

**Space Weather Highlights**  
**19 March - 25 March 2012**

**SWPC PRF 1908**  
**26 March 2012**

Solar activity has been at low to moderate levels for the past seven days. The largest event of the period was a M1 x-ray event on 23 March at 1940 UTC from Region 1445 (S24, L=026, class/area Fho/280 on 25 March). Region 1445 rotated onto the southeast limb of the solar disk late on 23 March and has since dominated in solar activity, producing multiple C-class x-ray events. Region 1444 (N19, L=067, class/area Cao/060 on 25 March) emerged on 23 March and has also been active, producing multiple C-class x-ray events. Both Regions, 1445 and 1444, produced CMEs on 25 March, however very little effect is expected here at Earth. The remaining regions on the solar disk remained rather quiet and stable.

No proton events were observed at geosynchronous orbit during the summary period.

The greater than 2 MeV electron flux at geosynchronous orbit was at predominantly high levels for the duration of the summary period. However, on 23 and 25 March, moderate levels were observed.

The geomagnetic field ranged from quiet to active levels with an isolated period at minor storm levels at high latitudes. On 19 March, predominantly quiet levels were observed with an isolated active period measured early in the day, in response to the arrival of a CME from 15 March. Quiet conditions prevailed from 20 March to late on 22 March, when a solar sector boundary (SSB) crossing was measured by the ACE spacecraft. Following the SSB, quiet to unsettled levels were seen from 22 - 23 March. On 24 March, active levels with an isolated minor storm period was observed as a small coronal hole high speed stream (CH HSS) moved into a geoeffective position. This CH HSS was short lived with measurements by the ACE spacecraft indicating a quick rise in solar wind speeds to around 500 km/s followed by a quick decrease to nominal background levels. On 25 March, activity returned to quiet levels.

Note: There is a gap in data from the GOES 15 spacecraft from late on 21 March through mid 23 March. This gap can be seen in the GOES 15 x-ray plot.

**Space Weather Outlook**  
**26 March - 21 April 2012**

Solar activity is expected to be at low to moderate levels. Predominantly low levels are expected from 26 - 28 March, when old Region 1429 rotates back onto the northeast limb. M-class flare probabilities are expected to increase from 28 March - 11 April as old Region 1429 progresses across the solar disk. A return to low levels is expected to prevail for the remainder of the period, 12 - 21 April.

No proton events are forecast from 26 - 30 March. An increase to a slight chance for proton events is forecast from 31 March - 11 April as old Region 1429 populates the visible disk. A return to background proton flux levels is expected from 12 April - 21 April.

Electrons, greater than 2 MeV, are expected to be at normal to moderate levels from 26 - 28 March. From 29 March - 03 April, moderate to high levels are expected. From 04 - 13 April, a



return to normal to moderate levels is expected. Moderate to high levels are expected from 14 - 18 April. A return to normal levels is expected for the remainder of the period.

The geomagnetic field is expected to be at mostly quiet levels from 26 - 27 March. Quiet to active levels are expected from 28 -29 March in response to the effects of a CH HSS. Predominantly quiet levels are expected from 30 March - 12 April. An increase to quiet to active levels is expected from 13 - 14 April in response to a CH HSS. Quiet levels are expected to prevail for the remainder of the period.



### *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
19 March	102	58	320	B1.8	2	0	0	6	0	0	0	0
20 March	100	74	400	B2.0	1	0	0	1	0	0	0	0
21 March	100	62	240	B2.3	3	0	0	2	0	0	0	0
22 March	102	86	180	Unk	1	0	0	2	0	0	0	0
23 March	105	74	180	B3.3	1	1	0	2	0	0	0	0
24 March	103	65	200	B1.9	1	0	0	3	0	0	0	0
25 March	101	84	390	B2.2	3	0	0	4	1	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
	19 March	3.3e+05	1.3e+04	2.8e+03		4.9e+08
20 March	4.1e+05	1.2e+04	2.9e+03		9.3e+08	
21 March	7.0e+05	1.3e+04	3.0e+03		1.2e+09	
22 March	1.4e+06	1.3e+04	3.2e+03		7.4e+08	
23 March	6.6e+04	1.3e+04	3.1e+03		3.4e+06	
24 March	2.8e+05	1.3e+04	3.1e+03		1.3e+07	
25 March	1.2e+05	1.3e+04	3.1e+03		1.2e+07	

