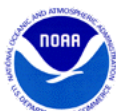


Solar activity ranged from low to high levels. The period began with high levels on 28 and 29 October due to a total of six M-class flares from three different regions as well as two X-class flares from Region 1875 (N07, L=030, class/area Fkc/790 on 27 October). Region 1875 produced an X1/2n at 28/0203 UTC with associated Type II radio sweep (485 km/s) and an asymmetric partial halo coronal mass ejection (CME) and a X2 at 29/2154 UTC with an associated Type IV radio sweep and another asymmetric partial halo CME. The majority of the ejecta from these CMEs were determined to be off the west limb and unlikely to have a significant geomagnetic signature. M-class flares from Region 1875 included an M5/2b at 28/0441 UTC with an associated Type II (508 km/s) and Type IV radio sweeps, an 170 sfu Tenflare, and a westward directed CME as well as a M2/1n flare at 28/1405 UTC. Other M-class flare activity came from Regions 1877 (S12, L=009, class/area Dkc/440 on 24 October) and 1882 (S08, L=292, class/area Dkc/390 on 27 October). Region 1877 produced a long duration M1/2n flare at 28/1153 UTC while Region 1882 produced a M2/1n flare at 28/1501 UTC and an M4 flare at 28/1515 UTC with associated Type II (1855 km/s) and Type IV radio sweeps as well as a partial halo CME with an Earth-directed component. By 30 October, solar activity was at low levels and continued until midday on 31 October, when Region 1877 produced an M1 flare at 31/1351 UTC from just behind the west limb. On 01 November, high levels were observed as Region 1884 (S11, L=261, class/area Ekc/460 on 30 October) produced an M6/1b flare at 01/1953 UTC with an associated Tenflare (290 sfu). Moderate levels were observed on 02 November as Region 1884 produced an M1/1f flare at 02/2221 UTC. Solar activity increased to high levels once again on 03 November as Region 1884 produced an M5/2b flare at 03/0522 UTC.

Two enhancements were observed in the greater than 10 MeV and greater than 100 MeV protons at geosynchronous orbit. The first enhancement occurred at from approximately 28/0600 UTC to 31/1500 UTC with a peak flux of 4.8 pfu at 30 /0925 UTC in the greater than 10 MeV proton levels. The greater than 100 MeV levels showed an enhancement from 28/2000 UTC to 30/0700 UTC with a peak flux of 0.2 pfu at 29/0235 UTC. The initial enhancement was likely due to the X1 flare that occurred on 28 October. A further enhancement of the greater than 10 and 100 MeV proton flux was observed beginning on 02 November, likely due to flare activity from old Region 1875 from behind the west limb. The greater than 10 MeV protons were enhanced beginning at approximately 02/0900 and continue to be above background levels with a peak flux of 3.3 pfu at 02/2000 UTC. The greater than 100 MeV proton flux increased from approximately 02/0900 UTC to 03/0900 UTC with a peak flux of 0.2 pfu at 02/1420 UTC. All flux levels were below the 10 pfu threshold (S1, Minor).

The greater than 2 MeV electron flux at geosynchronous orbit was at normal to moderate levels. Moderate levels were observed on 28-29 October, and again on 02-03 November.

Geomagnetic field activity ranged from quiet to unsettled levels with periods of active to major storm levels observed at higher latitudes. The period began at quiet levels on 28 October that persisted until midday on 29 October when a weak transient was observed in ACE SWEPAM



data at approximately 29/0720 UTC. Solar wind speed increased from approximately 290 km/s to 360 km/s while total field rose from 4 nT to 12 nT. The Bz component of the interplanetary magnetic field reached -9 nT before rotating to +11 nT. The geomagnetic field responded with an isolated unsettled period with an isolated minor storm period observed at high latitudes. On 30 October, extended periods of southward Bz near -9 nT caused mostly unsettled conditions with active to major storm periods observed at high latitudes. On 31 October, another weak transient was observed in ACE SWEPAM data beginning at approximately 31/0930 UTC. Solar wind speeds climbed from 350 km/s to 480 km/s with total field increasing from 6 nT to 12 nT. The Bz component was mostly north with a maximum of 12 nT before transitioning southward to a maximum of -8 nT. This was likely the passage of the CME associated with the 28 October M4 flare. Despite of the transient arrival, only quiet levels were observed. Mostly quiet levels continued through the end of the period.

Space Weather Outlook

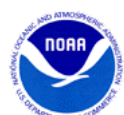
04 November - 30 November 2013

Solar activity is expected to be at low levels with a chance for M-class flares (R1-R2, Minor to Moderate) and a slight chance for X-class flares (R3, Strong) until 24 November when Region 1890 (S10, L=172, class/area Ehc/660 on 03 November) and old Region 1875 (N07, L=030) depart the visible disk.

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 with high levels expected from 11-18 November due to activity associated with a recurrent coronal hole high speed stream.

Geomagnetic field activity is expected to be mostly quiet for the forecast period with unsettled periods expected from 06-07 November and again on 10-13 November due activity associated with recurrent coronal hole high speed streams.



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
28 October	160	155	1750	C1.2	2	6	1	9	3	4	0	0
29 October	153	171	1720	C1.1	10	0	1	10	0	0	0	0
30 October	142	132	1230	B6.5	2	0	0	0	0	0	0	0
31 October	143	128	900	B5.9	5	1	0	2	0	0	0	0
01 November	145	95	730	B8.1	6	1	0	6	1	0	0	0
02 November	142	123	710	B6.5	8	1	0	6	2	0	0	0
03 November	144	143	1280	B6.1	3	1	0	2	0	1	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
28 October	3.8e+06	1.7e+05	4.1e+03		2.1e+07	
29 October	8.3e+06	2.5e+05	8.5e+03		1.3e+07	
30 October	1.0e+07	2.6e+05	3.4e+03		1.4e+06	
31 October	3.6e+06	8.5e+04	2.4e+03		6.3e+05	
01 November	1.1e+06	3.0e+04	2.4e+03		1.2e+06	
02 November	5.6e+05	8.0e+04	8.9e+03		5.8e+06	
03 November	3.5e+05	5.2e+04	4.5e+03		5.1e+06	

Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
28 October	2	1-1-1-1-1-0-0-0	0	0-0-0-0-0-0-0-0	3	1-1-1-0-1-1-0-0
29 October	3	0-0-0-2-2-1-2-1	9	0-0-0-5-3-0-1-1	6	0-0-0-3-2-1-2-2
30 October	10	0-1-3-2-3-3-2-3	31	0-0-4-6-5-6-2-2	12	0-1-3-3-3-3-3-3
31 October	6	2-1-1-2-2-2-2-2	3	1-0-0-1-1-2-1-1	6	2-1-0-2-2-2-2-2
01 November	4	2-1-0-1-1-1-2-1	10	1-2-3-4-4-0-0-0	5	2-2-1-1-1-0-1-0
02 November	3	1-1-1-1-1-0-1-1	1	1-1-0-1-0-0-0-0	3	1-1-0-1-0-1-0-1
03 November	7	3-3-2-1-2-0-1-1	7	1-3-3-3-1-0-0-1	6	2-3-2-1-1-1-2-1

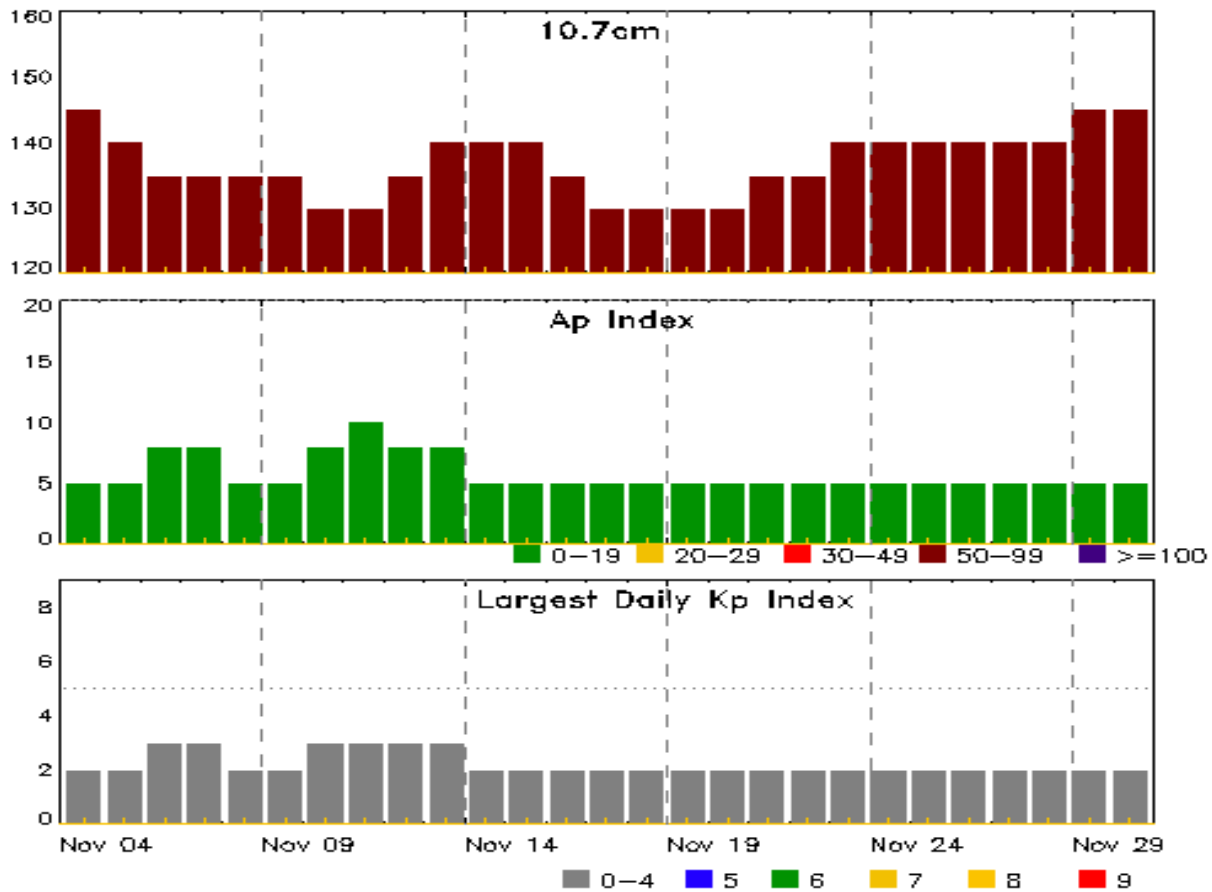


Alerts and Warnings Issued

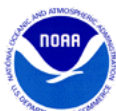
Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
28 Oct 0159	ALERT: X-ray Flux exceeded M5	28/0158
28 Oct 0219	SUMMARY: X-ray Event exceeded X1	28/0141 - 0212
28 Oct 0233	WARNING: Proton 10MeV Integral Flux > 10pfu	28/0235 - 1400
28 Oct 0441	ALERT: X-ray Flux exceeded M5	28/0440
28 Oct 0450	SUMMARY: X-ray Event exceeded M5	28/0432 - 0446
28 Oct 0458	ALERT: Type II Radio Emission	28/0200
28 Oct 0510	SUMMARY: 10cm Radio Burst	28/0438 - 0439
28 Oct 0517	ALERT: Type II Radio Emission	28/0437
28 Oct 0518	ALERT: Type IV Radio Emission	28/0437
28 Oct 1330	EXTENDED WARNING: Proton 10MeV Integral Flux > 10pfu	28/0235 - 2000
28 Oct 1538	ALERT: Type II Radio Emission	28/1510
28 Oct 1959	WATCH: Geomagnetic Storm Category G1 predicted	
29 Oct 0744	WARNING: Geomagnetic Sudden Impulse expected	29/0820 - 0920
29 Oct 2151	ALERT: X-ray Flux exceeded M5	29/2148
29 Oct 2221	SUMMARY: X-ray Event exceeded X1	29/2142 - 2201
29 Oct 2238	ALERT: Type IV Radio Emission	29/2158
30 Oct 0112	ALERT: Type II Radio Emission	29/2146
30 Oct 1226	WARNING: Geomagnetic K = 4	30/1230 - 1600
30 Oct 1532	EXTENDED WARNING: Geomagnetic K = 4	30/1230 - 2100
30 Oct 2245	WARNING: Geomagnetic K = 4	30/2245 - 31/1300
31 Oct 0144	CANCELLATION: Geomagnetic K = 4	
01 Nov 1953	ALERT: X-ray Flux exceeded M5	01/1952
01 Nov 2004	SUMMARY: X-ray Event exceeded M5	01/1946 - 1958
01 Nov 2007	SUMMARY: 10cm Radio Burst	01/1949 - 1953
02 Nov 0546	ALERT: Type II Radio Emission	02/0446
03 Nov 0523	ALERT: X-ray Flux exceeded M5	03/0522
03 Nov 0549	SUMMARY: X-ray Event exceeded M5	03/0516 - 0526



