

Solar activity ranged from very low to moderate levels. A majority of the week was dominated by very low levels with only B-class events observed on 04, 06 and 08 - 10 March. Activity increased to moderate levels on 05 March when Region 1686 (S13, L=263, class/area Dac/140 on 06 March) produced an impulsive M1/Sf flare at 05/0754 UTC. Associated with this event were weak, low frequency radio emissions including a Type II signature with an estimated shock velocity of 1011 km/s. Later on 05 March, this region produced a C1 event at 2044 UTC as well as another C1 event at 08/1644 UTC as it rotated off the visible disk. The other spotted regions on the disk were quiet and stable through the period. No Earth-directed CMEs were detected during the week.

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit was at high levels 04 - 08 March, reaching a peak flux of 7905 pfu at 06/1925 UTC. Flux levels decayed to moderate levels on 09 - 10 March.

Geomagnetic field activity was at predominately quiet levels with an isolated unsettled period observed at 05/0000 - 0300 UTC. Solar wind speed, as measured at the ACE spacecraft, ranged from a high of about 500 km/s early on 04 March and exhibited a slow, steady decay in speed through the week, ending the period near 340 km/s. Total field measurements ranged from 1 nT to 9 nT while interplanetary magnetic field Bz ranged between +/- 5 nT. The Phi angle began the period in a mostly negative (towards) orientation through about 06/0800 UTC. Through the remainder of the period, field orientation was variable, shifting from negative to positive (away).

Space Weather Outlook **11 March - 06 April 2013**

Solar activity is likely to be low through the period. A slight chance for M-class activity exists through 16 March while Region 1689 remains on the disk, and again from 21 March - 03 April with the return of old Region 1686 (S12, L=263).

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 through 28 March. Moderate to high levels are possible from 29 March - 04 April with the return of a recurrent coronal hole high speed stream (CH HSS). Normal to moderate levels are expected for the remainder of the period.

Geomagnetic field activity is expected to be predominately quiet to unsettled. Active periods are possible on 28 March due to CH HSS effects.



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
04 March	114	103	290	B2.7	0	0	0	0	0	0	0	0
05 March	118	106	300	B3.2	1	1	0	2	0	0	0	0
06 March	114	88	390	B2.8	0	0	0	0	0	0	0	0
07 March	114	80	320	B2.4	1	0	0	0	0	0	0	0
08 March	115	59	160	B3.1	0	0	0	0	0	0	0	0
09 March	116	63	430	B3.2	0	0	0	0	0	0	0	0
10 March	119	89	490	B3.4	0	0	0	0	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
04 March	1.8e+05	1.1e+04	2.8e+03		2.7e+08	
05 March	2.1e+05	1.2e+04	3.2e+03		3.5e+08	
06 March	5.2e+05	1.8e+04	3.6e+03		2.3e+08	
07 March	5.7e+05	2.0e+04	2.9e+03		1.3e+08	
08 March	4.3e+05	1.9e+04	2.9e+03		5.9e+07	
09 March	5.2e+05	1.9e+04	2.8e+03		2.2e+07	
10 March	6.0e+05	2.0e+04	3.0e+03		1.8e+07	

Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
04 March	4	2-1-1-1-2-0-1-1	6	2-1-0-4-2-0-0-0	4	2-1-1-1-1-1-0-1
05 March	3	3-0-0-0-1-1-1-1	1	1-0-1-0-0-1-0-0	4	3-1-0-1-1-0-1-1
06 March	4	1-2-0-1-1-2-1-1	1	0-1-0-0-0-0-1-0	3	1-2-0-0-0-1-1-1
07 March	2	0-1-1-1-1-1-1-0	1	0-0-0-2-1-0-0-0	4	1-1-1-1-1-1-1-1
08 March	3	0-0-1-1-1-1-2-1	1	0-0-0-0-0-0-1-1	3	0-0-1-1-1-1-1-1
09 March	6	2-1-2-2-2-2-2-1	4	1-0-1-2-3-1-1-0	6	2-1-1-2-2-1-2-1
10 March	3	1-0-1-1-2-1-1-1	0	1-0-0-0-0-0-0-0	4	1-0-1-1-1-1-1-2

