

Solar activity was at very low to low levels with isolated B and C-class flares observed. Two CMEs on the earthward side of the sun were observed during the period. The first CME was associated with a C5 x-ray event at 09/2059 UTC from a region rounding the NE limb. It appeared to be the return of old Region 1193 (N17, L=266). This event produced a partial-halo CME with an estimated plane-of-sky velocity of 1225 km/s, based on SOHO/LASCO imagery. The second CME was associated with a B8 x-ray event at 11/0243 UTC, likely associated with a filament eruption between Region 1205 (N14, L=036, class/area Bxo/010 on 03 May) and Region 1207 (N24, L=007, class/area Bxo/020 on 05 May). Associated with the second CME was a Type II radio sweep (632 km/s). Based on SOHO/LASCO imagery, the estimated plane-of-sky velocity was 420 km/s. The rest of the disk was populated with numerous small, magnetically simple spot groups.

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit was at high levels on 09 May and at moderate levels 10 - 15 May.

Geomagnetic activity ranged from quiet to active levels during the period. Activity was at quiet levels on 09 May. Levels increased to quiet to unsettled, with isolated active periods on 10 - 11 May. This increase in activity was associated with the onset of a CH HSS. Activity decreased to quiet levels from 12 - 13 May before increasing to unsettled to active conditions midday on 14 May with the onset of another CH HSS. Conditions were mostly quiet to unsettled on 15 May as weak HSS effects continued.

Space Weather Outlook **18 May - 13 June 2011**

Solar activity is expected to be at very low to low levels through the forecast period. There is a slight chance for isolated periods of moderate levels due to the possible emergence of new regions as well as the return of old regions.

No proton events are expected at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit is expected to be at moderate to high flux levels during 18 - 20 May, normal to moderate flux levels on 21 - 26 May and back to moderate to high flux levels 27 - 29 May. This forecast is based on anticipated recurrent CH HSS influences.

Geomagnetic activity is expected to be at predominately quiet to unsettled levels on 17 May due to continued recurrent CH HSS effects. Activity is expected to decrease to mostly quiet levels during 18 - 25 May. The field is expected to be under the influence of a recurrent negative polarity CH HSS during 26 - 30 May. During this period, quiet to unsettled levels are expected, with isolated active periods on 27 May. Mostly quiet conditions are forecasted to return 31 May - 5 June, before another CH HSS is expected to return. Mostly quiet to unsettled conditions are



expected 6 - 7 June from this small feature, before returning to quiet conditions 8 - 10 June. Mostly unsettled to active conditions are expected to return 11 - 13 June as HSS effects from the CH we are currently under the influence of should return.



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
09 May	104	93	370	B2.9	3	0	0	3	0	0	0	0
10 May	98	80	260	B1.9	0	0	0	0	0	0	0	0
11 May	94	84	230	B1.5	0	0	0	0	0	0	0	0
12 May	93	29	70	B1.3	1	0	0	1	1	0	0	0
13 May	92	29	40	B1.2	0	0	0	1	0	0	0	0
14 May	91	64	120	B1.1	0	0	0	1	0	0	0	0
15 May	95	54	130	B1.3	2	0	0	4	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
	09 May	6.2e+05	1.3e+04	3.2e+03		1.7e+08
10 May	5.5e+05	1.3e+04	3.1e+03		3.7e+07	
11 May	2.5e+05	1.9e+04	3.3e+03		5.2e+06	
12 May	1.6e+05	1.4e+04	3.3e+03		5.8e+06	
13 May	2.8e+05	1.3e+04	3.2e+03		1.1e+07	
14 May	3.3e+05	1.3e+04	3.2e+03		1.0e+07	
15 May	1.2e+06	1.3e+04	3.0e+03		1.0e+07	

Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	09 May	2	1-1-0-1-1-0-1-1	2	2-1-0-0-0-1-0-0	3
10 May	5	1-0-2-2-2-2-2-1	11	1-1-3-3-4-3-2-1	8	1-1-2-2-3-3-3-2
11 May	7	2-3-1-0-1-0-4-1	3	1-1-1-2-2-0-0-0	6	1-3-1-0-1-1-1-1
12 May	2	1-0-1-0-1-0-0-1	0	1-0-0-0-0-0-0-0	3	1-0-1-0-1-1-0-2
13 May	3	0-1-1-2-2-0-1-1	1	1-0-0-0-0-0-1-0	4	1-1-1-1-2-1-1-1
14 May	3	1-1-0-0-1-1-1-2	2	1-2-0-0-0-1-0-1	4	1-1-0-0-0-1-1-2
15 May	9	2-1-2-2-3-2-2-3	6	2-1-0-1-2-3-2-2	11	2-1-1-2-3-4-3-3

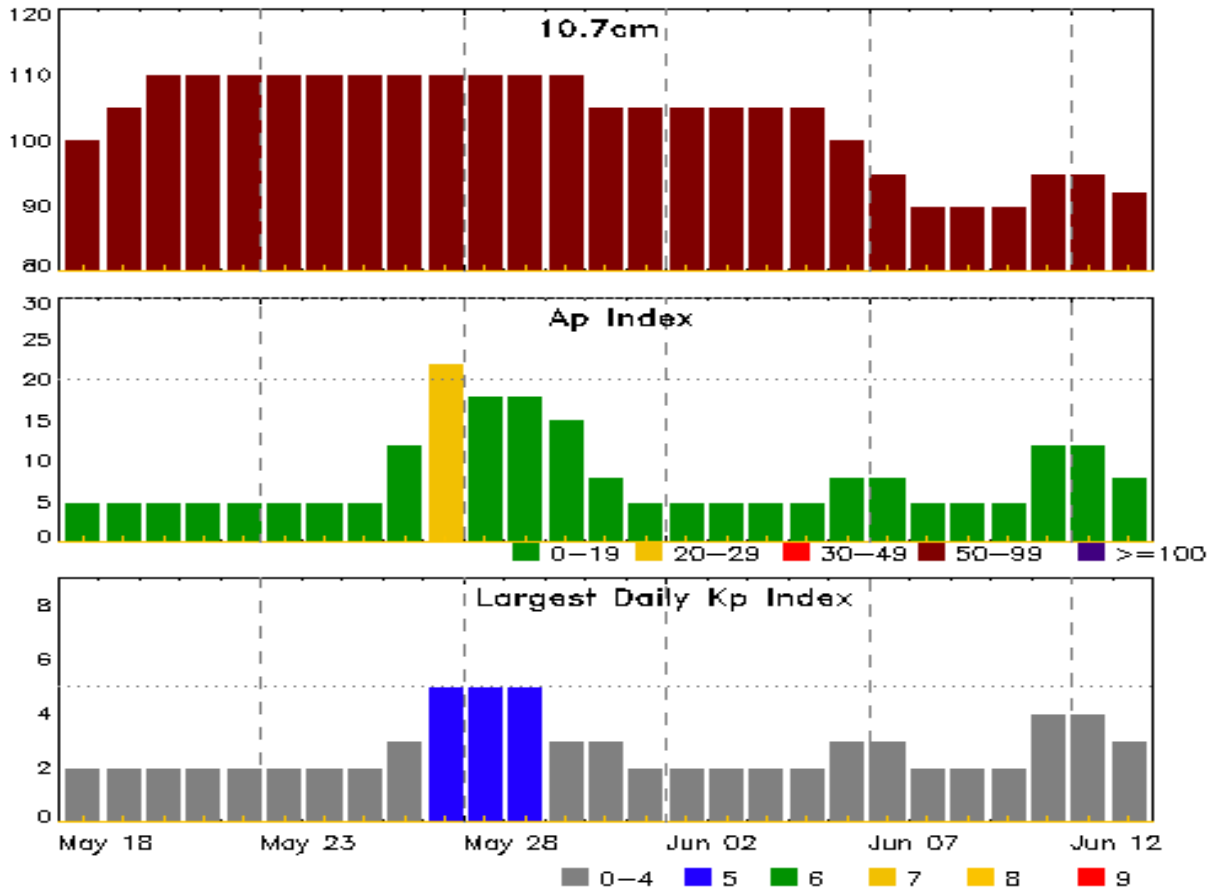


Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
09 May 0833	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	01/0035
10 May 1418	WARNING: Geomagnetic K = 4	10/1420 - 11/0000
10 May 1527	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	01/0035
10 May 1707	ALERT: Geomagnetic K = 4	10/1705
11 May 0350	ALERT: Type II Radio Emission	11/0227
11 May 0415	WARNING: Geomagnetic K = 4	11/0420 - 1200
15 May 0003	WARNING: Geomagnetic K = 4	15/0005 - 1600
15 May 1502	EXTENDED WARNING: Geomagnetic K = 4	15/0005 - 16/1600
15 May 1704	ALERT: Geomagnetic K = 4	17/1703



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
18 May	100	5	2	01 Jun	105	5	2
19	105	5	2	02	105	5	2
20	110	5	2	03	105	5	2
21	110	5	2	04	105	5	2
22	110	5	2	05	105	5	2
23	110	5	2	06	100	8	3
24	110	5	2	07	95	8	3
25	110	5	2	08	90	5	2
26	110	12	3	09	90	5	2
27	110	22	5	10	90	5	2
28	110	18	5	11	95	12	4
29	110	18	5	12	95	12	4
30	110	15	3	13	92	8	3
31	105	8	3				



Energetic Events

Date	Time			X-ray	Optical Information			Peak		Sweep Freq	
	Begin	Max	Half Max	Class	Integ Flux	Imp/ Brtns	Location Lat CMD	Rgn #	245	2695	Intensity II

No Events Observed