### *Daily Geomagnetic Data*

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	19 March	8	2-3-2-1-2-2-2-2	13	2-3-3-4-4-1-1-1	10
20 March	4	1-1-1-1-2-1-1-1	4	2-1-2-2-1-0-1-1	4	2-1-1-1-1-1-1-2
21 March	4	1-0-0-2-2-1-2-1	5	1-1-1-3-2-1-1-1	4	1-0-1-1-2-1-2-1
22 March	6	1-1-0-1-1-2-3-3	3	1-1-0-0-0-1-2-2	6	1-1-0-1-1-1-3-3
23 March	5	2-1-1-2-2-2-2-0	4	2-0-1-3-1-1-1-0	6	3-1-1-2-1-2-1-1
24 March	9	1-3-3-2-2-2-2-2	12	0-3-5-2-1-2-2-2	10	1-3-4-2-2-2-2-2
25 March	4	2-1-2-1-2-1-1-0	6	1-1-3-3-3-0-0-0	4	2-1-2-1-2-1-0-0

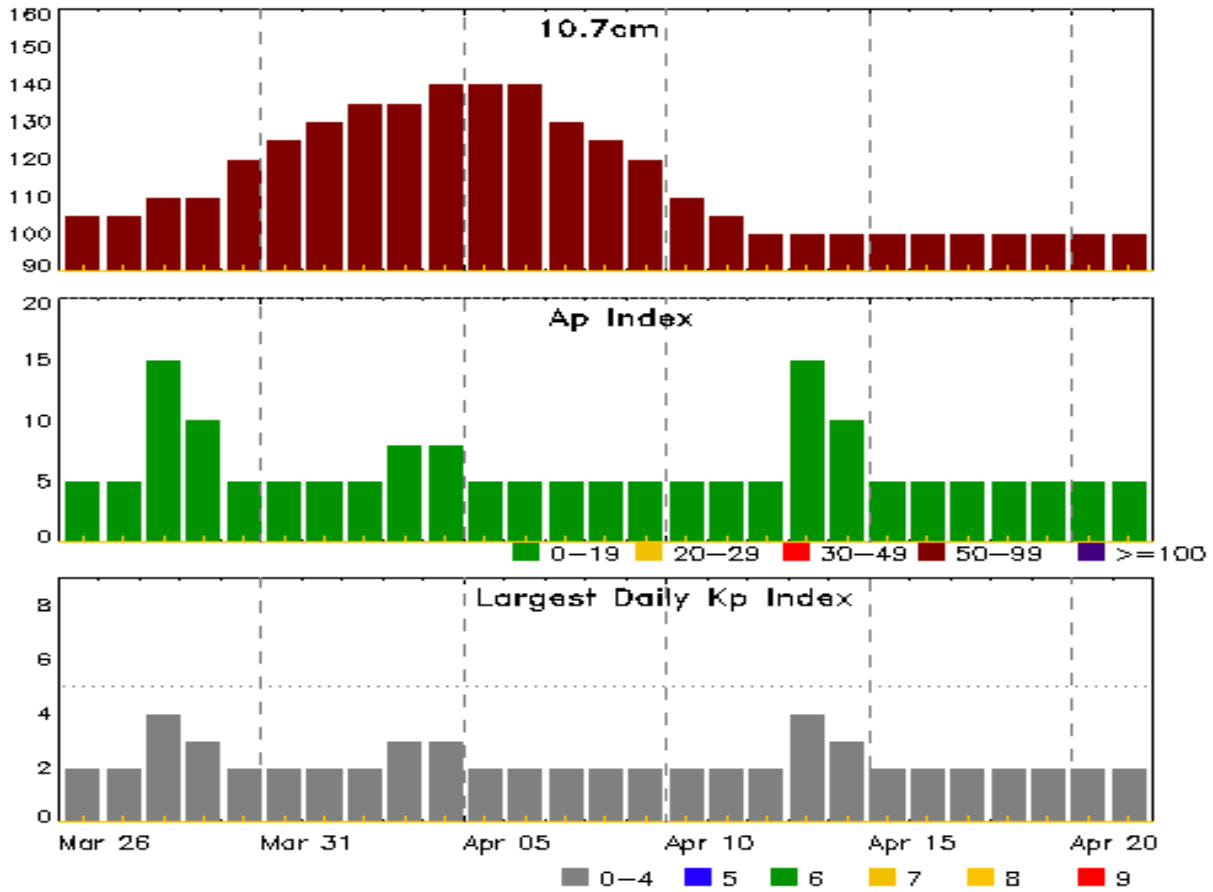


### *Alerts and Warnings Issued*

<b>Date &amp; Time of Issue UTC</b>	<b>Type of Alert or Warning</b>	<b>Date &amp; Time of Event UTC</b>
19 Mar 0438	WARNING: Geomagnetic K = 4	19/0438 - 1300
19 Mar 0453	ALERT: Geomagnetic K = 4	19/0453
19 Mar 0550	CONTINUED ALERT: Electron 2MeV Integral Flux $\geq$ 1000pfu	10/0410
20 Mar 0509	CONTINUED ALERT: Electron 2MeV Integral Flux $\geq$ 1000pfu	10/0410
21 Mar 0506	CONTINUED ALERT: Electron 2MeV Integral Flux $\geq$ 1000pfu	10/0410
22 Mar 0507	CONTINUED ALERT: Electron 2MeV Integral Flux $\geq$ 1000pfu	10/0410
24 Mar 0551	WARNING: Geomagnetic K = 4	24/0550 - 1300
24 Mar 0722	ALERT: Geomagnetic K = 4	24/0718
24 Mar 1102	ALERT: Type II Radio Emission	24/0845



## 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
26 Mar	105	5	2	09 Apr	120	5	2
27	105	5	2	10	110	5	2
28	110	15	4	11	105	5	2
29	110	10	3	12	100	5	2
30	120	5	2	13	100	15	4
31	125	5	2	14	100	10	3
01 Apr	130	5	2	15	100	5	2
02	135	5	2	16	100	5	2