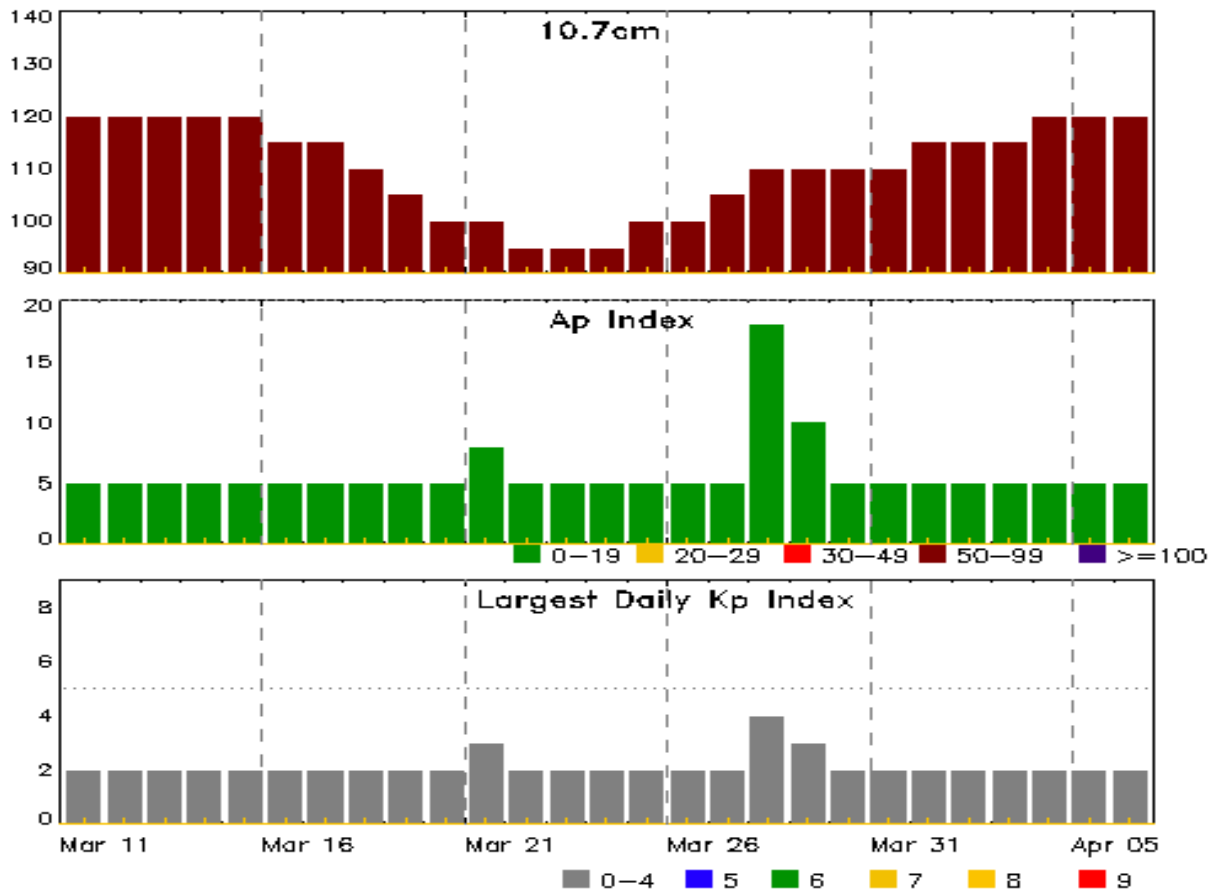


Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
04 Mar 0539	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	02/1040
05 Mar 0505	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	02/1040
05 Mar 0825	ALERT: Type II Radio Emission	05/0756
06 Mar 0653	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	02/1040
07 Mar 0505	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	02/1040
08 Mar 1313	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	02/1040



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
11 Mar	120	5	2	25 Mar	100	5	2
12	120	5	2	26	100	5	2
13	120	5	2	27	105	5	2
14	120	5	2	28	110	18	4
15	120	5	2	29	110	10	3
16	115	5	2	30	110	5	2
17	115	5	2	31	110	5	2
18	110	5	2	01 Apr	115	5	2
19	105	5	2	02	115	5	2
20	100	5	2	03	115	5	2
21	100	8	3	04	120	5	2
22	95	5	2	05	120	5	2
23	95	5	2	06	120	5	2
24	95	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
05 Mar	0747	0754	0759	M1.2	0.004	SF	S15W54	1686	100		1	

