

Solar activity began the week at very low levels. An increase to low occurred with a C2 x-ray event at 0233 UTC on 27 April from Region 1201 (N16, L=116, plage region). Activity continued at low levels for the remainder of the week with the primary contributions from Region 1199 (N20, L=188, class/area Dso/210 on 01 May), Region 1203 (N18, L=061, class/area Cso/160 on 01 May), and Region 1195 (S16, L=191, class/area Ehi/400 on 25 April). The largest event of the week was a C6/Sf from Region 1199 at 2332 UTC on 01 May.

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit was at low to moderate levels for 25-30 April, and reached high levels on 01 May.

Geomagnetic field activity was generally quiet from 25-28 April. An increase to unsettled to active levels (with occasional storm periods at high latitudes) occurred late on 29 April and persisted through 01 May in response to a favorably positioned negative polarity coronal hole. The high speed stream followed a clear solar sector boundary crossing at 1445 UTC on 28 April. Solar wind velocity began to increase at 1600 UTC on 29 April and reached peak values around 740 km/s. The north-south component of the solar wind Bz turned negative after 1600 UTC on 29 April and persisted at generally negative values for the remainder of the week. Typical values were in the range between 0 and -5 nT with peak values reaching -10 to -12 nT.

### **Space Weather Outlook** **04 May - 30 May 2011**

Solar activity is expected to be very low to low. There is a chance for isolated periods of moderate levels due to the possible emergence of new regions as well as the return of old Region 1195 on 15 May.

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 for 04-07 May in response to the sustained high solar wind speed mentioned previously. Normal background levels should resume for 08-09 May but another increase to high levels is expected for 10-12 May in response to another high speed stream. Normal background levels should return for the remainder of the outlook interval with the exception of 19-20 May and 28-30 May due to recurrent high speed streams.

Geomagnetic field activity is expected to be quiet to unsettled for 04 May and generally quiet for 05-08 May. An increase to unsettled levels with possible active periods is expected for 9-10 May in response to a recurrent coronal hole. Quiet levels should prevail until 17 May when another recurrent high speed stream is expected to increase activity to unsettled to active levels. Quiet levels should return for 18-25 May, followed by an increase to unsettled to active levels with a chance for storm periods at high latitudes for 26-30 May in response to a recurrent coronal hole.



### *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
25 April	112	67	680	B3.1	0	0	0	0	0	0	0	0
26 April	109	57	245	B2.8	0	0	0	0	0	0	0	0
27 April	108	39	350	B2.7	1	0	0	2	0	0	0	0
28 April	110	71	450	B2.4	3	0	0	1	0	0	0	0
29 April	110	70	440	B2.6	3	0	0	2	0	0	0	0
30 April	110	76	530	B3.4	5	0	0	6	0	0	0	0
01 May	106	57	500	B2.9	2	0	0	2	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
	25 April	1.3e+05	1.4e+04	3.1e+03		5.2e+06
26 April	1.1e+05	1.3e+04	3.1e+03		6.6e+06	
27 April	1.8e+05	1.3e+04	3.2e+03		8.9e+06	
28 April	3.8e+05	1.3e+04	3.1e+03		8.9e+06	
29 April	3.8e+05	1.3e+04	3.0e+03		4.3e+06	
30 April	1.1e+06	1.2e+04	2.9e+03		6.7e+06	
01 May	1.4e+06	1.2e+04	2.9e+03		2.0e+08	

### *Daily Geomagnetic Data*

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	25 April	2	1-2-1-0-0-0-0-0	2	2-2-0-0-0-1-0-0	6
26 April	1	0-0-1-0-1-1-0-0	1	0-0-2-1-0-0-0-0	3	0-0-1-0-1-1-1-1
27 April	0	0-0-0-0-0-0-0-0	1	1-0-0-0-0-1-0-0	3	0-0-0-0-1-1-1-1
28 April	1	0-0-0-0-1-0-1-1	1	0-0-0-0-0-1-1-0	3	0-0-0-1-1-2-2-1
29 April	8	1-2-1-0-1-1-3-4	6	1-2-0-2-0-2-2-3	12	1-3-1-1-2-3-4-4
30 April	17	4-2-3-4-4-2-3-2	43	4-3-6-7-4-4-3-3	24	4-3-3-5-4-3-4-4
01 May	13	3-3-2-2-4-3-2-2	56	6-4-6-6-6-6-3-2	19	3-3-3-3-4-4-3-3

