Space Weather Highlights **SWPC PRF 2002**
06 January - 12 January 2014 **13 January 2014**

Solar activity ranged from low to high levels during the period. Low levels were observed on 06 January and again from 09-12 January with the majority of the solar flare activity originating from Regions 1944 (S09, L=101, class/area Fkc/1560 on 08 January), 1946 (N09, L=103, class/area Dkc/530 on 10 January), and 1947 (N11, L=180, class/area Cro/030 on 06 January). High levels were reached on 07 January due to an M1/1n flare at 07/0353 UTC from Region 1946, an M7/2b flare at 07/1013 UTC with an associated Tenflare (Castelli-U) radio burst (409 sfu) from Region 1944, and an X1/2n at 07/1832 UTC also from Region 1944. The X1 flare was associated with a Type II radio sweep (1064 km/s), a 8300 sfu Tenflare, and a partial halo coronal mass ejection (CME) with an approximate speed ranging from 1800 km/s to 2100 km/s. Model output of the CME indicated an Earth-directed component; however the impact on the geomagnetic field was significantly less than expected (see geomagnetic field activity below). By 08 January, solar activity decreased to moderate levels due to an isolated M3/Sf flare from Region 1947 at 08/0347 UTC on the west limb. The M3 flare was accompanied by a Type II radio sweep (697 km/s) and a non-Earth directed CME. Region 1944 was one of the largest sunspot groups in solar cycle 24, maintained a Fkc spot class with a complex beta-gamma-delta magnetic classification for the majority of the period, as well as reaching an impressive 1,560 millionths of areal coverage. By 09 January and through the rest of the reporting period the sunspot group was in a slow decay phase.

The period began with the greater than 10 MeV proton flux recovering from last weeks enhancement likely associated with an M4 flare from Region 1944 late on 04 January. At 06/0820 UTC, both the greater than 10 MeV and 100 MeV proton flux levels began to rise in response to flare activity beyond the west limb from old Region 1936 (S15, L=225) which rotated off the visible disk on 04 January. The greater than 10 MeV protons crossed the 10 pfu (S1 Minor) threshold at 06/0915 UTC and reached a maximum of 42 pfu at 06/1600 UTC before slowly declining to 10.1 pfu by 07/1930 UTC. The greater than 100 MeV protons crossed the 1 pfu threshold at 06/0830 UTC and reached a maximum of 4 pfu at 06/1005 UTC. The event ended at 06/1710 UTC. By 07/1935 UTC, another influx of energetic particles was observed by GOES 13 related to the X1 flare from Region 1944 at 07/1832 UTC. The 10 MeV proton flux levels were still above the 10 pfu threshold at this time and increased to a maximum of 1033 pfu (S3-Moderate) at 09/0340 UTC before slowly returning below the 10 pfu threshold by 11/2020 UTC. However, there were some fluctuations in the greater than 10 MeV protons early on 12 January with a couple readings above the 10 pfu threshold. The greater than 100 MeV proton event associated with the X-flare reached the 1 pfu threshold at 07/2030 UTC, reached a maximum of 4 pfu at 07/2240 UTC, and ended at 08/1225 UTC.

The greater than 2 MeV electron flux at geosynchronous orbit was at mostly normal to moderate levels during the period with high levels (2690 pfu) briefly reached on 07 January before the instrument became contaminated due to high proton flux levels late on 07 January through 09 January. By 10 January, electron flux levels recovered and remained in the normal to moderate range for the rest of the period.

Geomagnetic field activity ranged from quiet to active levels during the period. The geomagnetic

field began the period at quiet levels until after mid-day 07 January when a sudden increase in temperature, speed, density, and total field measurements were observed in ACE SWEPAM data indicating the arrival of the 04 January CME. Solar wind speed increased from approximately 350 km/s to 435 km/s with the total field increasing from 3 nT to 7 nT at 07/1428 UTC. This small shock and CME resulted in several periods of unsettled levels late on 07 January through early on 08 January. Quiet to unsettled levels continued through 09 January. Late on 09 January, the anticipated arrival of the CME associated with the X1 flare on 07 January arrived at the ACE spacecraft at 09/1932 UTC with a less than expected solar wind increase of from approximately 400 km/s to near 527 km/s. Total field measurements increased from 6 nT to 16 nT with the Bz component mostly north between -4 nT and +10 nT. A small sudden impulse (12 nT) was observed in the Fresno magnetometer data at 09/2010 UTC. An isolated unsettled period was observed late on 09 January as a result of CME activity. Nominal solar wind condition continued through late on 12 January with mostly quiet conditions observed. By late on 12 January, a negative polarity coronal hole high speed stream (CH HSS) began to impact the geomagnetic field. Solar wind speeds increased from approximately 480 km/s to near 680 km/s by the end of the period. The geomagnetic field responded with unsettled to active levels by late on 12 January.