Flare List

Date	Time			X-ray Class	Imp/ Brtns	Optical		Rgn #
	Begin	Max	End			Location Lat CMD		
04 Mar	0657	0701	0705	B4.4				1687
05 Mar	0151	0154	0200	B5.2				1686
05 Mar	0518	0523	0530	B6.8				1686
05 Mar	0552	0559	0613	B9.8				1686
05 Mar	0747	0754	0759	M1.2	SF	S15W54		1686
05 Mar	1550	1555	1604	B8.3	SF	S12W57		1686
05 Mar	2038	2044	2048	C1.1				1686
06 Mar	0222	0226	0234	B4.9				1686
06 Mar	0439	0444	0447	B6.5				1686
06 Mar	0738	0742	0746	B7.6				1689
06 Mar	1024	1030	1034	B8.9				1686
07 Mar	0118	0130	0146	B7.3				1689
07 Mar	1115	1119	1123	B4.5				1686
07 Mar	1639	1644	1648	C1.5				1686
08 Mar	1636	1657	1707	B6.8				1684
10 Mar	0219	0331	0353	B6.7				1691
10 Mar	0530	0538	0552	B4.9				1691
10 Mar	1122	1140	1200	B5.1				



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 1680

25 Feb	S28E35	274	40	4	Dao	3	B								
26 Feb	S28E23	273	40	5	Dao	5	B								
27 Feb	S29E11	271	10	4	Bxo	4	B								
28 Feb	S28W00	270	20	4	Cro	3	B				1				
01 Mar	S29W13	270	10	2	Bxo	2	B								
02 Mar	S28W27	271	10	3	Bxo	3	B								
03 Mar	S28W41	272	plage												
04 Mar	S28W55	272	plage												
05 Mar	S28W69	273	plage												
06 Mar	S28W83	274	plage												
								0	0	0	1	0	0	0	0

Crossed West Limb.

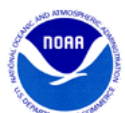
Absolute heliographic longitude: 270

Region 1681

25 Feb	N16E59	249	30	1	Hsx	1	A								
26 Feb	N16E46	249	40	2	Cso	3	B								
27 Feb	N17E33	249	40	3	Cso	3	B								
28 Feb	N17E20	249	20	2	Cro	2	B								
01 Mar	N17E06	251	10	1	Axx	2	A								
02 Mar	N17W07	251	10	1	Axx	2	A								
03 Mar	N17W21	252	10	1	Axx	2	A								
04 Mar	N17W35	252	plage												
05 Mar	N17W49	253	plage												
06 Mar	N17W63	254	plage												
07 Mar	N17W77	255	plage												
								0	0	0	0	0	0	0	0

Died on Disk.

Absolute heliographic longitude: 251



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	4

Region 1682

25 Feb	S18E09	300	30	3	Dro	3	BG								
26 Feb	S18W03	299	170	6	Dac	11	BG								
27 Feb	S18W17	299	110	7	Dai	13	BG				1				
28 Feb	S18W30	299	180	8	Dai	15	BG				1				
01 Mar	S18W42	299	240	8	Dai	12	BG				1				
02 Mar	S18W56	300	240	9	Dao	5	B								
03 Mar	S18W68	298	200	10	Dao	3	B								
04 Mar	S19W81	298	100	6	Dao	3	B								
05 Mar	S18W94	297	60	5	Cao	2	B								
								0	0	0	3	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 299

Region 1683

27 Feb	S17E79	203	90	2	Hsx	1	A								
28 Feb	S16E68	201	150	6	Dao	3	B				1				
01 Mar	S16E54	203	170	10	Dao	8	B				1				
02 Mar	S16E42	202	210	11	Eai	14	BG								
03 Mar	S16E30	200	200	12	Eai	14	B								
04 Mar	S16E17	199	100	10	Dai	15	B								
05 Mar	S15E01	202	80	7	Dao	11	B								
06 Mar	S15W09	199	10	3	Bxo	4	B								
07 Mar	S15W23	201	0	1	Axx	1	A								
08 Mar	S15W37	202	10	1	Axx	2	A								
09 Mar	S15W51	203	plage												
10 Mar	S15W65	203	plage												
								0	0	0	2	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 202



