

**Space Weather Highlights**  
**11 April - 17 April 2011**

**SWPC PRF 1859**  
**19 April 2011**

Solar activity was at low to moderate levels. Low activity occurred during 11 - 14 April with C-class flares from Regions 1185 (N18, L=025, class/area Cso/100 on 05 April), 1190 (N13, L=338, class/area Eki/440 on 16 April), and 1193 (N17, L=266, class/area Eai/430 on 17 April). Activity increased to moderate levels on 15 April due to an M1/1f flare at 15/1712 UTC from Region 1190 associated with minor discrete radio emission. Region 1190 showed gradual spot growth during 12 - 15 April and displayed a beta-gamma magnetic configuration, then began to gradually decay on 16 April. Region 1193, which also contained a beta-gamma magnetic configuration, showed gradual spot growth during 13 - 17 April. An Earth-directed coronal mass ejection was observed early on 15 April, associated with a filament disappearance from the northeast quadrant late on 14 April. Estimated plane-of-sky velocity was for the CME was 390 km/s, based on an analysis of SOHO/LASCO coronagraph images. Activity decreased to low levels during 16 - 17 April with C-class flares from Regions 1185, 1190, and 1193.

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit was at normal to moderate levels during 11 - 13 April. Fluxes increased to moderate to high levels during 14 - 16 April, then decreased to normal to moderate levels during 16 - 17 April.

Geomagnetic activity was at quiet to active levels on 11 April. Activity increased to quiet to minor storm levels on 12 April with major storm periods observed at high latitudes. Activity decreased to quiet to active levels on 13 April with minor to major storm periods observed at high latitudes. Activity decreased to quiet to unsettled levels on 14 April. A further decrease to quiet levels at all latitudes occurred during 15 - 17 April. ACE solar wind observations indicated the activity during 11 - 13 April was associated with a coronal hole high-speed stream (CH HSS). The HSS source was an equatorward extension of the southern polar CH. The CH HSS commenced on 11 April following a negative- to positive-polarity solar sector boundary crossing. Velocities increased during 11 - 12 April, eventually reaching a peak of 674 km/s at 12/1940, then gradually decreased during the rest of the period. Interplanetary magnetic field (IMF) changes associated with the onset of the CH HSS included increased Bt (peak 17 nT at 11/2001 UTC) as well as increased Bz variability with intermittent periods of southward Bz (maximum deflection -9 nT at 12/0525 UTC). The CH HSS began to gradually subside on 13 April.

**Space Weather Outlook**  
**20 April - 16 May 2011**

Solar activity is expected to be low with C-class flares likely during the period. There will be a chance for moderate activity (isolated M-class flares) during the second half of the period due to the return of previously active regions.

No proton events are expected at geosynchronous orbit.

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 flux levels are expected during 22 - 23 April, 30 April - 03 May, and 11 - 13 May.

Geomagnetic field activity is expected to be at quiet to unsettled levels during 20 - 22 April due to weak coronal hole effects on 20 - 21 April and weak coronal mass ejection effects on 22 April (associated with the Earth-directed CME observed on 15 April). Activity is expected to decrease to quiet levels during 23 - 27 April. Field activity is expected to increase to quiet to active levels during 28 April - 01 May due to recurrent coronal hole effects. Activity is expected to decrease to quiet levels during 02 - 07 May. Activity is expected to increase to quiet to active levels during 08 - 11 May due to recurrent coronal hole effects. Quiet conditions are expected during 12 - 16 May.



### *Daily Solar Data*

Date	Radio Flux 10.7cm	Sun spot No.	Sunspot Area (10 <sup>-6</sup> hemi.)	X-ray Background Flux	Flares							
					X-ray			Optical				
					C	M	X	S	1	2	3	4
11 April	106	80	190	B3.0	3	0	0	5	0	0	0	0
12 April	110	114	340	B3.9	3	0	0	11	1	0	0	0
13 April	118	153	650	B5.5	8	0	0	14	1	0	0	0
14 April	119	131	660	B5.8	11	0	0	29	0	0	0	0
15 April	129	124	930	B6.2	9	1	0	20	1	0	0	0
16 April	119	97	910	B5.5	11	0	0	12	0	0	0	0
17 April	114	67	810	B4.1	2	0	0	1	0	0	0	0

### *Daily Particle Data*

Date	Proton Fluence (protons/cm <sup>2</sup> -day -sr)			Electron Fluence (electrons/cm <sup>2</sup> -day -sr)		
	>1 MeV	>10 MeV	>100 MeV	>0.6 MeV	>2MeV	>4 MeV
	11 April	4.9e+05	1.3e+04	3.2e+03		2.4e+07
12 April	9.4e+05	1.2e+04	2.7e+03		5.4e+06	
13 April	2.3e+05	1.3e+04	3.2e+03		2.6e+07	
14 April	2.0e+05	1.3e+04	3.2e+03		6.9e+07	
15 April	4.8e+05	1.3e+04	3.2e+03		8.1e+07	
16 April	9.1e+05	1.3e+04	3.3e+03		6.7e+07	
17 April	4.2e+05	1.3e+04	3.3e+03		2.6e+07	

