

Solar activity began the period at low levels but reached moderate levels toward the end of the period due to a pair of M-class x-ray flares. The first M-class event was an M1/1n flare (NOAA Scale R1-minor radio blackout) at 16/1959 UTC from Region 2035 (S15, L=223, class/area=Ekc/340 on 18 Apr) that had an associated Type-II radio sweep (estimated speed 1,071 km/s). A subsequent coronal mass ejection (CME) was observed in SOHO/LASCO coronagraph imagery beginning at 17/0125 UTC that had a partial Earth-directed component with a line-of-sight speed estimated at 642 km/s, although the bulk of the ejecta being directed south of the ecliptic plane.

The second M-class event of the period was an M7 flare (NOAA Scale R2-moderate radio blackout) at 18/1303 UTC from Region 2036 (S15, L=246, class/area=Dhc/510 on 17 Apr) that had an associated Tenflare (1,000 sfu), a complex Castelli-U radio burst signature, a Type-II radio sweep (estimated speed 851 km/s), and a Type-IV radio sweep. A subsequent Earth-directed, asymmetric-halo CME was observed in SOHO/LASCO coronagraph imagery beginning at 18/1325 UTC with a line-of-sight speed estimated at 1,000 km/s.

A pair of very faint CMEs were observed late on 15 Apr and early on 16 Apr but the source regions for these CMEs were difficult to determine.

Regions 2035 and 2036 were the most productive regions on the disk this period and were amongst the most magnetically complex regions on the disk, joining Regions 2034 (N04, L=244, class/area=Ekc/480 on 18 Apr) and 2037 (S09, L=245, class/area=Dai/110 on 17 Apr) as regions with beta-gamma magnetic configurations.

Late in the period Region 2032 (N12, L=274, class/area=Cso/160 on 15 Apr) produced three low-level C-class flares as it transited the west limb with numerous subsequent non-Earth-directed CMEs that were narrow and directed away from Earth.

An energetic particle enhancement was observed following the M7 flare detailed above. The greater than 10 MeV proton flux exceeded 10 pfu (NOAA Scale S1-minor solar radiation storm) at 18/1525 UTC and reached a maximum value of 58 pfu at 19/0105 UTC before beginning to decline. The decline was interrupted with the passage of an interplanetary (IP) shock that was observed at the ACE spacecraft at 20/1057 UTC where 10 MeV proton flux values briefly increased from 15 pfu to 30 pfu before rapidly plummeting below the S1 threshold at 20/1155 UTC. The greater than 100 MeV proton flux also become enhanced during the M7 flare, reaching a maximum value of 0.6 pfu, but ultimately remained below alert levels.

The greater than 2 MeV electron flux at geosynchronous orbit was at normal to moderate levels throughout the period.

Geomagnetic field activity began the period at predominately quiet levels with isolated periods of unsettled conditions due to a mostly nominal solar wind environment. Active conditions were observed early on 19 Apr (0000-0600 UTC) followed by predominately unsettled conditions due



to the likely arrival of one or both of the faint CMEs from 15/16 Apr. A weak IP shock was observed at the ACE spacecraft at 19/1754 UTC, presumably due to the arrival of the 16 Apr CME, causing quiet to unsettled conditions late on 19 Apr and into the early hours of 20 Apr. Another shock was observed at ACE at 20/1057 UTC, likely associated with passage of the 18 Apr CME, which caused minor geomagnetic storming (NOAA Scale G1-minor) from 1200-1500 UTC followed by three periods of active conditions (1800-2359 UTC) to end the period.

## **Space Weather Outlook**

### **21 April - 17 May 2014**

Solar activity is expected to be at low levels with a chance for moderate (R1-R2 (Minor-Moderate)) events throughout the period.

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 throughout the period.

Geomagnetic field activity is expected to be at active to G1 (Minor) levels on 21 Apr due to coronal mass ejection (CME) effects, decreasing to unsettled to active conditions on 22 Apr as CME effects diminish. Quiet to unsettled levels are expected on 23-25 Apr due to a weak negative polarity coronal hole high speed stream (CH HSS). Predominately quiet conditions are expected for 26 Apr-13 May barring any influence from transient features. Isolated unsettled conditions are possible on 14-15 May due to an unclassified recurrent solar wind feature with quiet conditions returning for 16-17 May to end 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
14 April	150	105	790	B6.0	11	0	0	15	0	0	0	0
15 April	162	149	960	B5.8	12	0	0	11	1	0	0	0
16 April	184	245	1480	B8.7	11	1	0	19	2	0	0	0
17 April	179	296	1660	B8.1	8	0	0	5	0	0	0	0
18 April	172	263	1840	B8.1	4	1	0	4	0	0	0	0
19 April	169	259	1750	B8.1	12	0	0	4	0	0	0	0
20 April	163	192	1080	B8.5	12	0	0	5	1	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
	14 April	1.5e+05	1.1e+04	2.7e+03		2.8e+06
15 April	7.0e+04	1.0e+04	2.5e+03		1.0e+07	
16 April	9.9e+04	1.1e+04	2.6e+03		1.9e+07	
17 April	4.9e+04	9.9e+03	2.4e+03		1.4e+06	
18 April	2.5e+06	8.1e+05	1.3e+04		1.5e+06	
19 April	7.3e+07	3.3e+06	5.1e+03		1.0e+07	
20 April	1.8e+08	1.2e+06	2.5e+03		5.7e+06	

