

Solar activity was moderate because one M1/1N flare occurred on 27 April at 0821Z. Region 1466 (N12, L=40, class/area=Dso/190) produced this, six C-class x-ray flares, and 13 optical flares throughout the week. The remainder of the flare activity was confined to C-class events. Region 1465 (S18, L=55, class/area=Dki/400) the most prolific and the most magnetically complex of the 14 regions on the disk, exhibiting beta-gamma-delta characteristics on 24 and 27 April. The largest region was Region 1460 (N16, L=109, class/area=Dkc/490) which reached its maximum coverage on 21 April. Solar activity was not confined to flares, several CMEs were observed during the period.

On 23 April, A C2/Sf flare was observed from Region 1461 (N10, L=75, plage) at 1747Z, accompanied by a Type II radio burst (1605 km/s). A Halo-CME was subsequently observed in SOHO/LASCO coronagraph imagery at 1848Z (C2) and 1906Z (C3). Plane of sky measurements suggested a speed in the 400 to 500 km/s range. The next day, a non-earth-directed CME emerged from the east limb after a C3 flare at 0745Z from Region 1467 (N12, L=331, class/area=Dso/50). A Type II radio sweep (estimated shock velocity of 1029 km/s) announced the departure of this CME. CME production continued on Wednesday when Region 1460 produced a C1 x-ray flare/CME at 25/2242Z and Region 1465 followed with a C1 x-ray flare/CME at 26/1723Z. Several non-earth-directed CMEs were observed emerging from the SW limb on 26-27 April. They all originated from old Region 1462 (S25, L=139, class/area=Dho/300) which rotated off the visible disk on the 24th. A 16 degree filament eruption was observed in SDO/AIA 304 imagery at 28/1045Z. During the eruption, the SE to NW oriented filament was centered near S32W33. LASCO/C2 imagery captured a subsequent slow-moving, non-earth-directed CME emerging from the SW limb at 28/1224Z. GONG H-alpha and SDO/AIA 304 imagery depicted a filament eruption along a six degree long channel centered near N06E36, just to the SE of Region 1467. This eruption occurred between 28/1800 - 2000Z with several CMEs observed during the period.

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit reached high levels on 25 April and remained at mostly high levels through the rest of the period.

Geomagnetic field activity ranged from quiet to major storm levels during the week. On 23/0200Z, data from the ACE spacecraft indicated the arrival of a CME from 19 April. Solar wind speed increased from 350 to 400 km/s and the total IMF approached 18 nT. The Boulder magnetometer recorded a 31 nT sudden impulse at 23/0325Z. Active to minor storm levels followed. IMF Bz at the ACE spacecraft lurked in the -10 to -15 nt range for 12 hours beginning around 23/16Z. By 24 April, activity reached major storm levels at mid latitudes during the 00-03Z period as effects from the CME were compounded by the arrival of a coronal hole high speed stream (CH HSS) around 0200Z. On the 25th, activity at high latitudes reached severe storm levels during the 06-09Z synoptic period. The high speed stream peaked near 777 km/s on the 25th around 19Z then began a steady decline. Geomagnetic field activity subsided to



unsettled levels on 27 April and quiet levels on 28-29 April. Late on the 27th, a slight bump in the wind speed at ACE suggested the arrival of the remnants of the CME from 23 April, however the geomagnetic field response was muted.

**Space Weather Outlook**  
**30 April - 26 May 2012**

Solar activity is expected to be low with a chance for moderate events through the forecast period.

No proton events are expected at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit is expected to be at high levels 30 April, 11-14 May and 23-26 May.

Geomagnetic field activity is expected to be quiet with the exception of active periods on 9-11 May and 20-23 May associated with recurrent coronal hole high speed streams.



### *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
23 April	142	158	1580	B5.5	3	0	0	4	0	0	0	0
24 April	134	169	1340	B5.1	6	0	0	5	0	0	0	0
25 April	127	137	920	B4.7	3	0	0	3	0	0	0	0
26 April	119	117	540	B4.1	2	0	0	0	0	0	0	0
27 April	118	99	480	B5.8	7	1	0	8	1	0	0	0
28 April	121	118	570	B5.2	6	0	0	15	0	0	0	0
29 April	116	114	660	B3.7	5	0	0	6	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
	23 April	3.2e+05	1.2e+04	2.9e+03		9.8e+05
24 April	4.1e+05	1.2e+04	2.7e+03		2.6e+06	
25 April	7.0e+05	1.1e+04	2.7e+03		2.1e+08	
26 April	2.1e+05	1.1e+04	2.7e+03		1.4e+08	
27 April	4.7e+05	1.2e+04	3.2e+03		3.2e+08	
28 April	2.5e+05	1.2e+04	2.9e+03		3.7e+08	
29 April	1.8e+05	1.2e+04	3.0e+03		2.6e+08	