Space Weather Outlook
13 January - 08 February 2014

Solar activity is expected to be at low levels with a chance for M-class flare activity until Region 1944 rotates off the west limb on 14 January. Very low to low levels are expected from 15-16 January. Low levels with a chance for M-class flare activity is expected from 17 January through 08 February as old Regions 1936 and 1944 return on 17 January and 26 January, respectively.

There is a chance for a greater than 10 MeV proton event from 26 January through 08 February when Region 1944 returns on the visible disk assuming it retains its magnetic complexity.

The greater than 2 MeV electron flux at geosynchronous orbit is expected to be at normal to moderate levels with high levels possible from 14-17 January, 29 January, and 03-05 February due to CH HSS activity and recurrence.

Geomagnetic field activity is expected to be mostly quiet with unsettled to active period possible on 13 January, 23-24 January, 28-30 January, and again on 07-08 February due to recurrent CH HSS activity.

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
06 January	204	245	1855	C1.1	3	0	0	6	1	0	0	0
07 January	237	196	1850	B9.6	8	2	1	13	1	2	0	0
08 January	195	178	1990	C1.0	6	1	0	8	0	0	0	0
09 January	184	106	1960	B7.8	2	0	0	1	0	0	0	0
10 January	175	138	2240	B7.1	3	0	0	2	0	0	0	0
11 January	166	134	1800	B7.2	10	0	0	2	0	0	0	0
12 January	155	118	1620	B6.7	1	0	0	2	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
06 January	5.4e+06	1.8e+06	9.4e+04		3.9e+07	
07 January	2.1e+07	2.6e+06	6.1e+04		4.1e+07	
08 January	1.4e+08	6.9e+07	1.2e+05		1.7e+07	
09 January	3.7e+08	4.0e+07	9.2e+03		9.9e+07	
10 January	9.3e+07	6.1e+06	2.1e+03		2.3e+07	
11 January	2.8e+07	1.3e+06	2.6e+03		1.1e+07	
12 January	1.4e+07	6.1e+05	2.6e+03		8.2e+06	

Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
06 January	4	0-1-2-0-2-2-2-1	0	0-0-1-0-0-0-0-0	4	0-1-1-0-1-1-2-2
07 January	7	0-2-0-1-2-3-3-2	4	0-1-0-1-0-3-2-1	8	1-2-0-1-1-3-3-3
08 January	8	3-3-1-1-2-2-2-1	4	2-2-0-1-1-2-1-1	8	3-3-1-1-1-1-1-2
09 January	7	2-2-2-1-2-2-3-1	10	2-1-3-3-3-1-3-1	10	3-3-2-2-1-1-3-2
10 January	4	1-1-1-1-2-2-1-1	3	0-0-0-0-3-2-0-0	5	2-2-1-1-1-2-1-1
11 January	3	0-0-0-0-2-2-2-1	2	0-0-0-0-0-1-2-1	4	0-0-0-0-1-1-3-2
12 January	7	1-1-1-1-2-1-3-3	9	0-1-0-4-3-1-2-3	9	1-1-2-1-2-1-3-4