### *Daily Geomagnetic Data*

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	11 April	5	2-0-0-1-2-2-2-2	7	1-0-2-3-3-2-2-1	9
12 April	14	2-2-4-4-3-3-1-2	39	1-2-6-6-6-5-2-2	23	2-2-5-4-5-4-2-3
13 April	10	3-3-4-2-2-1-1-1	27	3-4-6-5-4-2-1-2	14	4-3-4-3-2-3-2-1
14 April	3	1-2-2-0-0-0-1-2	5	2-3-2-1-0-0-1-1	7	1-2-2-1-1-3-2-3
15 April	3	0-2-0-1-1-1-1-1	2	0-1-0-0-1-1-2-1	6	2-2-0-1-2-2-2-1
16 April	2	0-1-1-1-0-1-1-1	1	0-1-0-1-0-0-0-0	4	0-1-0-1-1-1-1-1
17 April	2	0-1-0-1-1-1-1-0	3	1-1-0-2-2-1-0-0	5	0-1-1-1-2-2-2-2

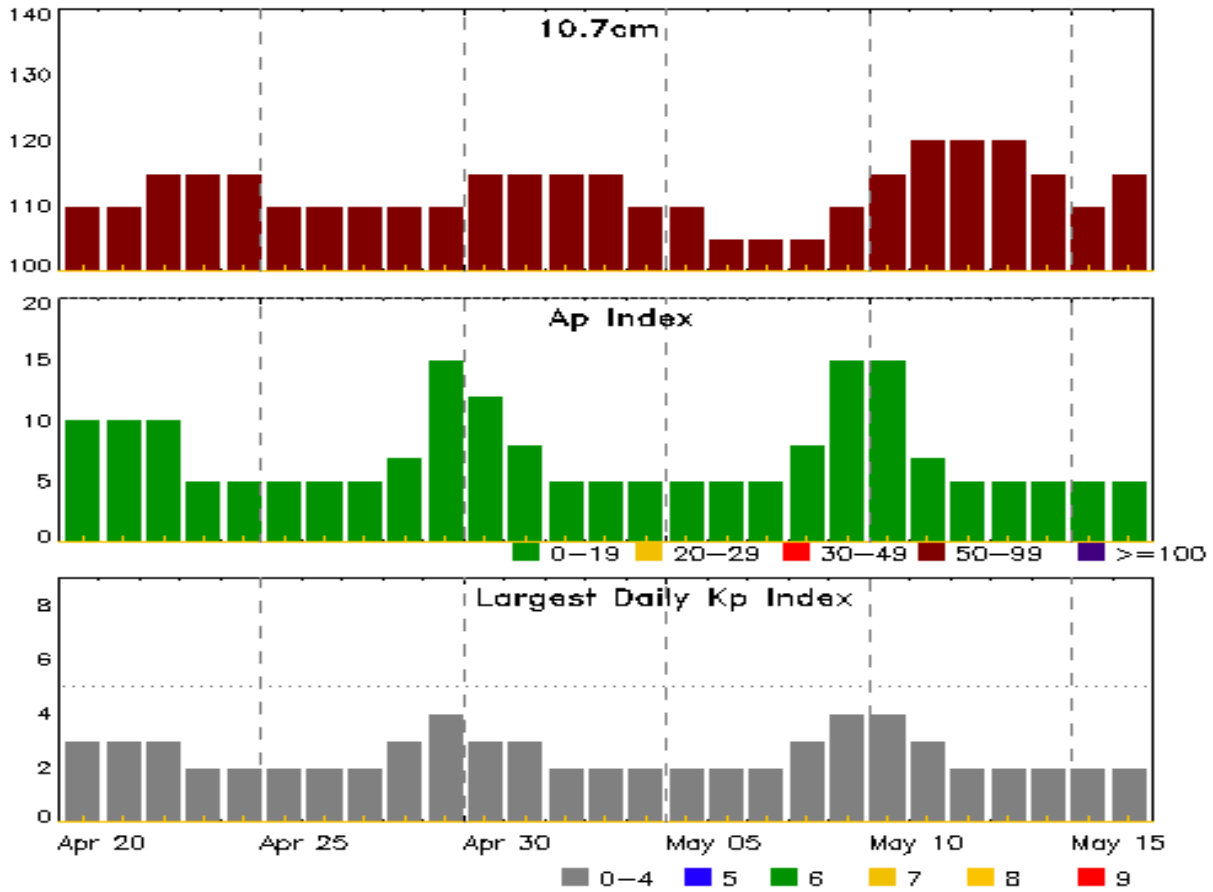


### *Alerts and Warnings Issued*

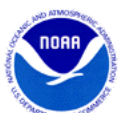
<b>Date &amp; Time of Issue UTC</b>	<b>Type of Alert or Warning</b>	<b>Date &amp; Time of Event UTC</b>
12 Apr 0629	WARNING: Geomagnetic K = 4	12/0630 - 1230
12 Apr 0635	ALERT: Geomagnetic K = 4	12/0634
12 Apr 1225	EXTENDED WARNING: Geomagnetic K = 4	12/0630 - 1600
12 Apr 1544	EXTENDED WARNING: Geomagnetic K = 4	12/0630 - 2359
12 Apr 1559	WARNING: Geomagnetic K = 5	12/1559 - 1800
13 Apr 0102	WARNING: Geomagnetic K = 4	13/0101 - 1600
13 Apr 0107	ALERT: Geomagnetic K = 4	13/0106
14 Apr 1205	ALERT: Electron 2MeV Integral Flux $\geq$ 1000pfu	14/1150
15 Apr 1121	CONTINUED ALERT: Electron 2MeV Integral Flux $\geq$ 1000pfu	14/1150
16 Apr 1146	CONTINUED ALERT: Electron 2MeV Integral Flux $\geq$ 1000pfu	14/1150



## Twenty-seven Day Outlook



Date	Radio Flux 10.7cm	Planetary A Index	Largest Kp Index	Date	Radio Flux 10.7cm	Planetary A Index	Largest Kp Index
20 Apr	110	10	3	04 May	110	5	2
21	110	10	3	05	110	5	2
22	115	10	3	06	105	5	2
23	115	5	2	07	105	5	2
24	115	5	2	08	105	8	3
25	110	5	2	09	110	15	4
26	110	5	2	10	115	15	4
27	110	5	2	11	120	7	3