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	4

Region 1684

01 Mar	N18E13	244	10	2	Axx	2	A								
02 Mar	N17W01	245	10	6	Bxo	4	B								
03 Mar	N17W15	245	10	4	Bxo	3	B								
04 Mar	N17W29	246	plage												
05 Mar	N17W43	247	plage												
06 Mar	N17W57	248	plage												
07 Mar	N17W71	249	plage												
08 Mar	N17W85	250	plage												
								0	0	0	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 245

Region 1685

01 Mar	S13E72	185	20	3	Hrx	2	A								
02 Mar	S16E61	183	30	9	Cro	2	B								
03 Mar	S15E46	184	20	6	Dro	3	B								
04 Mar	S14E30	185	10	3	Bxo	2	B								
05 Mar	S14E16	187	10	4	Bxo	2	B								
06 Mar	S13E07	184	plage												
07 Mar	S13W07	185	plage												
08 Mar	S13W21	186	plage												
09 Mar	S13W35	187	plage												
10 Mar	S13W49	187	plage												
								0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 184

Region 1686

03 Mar	S13W31	261	30	5	Dro	6	B								
04 Mar	S13W46	262	40	5	Dso	6	B								
05 Mar	S14W59	262	100	7	Dac	11	BG	1	1		2				
06 Mar	S13W73	263	140	8	Dac	7	BG								
07 Mar	S12W84	262	120	8	Dai	5	BG	1							
								2	1	0	2	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 261



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	4

Region 1687

02 Mar	N06E77	167	plage								2				
03 Mar	N06E65	166	30	4	Cro	3	B								
04 Mar	N06E50	167	10	4	Bxo	3	B								
05 Mar	N10E46	164	10	3	Bxo	4	B								
06 Mar	N09E32	161	60	8	Cao	5	B								
07 Mar	N08E18	160	10	3	Bxo	3	B								
08 Mar	N08E05	160	plage												
09 Mar	N08W09	161	plage												
10 Mar	N08W23	161	plage												
								2	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 160

Region 1688

03 Mar	S17E52	178	20	1	Hsx	1	A								
04 Mar	S15E37	179	20	2	Hsx	2	A								
05 Mar	S15E24	179	30	4	Cso	3	B								
06 Mar	S17E12	178	10	3	Bxo	3	B								
07 Mar	S17W02	180	10	2	Axx	2	A								
08 Mar	S17W16	181	plage												
09 Mar	S17W30	182	plage												
10 Mar	S17W44	182	plage												
								0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 180

Region 1689

04 Mar	S17E63	153	10	2	Bxo	2	B								
05 Mar	S19E54	150	10	2	Bxo	3	B								
06 Mar	S20E41	149	150	10	Cso	8	B								
07 Mar	S20E28	150	150	12	Eao	8	B								
08 Mar	S19E15	150	100	10	Dao	12	B								
09 Mar	S19E02	150	110	8	Dao	13	B								
10 Mar	S19W11	149	140	12	Eai	16	B								
								0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 150



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	4

Region 1690

06 Mar	N23E69	122	20	1	Hsx	1	A								
07 Mar	N23E57	121	30	7	Hsx	1	A								
08 Mar	N23E42	123	30	2	Hsx	2	A								
09 Mar	N23E29	123	30	2	Hsx	2	A								
10 Mar	N24E17	121	20	1	Hrx	1	A								
								0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 121

Region 1691

08 Mar	N12E46	119	20	4	Cro	3	B								
09 Mar	N12E31	121	40	7	Cao	7	B								
10 Mar	N13E16	122	60	10	Cao	7	B								
								0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 122

Region 1692

09 Mar	N09E75	77	250	3	Hhx	1	A								
10 Mar	N09E60	77	220	4	Hsx	1	A								
								0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 77