03	135	8	3	17	100	5	2
04	140	8	3	18	100	5	2
05	140	5	2	19	100	5	2
06	140	5	2	20	100	5	2
07	130	5	2	21	100	5	2
08	125	5	2				



### *Energetic Events*

Date	Time			X-ray		Optical Information			Peak		Sweep Freq	
	Begin	Max	Half Max	Class	Integ Flux	Imp/ Brtns	Location	Rgn #	245	2695	II	IV
23 Mar	1934	1940	1944	M1.0	0.003			1445				

### *Flare List*

Date	Time			X-ray Class	Imp/ Brtns	Optical		Rgn #
	Begin	Max	End			Location	Lat CMD	
19 Mar	0005	0008	0010	B3.5				
19 Mar	0024	0029	0031	B5.7				1434
19 Mar	0213	0219	0223	B7.1	SF	S21W43		1434
19 Mar	0228	0231	0235	B5.9	SF	S23W43		1434
19 Mar	0341	0344	0350	B7.0	SF	S22W43		1434
19 Mar	0437	0441	0444	B9.8	SF	S22W44		1434
19 Mar	0832	1102	1107	B3.9				
19 Mar	1101	1102	1106		SF	N13W62		1432
19 Mar	1248	1307	1315	B5.5				
19 Mar	1341	1351	1413	C1.2	SF	N16W61		1432
19 Mar	1706	1709	1711	B4.0				
19 Mar	2155	2204	2216	C3.5				1434
20 Mar	0147	0151	0154	B4.1				
20 Mar	1450	1454	1457	B4.3				1438
20 Mar	2308	2309	2310		SF	S16E73		1438
20 Mar	2343	0008	0038	C1.7				1432
21 Mar	0320	0325	0332	B5.1				1432
21 Mar	0625	0628	0631	B3.7				1434
21 Mar	0632	0644	0652	B9.5				1434
21 Mar	0955	1007	1012	B9.4				
21 Mar	1238	1252	1301	C2.9	SF	S27W20		1440
21 Mar	1354	1359	1404	C1.2	SF	S27W20		1440
21 Mar	1542	1550	1556	C1.1				1440
21 Mar	1807	1811	1817	B6.7				
22 Mar	1739	1750	1756	C1.1				1440
22 Mar	1929	1929	1934		SF	N19E54		
22 Mar	2134	2137	2139		SF	S26W35		1440
23 Mar	1631	1639	1643	C6.5				
23 Mar	1934	1940	1944	M1.0				1445
23 Mar	2025	2028	2032		SF	S22E80		