### *Daily Geomagnetic Data*

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	14 April	7	2-1-3-1-2-2-2-2	6	2-1-3-2-0-1-2-1	8
15 April	5	1-2-2-1-2-1-1-1	3	1-1-2-2-1-0-1-0	6	2-3-2-2-1-1-1-1
16 April	5	0-1-1-2-2-1-2-2	4	0-0-0-3-3-0-1-0	5	1-1-1-2-2-0-1-2
17 April	11	3-3-2-2-3-3-2-2	15	3-2-1-2-4-5-2-1	11	3-3-2-2-2-3-2-1
18 April	7	1-2-1-2-2-2-1-3	6	2-3-0-2-1-1-2-2	8	2-2-1-2-2-1-2-3
19 April	13	3-3-3-2-3-3-3-2	19	2-3-4-4-4-4-3-1	15	4-4-3-3-2-3-3-2
20 April	20	3-2-1-4-5-3-3-4	18	3-2-1-3-4-5-3-3	22	3-2-1-3-5-4-4-4



## *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>
14 Apr 0624	SUMMARY: Geomagnetic Sudden Impulse	14/0612
16 Apr 1555	ALERT: Type II Radio Emission	16/1441
16 Apr 1645	ALERT: Type IV Radio Emission	16/1459
16 Apr 2055	ALERT: Type II Radio Emission	16/1958
17 Apr 1612	WARNING: Geomagnetic K = 4	17/1612 - 2100
17 Apr 1930	WATCH: Geomagnetic Storm Category G1 predicted	
18 Apr 1257	ALERT: X-ray Flux exceeded M5	17/1255
18 Apr 1317	ALERT: X-ray Flux exceeded M5	18/1255
18 Apr 1323	SUMMARY: X-ray Event exceeded M5	18/1231 - 1320
18 Apr 1325	SUMMARY: 10cm Radio Burst	18/1243 - 1307
18 Apr 1400	WARNING: Proton 10MeV Integral Flux > 10pfu	18/1400 - 1400
18 Apr 1405	EXTENDED WARNING: Proton 10MeV Integral Flux > 10pfu	18/1400 - 19/1400
18 Apr 1412	WARNING: Proton 100MeV Integral Flux > 1pfu	18/1412 - 2100
18 Apr 1540	ALERT: Proton Event 10MeV Integral Flux >= 10pfu	18/1525
18 Apr 1606	ALERT: Type II Radio Emission	18/1255
18 Apr 1606	ALERT: Type IV Radio Emission	18/1249
19 Apr 0055	WATCH: Geomagnetic Storm Category G1 predicted	
19 Apr 0134	WARNING: Geomagnetic K = 4	19/0135 - 1600
19 Apr 0209	ALERT: Geomagnetic K = 4	19/0208
19 Apr 1347	EXTENDED WARNING: Proton 10MeV Integral Flux > 10pfu	18/1400 - 20/0100
19 Apr 1734	WATCH: Geomagnetic Storm Category G2 predicted	
19 Apr 1811	WARNING: Geomagnetic K = 4	19/1815 - 20/1815
20 Apr 0057	EXTENDED WARNING: Proton 10MeV Integral Flux > 10pfu	18/1400 - 21/0600
20 Apr 0841	ALERT: Type II Radio Emission	20/0815
20 Apr 1031	WARNING: Geomagnetic Sudden Impulse expected	20/1045 - 1120
20 Apr 1104	SUMMARY: Geomagnetic Sudden Impulse	20/1057
20 Apr 1235	ALERT: Geomagnetic K = 4	20/1235



