

Solar activity was at very low to moderate levels. The summary period began with numerous weak to mid-level C-class flares from Regions 2443 (N07, L=316, class/area Fkc/650 on 01 Nov) and 2445 (N15, L=026, class/area Dac/240 on 02 Nov) observed on 02-03 November. Activity increased to moderate levels (R1-Minor) on 04 November. At 04/0326 UTC, Region 2445 produced an M1/1n flare with an associated Type II radio sweep (790 km/s estimated shock velocity). In addition, discrete frequency bursts of 56,000 sfu and 41,000 sfu were observed on 245 MHz and 410 MHz, respectively. Region 2445 also produced an M2/1n flare at 04/1203 UTC with an associated Type II sweep (1033 km/s estimated shock velocity). Shortly afterward, Region 2443 produced an M3/2b flare with associated Type II (955 km/s estimated shock velocity) and Type IV sweeps. This event also produced an associated partial-halo coronal mass ejection (CME), first observed in LASCO C2 imagery at 04/1436 UTC.

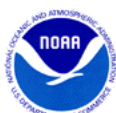
By 05 November, activity levels declined to very low levels. Levels increased to low on 06-07 November with weak to mid-level C-class activity observed from Regions 2446 (N15, L=349, class/area Cro/020 on 01 Nov), 2448 (N06, L=234, class/area Dao/140 on 06 Nov), 2449 (S12, L=209, class/area Dao/150 on 07 Nov) and 2450 (S23, L=200, class/area Bxo/010 on 07 Nov).

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit was at normal levels on 02-03 November and high levels on 04-07 November due to enhanced solar wind speeds.

Geomagnetic field activity was at quiet to major storm levels. The summary period began with quiet to unsettled levels on 02 November. Solar wind speeds, measured at the ACE spacecraft, were weak at about 300 km/s. Field activity picked up to unsettled to minor storm levels (G1-Minor) on 03-04 November due to effects from an equatorial, positive polarity coronal hole high speed stream (CH HSS). Wind parameters observed a rapid increase in wind speeds to an average of about 675 km/s with a peak of near 770 km/s early on 04 November. Total field (Bt) increased to peak at 34 nT about 03/0700 UTC while the Bz component reached a maximum southward extent of -24 nT at 03/0620 UTC. Activity levels decreased to quiet to active on 05 November through early on 06 November as effects from the CH HSS waned. Quiet levels were observed from 06/0300-1800 UTC. During this time frame, wind speeds decreased to near 475 km/s while Bt and Bz relaxed to nominal levels.

On 06/1800-2400 UTC, field activity increased to active levels and further increased to minor to major storm levels (G1-G2 / Minor-Moderate) for the first half of 07 November. This increase in activity was attributed to the arrival of the 04 November CME. Wind speeds increased to 719 km/s at 07/0257 UTC, Bt increased to 20 nT late on 06 November and the Bz component varied between +18 nT to -16 nT. The last half of 07 November through the first half of 08 November saw field conditions relax to quiet levels. Wind speeds declined to about 425 km/s while Bt and Bz relaxed to nominal levels. By midday on the 8th, wind parameters indicated the likely onset



of a co-rotating interaction region in advance of a recurrent positive polarity CH HSS. Wind speeds peaked to near 550 km/s late on the 8th while Bt reached 10 nT and Bz was mostly southward to -6 nT.

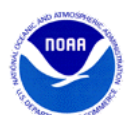
Space Weather Outlook **09 November - 05 December 2015**

Solar activity is expected to be at predominately low levels with a chance for moderate levels (R1-R2 / Minor-Moderate) through the outlook period. Regions 2443 and 2449 , coupled with the return of old Region 2437 (S18, L=098) on 12 November, are the regions most likely to produce M-class activity.

No proton events are expected at geosynchronous orbit in the absence of any significant flare activity.

The greater than 2 MeV electron flux at geosynchronous orbit is expected to be at moderate to high levels on 09-16 November and again on 01-05 December due to an enhanced solar wind environment as recurrent CH HSSs become geoeffective. Normal to moderate levels are expected on 10-30 November.

