

Solar activity ranged from low to high levels. Activity increased to moderate levels on 02 July with an M1/Sf flare at 02/2031 UTC from Region 17 (S19, L = 235, class/area Eki/610 on 03 July). Activity increased to high levels on 03 July with two major flares from Region 17: an X1/1b at 03/0213 UTC associated with a 160 sfu Tenflare and an M5/1n at 03/2010 UTC associated with a 510 sfu Tenflare. Activity decreased to moderate levels for the rest of the period with daily isolated, low-level M-class subflares from Region 17 including an M3/Sf at 05/1326 UTC associated with Type II and Type IV radio sweeps. Region 17 grew rapidly during 02 - 03 July with a threefold increase in sunspot area. It also increased in magnetic complexity during this period as delta magnetic configurations developed within its trailer spots. Region 17 entered a decay phase on 04 July, but remained active until it rotated out of view early on 06 July. Optically uncorrelated M1 X-ray events during 06 - 07 July likely originated beyond the west limb from (old) Region 17 including a long-duration M1 at 07/1143 UTC associated with a partial-halo CME and a solar proton event. The other sunspot group of interest was Region 19 (S18, L = 151, class/area Eki/600 on 01 July). It was a large group with moderate magnetic complexity that produced isolated C-class subflares including a C6/Sf at 05/1556 UTC associated with Type II and IV radio sweeps and a C6/1n at 06/0938 UTC associated with a Type II radio sweep.

Solar wind data were available from the NASA Advanced Composition Explorer (ACE) spacecraft for most of the summary period. Solar wind speeds were briefly enhanced on 01 July with peaks to around 510 km/sec. A high-speed stream associated with a negative-polarity coronal hole occurred during 05 - 07 July with peak velocities near 580 km/sec.

A greater than 10 MeV proton event occurred on 07 July at geo-synchronous orbit in the wake of the long-duration M1 flare discussed above. The event began at 07/1830 UTC, reached a peak of 22 pfu at 07/1955 UTC, and was in progress as the period came to a close.

Greater than 2 MeV electron fluxes at geo-synchronous orbit were at normal levels through 05 July, then increased to normal to moderate levels for the rest of the period.

Geomagnetic field activity was at quiet to unsettled levels during most of the period. However, isolated active periods occurred on 01 and 05 - 07 July.

Space Weather Outlook **10 July - 05 August 2002**

Solar activity is expected to be at low to moderate levels. There is a chance for isolated low-level M-class flares through most of the period. There is also a slight chance for isolated major flare activity during 20 July - 02 August with the return of old Region 17 (S19, L = 235).

There is a slight chance for a proton-producing flare during 26 July - 02 August.

Greater than 2 MeV electron fluxes at geo-synchronous orbit are expected to be at normal to moderate levels for most of the period.

Geomagnetic field activity is expected to be at quiet to unsettled levels during the majority of the period. However, active periods will be possible during 13 and 16 July and 02 August due to coronal hole effects.



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
01 July	147	100	1000	B5.9	7	0	0	3	0	0	0	0
02 July	149	85	1010	B5.4	7	1	0	9	0	0	0	0
03 July	173	147	1200	B7.5	9	2	1	11	3	0	0	0
04 July	146	175	1270	C1.4	17	1	0	16	1	0	0	0
05 July	139	149	1050	B4.7	8	1	0	13	0	0	0	0
06 July	134	123	830	B4.5	4	1	0	1	1	0	0	0
07 July	137	121	690	B6.6	3	1	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
01 July	8.4E+4	1.2E+4	2.9E+3		1.0E+5	
02 July	7.6E+4	1.3E+4	2.8E+3		1.1E+5	
03 July	7.8E+4	1.2E+4	2.8E+3		1.3E+5	
04 July	7.1E+5	1.6E+4	2.5E+3		2.7E+5	
05 July	2.7E+6	2.2E+4	2.6E+3		1.0E+5	
06 July	3.9E+5	1.3E+4	2.3E+3		1.5E+5	
07 July	1.5E+6	4.7E+5	2.9E+3		2.4E+7	

Daily Geomagnetic Data

Date	Middle Latitude		High Latitude		Estimated	
	Fredericksburg		College		Planetary	
	A	K-indices	A	K-indices	A	K-indices
01 July	13	2-3-2-3-4-3-3-1	25	3-3-3-5-5-5-2-2	15	3-4-2-4-3-4-3-2
02 July	4	2-1-1-0-2-0-2-2	4	3-2-2-1-0-0-1-0	9	3-3-2-1-2-2-3-3
03 July	3	1-1-1-1-1-0-2-1	*	2-1-1-3-2-2-1-*	7	3-2-2-2-2-2-3-2
04 July	4	1-0-1-0-1-1-2-3	*	*_*_*_*_*_*_*_*_*_*	7	3-2-1-1-2-2-2-3
05 July	9	2-1-2-3-1-2-3-3	*	*_*_*_*_*_*_*_*_*_*	13	3-2-3-3-3-3-4-3
06 July	18	4-3-3-4-3-3-3-3	*	*_*_*_*_*_*_*_*_*_*	23	4-4-4-4-3-4-4-3
07 July	10	2-1-2-2-3-3-3-2	*	*_*_*_*_*_*_*_*_*_*	11	3-3-3-2-3-3-3-2