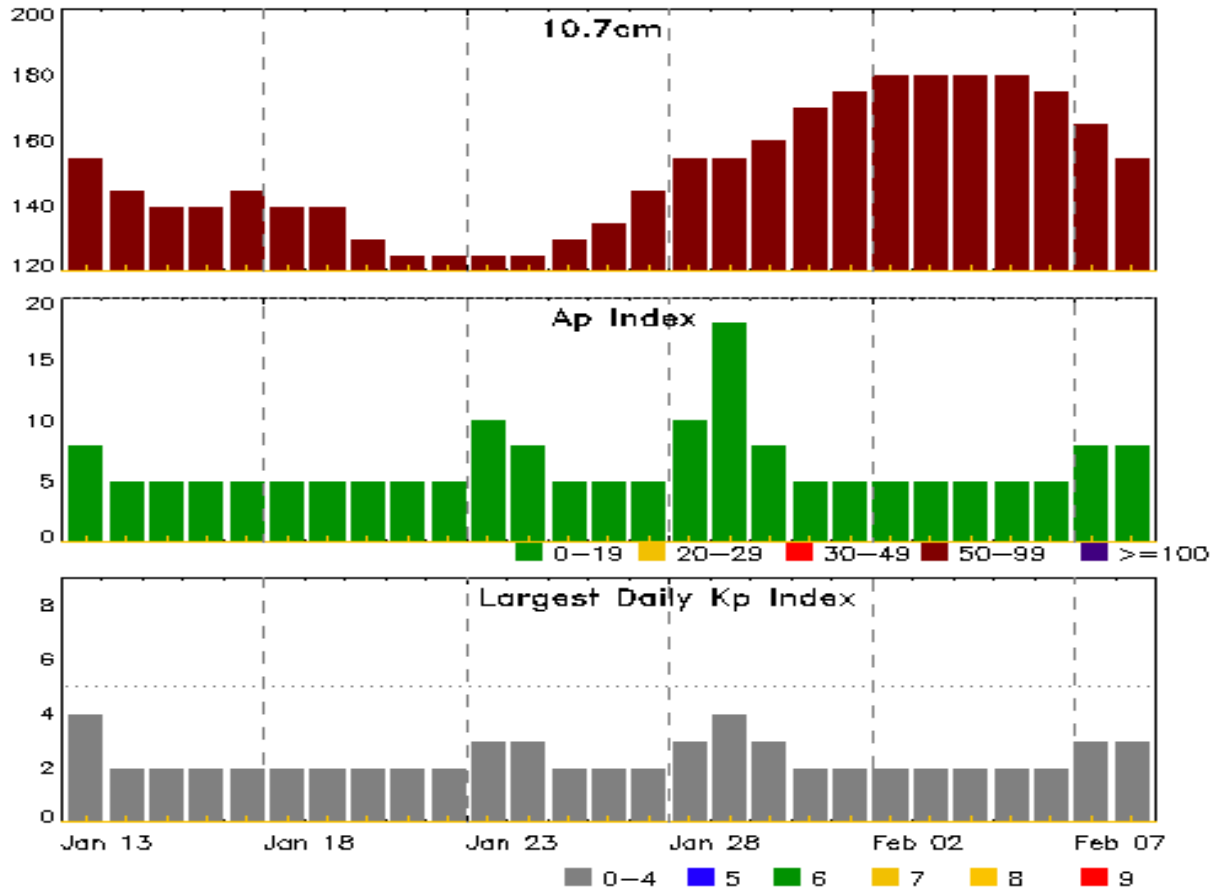
Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
06 Jan 0836	WARNING: Proton 100MeV Integral Flux > 1pfu	06/0835 - 2035
06 Jan 0837	WARNING: Proton 10MeV Integral Flux > 10pfu	06/0837 - 2037
06 Jan 0846	ALERT: Proton Event 100MeV Integral Flux > 1pfu	06/0835
06 Jan 0909	ALERT: Type II Radio Emission	06/0745
06 Jan 0910	ALERT: Type IV Radio Emission	06/0653
06 Jan 0921	ALERT: Proton Event 10MeV Integral Flux >= 10pfu	06/0915
06 Jan 2017	SUMMARY: Proton Event 100MeV Integral Flux > 1pfu	06/0830 - 1710
06 Jan 2045	EXTENDED WARNING: Proton 10MeV Integral Flux > 10pfu	06/0837 - 07/1300
07 Jan 1016	ALERT: X-ray Flux exceeded M5	07/1012
07 Jan 1047	SUMMARY: X-ray Event exceeded M5	07/1007 - 1037
07 Jan 1054	SUMMARY: 10cm Radio Burst	07/1011 - 1016
07 Jan 1258	EXTENDED WARNING: Proton 10MeV Integral Flux > 10pfu	06/0837 - 07/2100
07 Jan 1438	WARNING: Geomagnetic Sudden Impulse expected	07/1505 - 1535
07 Jan 1525	SUMMARY: Geomagnetic Sudden Impulse	07/1515
07 Jan 1533	ALERT: Electron 2MeV Integral Flux >= 1000pfu	07/1525
07 Jan 1818	ALERT: X-ray Flux exceeded M5	07/1817
07 Jan 1925	ALERT: Type II Radio Emission	07/1817
07 Jan 2008	EXTENDED WARNING: Proton 10MeV Integral Flux > 10pfu	06/0837 - 08/2100
07 Jan 2022	SUMMARY: X-ray Event exceeded X1	07/1804 - 1858
07 Jan 2031	SUMMARY: 10cm Radio Burst	07/1806 - 1856
07 Jan 2040	WARNING: Proton 100MeV Integral Flux > 1pfu	07/2015 - 08/1300
07 Jan 2041	ALERT: Proton Event 100MeV Integral Flux > 1pfu	07/2015
07 Jan 2242	ALERT: Proton Event 10MeV Integral Flux >= 100pfu	07/2235
08 Jan 0353	WARNING: Geomagnetic K = 4	08/0352 - 0900
08 Jan 0415	ALERT: Type II Radio Emission	08/0348
08 Jan 1214	WATCH: Geomagnetic Storm Category G3 predicted	
08 Jan 1253	EXTENDED WARNING: Proton 100MeV Integral Flux > 1pfu	07/2015 - 08/1800

Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
08 Jan 1947	SUMMARY: Proton Event 100MeV Integral Flux > 1pfu	07/2015 - 08/1215
08 Jan 2056	EXTENDED WARNING: Proton 10MeV Integral Flux > 10pfu	06/0837 - 09/2100
08 Jan 2142	ALERT: Electron 2MeV Integral Flux >= 1000pfu	08/2125
08 Jan 2145	CANCELLATION: Electron 2MeV Integral Flux >= 1000pfu	
08 Jan 2151	ALERT: Electron 2MeV Integral Flux >= 1000pfu	07/1525
08 Jan 2334	ALERT: Proton Event 10MeV Integral Flux >= 1000pfu	08/2320
09 Jan 0504	CONTINUED ALERT: Electron 2MeV Integral Flux >= 1000pfu	07/1525
09 Jan 0948	SUMMARY: Proton Event 10MeV Integral Flux >= 1000pfu	08/2320 - 09/0350
09 Jan 1951	WARNING: Geomagnetic Sudden Impulse expected	09/2000 - 2030
09 Jan 2018	SUMMARY: Geomagnetic Sudden Impulse	09/2010
09 Jan 2021	EXTENDED WARNING: Proton 10MeV Integral Flux > 10pfu	06/0837 - 10/2100
09 Jan 2034	WARNING: Geomagnetic K = 4	09/2035 - 10/2100
10 Jan 1411	CANCELLATION: Geomagnetic Storm Category G3 predicted	
10 Jan 1547	SUMMARY: Proton Event 10MeV Integral Flux >= 100pfu	07/2235 - 10/0530
10 Jan 1547	EXTENDED WARNING: Proton 10MeV Integral Flux > 10pfu	06/0837 - 11/1400
10 Jan 1547	CANCELLATION: Geomagnetic K = 4	
11 Jan 1330	EXTENDED WARNING: Proton 10MeV Integral Flux > 10pfu	06/0837 - 11/1900
12 Jan 0956	SUMMARY: Proton Event 10MeV Integral Flux >= 10pfu	06/0915 - 11/2020
12 Jan 2234	WARNING: Geomagnetic K = 4	12/2233 - 13/0800
12 Jan 2240	ALERT: Geomagnetic K = 4	12/2238

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
13 Jan	155	8	4	27 Jan	145	5	2
14	145	5	2	28	155	10	3
15	140	5	2	29	155	18	4
16	140	5	2	30	160	8	3
17	145	5	2	31	170	5	2
18	140	5	2	01 Feb	175	5	2
19	140	5	2	02	180	5	2
20	130	5	2	03	180	5	2
21	125	5	2	04	180	5	2
22	125	5	2	05	180	5	2
23	125	10	3	06	175	5	2
24	125	8	3	07	165	8	3
25	130	5	2	08	155	8	3
26	135	5	2				

Energetic Events

	Time			X-ray		Optical Information			Peak Radio Flux		Sweep Freq Intensity	
Date	Begin	Max	Half Max	Class	Integ Flux	Imp/ Brtns	Location Lat CMD	Rgn #	245	2695	II	IV
07 Jan	0349	0353	0356	M1.0	0.003	1N	N07E08	1946				
07 Jan	1007	1013	1037	M7.2	0.092	2B	S13E11	1944	110	480		
07 Jan	1804	1832	1858	X1.2	0.250	2N	S15W11	1944	7200	8300	2	
08 Jan	0339	0347	0354	M3.6	0.017	SF	N11W81	1947	1300	100	2	

Flare List

	Time			Optical			
Date	Begin	Max	End	X-ray Class	Imp/ Brtns	Location Lat CMD	Rgn #
06 Jan	0003	0018	0038	C7.1	1F	S06E27	1944
06 Jan	0229	0229	0234		SF	S14W68	1937
06 Jan	0435	0435	0437		SF	S13W72	1937
06 Jan	0457	0457	0513		SF	N09E20	1946
06 Jan	0928	0934	0942	C2.6	SF	S04E13	1944
06 Jan	1312	1317	1321		SF	S06E20	1944
06 Jan	1606	1612	1617	C2.0	SF	S09E19	1944
07 Jan	0229	0234	0239	C2.6	SF	S14E18	1944
07 Jan	0349	0353	0356	M1.0	1N	N07E08	1946
07 Jan	0408	0411	0416	C2.7	SF	S10E13	1944
07 Jan	0440	0453	0520	C2.4	SF	S09E13	1944
07 Jan	0659	0705	0710	C3.4	SF	N08E06	1946
07 Jan	0715	0728	0752		SF	S11E15	1944
07 Jan	0803	U0807	0856	C2.3	SF	S14E15	1944
07 Jan	0857	0857	0907		SF	S14E14	1944
07 Jan	0939	0941	0951		SF	N07E04	1946
07 Jan	1007	1013	1037	M7.2	2B	S13E11	1944
07 Jan	1145	1153	1159	C2.6	SF	S12E11	1944
07 Jan	1235	1235	1239		SF	S16E13	1944
07 Jan	1241	U1242	1323		SF	S13E10	1944
07 Jan	1804	1832	1858	X1.2	2N	S15W11	1944
07 Jan	2216	2233	2239	C7.4	SF	N13W84	1947
07 Jan	2336	2343	2348	C1.6	SF	N13W84	1947
08 Jan	0304	0311	0320	C3.1	SF	S10E01	1944
08 Jan	0339	0347	0354	M3.6	SF	N11W81	1947
08 Jan	0418	0419	0424		SF	N11W81	1947
08 Jan	0518	0519	0521		SF	N11W81	1947