28	110	7	3	12	120	5	2
29	110	15	4	13	120	5	2
30	115	12	3	14	115	5	2
01 May	115	8	3	15	110	5	2
02	115	5	2	16	115	5	2
03	115	5	2				



### *Energetic Events*

Date	Time			X-ray	Optical Information			Peak		Sweep Freq		
	Begin	Max	Half Max	Class	Integ Flux	Imp/ Brtns	Location Lat CMD	Rgn #	Radio Flux 245	Radio Flux 2695	Intensity II	Intensity IV
15 Apr	1702	1712	1728	M1.3	0.012	1F	N14W19	1190		64		

### *Flare List*

Date	Time			X-ray Class	Imp/ Brtns	Location Lat CMD	Rgn #
	Begin	Max	End				
11 Apr	0909	0921	0938	B9.2			
11 Apr	1249	1310	1326	B7.2			
11 Apr	1553	1602	1619	C1.2	SF	N12E31	1190
11 Apr	1652	1653	1711	B4.6	SF	N12E33	1190
11 Apr	2025	2030	2040	C1.8	SF	N12E29	1190
11 Apr	2211	2224	2241	B8.1	SF	N14E28	1190
11 Apr	2334	2344	0004	C2.5	SF	N12E25	1190
12 Apr	0212	0213	0215		SF	N20W11	1186
12 Apr	0304	0305	0308		SF	N12E27	1190
12 Apr	0340	0346	0352	C1.7	1F	N13E26	1190
12 Apr	0357	0400	0402		SF	N13E26	1190
12 Apr	0412	0414	0417		SF	N14E27	1190
12 Apr	0417	0417	0421		SF	N13E25	1190
12 Apr	0422	0427	0432		SF	N13E24	1190
12 Apr	0450	0450	0454		SF	N13E25	1190
12 Apr	0546	0607	0611	C3.1			1190
12 Apr	1221	1232	1238	C1.8			1191
12 Apr	1618	1620	1625		SF	N15W30	1185
12 Apr	1752	1758	1802	B9.7			1191
12 Apr	2245	2245	2259		SF	N15E82	1191
12 Apr	2317	2318	2336		SF	N16E80	1191
12 Apr	2345	0009	0037		SF	N14E76	1191
13 Apr	0321	0330	0336	C1.9	SF	N10E74	1191
13 Apr	0534	0534	0550		SF	N17E72	
13 Apr	0554	0607	0619		SF	N17E71	
13 Apr	0620	0628	0639	C2.2	1F	N17E71	
13 Apr	0709	0709	0711		SF	N13E08	1190
13 Apr	0743	0745	0759	C1.2	SF	N16E75	1191
13 Apr	0829	0832	0836	C1.0			1193
13 Apr	1037	1041	1045	C1.4			1185
13 Apr	1312	1343	1349	C2.5	SF	N15E74	