Flare List

Date	Time			X-ray Class	Optical			Rgn #
	Begin	Max	End		Imp/ Brtns	Location Lat CMD	Rgn #	
09 May	0426	0430	0433	B5.6			1210	
09 May	0511	0516	0518	C1.4			1210	
09 May	1319	1325	1347	B7.1	SF	N20E15	1210	
09 May	1601	1609	1615		SF	N20E13	1210	
09 May	1729	1741	1754	C1.5	SF	N20E12	1210	
09 May	2042	2059	2119	C5.4				
11 May	0223	0243	0323	B8.1			1204	
11 May	2028	2036	2054	B3.2			1210	
12 May	1211	1236	1248	C2.0	1F	N21E58		
12 May	B1224	U1232	1303		SF	S17E56		
13 May	1348	1355	1400	B2.2				
13 May	2135	2140	2150	B2.2	SF	N23W42	1210	
14 May	0057	0058	0129	B2.1	SF	S19W67	1213	
14 May	1143	1147	1152	B1.8			1210	
15 May	0438	0442	0446	B1.9				
15 May	0735	0739	0742	B2.5				
15 May	1304	1308	1312	B3.0			1214	
15 May	1411	1425	1430	C1.3	SF	N11W45	1208	
15 May	1616	1620	1622	B5.6	SF	N10W50	1208	
15 May	1722	1723	1737		SF	N09W41	1208	
15 May	1739	1743	1745	B8.4	SF	N11W50	1208	
15 May	2325	2334	2341	C4.8			1208	



Region Summary

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 1203																	
28 Apr	N19E77		62	40	5	Hsx	1	A									
29 Apr	N18E64		62	50	1	Cso	2	B	1								
30 Apr	N18E51		61	120	4	Dao	4	B									
01 May	N19E38		61	160	6	Cso	3	B									
02 May	N18E28		58	100	7	Cso	4	B									
03 May	N17E11		63	120	3	Hsx	1	A									
04 May	N17W02		64	120	5	Cao	6	B									
05 May	N17W15		63	80	5	Hsx	2	A									
06 May	N17W28		62	100	5	Hsx	2	A									
07 May	N17W41		62	70	3	Hsx	4	A									
08 May	N18W55		62	100	2	Hsx	1	A				1					
09 May	N18W68		62	120	2	Hsx	1	A									
10 May	N18W81		62	60	2	Hsx	1	A									
11 May	N18W92		59	60	1	Hsx	1	A									
									1	0	0	1	0	0	0	0	

Crossed West Limb.

