

Space Weather Highlights

29 May – 04 June 2000

SWO PRF 1292
06 June 2000

Solar activity ranged from low to high levels. Activity was at low levels during 29 - 31 May with isolated C-class flares. Activity increased to moderate levels on 01 June due to an M2/1F flare at 01/0617UT with an associated 420 SFU Tenflare from Region 9026 (N20, L = 074, class/area Eko/910 on 03 June), which rotated into view on 01 June as a large, moderately complex sunspot group. This region gradually grew in size and complexity as the period progressed. Activity rose to high levels during 02 - 03 June due to a pair of major flares from Region 9026 including an M7/2B parallel-ribbon flare at 02/19138UT and an M6/2B at 03/1924UT with an associated 310 SFU Tenflare. Region 9026 also produced isolated M-class flares during this time including an M4/1N at 02/0659UT and an M2/1B at 03/0849UT. Activity dropped to moderate levels on 04 June with an optically uncorrelated M3 flare at 04/2210UT. Note: at the time of this writing Region 9026 had produced additional major flare activity, which will be discussed in next week's issue.

Real-time solar wind data were available from the NASA Advanced Composition Explorer (ACE) spacecraft for most of the period. A negative-polarity coronal hole wind stream was observed during 29 May - 01 June with increased velocities (peaks to 710 km/sec on 29 - 30 May) and low particle densities (01 to 04 p/cc). IMF BZ showed increased variability as coronal hole effects began and ranged from plus 18 nT to minus 17 nT (GSM).

There were no proton events detected at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit increased to moderate to high levels during 30 May - 04 June.

The geomagnetic field was disturbed during 29 May - 01 June due coronal hole effects with unsettled to (brief) minor storm levels detected. Brief, localized major to severe storm levels also occurred at high latitudes during this time. Activity declined to mostly quiet to unsettled levels beginning midday on 01 June.

Space Weather Outlook

07 June 2000 03 July 2000

Solar activity is expected to vary between low and high levels. Region 9026 is expected to continue to produce isolated major flares until it crosses the west limb on 14 June. Isolated M-class flares will be most likely during 07 - 23 June.

There will be a chance for a proton event at geosynchronous orbit through 16 June due to the major flare activity expected from Region 9026.

The greater than 2 MeV electron flux at geosynchronous orbit is expected to be at normal to moderate levels through most of the period. However, there will be a chance for high flux levels during 09 - 11, 14 - 15 and 26 - 27 June.

The geomagnetic field is expected to be disturbed during 08 - 10 June due to recent major flare and associated CME occurrences. Storm conditions are expected during this time. Active levels will be possible during 13 - 14 and 25 - 26 June. Quiet to unsettled levels are expected during the remainder of the period, barring an Earth-directed CME.



Daily Solar Data

Date	Radio Flux 10.7 cm	Sun spot No.	Sunspot Area (10 ⁶ hemi.)	X-ray Background	Flares							
					X-ray Flux			Optical				
					C	M	X	S	1	2	3	4
29 May	149	189	1110	B5.7	1	0	0	6	0	0	0	0
30 May	146	153	920	B8.0	3	0	0	1	0	0	0	0
31 May	154	110	820	B7.3	4	0	0	0	0	0	0	0
01 June	148	128	950	B6.4	9	1	0	15	1	1	0	0
02 June	155	126	1360	B5.0	2	3	0	7	2	1	0	0
03 June	166	125	1530	C5.6	9	2	0	14	2	1	0	0
04 June	170	139	1480	B5.9	10	1	0	13	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
	29 May	7.7E+4	1.2E+4	2.9E+3		1.2E+7
30 May	1.4E+6	1.2E+4	2.9E+3		5.7E+7	
31 May	4.1E+5	1.2E+4	2.7E+3		1.2E+8	
01 June	6.7E+5	1.2E+4	2.9E+3		1.9E+8	
02 June	4.2E+5	1.2E+4	2.9E+3		2.3E+8	
03 June	1.7E+5	1.3E+4	3.0E+3		3.8E+7	
04 June	5.6E+5	1.2E+4	2.8E+3		4.7E+7	

Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	29 May	19	2-4-3-2-2-3-4-5	21	3-3-3-3-3-5-4-3	24
30 May	12	3-2-2-2-3-3-3-3	40	5-3-6-5-6-3-3-3	21	4-2-4-4-4-3-3-3
31 May	9	2-4-2-1-1-0-2-3	14	3-5-2-1-1-0-2-4	12	3-4-2-2-2-3-2-3
01 June	9	2-3-3-1-1-1-2-3	24	2-4-7-0-2-1-1-1	12	3-3-3-2-2-3-2-3
02 June	12	2-2-2-2-2-3-4-3	11	2-3-3-3-4-1-1-2	10	2-3-3-2-2-2-3-3
03 June	9	2-2-2-3-2-2-3-2	19	2-3-2-5-5-2-3-1	12	3-2-2-3-3-3-3-3
04 June	11	1-2-3-0-1-2-4-4	15	1-2-4-5-0-2-3-3	12	2-2-3-1-2-3-4-4