### *Daily Geomagnetic Data*

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	23 April	21	1-3-3-2-3-3-3-6	37	2-5-5-1-3-5-6-5	23
24 April	30	6-4-5-2-2-2-3-5	28	4-4-6-2-4-3-3-4	35	6-5-5-2-2-2-4-5
25 April	18	3-3-4-3-3-3-4-3	49	4-4-7-5-4-4-6-3	21	4-3-4-3-2-4-4-4
26 April	17	5-5-2-2-2-2-2-2	19	5-5-3-3-2-2-2-1	17	5-5-2-1-2-1-2-2
27 April	7	3-2-2-1-2-1-2-2	8	2-2-2-3-2-1-2-2	8	3-2-2-1-1-1-2-3
28 April	5	1-0-1-2-2-1-2-2	10	1-1-1-4-3-3-2-1	5	1-1-1-2-1-2-1-2
29 April	5	2-3-1-1-1-1-2-0	4	2-2-1-2-2-0-0-0	5	2-2-1-1-1-1-1-0



### *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>
23 Apr 0244	WARNING: Geomagnetic Sudden Impulse expected	23/0314 - 0344
23 Apr 0327	WARNING: Geomagnetic K = 4	23/0327 - 0800
23 Apr 0335	SUMMARY: Geomagnetic Sudden Impulse	23/0325
23 Apr 0552	ALERT: Geomagnetic K = 4	23/0548
23 Apr 0756	EXTENDED WARNING: Geomagnetic K = 4	23/0327 - 1200
23 Apr 1558	WARNING: Geomagnetic K = 4	23/1610 - 2100
23 Apr 1722	EXTENDED WARNING: Geomagnetic K = 4	23/1610 - 24/0300
23 Apr 1725	WARNING: Geomagnetic K = 5	23/1725 - 2359
23 Apr 1803	ALERT: Geomagnetic K = 4	23/1759
23 Apr 1817	ALERT: Type II Radio Emission	23/1742
23 Apr 1937	ALERT: Geomagnetic K = 5	23/1937
23 Apr 2221	WARNING: Geomagnetic K = 6	23/2230 - 24/0600
23 Apr 2221	EXTENDED WARNING: Geomagnetic K = 5	23/1725 - 24/0600
23 Apr 2221	EXTENDED WARNING: Geomagnetic K = 4	23/1610 - 24/0600
24 Apr 0047	ALERT: Geomagnetic K = 6	24/0046
24 Apr 0204	WARNING: Geomagnetic K >= 7	24/0205 - 0600
24 Apr 0547	EXTENDED WARNING: Geomagnetic K = 5	23/1725 - 24/1200
24 Apr 0547	EXTENDED WARNING: Geomagnetic K = 4	23/1610 - 24/1200
24 Apr 0635	WARNING: Geomagnetic K = 6	24/0650 - 0900
24 Apr 0842	ALERT: Type II Radio Emission	24/0748
24 Apr 1157	EXTENDED WARNING: Geomagnetic K = 4	23/1610 - 24/2100
24 Apr 1400	WATCH: Geomagnetic A >= 20	26/
24 Apr 2040	EXTENDED WARNING: Geomagnetic K = 4	23/1610 - 25/0600
24 Apr 2351	WARNING: Geomagnetic K = 5	24/2351 - 25/0600
24 Apr 2356	ALERT: Geomagnetic K = 5	24/2356
25 Apr 0234	ALERT: Electron 2MeV Integral Flux >= 1000pfu	25/0220
25 Apr 0547	EXTENDED WARNING: Geomagnetic K = 4	23/1610 - 25/1200
25 Apr 0547	EXTENDED WARNING: Geomagnetic K = 5	24/2351 - 25/1200
25 Apr 1139	CONTINUED ALERT: Electron 2MeV Integral Flux >= 1000pfu	25/0220

