

Solar activity was at very low to moderate levels during the period. Very low levels were observed from 28 - 29 May. An increase to low levels was observed from 30 May - 02 June as Region 1493 (N15, L=209, class/area Dso/170 01 June) and Region 1496 (N16, L=199 class/area Cso/120 on 01 June) rotated onto the visible disk. Another increase to moderate levels was observed on 03 June as Region 1496 produced an M3 x-ray flare at 03/1755 UTC. Associated with this event were both a Type II radio sweep (estimated shock speed of 1077 km/s) signature and CME supporting imagery from the LASCO C2 imager. After analysis, this CME was determined to not be Earth directed. Region 1493 was the most active region during the period producing 8 C-class x-ray events.

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit was at high levels on 28 - 29 May and then decreased to moderate to normal levels for the remainder of the period.

Geomagnetic field activity was at quiet to minor storm levels during the period. Quiet conditions were observed from 28 - 29 May. Late on 29 May, solar wind speeds, as measured by the ACE spacecraft, increased from 350 km/s to around 450 km/s. Solar wind speeds remained elevated till late on 31 May. In conjunction with these elevated solar winds, quiet to unsettled levels were observed from 30 - 31 May with isolated active and minor storm levels at high latitudes. A return to quiet levels was observed from 01 - 02 June. Late on 02 June, an isolated active period was observed due to prolonged negative IMF Bz measured by the ACE spacecraft. On 03 June, an increase from quiet to minor storm levels with major storm periods observed at high latitudes was observed. This increase in activity was associated with a continuation of sustained negative IMF Bz from 02 June.

### **Space Weather Outlook** **04 June - 30 June 2012**

Solar activity is expected to be at low levels with a chance for M-class activity from 04 - 15 June.

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 during 04 - 05 June, 13 - 19 June, and 26 - 30 June. High levels are expected during 06 - 12 June, and 20 - 25 June.

Geomagnetic field activity is expected to be at active levels with a chance for minor storm levels on 04 - 05 June as a coronal hole high speed stream (CH HSS) becomes geoeffective. Quiet to active levels are expected on 06 June as CH HSS effects persist. A decrease to quiet to unsettled levels is expected on 07 - 08 June as the CH HSS wanes. Predominantly quiet levels are expected from 09 - 17 June. Quiet to active levels are expected from 18 - 20 June as another CH HSS becomes geoeffective. A return to mostly quiet levels is expected 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
28 May	110	87	480	B2.1	0	0	0	3	0	0	0	0
29 May	106	73	460	B2.4	0	0	0	0	0	0	0	0
30 May	111	78	400	B3.6	2	0	0	1	0	0	0	0
31 May	117	76	310	B5.4	8	0	0	9	0	0	0	0
01 June	129	151	840	B5.8	5	0	0	9	1	0	0	0
02 June	129	113	630	B4.3	2	0	0	3	0	0	0	0
03 June	129	133	590	B5.0	1	1	0	4	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
	28 May	4.5e+06	1.0e+05	2.9e+03		1.1e+08
29 May	1.6e+06	2.4e+04	3.0e+03		6.3e+07	
30 May	3.2e+05	1.5e+04	3.0e+03		1.1e+07	
31 May	2.0e+05	1.2e+04	2.4e+03		1.2e+07	
01 June	1.9e+05	1.2e+04	2.9e+03		1.2e+07	
02 June	4.2e+05	1.3e+04	3.1e+03		1.1e+07	
03 June	2.2e+05	1.2e+04	2.9e+03		1.4e+06	

### *Daily Geomagnetic Data*

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	28 May	3	0-0-0-1-2-2-2-1	3	0-0-0-2-1-2-1-1	6
29 May	5	1-1-0-1-2-2-2-2	4	1-2-0-0-1-1-2-2	6	1-2-1-1-2-2-2-2
30 May	5	2-1-1-1-2-2-2-1	14	3-2-2-5-3-2-2-1	6	2-2-1-2-2-2-2-1
31 May	7	2-1-2-2-2-2-3-1	9	3-1-2-4-1-2-2-0	10	3-2-2-2-2-3-3-1
01 June	6	1-2-0-2-2-2-2-2	4	1-2-1-1-1-1-1-1	6	1-2-1-2-2-2-2-2
02 June	8	1-1-1-2-3-2-2-3	4	1-1-1-1-1-1-1-2	9	1-1-1-1-2-3-2-4
03 June	16	2-3-3-3-4-4-3-1	33	2-2-3-3-6-6-5-3	19	3-2-2-2-4-5-4-1