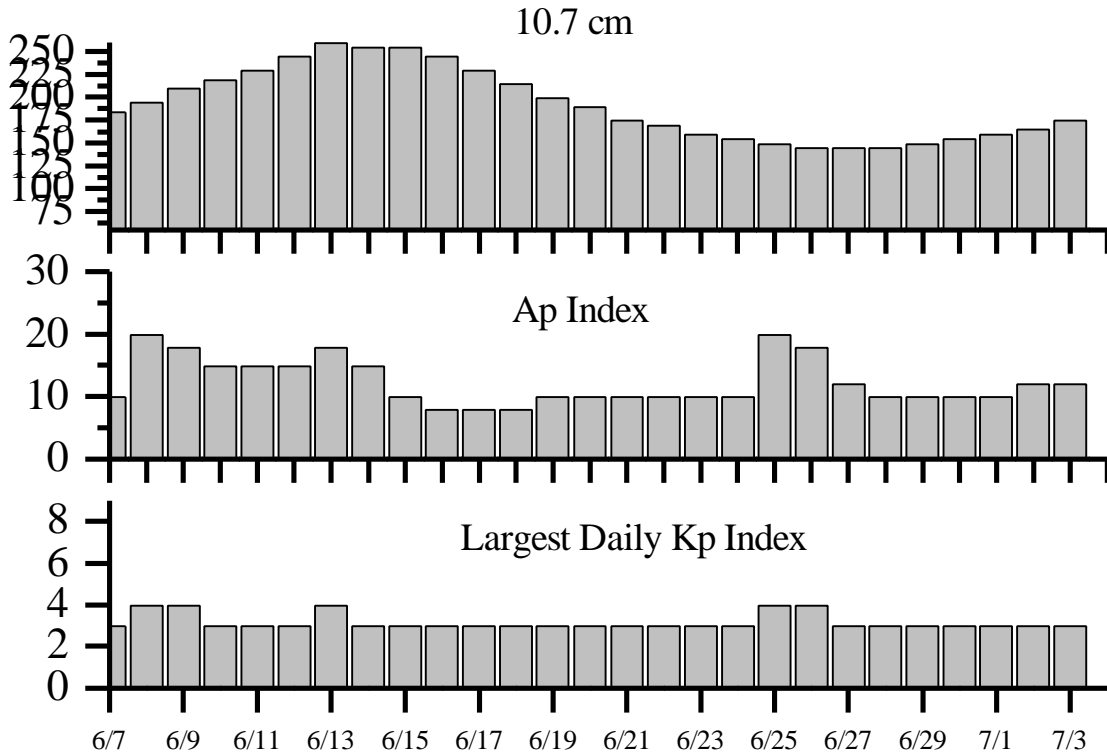


Alerts and Warnings Issued

Date & Time of Issue	Type of Alert or Warning	Date & Time of Event UT
29 May 0008	CONTINUED Electron Event >2MeV=1000pfu	25 May 1355
29 May 0442	K = 5 Warning	29 May 0445 - 0600
29 May 0551	K = 4 Warning	29 May 0600 -15:00
29 May 0555	K = 5 Observed	29 May 03 - 06
29 May 1746	K = 4 Warning	29/1800 – 31/1800 May
29 May 1805	K = 4 Observed	29 May 15 - 18
29 May 2003	A = 20 Watch	30 May
30 May 0001	A = 20 Observed	29 May 2359
30 May 0101	6 – 245 MHz Radio Bursts	29 May
30 May 0101	245 MHz Radio Noise Storm	29 May
30 May 0559	ENDED A= 20 Observed	29 May 2359
30 May 0912	K = 4 Warning	30 May 09 - 15
30 May 0913	K = 4 Observed	30 May 06 - 09
30 May 0916	A = 20 Observed	30 May 09
30 May 1519	Electron Event >2MeV = 1000pfu	30 May 1340
31 May 0000	ENDED A-Index = 20 Observed	30 May 09
31 May 0034	1 – 245 MHz Radio Burst	30 May
31 May 0034	245 MHz Radio Noise Storm	30 May
31 May 0601	A-Index = 20 Observed	31 May 06
31 May 0601	K-Index = 5 Observed	31 May 03 - 06
31 May 0901	ENDED A = 20 Observed	31 May 06
01 Jun 0011	CONTINUED Electron Event > 2MeV = 1000pfu	30 May 1340
01 Jun 0103	4 – 245 MHz Radio Bursts	31 May
01 Jun 0103	245 MHz Radio Noise Storm	31 May
01 Jun 0625	10cm Radio Burst 420 F.U.	01 Jun 0611
01 Jun 0746	10cm Radio Burst 620 F.U.	01 Jun 0731
01 Jun 0901	K = 4 Warning	01 Jun 09 -15
01 Jun 0902	K = 4 Observed	01 Jun 06 - 09
02 Jun 0019	CONTINUED Electron Event >2MeV @ = 1000pfu	30 May 1340
02 Jun 1951	X-Ray event M7/B/N20E61	02 Jun 1848
03 Jun 0008	9 – 245 MHz Bursts	02 Jun
03 Jun 0008	245 MHz Radio Noise Storm	02 Jun
03 Jun 0130	CONTINUED Electron Event >2MeV = 1000pfu	30 May 1340
03 Jun 1930	10cm Radio Burst 310 F.U.	03 Jun 1917
03 Jun 1934	X-Ray event M6.1/2B/N20E49	03 Jun 1913
04 Jun 0055	CONTINUED Electron Event >2MeV @ =1000pfu	30 May 1340
04 Jun 1523	K= 4 Warning	04/1530 -05 /0000 Jun
04 Jun 1529	Sudden Impulse Observed at Boulder 5 nT	04 Jun 1500
04 Jun 2227	10cm Radio Burst 370 F.U.	04 Jun 2206
04 Jun 2237	CONTINUED Magnetic K = 4 Warning	04/1530 – 05/0000 Jun



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 June	185	10	3	21 June	175	10	3
08	195	30	5	22	170	10	3
09	210	50	6	23	160	10	3
10	220	20	4	24	155	10	3
11	230	15	3	25	150	20	4
12	245	15	3	26	145	18	4
13	260	18	4	27	145	12	3
14	255	15	3	28	145	10	3
15	255	10	3	29	150	10	3
16	245	8	3	30	155	10	3
17	230	8	3	01 July	160	10	3
18	215	8	3	02	165	12	3
19	200	10	3	03	175	12	3
20	190	10	3				