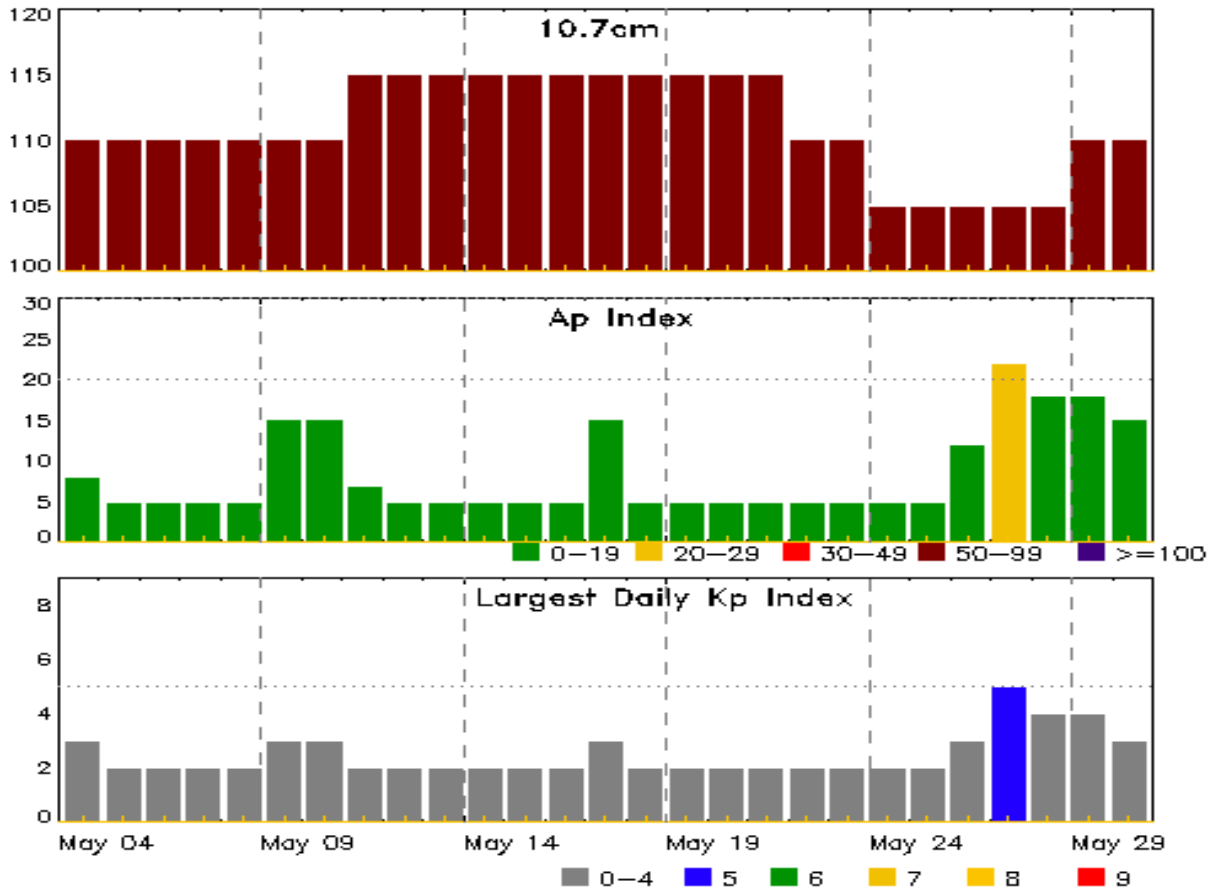


### *Alerts and Warnings Issued*

<b>Date &amp; Time of Issue UTC</b>	<b>Type of Alert or Warning</b>	<b>Date &amp; Time of Event UTC</b>
27 Apr 0448	ALERT: Type II Radio Emission	27/0231
29 Apr 1951	WARNING: Geomagnetic K = 4	29/1950 - 30/1600
29 Apr 2205	ALERT: Geomagnetic K = 4	29/2204
29 Apr 2223	WARNING: Geomagnetic K = 5	29/2223 - 30/1600
29 Apr 2226	ALERT: Geomagnetic K = 5	29/2224
30 Apr 0837	CANCELLATION: Geomagnetic K = 5	
30 Apr 1053	WARNING: Geomagnetic K = 5	30/1055 - 1500
30 Apr 1403	EXTENDED WARNING: Geomagnetic K = 4	29/1950 - 01/0600
30 Apr 1410	WARNING: Geomagnetic K = 6	30/1500 - 1500
30 Apr 1410	EXTENDED WARNING: Geomagnetic K = 5	30/1055 - 2100
30 Apr 1457	EXTENDED WARNING: Geomagnetic K = 6	30/1500 - 2100
01 May 0051	ALERT: Electron 2MeV Integral Flux $\geq$ 1000pfu	01/0035
01 May 0555	EXTENDED WARNING: Geomagnetic K = 4	29/1950 - 01/1500
01 May 0948	CONTINUED ALERT: Electron 2MeV Integral Flux $\geq$ 1000pfu	01/0035
01 May 1218	WARNING: Geomagnetic K = 5	01/1220 - 1800
01 May 1219	EXTENDED WARNING: Geomagnetic K = 4	29/1950 - 02/0000
01 May 2352	EXTENDED WARNING: Geomagnetic K = 4	29/1950 - 02/0600



## 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
04 May	110	8	3	18 May	115	5	2
05	110	5	2	19	115	5	2
06	110	5	2	20	115	5	2
07	110	5	2	21	115	5	2
08	110	5	2	22	110	5	2
09	110	15	3	23	110	5	2
10	110	15	3	24	105	5	2
11	115	7	2	25	105	5	2
12	115	5	2	26	105	12	3
13	115	5	2	27	105	22	5
14	115	5	2	28	105	18	4
15	115	5	2	29	110	18	4
16	115	5	2	30	110	15	3
17	115	15	3				