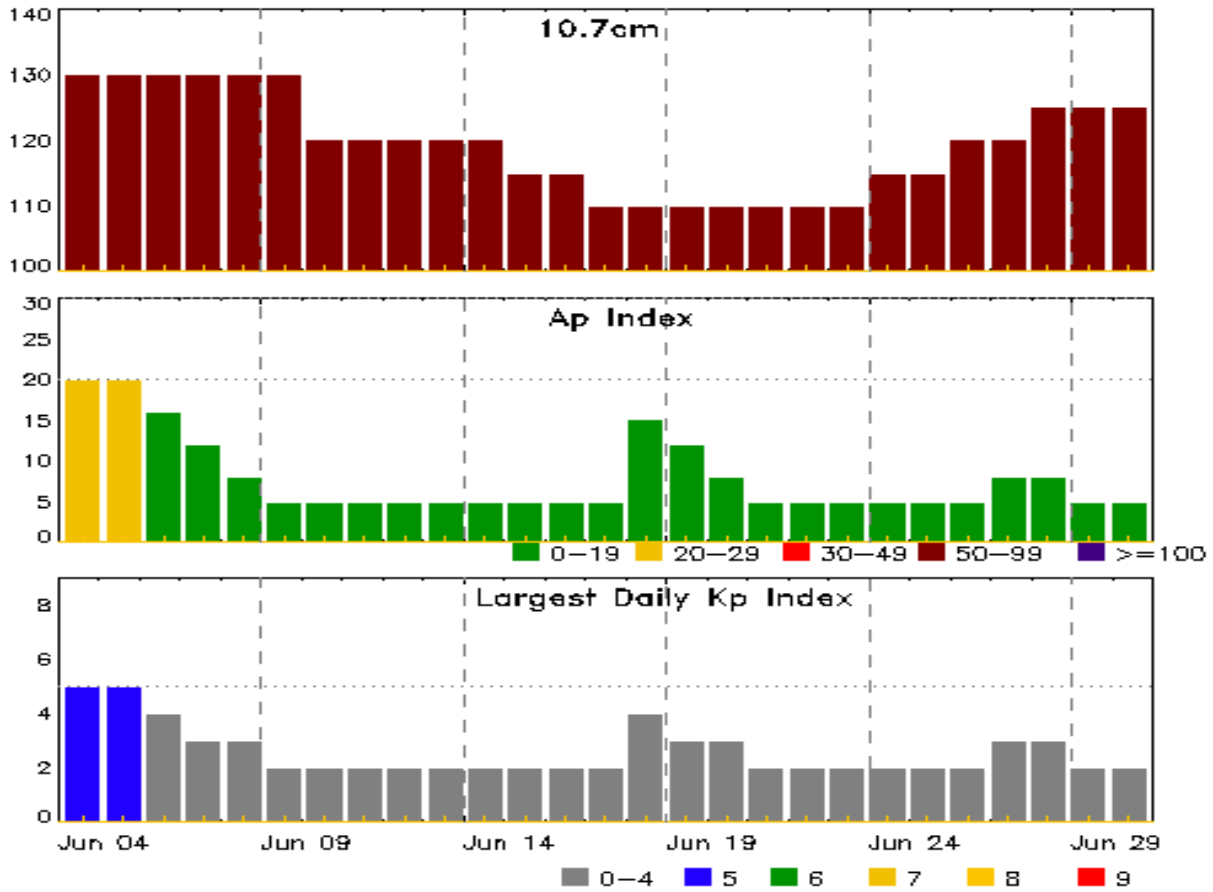


### *Alerts and Warnings Issued*

<b>Date &amp; Time of Issue UTC</b>	<b>Type of Alert or Warning</b>	<b>Date &amp; Time of Event UTC</b>
28 May 0818	CONTINUED ALERT: Electron 2MeV Integral Flux $\geq$ 1000pfu	24/1235
29 May 1220	CONTINUED ALERT: Electron 2MeV Integral Flux $\geq$ 1000pfu	24/1235
01 Jun 2314	ALERT: Type II Radio Emission	01/2232
02 Jun 2224	WARNING: Geomagnetic K = 4	02/2225 - 03/0300
02 Jun 2359	ALERT: Geomagnetic K = 4	02/2357
03 Jun 0929	SUMMARY: Geomagnetic Sudden Impulse	03/0900
03 Jun 1317	WARNING: Geomagnetic K = 4	03/1317 - 04/0000
03 Jun 1452	ALERT: Geomagnetic K = 4	03/1448
03 Jun 1457	WARNING: Geomagnetic K = 5	03/1458 - 2100
03 Jun 1720	ALERT: Geomagnetic K = 5	03/1705
03 Jun 1808	SUMMARY: 10cm Radio Burst	03/1752 - 1754
03 Jun 1830	ALERT: Type II Radio Emission	03/1759
03 Jun 1947	WATCH: Geomagnetic A $\geq$ 20	04/
03 Jun 1947	WATCH: Geomagnetic A $\geq$ 20	04/
03 Jun 1948	WATCH: Geomagnetic A $\geq$ 20	05/



## 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 Jun	130	20	5	18 Jun	110	15	4
05	130	20	5	19	110	12	3
06	130	16	4	20	110	8	3
07	130	12	3	21	110	5	2
08	130	8	3	22	110	5	2
09	130	5	2	23	110	5	2
10	120	5	2	24	115	5	2
11	120	5	2	25	115	5	2
12	120	5	2	26	120	5	2
13	120	5	2	27	120	8	3
14	120	5	2	28	125	8	3
15	115	5	2	29	125	5	2
16	115	5	2	30	125	5	2
17	110	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 #	245	2695	II	IV
03 Jun	1748	1755	1757	M3.3	0.007			1496	13000	320	2	