### *Alerts and Warnings Issued*

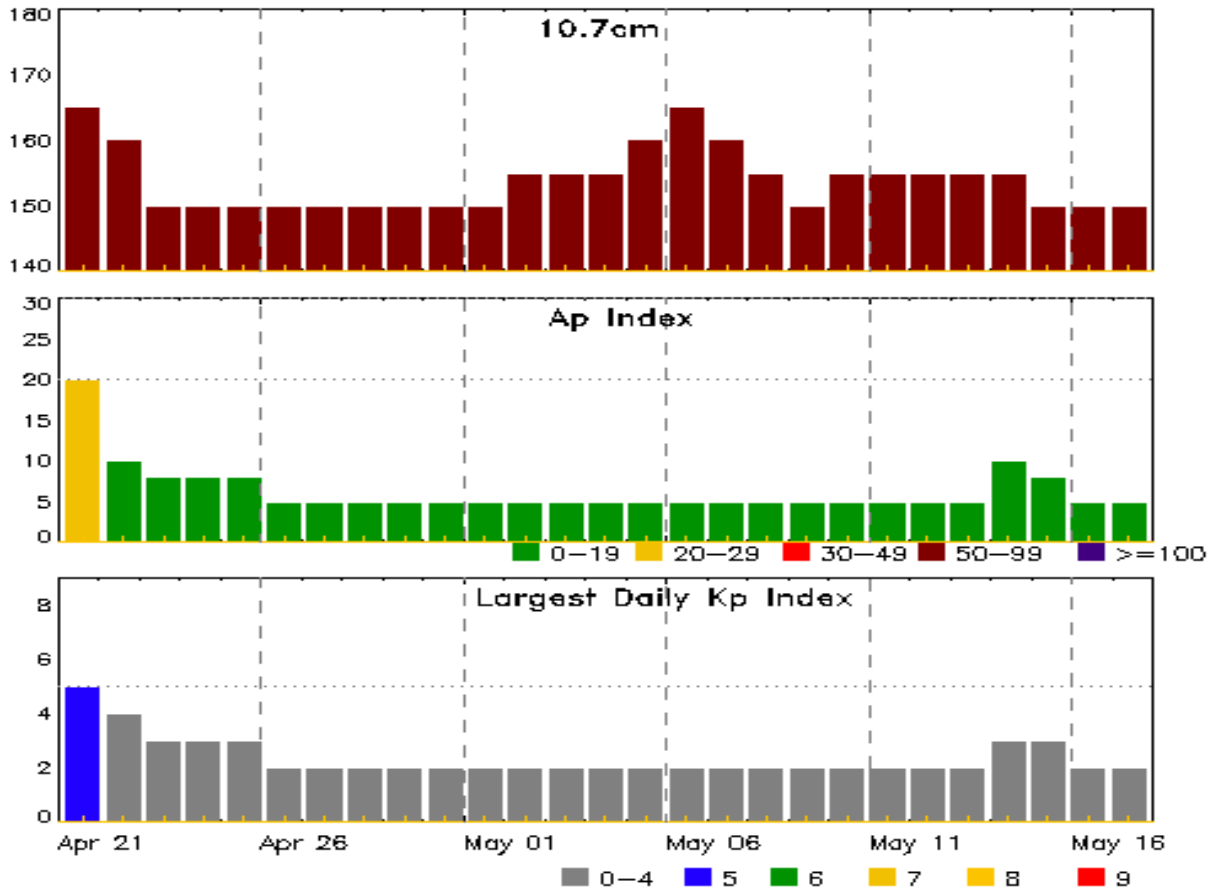
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<b>Date &amp; Time of Issue UTC</b>	<b>Type of Alert or Warning</b>	<b>Date &amp; Time of Event UTC</b>
20 Apr 1257	WARNING: Geomagnetic K = 5	20/1257 - 21/0100
20 Apr 1258	EXTENDED WARNING: Geomagnetic K = 4	19/1815 - 21/0700
20 Apr 1301	ALERT: Geomagnetic K = 5	20/1301
20 Apr 1936	CANCELLATION: Proton 10MeV Integral Flux > 10pfu	
20 Apr 1938	SUMMARY: Proton Event 10MeV Integral Flux >= 10pfu	18/1525 - 20/1155

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## 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
21 Apr	165	20	5	05 May	160	5	2
22	160	10	4	06	165	5	2
23	150	8	3	07	160	5	2
24	150	8	3	08	155	5	2
25	150	8	3	09	150	5	2
26	150	5	2	10	155	5	2
27	150	5	2	11	155	5	2
28	150	5	2	12	155	5	2
29	150	5	2	13	155	5	2
30	150	5	2	14	155	10	3
01 May	150	5	2	15	150	8	3
02	155	5	2	16	150	5	2
03	155	5	2	17	150	5	2
04	155	5	2				

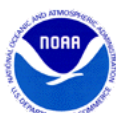


### *Energetic Events*

Date	Time			X-ray	Optical Information			Peak		Sweep Freq		
	Begin	Max	Half Max	Class	Integ Flux	Imp/ Brtns	Location Lat CMD	Rgn #	Radio Flux 245	2695	Intensity II	IV
16 Apr	1954	1959	2004	M1.0	0.004	1N	S14E09	2035	10000		2	
18 Apr	1231	1303	1320	M7.3	0.110			2036	160	1000	2	2