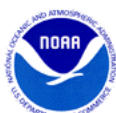
## *Energetic Events*

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

**No Events Observed**

## *Flare List*

Date	Time			X-ray Class	Imp/ Brtns	Location Lat CMD	Rgn #
	Begin	Max	End				
25 Apr	0233	0322	0356	B8.7			1193
25 Apr	1601	1606	1608	B8.1			1195
25 Apr	2212	2219	2227	B9.3			1193
26 Apr	2210	2216	2222	B4.4			
27 Apr	0226	0233	0301	C2.0			1201
27 Apr	0613	0617	0627	B8.7			1199
27 Apr	1357	1400	1403	B4.5	SF	S17W30	1195
27 Apr	2254	2304	2323	B8.0	SF	S25W13	1196
28 Apr	0232	0240	0246	C1.0			1196
28 Apr	0859	0903	0912	B4.4			1202
28 Apr	0915	0922	0935	B6.7			1202
28 Apr	1002	1019	1028	B8.3			1199
28 Apr	1041	1047	1052	B8.0			1196
28 Apr	1151	1158	1203	C2.4			1199
28 Apr	1239	1247	1251	C1.1			
28 Apr	2106	2112	2118	B8.2	SF	N22W47	1199
29 Apr	0017	0026	0033	C3.8			1203
29 Apr	0126	0129	0131	B8.9			1199
29 Apr	0851	0854	0859	B4.9			
29 Apr	1244	1248	1256	B6.6			1200
29 Apr	2040	2048	2058	C1.8	SF	S14W68	1195
29 Apr	2154	2155	2200		SF	S16W62	1195
29 Apr	2249	2255	2300	C1.5			1195
30 Apr	0414	0420	0424	B7.6			1199
30 Apr	0505	0508	0511	B6.8			
30 Apr	0811	0819	0828	C1.5			1199
30 Apr	0855	0904	0908	C1.7			1199
30 Apr	1132	1151	1159	C3.2			1195
30 Apr	1219	1228	1242	C1.0			1195
30 Apr	1308	1326	1420	C3.2	SF	S16W71	1195
30 Apr	1452	1459	1503		SF	N21W68	1199
30 Apr	1512	1531	1544		SF	N22W66	1199



## *Flare List*

Date	Time			X-ray Class	Imp/ Brtns	Optical		Rgn #
	Begin	Max	End			Location Lat CMD		
30 Apr	2154	2157	2200	B6.4	SF	S23W54		1196
30 Apr	2209	2212	2215	B6.6	SF	N21W71		1199
30 Apr	2224	2225	2227		SF	N21W72		1199
01 May	0751	0814	0842	C1.6				1195
01 May	0949	0957	1004	B9.9				1196
01 May	1158	1201	1206	B6.6				1195
01 May	1237	1250	1306	B5.8				1203
01 May	1832	1833	1842		SF	S28W60		1196
01 May	2325	2332	2339	C6.5	SF	N21W79		1199



## 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	4							
<b>Region 1193</b>																							
13 Apr	N17E71	266	220	9	Dao	6	B	1				5											
14 Apr	N16E58	266	260	10	Dao	9	B	3				14											
15 Apr	N17E44	267	340	12	Eko	14	B	1				4											
16 Apr	N16E32	265	360	13	Eki	19	BG	1				2											
17 Apr	N16E19	266	430	12	Eai	21	BG																
18 Apr	N17E05	266	350	13	Esc	22	B	2				5											
19 Apr	N17W08	265	350	14	Eki	26	BG					1											
20 Apr	N16W20	265	300	13	Ehi	26	B					1											
21 Apr	N16W32	264	300	13	Ehi	20	B					1											
22 Apr	N17W45	264	190	13	Esi	16	B					2											
23 Apr	N17W57	262	270	9	Eki	18	BG					1											
24 Apr	N18W73	265	200	7	Cao	18	B																
25 Apr	N16W84	262	270	9	Dso	8	B																
								8	0	0		36	0	0	0	0							

Crossed West Limb.

Absolute heliographic longitude: 266

<b>Region 1195</b>																							
18 Apr	S16E82	189	plage					1															
19 Apr	S16E68	189	20	1	Dao	1	B	1				5											
20 Apr	S17E55	189	100	6	Dai	7	B	2				4											
21 Apr	S17E43	189	240	9	Dai	10	B	4				9	2										
22 Apr	S18E28	190	340	11	Ekc	25	BG	15	2			22	3										
23 Apr	S16E14	191	310	8	Ekc	22	BG	6				7											
24 Apr	S15W00	192	300	11	Dho	23	B																
25 Apr	S16W12	190	400	10	Ehi	25	B																
26 Apr	S17W25	191	210	10	Eho	4	B																
27 Apr	S17W38	191	230	10	Dho	7	B					1											
28 Apr	S18W52	192	220	10	Dho	6	B																
29 Apr	S15W65	192	170	8	Dho	4	B	2				2											
30 Apr	S16W80	192	110	4	Dho	2	B	3				1											
01 May	S16W93	197	120	3	Hsx	1	A	1															
								35	2	0		51	5	0	0	0							

Still on Disk.