## *Flare List*

Date	Time			X-ray Class	Optical		Rgn #
	Begin	Max	End		Imp/ Brtns	Location Lat CMD	
23 Mar	2149	2154	2158	B7.0			
23 Mar	2215	2219	2222		SF	S22E80	1445
23 Mar	2226	2229	2231	B5.8			
23 Mar	2326	2329	2331	B3.8			
24 Mar	0033	0035	0039		SF	S25E80	1445
24 Mar	0839	0901	0935	C7.2	SF	S26E81	1445
24 Mar	1914	1917	1920	B3.7			
24 Mar	2251	2255	2258	B3.6	SF	S23E68	1445
25 Mar	0015	0028	0038	C3.0	1N	N20E25	1444
25 Mar	0138	0157	0220	C2.5			1445
25 Mar	0832	0859	0922	C1.2	SF	N19E19	1444
25 Mar	1119	1157	1221	B9.0			1444
25 Mar	1437	1458	1525	B5.8			1438
25 Mar	1456	1457	1459		SF	S24E52	1445
25 Mar	1457	1500	1539		SF	S15E12	1438
25 Mar	1747	1747	1749		SF	S25E51	1445



## Region Summary

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 1432</b>																							
09 Mar	N18E69	220	90	3	Hsx	1	A	1															
10 Mar	N16E52	224	80	3	Hsx	4	B	2															
11 Mar	N16E40	223	50	4	Cao	5	B																
12 Mar	N13E26	222	80	8	Dso	9	B	1				1											
13 Mar	N14E15	221	70	8	Dsi	11	B																
14 Mar	N14E03	220	60	10	Dai	19	BG		1			2	1										
15 Mar	N14W13	223	100	11	Esi	16	BG		1			2	1										
16 Mar	N14W26	223	80	11	Esi	20	BG	3				3											
17 Mar	N14W39	223	30	11	Cro	4	B	1															
18 Mar	N14W53	223	plage																				
19 Mar	N22W68	224	10	1	Axx	1	A	1				2											
20 Mar	N14W78	221	10	1	Axx	1	A	1															
								10	2	0	10	2	0	0	0	0							

Crossed West Limb.  
Absolute heliographic longitude: 220

<b>Region 1433</b>																							
11 Mar	N12E63	200	150	5	Dso	3	B																
12 Mar	N11E50	199	80	3	Cso	2	B																
13 Mar	N12E37	199	90	5	Cso	4	B	1															
14 Mar	N13E23	200	110	4	Cso	9	B																
15 Mar	N12E09	201	120	6	Csi	11	B																
16 Mar	N13W04	201	100	6	Dso	11	B					2											
17 Mar	N13W17	201	60	3	Cso	6	B																
18 Mar	N08W29	199	60	2	Hsx	1	A																
19 Mar	N11W45	201	70	4	Cso	4	B																
20 Mar	N11W56	200	30	2	Cro	2	B																
21 Mar	N09W69	199	20	1	Hsx	1	A																
22 Mar	N09W81	198	10		Axx	1	A																
								1	0	0	2	0	0	0	0	0							

Crossed West Limb.  
Absolute heliographic longitude: 201





**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 1434</b>																		
11 Mar	S22E58	205	90	8	Dso	4	B											
12 Mar	S23E44	205	50	8	Cso	2	B											
13 Mar	S22E31	205	50	9	Dso	2	B											
14 Mar	S22E12	211	40	2	Hax	1	A											
15 Mar	S21W01	211	30	4	Cao	2	B											
16 Mar	S22W14	211	30	11	Eso	4	B											
17 Mar	S22W27	211	30	4	Cro	3	B		1			1						
18 Mar	S20W40	210	50	4	Dso	5	B	1					2					
19 Mar	S21W54	211	90	5	Cao	6	B	1					4					
20 Mar	S20W66	210	120	6	Cso	4	B											
21 Mar	S22W77	207	50	6	Cso	2	B											
								2	1	0	7	0	0	0	0	0		

Died on Disk.

