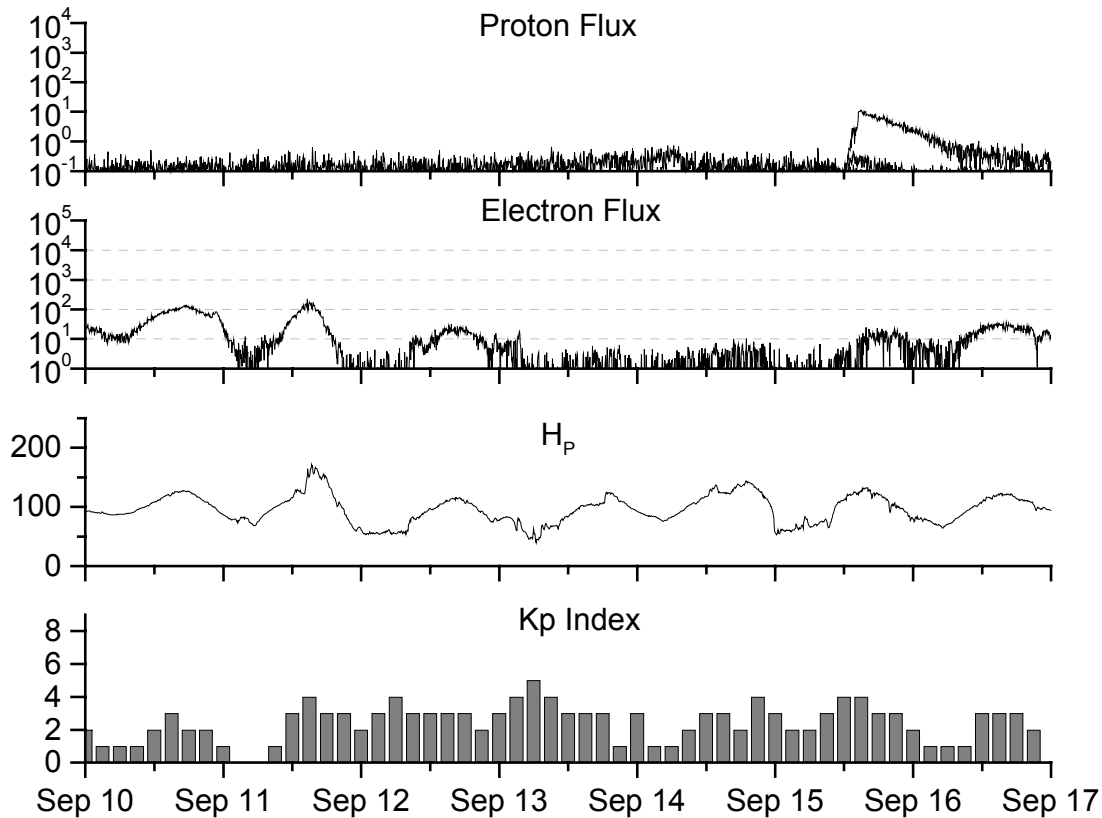


**Recent Solar Indices (preliminary)
of the observed monthly mean values**

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
1999									
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	171.8	118.6	163.1	179.5	16	14.2
September	157.9	109.9	0.70	169.0	116.2	182.1	177.1	18	14.2
October	138.9	100.1	0.72	166.2	114.4	167.7	175.6	18	14.6
November	149.9	106.5	0.71	162.7	112.7	178.8	173.6	17	14.6
December	146.4	104.5	0.71	160.8	112.1	173.6	172.0	08	14.4
2001									
January	142.7	95.1	0.67	156.3	108.8	166.7	168.8	08	13.8
February	131.0	80.1	0.61	151.4	104.2	147.3	165.8	06	13.3
March	166.7	114.2	0.69			177.7		17	
April	163.6	108.2	0.66			178.3		18	
May	135.1	97.3	0.72			148.7		12	
June	196.7	134.0	0.68			173.7		12	
July	124.6	82.2	0.66			131.3		11	
August	159.4	106.8	0.67			163.2		13	

NOTE: All smoothed values after June 1999 and monthly values after December 2000 are preliminary estimates. The lowest smoothed sunspot index number for Cycle 22, RI = 8.0, occurred in May 1996. The highest smoothed sunspot number for Cycle 22, RI= 158.5, occurred July 1989. *After June 1991, the 10.7 cm radio flux data source is Penticton, B.C. Canada. Prior to that, it was Ottawa.