## *Flare List*

Date	Time			X-ray Class	Imp/ Brtns	Optical	
	Begin	Max	End			Location Lat CMD	Rgn #
13 Apr	1405	1409	1414		SF	N14E75	
13 Apr	1602	1607	1611	C1.1	SF	N13E05	1190
13 Apr	1653	1700	1706		SF	N13E05	1190
13 Apr	1904	1911	1915	C1.5			
13 Apr	2006	2009	2011	B9.1			1193
13 Apr	2118	2118	2123		SF	N15E74	1193
13 Apr	2204	2205	2211		SF	N15E74	1193
13 Apr	2252	2259	2315	B9.4	SF	N15E71	1193
13 Apr	2330	2332	2345		SF	N15E72	1193
13 Apr	2349	2351	2359		SF	N15E73	1193
14 Apr	0012	0013	0016		SF	N15E73	1193
14 Apr	0041	0048	0057	C1.5	SF	N11E01	1190
14 Apr	0131	0135	0138	C1.4	SF	N16E70	1193
14 Apr	0211	0211	0217		SF	N16E71	1193
14 Apr	0238	0239	0243		SF	N15E70	1193
14 Apr	0249	0258	0323	C2.0	SF	N15E70	1193
14 Apr	0325	0326	0329		SF	N22W35	1186
14 Apr	0354	0354	0409		SF	N15E70	1193
14 Apr	0459	0459	0504		SF	N15E69	1193
14 Apr	0506	0526	0552	C4.9	SF	N15E69	1193
14 Apr	0615	0618	0620	B8.5			1193
14 Apr	0648	U0700	A0728	C1.6	SF	N16W00	1190
14 Apr	B0738	U0739	A0756		SF	N12W07	1190
14 Apr	0938	0944	0949	C2.3			1190
14 Apr	1226	1229	1232	C1.6			1185
14 Apr	1343	1344	1346		SF	N13W07	1190
14 Apr	1425	1425	1452		SF	N13W07	1190
14 Apr	1453	1454	1501		SF	N15E67	1193
14 Apr	1457	1457	1502		SF	N12W07	1190
14 Apr	1521	1527	1534	C2.4	SF	N13W07	1190
14 Apr	1707	1710	1713	C1.1	SF	N16W05	1190
14 Apr	1757	1800	1807		SF	N15E66	1193
14 Apr	1812	1813	1818		SF	N15E61	1193
14 Apr	1837	1840	1843	B9.8	SF	N14W09	1190
14 Apr	1856	1859	1901	B8.2	SF	N22W42	1186
14 Apr	1948	1950	1952		SF	N16E65	1193
14 Apr	1957	2008	2012	C1.7	SF	N13W13	1190
14 Apr	2017	2020	2022	B9.3	SF	N13W12	1190



## *Flare List*

Date	Time			X-ray Class	Imp/ Brtns	Optical		Rgn #
	Begin	Max	End			Location Lat CMD		
14 Apr	2111	2118	2127	C1.1	SF	N13W12		1190
14 Apr	2250	2250	2257		SF	N14E61		1193
14 Apr	2355	0005	0014		SF	N15E61		1193
14 Apr	2358	2358	0013		SF	N13W16		1190
15 Apr	0020	0028	0040		SF	N15W14		1190
15 Apr	0243	0247	0252	B8.8	SF	N15W15		1190
15 Apr	0343	0355	0400	C1.8	SF	N11W17		1190
15 Apr	0357	0357	0401		SF	N15W16		1190
15 Apr	0437	0441	0444	C1.3	SF	N15W16		1190
15 Apr	0610	0612	0614		SF	N15W17		1190
15 Apr	0620	0628	0655		SF	N12W19		1190
15 Apr	0628	0629	0633		SF	N17E59		1193
15 Apr	0646	0648	0651		SF	N18E58		1193
15 Apr	0809	0811	0812	C1.1				
15 Apr	0910	0936	0949	C1.6				1190
15 Apr	1129	1136	1148	C1.9				1193
15 Apr	1347	1350	1354	C2.8	SF	N13W24		1190
15 Apr	1442	1449	1457	C2.0	SF	N13W23		1190
15 Apr	1530	1531	1602		SF	N15E52		1193
15 Apr	1608	1614	1619	C1.6	SF	N13W25		1190
15 Apr	1627	1629	1633		SF	N13W25		1190
15 Apr	1657	1658	1703		SF	N15E51		1193
15 Apr	1702	1712	1728	M1.3	1F	N14W19		1190
15 Apr	1845	1847	1849		SF	N13W25		1190
15 Apr	1850	1856	1901		SF	N13W24		1190
15 Apr	2014	2018	2052		SF	N13W26		1190
15 Apr	2143	2143	2147		SF	N13W28		1190
15 Apr	2233	2236	2239	C1.8	SF	N13W28		1190
16 Apr	0034	0057	0108	C5.2	SF	N12W27		1190
16 Apr	0154	0201	0207	C1.4	SF	N15E42		1193
16 Apr	0231	0312	0330	C2.1				1190
16 Apr	0234	0235	0237		SF	N17W78		1185
16 Apr	0237	0237	0243		SF	N12W28		1190
16 Apr	0252	0304	0308		SF	N12W28		1190
16 Apr	0310	0314	0323		SF	N12W29		1190
16 Apr	0324	0324	0331		SF	N12W32		1190
16 Apr	0401	0408	0417	C1.4				1185
16 Apr	0526	0538	0545	C3.5	SF	N12W33		1190





