

Solar activity was at mostly low levels during the period. Region 1451 (N17, L=306, class/area Cro/20 on 30 March), which is thought to be old Region 1429, produced a C7 x-ray event on 29 March, the largest event of the period. No other significant flares or associated CMEs occurred.

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit ranged between normal and moderate levels off and on throughout the period.

Geomagnetic field activity began the period at quiet levels on 26 March and the first half of 27 March. Beginning around 0900 UTC on 27 March, conditions increased to unsettled levels over the next 12 hours, as the result of a sustained period of southward Bz near -13nT. Shortly prior to 1800 UTC, a transition in polarity (SSBC) was observed at the onset of weak Coronal Hole (CH) high speed stream, with the NOAA planetary network of ground magnetometers recording active levels over the next 9 hours so, ending at 0600 UTC on 28 March. Individual high latitude stations recorded minor storm levels simultaneously. From midday 28 March through the end of the period on 01 April, geomagnetic activity remained at quiet levels.

Space Weather Outlook **02 April - 28 April 2012**

Solar activity is expected to be at very low to low levels throughout the period with a slight chance for M-class flare activity.

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 from 02 April through 13 April. Flux values are forecast to increase to high levels on 14 April and persist through 18 April, as the result of CH high speed stream effects. Flux values are expected to return to normal and moderate levels on 19 April, and remain so through the duration of the period.

Geomagnetic field activity is expected to begin the period at mostly quiet conditions and remain so through 03 April. On 04 April, quiet to unsettled conditions are expected as a small positive polarity CH is expected to move into a favorable position for a day or so. Predominately quiet conditions are expected again from 05 -10 April. On 11 April, high speed stream effects from recurrent negative polarity CH are forecast to bring unsettled and active conditions at mid latitudes and possible minor storm levels at high latitudes. This activity is expected to persist for 3 to 4 days. From 15 April through 23 April, conditions are expected to return to predominately quiet levels. A recurrent positive polarity CH is anticipated on 24 - 25 April, and is expected to increase activity to unsettled conditions. Mostly quiet geomagnetic conditions are expected from 26 April through the end of the period.



Daily Solar Data

Date	Radio Flux 10.7cm	Sun spot No.	Sunspot Area (10 ⁻⁶ hemi.)	X-ray Background Flux	Flares							
					X-ray			Optical				
					C	M	X	S	1	2	3	4
26 March	102	56	300	B1.8	2	0	0	5	1	0	0	0
27 March	106	63	330	B2.6	2	0	0	3	1	0	0	0
28 March	107	70	310	B3.0	1	0	0	4	0	0	0	0
29 March	112	100	370	B2.5	5	0	0	3	0	0	0	0
30 March	111	93	370	B1.9	1	0	0	1	0	0	0	0
31 March	110	96	290	B2.6	0	0	0	1	0	0	0	0
01 April	107	50	200	B1.9	0	0	0	1	0	0	0	0

Daily Particle Data

Date	Proton Fluence (protons/cm ² -day -sr)			Electron Fluence (electrons/cm ² -day -sr)		
	>1 MeV	>10 MeV	>100 MeV	>0.6 MeV	>2MeV	>4 MeV
	26 March	2.0e+05	1.4e+04	3.1e+03		1.3e+07
27 March	3.4e+05	1.3e+04	2.8e+03		4.4e+06	
28 March	2.9e+05	1.4e+04	2.9e+03		2.4e+06	
29 March	7.6e+05	1.4e+04	2.9e+03		1.1e+07	
30 March	8.5e+05	2.8e+04	2.9e+03		2.1e+06	
31 March	1.0e+06	2.7e+04	2.9e+03		5.8e+06	
01 April	1.2e+06	2.0e+04	2.8e+03		2.9e+06	

Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	26 March	4	1-2-1-1-2-1-1-1	3	0-0-1-3-2-0-0-0	4
27 March	15	1-2-2-3-3-2-3-5	25	0-2-1-5-5-5-3-4	12	1-2-1-3-3-3-3-4
28 March	10	3-3-3-2-2-2-2-1	17	3-4-4-4-3-3-1-1	12	4-4-3-2-2-1-2-1
29 March	3	0-0-0-1-2-1-1-2	2	0-0-1-0-0-1-1-1	4	1-0-0-0-1-1-1-2
30 March	6	2-2-2-1-2-2-1-1	3	1-2-2-2-0-1-0-0	6	2-2-1-1-1-1-1-1
31 March	4	0-1-0-1-2-2-2-1	1	0-1-0-0-0-1-1-0	4	1-1-0-1-2-2-2-1
01 April	6	1-2-1-2-2-2-2-1	11	0-1-2-3-4-4-2-1	6	1-2-1-2-2-2-2-2