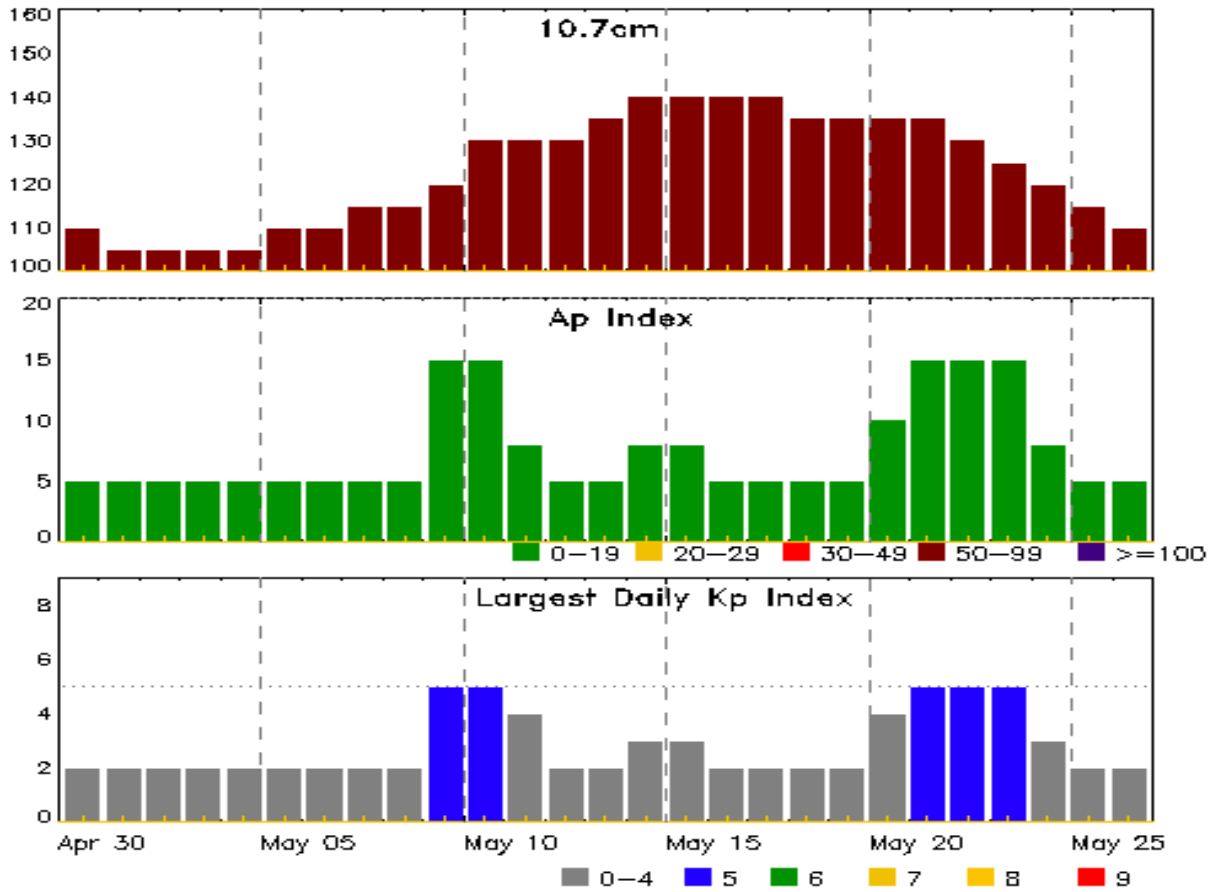


### *Alerts and Warnings Issued*

<b>Date &amp; Time of Issue UTC</b>	<b>Type of Alert or Warning</b>	<b>Date &amp; Time of Event UTC</b>
25 Apr 1151	EXTENDED WARNING: Geomagnetic K = 4	23/1610 - 25/1900
25 Apr 1813	EXTENDED WARNING: Geomagnetic K = 4	23/1610 - 26/1300
25 Apr 1917	WARNING: Geomagnetic K = 5	25/1915 - 26/0100
26 Apr 0238	WARNING: Geomagnetic K = 5	26/0237 - 1300
26 Apr 0245	ALERT: Geomagnetic K = 5	26/0240
26 Apr 0322	WARNING: Geomagnetic K = 6	26/0322 - 1200
26 Apr 0729	CONTINUED ALERT: Electron 2MeV Integral Flux $\geq$ 1000pfu	25/0220
26 Apr 1258	EXTENDED WARNING: Geomagnetic K = 4	23/1610 - 26/1900
26 Apr 1658	ALERT: Type II Radio Emission	26/1558
27 Apr 0459	CONTINUED ALERT: Electron 2MeV Integral Flux $\geq$ 1000pfu	25/0220
28 Apr 0459	CONTINUED ALERT: Electron 2MeV Integral Flux $\geq$ 1000pfu	25/0220
29 Apr 0459	CONTINUED ALERT: Electron 2MeV Integral Flux $\geq$ 1000pfu	25/0220



## 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
30 Apr	110	5	2	14 May	140	8	3
01 May	105	5	2	15	140	8	3
02	105	5	2	16	140	5	2
03	105	5	2	17	140	5	2
04	105	5	2	18	135	5	2
05	110	5	2	19	135	5	2
06	110	5	2	20	135	10	4
07	115	5	2	21	135	15	5
08	115	5	2	22	130	15	5
09	120	15	5	23	125	15	5
10	130	15	5	24	120	8	3
11	130	8	4	25	115	5	2
12	130	5	2	26	110	5	2
13	135	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
27 Apr	0815	0824	0829	M1.0	0.005	1N	N11W30	1466				

