Space Weather Highlights
09 - 15 May 2005

SWO PRF 1550
17 May 2005

Solar activity ranged from low to high. The majority of the period's activity was split between two very active regions, Region 758 (S10, L=141, class/area, Ekc/630 on 11 May) and new Region 759 (N14, L=052, class/area, Ehi/540 on 09 May). During the summary period, Region 758 was responsible for 24 C-class and 3 M-class flares, while Region 759 had 14 C-class and 3 M-class flares observed. Of these flares, two M-class flares were significant. On 11 May at 1939 UTC, Region 758 produced an M1.1/Sf long duration event (LDE) with an accompanying full halo CME. LASCO/EIT imagery detected the mean plane-of-sky speed of the CME at about 470 km/s. Later in the summary period, Region 759 produced an M8.0/2b LDE at 13/1657 UTC with Type II (1349 km/s) and Type IV sweeps and a 2900 sfu Tenflare. LASCO/EIT imagery observed a bright, full halo CME. Because of limited imagery, the mean plane-of-sky speed could only be estimated at between 794 - 1020 km/s. Other activity included an impulsive M3.5/1n flare at 15/2236 UTC from new Region 763 (S15, L=015, class/area, Dao/200 on 13 May). The remainder of the disk and limb were quiet and stable.

Solar wind data were available from the NASA Advanced Composition Explorer (ACE) spacecraft during most of the summary period. Solar wind speed ranged from a low of 455 km/s early on 11 May to a high of 1000 km/s near 15/0900 UTC. The period began with solar wind speed elevated near 670 km/s and the IMF Bz ranging between – 8 to + 5 nT as effects from a coronal hole high speed wind stream waned. By the end-of-day on 09 May, wind speed had decayed to 515 km/s and the IMF Bz had relaxed to +/- 5 nT. These trends persisted through late on 12 May. By 12/2100 UTC, ACE data indicated an increase in density and a slight increase in wind speed from about 490 km/s to 525 km/s as effects from the 11 May CME became geoeffective. The IMF Bz stayed mostly south at -7 nT. By 13/1600 UTC, wind speed increased to 615 km/s. Thereafter, through early on 15 May, wind speed slowly decayed and the IMF Bz did not vary much beyond +/- 4 nT.
Early on 15 May, effects from the large, full halo CME from the 13 May M8.0 flare arrived at Earth. At 15/0238 UTC, the Boulder magnetometer recorded a 67 nT sudden impulse. Solar wind jumped from 460 km/s to near 900 km/s and the IMF Bz turned sharply southward and by 0600 UTC, it read -43 nT. By about 0800 UTC, the Bz turned northward and the total field remained strong near 56 nT. The IMF Bz remained northward through about 1700 UTC when it turned south to about -9 nT and remained so for the remainder of the summary period. By 0900 UTC, wind speed reached its maximum of 1000 km/s, but for the remainder of the 15th, velocity rapidly decayed and ended the summary period near 740 km/s.

A greater than 10 MeV proton event began at 14/0525 UTC. The peak of 3140 pfu occurred at 15/0240 UTC, following the CME shock arrival, and ended at 15/1120 UTC. The suspected source of this event was believed to be the 13 May M8.0 flare.

The greater than 2 MeV electron flux at geosynchronous orbit reached high levels on 11 – 15 May.

The geomagnetic field ranged from quiet to severe storm levels. The period began with quiet to active conditions through 12 May. Isolated minor storming was observed at high latitudes midday on 11 May and late on 12 May, while an isolated major storm period occurred midday on the 12th. By early on 13 May, active to minor storming, with periods of high latitude major storming, were observed as effects from the 11 May CME became geoeffective. These conditions persisted through most of the 13th. For the remainder of the 13th, and through 14 May, conditions relaxed to quiet to unsettled. Early on 15 May, geomagnetic conditions increased significantly as the CME shock from the 13 May M8.0 flare arrived. Through the first 12 hours of the 15th, the field was at minor to severe storming, but by 1500 UTC, and through the end of the summary period, conditions relaxed to mostly active to minor storming.

Space Weather Outlook
18 May - 13 June 2005

Solar activity is expected be at low to moderate levels. Further M-class activity is possible from Regions 759 through 20 May and 763 through 23 May when they are due to depart the visible disk. Old Region 758 (S10, L=136) is due to return by 28 May and was an M-class flare producer on its last rotation. Otherwise expect very low to low conditions.

There is a chance for a greater than 10 MeV proton event from Regions 759 and 763 through 23 May.

The greater than 2 MeV electron flux at geosynchronous orbit is expected to be at high levels on 19 – 20 May, 28 May – 02 June, and 07 – 13 June.