Absolute heliographic longitude: 192



### *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	4		
<b>Region 1196</b>																		
20 Apr	S27E69	175	80	10	Dao	4	B											
21 Apr	S26E63	169	40	8	Cso	4	B						1					
22 Apr	S25E52	167	50	10	Cro	6	B						1					
23 Apr	S26E40	166	10	7	Bxo	10	B											
24 Apr	S25E21	171	20	4	Cso	7	B						1					
25 Apr	S26E11	168	10	6	Bxo	4	B											
26 Apr	S28E02	164	5	1	Axx	1	A											
27 Apr	S28W12	165	plage										1					
28 Apr	S23W32	172	10	2	Bxo	2	B	1										
29 Apr	S30W45	172	10	1	Bxo	2	B											
30 Apr	S30W59	173	plage										1					
01 May	S30W73	173	plage										1					
									1	0	0		6	0	0	0	0	0

Still on Disk.  
Absolute heliographic longitude: 164

<b>Region 1197</b>																		
21 Apr	S16E57	175	10		Axx	1	A											
22 Apr	S16E43	176	plage															
23 Apr	S16E29	177	plage															
24 Apr	S16E15	178	plage															
25 Apr	S16E01	179	plage															
26 Apr	S16W13	180	plage															
27 Apr	S16W27	180	plage															
28 Apr	S16W41	181	plage															
29 Apr	S16W55	182	plage															
30 Apr	S16W69	183	plage															
01 May	S16W83	183	plage															
									0	0	0		0	0	0	0	0	0

Still on Disk.  
Absolute heliographic longitude: 179





### *Region Summary - continued*

Date	Location		Sunspot Characteristics					Flares									
	Lat	CMD	Helio	Area	Extent	Spot	Spot	Mag	X-ray			Optical					
			Lon	10 <sup>-6</sup> hemi.	(helio)	Class	Count	Class	C	M	X	S	1	2	3	4	
<b>Region 1198</b>																	
21 Apr	S26W38		270	10	3	Bxo	4	A									
22 Apr	S25W53		272	10	3	Bxo	3	B									
23 Apr	S25W67		273	plage													
24 Apr	S25W81		274	plage								1					
25 Apr	S26W89		268	plage	3												
									0	0	0	1	0	0	0	0	0

Crossed West Limb.  
 Absolute heliographic longitude: 270

<b>Region 1199</b>																	
26 Apr	N21W23		189	20	5	Cai	8	B									
27 Apr	N21W34		187	120	7	Dai	12	B									
28 Apr	N18W48		188	170	8	Dsi	10	B	1			1					
29 Apr	N18W62		188	180	6	Esi	8	B									
30 Apr	N20W74		186	200	8	Dsi	7	B	2			4					
01 May	N18W86		188	210	1	Dso	5	B	1			1					
									4	0	0	6	0	0	0	0	0

Still on Disk.  
 Absolute heliographic longitude: 189

<b>Region 1200</b>																	
26 Apr	S17E42		124	10	4	Bxo	4	B									
27 Apr	S17E28		125	plage													
28 Apr	S17E14		126	plage													
29 Apr	S17E05		121	30	3	Bxo	4	B									
30 Apr	S18W09		121	20	3	Bxo	5	B									
01 May	S18W23		122	10	4	Bxo	8	B									
									0	0	0	0	0	0	0	0	0

Still on Disk.  
 Absolute heliographic longitude: 121



### *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 1201*

27 Apr	N16E40	112	plage							1							
28 Apr	N16E26	114	plage														
29 Apr	N16E12	115	plage														
30 Apr	N16W02	116	plage														
01 May	N16W16	116	plage														
										1	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 116

#### *Region 1202*

28 Apr	N15W38	177	10	2	Bxo	2	B										
29 Apr	N15W51	177	plage														
30 Apr	N15W65	179	80	8	Dao	8	B										
01 May	N15W79	179	plage														
										0	0	0	0	0	0	0	0

Still on Disk.

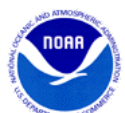
Absolute heliographic longitude: 177

#### *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										
										1	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 61