### *Flare List*

Date	Time			X-ray Class	Imp/ Brtns	Location Lat CMD	Rgn #
	Begin	Max	End				
14 Apr	0206	0211	0216	C1.6	SF	S18E25	2036
14 Apr	0418	0438	0448	C7.5	SF	S18E24	2036
14 Apr	0538	0538	0542		SF	S18E23	2036
14 Apr	0708	0712	0716	C1.7	SF	S18E23	2036
14 Apr	0749	0800	0818	C5.2			
14 Apr	0806	U0816	0833		SF	S17E23	2036
14 Apr	0855	U0900	A0948		SF	S17E22	2036
14 Apr	0857	0900	0902	C1.8			2036
14 Apr	0859	0913	0918	C2.5	SF	S18E21	2036
14 Apr	0925	0927	0929	C1.5			2036
14 Apr	1045	1057	1107	C1.1	SF	S17E21	2036
14 Apr	1217	1229	1232	C3.3	SF	S17E19	2036
14 Apr	1253	1254	1300		SF	S17E19	2036
14 Apr	1454	1457	1501	B8.3			
14 Apr	1530	1545	1549	C1.8	SF	S17E17	2036
14 Apr	1645	1648	1650	B9.8	SF	S17E17	2036
14 Apr	1706	1718	1725	B9.3			2036
14 Apr	1758	1759	1805		SF	S17E17	2036
14 Apr	1814	1817	1820	C1.0	SF	S17E15	2036
14 Apr	1942	1945	1950	C1.1			
14 Apr	2109	2110	2112		SF	S17E13	2036
15 Apr	0310	0317	0326	C4.3	SF	S17E11	2036
15 Apr	0549	0556	0600	C1.2			2035
15 Apr	0631	0636	0642	C1.0	1N	S17E09	2036
15 Apr	0642	0647	0651	C3.6			2036
15 Apr	0703	0708	0714	C1.3	SF	S15E27	2035
15 Apr	0826	0826	0828		SF	S18E09	2036
15 Apr	0853	0857	0859	C1.3	SF	S18E08	2036
15 Apr	0915	0923	0925	C8.6	SN	S14E25	2035



## *Flare List*

Date	Time			X-ray Class	Optical		Rgn #
	Begin	Max	End		Imp/ Brtns	Location Lat CMD	
15 Apr	0942	0946	0949	B9.0			2036
15 Apr	0953	0957	1010	C4.4	SF	S17E07	2036
15 Apr	1234	1246	1248	C3.6			
15 Apr	1316	1317	1320		SF	S17E23	2035
15 Apr	1322	1326	1330	C1.5	SF	S17E05	2036
15 Apr	1436	1436	1438		SF	S16E23	2035
15 Apr	1753	1759	1803	C7.3	SF	S15E21	2035
15 Apr	2343	2349	2352	C1.6	SF	S15E17	2035
16 Apr	0110	0118	0134	C1.9	SF	S14E19	2035
16 Apr	0152	0159	0207	C3.0	SF	S11E03	2037
16 Apr	0208	0211	0214	C2.8			2042
16 Apr	0303	0308	0316	C4.1			2042
16 Apr	0321	0323	0331		SF	S15E16	2035
16 Apr	0411	0414	0432		SF	N19E79	2042
16 Apr	0433	0452	0457		SF	N19E79	2042
16 Apr	0457	0508	0514	C2.9			
16 Apr	0506	0506	0512		SF	S15E14	2035
16 Apr	0521	0524	0538		SF	N19E78	2042
16 Apr	0555	0556	0603		SF	N19E77	2042
16 Apr	0607	0608	0613		SF	N19E77	2042
16 Apr	0637	0645	0648	C1.8	SF	S17E13	2035
16 Apr	0706	0712	0715		SF	N19E77	2042
16 Apr	0717	0722	0726	C2.9	SF	N03W01	2034
16 Apr	0812	0816	0820	C4.5	SF	N03W01	2034
16 Apr	0836	0844	0851	C5.2	SF	S15E13	2035
16 Apr	0841	0845	0847		SF	N19E75	2042
16 Apr	B1008	U1056	A1058		SF	N02W05	2034
16 Apr	1242	1251	1255	C7.5	1F	S15E21	2035
16 Apr	1425	1428	1442		SF	S09W07	2037
16 Apr	1730	1736	1741	C2.0	SF	S15E21	2035
16 Apr	1954	1959	2004	M1.0	1N	S14E09	2035
16 Apr	2311	2311	2314		SF	N19E69	2042
17 Apr	0002	0014	0026	C2.5	SF	S09W11	2037
17 Apr	0600	0608	0613	C1.7	SF	S14E02	2035
17 Apr	0950	0956	0959	C1.4			2035
17 Apr	1000	1003	1007	C1.6			2035
17 Apr	1145	1154	1207	C3.9			
17 Apr	1303	1305	1308		SF	S16E06	2035