### *Flare List*

Date	Time			X-ray Class	Imp/ Brtns	Optical		Rgn #
	Begin	Max	End			Location Lat CMD		
28 May	0527	0532	0543	B5.2	SF	S12E17		1490
28 May	1144	1147	1150	B6.1	SF	S11E09		1490
28 May	1233	1249	1310	B7.4				1491
28 May	1409	1419	1436	B6.8	SF	S12E09		1490
29 May	0451	0455	0500	B3.5				1492
30 May	0143	0226	0254	B9.3				1488
30 May	0836	0850	0907	C1.0				1494
30 May	1856	1907	1920	B8.7				
30 May	2155	2159	2203	C1.0				1494
30 May	2248	2250	2257		SF	N14E79		
31 May	0103	0127	0140	C1.5				1493
31 May	0515	0549	0617	C1.3				
31 May	0635	0643	0647	C1.2				
31 May	1107	1107	1112		SF	N17E74		1493
31 May	1326	1432	1446	C2.2	SF	N16E74		1493
31 May	1435	1438	1442		SF	N14E70		1493
31 May	1523	1523	1527		SF	N14E70		1493
31 May	1530	1536	1541	C2.5	SF	N17E70		1493
31 May	1726	1727	1730		SF	S15E26		1495
31 May	1727	1729	1733		SF	N14E70		1493
31 May	1736	1740	1747	C1.4	SF	N13E69		1493
31 May	1930	1935	1953		SF	N14E69		1493
31 May	2254	2317	2322	C1.3				1493
31 May	2327	2336	2348	C1.2				1493
01 Jun	0448	0449	0452		SF	N14E63		1493
01 Jun	0526	0534	0541	C2.1				1496
01 Jun	0737	0740	0743	C1.1	SF	N15E59		1493
01 Jun	1702	1710	1716	C2.4	1F	N11E74		1498
01 Jun	1839	1840	1843		SF	S23E40		1497
01 Jun	1849	1853	1857		SF	S15E12		1495



## *Flare List*

Date	Time			Optical			
	Begin	Max	End	X-ray Class	Imp/Brtns	Location Lat CMD	Rgn #
01 Jun	1902	1904	1933		SF	N12E54	1493
01 Jun	1937	1940	1943	C1.8	SF	N13W81	1488
01 Jun	2030	2033	2039		SF	N11E55	1493
01 Jun	2115	2119	2143		SF	N11E55	1493
01 Jun	2230	2241	2302	C3.3			
01 Jun	2338	2339	2352		SF	N12E53	1493
02 Jun	0101	0105	0108	C2.2			1498
02 Jun	0415	0431	0455	C1.5			1493
02 Jun	1352	1352	1409		SF	S13W58	1490
02 Jun	1353	1355	1418		SF	S13W01	1495
02 Jun	1442	1447	1450		SF	N11E74	1498
03 Jun	1206	1209	1211	C1.6	SF	N19E41	1496
03 Jun	1511	1516	1535		SF	N16E38	1496
03 Jun	1514	1515	1529		SF	N19E38	1496
03 Jun	1537	1537	1540		SF	S26W83	
03 Jun	1748	1755	1757	M3.3			1496



## Region Summary

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

### Region 1480

11 May	S16W10	187	10	2	Axx	2	A										
12 May	S16W24	188	plage														
13 May	S16W38	189	plage														
									0	0	0	0	0	0	0	0	0

Died on Disk.

Absolute heliographic longitude: 187

### Region 1486

18 May	N15E67	17	190	8	Dao	2	B										
19 May	N16E54	18	200	8	Cso	3	B										
20 May	N16E40	18	140	8	Cso	4	B										
21 May	N16E26	19	210	3	Hsx	3	A				1						
22 May	N17E13	19	200	3	Hsx	2	A										
23 May	N16E02	17	180	7	Cso	6	B										
24 May	N18W14	19	110	6	Dso	2	B				1						
25 May	N17W26	18	110	4	Cso	3	B										
26 May	N22W33	18	90	3	Cso	1	B										
27 May	N16W53	18	80	2	Hsx	1	A										
28 May	N16W66	19	80	3	Hsx	1	A										
29 May	N16W79	18	110	2	Hsx	1	A										
30 May	N17W92	17	90	2	Hsx	1	A										
									0	0	0	2	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 17



### *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 1488</b>																		
22 May	N12E55	337	10	4	Bxo	5	B											
23 May	N11E41	338	10	6	Bxo	5	B						1					
24 May	N11E27	337	10	4	Bxo	4	B						1					
25 May	N12E13	338	50	6	Dso	5	B											
26 May	N12W00	337	60	6	Dso	6	B											
27 May	N11W13	338	10	5	Bxo	3	B											
28 May	N11W28	341	40	6	Cso	8	B											
29 May	N11W41	340	30	6	Cso	8	B											
30 May	N12W59	344	10	3	Bxo	2	B											
31 May	N12W73	346	plage															
01 Jun	N12W87	347	plage					1					1					
								1	0	0			3	0	0	0	0	0