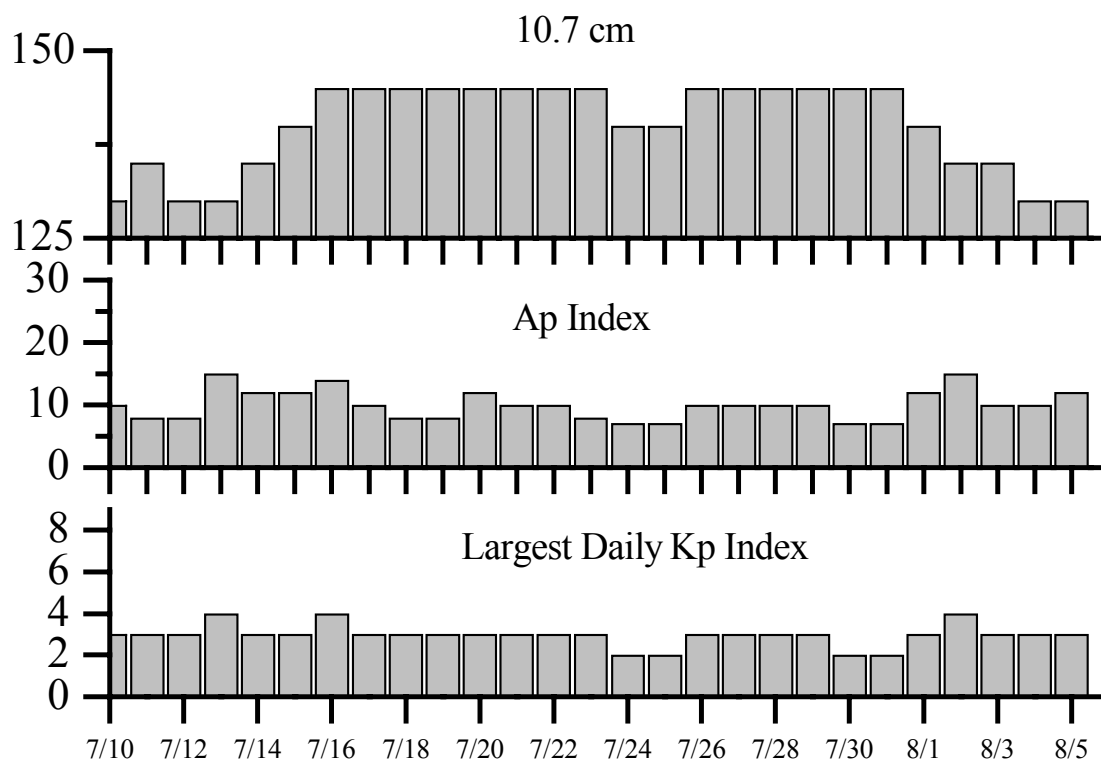


Alerts and Warnings Issued

<u>Date & Time of Issue</u>	<u>Type of Alert or Warning</u>	<u>Date & Time of Event UT</u>
01 Jul 0245	WARNING: Geomagnetic K= 4 expected	01 Jul 0247 - 1500
01 Jul 0246	ALERT: Geomagnetic K= 4	01 Jul 0249
01 Jul 1744	ALERT: Geomagnetic K= 4	01 Jul 1743
03 Jul 0213	ALERT: X-Ray Flux exceeded M5	03 Jul 0211
03 Jul 0223	SUMMARY: X-ray Event exceeded X1	03 Jul 0213
03 Jul 0244	SUMMARY: 10cm Radio Burst	03 Jul 0211
03 Jul 1332	ALERT: Type IV Radio Emission	03 Jul 0334
03 Jul 2011	ALERT: X-Ray Flux exceeded M5	03 Jul 2009
03 Jul 2030	SUMMARY: 10cm Radio Burst	03 Jul 2004
03 Jul 2038	SUMMARY: X-ray Event exceeded M5	03 Jul 2010
04 Jul 0029	2 - 245 MHz Bursts	03 Jul
04 Jul 1237	ALERT: Type II Radio Emission	04 Jul 0511
05 Jul 0012	3 - 245 MHz Bursts	04 Jul
05 Jul 0012	1 - 245 MHz Radio Noise Storm	04 Jul
05 Jul 1358	ALERT: Type II Radio Emission	05 Jul 1326
05 Jul 1646	ALERT: Type II Radio Emission	05 Jul 1556
05 Jul 2106	ALERT: Geomagnetic K= 4	05 Jul 2059
06 Jul 0012	3 - 245 MHz Bursts	05 Jul
06 Jul 0012	1 - 245 MHz Radio Noise Storm	05 Jul
06 Jul 0030	WARNING: Geomagnetic K= 4 expected	06 Jul 0035 -1500
06 Jul 0039	ALERT: Geomagnetic K= 4	06 Jul 0036
06 Jul 1055	ALERT: Type II Radio Emission	06 Jul 0937
06 Jul 1448	EXTENDED WARNING: Geomagnetic K= 4	06/0035 - 07/1500 Jul
07 Jul 0006	3 - 245 MHz Bursts	06 Jul
07 Jul 0006	1 - 245 MHz Radio Noise Storm	06 Jul
07 Jul 1600	WARNING: Proton 10MeV Integral Flux > 10pfu	07 Jul 1600 - 2359
07 Jul 1651	ALERT: Geomagnetic K= 4	07 Jul 1647
07 Jul 1848	ALERT: Proton Event 10MeV Integral Flux > 10pfu	07 Jul 1830
07 Jul 2358	EXT WARN: Proton 10MeV Integral Flux > 10pfu	07/1600 - 08/1800 Jul