## *Flare List*

Date	Time			Optical			
	Begin	Max	End	X-ray Class	Imp/Brtns	Location Lat CMD	Rgn #
17 Apr	1625	1630	1636	C2.4	SF	S15E04	2035
17 Apr	1752	1811	1833	C1.7			2035
17 Apr	2150	2238	2333	C3.2	SF	S14W27	2036
18 Apr	0448	0448	0506		SF	S16W08	2035
18 Apr	0552	U0558	0603		SF	S18W03	2035
18 Apr	0644	0714	0727	C1.6			2036
18 Apr	0803	0809	0824	C4.8	SF	S18W31	2036
18 Apr	1231	1303	1320	M7.3			2036
18 Apr	1401	1405	1412		SF	S18W37	2036
18 Apr	1935	2001	2013	C1.9			2036
18 Apr	2034	2038	2042	C1.6			2036
19 Apr	0019	0024	0031	C1.1			2035
19 Apr	0317	0324	0336	C2.1			2044
19 Apr	0555	0600	0606	C1.3	SF	N02W42	2034
19 Apr	0917	0920	0922	C1.2			2032
19 Apr	0924	0926	0929	C1.0			2036
19 Apr	0934	0939	0950	C1.6			2045
19 Apr	1143	1145	1147		SF	S19E63	2044
19 Apr	1227	1231	1235	C2.0	SF	S20E88	2045
19 Apr	1247	1252	1300	C1.7	SF	S18E61	2044
19 Apr	1628	1650	1702	C1.6			2034
19 Apr	1715	1719	1725	C1.6			2036
19 Apr	1925	1932	1937	C4.7			2032
19 Apr	2332	2337	2346	C1.8			2032
20 Apr	0017	0025	0040	C1.6			2035
20 Apr	0202	0305	0311	C2.1			2036
20 Apr	0421	0427	0441	C2.4	SF	S09E11	2038
20 Apr	0512	0517	0523	C1.9			2034
20 Apr	0607	0610	0613	C1.7			2034
20 Apr	B0633	U0634	A0638		SF	S12W36	2035
20 Apr	0807	0813	0818	C6.4			2033
20 Apr	0821	0824	0831	C3.9			2033
20 Apr	1123	1141	1144	C1.8			2033
20 Apr	1153	1207	1212	C2.2	1F	S15W37	2035
20 Apr	1332	1338	1344	C2.8	SF	S19W34	2035
20 Apr	1418	1446	1501	C1.8			2035
20 Apr	1436	1436	1442		SF	S13W37	2035
20 Apr	2213	2224	2231	C1.0			2036



### *Flare List*

Date	Time			X-ray Class	Optical		
	Begin	Max	End		Imp/ Brtns	Location Lat CMD	Rgn #
20 Apr	2244	2244	2246		SF	S13W44	2035



## Region Summary

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 2030</b>																							
02 Apr	N10E57		1	20	4	Cro	7	B	2				9										
03 Apr	N11E43		1	50	8	Dao	8	BG	2				2										
04 Apr	N11E30		1	100	9	Dai	16	BG	5				1										
05 Apr	N11E18		359	130	11	Eao	18	B															
06 Apr	N11E04		1	130	11	Dao	18	B															
07 Apr	N10W10		2	40	8	Dao	4	B															
08 Apr	N10W22		360	40	8	Dao	3	B															
09 Apr	N12W34		359	10	3	Bxo	3	B	1														
10 Apr	N12W48		359	plage									2										
11 Apr	N12W62		360	plage																			
12 Apr	N12W76		2	plage																			
13 Apr	N12W89		1	plage																			
									10	0	0	14	0	0	0	0	0						

Crossed West Limb.  
Absolute heliographic longitude: 1

<b>Region 2032</b>																							
08 Apr	N13E68		270	100	12	Dai	4	B															
09 Apr	N12E54		271	150	8	Dso	4	BG															
10 Apr	N12E39		272	170	12	Eso	4	BG															
11 Apr	N13E26		272	160	8	Dso	7	BG															
12 Apr	N13E12		272	150	9	Cso	6	BG															
13 Apr	N13W01		273	150	3	Hsx	1	A															
14 Apr	N12W14		273	140	2	Hsx	1	A															
15 Apr	N12W29		274	160	6	Cso	3	B															
16 Apr	N11W41		273	110	3	Hax	1	A															
17 Apr	N13W57		275	110	2	Hax	1	A															
18 Apr	N12W70		275	110	2	Hax	1	A															
19 Apr	N12W83		276	130	2	Hsx	2	A	3														
									3	0	0	0	0	0	0	0	0	0					

Crossed West Limb.  
Absolute heliographic longitude: 273



### *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 2033</b>																		
09 Apr	N12E62	263	60	2	Hsx	1	A											
10 Apr	N12E47	264	80	2	Hsx	1	A											
11 Apr	N12E34	264	110	2	Hsx	1	A											
12 Apr	N12E20	264	90	2	Hsx	1	A											
13 Apr	N12E08	264	90	2	Hsx	1	A											
14 Apr	N12W05	264	80	2	Hsx	1	A											
15 Apr	N12W18	263	60	2	Hsx	1	A											
16 Apr	N12W31	263	80	2	Hsx	2	A											
17 Apr	N13W45	263	80	2	Hsx	1	A											
18 Apr	N12W58	263	80	2	Hsx	2	A											
19 Apr	N12W71	264	80	1	Hsx	1	A											
20 Apr	N11W84	264	60	2	Hsx	1	A	3										
								3	0	0	0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 264

<b>Region 2034</b>																		
10 Apr	N04E71	240	30	5	Dro	5	B						1					
11 Apr	N05E57	241	130	9	Dao	5	B											
12 Apr	N04E44	242	220	10	Dai	9	B											
13 Apr	N05E31	241	250	10	Dho	11	BG											
14 Apr	N04E16	243	210	12	Eai	13	B											
15 Apr	N04E02	242	200	11	Eai	14	BG											
16 Apr	N04W10	242	250	11	Eki	19	B	2					3					
17 Apr	N05W26	244	280	9	Dhc	40	B											
18 Apr	N04W39	244	480	11	Ekc	27	B											
19 Apr	N05W52	245	400	11	Ekc	16	BG	2					1					
20 Apr	N04W66	246	270	11	Eko	16	BG	2										
								6	0	0	5	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 242