Absolute heliographic longitude: 64

Region 1204																	
02 May	N17E38		48	50	5	Cso	3	B					1				
03 May	N17E26		47	130	7	Cao	10	B	1				1				
04 May	N17E13		49	120	7	Cao	12	B									
05 May	N17W00		48	120	7	Cao	12	B					1				
06 May	N17W14		48	120	7	Dao	12	B									
07 May	N17W27		48	130	9	Dao	14	B									
08 May	N17W41		48	90	9	Dao	9	B									
09 May	N17W57		51	100	3	Cao	3	B									
10 May	N17W71		52	50	2	Hsx	2	A									
11 May	N17W85		52	50	1	Hsx	1	A									
									1	0	0	3	0	0	0	0	

Crossed West Limb.

Absolute heliographic longitude: 48



Region Summary - continued

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

Region 1205

02 May	N14E52	34	0	1	Axx	1	A										
03 May	N14E37	36	10	3	Bxo	3	B										
04 May	N14E23	38	10	5	Axx	1	A										
05 May	N14E09	39	5	5	Axx	1	A										
06 May	N14W05	39	0	1	Axx	1	A										
07 May	N14W19	40	plage														
08 May	N14W33	41	plage														
09 May	N14W47	42	plage														
10 May	N14W61	42	plage														
11 May	N14W75	43	plage														
12 May	N14W89	44	plage														
									0	0	0	0	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 39

Region 1207

05 May	N24E40	7	20	4	Bxo	3	B										
06 May	N24E26	8	10	4	Bxo	3	B										
07 May	N24E12	9	plage														
08 May	N24W02	10	plage														
09 May	N24W16	11	plage														
10 May	N21W37	18	10	5	Bxo	3	B										
11 May	N21W51	18	10	3	Bxo	2	B										
12 May	N21W65	20	plage														
13 May	N21W79	21	plage														
									0	0	0	0	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 10



Region Summary - continued

Date	Location		Sunspot Characteristics				Flares									
	Lat	CMD	Helio	Area	Extent	Spot	Spot	Mag	X-ray			Optical				
			Lon	10 ⁻⁶ hemi.	(helio)	Class	Count	Class	C	M	X	S	1	2	3	4
Region 1208																
08 May	N13E49		318	30	5	Cro	6	B								
09 May	N12E36		318	100	6	Dso	9	B								
10 May	N12E22		319	70	7	Dso	8	B								
11 May	N12E08		319	50	7	Dso	8	B								
12 May	N12W06		321	50	11	Eso	8	B								
13 May	N12W19		321	20	10	Bxo	8	B								
14 May	N11W33		321	30	12	Bxo	3	B								
15 May	N11W48		323	50	12	Eso	7	B	2			4				
									2	0	0	4	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 321

Region 1209																
09 May	N35W05		360	10	6	Bxo	5	B								
11 May	N35W33		1	plage												
12 May	N35W47		2	plage												
13 May	N35W61		3	plage												
14 May	N35W75		4	plage												
15 May	N35W89		4	plage												
									0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 360

Region 1210																
09 May	N20E08		347	30	4	Dsi	13	B	2			3				
10 May	N20W06		347	70	7	Csi	16	B								
11 May	N19W21		348	50	5	Cso	11	B								
12 May	N19W34		349	20	5	Hrx	1	A								
13 May	N19W48		350	20	5	Bxo	1	B				1				
14 May	N18W61		350	20	5	Hrx	1	A								
15 May	N18W75		350	10	1	Axx	1	A								
									2	0	0	4	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 347



Region Summary - continued

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

Region 1211

09 May	S12W23	18	10	1	Bxo	2	B										
10 May	S12W37	18	plage														
11 May	S12W51	19	plage														
12 May	S12W65	20	plage														
13 May	S12W79	21	plage														
									0	0	0	0	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 18

Region 1212

11 May	S13E46	281	10		Axx	1	A										
12 May	S13E32	283	plage														
13 May	S13E18	284	plage														
14 May	S13E04	285	plage														
15 May	S13W10	285	plage														
									0	0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 285