Geomagnetic field activity is expected to be at unsettled to active levels on 09-11 November. Minor storm levels (G1-Minor) are expected on 09 November as a recurrent, positive polarity CH HSS impacts Earth. Unsettled to active levels are expected on 16-17 November due to extended periods of southward Bz. Unsettled to active levels are expected on 30 November - 02 December and again on 05 December, with minor storm levels likely on 30 November and 01 December. This activity is due to recurrent positive polarity CH HSSs. Quiet to unsettled levels are expected for 12-15 and 18-29 November.



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
02 November	122	94	850	B6.2	9	0	0	20	1	0	0	0
03 November	124	95	780	B5.0	5	0	0	15	0	0	0	0
04 November	114	93	580	B5.7	7	3	0	7	2	1	0	0
05 November	110	75	420	B3.7	0	0	0	1	0	0	0	0
06 November	115	86	410	B5.1	6	0	0	6	0	0	0	0
07 November	115	79	460	*	4	0	0	7	0	0	0	0
08 November	108	70	360	B3.3	0	0	0	0	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
	02 November		2.3e+05	1.2e+04	2.8e+03	
03 November		6.9e+05	1.2e+04	2.7e+03		7.7e+05
04 November		5.8e+06	1.3e+04	2.4e+03		7.6e+07
05 November		1.4e+06	1.2e+04	2.8e+03		1.8e+08
06 November		1.3e+06	1.2e+04	2.9e+03		4.3e+08
07 November		4.4e+06	1.1e+04	2.5e+03		1.3e+08
08 November		3.4e+05	1.2e+04	2.9e+03		1.3e+08

Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	02 November	5	1-0-1-1-3-2-1-2	17	1-0-0-0-6-5-0-1	7
03 November	23	3-3-4-5-4-3-4-2	32	2-3-4-6-5-4-5-2	32	3-4-5-5-4-4-5-4
04 November	31	5-4-5-5-5-3-2-2	55	3-4-6-7-7-4-2-1	33	5-5-5-5-5-3-3-2
05 November	11	2-1-3-3-3-3-2-2	29	2-1-5-6-5-4-2-3	16	3-2-4-3-3-4-3-3
06 November	11	3-1-2-2-2-2-3-4	13	3-1-2-2-3-3-3-4	15	4-2-2-2-2-2-4-4
07 November	29	4-5-5-5-4-3-3-2	62	4-5-7-7-6-4-4-1	43	5-6-6-5-4-3-4-2
08 November	11	1-1-0-2-4-2-4-3	36	2-1-0-5-7-5-4-3	6	2-1-1-2-3-3-4-4



Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
02 Nov 1714	WATCH: Geomagnetic Storm Category G3 predicted	
03 Nov 0147	WARNING: Geomagnetic K = 4	03/0200 - 2300
03 Nov 0545	WARNING: Geomagnetic Sudden Impulse expected	03/0615 - 0715
03 Nov 0559	ALERT: Geomagnetic K = 4	03/0559
03 Nov 0626	WARNING: Geomagnetic K = 5	03/0645 - 1900
03 Nov 0811	ALERT: Geomagnetic K = 5	03/0810
03 Nov 0811	WARNING: Geomagnetic K = 6	03/0815 - 1700
03 Nov 1149	ALERT: Geomagnetic K = 5	03/1148
03 Nov 1657	EXTENDED WARNING: Geomagnetic K = 6	03/0815 - 2100
03 Nov 1657	EXTENDED WARNING: Geomagnetic K = 5	03/0645 - 2300
03 Nov 2103	ALERT: Geomagnetic K = 5	03/2059
03 Nov 2219	EXTENDED WARNING: Geomagnetic K = 5	03/0645 - 04/0700
03 Nov 2219	EXTENDED WARNING: Geomagnetic K = 4	03/0200 - 04/1000
04 Nov 0134	ALERT: Geomagnetic K = 5	04/0133
04 Nov 0333	SUMMARY: 10cm Radio Burst	04/0323 - 0324
04 Nov 0349	ALERT: Type II Radio Emission	04/0323
04 Nov 0401	SUMMARY: 10cm Radio Burst	04/0323 - 0325
04 Nov 0422	ALERT: Geomagnetic K = 5	04/0421
04 Nov 0615	EXTENDED WARNING: Geomagnetic K = 5	03/0645 - 04/1500
04 Nov 0615	EXTENDED WARNING: Geomagnetic K = 4	03/0200 - 04/1800
04 Nov 0723	ALERT: Geomagnetic K = 5	04/0722
04 Nov 1036	ALERT: Geomagnetic K = 5	04/1036
04 Nov 1225	ALERT: Type II Radio Emission	04/1204
04 Nov 1346	ALERT: Geomagnetic K = 5	04/1345
04 Nov 1408	SUMMARY: 10cm Radio Burst	04/1338 - 1346
04 Nov 1410	ALERT: Type II Radio Emission	04/1343
04 Nov 1412	ALERT: Type IV Radio Emission	04/1351
04 Nov 1420	ALERT: Electron 2MeV Integral Flux \geq 1000pfu	04/1405
04 Nov 1453	SUMMARY: 10cm Radio Burst	04/1421 - 1433



Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
04 Nov 1456	EXTENDED WARNING: Geomagnetic K = 4	03/0200 - 05/0700
04 Nov 1456	EXTENDED WARNING: Geomagnetic K = 5	03/0645 - 04/2300
04 Nov 2028	EXTENDED WARNING: Geomagnetic K = 5	03/0645 - 05/0600
05 Nov 0839	WARNING: Geomagnetic K = 4	05/0838 - 1400
05 Nov 0857	ALERT: Geomagnetic K = 4	05/0857
05 Nov 0922	WATCH: Geomagnetic Storm Category G1 predicted	
05 Nov 0957	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	04/1405
05 Nov 1357	EXTENDED WARNING: Geomagnetic K = 4	05/0838 - 2100
05 Nov 1457	WATCH: Geomagnetic Storm Category G1 predicted	
05 Nov 2055	EXTENDED WARNING: Geomagnetic K = 4	05/0838 - 06/0700
06 Nov 0501	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	04/1405
06 Nov 1745	WARNING: Geomagnetic Sudden Impulse expected	06/1755 - 1855
06 Nov 1746	WARNING: Geomagnetic K = 4	06/1755 - 2300
06 Nov 1829	SUMMARY: Geomagnetic Sudden Impulse	06/1825
06 Nov 1905	ALERT: Geomagnetic K = 4	06/1904
06 Nov 2158	EXTENDED WARNING: Geomagnetic K = 4	06/1755 - 07/1400
06 Nov 2158	EXTENDED WARNING: Geomagnetic K = 5	06/1916 - 07/0800
07 Nov 0301	ALERT: Geomagnetic K = 5	07/0259
07 Nov 0400	EXTENDED WARNING: Geomagnetic K = 5	06/1916 - 07/1300
07 Nov 0400	WARNING: Geomagnetic K = 6	07/0359 - 0800
07 Nov 0417	ALERT: Geomagnetic K = 6	07/0411
07 Nov 0636	ALERT: Geomagnetic K = 5	07/0626
07 Nov 0740	ALERT: Geomagnetic K = 6	07/0731
07 Nov 1257	EXTENDED WARNING: Geomagnetic K = 5	06/1916 - 07/1500
07 Nov 1258	EXTENDED WARNING: Geomagnetic K = 4	06/1755 - 07/1600
07 Nov 2152	EXTENDED WARNING: Geomagnetic K = 4	06/1755 - 08/1000
07 Nov 2153	EXTENDED WARNING: Geomagnetic K = 5	06/1916 - 08/0700
08 Nov 1116	CONTINUED ALERT:	04/1405