Weekly Geosynchronous Satellite Environment Summary
Week Beginning 10 September 2001

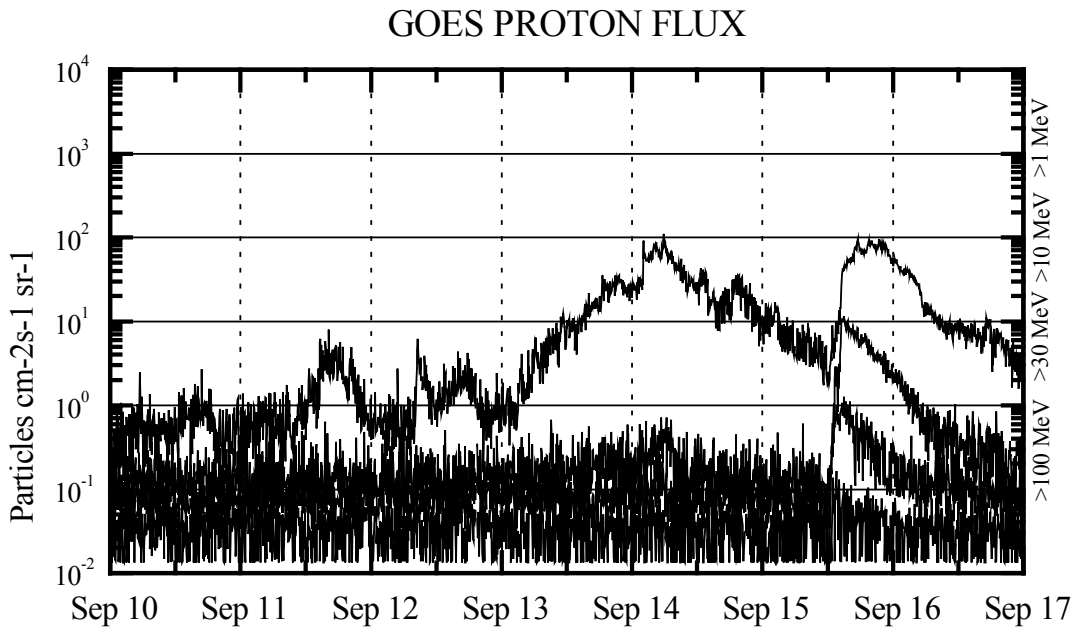
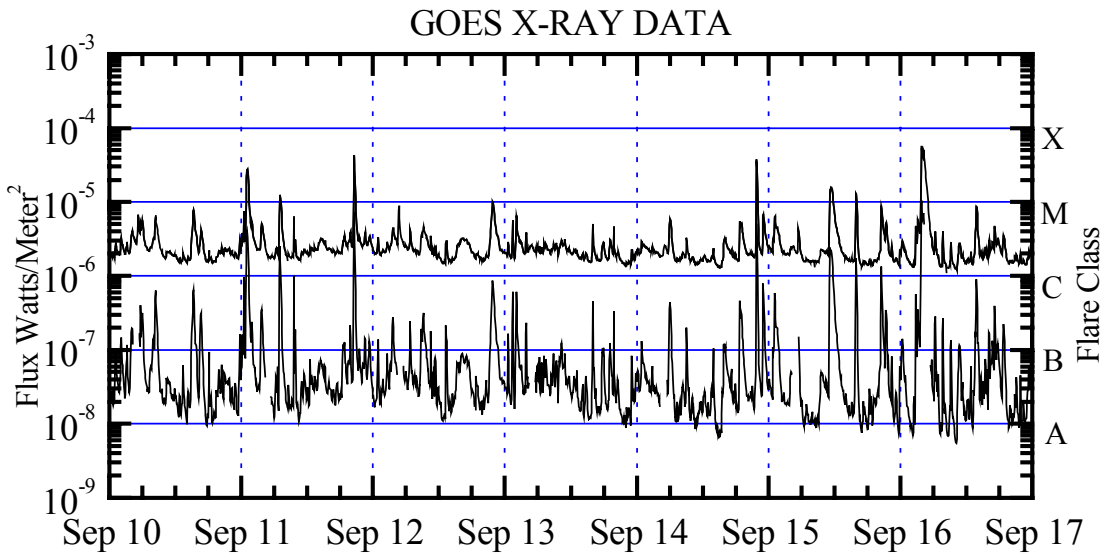
Protons plot contains the five-minute averaged integral proton flux (protons/cm²-sec -sr) as measured by GOES-8 (W75) for each of three energy thresholds: greater than 10, 50, and 100 MeV.