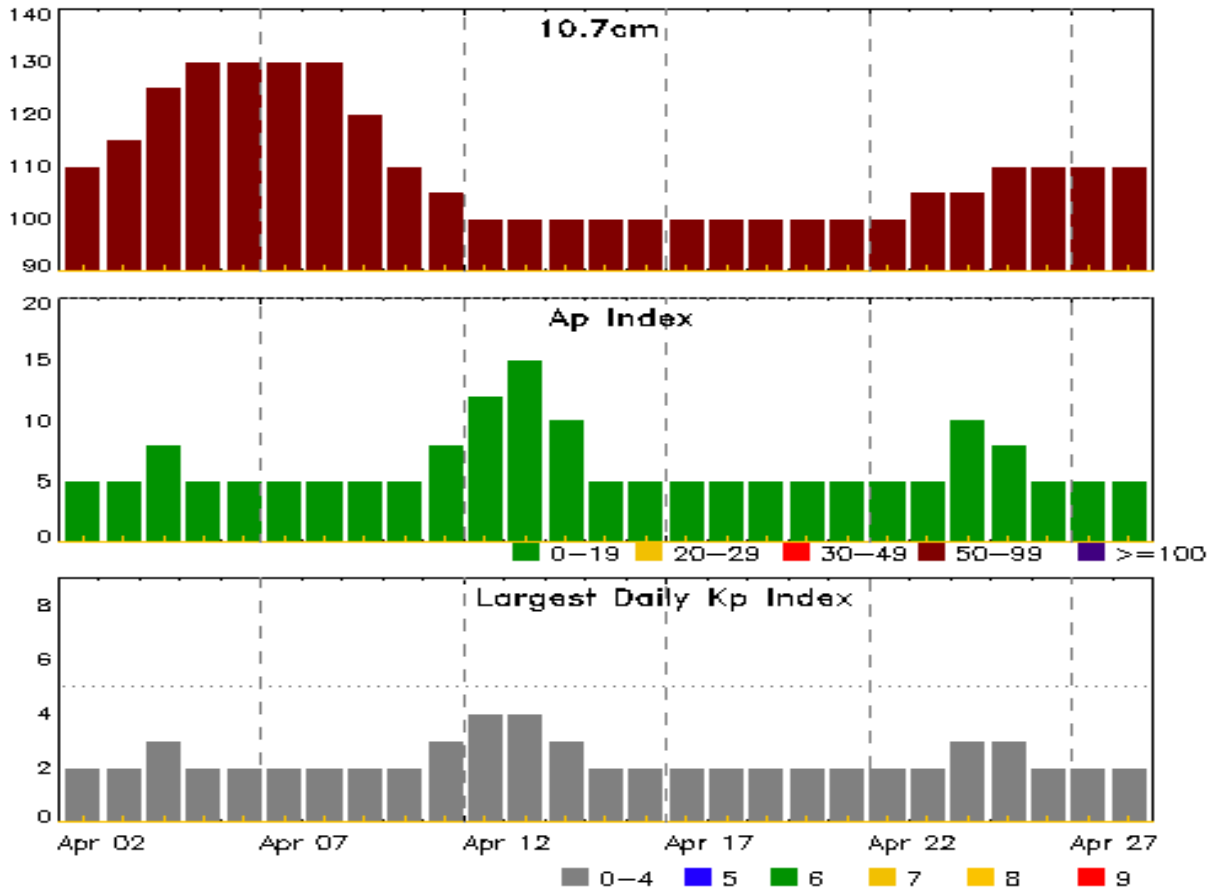


Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
27 Mar 0039	ALERT: Type II Radio Emission	26/2249
27 Mar 0040	ALERT: Type IV Radio Emission	26/2304
27 Mar 1610	WARNING: Geomagnetic K = 4	27/1615 - 2100
27 Mar 2051	EXTENDED WARNING: Geomagnetic K = 4	27/1615 - 28/0600
27 Mar 2232	ALERT: Geomagnetic K = 4	27/2235
27 Mar 2315	WARNING: Geomagnetic K = 5	27/2330 - 28/0300
28 Mar 0252	EXTENDED WARNING: Geomagnetic K = 5	27/2330 - 28/0600
28 Mar 0552	EXTENDED WARNING: Geomagnetic K = 4	27/1615 - 28/1200
28 Mar 1155	EXTENDED WARNING: Geomagnetic K = 4	27/1615 - 28/1800