Region 1693

10 Mar	N18W30	167	20	3	Cro	3	B								
								0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 167

Region 1694

10 Mar	N15E66	71	30	1	Hsx	1	A								
								0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 71

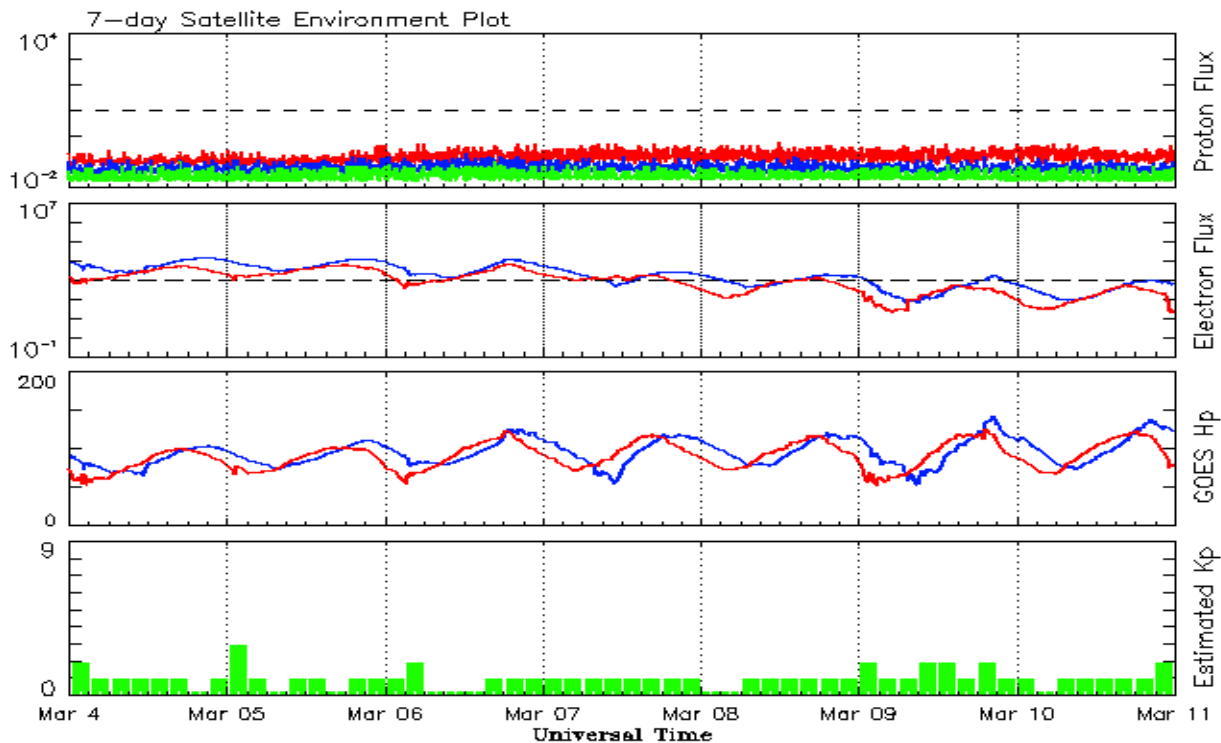


Recent Solar Indices (preliminary)
Observed monthly mean values

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
2011									
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	41.6	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	57.3	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	84.6	59.9	137.2	118.4	7	8.0
November	133.1	96.7	0.73	86.3	61.1	153.1	119.5	3	8.0
December	106.3	73.0	0.69	89.2	63.4	141.2	121.6	3	8.0
2012									
January	91.3	58.3	0.64	92.0	65.5	133.1	124.4	6	8.3
February	50.1	32.9	0.66	94.2	66.9	106.7	126.7	7	8.4
March	77.9	64.3	0.82	94.1	66.8	115.1	126.8	14	8.1
April	84.4	55.2	0.65	91.3	64.6	113.1	125.8	9	8.0
May	99.5	69.0	0.69	87.7	61.7	121.5	123.8	8	8.2
June	88.6	64.5	0.73	83.9	58.9	120.5	121.1	10	8.3
July	99.6	66.5	0.67	82.4	57.7	135.6	119.5	13	8.3
August	85.8	63.0	0.74	83.1	58.1	115.7	119.2	7	8.1
September	84.0	61.4	0.73			123.2		8	
October	73.5	53.3	0.73			123.3		9	
November	89.2	61.4	0.69			120.9		6	
December	60.4	40.8	0.68			108.4		3	
2013									
January	99.8	62.9	0.63			127.1		4	
February	60.0	38.0	0.63			104.4		5	