## *Flare List*

Date	Time			X-ray Class	Optical		Rgn #
	Begin	Max	End		Imp/ Brtns	Location Lat CMD	
16 Apr	0606	0615	0624	C1.7			
16 Apr	0900	0907	0912	C1.8			1185
16 Apr	1032	1036	1040	B9.4			1185
16 Apr	1344	1344	1347		SF	N29E11	
16 Apr	1351	1414	1429	C5.7	SF	N13W35	1190
16 Apr	1611	1614	1617	B6.8			
16 Apr	1634	1653	1708	C3.7			1185
16 Apr	1736	1737	1743		SF	N14W39	1190
16 Apr	1959	2017	2028	C1.0			1185
16 Apr	2052	2102	2126	B9.0	SF	N13E34	1193
16 Apr	2316	2325	2330	C1.7			1185
17 Apr	0031	0039	A0040		SF	N15W40	1190
17 Apr	0538	0541	0543	B7.1			1190
17 Apr	0802	0806	0811	B8.0			1185
17 Apr	1408	1415	1423	C1.4			1185
17 Apr	1529	1540	1601	B7.4			
17 Apr	1629	1649	1700	B7.2			
17 Apr	1900	1918	1933	C1.3			



### Region Summary

Date	Location		Sunspot Characteristics				Flares											
	Lat CMD	Lon	Helio 10 <sup>-6</sup> hemi.	Area	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical						
									C	M	X	S	1	2	3	4		
<b>Region 1185</b>																		
04 Apr	N23E62		35	50	3	Hsx	1	A										
05 Apr	N23E50		33	100	7	Cso	5	B										
06 Apr	N22E38		33	70	5	Cso	5	B										
07 Apr	N24E24		33	50	6	Cso	6	B										
08 Apr	N20E14		29	20	8	Cso	14	B					1					
09 Apr	N18E15		26	30	7	Cso	9	B					1					
10 Apr	N17W08		25	60	7	Dsi	15	B										
11 Apr	N17W21		26	60	7	Dri	17	B										
12 Apr	N16W34		25	40	9	Cso	10	B						1				
13 Apr	N16W48		26	30	4	Cao	10	B	1									
14 Apr	N16W65		30	20	1	Hrx	2	A	1									
15 Apr	N14W79		30	10	1	Axx	1	A										
16 Apr	N14W93		32	plage						5				1				
										7	0	0		4	0	0	0	0

Crossed West Limb.  
Absolute heliographic longitude: 25

<b>Region 1186</b>																		
06 Apr	N22E58		13	10	1	Axx	1	A										
07 Apr	N22E44		13	60	14	Cso	8	B										
08 Apr	N22E37		12	50	8	Dso	8	B										
09 Apr	N23E18		12	40	7	Cro	5	B										
10 Apr	N23E06		11	70	10	Dso	8	B										
11 Apr	N23W07		11	70	10	Dso	12	B										
12 Apr	N22W20		9	90	11	Csi	16	B					1					
13 Apr	N22W33		10	70	14	Csi	15	B										
14 Apr	N21W49		13	20	6	Hrx	6	A					2					
15 Apr	N21W65		16	30	1	Hrx	1	A										
16 Apr	N21W79		18	plage														
										0	0	0		3	0	0	0	0

Crossed West Limb.  
Absolute heliographic longitude: 11



### *Region Summary - continued*

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

#### *Region 1187*

07 Apr	S19E62	354	10		Axx	1	A										
08 Apr	S18E50	353	30	4	Cso	4	B										
09 Apr	S18E38	352	40	4	Cso	4	B										
10 Apr	S18E23	354	20	2	Bxo	3	B										
11 Apr	S19E11	353	20	4	Bxo	5	B										
12 Apr	S20W01	352	20	6	Bxo	5	B										
13 Apr	S22W15	352	10	3	Bxo	2	B										
14 Apr	S22W29	354	plage														
15 Apr	S22W43	355	plage														
16 Apr	S22W57	356	plage														
17 Apr	S22W71	356	plage														
									0	0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 352

#### *Region 1188*

08 Apr	S25W06	50	20	3	Cro	3	B										
09 Apr	S24W20	51	10	3	Bxo	2	B										
10 Apr	S24W34	52	plage														
11 Apr	S24W48	53	plage														
12 Apr	S24W62	53	plage														
13 Apr	S24W76	54	plage														
14 Apr	S24W90	55	plage														
									0	0	0	0	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 50