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 Nov	145	5	2	18 Nov	130	5	2
05	140	5	2	19	130	5	2
06	135	8	3	20	130	5	2
07	135	8	3	21	135	5	2
08	135	5	2	22	135	5	2
09	135	5	2	23	140	5	2
10	130	8	3	24	140	5	2
11	130	10	3	25	140	5	2
12	135	8	3	26	140	5	2
13	140	8	3	27	140	5	2
14	140	5	2	28	140	5	2
15	140	5	2	29	145	5	2
16	135	5	2	30	145	5	2
17	130	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		Intensity	
									245	2695	II	IV
28 Oct	0141	0203	0212	X1.0	0.084	2N	N04W66	1875	120	120	2	
28 Oct	0432	0441	0446	M5.1	0.021	2B	N08W71	1875		170	2	1
28 Oct	1132	1153	1239	M1.4	0.040	2N	S16W44	1877				
28 Oct	1400	1405	1412	M2.8	0.014	1N	N06W75	1875		55		
28 Oct	1446	1501	1504	M2.7	0.010	1N	S08E28	1882				
28 Oct	1507	1515	1521	M4.4	0.026			1882	22000	170	2	1
28 Oct	2048	2057	2102	M1.5	0.007			1875	120			
29 Oct	2142	2154	2201	X2.3	0.140			1875	3900		1	1
31 Oct	1336	1351	1402	M1.9	0.019			1877				
01 Nov	1946	1953	1958	M6.3	0.023	1B	S11E01	1884		290		
02 Nov	2213	2221	2225	M1.6	0.006	1F	S12W11	1884				
03 Nov	0516	0522	0526	M5.0	0.013	2B	S12W16	1884				

Flare List

Date	Time			Optical			
				X-ray	Imp/	Location	Rgn
	Begin	Max	End	Class	Brtns	Lat CMD	#
28 Oct	0125	0130	0136	C3.5	SF	N04W59	1875
28 Oct	0138	0155	0231		1F	S11E36	1882
28 Oct	0141	0203	0212	X1.0	2N	N04W66	1875
28 Oct	0432	0439	0453	M5.1	2B	N08W71	1875
28 Oct	0443	0457	0609		2N	S11W46	1877
28 Oct	0454	0457	0459		SF	N08W71	1875
28 Oct	0757	0803	0906		SF	S04E32	1882
28 Oct	0915	0922	0926	C5.2			1875
28 Oct	0915	1000	1009		SF	S07E31	1882
28 Oct	0917	0919	0925		SF	N08W72	1875
28 Oct	1020	1029	1042		SF	S06E31	1882
28 Oct	1125	1136	1239		SF	S06E30	1882
28 Oct	1132	1153	1239	M1.4	2N	S16W44	1877
28 Oct	1149	1149	1151		SF	N06W75	1875
28 Oct	1352	U1403	A1407		SF	S10E61	1884
28 Oct	1400	1405	1412	M2.8	1N	N06W75	1875
28 Oct	1446	1501	1504	M2.7	1N	S08E28	1882
28 Oct	1507	1515	1521	M4.4			1882
28 Oct	2048	2057	2102	M1.5			1875



Flare List

Date	Time			Optical			
	Begin	Max	End	X-ray Class	Imp/Brtns	Location Lat CMD	Rgn #
29 Oct	0013	0016	0021	C1.7	SF	N10W81	1875
29 Oct	0104	0105	0110		SF	N11W78	1875
29 Oct	0217	0227	0231	C2.1	SF	S11E52	1884
29 Oct	0303	0310	0319	C3.3			1875
29 Oct	0328	0331	0343	C2.9			1875
29 Oct	0418	0435	0440	C3.7			1875
29 Oct	0646	0653	0709		SF	S08E19	1882
29 Oct	0732	0748	0755	C2.3			1875
29 Oct	0804	0804	0806		SF	S16W55	1877
29 Oct	1002	1007	1021	C6.3	SF	N08W83	1875
29 Oct	1205	1210	1222	C2.0	SF	S07E16	1882
29 Oct	1302	1311	1323		SF	S07E16	1882
29 Oct	1408	1412	1415		SF	S08E15	1882
29 Oct	1509	1534	1546	C3.5			
29 Oct	1824	1831	1836	C9.3			1875
29 Oct	2142	2154	2201	X2.3			1875
29 Oct	2319	2319	2324		SF	S12E37	1884
30 Oct	0705	0714	0730	C1.5			1884
30 Oct	1036	1040	1045	C1.3			1875
30 Oct	1951	1955	2001	B8.6			
31 Oct	0445	0458	0520	C1.0			1875
31 Oct	0645	0651	0658	C1.0			1884
31 Oct	0857	0857	0901		SF	S08W08	1882
31 Oct	1336	1351	1402	M1.9			1877
31 Oct	2133	2140	2149	C1.8			1877
31 Oct	2216	2221	2225	C1.4	SF	S21E14	1885
31 Oct	2301	2315	2318	C1.2			1884
01 Nov	0001	0009	0016	C6.2	SF	S12E13	1884
01 Nov	0723	0738	0758	C1.5			1884
01 Nov	B0951	0954	1000	C1.1	SF	S12E06	1884
01 Nov	1004	1008	1011	C3.5	SF	S12E03	1884
01 Nov	1220	1221	1227		SF	S12E04	1884
01 Nov	B1327	U1331	A1340		SF	S11E04	1884
01 Nov	1517	1522	1525	C1.8	SF	S11E02	1884
01 Nov	1837	1840	1843	C1.1			1884
01 Nov	1946	1953	1958	M6.3	1B	S11E01	1884
02 Nov	0440	0446	0450	C8.2	SF	S23W04	1885
02 Nov	B0931	U0931	A0945		SF	S12W05	1884