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 04 March 2013*

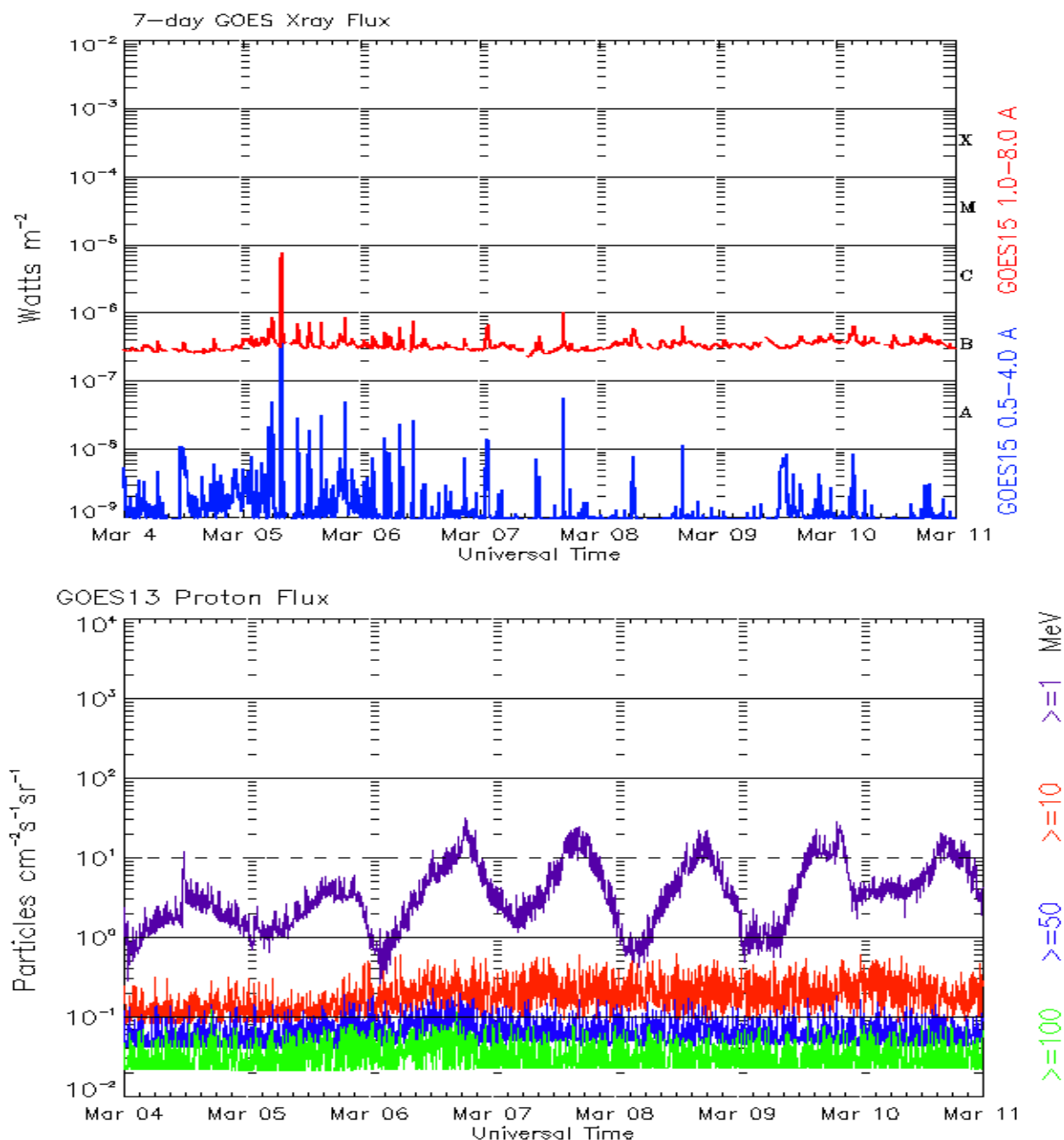
The proton flux plot contains the five-minute averaged integral proton flux (protons/cm²-sec -sr) as measured by the SWPC Primary GOES satellite, near West 75, for each of three energy thresholds: greater than 10, 50, and 100 MeV.

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.

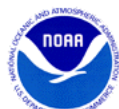
The data included here are those now available in real time at the SWPC and are incomplete in that they do not include the full set of parameters and energy ranges known to cause satellite operating anomalies. The proton and electron fluxes and Kp are 'global' parameters that are applicable to a first 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 04 March 2013*

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 integral 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
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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

The Weekly has been published continuously since 1951 and is available online since 1997.

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http://spaceweather.gov/weekly/Usr_guide.pdf -- User Guide