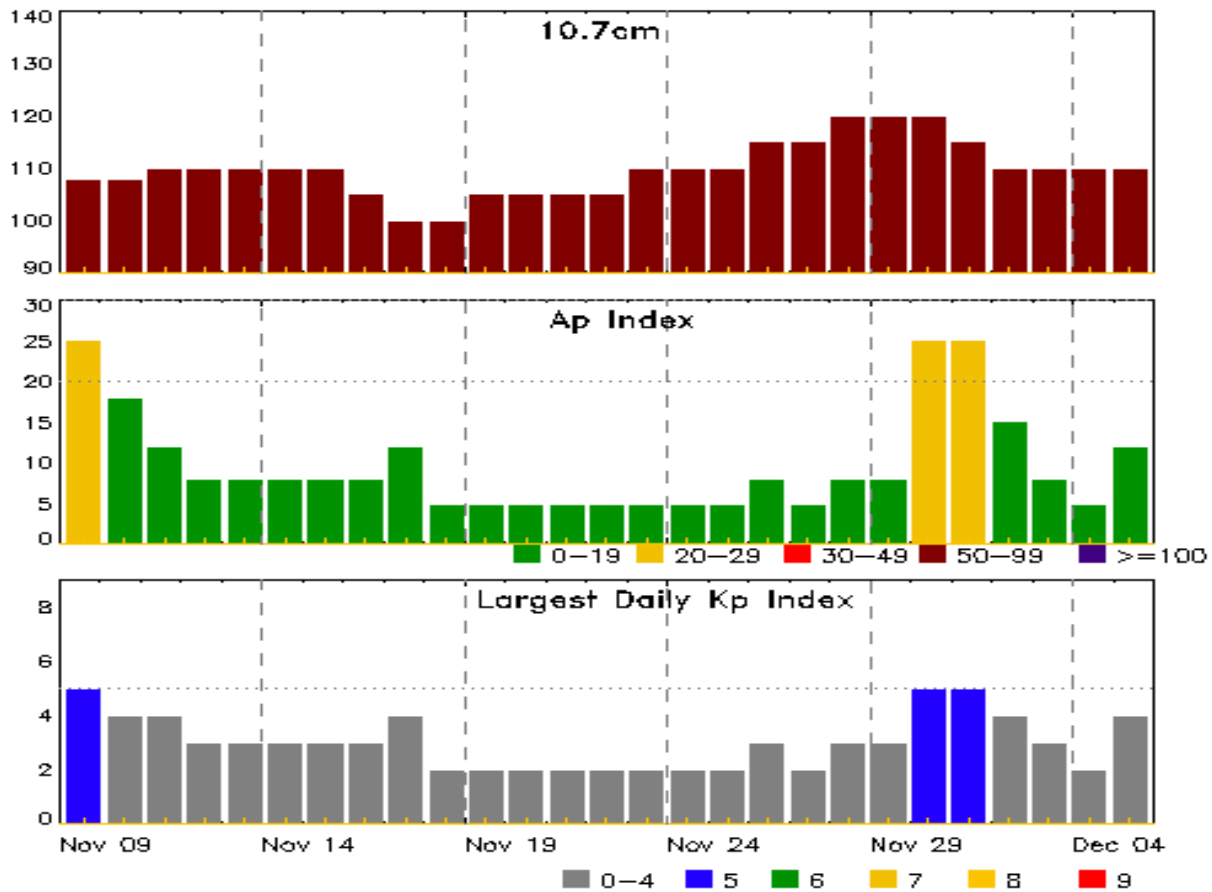


Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
-	Electron 2MeV Integral Flux \geq 1000pfu	-
08 Nov 1229	WARNING: Geomagnetic K = 4	08/1230 - 2100
08 Nov 1629	WATCH: Geomagnetic Storm Category G1 predicted	
08 Nov 1856	ALERT: Geomagnetic K = 4	08/1855
08 Nov 1857	EXTENDED WARNING: Geomagnetic K = 4	08/1230 - 09/0800
08 Nov 1857	WARNING: Geomagnetic K = 5	08/1857 - 09/0400



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
09 Nov	108	25	5	23 Nov	110	5	2
10	108	18	4	24	110	5	2
11	110	12	4	25	110	5	2
12	110	8	3	26	115	8	3
13	110	8	3	27	115	5	2
14	110	8	3	28	120	8	3
15	110	8	3	29	120	8	3
16	105	8	3	30	120	25	5
17	100	12	4	01 Dec	115	25	5
18	100	5	2	02	110	15	4
19	105	5	2	03	110	8	3
20	105	5	2	04	110	5	2
21	105	5	2	05	110	12	4
22	105	5	2				



Energetic Events

Date	Time			X-ray	Optical Information				Peak		Sweep Freq	
	Begin	Max	Half	Class	Integ Flux	Imp/ Brtns	Location Lat CMD	Rgn #	Radio Flux		Intensity	
			Max						245	2695	II	IV
04 Nov	0320	0326	0329	M1.9	0.005	1N	N15W64	2445	56000	220	2	
04 Nov	1155	1203	1206	M2.5	0.007	1N	N12W73	2445	3600	28	1	
04 Nov	1331	1352	1413	M3.7	0.059	2B	N09W04	2443	1400	340	2 1	