The geomagnetic field is expected to range from quiet to minor storm levels. Effects from two weak CME's on 16 and 17 May are expected to produce active to minor storm levels on 18 - 19 May. Recurrent coronal hole high speed wind streams are expected to produce active to minor storm levels on 27 – 28 May and 11 – 12 June. Otherwise, expect quiet to

unsettled conditions.

Daily Solar Data

Date	Radio Flux 10.7 cm	Sun spot No.	Sunspot Area (10^{-6} hemi.)	X-ray Background	Flares: X-ray Flux C	M	X	Flares: Optical S	1	2	3	4
09 May	110	106	910	B4.1	8	0	0	3	0	0	0	0
10 May	119	106	870	B4.1	7	1	0	4	1	0	0	0
11 May	125	117	1330	B4.4	9	2	0	3	2	1	0	0
12 May	117	110	1140	B3.4	14	2	0	11	1	2	0	0
13 May	126	100	1280	B2.7	2	1	0	3	0	1	0	0
14 May	100	91	720	B6.8	4	0	0	2	0	0	0	0
15 May	103	69	490	B2.9	9	1	0	1	1	0	0	0

Daily Particle Data

Date	Proton Fluence (protons/cm^2-day-sr) >1MeV	>10MeV	>100MeV	Electron Fluence (electrons/cm^2-day-sr) >.6MeV	>2MeV	>4MeV
09 May	2.7E+6	1.3E+4	2.2E+3		7.7E+6	
10 May	7.5E+5	1.2E+4	2.3E+3		1.6E+7	
11 May	7.8E+5	1.5E+4	2.4E+3		7.3E+7	
12 May	9.7E+5	2.1E+4	2.6E+3		5.3E+7	
13 May	1.4E+6	2.7E+4	3.0E+3		1.4E+8	
14 May	6.6E+7	7.7E+6	8.0E+3		1.4E+8	
15 May	6.7E+8	2.2E+7	3.1E+3		1.1E+8	

Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg A	K-indices	High Latitude College A	K-indices	Estimated Planetary A	K-indices
09 May	10	3-3-1-1-1-2-3-3	10	3-3-2-0-0-2-2-4	11	3-3-1-1-1-2-3-4
10 May	6	3-1-2-1-1-0-2-2	11	2-3-4-3-2-1-2-1	10	3-3-3-2-2-2-2-2
11 May	7	1-0-2-2-1-2-3-3	16	1-1-2-5-3-4-2-3	11	1-0-2-3-2-3-3-4
12 May	13	2-4-2-3-2-2-3-3	25	3-3-3-6-2-5-2-3	17	3-4-3-4-2-3-3-3
13 May	21	5-4-4-2-3-3-3-3	43	5-5-6-4-5-6-2-1	27	5-5-5-3-3-4-3-2
14 May	4	1-1-2-1-1-1-1-1	8	1-1-3-2-3-2-2-1	8	2-1-3-2-2-2-2-2
15 May	44	5-5-7-5-2-3-3-4	77	6-5-8-7-4-4-4-4	105	5-5-9-8-4-4-4-5