Flare List

Date	Time			Optical			
	Begin	Max	End	X-ray Class	Imp/ Brtns	Location Lat CMD	Rgn #
08 Jan	0727	0734	0742	C2.4			1947
08 Jan	1025	1029	1036	C1.9	SF	S10W04	1944
08 Jan	1156	1204	1217	C6.1			1947
08 Jan	1255	1259	1302	C2.4	SF	S10W04	1944
08 Jan	1616	1617	1622		SF	S06W10	1944
08 Jan	1648	1654	1704	C3.4	SN	S07W11	1944
09 Jan	0213	0216	0218	C1.4	SF	N11W17	1946
09 Jan	1856	1859	1902	C1.1			
10 Jan	0313	0315	0319		SF	N09W36	1946
10 Jan	0623	0633	0643	C1.1			1950
10 Jan	0706	0727	0826	C1.4			1944
10 Jan	1846	1849	1851	C1.4	SF	N08W42	1946
11 Jan	0741	0749	0755	C1.1			
11 Jan	0831	0835	0837	C4.4	SF	S09W42	1944
11 Jan	1018	1024	1031	C2.1			1944
11 Jan	1300	1310	1322	C6.5			1944
11 Jan	1829	1838	1842	C1.0			1944
11 Jan	1849	1901	1927	C1.6			1944
11 Jan	1906	1922	1922		SF	S15W11	1943
11 Jan	2006	2009	2012	C1.3			1950
11 Jan	2043	2046	2055	C1.7			1950
11 Jan	2200	2203	2205	C1.2			
11 Jan	2357	0005	0009	C6.0	SF	S14W50	1944
12 Jan	0158	0206	0218	C3.9	SF	S08W53	1944

Region Summary

	Location		Sunspot Characteristics					Flares							
		Helio	Area	Extent	Spot	Spot	Mag	X-ray			Optical				
Date	Lat CMD	Lon	10^{-6} hemi.	(helio)	Class	Count	Class	C	M	X	S	1	2	3	4
			Region 1937												
26 Dec	S12E60	194	10	6	Bxo	3	B								
27 Dec	S12E46	197	20	7	Bxo	4	B								
28 Dec	S12E33	196	10	6	Bxo	5	B								
29 Dec	S12E19	197	10	4	Bxo	3	B								
30 Dec	S12E05	198	10	4	Bxo	3	B								
31 Dec	S12W09	198	10	4	Bxo	3	B								
01 Jan	S12W23	199	plage												
02 Jan	S12W37	200	plage												
03 Jan	S12W47	197	30	5	Dao	8	BG	1			2				
04 Jan	S12W58	195	80	6	Dac	14	BG								
05 Jan	S13W71	195	160	9	Dac	21	BG				8				
06 Jan	S13W85	195	160	9	Dai	21	BG				2				
								1	0	0	12	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 198

			Region 1938												
27 Dec	S12E62	181	60	4	Hax	1	A								
28 Dec	S12E50	179	120	3	Hax	3	A								
29 Dec	S13E37	179	60	2	Cao	3	B								
30 Dec	S09E22	179	50	1	Hax	2	A								
31 Dec	S09E09	179	30	2	Hax	3	A	2			2				
01 Jan	S12W03	178	30	4	Cro	6	B				1				
02 Jan	S14W16	179	30	5	Cao	4	B								
03 Jan	S14W31	181	10	3	Bxo	3	B								
04 Jan	S14W45	182	10	2	Hrx	3	A								
05 Jan	S14W59	183	10	2	Cro	3	B								
06 Jan	S14W73	183	10	2	Hrx	1	A								
07 Jan	S14W87	184	10	1	Axx	1	A								
								2	0	0	3	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 178

Region Summary - continued

	Location		Sunspot Characteristics					Flares							
		Helio	Area	Extent	Spot	Spot	Mag	X-ray			Optical				
Date	Lat CMD	Lon	10^{-6} hemi.	(helio)	Class	Count	Class	C	M	X	S	1	2	3	4
		Region 1942													
31 Dec	N10E62	127	20	1	Hrx	1	A								
01 Jan	N10E49	126	20	1	Cro	1	B								
02 Jan	N10E37	126	30	6	Cao	4	B								
03 Jan	N10E23	127	30	5	Cao	4	B								
04 Jan	N10E08	129	30	2	Hsx	1	A								
05 Jan	N10W06	130	20	1	Hsx	3	A								
06 Jan	N10W20	130	20	2	Cro	3	B								
07 Jan	N10W34	131	10	1	Axx	1	A								
08 Jan	N10W48	132	plage												
09 Jan	N10W62	133	plage												
10 Jan	N10W76	134	plage												
11 Jan	N10W90	135	plage												
								0	0	0	0	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 130