Flare List

Date	Time			Optical			Rgn #
	Begin	Max	End	X-ray Class	Imp/ Brtns	Location Lat CMD	
02 Nov	1035	1040	1047	C1.4	SF	S14W04	1884
02 Nov	1112	1115	1118	C1.6			
02 Nov	B1252	U1312	1359	C4.3	1F	S12W06	1884
02 Nov	1522	1527	1535	C1.1	SF	S12W08	1884
02 Nov	1808	1812	1821	C1.7			1889
02 Nov	2020	2024	2026	C1.6	SF	S18E25	1889
02 Nov	2127	2131	2142	C3.6	SF	S12W11	1884
02 Nov	2213	2221	2225	M1.6	1F	S12W11	1884
03 Nov	0128	0128	0132	C1.1	SF	S12E81	1890
03 Nov	0349	0352	0355	C1.4			1890
03 Nov	0516	0522	0526	M5.0	2B	S12W16	1884
03 Nov	1116	1119	1125		SF	S04E73	1890
03 Nov	1622	1628	1643	C9.9			1890



Region Summary

Date	Location	Sunspot Characteristics						Flares								
	Lat CMD	Helio	Area 10 ⁻⁶ hemi.	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical					
		Lon						C	M	X	S	1	2	3	4	
Region 1873																
16 Oct	N11E60	49	30	7	Cro	4	B									
17 Oct	N11E48	49	110	7	Cso	10	B									
18 Oct	N12E34	50	40	8	Cso	9	B									
19 Oct	N12E23	49	20	3	Cro	6	B									
20 Oct	N12E09	49	50	9	Dao	12	B	1				3				
21 Oct	N12W05	49	40	9	Dao	9	B									
22 Oct	N12W17	49	10	6	Axx	4	A									
23 Oct	N11W33	51	10	9	Axx	9	A									
24 Oct	N11W47	53	plage													
25 Oct	N11W61	53	plage													
26 Oct	N11W75	54	plage					2				2				
27 Oct	N13W90	56	10	1	Hrx	1	A	1				4				
								4	0	0		9	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 49

Region 1875

17 Oct	N07E69	27	50	3	Cao	2	B								
18 Oct	N07E60	24	150	10	Dao	10	BG	5			3				
19 Oct	N08E46	26	150	12	Esi	15	BG								
20 Oct	N07E32	26	150	11	Eai	24	BG	1			3				
21 Oct	N06E19	25	250	11	Ekc	61	BGD	6			7				
22 Oct	N07E04	27	420	14	Ekc	123	BGD	10	3		19	2			
23 Oct	N08W11	28	610	14	Ekc	50	BGD	7	3		9				
24 Oct	N08W23	29	720	15	Ekc	50	BGD	8	2		5	2	1		
25 Oct	N07W36	28	660	15	Ekc	39	BGD	4			5				
26 Oct	N07W51	30	660	15	Ekc	38	BGD	3			8				
27 Oct	N07W64	30	790	16	Fkc	40	BGD	4	1		6	3			
28 Oct	N06W78	30	770	13	Ekc	15	BGD	2	3	1	4	1	2		
29 Oct	N06W92	32	420	12	Ekc	10	BGD	7		1	3				
								57	12	2	72	8	3	0	0

Crossed West Limb.

Absolute heliographic longitude: 27



Region Summary - continued

Date	Location		Sunspot Characteristics					Flares							
	Lat CMD	Helio	Area 10 ⁻⁶ hemi.	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical				
		Lon						C	M	X	S	1	2	3	4
<i>Region 1877</i>															
18 Oct	S11E75	9	120	2	Hsx	1	A								
19 Oct	S12E61	11	260	4	Cko	4	B								
20 Oct	S13E55	3	390	16	Fho	8	BG								
21 Oct	S13E38	6	400	8	Cho	10	B	2				2			
22 Oct	S13E23	8	390	7	Dki	15	B					1			
23 Oct	S12E09	8	320	8	Dki	17	BGD	2				3			
24 Oct	S12W03	9	440	9	Dkc	19	BG	4	1			4	2		
25 Oct	S12W16	8	390	8	Dhi	16	BG								
26 Oct	S12W30	9	320	9	Chi	15	BG	5				7			
27 Oct	S12W43	9	330	9	Dhi	20	BGD	2				8			
28 Oct	S12W56	8	230	5	Dai	13	BG		1					2	
29 Oct	S12W71	9	310	6	Dko	9	BG					1			
30 Oct	S13W81	7	160	3	Dao	2	B								
								15	2	0	26	2	2	0	0

Crossed West Limb.

Absolute heliographic longitude: 9

Region 1879															
21 Oct	S13E52	352	60	6	Dso	4	B								
22 Oct	S13E37	354	80	9	Cso	9	B								
23 Oct	S13E22	356	90	9	Cso	11	B								
24 Oct	S12E10	356	100	7	Cai	11	B								
25 Oct	S13W03	355	110	8	Cai	11	B								
26 Oct	S12W15	354	100	5	Cao	6	B								
27 Oct	S12W28	354	100	5	Cao	8	B								
28 Oct	S12W41	353	70	4	Dao	6	B								
29 Oct	S12W56	354	80	2	Cao	2	B								
30 Oct	S13W69	355	80	2	Cao	2	B								
31 Oct	S12W83	356	80	2	Hsx	2	A								
01 Nov	S11W96	356	plage												
								0	0	0	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 355



Region Summary - continued

Date	Location		Sunspot Characteristics					Flares							
	Lat CMD	Helio	Area 10 ⁻⁶ hemi. (helio)	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical				
		Lon						C	M	X	S	1	2	3	4

Region 1881

24 Oct	S22E37	329	10	3	Bxo	4	B								
25 Oct	S22E21	331	10	1	Bxo	2	B								
26 Oct	S22E09	330	10	4	Bxo	4	B								
27 Oct	S22W05	331	10	5	Bxo	2	B								
28 Oct	S22W20	332	10	2	Bxo	3	B								
29 Oct	S22W34	334	plage												
30 Oct	S22W48	335	plage												
31 Oct	S22W62	335	plage												
01 Nov	S20W75	334	plage												
								0	0	0	0	0	0	0	0

Died on Disk.