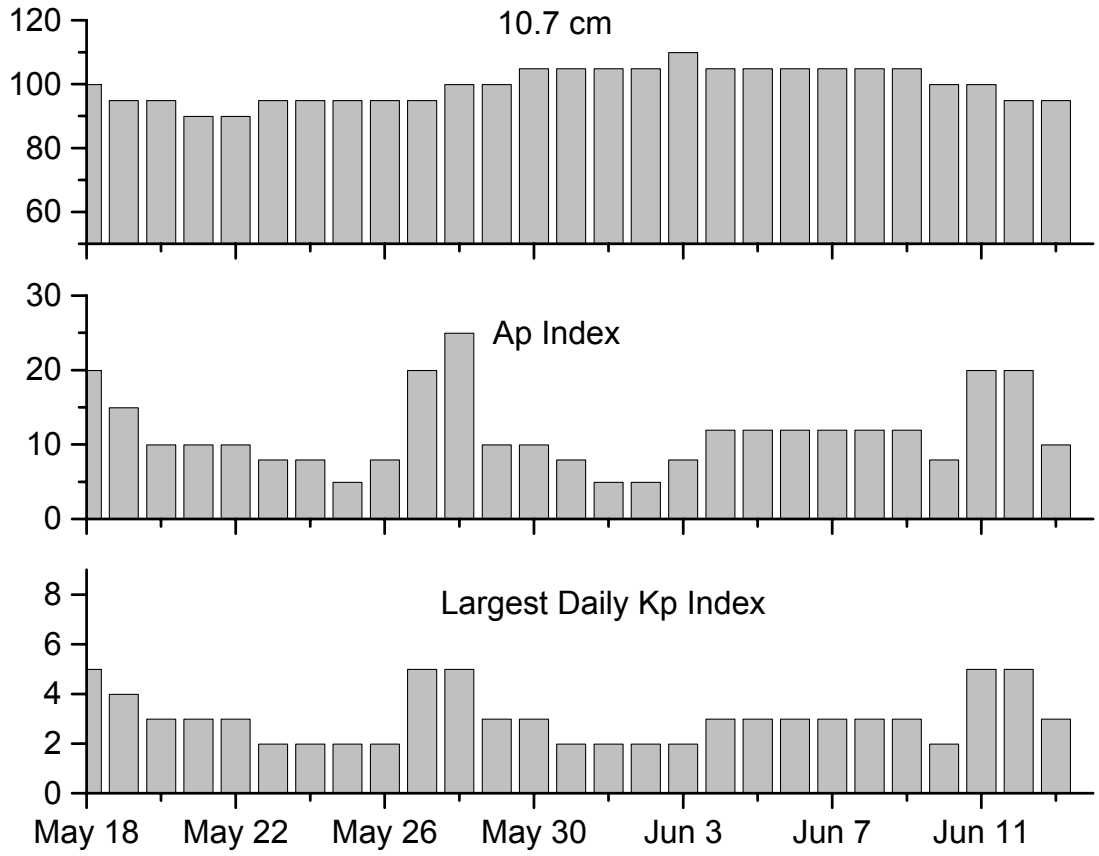
Alerts and Warnings Issued

Date & Time of Issue	Type of Alert or Warning	Date & Time of Event UTC
09 May 0016	1 – 245 MHz Radio Burst	08 May
09 May 0110	EXT WARNING: Geomagnetic K= 4	07 May 2230 - 09 May 1500
10 May 0007	3 – 245 MHz Radio Bursts	09 May
11 May 0006	2 – 245 MHz Radio Bursts	10 May
11 May 0033	ALERT: Type IV Radio Emission	10 May 0519
11 May 1156	ALERT: Electron 2MeV Integral Flux > 1000pfu	11 May 1135
11 May 1954	ALERT: Type II Radio Emission	11 May 1938
11 May 2038	ALERT: Type IV Radio Emission	11 May 1951
12 May 0010	1 – 245 MHz Radio Burst	11 May
12 May 0010	1 – 245 MHz Radio Noise Storm	11 May
12 May 0427	ALERT: Geomagnetic K= 4	12 May 0425
12 May 1018	WARNING: Geomagnetic K= 4	12 May 1019 - 1330
12 May 1024	ALERT: Geomagnetic K= 4	12 May 1024
12 May 1407	ALERT: Electron 2MeV Integral Flux > 1000pfu	12 May 1345
13 May 0035	1 – 245 MHz Radio Burst	12 May
13 May 0138	ALERT: Geomagnetic K= 4	13 May 0135
13 May 0142	ALERT: Geomagnetic K= 5	13 May 0141
13 May 0311	ALERT: Geomagnetic K= 4	13 May 0309
13 May 0327	WARNING: Geomagnetic K= 5	13 May 0328 - 1500
13 May 0337	ALERT: Geomagnetic K= 5	13 May 0336
13 May 0434	ALERT: Geomagnetic K= 5	13 May 0336
13 May 0956	ALERT: Electron 2MeV Integral Flux > 1000pfu	13 May 0935
13 May 1548	WARNING: Geomagnetic K= 4	13 May 1549 -May 14 1500
13 May 1614	ALERT: Geomagnetic K= 4	13 May 1612
13 May 1647	ALERT: X-Ray Flux exceeded M5	13 May 1647
13 May 1710	ALERT: Type II Radio Emission	13 May 1643
13 May 1757	SUMMARY: X-ray Event > M5	13 May 1657
13 May 1819	SUMMARY: 10cm Radio Burst	13 May 1633
13 May 2012	WATCH: Geomagnetic A ≥ 50	15 May
13 May 2015	WATCH: Geomagnetic A ≥ 30	16 May
13 May 2127	ALERT: Type IV Radio Emission	13 May 1645
14 May 329	WARNING: Proton 10MeV Integral Flux > 10pfu	14 May 0350 -May 15 0350
14 May 544	ALERT: Proton Event 10MeV Integral Flux > 10pfu	14 May 0525
14 May 1121	ALERT: Electron 2MeV Integral Flux > 1000pfu	14 May 1100
14 May 1333	EXT WARNING: Proton 10MeV Integral Flux > 10pfu	14 May 0350 - 15 May 0350
14 May 1413	ALERT: Proton Event 10MeV Integral Flux > 100pfu	14 May 1355
14 May 2112	ALERT: Type II Radio Emission	14 May 2046
14 May 2119	ALERT: Type IV Radio Emission	14 May 2058
15 May 0148	3 – 245 MHz Radio Bursts	14 May
15 May 0148	1 – 245 MHz Radio Noise Storm	14 May
15 May 0003	EXT WARNING: Proton 10MeV Integral Flux > 10pfu	14 May 0350 - 15 May 2359
15 May 0022	CONT ALERT: Proton Event 10MeV Integral Flux > 100pfu	14 May 1355
15 May 0136	WARNING: Geomagnetic K= 5	15 May 0140 -16 May 1500
15 May 0227	WARNING: Proton 10MeV Integral Flux > 10pfu	15 May 0230 - 16 May 0300
15 May 0237	ALERT: Proton Event 10MeV Integral Flux > 1000pfu	15 May 0215
15 May 0253	SUMMARY: Geomagnetic Sudden Impulse	15 May 0238
15 May 0256	ALERT: Geomagnetic K = 5	15 May 0255
15 May 0322	WARNING: Proton 10MeV Integral Flux > 10pfu	15 May 0230 -16 May 0300
15 May 0516	ALERT: Electron 2MeV Integral Flux > 1000pfu	15 May 0500
15 May 0609	WARNING: Geomagnetic K = 6	15 May 0610 - 1500
15 May 0629	ALERT: Geomagnetic K = 6	15 May 0629
15 May 0640	WARNING: Geomagnetic K ≥ 7	15 May 0640 - 1500
15 May 0646	ALERT: Geomagnetic K = 7	15 May 0645
15 May 0737	ALERT: Geomagnetic K ≥ 8	15 May 0736