Energetic Events

Date	Time		X-ray		Optical Information			Peak		Sweep Freq		
	Begin	Max	½ Max	Class	Integ Flux	Imp/ Brtns	Location		Radio Flux		Intensity	
							Lat	CMD	Rgn #	245	2695	II
01 Jun	0607	0617	0627	M2.5	.018	1F	N19E80	9026	420			
02 Jun	0323	0414	0444	M1.2	.033	1F	N20E73	9026	170	120		
02 Jun	0652	0659	0706	M4.1	.028	1N	N20E65	9026	11			
02 Jun	1848	1938	1950	M7.6	.100	2B	N16E60	9026	100	88		
03 Jun	0827	0849	0858	M2.1	.020	1F	N19E54	9026	84			
03 Jun	1913	1924	1932	M6.1	.039	2B	N20E49	9026	310			
04 Jun	2202	2210	2216	M3.2	.014			9026	87	330		

Flare List

Date	Time			X-ray Class.	Imp/ Brtns	Optical		Rgn
	Begin	Max	End			Location Lat CMD		
29 May	0005	0005	0008		SF	S21E69	9022	
	0012	0012	0016		SF	S21E66	9022	
	1225	1229	1232	B9.8				
	1425	1429	1449		SF	S14E23	9017	
	1454	1455	1507		SF	S36W70	9019	
	1508	1512	1517	B8.5				
	1634	1637	1638		SF	S12E18	9017	
	2322	2346	0116	C1.7				
30 May	2328	2341	0015		SF	S12E18	9017	
	0019	0021	0023		SF	S20E51	9022	
	0204	0242	0320	C1.4				
	1843	1847	1851	B8.0				
	2036	2041	2047	C5.0				
31 May	2249	2255	2301	C1.2				
	0138	0144	0159	C3.9				
	1345	1359	1411	C4.8				
	1738	1825	1944	C3.9				
01 June	2222	2230	2257	C1.4				
	0021	0025	0027	C1.1				
	0056	0058	0121	B9.3	SF	N20E85	9026	
	0135	0148	0159	C1.2				
	0219	0220	0225		SF	N20E85	9026	
	0413	0416	0421	B8.5				
	0436	0436	0443		SF	N20E80	9026	
	0516	0518	0523		SF	N21E80	9026	
	0609	0617	0634	M2.5	1F	N19E80	9026	
	0646	0646	0652		SF	N19E80	9026	
	0656	0657	0734		SF	N20E79	9026	
0730	0732	0821	C8.2	2B	S14E24	9024		
0819	0826	0839		SF	N18E78	9026		



Flare List – continued.

Date	Time			X-ray Class.	Optical		Rgn
	Begin	Max	End		Imp/ Brtns	Location Lat CMD	
01 June	0841	0846	0850	C2.4			
	0900	0900	0912		SF	N21E76	9026
	1110	1110	1113	C1.0	SF	N19E74	9026
	1347	1349	1352		SF	N16E58	
	1401	1405	1407	C1.1			
	1647	1647	1651	C1.3	SF	N17E73	9026
	1815	1816	1818	C1.3	SF	N18E73	9026
	1939	1944	1949	C1.2			
	2032	2035	2037	B8.5			
	2124	2124	2130		SF	S13W22	9017
	2140	2140	2147		SF	S13W25	9017
	2259	2300	2304		SF	N19E67	
	02 June	0325	0330	0333		SF	N21E68
0345		0413	0510	M1.2	1F	N20E73	9026
0527		0535	0546		SF	S03W58	9023
0601		0658	0753	M4.1	1N	N20E65	9026
0814		0815	0818		SF	N21E64	9026
0830		0831	0838		SF	N21E64	9026
0832		0833	0836		SF	S11W33	9017
0904		0906	1019	C2.4	SF	N10E23	9028
1225		1228	1233	C5.1	SF	N20E65	9026
B1936		U1937	2123	M7.6	2B	N16E60	9026
03 June	0146	0147	0159	C7.0	SF	N20E57	9026
	0342	0343	0353		SF	N10E68	9030
	0402	0402	0407		SF	N19E55	9026
	0421	0422	0426		SF	N10E68	9030
	0516	0524	0540		SF	N20E55	9026
	0600	0600	0605		SF	N20E56	9026
	0633	0645	0742	C4.6	SN	N20E54	9026
	0654	0700	0709	C5.9			
	0802	0847	A0936	C3.1	1B	N21E52	9026
	0828	0849	0915	M2.1	1F	N19E54	9026
	0946	0949	0955	C1.8			
	1016	1024	1030	C4.1	SF	N19E53	9026
	B1139	U1139	1151		SF	N18E51	9026
	1418	1424	1446	C7.6	SF	N18E51	9026
	1639	1658	1732	C3.0	SF	N17E49	9026
	1914	1927	2034	M6.1	2B	N20E49	9026
	2034	2039	2052		SF	N21E47	9026
2118	2118	2123		SF	N21E51	9026	
2245	2246	2259	C1.5	SF	N20E46	9026	



Flare List – continued.