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
02 Apr	110	5	2	16 Apr	100	5	2
03	115	5	2	17	100	5	2
04	125	8	3	18	100	5	2
05	130	5	2	19	100	5	2
06	130	5	2	20	100	5	2
07	130	5	2	21	100	5	2
08	130	5	2	22	100	5	2
09	120	5	2	23	105	5	2
10	110	5	2	24	105	10	3
11	105	8	3	25	110	8	3
12	100	12	4	26	110	5	2
13	100	15	4	27	110	5	2
14	100	10	3	28	110	5	2
15	100	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		Intensity	
									245	2695	II	IV

No Events Observed

Flare List

Date	Time			X-ray Class	Imp/ Brtns	Optical Location Lat CMD	Rgn #
	Begin	Max	End				
26 Mar	0250	0255	0258	B5.1	SF	S14E01	1438
26 Mar	0623	0642	0714	C1.4			1442
26 Mar	0625	0640	0707		1F	N19E05	1444
26 Mar	0640	0640	0643		SF	N12E11	1442
26 Mar	1117	1137	1141	B4.0			1446
26 Mar	1317	1320	1322	B4.0			1446
26 Mar	1530	1535	1538	B4.3	SF	N12E07	1442
26 Mar	1643	1648	1655	B4.0	SF	N11E06	1442
26 Mar	2006	2006	2009		SF	N10E04	1442
26 Mar	2332	2338	2340	C2.7			1442
27 Mar	0250	0308	0322	C5.3	1F	N19W05	1444
27 Mar	0421	0430	0441	C1.7	SF	N11W02	1442
27 Mar	0609	0612	0615	B3.3			1442
27 Mar	0627	0631	0635	B3.8			1444
27 Mar	1132	1136	1139	B6.9			1442
27 Mar	1650	1651	1701		SF	N20W10	1444
27 Mar	2342	2345	2348	B5.6	SF	S14W25	1438
28 Mar	0018	0025	0028	B7.9	SF	S14W26	1438
28 Mar	0618	0618	0623		SF	N20W17	1444
28 Mar	1131	1134	1136	B4.7			1447
28 Mar	1938	1942	1948	B6.8	SF	S14W35	1438
28 Mar	2142	2158	2207	C1.4	SF	N20W26	1444
29 Mar	0830	0953	0955	C7.7			1451
29 Mar	1146	1151	1154	C1.8	SF	S24W72	1447
29 Mar	1236	1239	1243	C1.1			1451
29 Mar	1312	1321	1323	C5.0			1451
29 Mar	1635	1640	1642	C1.4			1451
29 Mar	1823	1830	1834	B7.6			
29 Mar	2319	2323	2326	B6.2	SF	N23W43	1444
29 Mar	2343	2344	2356		SF	N13W40	1442
30 Mar	0058	0102	0104	B5.9			



Flare List

Date	Time			X-ray Class	Optical		
	Begin	Max	End		Imp/ Brtns	Location Lat CMD	Rgn #
30 Mar	0202	0205	0207	B7.3			
30 Mar	0706	0709	0711	B4.1			
30 Mar	1254	1257	1259	B4.1			
30 Mar	1417	1510	1601	B6.4			
30 Mar	2106	2112	2116	C1.2	SF	N17E74	1451
31 Mar	2101	2109	2120	B8.9	SF	N23W64	1444
01 Apr	1449	1454	1457		SF	N15E30	1450



Region Summary

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	4		
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														
26 Mar	S14W76	141	plage														
27 Mar	S14W90	142	plage														
											0	0	0	0	0	0	0

Crossed West Limb.
 Absolute heliographic longitude: 137

Region 1438																	
20 Mar	S15E69	75	50	1	Hsx	2	A										
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
26 Mar	S13W10	74	20	2	Hsx	1	A										1
27 Mar	S14W24	75	30	6	Cao	3	B										1
28 Mar	S14W37	74	20	3	Dro	4	B										2
29 Mar	S14W51	76	30	3	Cso	4	B										
30 Mar	S13W65	77	20	4	Cso	2	B										
31 Mar	S13W79	78	plage														
											0	0	0	6	0	0	0