Crossed West Limb.  
 Absolute heliographic longitude: 337

<b>Region 1489</b>																		
23 May	S30E40	339	0	1	Axx	1	A											
24 May	S30E26	340	0	1	Axx	1	A											
25 May	S30E12	340	plage															
26 May	S30W02	341	plage															
27 May	S08E15	341	10	1	Bxo	3	B											
28 May	S30W30	343	plage															
29 May	S30W44	343	plage															
30 May	S30W58	344	plage															
31 May	S30W72	345	plage															
01 Jun	S30W86	346	plage															
								0	0	0			0	0	0	0	0	0

Crossed West Limb.  
 Absolute heliographic longitude: 341





### *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 1490</b>																		
24 May	S12E58	307	30	5	Cro	3	B											
25 May	S12E45	306	40	5	Dso	3	B											
26 May	S26E15	309	40	4	Dso	4	B					1						
27 May	S12E17	308	70	6	Dso	6	B											
28 May	S13E04	309	100	8	Dso	15	B					3						
29 May	S12W09	308	160	9	Dsi	15	B											
30 May	S12W22	307	180	10	Dsi	22	B											
31 May	S13W36	308	90	9	Dso	6	B											
01 Jun	S13W49	309	150	10	Dso	11	B											
02 Jun	S13W65	311	70	5	Dso	2	B					1						
03 Jun	S13W79	312	40	4	Cso	2	B											
								0	0	0	5	0	0	0	0			

Still on Disk.

Absolute heliographic longitude: 309

#### **Region 1491**

25 May	N23W29	21	50	4	Dso	6	B											
26 May	N27W38	22	60	5	Dso	4	B					2						
27 May	N22W56	21	40	5	Dso	3	B											
28 May	N22W70	23	10	4	Bxo	3	B											
29 May	N22W84	23	plage															
								0	0	0	2	0	0	0	0			

Crossed West Limb.

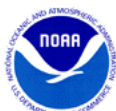
Absolute heliographic longitude: 21

#### **Region 1492**

25 May	S13E65	286	90	6	Cso	3	B	3				2						
26 May	S40E31	283	160	9	Dso	5	B	2				2						
27 May	S14E43	281	190	11	Eao	7	B	1				2						
28 May	S12E30	283	250	11	Eko	10	B											
29 May	S13E18	281	160	12	Eao	9	B											
30 May	S13E03	281	120	11	Eao	13	B											
31 May	S12W10	281	100	11	Eso	12	B											
01 Jun	S13W22	282	80	11	Eso	22	B											
02 Jun	S13W33	279	20	2	Dso	2	B											
03 Jun	S14W44	277	10	2	Bxo	2	B											
								6	0	0	6	0	0	0	0			

Still on Disk.

Absolute heliographic longitude: 281



### *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 1493***

31 May	N15E64	208	40	5	Dao	2	B	6				8					
01 Jun	N14E49	209	170	7	Dso	4	B	1				6					
02 Jun	N15E35	210	140	6	Dso	8	B	1									
03 Jun	N14E23	209	140	10	Dso	13	B										
								8	0	0	14	0	0	0	0	0	

Still on Disk.

Absolute heliographic longitude: 209

#### ***Region 1494***

30 May	S16E83	203	plage					2									
31 May	S16E71	201	50	3	Cso	1	B										
01 Jun	S16E56	204	140	4	Cso	3	B										
02 Jun	S15E20	225	80	3	Cso	3	B										
03 Jun	S16E36	196	100	2	Hsx	2	A										
								2	0	0	0	0	0	0	0	0	

Still on Disk.

Absolute heliographic longitude: 225

#### ***Region 1495***

31 May	S12E19	254	30	3	Csi	5	B					1					
01 Jun	S14E06	254	60	4	Csi	17	B					1					
02 Jun	S14E20	225	100	7	Dso	5	B					1					
03 Jun	S15W21	253	20	2	Hsx	2	A										
								0	0	0	3	0	0	0	0	0	

Still on Disk.

Absolute heliographic longitude: 254

#### ***Region 1496***

01 Jun	N16E59	201	120	7	Cso	5	B	1									
02 Jun	N16E47	198	100	9	Dai	6	B										
03 Jun	N16E33	199	70	5	Dso	7	B	1	1			3					
								2	1	0	3	0	0	0	0	0	

Still on Disk.