Date	Time			X-ray Class	Imp / Brtns	Optical	Rgn
	Begin	Max	End			Location Lat CMD	
04 June	0100	0116	0130	C1.6	SF	N24E49	9026
	0137	0140	0150	C1.7	SF	N21E49	9026
	0325	0326	0330		SF	N20E42	9026
	B0412	0429	0521	C8.4	SF	N23E49	9026
	0628	0628	0640	C3.1	SF	N21E45	9026
	0713	0717	0723	C1.5			
	0948	0948	0957	C1.7	SF	N18E42	9026
	1032	1044	1053	C1.8			
	1207	1211	1227		SF	N21E44	9026
	1304	1318	1346	C3.6	SF	N21E42	9026
	1411	1438	1448	C1.8			
	1606	1607	1611		SF	S13W25	9024
	1915	1920	1929		SF	S32W35	9031
	1930	1932	1942		SF	S32W35	9031
	2016	2016	2041	C1.8	SF	N21E37	9026
	2030	2032	2035		SF	S32W35	9031
2202	2210	2216	M3.2			9026	

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

Region 9009

18 May	S15E68	266	0050	01	HSX	001	A								
19	S13E55	266	0040	01	HSX	001	A								
20	S14E42	266	0030	01	HSX	002	A								
21	S15E29	266	0040	10	CSO	005	B								
22	S15E15	267	0030	06	CSO	002	B								
23	S15E03	266	0020	05	CSO	004	B								
24	S13W10	265	0020	01	HSX	001	A								
25	S13W24	266	0010	01	HSX	001	A								
26	S13W36	265	0000	00	AXX	001	A								
27	S16W55	271	0000	00	AXX	001	A								
28	S18W68	271	0000	00	AXX	001	A								
29	S18W81	271													

0 0 0 0 0 0 0 0

Crossed West Limb.

Absolute heliographic longitude: 266



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 9010</i>																					
18 May	N16E74	260	0170	15	ESO	005	B														
19	N20E58	263	0180	14	EHO	009	B											4			
20	N21E42	266	0090	07	CAO	011	B	1										1			
21	N21E30	265	0110	08	CAO	017	B														
22	N22E16	266	0070	09	CSO	014	B														
23	N19E03	266	0030	11	CAO	009	B														
24	N24W14	269	0060	11	EAO	010	B											1			
25	N24W25	267	0070	16	FSO	015	B														
26	N23W36	265	0050	14	CSO	019	B														
27	N24W49	265	0070	14	CSO	012	B											1			
28	N23W63	266	0030	07	CRO	004	B														
29	N22W75	264	0010	06	CRO	002	B														
30	N22W88	264																			
													1	0	0	7	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 266

<i>Region 9011</i>																					
19 May	N19E69	252	0240	05	HSX	002	A														
20	N17E53	255	0240	02	HAX	002	A											2			
21	N17E40	255	0250	03	HKX	002	A	1										1			
22	N17E27	255	0170	05	HAX	005	A														
23	N18E14	255	0160	02	HAX	004	A														
24	N19E00	255	0200	13	CAO	010	B														
25	N20W10	252	0170	05	CAO	005	B														
26	N21W26	255	0140	06	CAO	008	B														
27	N21W39	255	0140	06	DSO	009	B														
28	N21W52	255	0130	05	CSO	006	B														
29	N20W64	253	0130	04	DSO	006	B														
30	N20W77	253	0100	05	DSO	004	B														
31	N20W90	253	0060	03	DSO	002	B														
													1	0	0	3	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 255



Region Summary-continued

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

Region 9016

24 May	N26E46	209	0020	01	HRX	001	A												
25	N25E35	207	0000	00	AXX	001	A												
26	N26E21	208	0000	00	AXX	001	A												
27	N26E06	210	0000	00	AXX	001	A												
28	N26W05	208	0000	00	AXX	001	A												
29	N26W18	207	0000	00	AXX	001	A												
30	N26W31	207																	
31	N26W44	207																	
01 Jun	N26W57	207																	
02	N26W70	207																	
03	N26W83	207																	

0 0 0 0 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 208

Region 9017

24 May	S14E76	179	0170	03	HSX	001	A	1	2										
25	S15E68	174	0560	13	EHO	007	B	3	7										
26	S14E55	174	0610	13	EKO	010	B	1	5										
27	S13E42	174	0520	15	EKO	020	B		2										
28	S13E28	175	0710	15	EKO	026	BG	2	3										
29	S13E16	173	0660	16	FKO	028	BG	1	3										
30	S13E02	174	0650	16	FKO	025	BG												
31	S13W10	173	0680	16	FKO	027	B												
01 Jun	S13W23	173	0610	16	FKO	025	B		2										
02	S12W36	173	0570	15	EKO	017	BG		1										
03	S12W49	173	0480	15	CKO	012	B												
04	S13W64	174	0410	13	CKO	006	B												

8 0 0 25 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 174

Region 9018

26 May	S20W11	240	0020	06	BXO	010	B		2										
27	S21W24	240	0080	08	DSO	011	B		3										
28	S21W38	241	0090	08	DAO	012	B												
29	S21W52	241	0080	09	DSO	009	B												
30	S21W65	241	0060	08	DSO	007	B												
31	S20W82	245	0020	05	CRO	003	B												

0 0 0 5 0 0 0 0

Crossed West Limb.

Absolute heliographic longitude: 240



Region Summary-continued

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

Region 9019

26 May	S34W38	267	0020	04	BXO	007	B											
27	S34W46	262	0050	07	DSO	011	B											2
28	S35W61	264	0140	11	EAO	010	B											2
29	S35W76	265	0150	10	DAO	011	B											1
30	S36W86	262	0050	07	DAO	004	B											
																		0 0 0 5 0 0 0 0

Crossed West Limb.

Absolute heliographic longitude: 267

Region 9020

27 May	N03E06	210	0010	04	BXO	003	B											
28	N03W08	211	0020	04	CSO	008	B											
29	N04W21	210	0020	05	BXO	008	B											
30	N04W35	211	0010	05	BXO	003	B											
31	N04W48	211																
01	N04W61	211																
02	N04W74	211																
03	N04W87	211																
																		0 0 0 0 0 0 0 0

Crossed West Limb.