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
10 Jul	130	10	3	24 Jul	140	7	2
11	135	8	3	25	145	7	2
12	130	8	3	26	145	10	3
13	130	15	4	27	145	10	3
14	135	12	3	28	145	10	3
15	140	12	3	29	145	10	3
16	145	14	4	30	145	7	2
17	145	10	3	31	145	7	2
18	145	8	3	01 Aug	140	12	3
19	145	8	3	02	135	15	4
20	145	12	3	03	135	10	3
21	145	10	3	04	130	10	3
22	145	10	3	05	130	12	3
23	145	8	3				



Energetic Events

Date	Time		X-ray		Optical Information			Peak		Sweep Freq		
	Begin	Max	$\frac{1}{2}$	Class	Integ Flux	Imp/Location		Rgn #	Radio Flux		Intensity	
			Max			Brtns	Lat		CMD	245	2695	II
02 Jul 02	2019	2031	2041	M1.5	.013	Sf	S18W46	17				
03 Jul 02	0208	0213	0216	X1.5	.041	1b	S20W51	17	160			
03 Jul 02	1941	1945	1949	M1.1	.005							
03 Jul 02	2000	2010	2021	M5.3	.045	1n	S19W62	17	510			
04 Jul 02	0727	0734	0739	M1.1	.004	Sf	S19W77	17	100	25		
05 Jul 02	1310	1326	1337	M3.2	.030	Sf	S19W82	17	49	120	1	1
06 Jul 02	0328	0342	0355	M1.8	.020				94			
07 Jul 02	1115	1143	1317	M1.0	.062							

Flare List

Date	Time			X-ray Class.	Optical		Rgn
	Begin	Max	End		Imp / Brtns	Location Lat CMD	
01 July	0317	0322	0326	C1.3			
	0435	0452	0516	C1.2			
	0753	0753	0756		Sf	S19W28	0017
	0910	U0911	0916	C1.6	Sf	S19W29	0017
	1143	1148	1154	C1.1			
	1327	1452	1512	C1.3			0000
	1430	1432	1436		Sf	S29W48	0015
	2108	2111	2115	C1.0			
02 July	2251	2304	2311	C1.0			
	0938	0942	0947	C1.1			
	1202	1230	1252	C1.8			
	1411	1411	1432	C2.3	Sf	S19E37	0019
	1516	1521	1524		Sf	S19W43	0017
	1651	1652	1655		Sf	S17W52	0017
	1813	1817	1820	C1.0			
	1840	1840	1849	C1.0	Sf	S18E30	0019
	1923	1924	1930		Sf	S19W51	0017
	1953	1958	2017	C5.2	Sf	S19W46	0017
	2021	2029	2142	M1.5	Sf	S18W46	0017
	2111	2111	2117		Sf	S19W49	0017
03 July	2235	2253	2258	C4.9			
	2330	2335	2341		Sf	S21W47	0017
	0000	0031	0045	C4.1			
	0137	0144	0152	C2.0			
	0210	0213	0327	X1.5	1b	S20W51	0017
	0437	0444	0502		Sf	S18E24	0019
	0705	0706	0710		Sf	S35E70	0000
	0801	0818	0833	C3.4	Sf	S20E23	0019
	0851	0852	0856	C1.1	Sf	S22E29	0019



Flare List- continued.

Date	Time			X-ray Class.	Optical		Rgn	
	Begin	Max	End		Imp / Brtns	Location Lat CMD		
03 July	1144	1156	1223	C7.3	1n	S18E21	0019	
	1324	1324	1334	C1.2	Sf	S19W54	0017	
	1517	1521	1531	B8.8				
	1540	1544	1549	C1.1				
	1808	1808	1812	C3.0	Sf	S19W58	0017	
	1844	1844	1850		Sf	S18W57	0017	
	1920	1920	1926		Sf	S17W58	0017	
	1927	U2010	A2125	M5.3	1n	S19W62	0017	
03 July	1941	1945	1949	M1.1				
	2100	2102	2113		Sf	S35E62	0024	
	B2125	U2133	2222		Sf	S18W63	0017	
04 July	B2317	U2319	A2323	C7.9	Sf	S19W63	0017	
	0038	0039	0045	C2.8	Sf	S18W66	0017	
	0127	0128	0133	C4.7	Sf	S18W62	0017	
	0246	0249	0253	C1.5				
	0454	0455	0458	C4.5	Sf	S19W65	0017	
	0457	0459	0517		Sf	S20E12	0019	
	0617	0623	0640	C2.8	Sf	S19W66	0017	
	0622	0627	0630	C6.5				
	0733	0733	0742	M1.1	Sf	S19W77	0017	
	1011	1013	1016	C2.4	Sf	S19W67	0017	
	1047	1047	1057	C2.6	Sf	S18W76	0017	
	1151	1154	1156	C1.6				
	1222	1242	1253	C2.3				
	1328	1328	1336	C3.0	Sf	S20W69	0017	
	1452	1457	1508	C7.1	1n	S21W68	0017	
	1609	1611	1614	C2.2	Sf	S18W70	0017	
	1617	1617	1623	C3.4	Sf	S19E06	0019	
	1743	1744	1749		Sf	S19W72	0017	
	1745	1747	1811	C2.4	Sf	S19E06	0019	
	1753	1753	1803		Sf	S17W79	0017	
	1846	1847	1852	C5.3	Sf	S18W79	0017	
	2118	2118	2127	B9.1	Sf	S21E23	0022	
	2211	2218	2223	C1.4				
	05 July	0205	0220	0239	C1.2			
		0739	0741	0748	C2.6	Sf	S18W88	0017
		0756	0809	0820	C7.8			
		1213	1221	1223	C1.0			
1321		1332	1341	M3.2	Sf	S19W82	0017	
1538		1542	1604		Sf	S28W18	0021	



Flare List- continued.