Alerts and Warnings Issued – continued.

Date & Time of Issue	Type of Alert or Warning	Date & Time of Event UTC
15 May 0849	ALERT: Geomagnetic K = 9	15 May 0849
15 May 0917	ALERT: Geomagnetic K = 6	15 May 0915
15 May 0929	SUMMARY: Proton Event 10MeV Integral Flux > 1000pfu	15 May 0215
15 May 0939	SUMMARY: Proton Event 10MeV Integral Flux > 100pfu	14 May 1355
15 May 1009	ALERT: Geomagnetic K = 7	15 May 1009
15 May 2141	CANCEL WATCH: Geomagnetic A ≥ 30	16 May
15 May 2143	WATCH: Geomagnetic A ≥ 20	16 May

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
18 May	100	20	5	01 Jun	105	5	2
19	95	15	4	02	105	5	2
20	95	10	3	03	110	8	3
21	90	10	3	04	105	12	3
22	90	10	3	05	105	12	3
23	95	8	2	06	105	12	3
24	95	8	2	07	105	12	3
25	95	5	2	08	105	12	3
26	95	8	2	09	105	12	3
27	95	20	5	10	100	8	2
28	100	25	5	11	100	20	5
29	100	10	3	12	95	20	5
30	105	10	3	13	95	10	3
31	105	8	2				

Energetic Events

Date	Time			X-ray		Optical Information			Peak Radio Flux		Sweep Freq Intensity	
	Begin	Max	½ Max	Class	Integ Flux	Imp/ Brtns	Location Lat CMD	Rgn #	245	2695	II	IV
10 May	0503	0523	0536	M1.3	.014	Sf	S11W30	758	260	2		
11 May	0611	0641	0656	M1.2	.017			758	160			
11 May	1922	1938	1955	M1.1	.016	1f	S10W47	758				
12 May	0727	0733	0737	M1.6	.005	2b	N11E30	759	55			
12 May	1733	1741	1745	M1.4	.005	1n	N11E21	759	98			
13 May	1613	1657	1728	M8.0	.180	2b	N12E12	759	420	2900	3	3
15 May	2227	2236	2242	M3.5	.019	1n	S15E13	763	290	83		

Flare List

Date	Time			Optical X-ray Class.	Imp / Brtns	Location Lat CMD	Rgn
	Begin	Max	End				
09 May	B0333	0333	0339	C2.8	Sf	S09W09	758
	0957	1008	1032	C1.4			758
	1037	1103	1111	C8.9			758
	1139	1146	1151	C5.6			
	1224	1231	1237	C2.5			
	1843	1846	1848	B9.7			759
	2059	2109	2127	C3.7			759
	2302	2305	2307	C2.7	Sf	N12E61	759
	2335	2336	2338	C2.7	Sf	N17E65	759
10 May	0100	0104	0123	B9.6	Sf	S06W28	758
	0136	0219	0224	C1.7			758
	0353	0400	0405	C2.0			758
	0517	0520	0532	M1.3	Sf	S11W30	758
	0859	0905	0911	C2.2			760
	1221	1226	1231	C1.5			758
	1411	1421	1424	C1.3	Sf	S09W33	758
	1609	1615	1631	C1.1	Sf	N12E51	759
	1632	1635	1638	B7.3			
	1941	1956	2022	C5.8	1f	N10E47	759
	2358	0002	0009	B8.6			760
11 May	B0128	0132	0154		2n	N13E45	759
	0408	0416	0426	C1.4			758
	0451	0454	0456	C1.0			
	0611	0641	0656	M1.2			758
	0903	0908	0913	C1.7			758
	1030	1033	1035	C1.0			758
	1133	1137	1139	C1.0			758
	1200	1209	1212	C1.0			758
	1254	1308	1316	C1.8			762
	1314	1314	1321		1f	S11E04	762
	1659	1700	1715	C6.9	Sf	N13E37	759

Flare List – continued.