Absolute heliographic longitude: 210

Region 9021

28 May	N03E17	186	0010	03	BXO	005	B											
29	N03E05	184	0010	03	BXO	003	B											
30	N04W10	186	0000	01	AXX	002	A											
31	N04W23	186																
01 Jun	N04W36	186																
02	N04W49	186																
03	N04W62	186																
04	N04W75	186																
																		0 0 0 0 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 184



Region Summary-continued

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

Region 9022

28 May	S22E66	137	0020	01	BXO	003	B					4						
29	S22E52	137	0040	04	CSO	006	B					2						
30	S22E40	136	0040	06	CSO	008	B					1						
31	S22E25	138	0030	04	CSO	008	B											
01 Jun	S22E10	140	0010	03	BXO	004	B											
02	S22W03	140	0010	04	BXO	003	B											
03	S22W16	140																
04	S22W29	140																
												0	0	0	7	0	0	0

Still on Disk.

Absolute heliographic longitude: 140

Region 9023

29 May	S03W12	201	0010	03	CRO	004	B											
30	S03W25	201	0010	05	BXO	009	B											
31	S02W39	202	0030	05	CSO	008	B											
01 Jun	S02W52	202	0030	05	DRO	006	B											
02	S01W66	203	0020	05	BXO	003	B					1						
03	S02W79	203	0020	05	BXO	005	B											
												0	0	0	1	0	0	0

Still on Disk.

Absolute heliographic longitude: 201

Region 9024

29 May	S14E55	134	0000	00	AXX	001	A											
30	S15E42	134	0000	00	AXX	001	A											
31	S15E29	134																
01 Jun	S17E16	134	0010	02	AXX	003	A	1						1				
02	S14W00	137	0030	05	DSO	008	B											
03	S12W17	141	0090	07	DSO	010	B											
04	S11W31	141	0100	08	DSO	009	B					1						
												1	0	0	1	0	1	0

Still on Disk.

Absolute heliographic longitude: 137

Region 9025

31 May	N15W64	227	0000	01	AXX	002	A											
01	N17W78	228	0010	06	BXO	002	B											
02	N16W91	228	0000	00	AXX	001	A											
												0	0	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 227



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 9026

01 Jun	N19E75	075	0260	07	DKO	003	B	3	1	11	1						
02	N20E61	076	0720	15	EKO	008	B	1	3	4	2	1					
03	N20E48	076	0910	15	EKO	017	BG	7	2	12	2	1					
04	N21E36	074	0870	16	FKI	027	BGD	7	1	9							
								18	7	0	36	5	2	0	0		

Still on Disk.

Absolute heliographic longitude: 74

Region 9027

01 Jun	N20E04	146	0010	04	BXO	003	B										
02	N21W10	147	0010	04	BXO	003	B										
03	N22W22	146	0010	02	BXO	003	B										
04	N25W37	147	0000	00	AXX	001	A										
								0	0	0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 146

Region 9028

01 Jun	N06E27	123	0010	03	BXO	002	B										
02	N08E12	125	0000	03	BXO	003	B	1		1							
03	N08W01	125															
04	N10W14	124	0000	00	AXX	001	A										
								1	0	0	1	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 125

Region 9029

03 Jun	N18W69	193	0010	05	BXO	004	B										
04	N18W81	191	0020	03	CRO	003	B										
								0	0	0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 193

Region 9030

03 Jun	N11E58	066	0010	05	BXO	004	B			2							
04	N10E44	066	0030	07	BXO	008	B										
								0	0	0	2	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 066



Region Summary-continued

Location		Sunspot Characteristics					Flares							
Date	(° Lat ° CMD)	Helio Lon	Area (10 ⁶ hemi)	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical			
							C	M	X	S	1	2	3	4