Date	Time			X-ray Class.	Imp / Brtns	Optical		Rgn
	Begin	Max	End			Location Lat CMD		
05 July	1548	1551	1614	C6.3	Sf	S19W02		0019
	1614	1617	1632		Sf	S29W17		0021
	1726	1727	1730		Sf	S28W18		0021
	1733	1733	1739		Sf	S28W16		0021
	1811	1823	1839		Sf	S28W17		0021
	2028	2029	2035	C2.0	Sf	S29W18		0021
	2029	2033	2038		Sf	S20E08		0022
	2049	2051	2101	C3.6	Sf	S28W19		0021
	2132	2132	2136		Sf	S29W19		0021
	2200	2213	2225		Sf	S29W21		0021
06 July	0047	0051	0054	B8.0				
	0328	0342	0355	M1.8				
	0931	0937	1002	C6.0	In	S19W12		0019
	1242	1245	1302	C2.0	Sf	N09E25		0000
	1933	2003	2036	C1.0				
07 July	2349	0026	0044	C1.8				
	0334	0401	0427	C3.5				
	0541	0602	0624		C1.2			
	1115	1143	1317	M1.0				
	1301	1303	1312		Sf	S19E46		0025
	1610	1622	1639	C1.8				0000

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 11</i>																
22 Jun	S12E62	254	0050	06	Dao	004	B									
23 Jun	S12E49	254	0070	07	Dso	007	B									
24 Jun	S12E35	255	0100	08	Dao	007	B									
25 Jun	S12E23	254	0120	08	Dao	014	B									
26 Jun	S11E08	256	0060	08	Dai	019	B									
27 Jun	S11W05	255	0080	08	Dai	023	B									
28 Jun	S11W19	256	0050	08	Dso	011	B									
29 Jun	S11W32	256	0050	08	Cso	009	B									
30 Jun	S10W46	257	0040	10	Dso	008	B									
01 Jul	S10W67	265	0020	04	Cro	005	B									
02 Jul	S12W77	262	0050	10	Dso	005	B									
03 Jul	S13W86	257	0100	07	Cao	004	B									
											0	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 255



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 12

23 Jun	N19E20	283	0010	01	Axx	001	A											
24 Jun	N19E08	282	0010	03	Bxo	003	B											
25 Jun	N21W09	286	0000	01	Axx	001	A											
26 Jun	N21W22	286																
27 Jun	N21W35	286																
28 Jun	N21W48	286																
29 Jun	N21W61	286																
30 Jun	N14W73	284	0040	04	Bxo	002	B											
01 Jul	N14W86	284	0100	05	Dao	003	B											

0 0 0 0 0 0 0 0 0

Crossed West Limb.

Absolute heliographic longitude: 282

Region 14

23 Jun	S18E50	253	0010	01	Axx	001	A											
24 Jun	S17E37	253	0000	00	Axx	001	A											
25 Jun	S17E24	253																
26 Jun	S17E11	253																
27 Jun	S17W02	253																
28 Jun	S17W15	253																
29 Jun	S17W28	253																
30 Jun	S17W41	253																
01 Jul	S17W54	253																
02 Jul	S17W67	253																

0 0 0 0 0 0 0 0 0

Crossed West Limb.

Absolute heliographic longitude: 253

Region 15

24 Jun	S27E39	251	0030	05	Cro	002	B											
25 Jun	S27E26	251	0030	06	Cso	005	B											
26 Jun	S26E12	252	0040	06	Dso	008	B											
27 Jun	S28W01	251	0030	06	Dro	009	B											
28 Jun	S26W16	253	0030	07	Dao	005	B											
29 Jun	S26W29	253																
30 Jun	S26W42	253																
01 Jul	S26W55	253																
02 Jul	S26W68	253																

1

0 0 0 1 0 0 0 0

Crossed West Limb.

Absolute heliographic longitude: 251



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 19

29 Jun	S17E72	152	0270	06	Dko	006	B												
30 Jun	S18E61	150	0450	10	Dko	010	Bg					1							
01 Jul	S18E50	148	0600	15	Eki	009	Bg												
02 Jul	S18E34	151	0510	10	Dki	011	Bg	2			2								
03 Jul	S18E20	151	0390	11	Eki	023	Bg	3			3	1							
04 Jul	S17E07	151	0450	12	Eki	027	Bg	3			3								
05 Jul	S18W08	152	0420	13	Eki	018	Bg	1			1								
06 Jul	S17W21	152	0390	11	Eao	009	Bg	1				1							
07 Jul	S19W32	150	0330	11	Eai	010	Bg												
										10	0	0	10	2	0	0	0	0	

Still on Disk.