Crossed West Limb.
 Absolute heliographic longitude: 76



Region Summary - continued

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

Crossed West Limb.
 Absolute heliographic longitude: 154

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																				
26 Mar	N12W01	65	30	2	Cso	3	B	2				4											
27 Mar	N12W13	64	50	5	Dai	9	B	1				1											
28 Mar	N12W25	63	70	6	Dao	8	B																
29 Mar	N13W41	66	50	6	Dso	7	B					1											
30 Mar	N12W54	66	70	6	Dao	5	B																
31 Mar	N12W66	65	50	4	Dso	4	B																
01 Apr	N12W80	66	plage																				
								3	0	0	6	0	0	0	0	0							

Still on Disk.
 Absolute heliographic longitude: 65



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 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										
26 Mar	N16E11	54	plage														
27 Mar	N16W03	55	plage														
28 Mar	N16W17	56	plage														
29 Mar	N12W28	53	10	5	Cso	2	B										
30 Mar	N13W44	56	10	4	Bxo	2	B										
31 Mar	N13W60	59	30	2	Cro	3	B										
01 Apr	N14W74	60	20	2	Cro	2	B										
									0	0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 55

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					
26 Mar	N21W04	68	40	4	Cso	5	B					1					
27 Mar	N21W17	68	plage					1			1	1					
28 Mar	N21W31	70	plage					1			2						
29 Mar	N21W45	70	plage								1						
30 Mar	N21W58	70	plage														
31 Mar	N21W72	71	plage								1						
01 Apr	N21W86	72	plage														
									4	0	0	6	3	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 68



Region Summary - continued

Date	Location		Sunspot Characteristics				Flares															
	Lat CMD	Lon	Helio 10 ⁶ hemi.	Area	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical										
									C	M	X	S	1	2	3	4						
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										
26 Mar	S23E40	24	210	17	Fao	7	B															
27 Mar	S22E25	25	210	15	Eso	6	B															
28 Mar	S23E13	25	200	15	Eso	5	B															
29 Mar	S23W00	24	220	16	Fso	9	B															
30 Mar	S22W13	25	180	16	Cso	4	B															
31 Mar	S23W26	25	130	12	Cso	3	B															
01 Apr	S23W45	31	120	3	Hsx	1	A															
								2	1	0	6	0	0	0	0	0	0	0	0			

Still on Disk.

Absolute heliographic longitude: 24

Region 1446

25 Mar	N23W27	105	10	4	Bxo	4	B												
26 Mar	N23W41	106	plage																
27 Mar	N23W54	106	plage																
28 Mar	N23W68	107	plage																
29 Mar	N23W82	107	plage																
								0	0	0	0	0	0	0	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 105

Region 1447

27 Mar	S25W55	106	40	4	Cro	5	B												
28 Mar	S23W68	106	10	3	Axx	2	A												
29 Mar	S24W79	104	10	2	Axx	2	A	1				1							
								1	0	0	1	0	0	0	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 106



Region Summary - continued

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

Region 1448

28 Mar	S18E55	342	10	3	Axx	1	A										
29 Mar	S17E41	343	30	2	Dao	2	B										
30 Mar	S17E29	343	30	7	Cao	3	B										
31 Mar	S17E15	344	10	3	Bxo	3	B										
01 Apr	S17E01	345	plage														
								0	0	0	0	0	0	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 345

Region 1449

29 Mar	S18W17	41	20	4	Dro	4	B										
30 Mar	S18W31	43	40	3	Cao	3	B										
31 Mar	S18W47	46	30	5	Cro	4	B										
01 Apr	S18W60	46	40	6	Dso	3	B										
								0	0	0	0	0	0	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 41

Region 1450

31 Mar	N15E38	321	20	5	Cro	5	B										
01 Apr	N17E22	324	20	2	Bxo	4	B				1						
								0	0	0	1	0	0	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 324

Region 1451

29 Mar	N17E82	306	plage					4									
30 Mar	N17E67	306	20	4	Cro	4	B	1			1						
31 Mar	N17E53	306	20	2	Cro	4	B										
01 Apr	N17E39	307	plage					5	0	0	1	0	0	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 307