#### *Region 1189*

08 Apr	N23E11	33	40	7	Dso	6	B										
09 Apr	N23W02	32	30	5	Cso	3	B										
10 Apr	N23W16	34	plage														
11 Apr	N23W30	35	plage														
12 Apr	N23W44	35	plage														
13 Apr	N21W59	36	10	2	Axx	2	A										
14 Apr	N21W73	38	plage														
15 Apr	N21W87	39	plage														
									0	0	0	0	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 32



**Region Summary - continued**

Date	Location		Sunspot Characteristics					Flares															
	Lat CMD	Lon	Helio 10 <sup>-6</sup> hemi.	Area	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical											
									C	M	X	S	1	2	3	4							
<b>Region 1190</b>																							
11 Apr	N12E25	339	40	3	Cri	6	B	3				5											
12 Apr	N15E12	339	110	9	Dai	20	BG	2				6	1										
13 Apr	N12W00	338	150	11	Eac	34	BG	1				3											
14 Apr	N13W14	338	240	12	Eki	37	B	7				13											
15 Apr	N13W26	338	430	11	Ehc	32	B	7	1			16	1										
16 Apr	N14W40	338	440	13	Eki	24	BG	4				8											
17 Apr	N14W53	337	310	8	Dko	11	BG					1											
								24	1	0	52	2	0	0	0	0							

Still on Disk.

Absolute heliographic longitude: 338

<b>Region 1191</b>																							
12 Apr	N09E71	280	60	2	Hsx	1	A	1				3											
13 Apr	N08E56	281	140	2	Hsx	1	A	2				1											
14 Apr	N08E45	278	100	9	Cao	3	B																
15 Apr	N08E31	280	100	7	Hax	2	A																
16 Apr	N08E15	283	90	2	Hax	1	A																
17 Apr	N08E07	278	70	9	Cso	5	B																
								3	0	0	4	0	0	0	0	0							

Still on Disk.

Absolute heliographic longitude: 278

<b>Region 1192</b>																							
12 Apr	N11W01	352	20	3	Bxo	2	B																
13 Apr	N10W15	352	20	4	Bxo	3	B																
14 Apr	N10W28	352	10	3	Bxo	2	B																
15 Apr	N10W44	355	10		Axx	1	A																
16 Apr	N10W59	357	10	1	Axx	1	A																
17 Apr	N10W73	358	plage																				
								0	0	0	0	0	0	0	0	0							

Still on Disk.

Absolute heliographic longitude: 352



### *Region Summary - continued*

Date	Location		Sunspot Characteristics				Flares										
	Lat CMD	Lon	Helio 10 <sup>-6</sup> hemi.	Area	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical					
									C	M	X	S	1	2	3	4	
<b>Region 1193</b>																	
13 Apr	N17E71	266	220	9	Dao	6	B	1			5						
14 Apr	N16E58	266	260	10	Dao	9	B	3			14						
15 Apr	N17E44	267	340	12	Eko	14	B	1			4						
16 Apr	N16E32	265	360	13	Eki	19	BG	1			2						
17 Apr	N16E19	266	430	12	Eai	21	BG										
								6	0	0	25	0	0	0	0	0	

Still on Disk.

Absolute heliographic longitude: 266

<b>Region 1194</b>																	
14 Apr	S32W42	7	10	3	Bxo	2	B										
15 Apr	S31W56	7	10	2	Axx	3	A										
16 Apr	S31W70	8	10	1	Axx	2	A										
17 Apr	S31W84	9	plage														
								0	0	0	0	0	0	0	0	0	

Still on Disk.