Absolute heliographic longitude: 199



### *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 1497*

01 Jun	S22E34	226	30	3	Csi	6	B					1					
02 Jun	S21E21	224	60	6	Dso	5	B										
03 Jun	S21E09	223	130	8	Dso	10	B										
									0	0	0	1	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 223

#### *Region 1498*

01 Jun	N07E69	189	90	7	Cso	3	B	1					1				
02 Jun	N08E55	190	60	4	Dso	2	B	1				1					
03 Jun	N07E45	187	40	2	Hsx	2	A										
								2	0	0	1	1	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 187

#### *Region 1499*

03 Jun	N16E50	183	40	4	Dso	3	B										
								0	0	0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 183

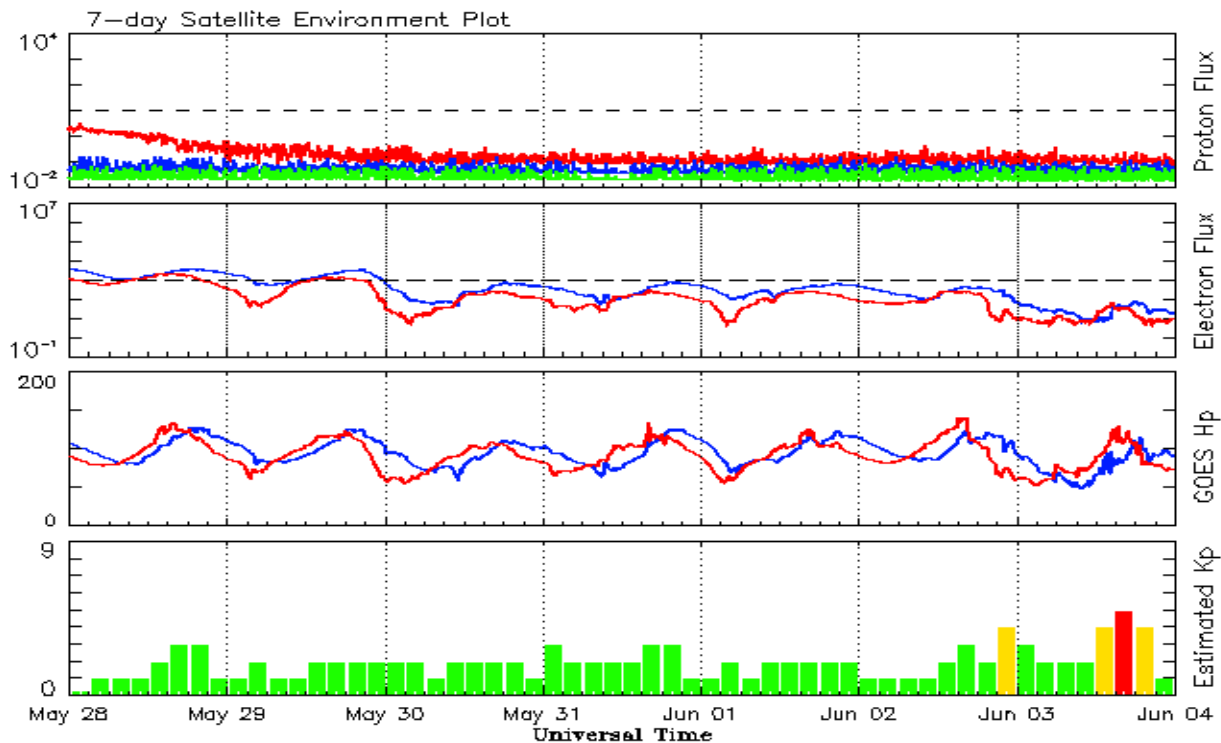


**Recent Solar Indices (preliminary)  
Observed monthly mean values**

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>									
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	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			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	
March	77.9	64.2	0.82			115.1		14	
April	84.4	55.2	0.65			113.1		9	
May	99.5	69.0	0.69			121.5		8	