### *Flare List*

Date	Time			X-ray Class	Optical		
	Begin	Max	End		Imp/ Brtns	Location Lat CMD	Rgn #
23 Apr	0158	0201	0203	C2.0			1465
23 Apr	0555	0559	0603	B7.5			
23 Apr	0718	0722	0726	B7.9			1465
23 Apr	1209	1213	1215	C1.0			1461
23 Apr	1351	1403	1410		SF	N14W15	1461
23 Apr	1511	1511	1515		SF	N16W46	1460
23 Apr	1537	1541	1545	B8.9	SF	S14W34	1459
23 Apr	1738	1751	1805	C2.0	SF	N14W17	1461
24 Apr	0232	0237	0242	B9.5			
24 Apr	0426	0435	0444	C1.1			1469
24 Apr	0738	0745	0800	C3.7			1467
24 Apr	1139	1151	1202	C1.1			1462
24 Apr	1306	1310	1313	C1.1	SF	S18E80	1469
24 Apr	1410	1412	1416		SF	S22E75	
24 Apr	1440	1441	1446		SF	S22E75	
24 Apr	1630	1631	1635	C2.6	SF	S21E75	1469
24 Apr	2048	2053	2058	C1.2			
24 Apr	2250	2252	2254		SF	S23E74	1469
25 Apr	0118	0123	0127		SF	S20E70	1469
25 Apr	0156	0224	0231	C1.3			1459
25 Apr	0648	0653	0656	B9.1			1460
25 Apr	0845	0857	0900	B9.5	SF	N14W72	1460
25 Apr	1207	1215	1219	C3.7	SF	N15W73	1460
25 Apr	2236	2242	2250	C1.3			1460
26 Apr	1715	1723	1730	C1.2			1465
26 Apr	2356	0011	0031	C1.8	SF	N12W25	1466
27 Apr	0159	0202	0205	C1.0	SF	S19E44	1469
27 Apr	0302	0307	0318	C1.1			1459
27 Apr	0454	0501	0509	B9.5	SF	N10W28	1466
27 Apr	0815	0821	0846	M1.0	1N	N11W30	1466



## *Flare List*

Date	Time			Optical			Rgn #
	Begin	Max	End	X-ray Class	Imp/Brtns	Location Lat CMD	
27 Apr	1040	1040	1049		SF	S16W89	1459
27 Apr	1049	1101	1124	C2.4	SF	S18W46	1465
27 Apr	1318	1322	1327	C2.0	SF	N12E38	1467
27 Apr	2043	2043	2049		SF	N12W36	1466
27 Apr	2101	2105	2109	C1.6			1459
27 Apr	2155	2157	2202		SF	S17W52	1465
27 Apr	2300	2303	2306	C1.5			1470
27 Apr	2335	2339	2343	C2.2			
28 Apr	0038	0048	0053	C1.5			1459
28 Apr	0057	0059	0102		SF	N10E33	1467
28 Apr	0148	0154	0200	C1.4			1461
28 Apr	0854	0901	0904	C1.7	SF	S20E26	1469
28 Apr	1212	1215	1218	B7.3	SF	N11W42	1466
28 Apr	1345	1414	1434	C1.1			1466
28 Apr	1351	1353	1357		SF	S18E69	1470
28 Apr	1413	1422	1434		SF	N13W46	1466
28 Apr	1448	1449	1452		SF	N14W46	1466
28 Apr	1531	1537	1542		SF	N14W47	1466
28 Apr	1749	1750	1757		SF	N12W49	1466
28 Apr	1810	1811	1813		SF	N12W49	1466
28 Apr	1922	1923	1927		SF	N12W49	1466
28 Apr	1945	1954	1958		SF	S25E17	1469
28 Apr	1945	1946	2000		SF	N12W50	1466
28 Apr	2010	2013	2016	C1.1			1467
28 Apr	2125	2126	2130		SF	N12W51	1466
28 Apr	2148	2214	2224	C1.1	SF	N10E21	1467
28 Apr	2344	2344	2348		SF	S23E76	1471
29 Apr	0052	0055	0057	C1.7	SN	N12W53	1466
29 Apr	0341	0341	0344		SF	S20E70	1471
29 Apr	0549	0552	0554	B9.4	SF	S18W70	1465
29 Apr	0801	0801	0808		SF	S28E52	
29 Apr	1358	1408	1415	C1.0			1471
29 Apr	1427	1431	1439	C1.1	SF	S19E06	1469
29 Apr	1509	1517	1524	C1.1			1465
29 Apr	1629	1629	1635	C1.1	SF	S16W78	1465
29 Apr	1654	1657	1700	B8.9			





## 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

### Region 1457

13 Apr	N22E41	145	10	7	Bxo	4	B										
14 Apr	N21E28	145	30	4	Cro	4	B										
15 Apr	N21E14	147	10	2	Axx	2	A										
16 Apr	N20E03	144	10	2	Axx	1	A										
17 Apr	N20W11	146	plage														
18 Apr	N20W25	146	plage														
19 Apr	N20W39	147	plage														
20 Apr	N20W53	148	plage														
21 Apr	N20W67	149	plage														
22 Apr	N20W81	150	plage														
										0	0	0	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 144