Absolute heliographic longitude: 331

Region 1882

24 Oct	S08E73	293	100	9	Dso	2	B	1							
25 Oct	S08E59	293	280	7	Dko	5	BGD	2	5	2	6	1			
26 Oct	S08E47	292	300	8	Dki	11	BGD	5	4		6	2			
27 Oct	S08E34	292	390	8	Dkc	31	BGD				4				
28 Oct	S08E21	291	330	8	Dkc	24	BGD		2		4	2			
29 Oct	S09E07	291	360	10	Dkc	34	BG	1			4				
30 Oct	S09W06	291	250	7	Dko	19	B								
31 Oct	S10W19	292	190	7	Dao	14	B				1				
01 Nov	S10W31	291	150	7	Dao	12	B								
02 Nov	S10W46	292	110	4	Cao	4	B								
03 Nov	S10W60	294	110	3	Hax	2	A								
								9	11	2	25	5	0	0	0

Still on Disk.

Absolute heliographic longitude: 291



Region Summary - continued

Date	Location		Sunspot Characteristics					Flares							
	Lat CMD	Helio	Area 10 ⁻⁶ hemi.	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical				
		Lon						C	M	X	S	1	2	3	4
<i>Region 1883</i>															
26 Oct	N04E74	265	40	2	Hax	2	A								
27 Oct	N04E59	267	60	1	Hax	2	A								
28 Oct	N04E45	267	40	2	Cso	3	B								
29 Oct	N03E31	267	10	1	Hrx	2	A								
30 Oct	N04E18	267	10		Axx	1	A								
31 Oct	N04E03	270	plage												
01 Nov	N04W12	272	plage												
02 Nov	N04W27	274	plage												
03 Nov	N04W40	274	plage												
								0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 270

Region 1884															
26 Oct	S09E78	261	50	3	Hax	2	A		1		1				
27 Oct	S13E68	258	110	9	Dso	11	BGD				1				
28 Oct	S14E53	259	130	8	Dao	10	BGD				1				
29 Oct	S13E38	260	340	11	Ekc	22	BGD	1			2				
30 Oct	S11E24	261	460	13	Ekc	15	BGD	1							
31 Oct	S12E12	260	370	14	Ekc	23	BGD	2							
01 Nov	S13W01	260	370	14	Eki	19	BG	6	1		6	1			
02 Nov	S12W13	259	250	11	Eko	21	BGD	4	1		4	2			
03 Nov	S12W27	261	240	12	Eac	27	BG		1				1		
								14	4	0	15	3	1	0	0

Still on Disk.

Absolute heliographic longitude: 260

Region Summary - continued

Date	Location	Sunspot Characteristics						Flares							
	Lat CMD	Helio	Area 10 ⁻⁶ hemi.	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical				
		Lon						C	M	X	S	1	2	3	4
Region 1885															
26 Oct	S17E75	264	70	2	Hsx	1	A								
27 Oct	S18E63	263	130	3	Hsx	1	A								
28 Oct	S17E49	262	170	3	Hsx	1	A								
29 Oct	S17E35	265	190	4	Cao	6	B								
30 Oct	S18E23	262	200	4	Cao	5	B								
31 Oct	S18E12	260	180	6	Cso	6	B	1				1			
01 Nov	S19W02	262	160	4	Cso	6	B								
02 Nov	S19W16	262	160	4	Cao	12	B	1				1			
03 Nov	S20W29	263	180	5	Cso	6	B								
								2	0	0	2	0	0	0	

Still on Disk.

Absolute heliographic longitude: 262

Region 1886

29 Oct	N14W09	307	10	4	Cro	6	BG								
30 Oct	N15W23	308	50	5	Dao	7	B								
31 Oct	N14W36	309	30	5	Cso	5	B								
01 Nov	N14W50	310	plage												
02 Nov	N14W64	311	plage												
03 Nov	N14W78	312	plage												
								0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 307

Region 1887

30 Oct	N21E63	222	20	1	Hsx	1	A								
31 Oct	N21E48	225	30	7	Cso	4	B								
01 Nov	N21E37	223	20	7	Cro	3	B								
02 Nov	N20E22	225	20	9	Cro	4	B								
03 Nov	N20E09	225	20	7	Cro	7	B								
								0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 225



Region Summary - continued

Location		Sunspot Characteristics						Flares							
Date	Lat CMD	Helio	Area	Extent	Spot	Spot	Mag	X-ray			Optical				
		Lon	10 ⁻⁶ hemi.	(helio)	Class	Count	Class	C	M	X	S	1	2	3	4

Region 1888

31 Oct	S15W32	304	20	3	Cro	4	B								
01 Nov	S15W46	306	30	4	Cro	5	B								
02 Nov	S14W60	307	20	3	Cro	3	B								
03 Nov	S14W74	308	20	4	Cro	3	B								
								0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 304

Region 1889

02 Nov	S18E23	224	30	4	Cro	6	B	2			1				
03 Nov	S19E08	226	50	6	Dao	13	B								
								2	0	0	1	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 226

Region 1890

02 Nov	S09E74	173	120	8	Hsx	3	A								
03 Nov	S10E62	172	660	12	Ehc	15	BG	3			2				
								3	0	0	2	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 172