Date	Time Begin	Time Max	Time End	Optical X-ray Class.	Imp / Brtns	Location Lat CMD	Rgn
11 May	1904	1906	1908		Sf	S09W47	758
	1921	1939	2016	M1.1	1f	S10W47	758
	2332	2334	2343	C5.9	Sf	S08W54	758
12 May	0014	0017	0023	C2.7	Sf	S09W51	758
	0026	0029	0035	C4.2	Sf	S08W55	758
	0107	0113	0120	C9.4	2b	N12E31	759
	0143	0147	0149	C1.9			758
	0257	0309	0324	C2.0			759
	0511	0512	0514	C1.0	Sf	S09W56	758
	0641	0651	0653		Sf	S09W57	758
	0704	0704	0714	C1.4	Sf	N12E28	759
	0730	0733	0907	M1.6	2b	N11E30	759
	1021	1028	1033	B9.5			759
	1113	1118	1121	C1.4			758
	1250	1251	1255		Sf	S16E64	763
	1316	1319	1322	C1.2			758
	1342	1345	1413	C3.0	Sf	N16E29	759
	1701	1703	1717	C1.6	Sf	N11E23	759
	1736	1740	1819	M1.4	1n	N11E21	759
	1823	1826	1827		Sf	N09E22	759
	1953	1953	1956	C2.4	Sf	S10W63	758
	2138	2148	2156	C2.0			763
	2247	2248	2311	C2.1	Sf	N17E24	759
13 May	0259	0259	0350	B8.7	Sf	N12E17	759
	0317	0324	0333	C1.6			759
	0351	0351	0353		Sf	N12E16	759
	0656	0701	0707	B6.9			759
	0817	0820	0825	B6.8			758
	1255	1304	1331	C1.5	Sf	N16E16	759
	1539	1546	1555	B7.1			758
	1631	1641	1946	M8.0	2b	N12E12	759
14 May	0202	0203	0222		Sf	S16E38	763
	0509	0511	0522		Sf	S16E36	763
	1128	1131	1134	B9.9			758
	1321	1326	1330	C1.1			758
	1459	1506	1513	C4.0			758
	1551	1557	1603	C3.5			758
	2018	2058	2236	C2.8			758
15 May	0007	0011	0015	C2.5			758
	0237	0240	0251	C1.4			
	0604	0615	0627	C1.2			758
	0702	0708	0713	C1.0			758
	0920	0934	1002	B8.4			758

Flare List – continued.

Date	Begin	Time Max	Time End	Optical Class.	X-ray Brtns	Imp / Lat	Location CMD	Rgn
15 May		1548	1611	1637	B8.5			763
		1737	1744	1802	C1.2			763
		1842	1855	1911	C1.8			763
		2041	2045	2056	C2.9	Sf	S17E21	763
		2124	2149	2203	C1.6			763
		B2231	2231	2253	M3.5	1n	S15E13	763
		2346	0003	0029	C2.1			763

Region Summary

Date	Location (° Lat ° CMD)	Helio Lon	Sunspot Characteristics Area (10^{-6} hemi)	Extent (helio)	Spot Class	Spot Count	Mag Class	Flares X-ray C	M	X	Optical S	1	2	3	4
			Region 758												
02 May	S10E74	132	0100	02	Hax	001	A	1							1
03 May	S07E63	130	0200	08	Dai	014	B	1							
04 May	S07E51	128	0250	11	Eai	018	B	1			3				
05 May	S06E37	128	0190	13	Eso	019	Bd	3			2				
06 May	S07E23	129	0280	14	Eai	040	Bg	4			2		1		
07 May	S07E10	129	0140	17	Fai	031	B					1			
08 May	S08W06	132	0170	21	Fai	051	Bg								
09 May	S09W25	137	0300	17	Fkc	045	Bg	3			1				
10 May	S10W36	135	0380	12	Ekc	030	Bgd	4	1		3				
11 May	S10W55	141	0630	12	Ekc	023	Bd	6	2		2	1			
12 May	S10W66	139	0420	12	Eki	015	Bg	7			5				
13 May	S09W81	141	0620	10	Dkc	014	B								
14 May	S10W90	136	0150	06	Hax	003	A	4							
								34	3	0	18	2	1	0	1