### Region 1458

14 Apr	N07E70	104	10	5	Bxo	2	B										
15 Apr	N06E55	106	10	8	Bxo	2	B										
16 Apr	N06E41	106	10	9	Bxo	2	B										
17 Apr	N06E26	109	plage														
18 Apr	N06E11	110	plage														
19 Apr	N06W04	112	plage														
20 Apr	N06W19	114	plage														
21 Apr	N06W34	116	plage														
22 Apr	N06W49	118	plage														
23 Apr	N06W64	119	plage														
24 Apr	N06W79	121	plage														
										0	0	0	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 112



### *Region Summary - continued*

Date	Location		Sunspot Characteristics				Flares											
	Lat CMD	Helio Lon	Area 10 <sup>6</sup> hemi.	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical							
								C	M	X	S	1	2	3	4			
<b>Region 1459</b>																		
14 Apr	S15E79	95	30	1	Hrx	1	A											
15 Apr	S16E64	96	80	8	Dai	3	B						2					
16 Apr	S15E56	91	260	18	Fhi	12	B						1					
17 Apr	S15E40	94	150	9	Dao	11	B						1					
18 Apr	S16E28	93	260	11	Ekc	20	B						2					
19 Apr	S15E12	95	180	10	Dai	27	B											
20 Apr	S16E01	94	400	10	Dai	40	B						2					
21 Apr	S15W13	95	450	11	Eac	39	B	1					1					
22 Apr	S15W25	93	430	9	Dki	24	B	2					3					
23 Apr	S14W40	94	440	11	Eki	39	B						1					
24 Apr	S16W52	94	330	12	Eki	25	B											
25 Apr	S16W65	94	220	11	Eai	20	B	1										
26 Apr	S16W78	93	70	9	Dsi	10	B											
27 Apr	S19W88	91	30	4	Cao	4	B	2					1					
								6	0	0	14	0	0	0	0			

Crossed West Limb.

Absolute heliographic longitude: 94

### **Region 1460**

16 Apr	N15E40	107	20	2	Cro	5												
17 Apr	N16E26	108	50	4	Dso	6	B											
18 Apr	N16E12	108	170	7	Dsi	13	B											
19 Apr	N16W01	108	180	8	Dsi	14	B	1					2					
20 Apr	N15W15	109	450	9	Dkc	19	B											
21 Apr	N16W27	109	490	10	Dkc	21	B	1					2					
22 Apr	N16W40	108	300	10	Dko	13	B	1					2					
23 Apr	N16W54	108	320	10	Dko	14	B						1					
24 Apr	N16W65	107	180	10	Dso	10	B											
25 Apr	N15W81	110	150	6	Cso	6	B	2					2					
26 Apr	N15W93	108	60	1	Cso	1	B											
								5	0	0	9	0	0	0	0			

Crossed West Limb.

Absolute heliographic longitude: 108



**Region Summary - continued**

Date	Location		Sunspot Characteristics					Flares															
	Lat	CMD	Helio Lon	Area 10 <sup>6</sup> hemi.	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical											
									C	M	X	S	1	2	3	4							
<b>Region 1461</b>																							
16 Apr	N13E80		68	plage							1												
17 Apr	N13E66		68	40	1	Hsx	1	A	1														
18 Apr	N13E50		70	90	2	Hsx	1	A															
19 Apr	N14E37		70	30	2	Cso	2	B															
20 Apr	N12E24		70	10	1	Bxo	2	B															
21 Apr	N12E08		74	10	2	Bxo	2	B					1										
22 Apr	N12W06		75	plage					1														
23 Apr	N10W19		75	plage					2				2										
24 Apr	N10W33		75	plage																			
25 Apr	N10W47		76	plage																			
26 Apr	N10W61		77	plage																			
27 Apr	N10W75		78	plage																			
28 Apr	N10W89		78	plage					1														
									5	1	0	3	0	0	0	0	0	0	0	0	0	0	

Crossed West Limb.  
 Absolute heliographic longitude: 75

<b>Region 1462</b>																								
17 Apr	S23W07		9	30	4	Cao	7	B																
18 Apr	S24W18		139	30	6	Cao	7	B																
19 Apr	S24W31		138	50	8	Dso	8	B					1											
20 Apr	S25W46		141	410	9	Dho	14	B	1				1											
21 Apr	S24W59		141	400	9	Dho	9	B	1				2											
22 Apr	S24W72		140	400	9	Dho	4	B					1											
23 Apr	S25W85		140	300	9	Dho	4	B																
24 Apr	S25W95		139	300	9	Dho	4	B	1															
									3	0	0	5	0	0	0	0	0	0	0	0	0	0		