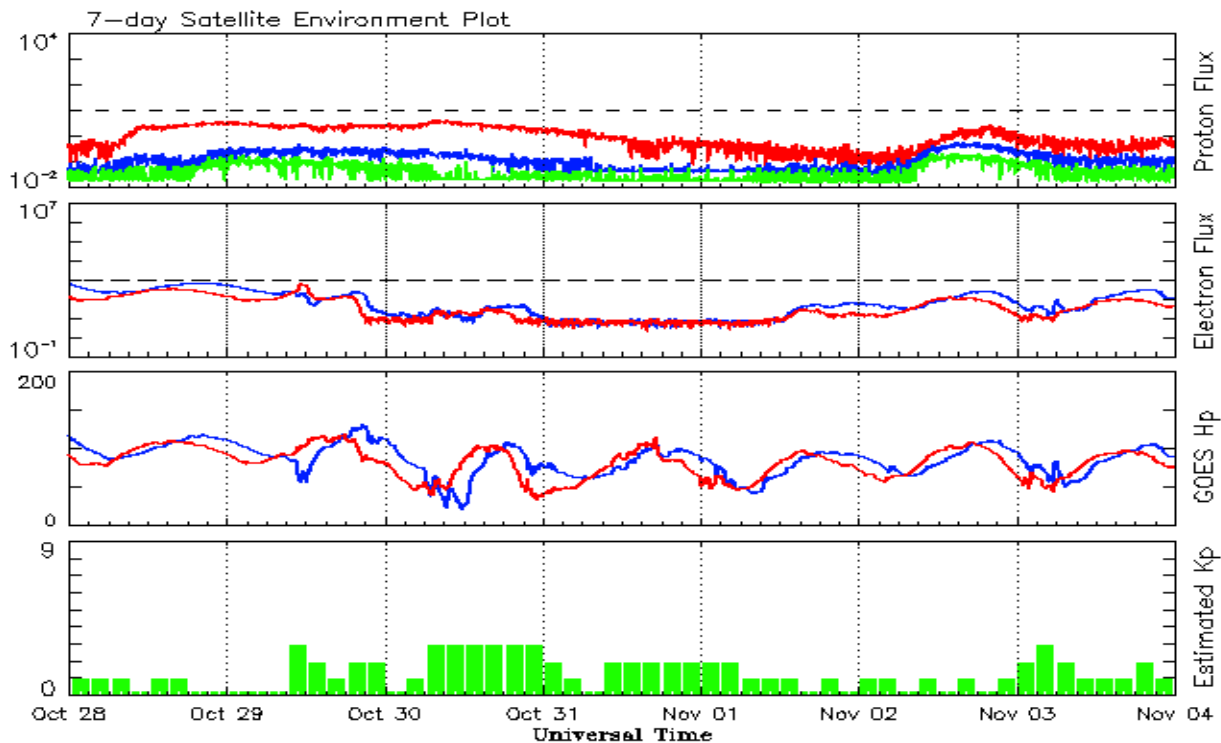


Recent Solar Indices (preliminary)
Observed monthly mean values

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
2011									
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	89.2	63.4	141.2	121.6	3	8.0
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			131.3		10	
June	80.1	52.5	0.66			110.2		13	
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	

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 October 2013*

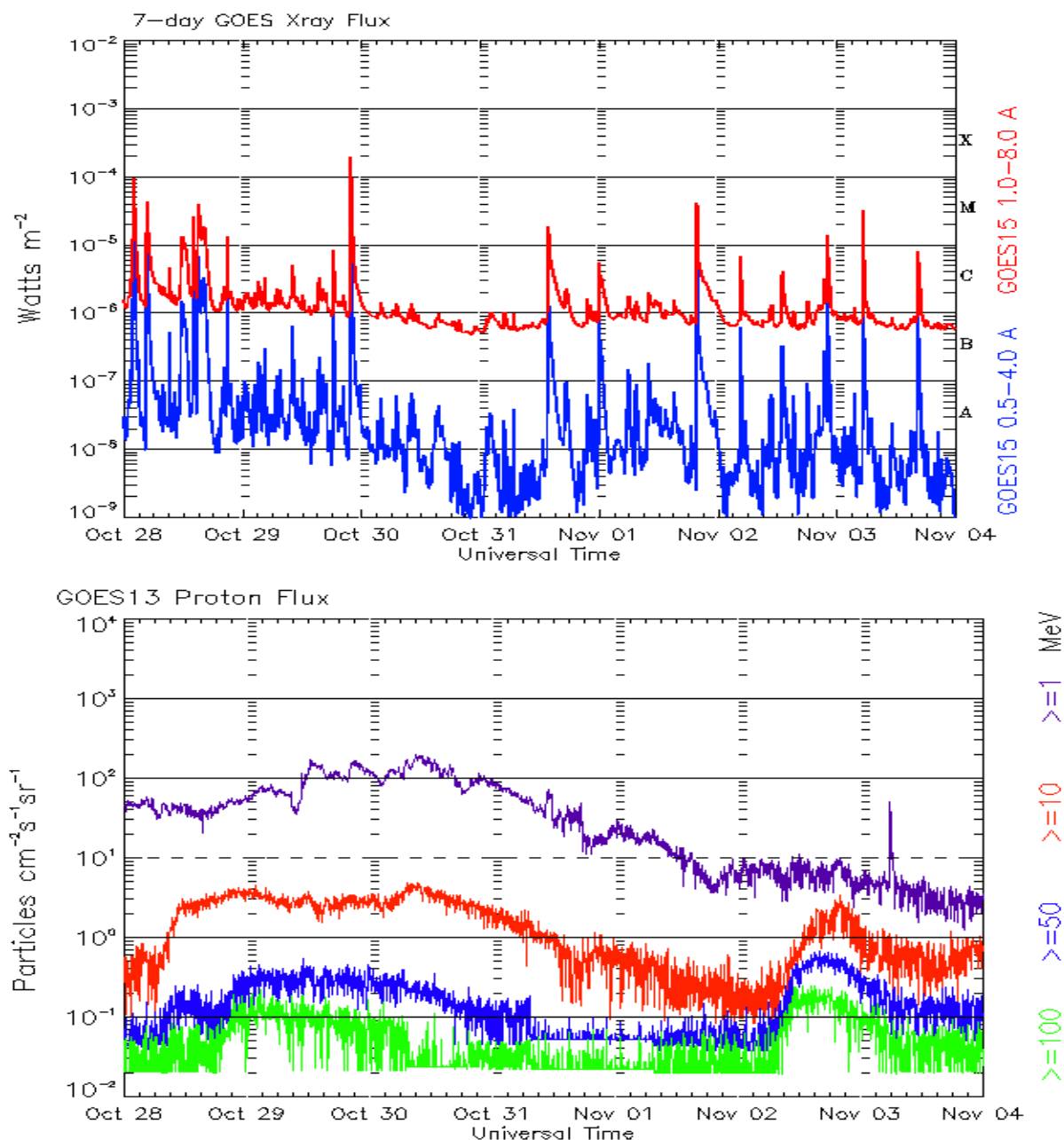
The proton flux plot contains the five-minute averaged integral proton flux (protons/cm²-sec -sr) as measured by the SWPC Primary GOES satellite, near West 75, for each of three energy thresholds: greater than 10, 50, and 100 MeV.