Region 1213

14 May	S21W80	8	0	1	Axx	1	A				1						
15 May	S21W94	9	plage														
									0	0	0	1	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 8

Region 1214

14 May	S20E17	270	50	6	Bxo	7	B										
15 May	S25E01	270	70	6	Dao	16	B										
									0	0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 270

Region 1215

14 May	S23W30	318	20	3	Bxo	2	B										
15 May	S23W43	318	plage														
									0	0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 318

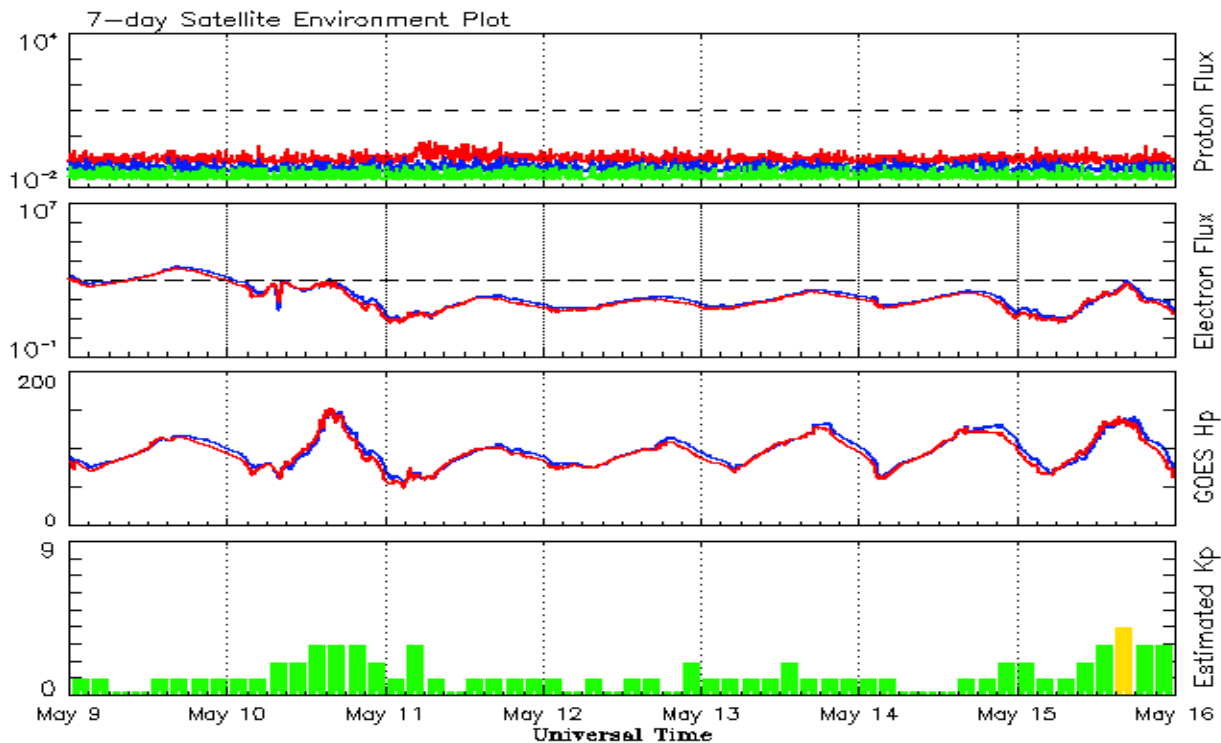


Recent Solar Indices (preliminary)
Observed monthly mean values

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
2009									
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
2010									
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	35.9	23.2	81.6	85.3	6	6.4
November	36.1	21.5	0.60			82.5		5	
December	22.0	14.4	0.66			84.3		4	
2011									
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	
April	81.7	54.4	0.67			112.6		9	

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 09 May 2011*

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.