**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 28 May 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.

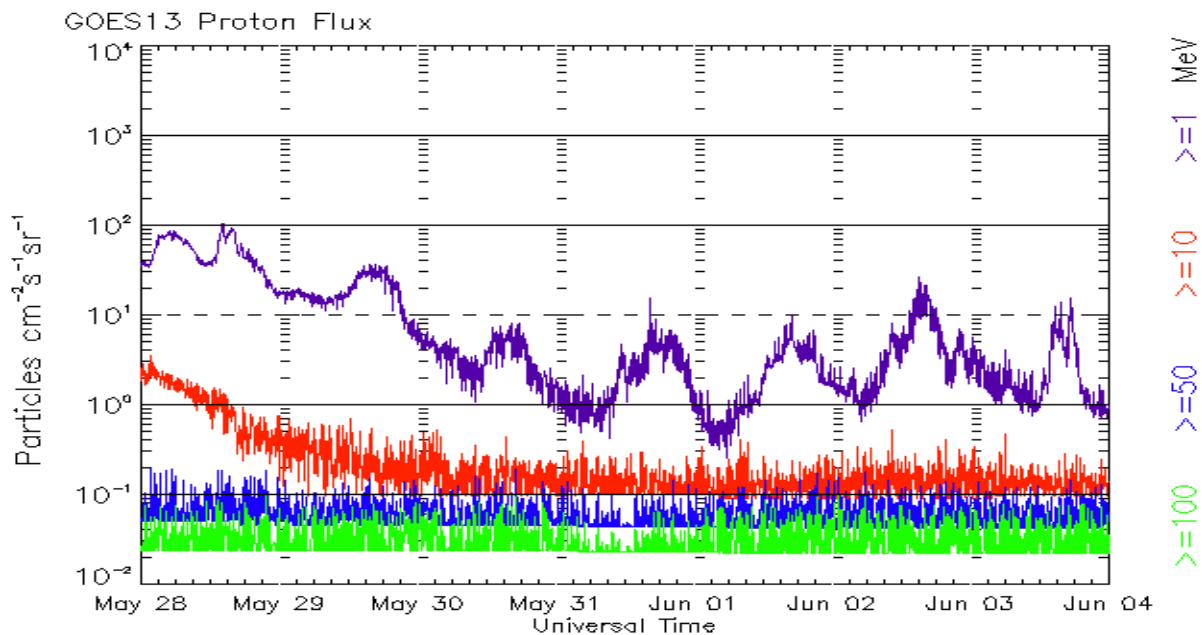
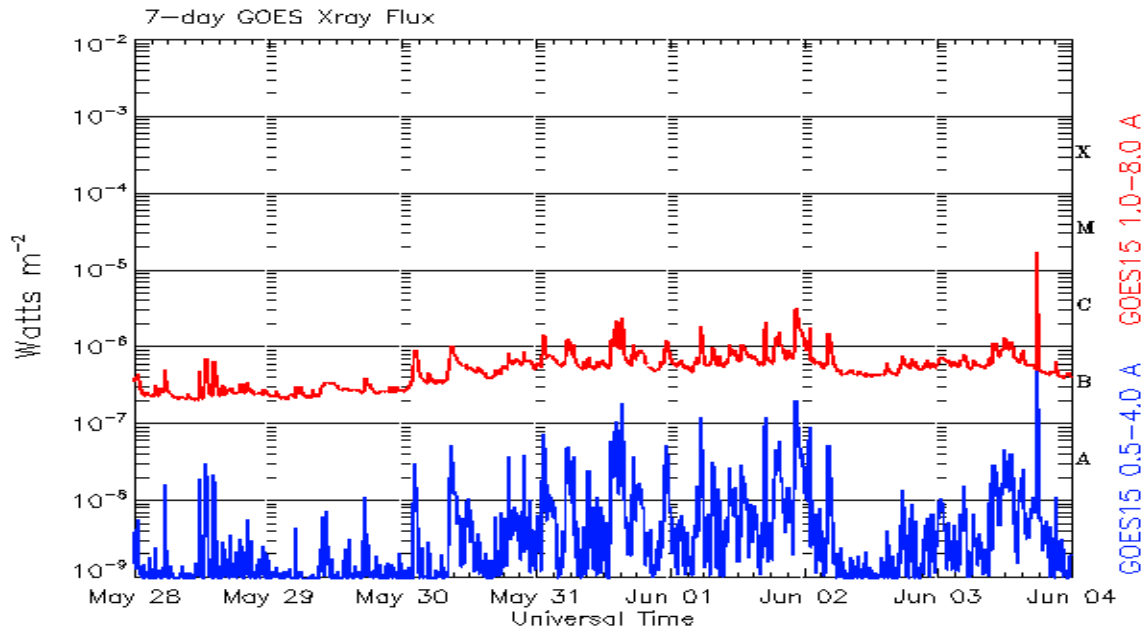
The electron flux plot contains the five-minute averaged integral electron flux (electrons/cm<sup>2</sup>-sec -sr) with energies greater than 2 MeV by the SWPC Primary GOES satellite.