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

The Hp plot contains the five minute averaged Hp magnetic field component in nanoteslas (nT) as by the SWPC Primary GOES satellite. The Hp component is parallel to the spin axis of the satellite, which is nearly parallel to the Earth's rotation axis.

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 October 2013*

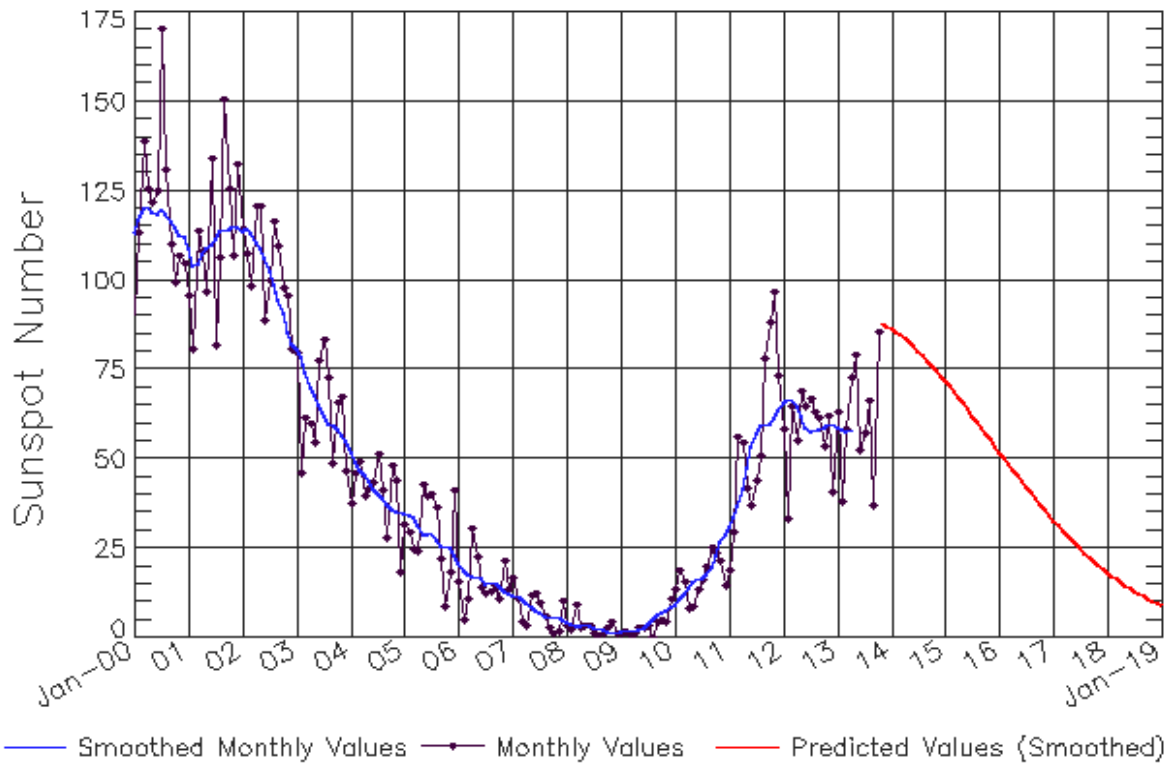
The x-ray plots contains five-minute averages x-ray flux (Watt/m²) as measure by the SWPC primary GOES X-ray satellite, usually at West 105 longitude, in two wavelength bands, 0.05 - 0.4 and 0.1 - 0.8 nm. The letters A, B, C, M and X refer to x-ray event levels for the 0.1 - 0.8 nm band.

The proton plot contains the five-minute averaged integral flux units (pfu = protons/cm² -sec -sr) as measured by the primary SWPC GOES Proton satellite for each of the energy thresholds: >1, >10, >30, and >100 MeV. The P10 event threshold is 10 pfu at greater than 10 MeV.