Absolute heliographic longitude: 7

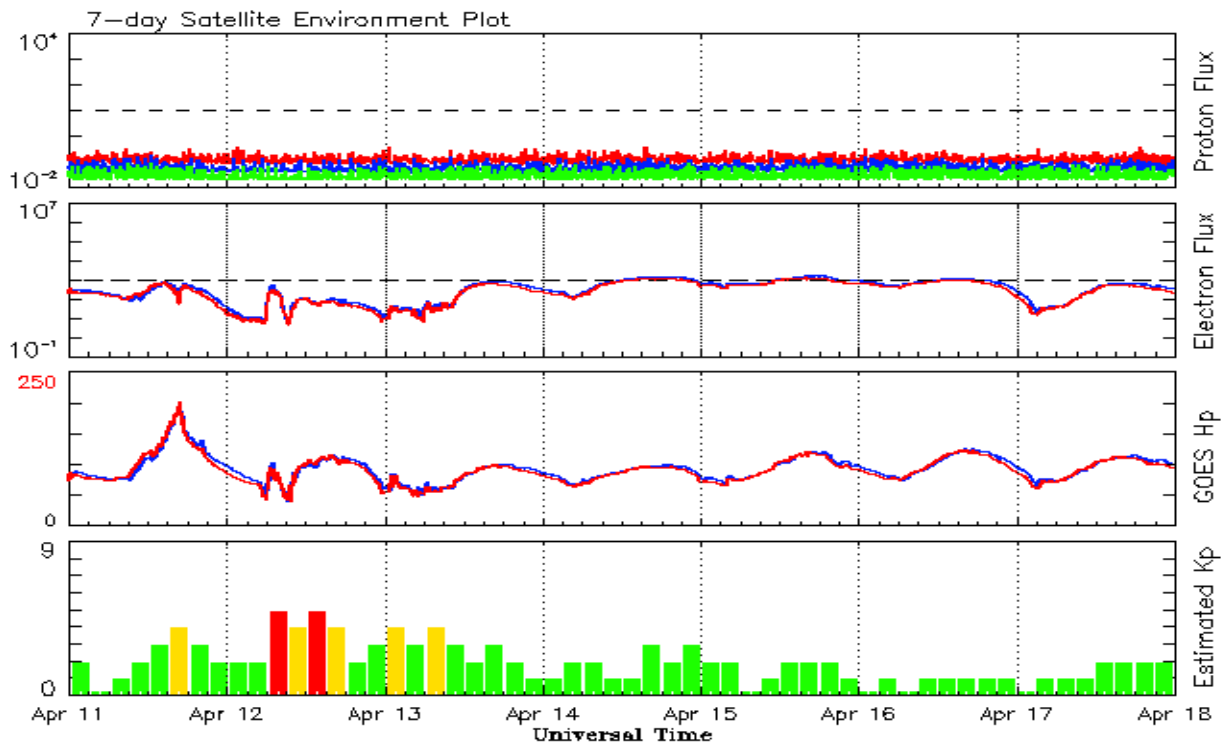


**Recent Solar Indices (preliminary)**  
**Observed monthly mean values**

Month	Sunspot Numbers					Radio Flux		Geomagnetic	
	Observed values		Ratio	Smooth values		Penticton	Smooth	Planetary	Smooth
	SEC	RI	RI/SEC	SEC	RI	10.7 cm	Value	Ap	Value
<b>2009</b>									
April	1.2	0.8	1.00	3.7	2.2	69.7	69.3	4	4.3
May	3.9	2.9	0.74	3.8	2.3	70.5	69.7	4	4.1
June	6.6	2.9	0.39	4.4	2.7	68.6	70.2	4	4.0
July	5.0	3.2	0.70	5.8	3.6	68.2	71.0	4	3.9
August	0.3	0.0	0.00	7.7	4.8	67.4	72.1	5	3.8
September	6.6	4.3	0.64	9.9	6.2	70.5	73.3	4	3.8
October	7.0	4.8	0.66	11.3	7.1	72.3	74.1	3	4.1
November	7.7	4.1	0.55	12.4	7.6	73.6	74.5	3	4.5
December	15.7	10.8	0.68	13.6	8.3	76.8	74.9	2	4.8
<b>2010</b>									
January	21.3	13.2	0.62	14.8	9.3	81.1	75.5	3	5.0
February	31.0	18.8	0.60	16.7	10.6	84.7	76.5	5	5.1
March	24.7	15.4	0.62	19.1	12.3	83.3	77.5	5	5.3
April	11.2	8.0	0.71	21.4	14.0	75.9	78.3	10	5.5
May	19.9	8.7	0.44	23.8	15.5	73.8	79.0	8	5.7
June	17.9	13.6	0.75	25.2	16.4	72.6	79.7	7	5.8
July	23.1	16.1	0.70	25.9	16.7	79.9	80.1	5	6.0
August	28.2	19.6	0.70	27.3	17.4	79.7	80.7	8	6.2
September	35.6	25.2	0.71	30.6	19.6	81.1	82.4	5	6.3
October	35.0	23.5	0.67			81.6		6	
November	36.1	21.5	0.60			82.5		5	
December	22.0	14.4	0.66			84.3		4	
<b>2011</b>									
January	32.1	19.0	0.59			83.7		6	
February	53.2	29.4	0.55			94.5		6	
March	81.0	56.2	0.69			115.3		7	

**Note:** Values are final except for the most recent 6 months which are considered preliminary. Cycle 23 started in May 1996 with an RI=8.0. Cycle 23 maximum was April 2000 with an RI=120.8. Solar minimum for Cycle 23 was December 2008.





*Weekly Geosynchronous Satellite Environment Summary  
Week Beginning 11 April 2011*

The proton flux plot contains the five-minute averaged integral proton flux (protons/cm<sup>2</sup>-sec -sr) as measured by the SWPC Primary GOES satellite, near West 75, for each of three energy thresholds: greater than 10, 50, and 100 MeV.