		Region 1943													
31 Dec	S11E67	122	20	1	Cro	1	B								
01 Jan	S11E57	118	20	3	Cro	1	B								
02 Jan	S11E45	118	20	3	Cro	2	B								
03 Jan	S12E30	120	10	2	Cro	3	B								
04 Jan	S11E17	120	20	1	Hrx	3	A								
05 Jan	S11E07	117	30	4	Cro	7	B								
06 Jan	S11W07	117	10	1	Axx	1	A								
07 Jan	S11W21	118	plage												
08 Jan	S11W35	119	plage												
09 Jan	S11W49	120	plage												
10 Jan	S11W63	121	plage												
11 Jan	S11W77	122	plage								1				
								0	0	0	1	0	0	0	0

Died on Disk.
Absolute heliographic longitude: 117

Region Summary - continued

	Location		Sunspot Characteristics					Flares							
		Helio	Area	Extent	Spot	Spot	Mag	X-ray			Optical				
Date	Lat CMD	Lon	10^{-6} hemi.	(helio)	Class	Count	Class	C	M	X	S	1	2	3	4
			Region 1944												
01 Jan	S07E75	101	250	7	Dko	3	B	2			1				
02 Jan	S08E64	99	1060	16	Fkc	19	BG	5	2		4	1			
03 Jan	S09E53	97	1280	16	Fkc	37	BG	8	2		9				
04 Jan	S08E38	99	1470	20	Fkc	60	BGD	4	1		10		1		
05 Jan	S09E25	99	1480	18	Fkc	112	BGD	3			6				
06 Jan	S09E11	99	1415	18	Fkc	112	BGD	3			3	1			
07 Jan	S09W03	100	1540	18	Fkc	116	BGD	5	1	1	9		2		
08 Jan	S09W17	101	1560	18	Fkc	118	BGD	4			5				
09 Jan	S09W28	98	1420	18	Fkc	52	BGD								
10 Jan	S09W43	100	1400	18	Fkc	49	BGD	1							
11 Jan	S10W54	99	1300	17	Fkc	37	BGD	6			1				
12 Jan	S10W69	99	1090	18	Fkc	21	BG	1			2				
								42	6	1	50	2	3	0	0

Still on Disk.
Absolute heliographic longitude: 100

			Region 1945												
02 Jan	N12E18	145	10	4	Bxo	4	B								
03 Jan	N11E04	146	10	5	Dro	5	B								
04 Jan	N11W12	149	10	1	Axx	2	A								
05 Jan	N11W25	149	10	1	Axx	1	A								
06 Jan	N11W39	149	10	1	Axx	1	A								
07 Jan	N11W53	150	plage												
08 Jan	N11W67	151	plage												
09 Jan	N11W81	152	plage												
								0	0	0	0	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 146

Region Summary - continued

	Location		Sunspot Characteristics					Flares							
		Helio	Area	Extent	Spot	Spot	Mag	X-ray			Optical				
Date	Lat CMD	Lon	10^{-6} hemi.	(helio)	Class	Count	Class	C	M	X	S	1	2	3	4
			Region 1946												
04 Jan	N12E41	96	10	3	Bxo	2	B								
05 Jan	N09E21	103	80	5	Dai	8	B								
06 Jan	N09E07	103	140	8	Dac	11	BG				1				
07 Jan	N09W07	104	210	8	Dac	14	BG	1	1		2	1			
08 Jan	N09W21	105	290	9	Dki	18	BG								
09 Jan	N08W32	102	300	9	Dai	12	BG	1			1				
10 Jan	N09W46	103	530	10	Dkc	19	BG	1			2				
11 Jan	N10W58	101	190	11	Eai	15	BG								
12 Jan	N08W73	103	90	9	Dao	5	B								
								3	1	0	6	1	0	0	0

Still on Disk.
Absolute heliographic longitude: 103

			Region 1947												
06 Jan	N11W70	180	30	4	Cro	4	B								
07 Jan	N11W84	181	20	3	Cro	3	B	2			2				
								2	0	0	2	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 180

			Region 1948												
06 Jan	N06E67	43	60	2	Hsx	1	A								
07 Jan	N06E53	44	60	2	Hsx	1	A								
08 Jan	N06E39	45	60	2	Hsx	1	A								
09 Jan	N06E25	44	90	1	Hsx	1	A								
10 Jan	N06E13	44	90	2	Hsx	1	A								
11 Jan	N06W02	45	80	3	Hsx	1	A								
12 Jan	N08W17	47	100	6	Hsx	2	A								
								0	0	0	0	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 45