ISES Solar Cycle Sunspot Number Progression

Observed data through Oct 2013



Updated 2013 Nov 4

NOAA/SWPC Boulder, CO USA

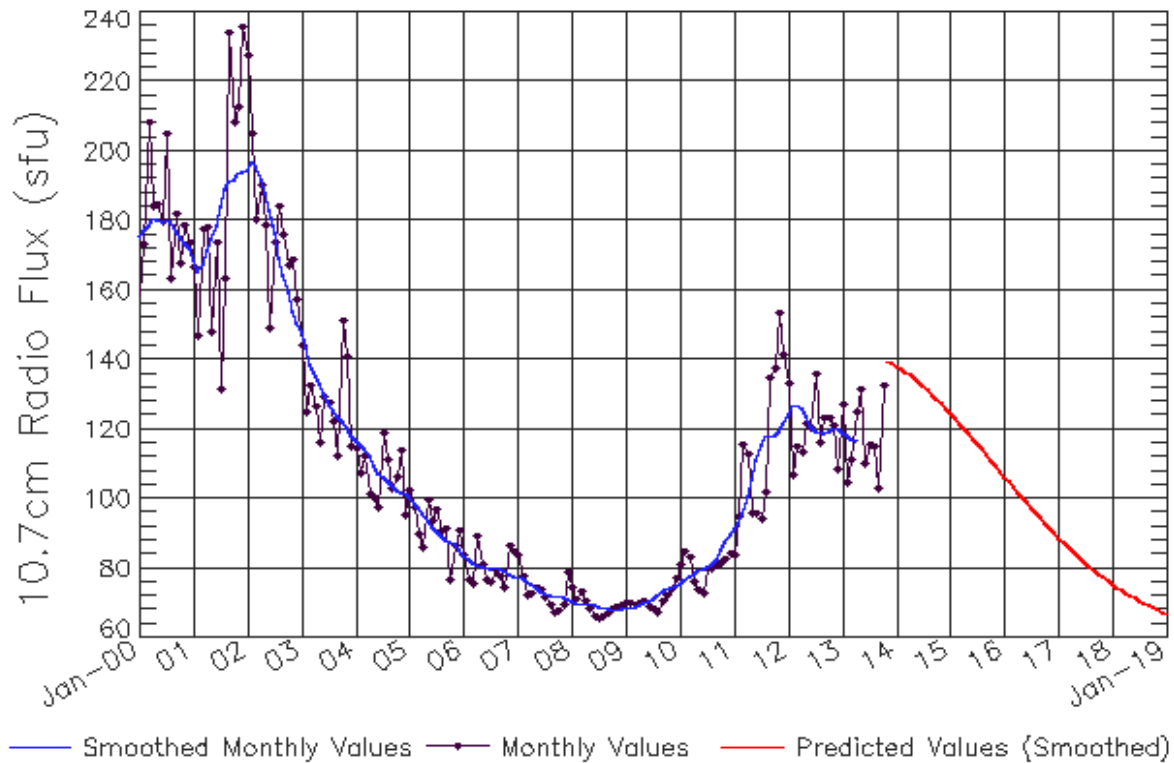
Smoothed Sunspot Number Prediction

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 (***)	63 (***)
2012	66 (***)	67 (***)	67 (***)	65 (***)	62 (***)	59 (***)	58 (***)	58 (***)	58 (***)	59 (***)	60 (***)	60 (***)
2013	59 (***)	58 (***)	58 (***)	58 (***)	60 (1)	63 (2)	66 (3)	69 (5)	72 (5)	74 (6)	75 (7)	76 (7)
2014	78 (8)	80 (9)	82 (9)	83 (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 Oct 2013



Updated 2013 Nov 4

NOAA/SWPC Boulder, CO USA

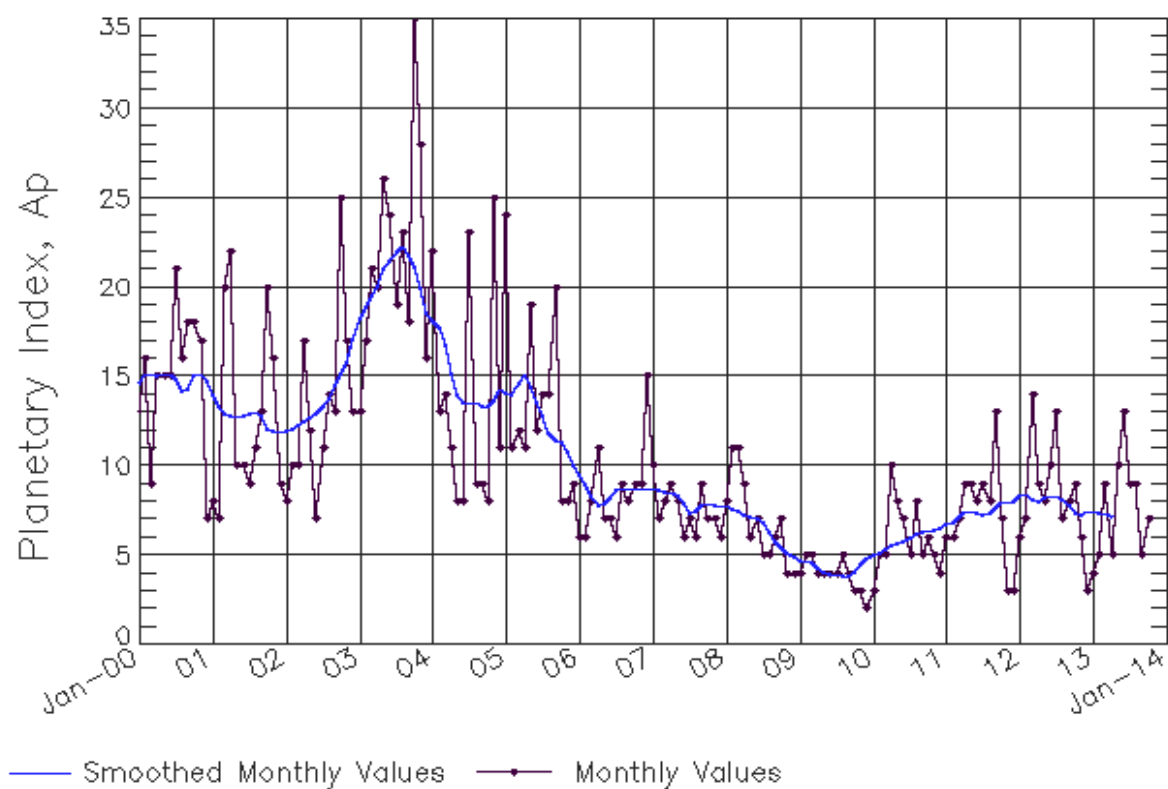
Smoothed F10.7cm Radio Flux Prediction

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 (***)
2012	124 (***)	127 (***)	127 (***)	126 (***)	124 (***)	121 (***)	120 (***)	119 (***)	119 (***)	119 (***)	120 (***)	120 (***)
2013	119 (***)	118 (***)	117 (***)	117 (***)	118 (1)	120 (1)	122 (2)	123 (3)	126 (4)	127 (4)	128 (5)	129 (6)
2014	131 (7)	132 (8)	134 (8)	135 (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 Oct 2013



Updated 2013 Nov 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.

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<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 -- User Guide