Absolute heliographic longitude: 151

Region 20

02 Jul	N01E63	122	0010	02	Bxo	003	B												
03 Jul	N00E50	121	0010	00	Axx	001	A												
04 Jul	N00E35	123	0000	00	Axx	001	A												
05 Jul	N00E22	123																	
06 Jul	N00E09	123																	
07 Jul	N00W04	123																	
										0	0	0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 123

Region 21

03 Jul	S29E06	165	0010	03	Cro	003	B												
04 Jul	S29W08	166	0040	06	Dso	008	B												
05 Jul	S29W21	165	0070	07	Dao	009	B	3			9								
06 Jul	S29W34	165	0090	08	Dso	011	B												
07 Jul	S29W46	164	0080	07	Dao	010	B												
										3	0	0	9	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 165

Region 22

03 Jul	S20E30	141	0010	04	Bxo	003	B												
04 Jul	S20E20	138	0040	06	Cso	011	B					1							
05 Jul	S20E05	139	0030	03	Cro	007	B					1							
06 Jul	S20W09	140	0020	03	Bxo	007	B												
07 Jul	S19W23	141	0020	03	Bxo	004	B												
										0	0	0	2	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 139



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 23

03 Jul	S23E52	119	0010	01	Hrx	001	A												
04 Jul	S23E42	116	0020	06	Cro	006	B												
05 Jul	S22E30	114	0030	06	Bxo	006	B												
06 Jul	S24E19	112	0010	02	Axx	003	A												
07 Jul	S24E04	114	0020	04	Bxo	004	B												
												0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 114

Region 24

03 Jul	S34E61	110	0010	04	Cro	003	B												
04 Jul	S33E50	108	0090	08	Dao	008	B												
05 Jul	S33E37	107	0190	07	Dao	008	B												
06 Jul	S34E24	107	0190	07	Dao	004	B												
07 Jul	S34E11	107	0150	07	Dao	007	B												
												0	0	0	1	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 107

Region 25

04 Jul	S18E75	083	0050	02	Hsx	001	A												
05 Jul	S19E63	081	0080	02	Hsx	001	A												
06 Jul	S22E52	079	0070	09	Cso	003	B												
07 Jul	S21E37	081	0060	01	Hax	001	A												
												0	0	0	1	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 081

Region 26

05 Jul	N24W58	202	0030	03	Cao	003	B												
06 Jul	N24W71	202	0020	01	Hrx	004	A												
07 Jul	N24W84	202																	
												0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 202