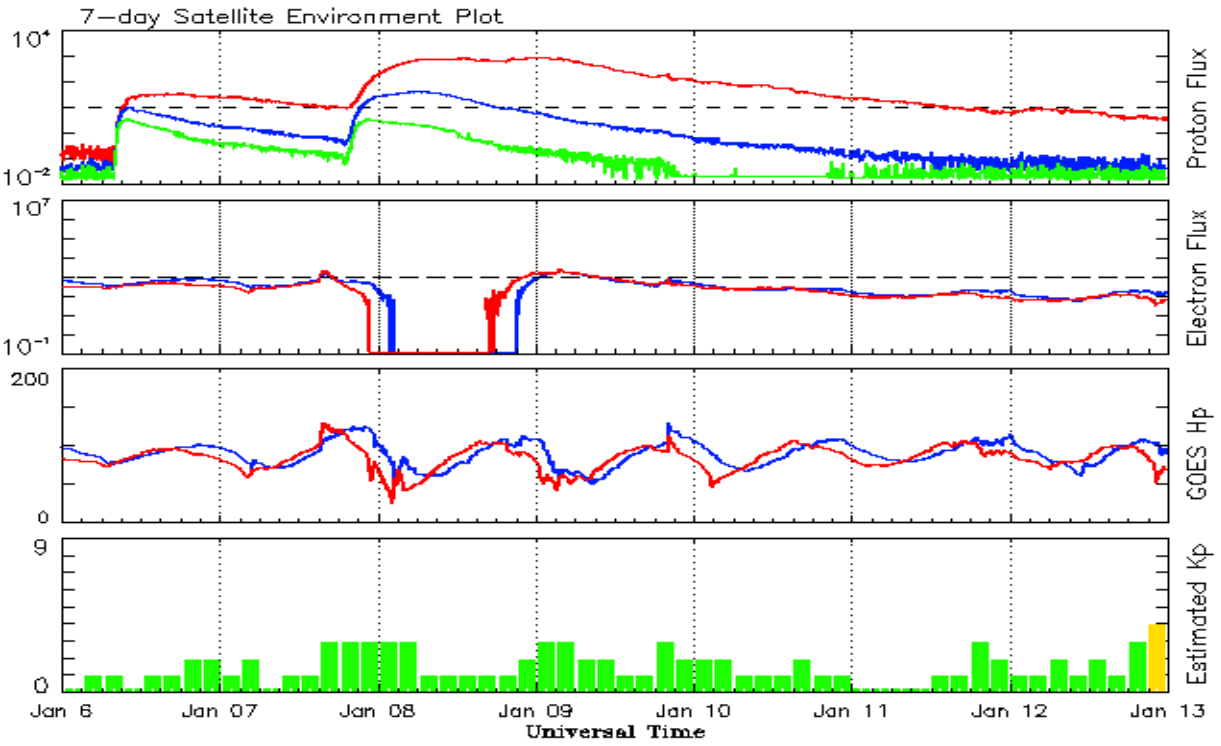
Region Summary - continued

	Location		Sunspot Characteristics					Flares							
		Helio	Area	Extent	Spot	Spot	Mag	X-ray			Optical				
Date	Lat CMD	Lon	10^{-6} hemi.	(helio)	Class	Count	Class	C	M	X	S	1	2	3	4
			Region 1949												
08 Jan	S15E70	14	80	2	Hsx	1	A								
09 Jan	S15E56	14	150	2	Hsx	1	A								
10 Jan	S16E42	16	180	3	Hax	2	A								
11 Jan	S15E30	15	140	4	Hsx	3	A								
12 Jan	S16E17	13	180	3	Hax	2	A								
								0	0	0	0	0	0	0	0
Still on Disk.															
Absolute heliographic longitude: 13															
			Region 1950												
10 Jan	N16E31	26	30	4	Cao	4	B	1							
11 Jan	N16E18	27	30	6	Dro	5	B	2							
12 Jan	N17E02	28	10	2	Bxo	2	B								
								3	0	0	0	0	0	0	0
Still on Disk.															
Absolute heliographic longitude: 28															
			Region 1951												
10 Jan	S12E11	46	10	2	Cao	3	B								
11 Jan	S12W02	45	20	2	Cro	2	B								
12 Jan	S12W14	44	10	1	Axx	1	A								
								0	0	0	0	0	0	0	0
Still on Disk.															
Absolute heliographic longitude: 45															
			Region 1952												
11 Jan	S33E75	330	40	2	Hax	1	A								
12 Jan	S31E60	331	110	6	Dso	2	B								
								0	0	0	0	0	0	0	0
Still on Disk.															
Absolute heliographic longitude: 331															
			Region 1953												
12 Jan	S18E01	29	30	2	Dao	3	B								
								0	0	0	0	0	0	0	0
Still on Disk.															
Absolute heliographic longitude: 29															