### *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 2035</b>																							
09 Apr	S15E0*	224	plage																				
10 Apr	S15E88	224	plage																				
11 Apr	S15E74	224	150	10	Dao	2	B																
12 Apr	S16E62	224	190	11	Eai	7	BG																
13 Apr	S18E50	222	210	12	Eai	13	BG																
14 Apr	S18E37	222	260	14	Ehi	16	BG																
15 Apr	S19E26	219	190	16	Fac	18	BG	5				6											
16 Apr	S17E11	221	320	15	Ekc	45	BG	5	1			6	2										
17 Apr	S14W04	222	240	16	Fsc	40	BG	5				3											
18 Apr	S15W18	223	340	13	Ekc	45	BGD					2											
19 Apr	S16W31	224	290	12	Ekc	33	BG	1															
20 Apr	S16W43	223	200	13	Eai	30	BG	4				4	1										
								34	1	0		21	3	0	0	0							

Still on Disk.

Absolute heliographic longitude: 222

### **Region 2036**

13 Apr	S18E25	247	20	3	Dro	5	B	2				2										
14 Apr	S18E13	246	70	5	Dai	8	BG	9				15										
15 Apr	S18W01	246	270	8	Dkc	15	BG	6				5	1									
16 Apr	S18W14	246	450	8	Dkc	22	BG															
17 Apr	S15W28	246	510	9	Dhc	34	BG	1				1										
18 Apr	S16W41	246	390	10	Dhc	47	BG	4	1			2										
19 Apr	S17W54	247	300	10	Dkc	35	BG	2														
20 Apr	S17W68	248	180	10	Dac	20	BG	2														
								26	1	0		25	1	0	0	0						

Still on Disk.

Absolute heliographic longitude: 246



### *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 2037</b>																							
13 Apr	S10E30	242	20	2	Bxo	4	B	1				1											
14 Apr	S09E16	243	30	3	Cao	6	B																
15 Apr	S09E03	242	40	2	Dso	3	BG																
16 Apr	S10W13	245	100	7	Dai	27	BG	1				2											
17 Apr	S09W27	245	110	8	Dai	24	BG	1				1											
18 Apr	S09W40	245	100	7	Dai	15	BG																
19 Apr	S10W54	247	90	8	Cso	8	B																
20 Apr	S10W67	247	40	9	Cao	4	B																
								3	0	0	4	0	0	0	0	0							

Still on Disk.

Absolute heliographic longitude: 242

<b>Region 2038</b>																							
15 Apr	S12E64	181	30	2	Cso	2	B																
16 Apr	S14E51	181	70	4	Cso	4	B																
17 Apr	S13E37	181	50	2	Cso	6	B																
18 Apr	S13E23	182	90	6	Dac	8	B																
19 Apr	S11E09	184	100	6	Dsi	15	B																
20 Apr	S11W05	185	80	6	Dai	12	B	1				1											
								1	0	0	1	0	0	0	0	0							

Still on Disk.

Absolute heliographic longitude: 185

<b>Region 2039</b>																							
15 Apr	N16E28	217	10	1	Bxo	2	B																
16 Apr	N23W02	220	10	2	Bxo	2	B																
17 Apr	N25W17	223	10	3	Bxo	5	B																
18 Apr	N23W30	235	10	5	Bxo	3	B																
19 Apr	N24W42	235	10	3	Bxo	4	B																
20 Apr	N24W56	236	plage																				
								0	0	0	0	0	0	0	0	0							

Still on Disk.

Absolute heliographic longitude: 220



### *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 2040</b>																		
15 Apr	N24E11	234	0			Bxo	1	B										
16 Apr	N15E11	231	10	8		Bxo	7	B										
17 Apr	N16W02	228	10	9		Bxo	14	B										
18 Apr	N16W15	221	10	4		Bxo	3	B										
19 Apr	N15W28	221	20	4		Cro	6	B										
20 Apr	N15W42	222	plage															
									0	0	0	0	0	0	0	0	0	0

Still on Disk.  
Absolute heliographic longitude: 228

<b>Region 2041</b>																		
16 Apr	S21W30	262	10	2		Bxo	4	B										
17 Apr	S19W43	261	10	2		Bxo	5	B										
18 Apr	S19W57	263	plage															
19 Apr	S19W71	264	plage															
20 Apr	S19W85	265	plage															
									0	0	0	0	0	0	0	0	0	0

Still on Disk.  
Absolute heliographic longitude: 262

<b>Region 2042</b>																		
16 Apr	N19E69	163	70	6		Cso	2	B	2			8						
17 Apr	N18E54	165	240	9		Dso	4	B										
18 Apr	N18E41	164	230	9		Dao	12	B										
19 Apr	N19E27	166	270	11		Eko	11	B										
20 Apr	N19E15	165	170	9		Cso	4	B										
									2	0	0	8	0	0	0	0	0	0

Still on Disk.  
Absolute heliographic longitude: 165

<b>Region 2043</b>																		
17 Apr	S11W17	235	10	2		Bxo	2	B										
18 Apr	S11W31	237	plage															
19 Apr	S11W45	238	plage															
20 Apr	S11W59	239	plage															
									0	0	0	0	0	0	0	0	0	0

Still on Disk.  
Absolute heliographic longitude: 235



### *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

#### *Region 2044*

19 Apr	S20E52	141	10	5	Bxo	6	B	2				2					
20 Apr	S20E37	143	30	9	Dro	11	B	2	0	0	2	0	0	0	0		

Still on Disk.