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 28 May 2012*

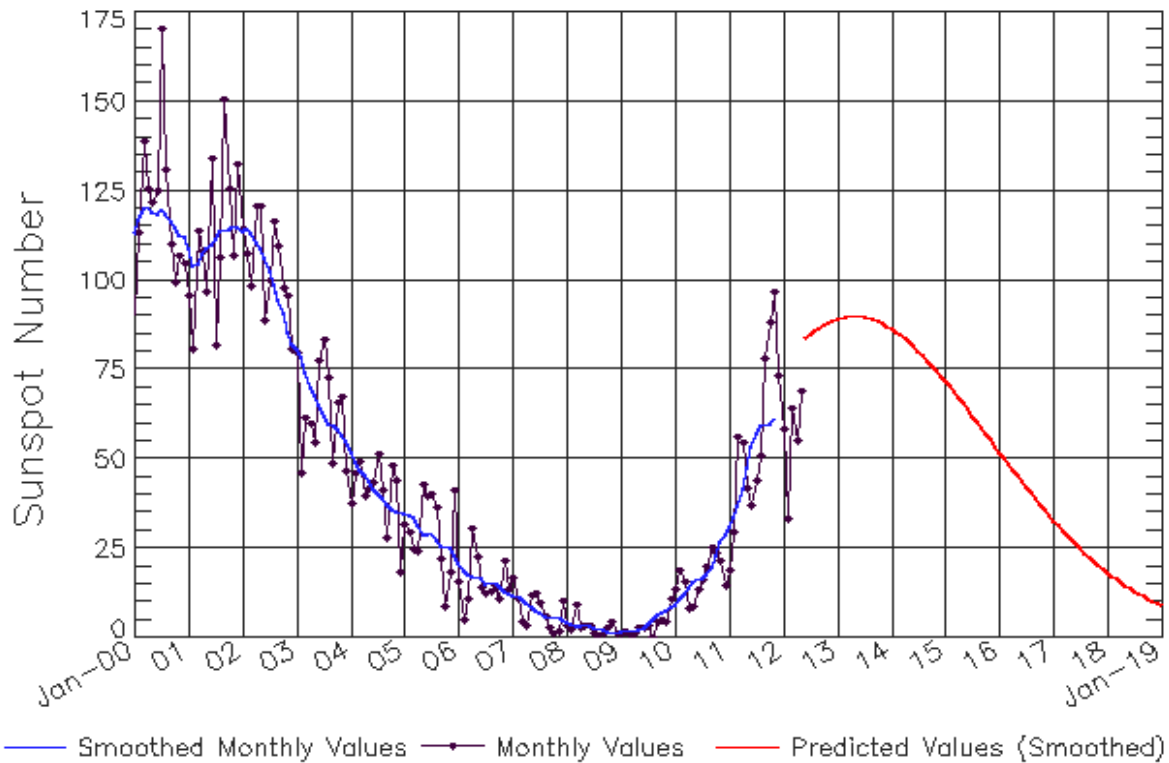
The x-ray plots contains five-minute averages x-ray flux ( $Watt/m^2$ ) as measure by the SWPC primary GOES X-ray satellite, usually at West 105 longitude, in two wavelength bands, 0.05 - 0.4 and 0.1 - 0.8 nm. The letters A, B, C, M and X refer to x-ray event levels for the 0.1 - 0.8 nm band.

The proton plot contains the five-minute averaged 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.



# ISES Solar Cycle Sunspot Number Progression

Observed data through May 2012



Updated 2012 Jun 4

NOAA/SWPC Boulder, CO USA

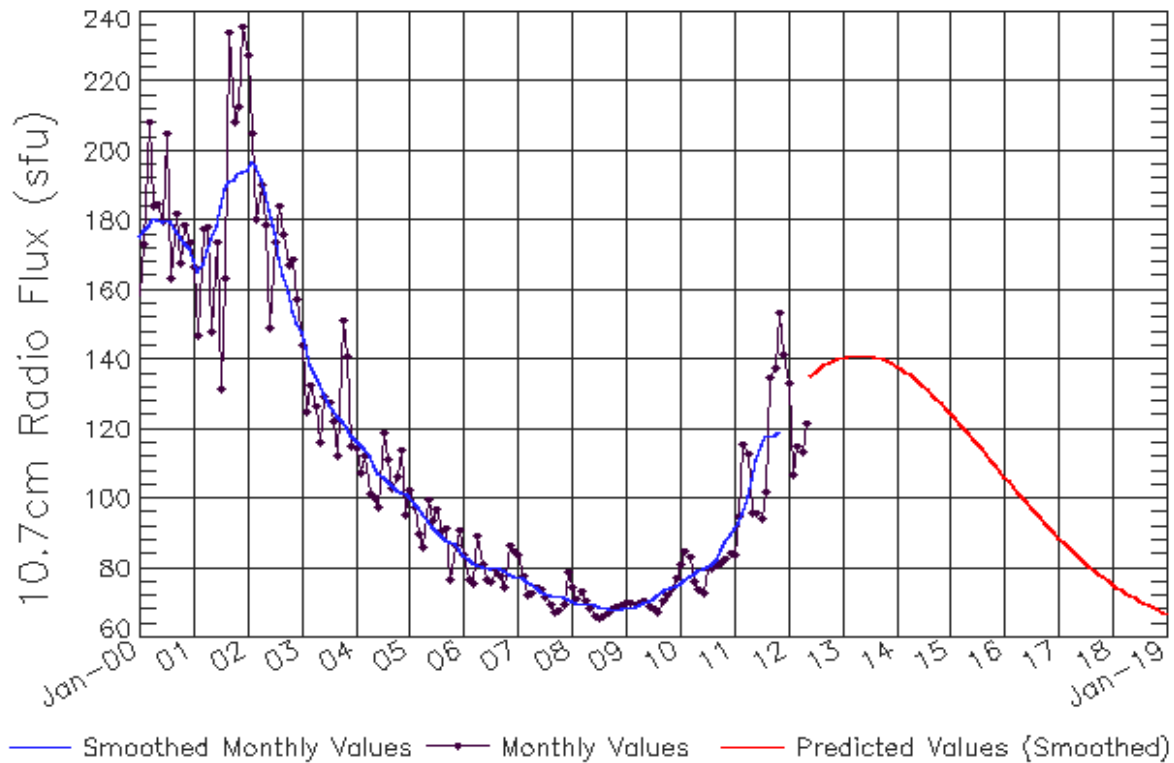
## *Smoothed Sunspot Number Prediction*

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 (***)	29 (***)
2011	31 (***)	33 (***)	37 (***)	42 (***)	48 (***)	53 (***)	57 (***)	59 (***)	60 (***)	60 (***)	61 (***)	64 (1)
2012	68 (2)	71 (3)	73 (5)	73 (5)	73 (6)	73 (7)	75 (7)	79 (8)	82 (9)	85 (9)	87 (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 May 2012