Crossed West Limb.  
 Absolute heliographic longitude: 9



### *Region Summary - continued*

Date	Location		Sunspot Characteristics				Flares										
	Lat CMD	Lon	Area 10 <sup>6</sup> hemi.	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical						
								C	M	X	S	1	2	3	4		
<b>Region 1464</b>																	
19 Apr	N23E01	107	10	3	Bxo	2	B										
20 Apr	N23W13	108	10	3	Bxo	2	B										
21 Apr	N23W27	109	plage														
22 Apr	N23W41	110	plage														
23 Apr	N23W55	110	plage														
24 Apr	N23W69	111	plage														
25 Apr	N23W83	112	plage														
								0	0	0	0	0	0	0	0	0	

Crossed West Limb.  
Absolute heliographic longitude: 107

<b>Region 1465</b>																	
20 Apr	S17E39	54	210	5	Dao	6	B	6				6	1				
21 Apr	S17E27	55	230	6	Dso	13	B					1	1				
22 Apr	S18E14	53	300	6	Dai	16	B	3				4					
23 Apr	S18W01	55	400	7	Dki	37	B	1									
24 Apr	S19W12	53	280	7	Dko	20	BGD										
25 Apr	S17W26	55	280	6	Dko	12	B										
26 Apr	S18W39	54	200	5	Dsi	11	B	1									
27 Apr	S17W53	56	180	5	Dai	11	BGD	1				2					
28 Apr	S18W66	55	130	5	Dai	12	BG										
29 Apr	S18W80	57	90	4	Cso	4	B	2				2					
								14	0	0	15	2	0	0	0	0	

Still on Disk.  
Absolute heliographic longitude: 55

<b>Region 1466</b>																	
22 Apr	N12E29	39	60	6	Cso	11	B										
23 Apr	N11E14	40	120	7	Dao	14	B										
24 Apr	N12E01	40	190	8	Dso	8	B										
25 Apr	N11W12	41	150	7	Dao	8	B										
26 Apr	N12W26	41	90	7	Csi	9	B	1									
27 Apr	N11W38	41	90	7	Cso	8	B		1			3	1				
28 Apr	N12W51	40	70	5	Cso	6	B	1				9					
29 Apr	N13W65	42	140	7	Dso	6	B	1				1					
								3	1	0	13	1	0	0	0	0	

Still on Disk.  
Absolute heliographic longitude: 40



### *Region Summary - continued*

Date	Location		Sunspot Characteristics					Flares															
	Lat CMD	Helio Lon	Area 10 <sup>6</sup> hemi.	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical												
								C	M	X	S	1	2	3	4								
<b>Region 1467</b>																							
24 Apr	N14E72	330	10	1	Hsx	2	A	1															
25 Apr	N16E59	330	10		Bxo	4	B																
26 Apr	N14E45	330	10	1	Cso	1	B																
27 Apr	N11E32	331	50	3	Dso	4	B	1				1											
28 Apr	N12E18	331	50	4	Cso	6	B	2				2											
29 Apr	N12E04	333	20	1	Hrx	1	A																
								4	0	0		3	0	0	0	0	0	0	0				

Still on Disk.  
 Absolute heliographic longitude: 333

<b>Region 1468</b>																							
24 Apr	N09E12	29	20	5	Dao	10	B																
25 Apr	N11W02	31	100	6	Dso	11	B																
26 Apr	N08W17	32	90	8	Dso	12	B																
27 Apr	N09W30	33	80	7	Dao	6	B																
28 Apr	N10W42	31	70	8	Dso	6	B																
29 Apr	N11W55	32	10	3	Bxo	2	B																
								0	0	0		0	0	0	0	0	0	0	0				

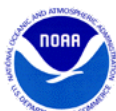
Still on Disk.  
 Absolute heliographic longitude: 31

<b>Region 1469</b>																							
24 Apr	S21E68	334	30	2	Cao	10	B	3				3											
25 Apr	S18E55	334	10	5	Bxo	6	B					1											
26 Apr	S24E41	333	20	4	Cso	3	B																
27 Apr	S24E28	335	50	10	Dso	6	B	1				1											
28 Apr	S19E14	335	90	7	Dsi	13	B	1				2											
29 Apr	S19W01	338	90	9	Dso	10	B	1				1											
								6	0	0		8	0	0	0	0	0	0					

Still on Disk.  
 Absolute heliographic longitude: 338

<b>Region 1470</b>																							
27 Apr	S17E75	288	plage					1															
28 Apr	S17E61	288	40	3	Cso	3	B					1											
29 Apr	S16E47	290	40	4	Cso	3	B																
								1	0	0		1	0	0	0	0	0	0					

Still on Disk.  
 Absolute heliographic longitude: 290



### *Region Summary - continued*

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

#### ***Region 1471***

28 Apr	S23E70	279	120	4	Hsx	2	A					1					
29 Apr	S23E57	280	260	10	Cho	5	B	1				1					
								1	0	0		2	0	0	0	0	0

Still on Disk.