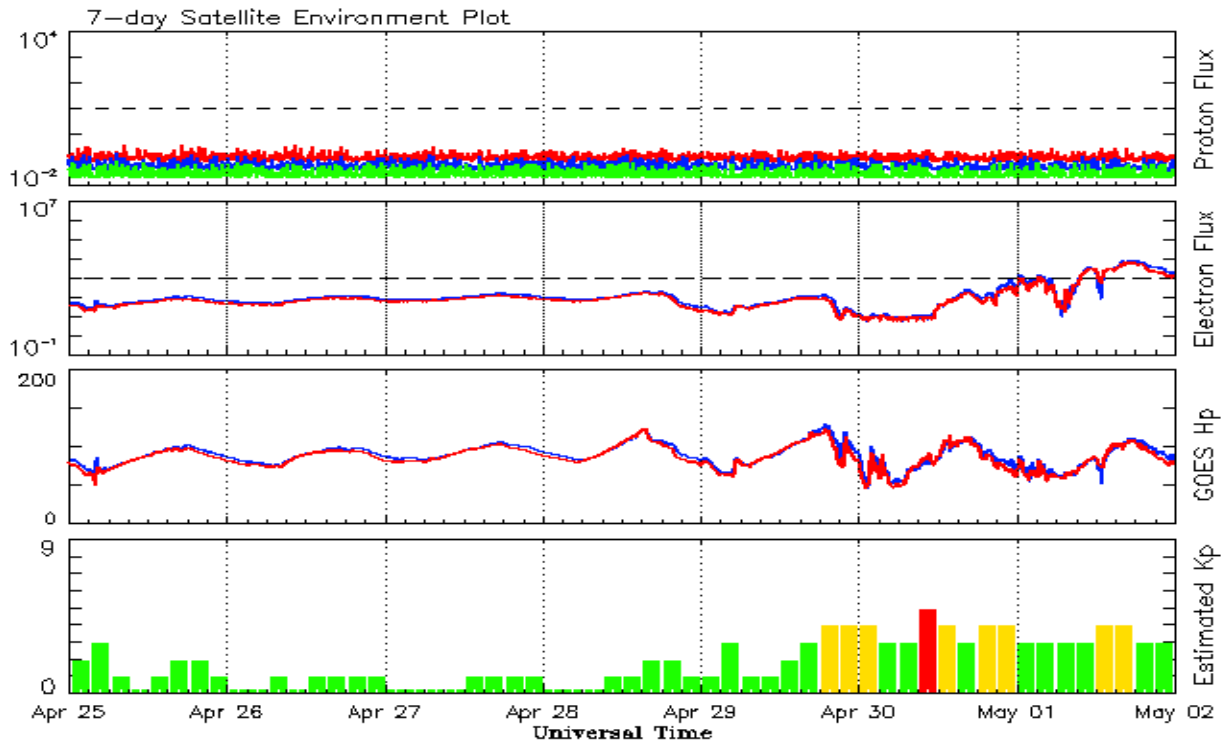


**Recent Solar Indices (preliminary)**  
**Observed monthly mean values**

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>2009</b>									
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
<b>2010</b>									
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	
<b>2011</b>									
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 25 April 2011*

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.

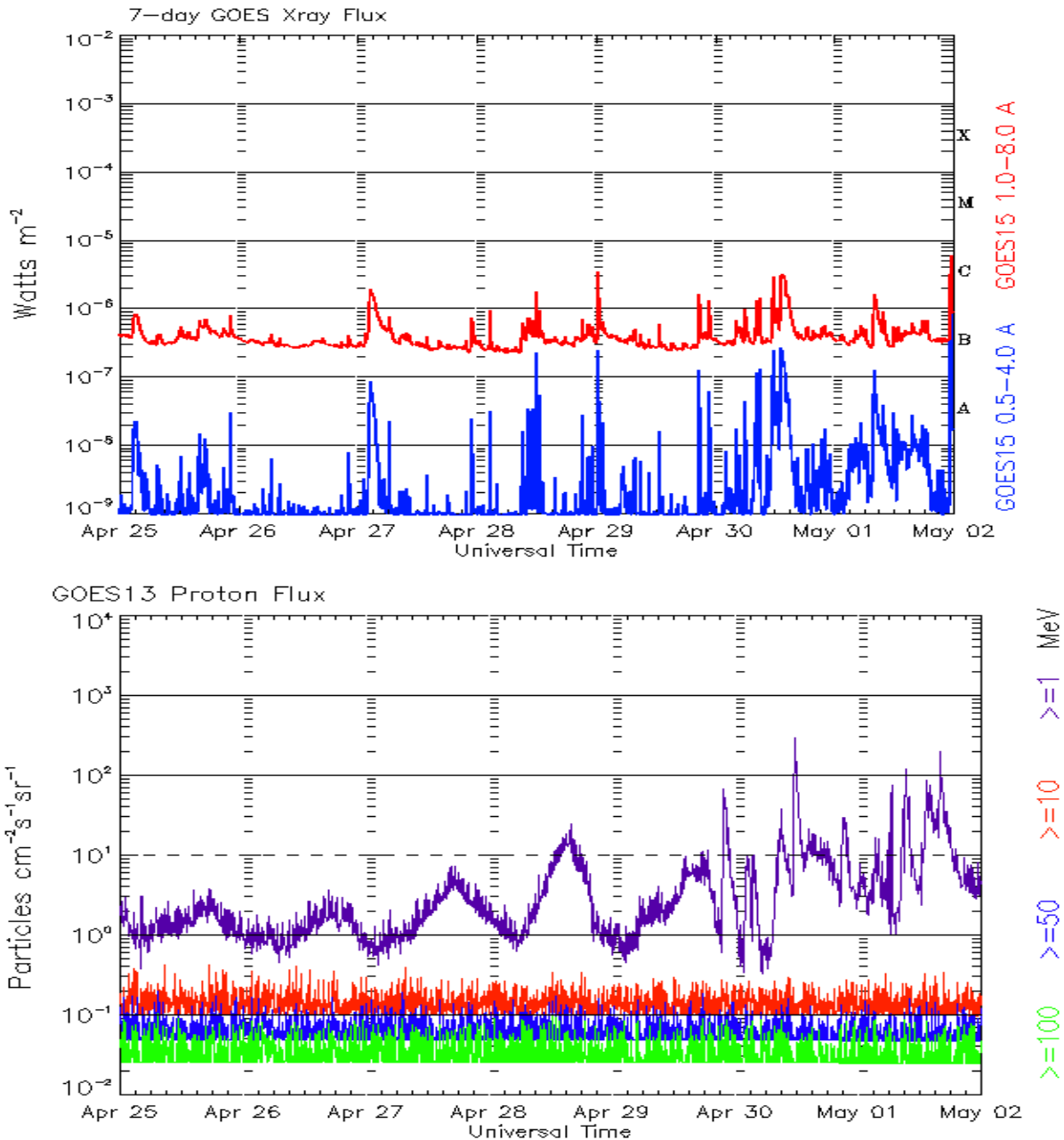
The electron flux plot contains the five-minute averaged integral electron flux (electrons/cm<sup>2</sup>-sec -sr) with energies greater than 2 MeV by the SWPC Primary GOES satellite.