Updated 2012 Jun 4

NOAA/SWPC Boulder, CO USA

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

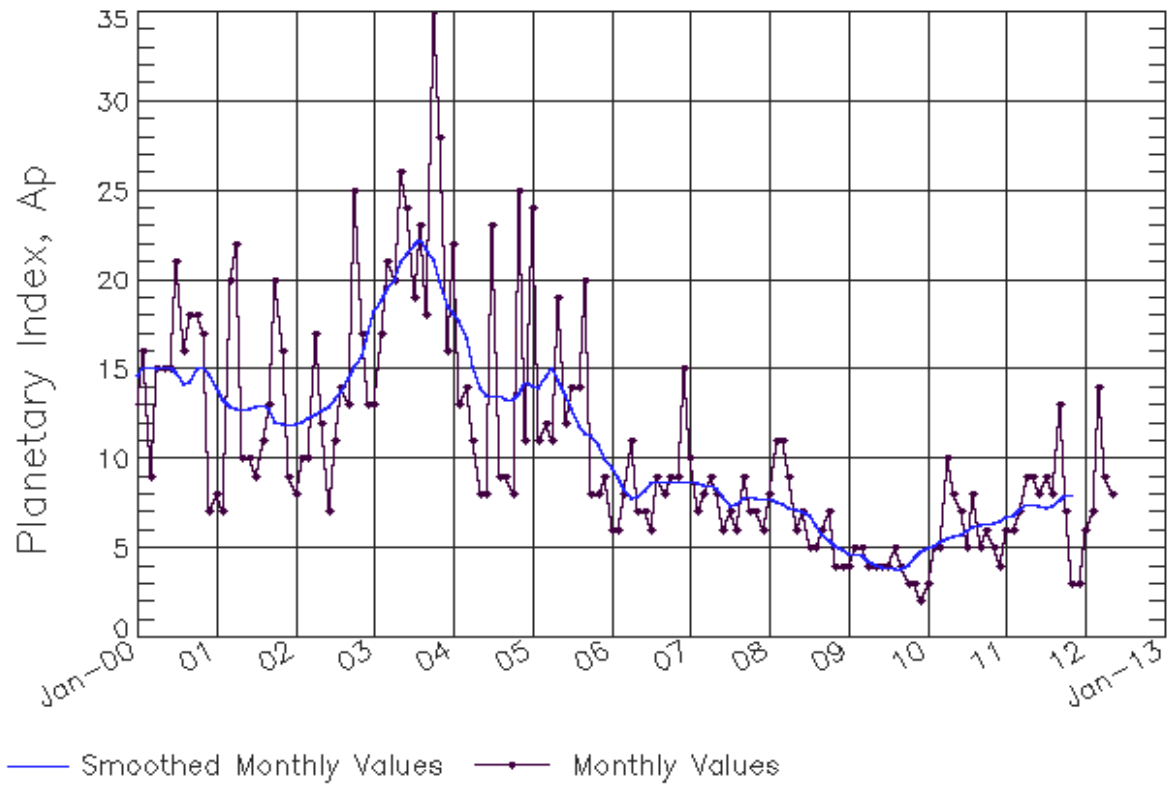
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2010	76 (**)	77 (**)	78 (**)	78 (**)	79 (**)	80 (**)	80 (**)	81 (**)	82 (**)	85 (**)	88 (**)	90 (**)
2011	91 (**)	93 (**)	96 (**)	100 (**)	106 (**)	111 (**)	115 (**)	118 (**)	118 (**)	118 (**)	120 (**)	122 (1)
2012	126 (1)	129 (2)	131 (3)	131 (4)	130 (4)	130 (5)	130 (6)	132 (7)	134 (8)	137 (8)	139 (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 May 2012



Updated 2012 Jun 4

NOAA/SWPC Boulder, CO USA

*Solar Cycle Comparison charts are temporarily unavailable.*



## ***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

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

<http://spaceweather.gov/weekly/> -- Current and previous year

<http://spaceweather.gov/ftpmenu/warehouse.html> -- Online archive from 1997

<http://spaceweather.gov/ftpmenu/> -- Some content as ascii text

<http://spaceweather.gov/SolarCycle/> -- Solar Cycle Progression web site

<http://spaceweather.gov/contacts.html> -- Contact and Copyright information

[http://spaceweather.gov/weekly/Usr\\_guide.pdf](http://spaceweather.gov/weekly/Usr_guide.pdf) -- User Guide