Crossed West Limb.
Absolute heliographic longitude: 132

			Region 759												
08 May	N12E71	055	0340	08	Dko	008	B								
09 May	N14E60	052	0540	11	Ehi	007	B	3			2				
10 May	N12E50	049	0390	11	Eki	009	Bg	2			1	1			
11 May	N12E33	053	0450	13	Eki	012	B	1			1		1		
12 May	N12E19	054	0300	11	Ehi	010	B	6	2		5	1	2		
13 May	N12E06	054	0310	09	Dhi	019	B	2	1		3		1		
14 May	N11W07	053	0350	09	Dhi	022	B								
15 May	N11W20	053	0290	09	Dho	014	B								
								14	3	0	12	2	4	0	0

Still on Disk.
Absolute heliographic longitude: 054

Region Summary – continued.

Date	Location (° Lat ° CMD)	Helio Lon	Sunspot Characteristics Area (10^{-6} hemi)	Extent (helio)	Spot Class	Spot Count	Mag Class	Flares X-ray C	M	X	Optical S	1	2	3	4
			Region 760												
09 May	S06W14	126	0040	14	Esi	013	B								
10 May	S06W29	128	0050	08	Dso	008	B	1							
11 May	S07W42	128	0040	05	Cso	004	B								
12 May	S08W59	132	0080	01	Bxo	002	B								
13 May	S08W72	132													
14 May	S08W85	132													
								1	0	0	0	0	0	0	0
Still on Disk.															
Absolute heliographic longitude: 126															
			Region 761												
09 May	N04E61	051	0030	01	Hrx	001	A								
10 May	N03E48	051	0010	02	Axx	002	A								
								0	0	0	0	0	0	0	0
Still on Disk.															
Absolute heliographic longitude: 051															
			Region 762												
10 May	S08E18	081	0040	08	Dro	007	B								
11 May	S11E04	082	0080	08	Dai	012	B	1				1			
12 May	S12W12	084	0130	09	Dao	011	B								
13 May	S12W24	084	0150	08	Dso	013	B								
14 May	S12W37	083	0090	08	Dao	013	B								
15 May	S13W53	086	0060	06	Dao	006	B								
								1	0	0	0	1	0	0	0
Still on Disk.															
Absolute heliographic longitude: 082															
			Region763												
11	S14E70	016	0110	05	Dao	004	B								
12	S14E57	016	0150	09	Dao	008	B	1			1				
13	S15E45	015	0200	10	Dao	014	B								
14	S16E31	015	0130	10	Dao	013	B				2				
15	S15E16	017	0140	09	Dai	019	B	5	1		1	1			
								6	1	0	4	1	0	0	0
Still on Disk.															
Absolute heliographic longitude: 017															

Region Summary – continued.

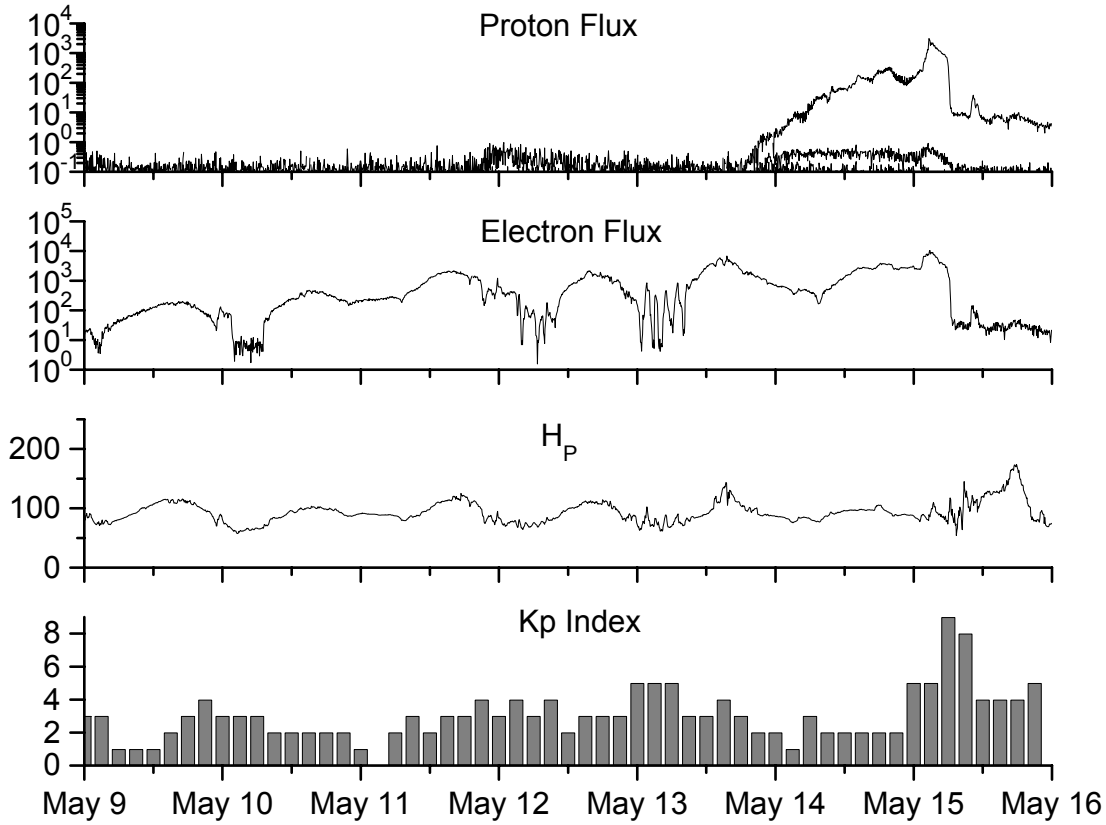
Date	Location (° Lat ° CMD)	Helio Lon	Sunspot Characteristics Area (10^{-6} hemi)	Extent (helio)	Spot Class	Spot Count	Mag Class	Flares X-ray C	X-ray M	X-ray X	Optical S	Optical 1	Optical 2	Optical 3	Optical 4
	Region 764														
11 May	S07E01	085	0020	01	Hrx	002	A								
12 May	S06W12	085	0060	03	Cso	004	B								
13 May	S06W25	085													
								0	0	0	0	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 085