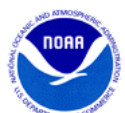
Absolute heliographic longitude: 280

#### ***Region 1472***

29 Apr	S29E40	297	10	3	Bxo	3	B										
								0	0	0		0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 297

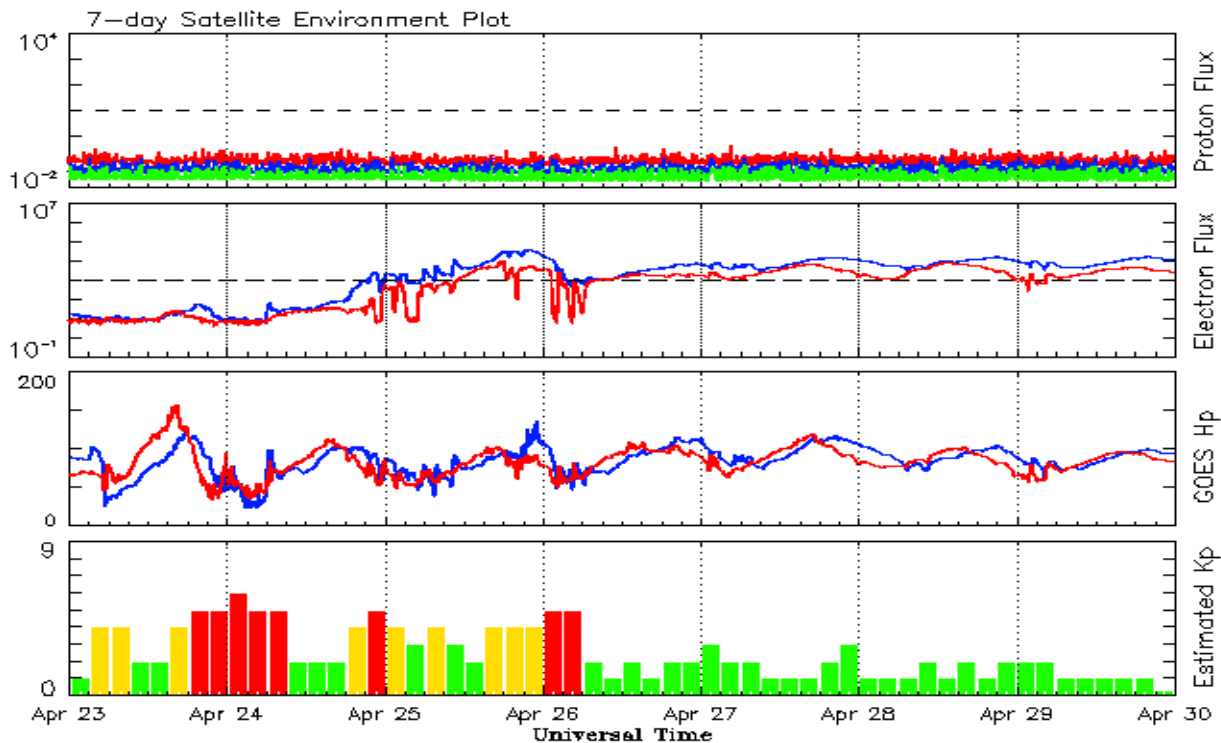


**Recent Solar Indices (preliminary)**  
**Observed monthly mean values**

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>2010</b>									
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	35.9	23.2	81.6	85.3	6	6.4
November	36.1	21.5	0.60	40.5	26.5	82.5	87.7	5	6.4
December	22.0	14.4	0.66	43.8	28.8	84.3	89.6	4	6.5
<b>2011</b>									
January	32.1	18.8	0.59	47.2	30.9	83.7	91.2	6	6.7
February	53.2	29.6	0.55	50.6	33.4	94.5	92.7	6	6.8
March	81.0	55.8	0.69	55.2	36.9	115.3	95.8	7	7.2
April	81.7	54.4	0.67	61.5	41.8	112.6	100.4	9	7.5
May	61.4	41.5	0.68	69.0	47.6	95.9	105.6	9	7.5
June	55.5	37.0	0.67	76.5	53.2	95.8	110.9	8	7.4
July	67.0	43.8	0.66	82.5	57.2	94.2	115.4	9	7.3
August	66.1	50.6	0.77	84.9	59.0	101.7	117.9	8	7.4
September	106.4	78.0	0.73	84.6	59.5	134.5	118.4	13	7.7
October	116.8	88.0	0.75			137.2		7	
November	133.1	96.7	0.73			153.1		3	
December	106.3	73.0	0.69			141.2		3	
<b>2012</b>									
January	91.3	58.3	0.64			133.1		6	
February	50.1	33.1	0.66			106.7		7	
March	77.9	64.2	0.82			115.1		14	

**Note:** Values are final except for the most recent 6 months which are considered preliminary.  
Cycle 24 started in Dec 2008 with an RI=1.7.