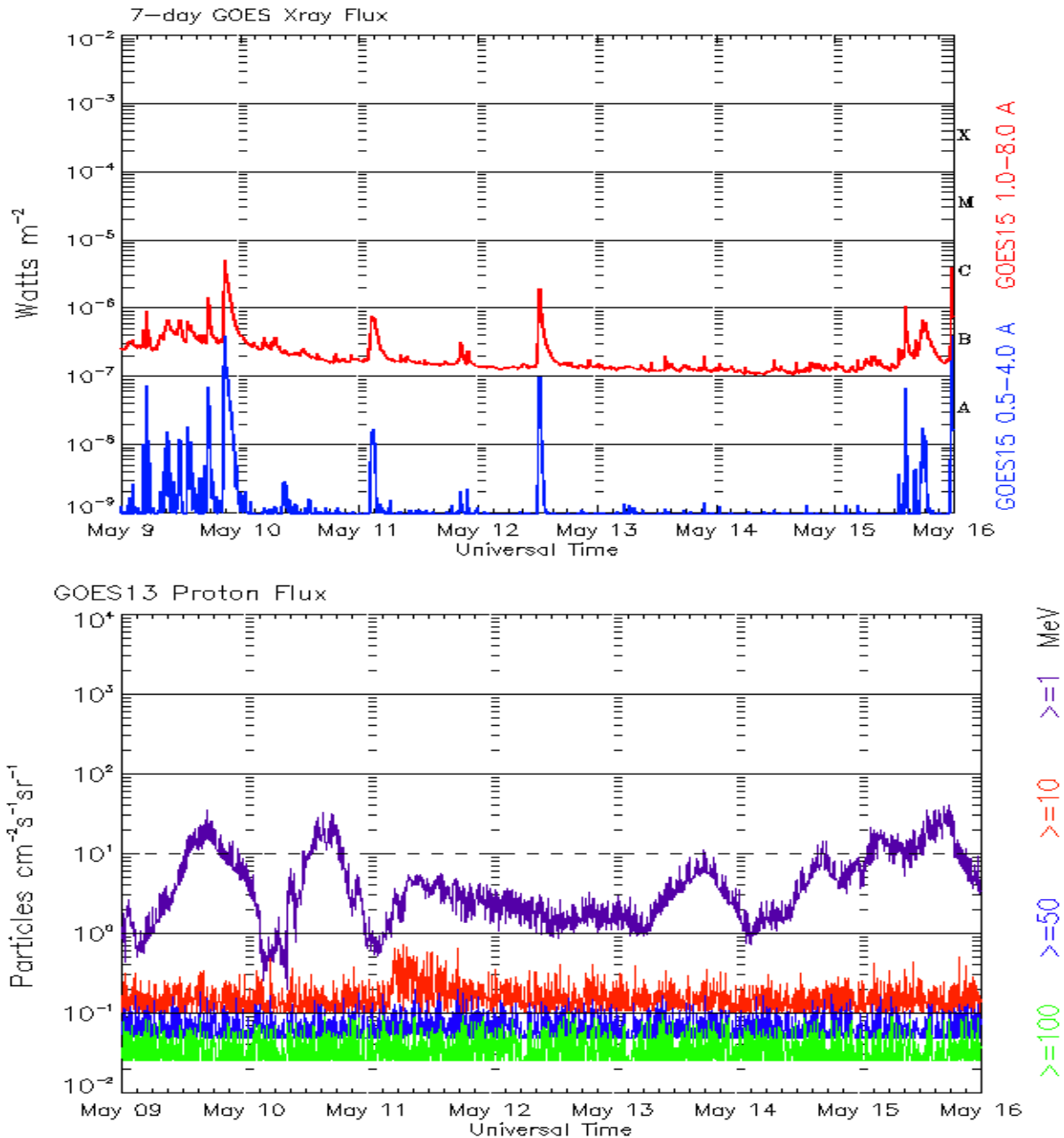
The electron flux plot contains the five-minute averaged integral electron flux (electrons/cm²-sec -sr) with energies greater than 2 MeV by the SWPC Primary GOES satellite.

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.

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 09 May 2011*

The x-ray plots contains five-minute averages x-ray flux (Watt/m²) 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/cm² -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.



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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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