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

	Sunspot Numbers					Radio Flux		Geomagnetic	
	Observed values		Ratio	Smooth values		*Penticton	Smooth	Planetary	Smooth
Month	SWO	RI	RI/SWO	SWO	RI	10.7 cm	Value	Ap	Value
					2003				
May	89.6	55.2	0.62	118.3	67.8	129.3	133.1	26	21.0
June	118.4	77.4	0.65	113.6	65.2	129.4	130.2	24	21.5
July	132.8	85.0	0.64	106.9	62.0	127.8	127.2	19	22.0
August	114.3	72.7	0.64	102.8	60.3	122.1	125.2	23	22.2
September	82.6	48.8	0.59	100.7	59.8	112.3	123.7	18	21.8
October	118.9	65.5	0.55	96.6	58.4	153.1	121.8	35	21.1
November	118.9	67.3	0.57	93.6	57.0	153.1	120.1	28	20.0
December	75.4	46.5	0.62	91.4	55.0	115.1	118.0	16	18.6
					2004				
January	62.3	37.7	0.61	87.9	52.0	114.1	116.3	22	18.1
February	75.6	45.8	0.61	84.2	49.4	107.0	115.5	13	17.7
March	81.0	49.1	0.61	80.9	47.2	112.2	114.6	14	16.9
April	59.3	39.3	0.66	77.9	45.6	101.2	112.3	11	15.5
May	77.3	41.5	0.54	74.1	43.9	99.8	109.2	8	14.3
June	78.9	43.2	0.55	70.4	41.7	97.4	107.2	8	14.0
July	87.8	51.0	0.58	68.3	40.2	118.5	105.9	23	13.8
August	69.5	40.9	0.59	66.6	39.3	110.1	105.0	11	13.8
September	50.0	27.7	0.55	63.7	37.6	103.1	103.7	10	13.6
October	77.9	48.4	0.62	61.3	35.9	105.7	102.1	9	13.5
November	70.5	43.7	0.62			113.2		26	
December	34.7	17.9	0.52			94.6		11	
					2005				
January	52.0	31.3	0.60			102.4		22	
February	45.4	29.1	0.64			97.3		11	
March	41.0	24.8	0.60			90.0		12	
April	41.5	24.4	0.59			85.9		12	