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.

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 25 April 2011*

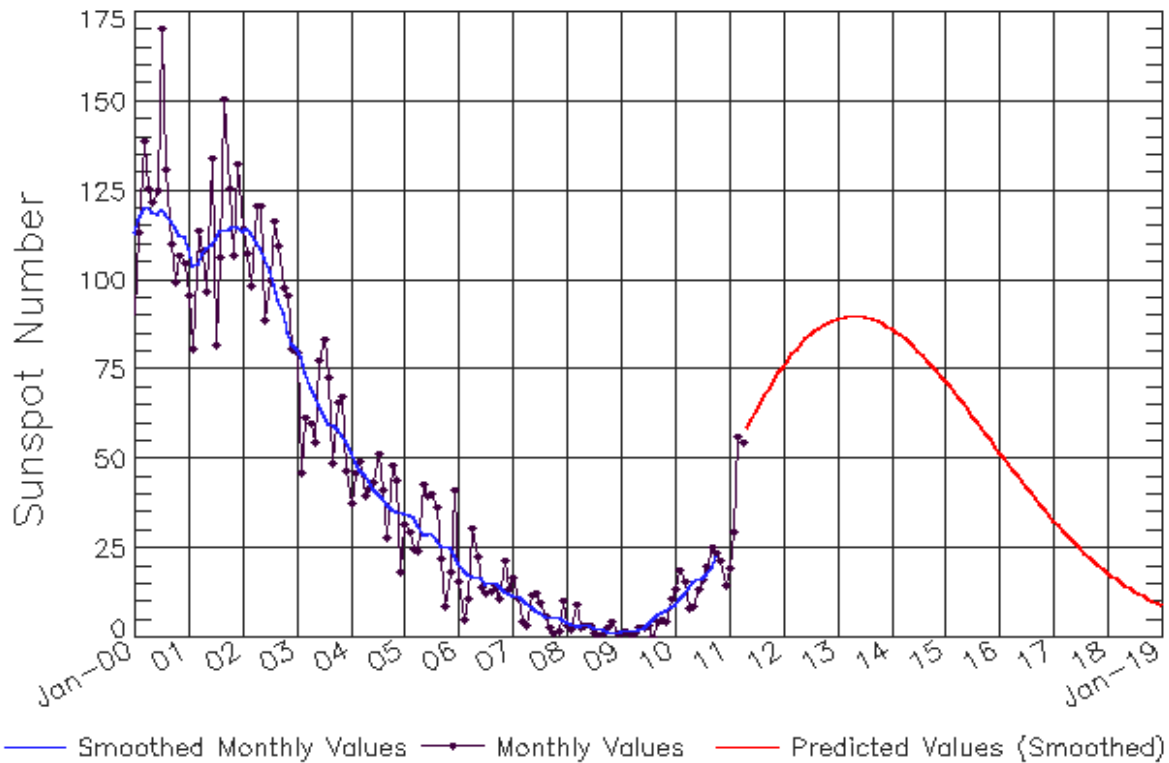
The x-ray plots contains five-minute averages x-ray flux (Watt/m<sup>2</sup>) as measure by the SWPC primary GOES X-ray satellite, usually at West 105 longitude, in two wavelength bands, 0.05 - 0.4 and 0.1 - 0.8 nm. The letters A, B, C, M and X refer to x-ray event levels for the 0.1 - 0.8 nm band.

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.