Region 9031

04 Jun	S31W40	150	0050	04	DSO	004	B				3				
								0	0	0	3	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 150

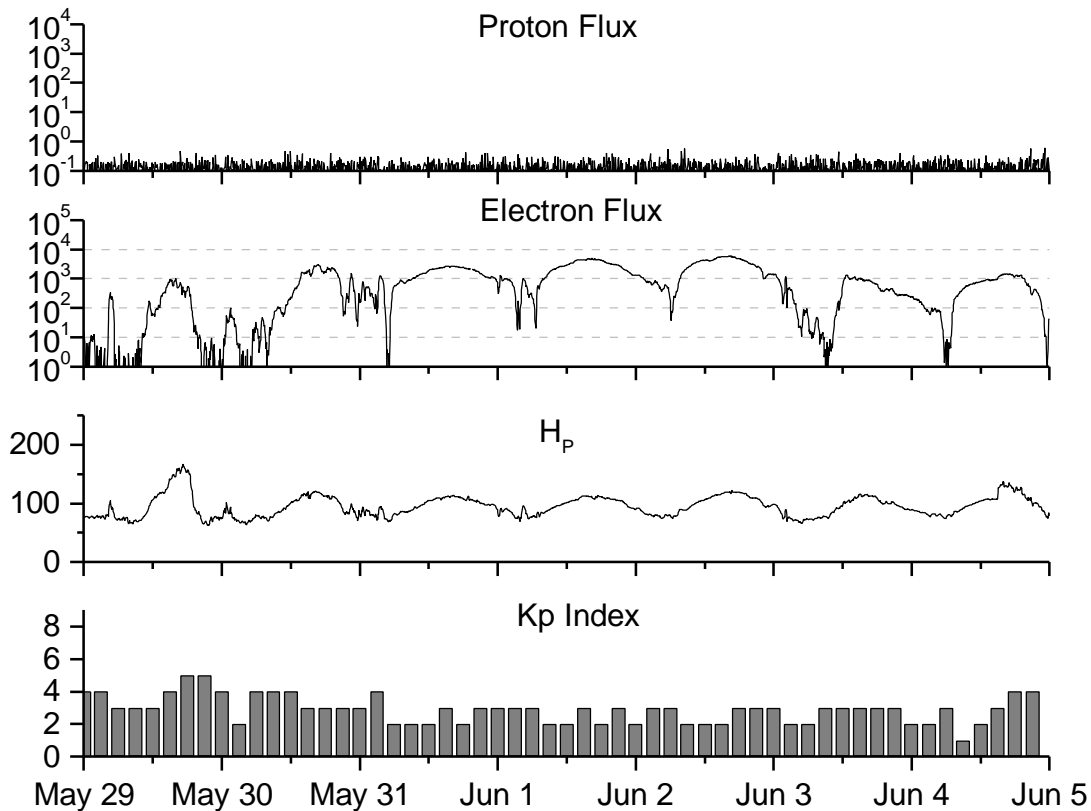


**Recent Solar Indices (preliminary)
of the observed monthly mean values**

Month	Sunspot Numbers					Radio Flux		Geomagnetic	
	<u>Observed values</u>		<u>Ratio</u>	<u>Smooth values</u>		<u>*Penticton</u>	<u>Smooth</u>	<u>Planetary</u>	<u>Smooth</u>
	SWO	RI	RI/SWO	SWO	RI	10.7 cm	Value	Ap	Value
1998									
June	93.6	70.7	0.76	85.9	62.5	108.4	115.8	10	11.9
July	98.3	66.6	0.68	90.3	65.5	114.0	120.3	11	12.2
August	118.6	92.2	0.78	93.7	67.8	136.0	124.1	18	12.4
September	119.0	92.9	0.78	96.1	69.5	138.3	126.8	13	12.6
October	77.0	55.5	0.72	97.7	70.5	117.3	127.9	13	12.8
November	99.5	74.0	0.74	101.3	73.0	140.2	130.0	16	12.4
December	120.8	81.9	0.68	108.8	77.9	150.1	134.3	08	11.9
1999									
January	94.3	62.0	0.66	116.5	82.6	142.6	139.0	10	11.7
February	93.4	66.3	0.71	120.2	84.6	142.0	142.6	12	11.6
March	100.5	68.8	0.68	120.5	83.8	126.3	144.0	14	11.7
April	92.9	63.7	0.69	123.8	85.5	117.2	145.8	12	12.2
May	140.5	106.4	0.76	131.7	90.5	148.6	149.9	08	12.4
June	208.3	137.7	0.66	136.0	93.1	169.8	152.9	07	12.4
July	169.2	113.5	0.67	138.0	94.4	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	0.66	150.0	102.3	135.7	161.0	19	12.8
October	167.7	116.7	0.69	158.5	107.7	164.8	167.2	19	12.7
November	199.3	133.2	0.67	164.7	110.9	191.5	171.5	14	13.2
December	123.5	86.4	0.70			169.8		10	
2000									
January	140.8	90.2	0.64			158.1		13	
February	161.9	112.3	0.69			173.2		15	
March	203.6	138.2	0.68			208.2		09	
April	193.4	125.3	0.65			184.2		15	
May	188.8	120.8	0.64			184.5		16	

NOTE: All smoothed values after June 1999 and monthly values after December 1999 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 May 2000*

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

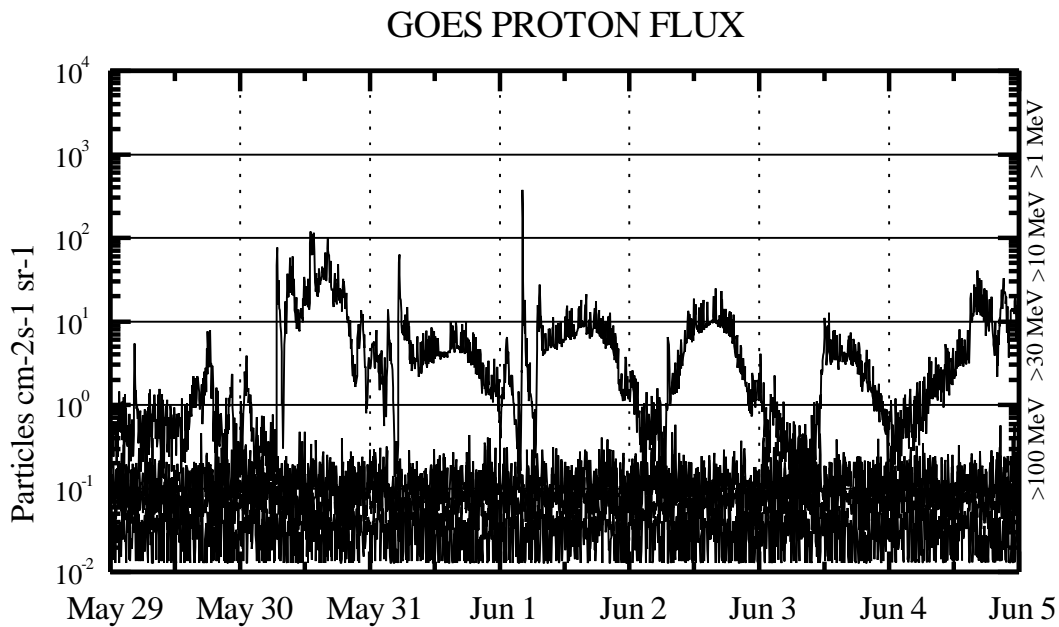
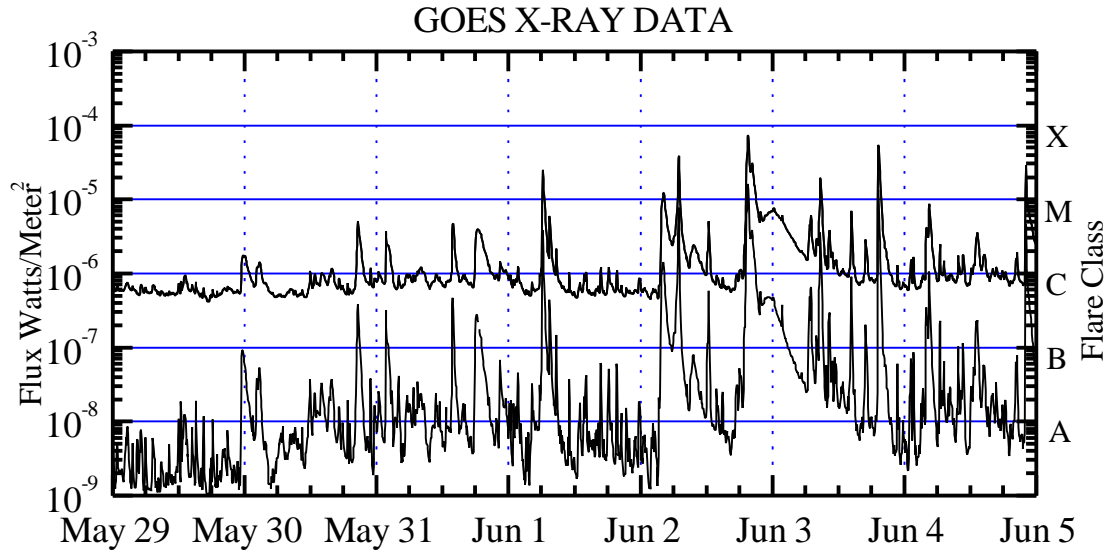
Electrons plot contains the five-minute averaged integral electron flux (electrons/cm²-sec-sr) with energies greater than 2 MeV at GOES-8.