Absolute heliographic longitude: 211

**Region 1435**

15 Mar	S25W11	221	30	7	Cro	3	B											
16 Mar	S25W24	221	20	6	Dso	5	B											
17 Mar	S26W37	221	60	6	Dso	11	B											
18 Mar	S25W50	220	150	6	Dao	7	B											
19 Mar	S26W62	219	150	7	Dso	7	B											
20 Mar	S26W74	218	160	6	Dso	3	B											
21 Mar	S24W90	220	70	3	Hsx	2	A											
								0	0	0	0	0	0	0	0	0	0	

Crossed West Limb.

Absolute heliographic longitude: 221



**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 1436**

16 Mar	S12E62	135	10			Axx	1	A										
17 Mar	S14E50	134	10	5		Bxo	3	B										
18 Mar	S14E36	134	0	1		Bxo	1	B										
19 Mar	S14E22	135	plage															
20 Mar	S14E08	136	plage															
21 Mar	S14W06	137	plage															
22 Mar	S14W20	138	plage															
23 Mar	S14W34	139	plage															
24 Mar	S14W48	139	plage															
25 Mar	S14W62	140	plage															
										0	0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 137

**Region 1437**

17 Mar	S34E15	169	20	3		Cso	2	B										
18 Mar	S34E01	169	plage															
19 Mar	S34W13	170	plage															
20 Mar	S34W27	171	plage															
21 Mar	S34W41	172	plage															
22 Mar	S34W55	173	plage															
23 Mar	S34W69	174	plage															
24 Mar	S34W83	174	plage															
										0	0	0	0	0	0	0	0	0

Crossed West Limb.

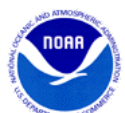
Absolute heliographic longitude: 169

**Region 1438**

20 Mar	S15E69	75	50	1		Hsx	2	A					1					
21 Mar	S14E56	73	70	2		Hsx	2	A										
22 Mar	S15E43	73	60	3		Hsx	2	A										
23 Mar	S14E29	74	60	1		Hax	2	A										
24 Mar	S14E15	76	30	1		Hax	1	A										
25 Mar	S14E02	76	20	1		Hsx	2	A					1					
										0	0	0	2	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 76



**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 1439**

20 Mar	N25W79	223	30	2	Cro	2	B	0	0	0	0	0	0	0	0	0
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Crossed West Limb.  
Absolute heliographic longitude: 223

**Region 1440**

21 Mar	S26W24	154	30	4	Dai	5	BGD	3			2					
22 Mar	S25W38	155	30	6	Dro	8	BG	1			1					
23 Mar	S24W50	155	10	4	Bxo	2	B									
24 Mar	S24W64	155	10	4	Hrx	2	A									
25 Mar	S25W79	157	20	2	Hrx	2	A	4	0	0	3	0	0	0	0	0

Still on Disk.  
Absolute heliographic longitude: 154

**Region 1441**

22 Mar	S27W57	174	10	1	Axx	1	A									
23 Mar	S27W69	173	0	1	Axx	1	A									
24 Mar	S27W83	174	plage													
								0	0	0	0	0	0	0	0	0

Crossed West Limb.  
Absolute heliographic longitude: 174

**Region 1442**

22 Mar	N13E49	67	10	1	Axx	1	A									
23 Mar	N13E36	67	plage													
24 Mar	N13E22	69	plage													
25 Mar	N13E08	70	plage													
								0	0	0	0	0	0	0	0	0

Still on Disk.  
Absolute heliographic longitude: 70



### *Region Summary - continued*

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

#### *Region 1443*

22 Mar	N16E62	54	10	1	Axx	1	A										
23 Mar	N18E51	53	10	1	Axx	1	A										
24 Mar	N18E37	54	10	1	Axx	1	A										
25 Mar	N16E25	53	0		Axx	1	A										
								0	0	0	0	0	0	0	0	0	

Still on Disk.