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 09 May 2005

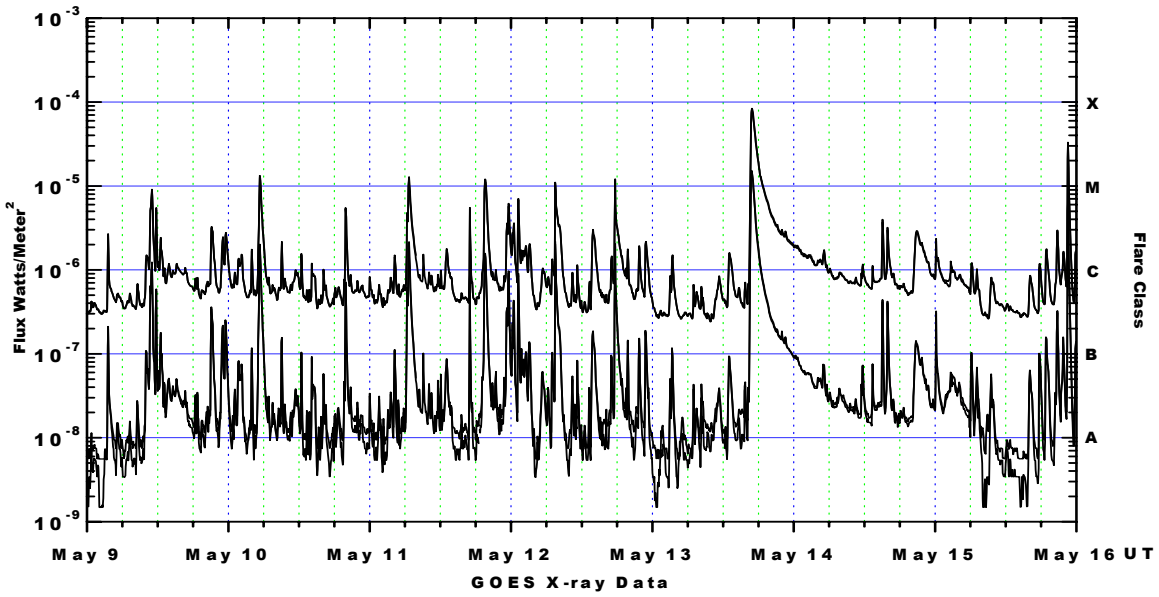
Protons plot contains the five-minute averaged integral proton flux (protons/cm^2 –sec –sr) as measured by GOES-11 (W114) for each of three energy thresholds: greater than 10, 50, and 100 MeV.

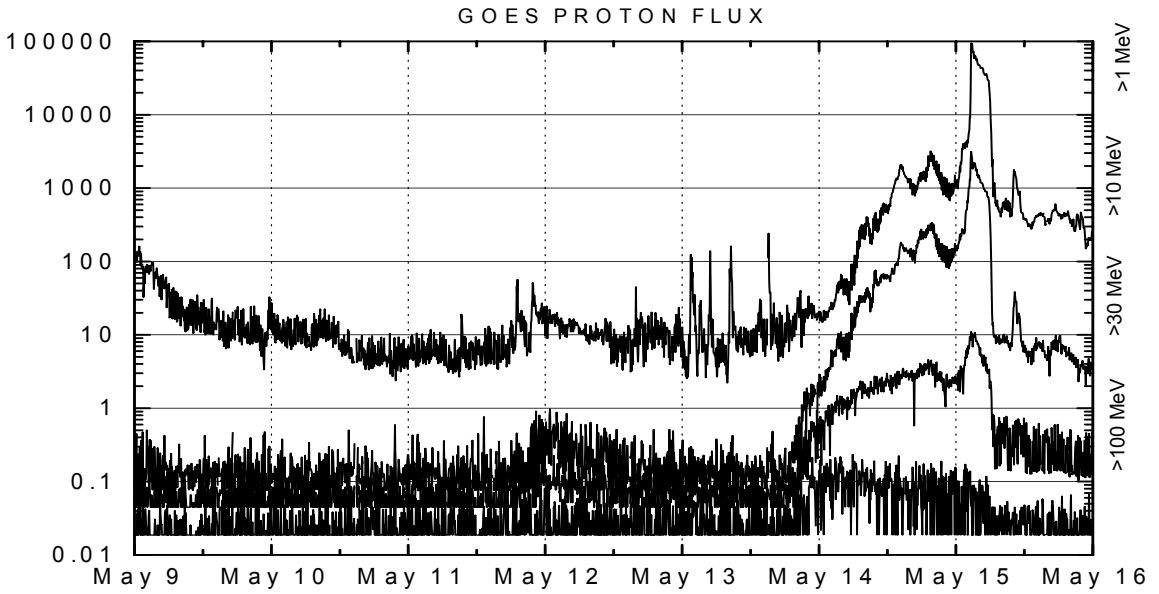
Electrons plot contains the five-minute averaged integral electron flux (electrons/cm^2 –sec –sr) with energies greater than 2 MeV at GOES-12 (W75).

Hp 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.

Kp 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 Hartland, UK. These data are made available through cooperation from the Geological Survey of Canada (GSC), British Geological Survey (BGS) and the US Geological Survey. These may differ from the final Kp 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 Kp are " global " parameters that are applicable to a first order approximation over large areas. H parallel 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/$m^{2)}$ as measured by GOES 12 (W75) and GOES 10 (W135) 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/cm^2 –sec-sr) as measured by GOES-11 (W114) for each of the energy thresholds: >1, >10, >30 and >100 MeV. P10 event threshold is 10 pfu (protons/cm^2-sec-sr) at greater than 10 MeV.