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 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.



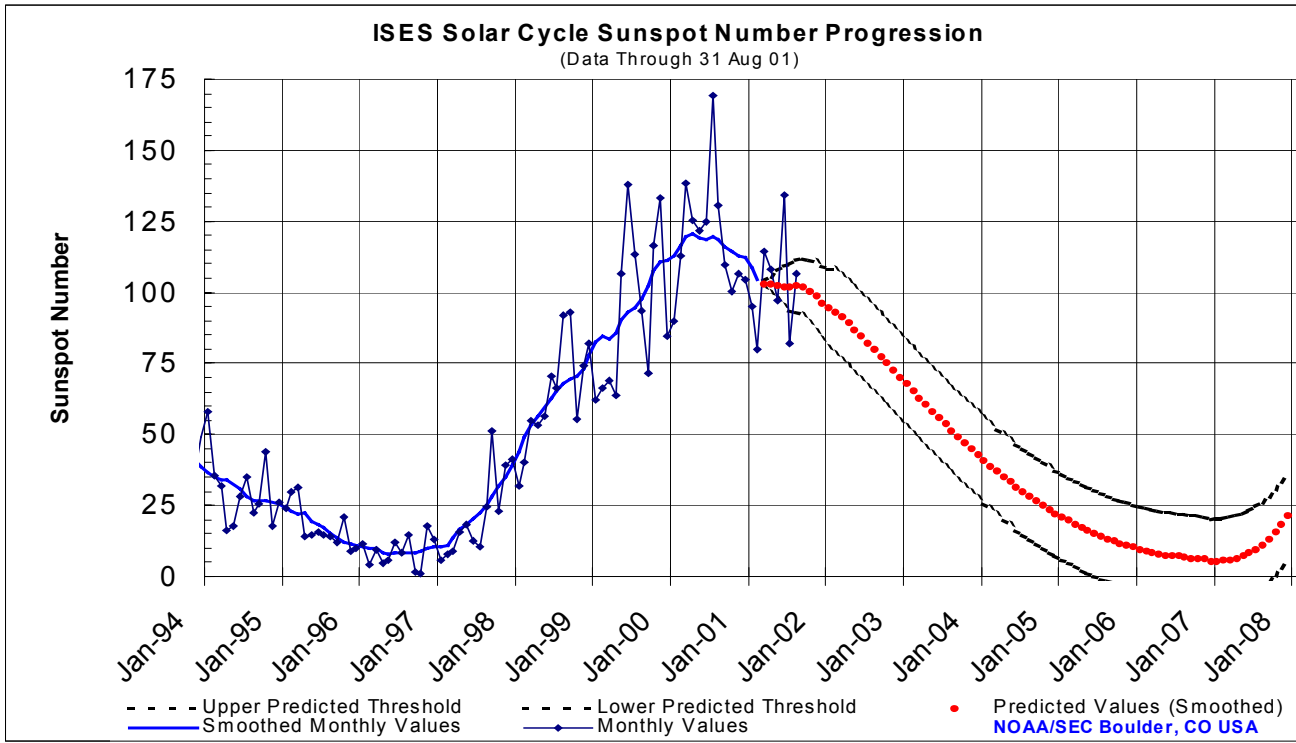


Weekly GOES Satellite X-ray and Proton Plots

X-ray plot contains five-minute averaged x-ray flux (watts/m²) as measured by GOES 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.