Absolute heliographic longitude: 143

#### *Region 2045*

19 Apr	S25E78	115	50	2	Hax	2	A	2				1					
20 Apr	S22E62	118	50	3	Cao	4	B	2	0	0	1	0	0	0	0		

Still on Disk.

Absolute heliographic longitude: 118



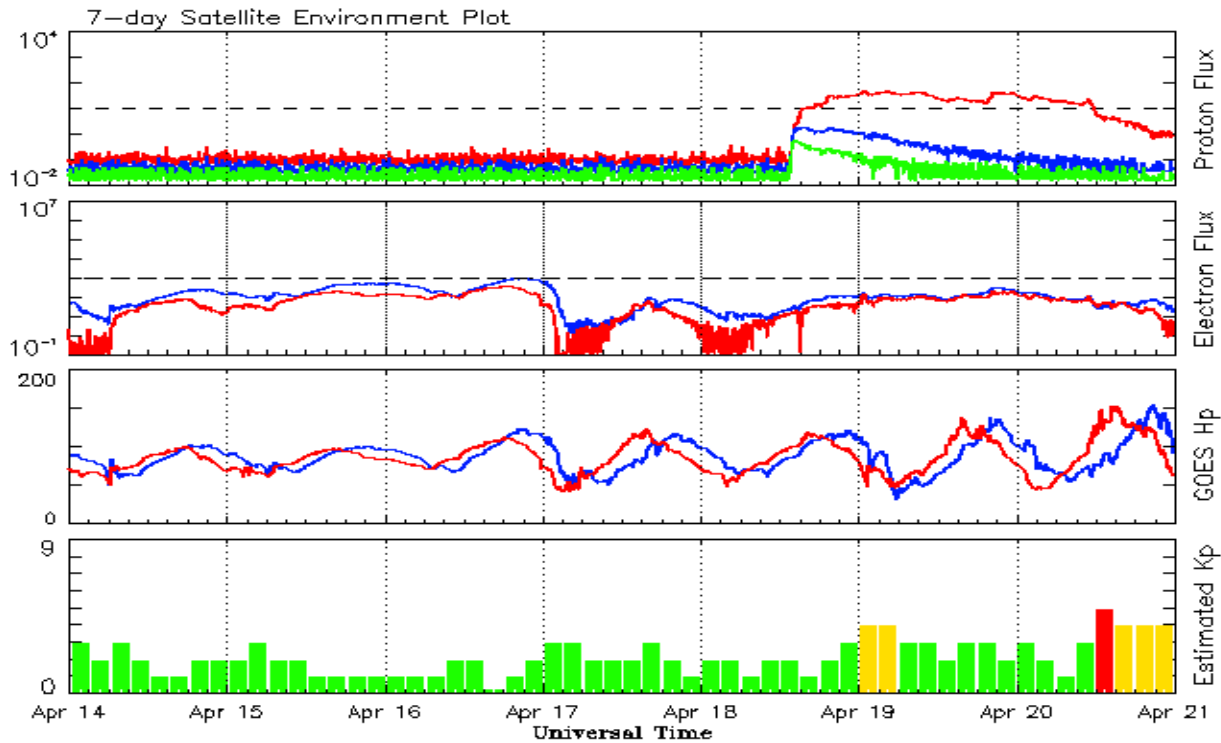


**Recent Solar Indices (preliminary)**  
**Observed monthly mean values**

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>2012</b>									
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	57.8	135.6	119.5	13	8.3
August	85.8	63.0	0.74	83.1	58.2	115.7	119.2	7	8.1
September	84.0	61.4	0.73	83.7	58.1	123.2	118.9	8	7.8
October	73.5	53.3	0.73	85.0	58.6	123.3	119.2	9	7.4
November	89.2	61.8	0.69	87.3	59.7	120.9	120.1	6	7.3
December	60.4	40.8	0.68	88.0	59.6	108.4	120.1	3	7.5
<b>2013</b>									
January	99.8	62.9	0.63	87.1	58.7	127.1	118.9	4	7.5
February	60.0	38.1	0.63	86.7	58.4	104.4	118.0	5	7.4
March	81.0	57.9	0.71	85.7	57.6	111.2	117.1	9	7.4
April	112.8	72.4	0.64	86.7	57.9	125.0	116.6	5	7.2
May	125.5	78.7	0.63	90.5	59.9	131.3	118.1	10	7.0
June	80.1	52.5	0.66	94.4	62.6	110.2	120.9	13	7.1
July	86.1	57.0	0.66	97.9	65.5	115.6	123.9	9	7.3
August	90.2	66.0	0.73	103.7	69.0	114.7	127.9	9	7.6
September	55.0	37.0	0.67	111.0	73.1	102.7	132.3	5	7.8
October	127.1	85.6	0.67			132.3		7	
November	125.7	77.6	0.62			148.4		5	
December	118.2	90.3	0.76			147.7		5	
<b>2014</b>									
January	125.9	82.0	0.65			158.6		6	
February	174.6	102.8	0.59			170.3		12	
March	141.1	92.2	0.65			149.9		6	