Region 27

07 Jul	S15E26	092	0020	03	Bxo	004	B												
												0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 092

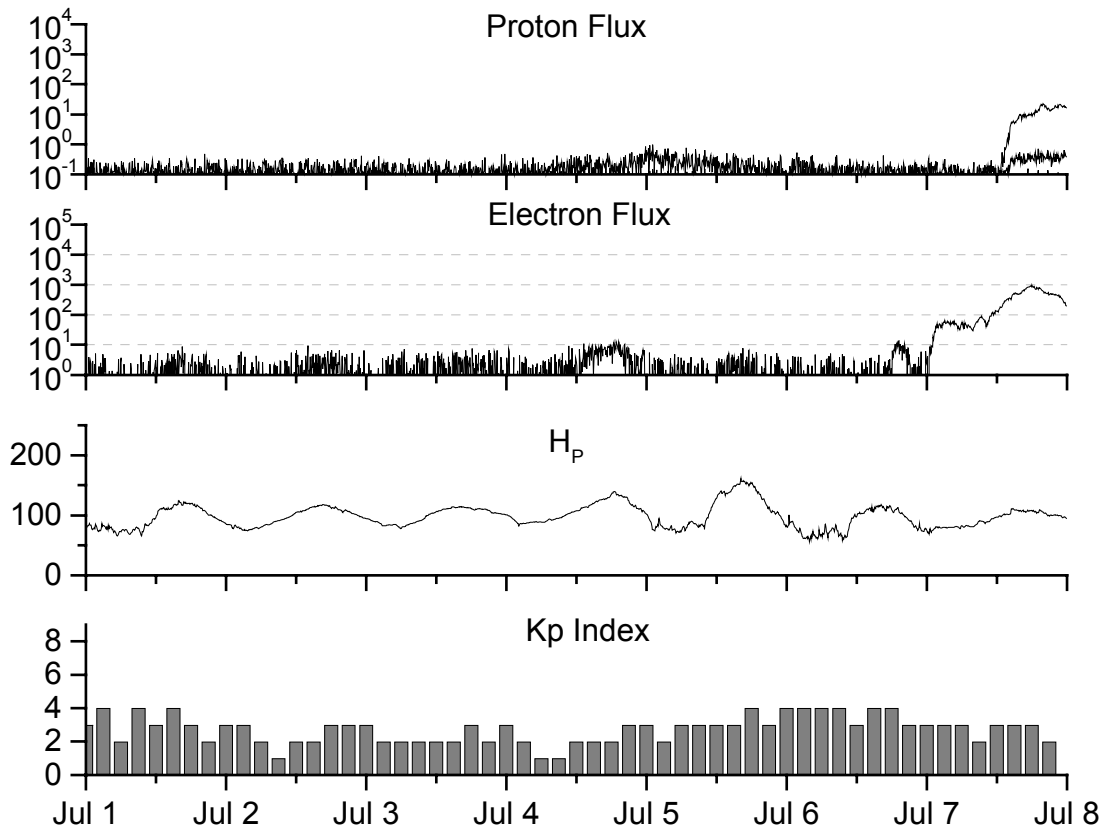


**Recent Solar Indices (preliminary)
of the observed monthly mean values**

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
2000									
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	154.0	104.9	177.7	167.9	17	12.9
April	163.6	108.2	0.66	159.4	107.7	178.3	171.7	18	12.7
May	135.1	97.3	0.72	163.1	108.8	148.7	174.8	12	12.5
June	196.7	134.0	0.68	167.2	109.9	173.7	178.8	12	12.4
July	124.6	82.2	0.66	172.1	111.8	131.3	183.9	11	12.4
August	159.4	106.8	0.67	176.7	113.8	163.2	188.8	13	12.5
September	229.1	150.7	0.66	178.8	114.3	233.3	191.3	12	12.3
October	197.4	125.6	0.64	179.5	114.1	208.2	191.9	18	11.9
November	178.6	106.5	0.60	183.7	115.6	212.5	193.6	14	11.9
December	217.5	131.8	0.61	184.5	114.7	236.6	193.8	08	12.0
2002									
January	189.0	113.9	0.60			226.4		07	
February	194.5	108.0	0.56			205.1		09	
March	153.1	98.1	0.64			179.5		10	
April	194.9	120.4	0.62			189.7		15	
May	204.1	120.8	0.59			178.4		15	
June	146.0	88.5	0.61			148.8		11	

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 01 July 2002

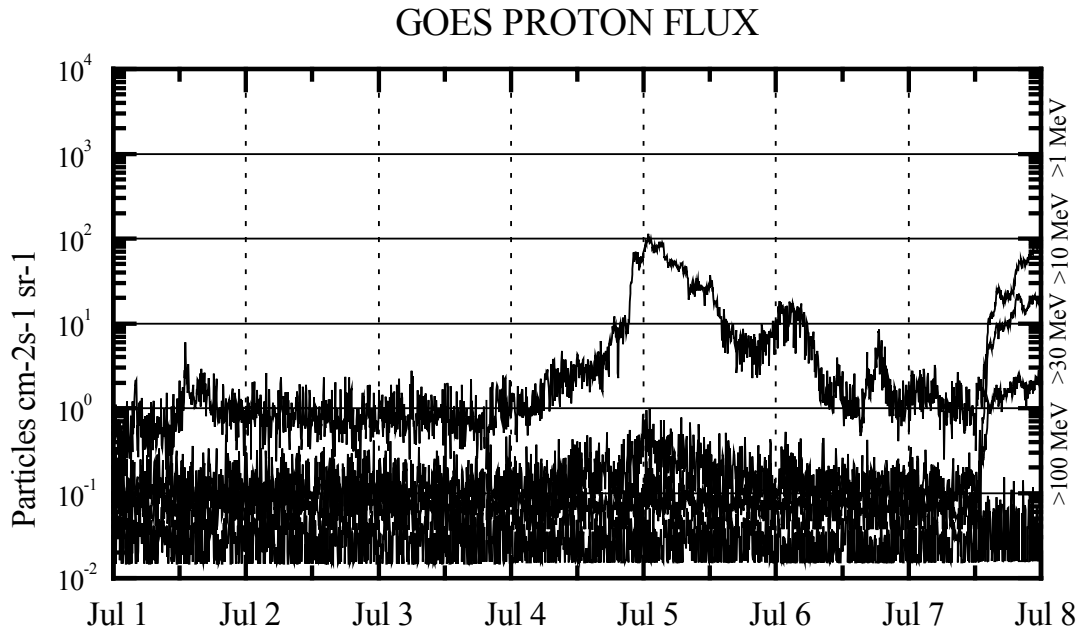
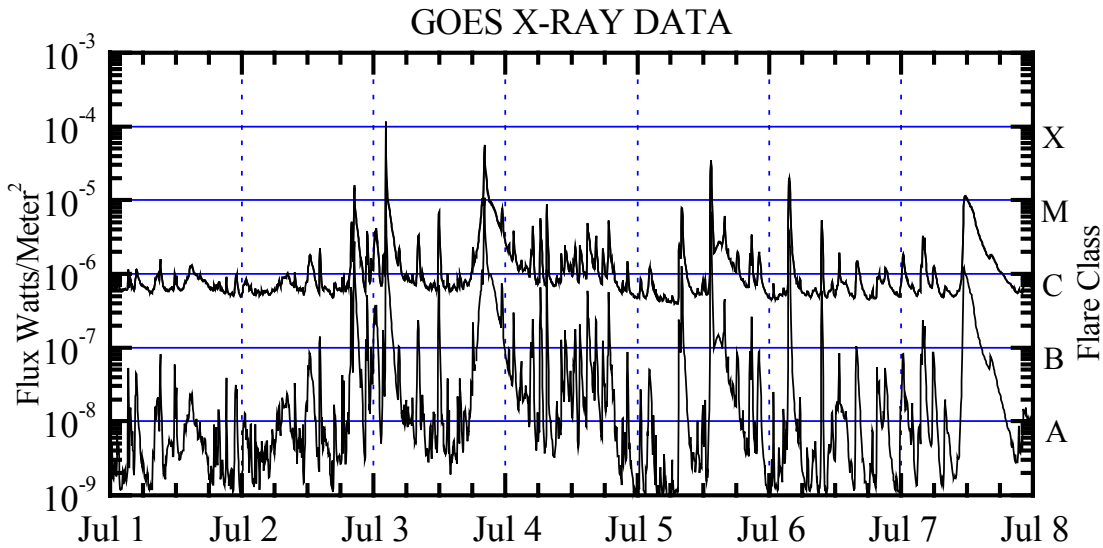
Protons plot contains the five-minute averaged integral proton flux (protons/cm²-sec -sr) as measured by GOES-8 (W75) for each of three energy thresholds: greater than 10, 50, and 100 MeV.