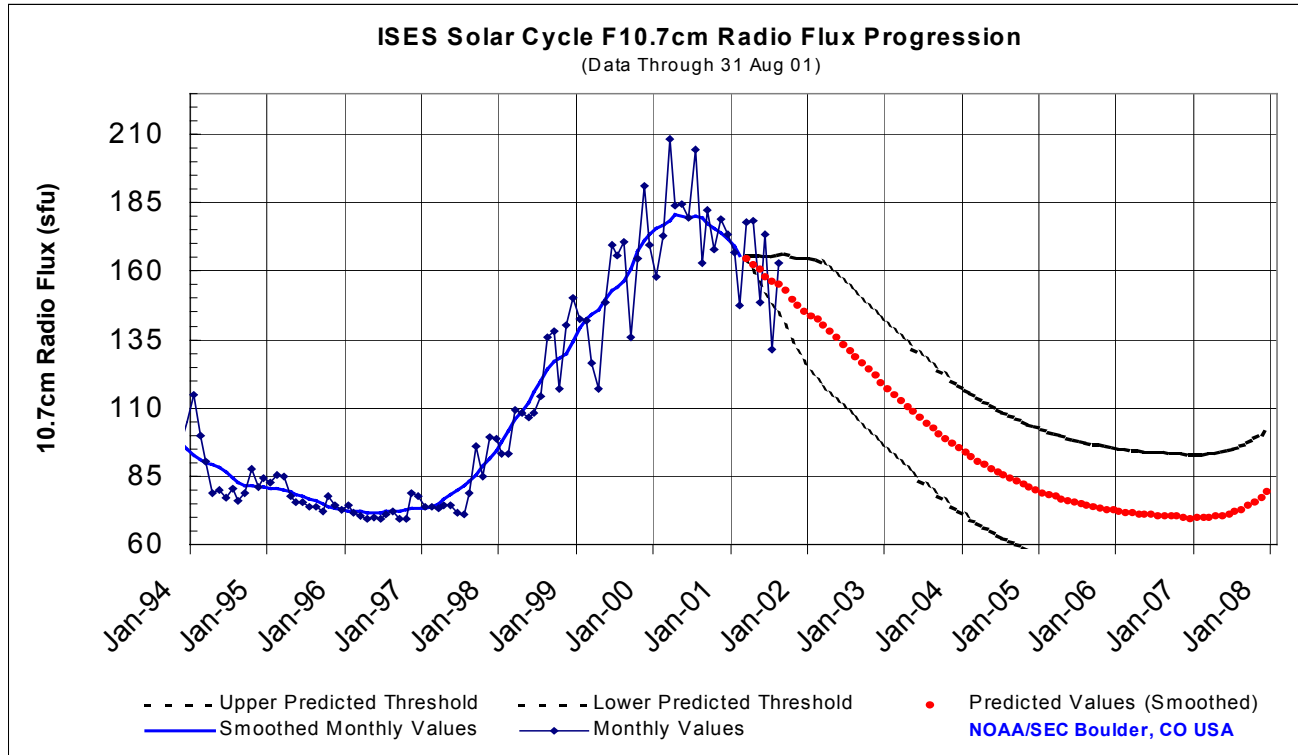




SEC Prediction of Smoothed Sunspot Number

	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 (***)	119 (***)	116 (***)	114 (***)	113 (***)	112 (***)
2001	109 (***)	104 (***)	103 (1)	103 (3)	103 (5)	102 (7)	102 (8)	102 (9)	100 (10)	100 (11)	99 (12)	96 (13)
2002	94 (14)	93 (15)	91 (15)	89 (15)	87 (15)	85 (15)	82 (15)	80 (15)	77 (15)	75 (15)	73 (15)	70 (15)
2003	68 (15)	65 (15)	63 (15)	61 (15)	58 (15)	56 (15)	54 (15)	51 (15)	49 (15)	47 (15)	45 (15)	43 (15)
2004	41 (15)	39 (15)	37 (15)	35 (15)	33 (15)	31 (15)	30 (15)	28 (15)	27 (15)	25 (15)	24 (15)	22 (15)
2005	21 (15)	20 (15)	18 (15)	17 (15)	16 (15)	15 (15)	14 (15)	13 (15)	12 (15)	12 (15)	11 (15)	10 (15)
2006	10 (15)	9 (15)	8 (15)	8 (15)	8 (15)	7 (15)	7 (15)	7 (15)	7 (15)	6 (15)	6 (15)	5 (15)
2007	5 (15)	6 (15)	6 (15)	6 (15)	7 (15)	8 (15)	10 (15)	11 (15)	13 (15)	16 (15)	18 (15)	21 (15)





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 (***)	165 (1)	163 (3)	161 (5)	158 (7)	156 (9)	155 (11)	153 (13)	150 (15)	148 (17)	146 (19)
2002	144 (21)	142 (22)	140 (23)	138 (23)	136 (23)	133 (23)	131 (23)	129 (23)	126 (23)	124 (23)	122 (23)	120 (23)
2003	117 (23)	115 (23)	113 (23)	111 (23)	109 (23)	107 (23)	104 (23)	103 (23)	101 (23)	99 (23)	97 (23)	95 (23)
2004	94 (23)	92 (23)	91 (23)	89 (23)	88 (23)	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 31 Aug 01)