H_p plot contains the five-minute averaged magnetic field H_p 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 Meadok, 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.



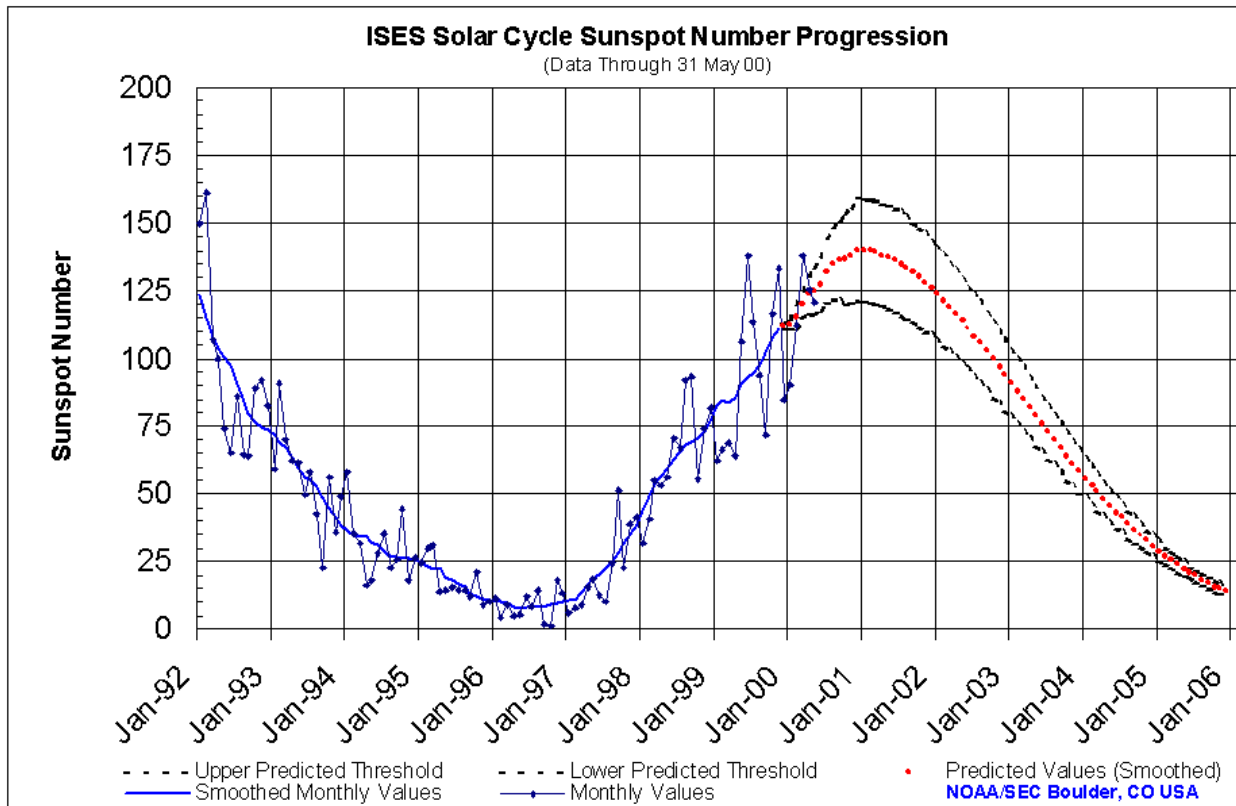


Weekly GOES Satellite X-ray and Proton Plots

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.