*Weekly Geosynchronous Satellite Environment Summary  
Week Beginning 23 April 2012*

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.

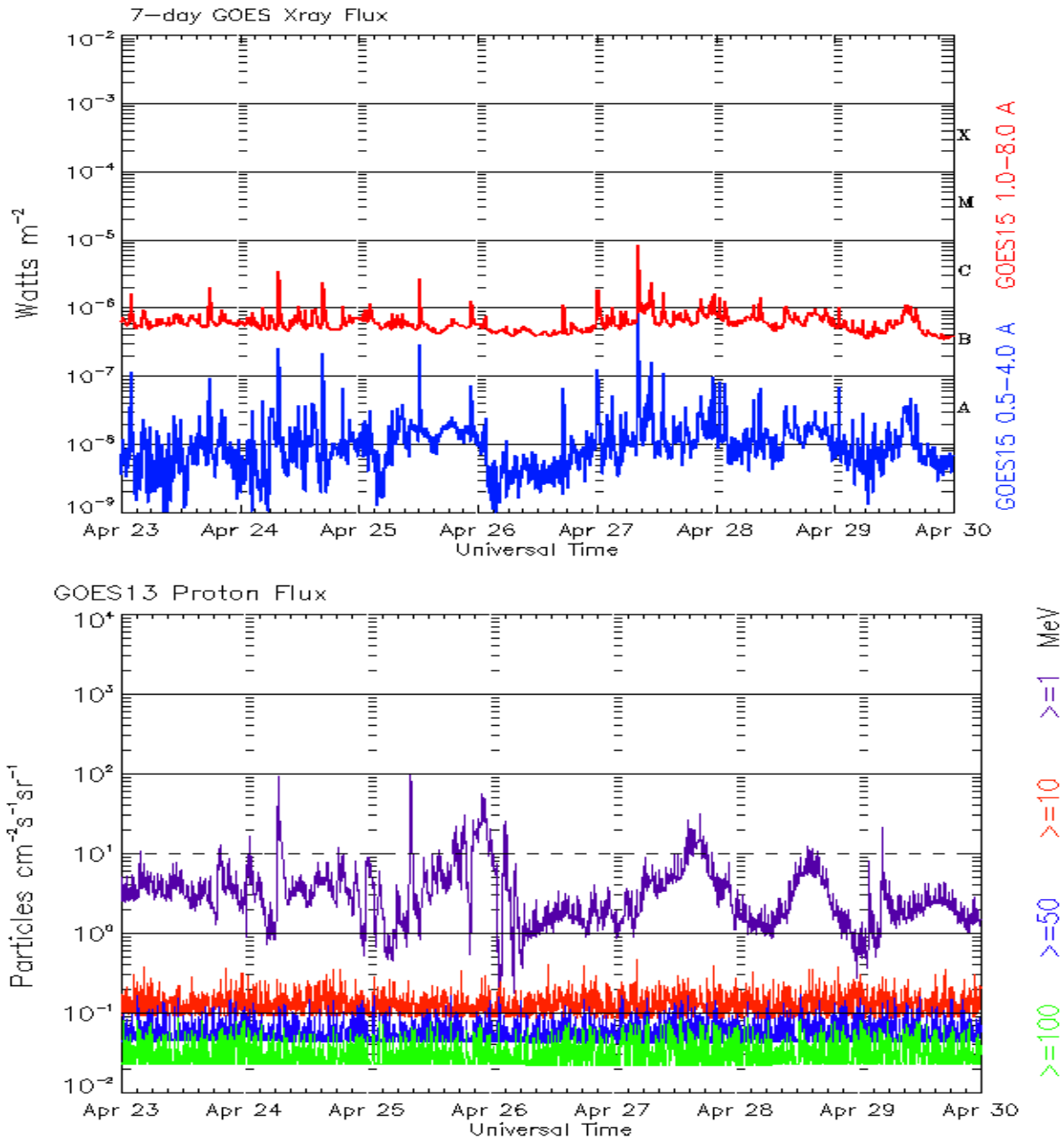
The Hp plot contains the five minute averaged Hp magnetic field component in nanoteslas (nT) as by the SWPC Primary GOES satellite. The Hp component is parallel to the spin axis of the satellite, which is nearly parallel to the Earth's rotation axis.

The Estimated 3-hour Planetary Kp-index is derived at the NOAA Space Weather Prediction Center using data from the following ground-based magnetometers: Boulder, Colorado; Chambon la Foret, France; Fredericksburg, Virginia; Fresno, California; Hartland, UK; Newport, Washington; Sitka, Alaska. These data are made available thanks to the cooperative efforts between SWPC and data providers around the world, which currently includes the U.S. Geological Survey, the British Geological Survey, and the Institut de Physique du Globe de Paris.

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 23 April 2012*

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 integral 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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