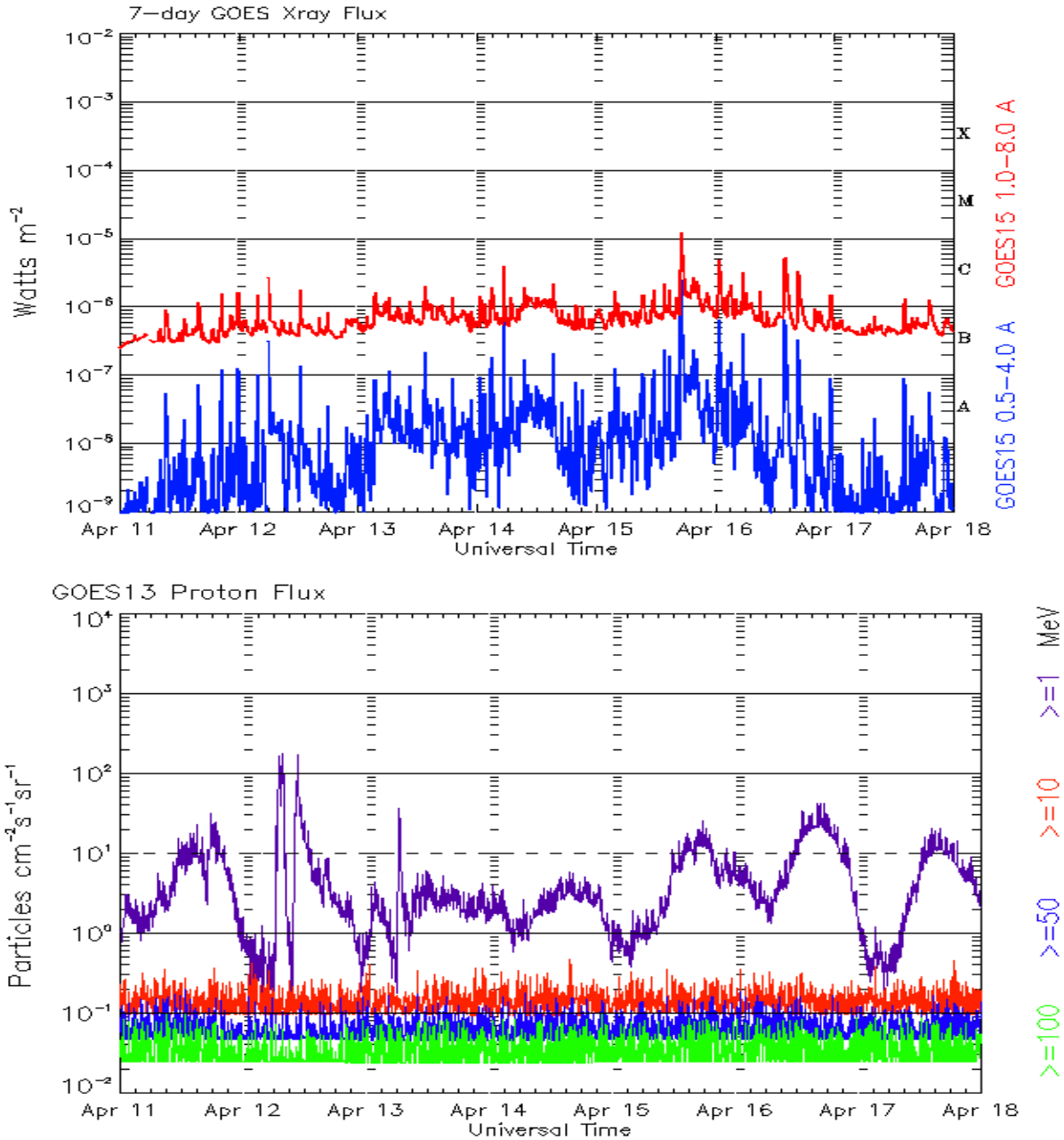
The electron flux plot contains the five-minute averaged integral electron flux (electrons/cm<sup>2</sup>-sec -sr) with energies greater than 2 MeV by the SWPC Primary GOES satellite.

The Hp plot contains the five minute averaged Hp magnetic field component in nanoteslas (nT) as by the SWPC Primary GOES satellite. The Hp 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 SWPC 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  
Week Beginning 11 April 2011*

The x-ray plots contains five-minute averages x-ray flux (Watt/m<sup>2</sup>) as measure by the SWPC primary GOES X-ray satellite, usually at West 105 longitude, in two wavelength bands, 0.05 - 0.4 and 0.1 - 0.8 nm. The letters A, B, C, M and X refer to x-ray event levels for the 0.1 - 0.8 nm band.

The proton plot contains the five-minute averaged intergral flux units (pfu = protons/cm<sup>2</sup>-sec -sr) as measured by the primary SWPC GOES Proton satellite for each of the energy thresholds: >1, >10, >30, and >100 MeV. The P10 event threshold is 10 pfu at greater than 10 MeV.





## ***Preliminary Report and Forecast of Solar Geophysical Data (The Weekly)***

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**Notice:** The 27-day Outlook, Satellite Environment, X-ray and Proton plots have been redesigned. Comments and suggestions are welcome SWPC.Webmaster@noaa.gov

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