Flare List

Date	Time			X-ray Class	Imp/ Brtns	Location Lat CMD	Rgn #
	Begin	Max	End				
02 Nov	0036	0051	0132	C6.3	1N	N16W44	2445
02 Nov	0204	0206	0212		SF	N16W44	2445
02 Nov	0506	0512	0517	C2.2	SF	N15W46	2445
02 Nov	0603	0607	0615	C1.2	SF	N14W46	2445
02 Nov	0631	0637	0647	C3.3	SF	N15W47	2445
02 Nov	0700	0700	0705		SF	N15W47	2445
02 Nov	0758	0807	0843		SF	N12W47	2445
02 Nov	0941	0956	1049	C7.2	SF	N13W49	2445
02 Nov	1020	1024	1032		SF	N15W23	2441
02 Nov	1057	1100	1102	C1.3			
02 Nov	1137	1139	1205		SF	N13W49	2445
02 Nov	1138	1138	1153		SF	N07E28	2443
02 Nov	1246	1246	1254		SF	N13W49	2445
02 Nov	1252	1258	1304		SF	N15W25	2441
02 Nov	1312	1319	1329	C1.8	SF	N13W49	2445
02 Nov	1330	1352	1510		SF	N13W49	2445
02 Nov	B1341	1341	1430		SF	N08E26	2443
02 Nov	B1341	1527	1741		SF	N07E25	2443
02 Nov	B1341	1341	1430		SF	N08E26	2443
02 Nov	B1341	1732	1750		SF	N16W48	2445
02 Nov	1429	1500	1512	C5.0	SF	N10E23	2443
02 Nov	1729	1733	1736	C2.0			2445
02 Nov	2054	2101	2118		SF	N18W30	2441
03 Nov	0039	0053	0112	C2.3	SF	N06E17	2443
03 Nov	0644	0645	0646		SF	N07E16	2443
03 Nov	B0701	U0702	A0703		SF	N07E16	2443
03 Nov	B0959	U0959	A1009		SF	N16W37	2441
03 Nov	1126	U1131	1137		SF	N15W59	2445



Flare List

Date	Time			X-ray Class	Imp/ Brtns	Optical		Rgn #
	Begin	Max	End			Location Lat CMD		
03 Nov	1157	1206	1209		SF	N07E15		2443
03 Nov	1214	U1330	1416		SF	N07E13		2443
03 Nov	1352	1357	1449	C1.4	SF	N07E12		2445
03 Nov	1542	1548	1605		SF	N17W63		2445
03 Nov	1654	1658	1712	C3.9	SF	N17W63		2445
03 Nov	1814	1820	1823	B9.4				
03 Nov	1843	1909	1931	C5.5	SF	N07E10		2443
03 Nov	1909	1910	1912		SF	N17W63		2445
03 Nov	2151	2156	2200	B9.8	SF	N07E10		2443
03 Nov	2230	2232	2235		SF	N17W63		2445
03 Nov	2329	2335	2339	C1.7	SF	N17W63		2445
04 Nov	0025	0032	0037	C3.0	SF	N15W63		2445
04 Nov	0117	0120	0122	B9.1				2445
04 Nov	0124	0127	0129	B9.9				2445
04 Nov	0139	0141	0146		SF	N07E09		2443
04 Nov	0201	0218	0249	C1.1				2443
04 Nov	0320	0326	0329	M1.9	1N	N15W64		2445
04 Nov	0353	0359	0405	C1.4	SF	N07W01		2443
04 Nov	0450	0456	0459	C1.0	SF	N15W64		2445
04 Nov	0846	0847	0849	C4.6	SF	N17W65		2445
04 Nov	0921	0925	0927	B9.6	SF	N17W65		2445
04 Nov	B0930	U0948	A1055	C1.1	SF	N08E03		2443
04 Nov	1155	1203	1206	M2.5	1N	N12W73		2445
04 Nov	B1327	U1339	A1348	M3.7	2B	N09W04		2443
04 Nov	2248	2253	2258	C1.0				2448
05 Nov	1714	1717	1725		SF	N08W16		2443
05 Nov	1957	2009	2026	B7.5				2443
06 Nov	0900	0919	0925	C1.0				2448
06 Nov	0940	0942	0946	C1.1				
06 Nov	1435	1446	1454	C1.8	SF	S14E88		2449
06 Nov	1638	1640	1701		SF	N00E00		
06 Nov	1738	1808	1849	C4.4	SF	S13E77		2449
06 Nov	2142	2149	2200	C1.4	SF	S12E75		2449
06 Nov	2250	2251	2254		SF	S12E75		2449
06 Nov	2252	2313	2322	C1.6	SF	N16W65		2446
06 Nov	2353	2357	0003	B8.5				
07 Nov	0015	0021	0029	C3.0	SF	N05E51		2448
07 Nov	0435	0440	0444	C1.5	SF	S13E72		2449