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.



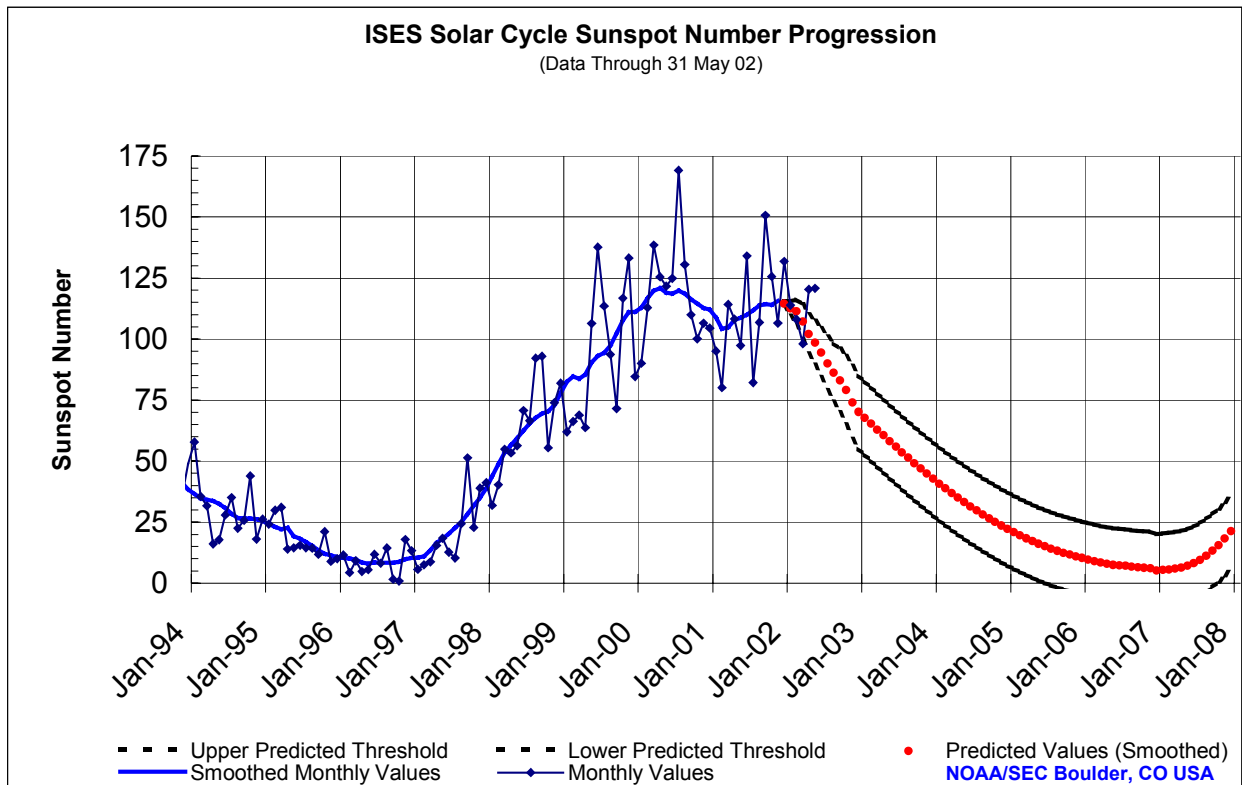


Weekly GOES Satellite X-ray and Proton Plots

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.