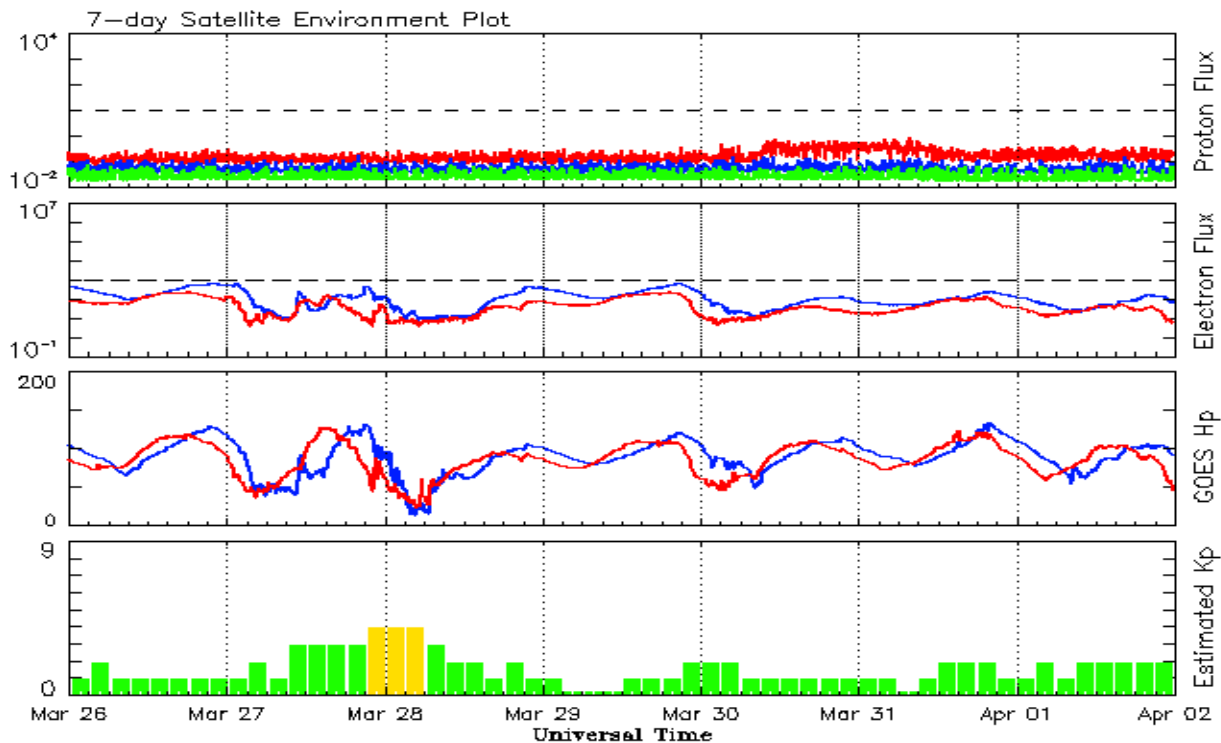


Recent Solar Indices (preliminary)
Observed monthly mean values

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
2010									
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
2011									
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	
2012									
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 26 March 2012*

The proton flux plot contains the five-minute averaged integral proton flux (protons/cm²-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.