# ISES Solar Cycle Sunspot Number Progression

Observed data through Apr 2011



Updated 2011 May 3

NOAA/SWPC Boulder, CO USA

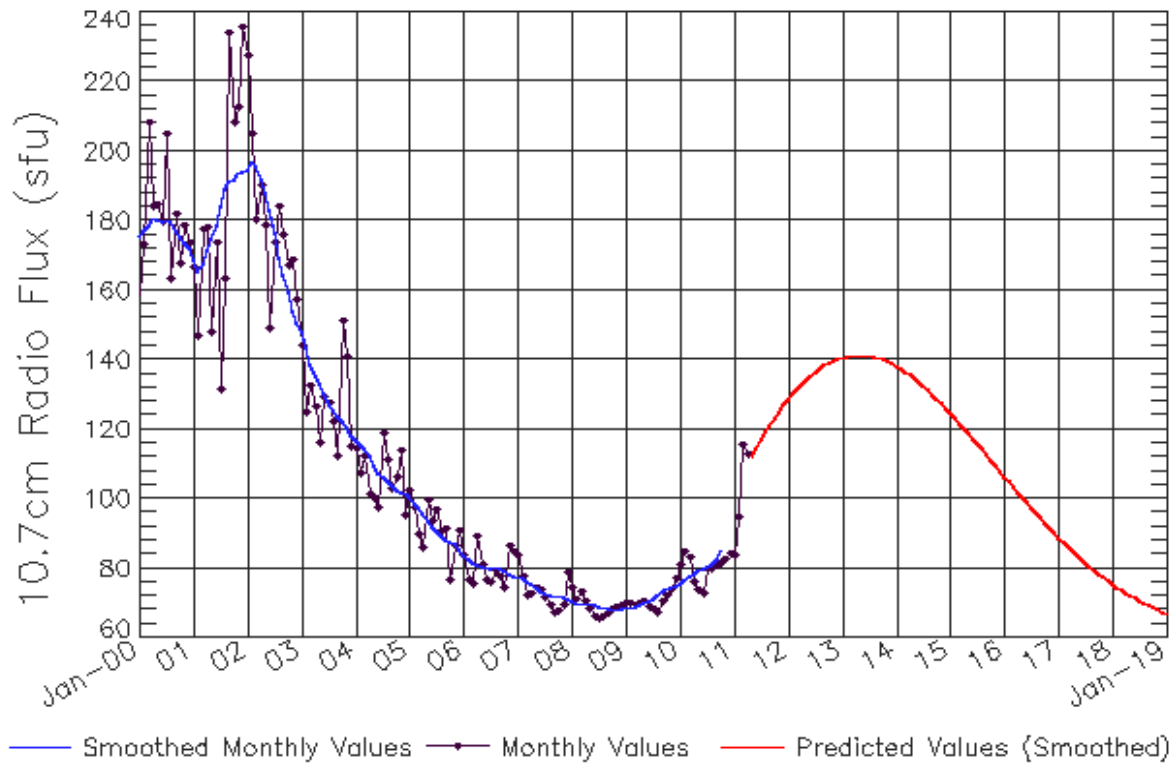
## *Smoothed Sunspot Number Prediction*

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2010	9 (***)	11 (***)	12 (***)	14 (***)	16 (***)	16 (***)	17 (***)	17 (***)	20 (***)	23 (***)	27 (1)	31 (2)
2011	35 (3)	39 (5)	43 (5)	47 (6)	51 (7)	55 (7)	60 (8)	64 (9)	67 (9)	69 (10)	72 (10)	74 (10)
2012	76 (10)	78 (10)	79 (10)	81 (10)	82 (10)	84 (10)	85 (10)	86 (10)	87 (10)	88 (10)	88 (10)	89 (10)
2013	89 (10)	90 (10)	90 (10)	90 (10)	90 (10)	90 (10)	90 (10)	89 (10)	89 (10)	89 (10)	88 (10)	87 (10)
2014	86 (10)	86 (10)	85 (10)	84 (10)	83 (10)	81 (10)	80 (10)	79 (10)	78 (10)	76 (10)	75 (10)	73 (10)
2015	72 (10)	70 (10)	69 (10)	67 (10)	65 (10)	64 (10)	62 (10)	60 (10)	59 (10)	57 (10)	55 (10)	54 (10)
2016	52 (10)	50 (10)	49 (10)	47 (10)	45 (10)	44 (10)	42 (10)	40 (10)	39 (10)	37 (10)	36 (10)	34 (10)
2017	33 (10)	31 (10)	30 (10)	29 (10)	27 (10)	26 (10)	25 (10)	24 (10)	23 (10)	21 (10)	20 (10)	19 (10)
2018	18 (10)	17 (10)	16 (10)	15 (10)	15 (10)	14 (10)	13 (10)	12 (10)	12 (10)	11 (10)	10 (10)	10 (10)
2019	9 (10)	8 (10)	8 (10)	7 (10)	7 (10)	6 (10)	6 (10)	6 (10)	5 (10)	5 (10)	4 (10)	4 (10)