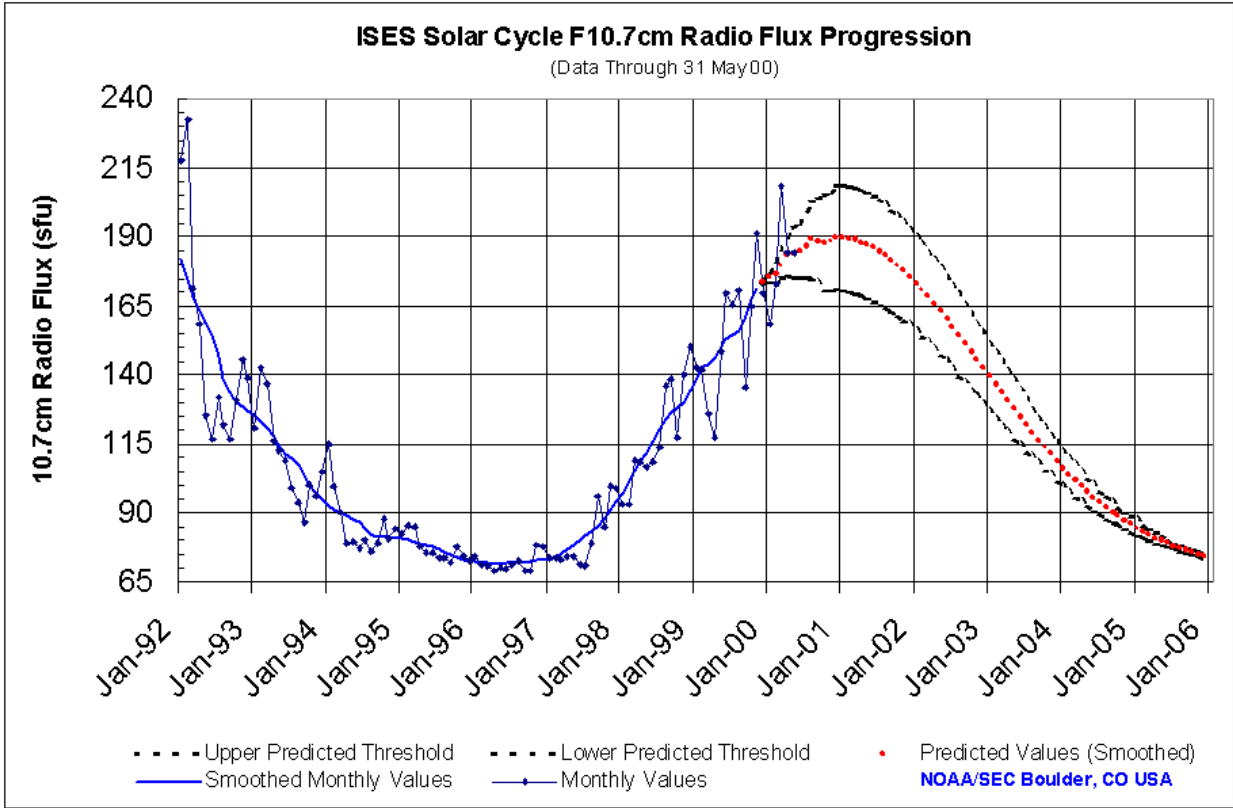




SEC Prediction of Smoothed Sunspot Number

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1996	10	10	10	9	8	9	8	8	8	9	10	10
	(**)	(**)	(**)	(**)	(**)	(**)	(**)	(**)	(**)	(**)	(**)	(**)
1997	11	11	14	17	18	20	23	25	28	32	35	39
	(**)	(**)	(**)	(**)	(**)	(**)	(**)	(**)	(**)	(**)	(**)	(**)
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
	(**)	(**)	(**)	(**)	(**)	(**)	(**)	(**)	(**)	(**)	(**)	(1)
2000	112	115	120	124	125	127	132	135	136	137	138	140
	(2)	(4)	(5)	(7)	(9)	(10)	(12)	(14)	(15)	(17)	(18)	(19)
2001	140	140	139	138	137	136	135	133	132	130	128	126
	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(18)	(18)	(18)	(17)
2002	124	121	119	116	114	111	108	106	103	100	97	94
	(17)	(17)	(16)	(16)	(16)	(15)	(15)	(15)	(14)	(14)	(13)	(13)
2003	91	88	85	82	79	76	73	70	67	64	61	58
	(12)	(12)	(12)	(11)	(11)	(10)	(10)	(9)	(9)	(9)	(8)	(8)
2004	56	53	51	48	46	43	41	39	37	35	33	31
	(7)	(7)	(7)	(6)	(6)	(6)	(5)	(5)	(5)	(4)	(4)	(4)
2005	29	27	25	24	22	21	20	18	17	16	15	14
	(4)	(3)	(3)	(3)	(3)	(2)	(2)	(2)	(2)	(2)	(2)	(1)





SEC Prediction of Smoothed F10.7cm Radio Flux

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1996	72 (***)	72 (***)	72 (***)	72 (***)	71 (***)	72 (***)	72 (***)	72 (***)	72 (***)	73 (***)	73 (***)	73 (***)
1997	73 (***)	74 (***)	75 (***)	77 (***)	78 (***)	80 (***)	82 (***)	83 (***)	86 (***)	89 (***)	91 (***)	94 (***)
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 (***)	174 (1)
2000	175 (2)	177 (4)	180 (5)	183 (7)	184 (9)	185 (10)	187 (12)	189 (14)	189 (15)	188 (17)	188 (18)	190 (19)
2001	190 (19)	189 (19)	189 (19)	188 (19)	187 (19)	186 (19)	185 (19)	183 (19)	181 (18)	180 (18)	178 (18)	175 (17)
2002	173 (17)	171 (17)	168 (16)	166 (16)	163 (16)	160 (15)	157 (15)	155 (15)	152 (14)	149 (14)	146 (13)	143 (13)
2003	139 (12)	136 (12)	133 (12)	131 (11)	128 (11)	125 (10)	122 (10)	119 (8)	116 (8)	114 (8)	111 (7)	109 (7)
2004	106 (6)	104 (6)	102 (6)	100 (5)	98 (5)	96 (5)	94 (4)	92 (4)	90 (4)	89 (3)	87 (3)	86 (3)
2005	85 (3)	83 (2)	82 (2)	81 (2)	80 (2)	79 (1)	78 (1)	77 (1)	77 (1)	76 (1)	75 (1)	75 (1)



ISES Solar Cycle Ap Progression

(Data Through 31 May 00)