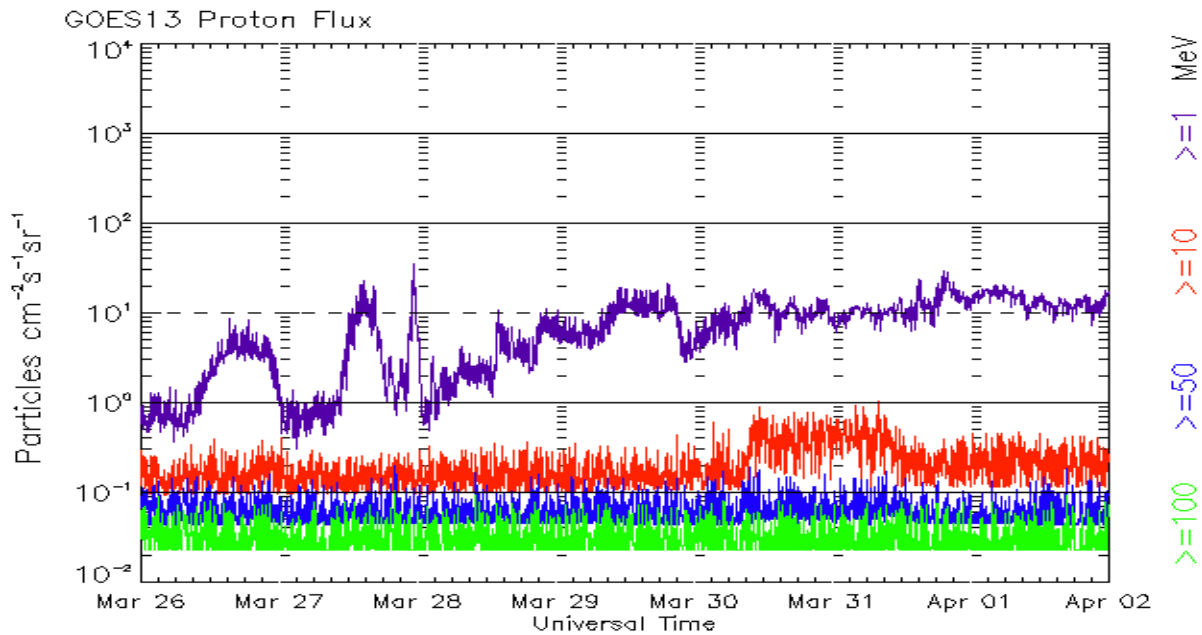
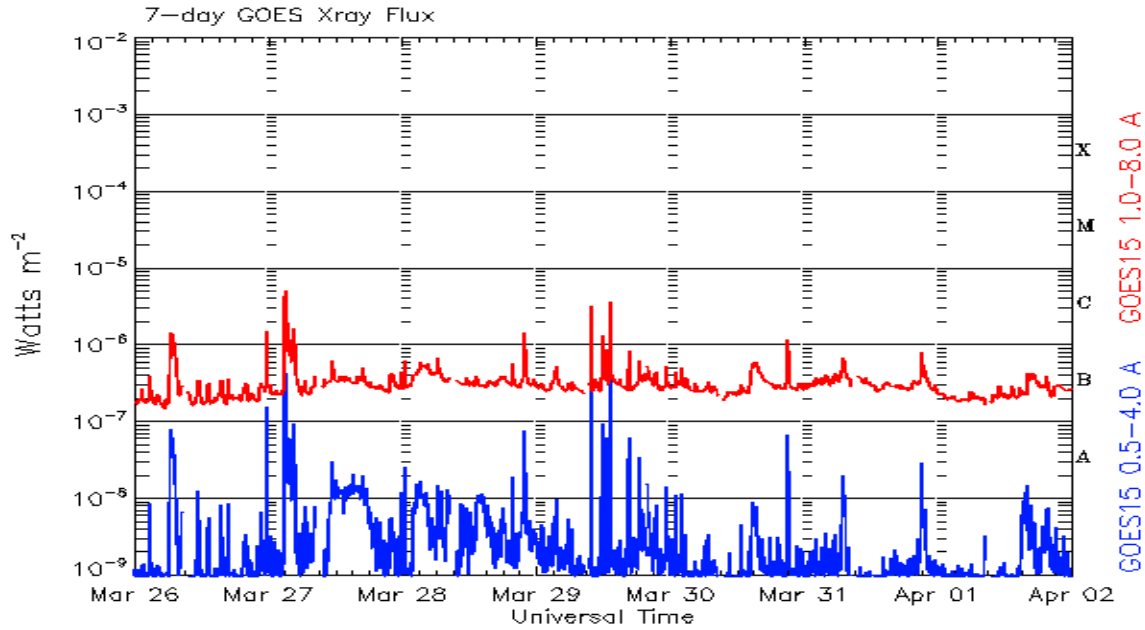
The electron flux plot contains the five-minute averaged integral electron flux (electrons/cm²-sec -sr) with energies greater than 2 MeV by the SWPC Primary GOES satellite.

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 26 March 2012*

The x-ray plots contains five-minute averages x-ray flux (Watt/ m^2) 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^2 -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)

Published every Monday by the Space Weather Prediction Center.

U.S. Department of Commerce
NOAA / National Weather Service
Space Weather Prediction Center
325 Broadway, Boulder CO 80305

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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