Absolute heliographic longitude: 53

#### *Region 1444*

23 Mar	N19E38	65	10	2	Bxo	4	B										
24 Mar	N20E25	66	50	7	Cao	7	B										
25 Mar	N19E11	67	60	7	Cao	7	B	2			1	1					
								2	0	0	1	1	0	0	0	0	

Still on Disk.

Absolute heliographic longitude: 67

#### *Region 1445*

23 Mar	S24E76	29	90	13	Eao	4	B		1		1						
24 Mar	S24E62	29	100	15	Eao	4	B	1			3						
25 Mar	S24E52	26	280	16	Fho	8	B	1			2						
								2	1	0	6	0	0	0	0	0	

Still on Disk.

Absolute heliographic longitude: 26

#### *Region 1446*

25 Mar	N23W27	105	10	4	Bxo	4	B										
								0	0	0	0	0	0	0	0	0	

Still on Disk.

Absolute heliographic longitude: 105

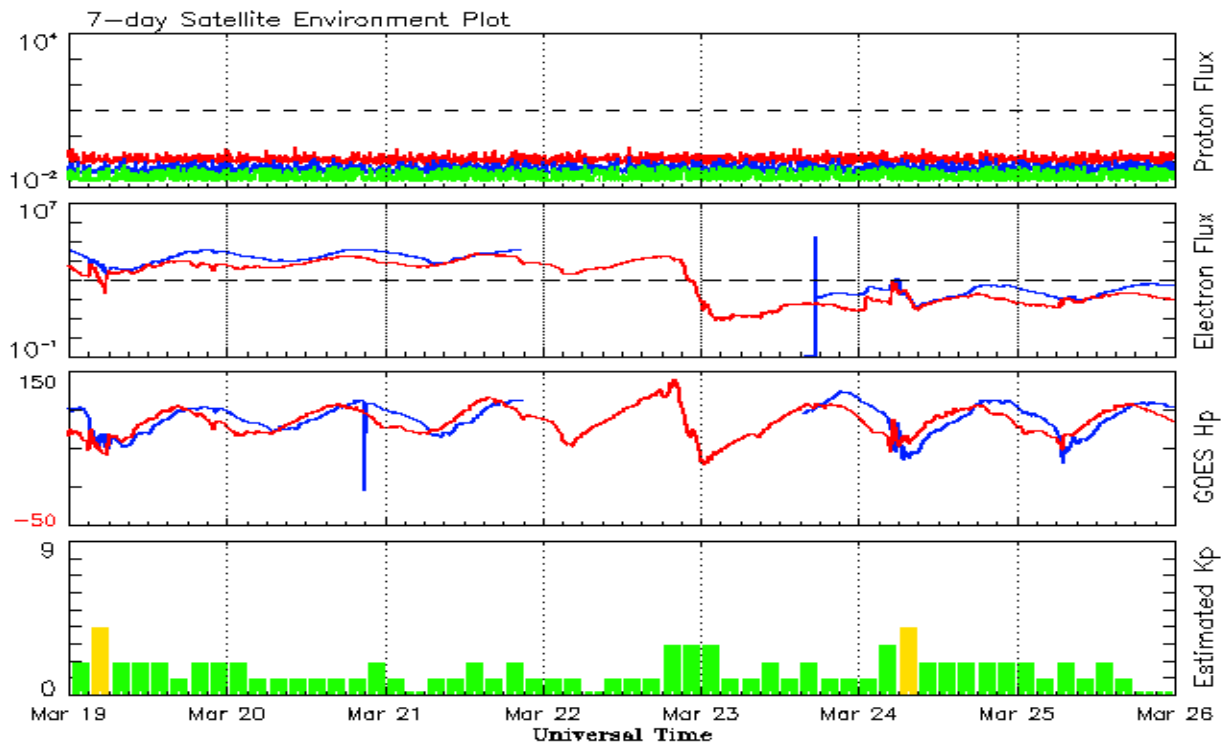


**Recent Solar Indices (preliminary)  
Observed monthly mean values**

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>									
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	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			134.5		13	
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	