Flare List

Date	Time			X-ray Class	Optical		Rgn #
	Begin	Max	End		Imp/ Brtns	Location Lat CMD	
07 Nov	0523	0532	0542	C2.4			2450
07 Nov	0601	0602	0606		SF	N09W40	2443
07 Nov	0830	0830	0833		SF	N03E35	2448
07 Nov	0856	0858	0901		SF	S08E64	2449
07 Nov	2259	2321	2347	C2.5	SF	S18E66	2449
07 Nov	2325	2331	2336		SF	S17E65	2450
08 Nov	0232	0235	0238	B5.6			2449



Region Summary

Date	Location		Sunspot Characteristics				Flares													
	Lat	CMD	Helio Lon	Area 10 ⁶ hemi.	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical								
									C	M	X	S	1	2	3	4				
Region 2439																				
22 Oct	N17E76		41	60	2	Hax	1	A												
23 Oct	N17E63		41	30	2	Hsx	1	A												
24 Oct	N17E51		40	30	2	Hax	1	A												
25 Oct	N16E37		40	30	1	Hax	1	A												
26 Oct	N16E24		39	20	1	Hsx	1	A												
27 Oct	N16E11		40	10	1	Hrx	1	A												
28 Oct	N16W03		41	plage																
29 Oct	N16W17		42	plage																
30 Oct	N16W31		42	plage																
31 Oct	N16W45		43	plage																
01 Nov	N16W59		44	plage																
02 Nov	N16W73		45	plage																
03 Nov	N16W87		46	plage																
										0	0	0	0	0	0	0	0	0		

Crossed West Limb.

Absolute heliographic longitude: 41

Region 2440																				
26 Oct	N20W02		66	40	2	Cso	6	B												
27 Oct	N19W16		67	30	4	Dao	4	B												
28 Oct	N19W31		67	30	4	Dso	4	B												
29 Oct	N20W44		68	30	5	Dao	3	B	1											
30 Oct	N19W57		68	10	4	Bxo	2	B												
31 Oct	N18W72		70	10	1	Axx	1	A												
01 Nov	N18W86		71	plage																
										1	0	0	0	0	0	0	0	0		

Crossed West Limb.

Absolute heliographic longitude: 66



Region Summary - continued

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

Region 2441

27 Oct	N14E47	3	30	3	Dro	2	B												
28 Oct	N14E33	3	20	3	Dro	2	B												
29 Oct	N14E20	3	30	5	Cai	7	B												
30 Oct	N14E08	3	20	4	Cro	4	B												
31 Oct	N15W06	4	10	2	Bxo	3	B												
01 Nov	N15W20	5	plage									1							
02 Nov	N15W32	4	10	1	Bxo	2	B					3							
03 Nov	N15W46	5	plage									1							
04 Nov	N15W60	5	plage																
05 Nov	N15W74	6	plage																
06 Nov	N15W88	7	plage																
												0	0	0	5	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 4

Region 2442

28 Oct	N16E09	27	20	3	Cao	6	B												
29 Oct	N15W03	27	30	7	Dro	5	B												
30 Oct	N16W17	28	20	8	Cro	4	B												
31 Oct	N16W35	33	10	1	Axx	1	A												
01 Nov	N16W50	35	10	1	Hrx	1	A					2							
02 Nov	N16W62	33	plage																
03 Nov	N16W76	35	plage																
04 Nov	N16W90	35	plage																
												0	0	0	2	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 27