# ISES Solar Cycle F10.7cm Radio Flux Progression

Observed data through Apr 2011



Updated 2011 May 3

NOAA/SWPC Boulder, CO USA

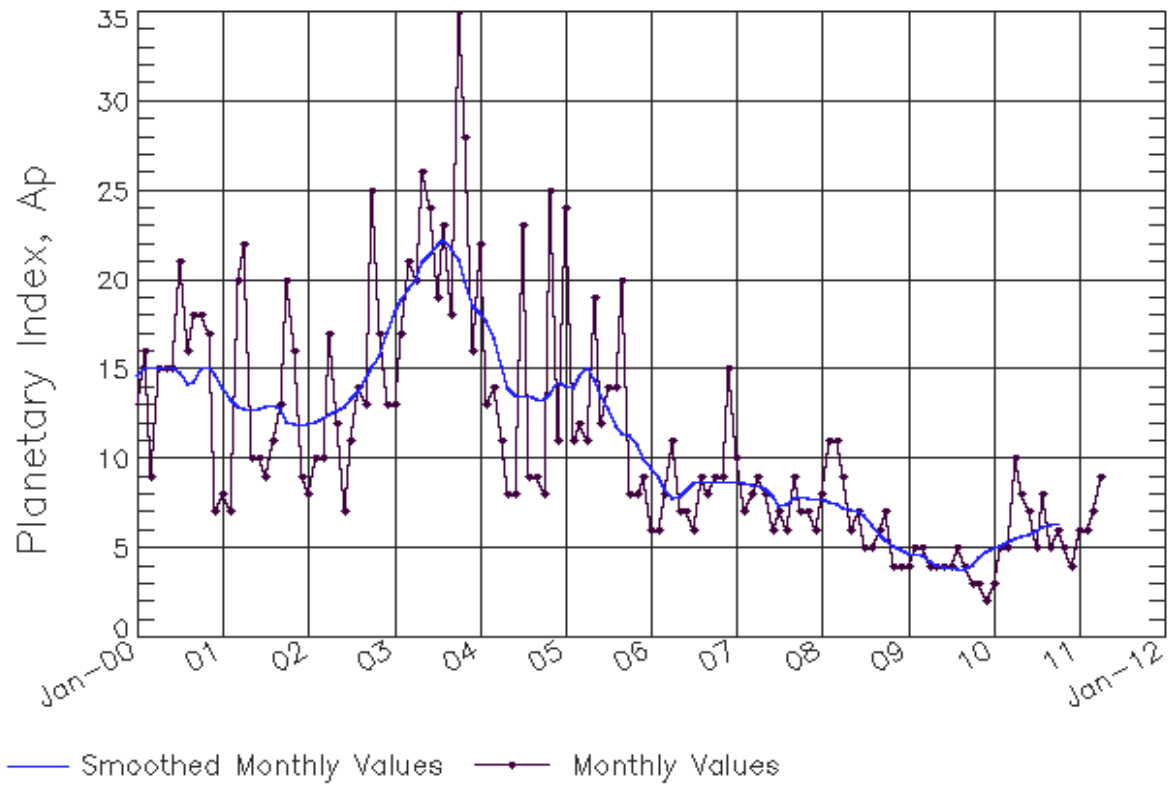
## *Smoothed F10.7cm Radio Flux Prediction*

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2010	76 (***)	77 (***)	78 (***)	78 (***)	79 (***)	80 (***)	80 (***)	81 (***)	82 (***)	85 (***)	88 (1)	92 (1)
2011	95 (2)	98 (3)	102 (4)	105 (4)	108 (5)	112 (6)	116 (7)	119 (8)	121 (8)	123 (9)	125 (9)	127 (9)
2012	128 (9)	130 (9)	132 (9)	133 (9)	134 (9)	135 (9)	136 (9)	137 (9)	138 (9)	139 (9)	140 (9)	140 (9)
2013	141 (9)	141 (9)	141 (9)	141 (9)	141 (9)	141 (9)	141 (9)	141 (9)	140 (9)	140 (9)	139 (9)	139 (9)
2014	138 (9)	137 (9)	136 (9)	136 (9)	135 (9)	134 (9)	132 (9)	131 (9)	130 (9)	129 (9)	127 (9)	126 (9)
2015	125 (9)	123 (9)	122 (9)	120 (9)	119 (9)	117 (9)	116 (9)	114 (9)	113 (9)	111 (9)	110 (9)	108 (9)
2016	106 (9)	105 (9)	103 (9)	102 (9)	100 (9)	99 (9)	97 (9)	96 (9)	94 (9)	93 (9)	92 (9)	90 (9)
2017	89 (9)	88 (9)	86 (9)	85 (9)	84 (9)	83 (9)	82 (9)	80 (9)	79 (9)	78 (9)	77 (9)	76 (9)
2018	75 (9)	75 (9)	74 (9)	73 (9)	72 (9)	71 (9)	71 (9)	70 (9)	69 (9)	69 (9)	68 (9)	67 (9)
2019	67 (9)	66 (9)	66 (9)	65 (9)	65 (9)	65 (9)	64 (9)	64 (9)	63 (9)	63 (9)	63 (9)	63 (9)



# ISES Solar Cycle Ap Progression

Observed data through Apr 2011



Updated 2011 May 3

NOAA/SWPC Boulder, CO USA

*Solar Cycle Comparison charts are temporarily unavailable.*





## ***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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