Recent Solar Indices (preliminary)
Observed monthly mean values

	Sunspot Numbers					Radio Flux		Geomagnetic	
	Observed values		Ratio	Smooth values		Penticton	Smooth	Planetary	Smooth
Month	SEC	RI	RI/SEC	SEC	RI	10.7 cm	Value	Ap	Value
				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	57.8	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
				2013					
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	57.5	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			115.6		9	
August	90.2	66.0	0.73			114.7		9	
September	55.0	36.9	0.67			102.7		5	
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	

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 06 January 2014

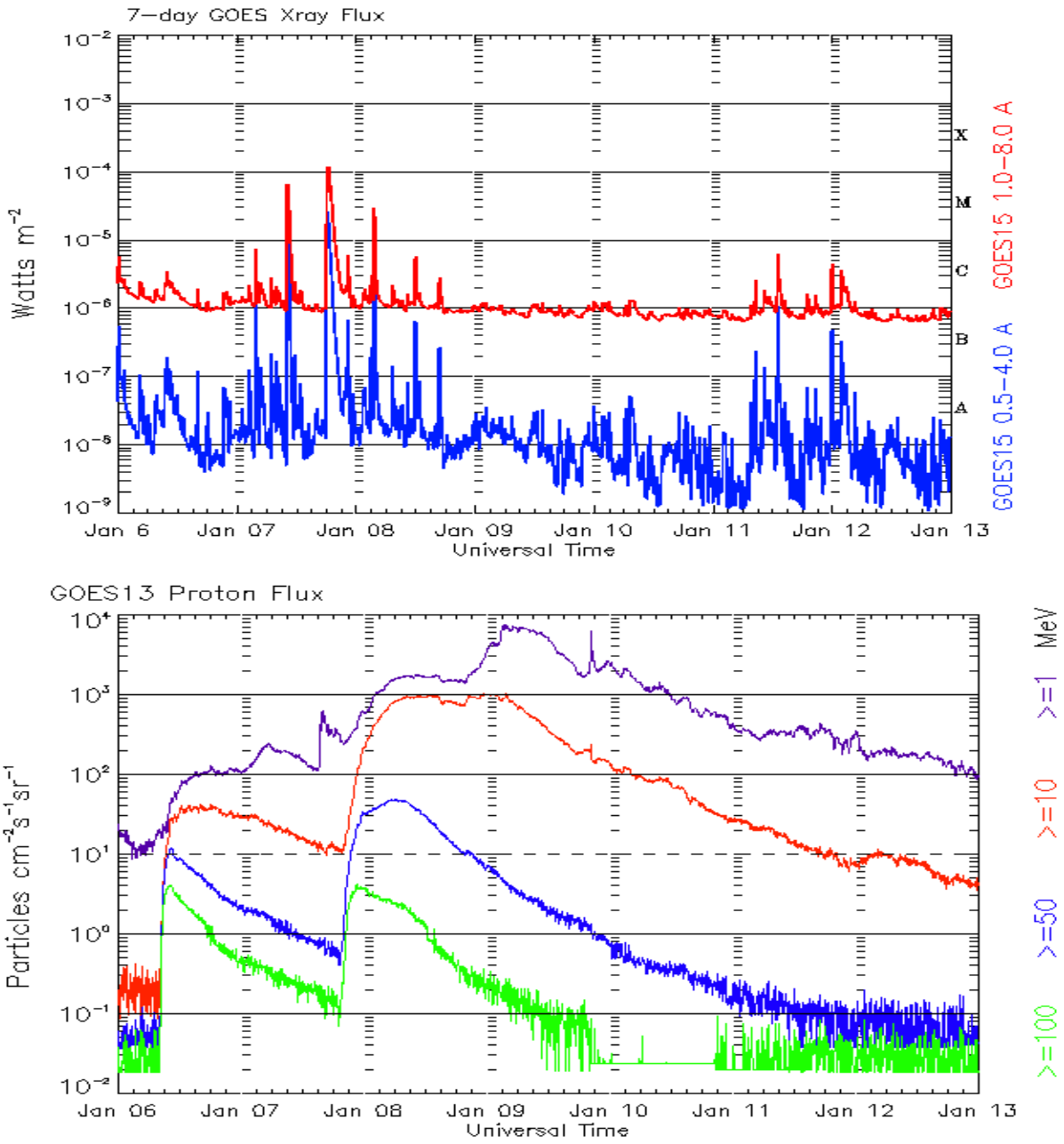
The proton flux plot contains the five-minute averaged integral proton flux (protons/cm^2-sec -sr) as measured by the SWPC Primary GOES satellite, near West 75, for each of three energy thresholds: greater than 10, 50, and 100 MeV.

The electron flux plot contains the five-minute averaged integral electron flux (electrons/cm^2-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 06 January 2014

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 intergral 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)

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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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