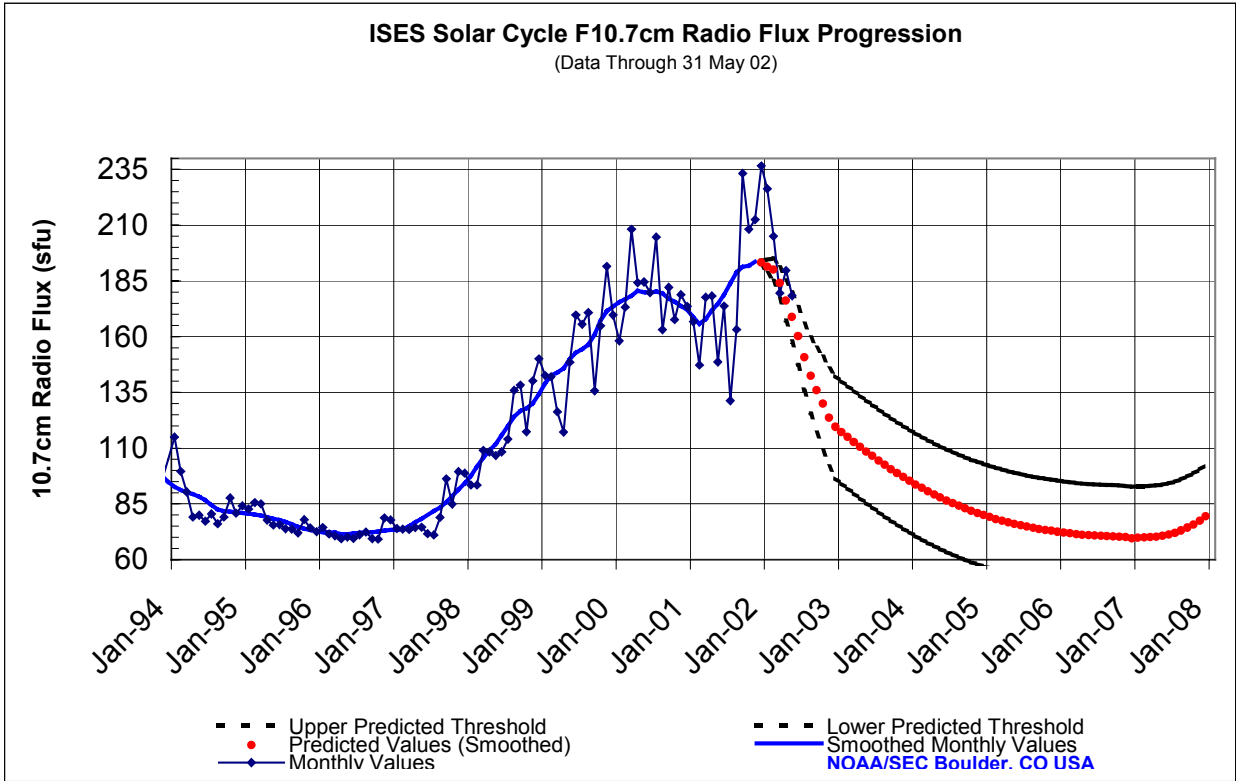




SEC Prediction of Smoothed Sunspot Number

	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	105	108	109	110	112	114	114	114	116	115
	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)
2002	113	112	108	102	99	95	90	87	83	79	74	70
	(1)	(3)	(5)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
2003	68	65	63	61	58	56	54	51	49	47	45	43
	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)
2004	41	39	37	35	33	31	30	28	27	25	24	22
	(15)	(15)	(15)	(15)	(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)





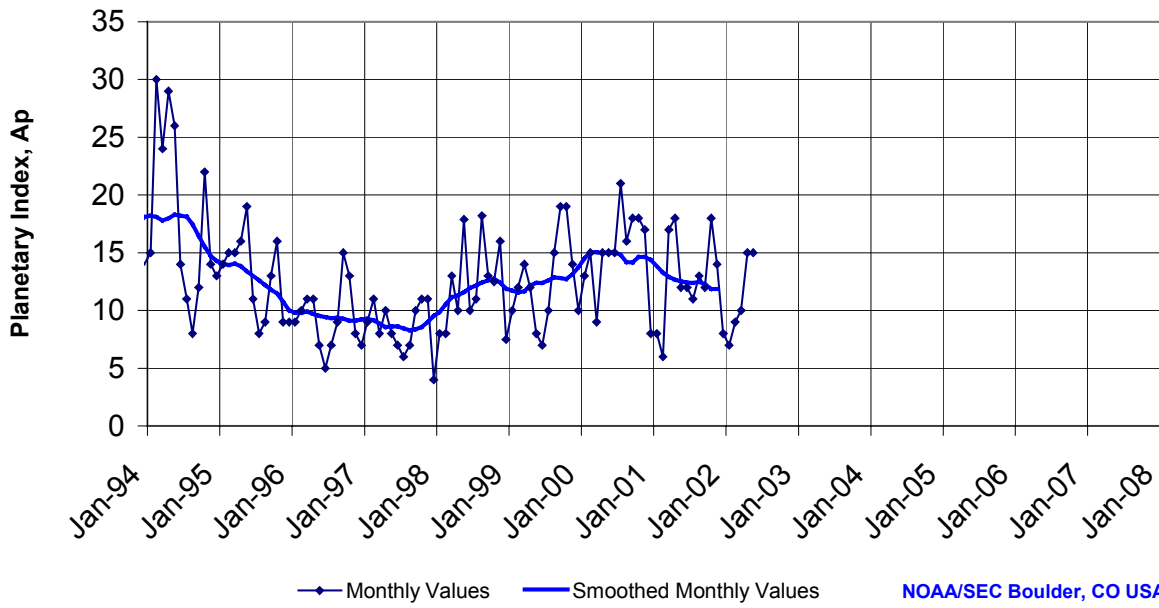
SEC Prediction of Smoothed F10.7cm Radio Flux

	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	193	191	185	177	170	162	152	144	137	131	125	120
	(1)	(3)	(5)	(7)	(9)	(11)	(13)	(15)	(17)	(19)	(21)	(22)
2003	117	115	113	111	109	107	104	103	101	99	97	95
	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)
2004	94	92	91	89	88	87	85	84	83	82	81	80
	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)
2005	79	78	78	77	76	75	75	74	74	73	73	73
	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)
2006	72	72	71	71	71	71	71	71	70	70	70	70
	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)
2007	70	70	70	70	71	71	72	73	74	76	77	79
	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)



ISES Solar Cycle Ap Progression

(Data Through 31 May 02)



M5 or Greater X-Ray Flares



Space Environment Center

June 2002
(Month 69)

Preliminary data

Comparison of Cycles at current month in cycle