**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 14 April 2014*

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.

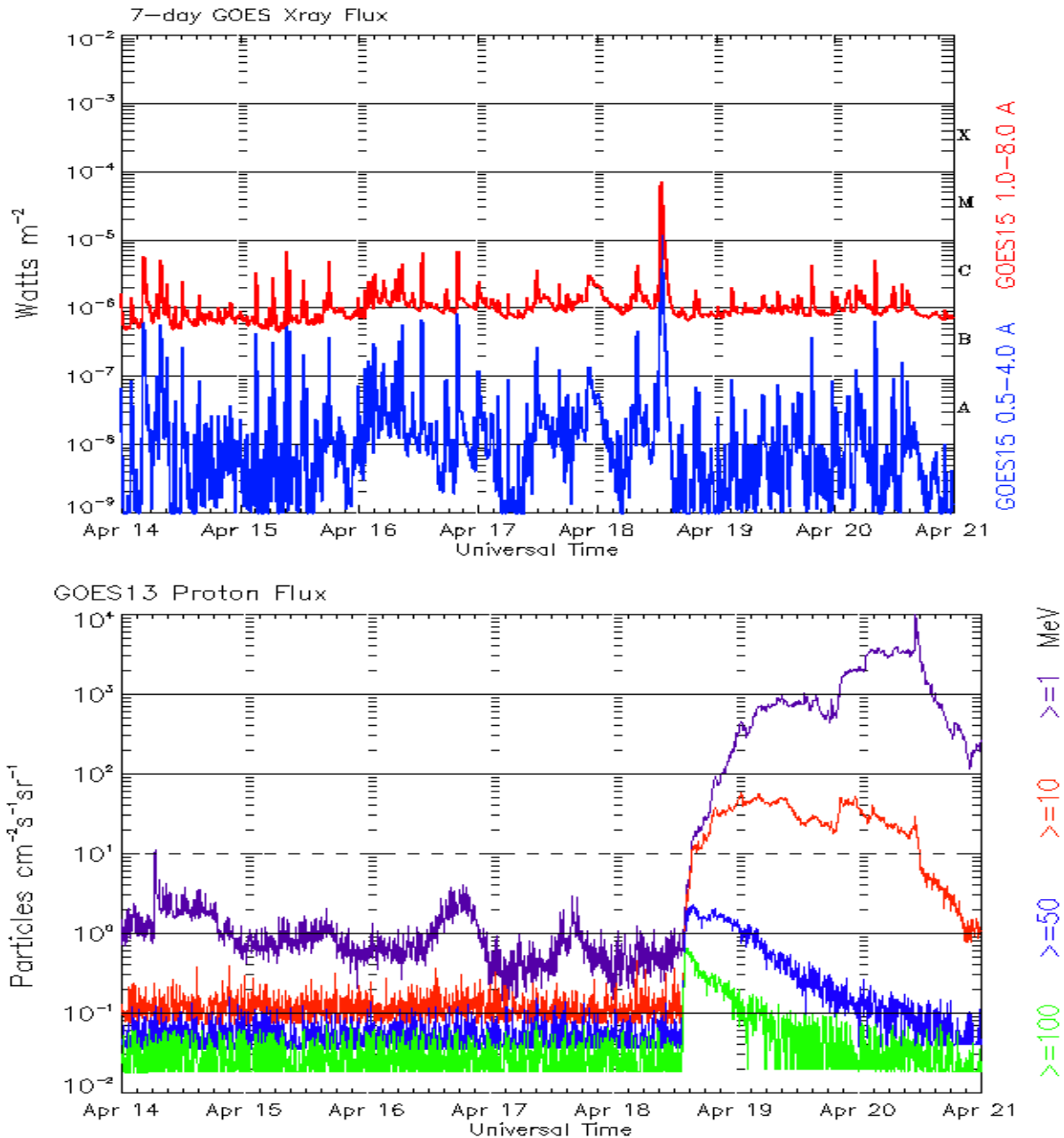
The electron flux plot contains the five-minute averaged integral electron flux (electrons/cm<sup>2</sup>-sec -sr) with energies greater than 2 MeV by the SWPC Primary GOES satellite.

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.

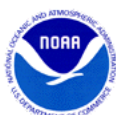




*Weekly GOES Satellite X-ray and Proton Plots  
Week Beginning 14 April 2014*

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.



## ***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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