**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 19 March 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.

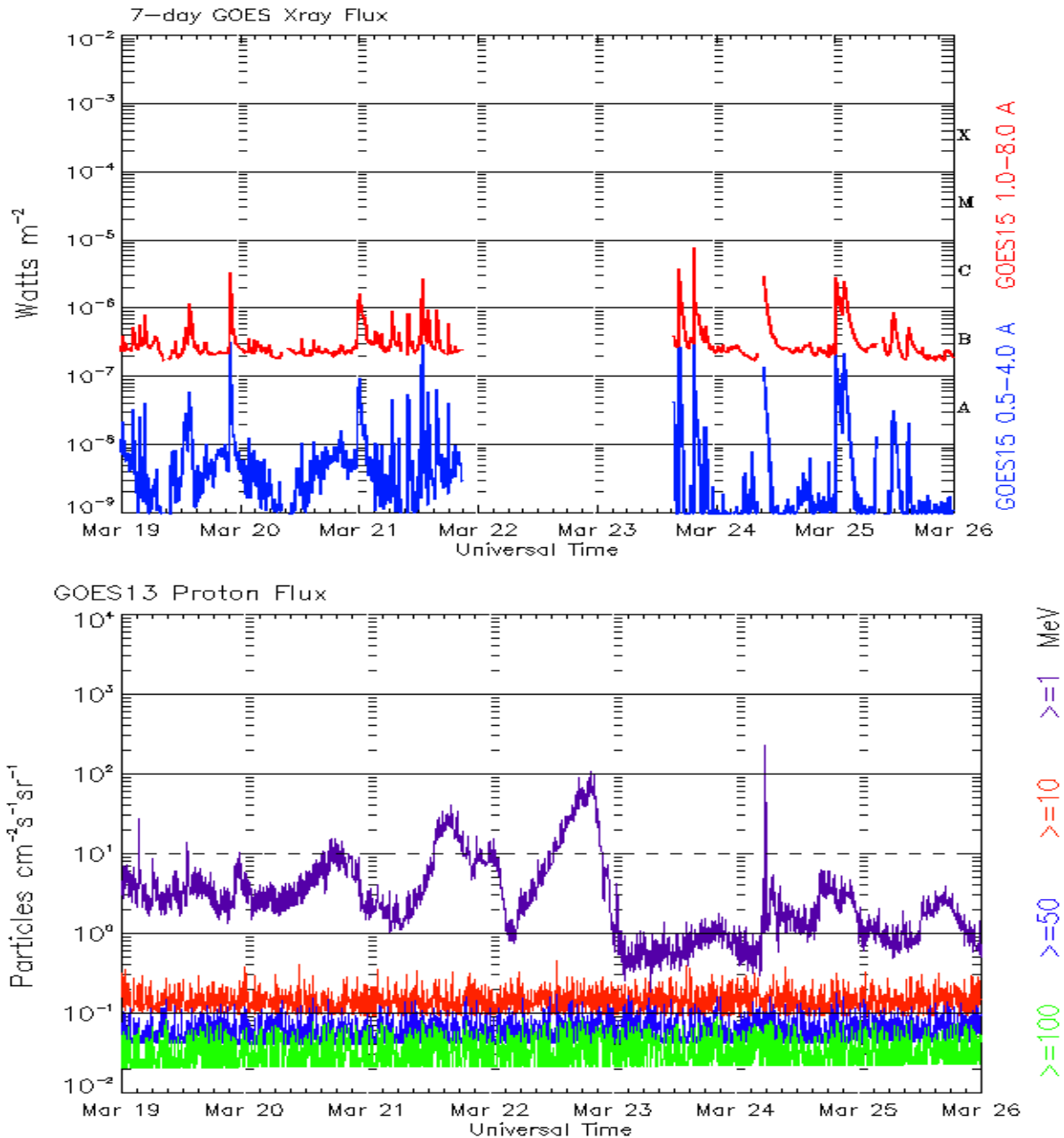
The electron flux plot contains the five-minute averaged integral electron flux (electrons/cm<sup>2</sup>-sec -sr) with energies greater than 2 MeV by the SWPC Primary GOES satellite.

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 19 March 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 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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