Region Summary - continued

Date	Location		Sunspot Characteristics					Flares															
	Lat CMD	Lon	Helio 10 ⁻⁶ hemi.	Area	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical											
									C	M	X	S	1	2	3	4							
Region 2443																							
29 Oct	N05E67	316	330	15	Ehc	9	B	10				11											
30 Oct	N06E56	315	560	15	Ekc	25	BGD	12				4	1										
31 Oct	N07E43	315	640	15	Ekc	28	BGD	14	1			10	1										
01 Nov	N07E29	316	650	18	Fkc	28	BG	14				19	2										
02 Nov	N06E16	314	590	17	Fkc	36	BD	1				5											
03 Nov	N06E03	314	560	17	Fkc	52	BD	2				8											
04 Nov	N06W09	314	370	18	Fkc	40	BD	3	1			3		1									
05 Nov	N07W23	315	280	17	Fhc	25	B					1											
06 Nov	N07W37	316	220	16	Fsc	21	B																
07 Nov	N06W52	318	190	12	Eso	9	B					1											
08 Nov	N06W69	322	120	7	Cso	4	B																
								56	2	0	62	4	1	0	0								

Still on Disk.

Absolute heliographic longitude: 314

Region 2444

29 Oct	S04E61	323	10	2	Cro	3	B															
30 Oct	S04E46	325	10	4	Bxo	3	B															
31 Oct	S04E31	327	plage																			
01 Nov	S04E16	329	plage																			
02 Nov	S04E01	331	plage																			
03 Nov	S04W14	333	plage																			
04 Nov	S04W29	334	plage																			
05 Nov	S04W44	336	plage																			
06 Nov	S04W59	338	plage																			
07 Nov	S04W74	340	plage																			
08 Nov	S04W89	342	plage																			
								0	0	0	0	0	0	0	0	0	0					

Still on Disk.

Absolute heliographic longitude: 331

Region 2445

01 Nov	N15W42	27	50	6	Dai	14	B					5										
02 Nov	N15W55	26	240	8	Dac	13	B	7				12	1									
03 Nov	N16W69	26	200	11	Eac	10	BD	3				6										
04 Nov	N17W80	25	140	12	Eai	6	B	3	2			4	2									
05 Nov	N16W90	22	20	1	Hsx	1	A															
								13	2	0	27	3	0	0	0							

Crossed West Limb.

Absolute heliographic longitude: 27



Region Summary - continued

Date	Location		Sunspot Characteristics				Flares											
	Lat CMD	Helio Lon	Area 10 ⁶ hemi.	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical							
								C	M	X	S	1	2	3	4			
Region 2446																		
01 Nov	N15W04	349	20	4	Cro	5	B											
02 Nov	N15W17	349	10	4	Bxo	3	B											
03 Nov	N15W31	350	plage															
04 Nov	N15W45	350	plage															
05 Nov	N15W59	351	plage															
06 Nov	N16W71	350	20	2	Cro	5	B	1				1						
07 Nov	N16W85	351	plage															
								1	0	0		1	0	0	0	0	0	0
Crossed West Limb. Absolute heliographic longitude: 349																		
Region 2447																		
03 Nov	N03E23	295	20	2	Cro	3	B											
04 Nov	N03E10	295	10	4	Cro	4	B											
05 Nov	N03W02	294	10	6	Bxo	3	B											
06 Nov	N04W15	294	0	1	Axx	1	A											
07 Nov	N04W30	296	plage															
08 Nov	N04W45	298	plage															
								0	0	0		0	0	0	0	0	0	0
Still on Disk. Absolute heliographic longitude: 294																		
Region 2448																		
04 Nov	N06E72	233	60	5	Dso	3	B	1										
05 Nov	N06E59	233	110	10	Dai	6	B											
06 Nov	N06E45	234	140	8	Dao	5	B	1										
07 Nov	N05E37	229	80	6	Cao	7	B	1				2						
08 Nov	N05E25	228	60	4	Cao	4	B											
								3	0	0		2	0	0	0	0	0	0
Still on Disk. Absolute heliographic longitude: 228																		
Region 2449																		
06 Nov	S12E72	207	30	4	Cro	4	B	3				3						
07 Nov	S12E57	209	150	8	Dao	6	B	2				3						
08 Nov	S12E46	207	150	8	Dao	8	B											
								5	0	0		6	0	0	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 207



Region Summary - continued

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

Region 2450

07 Nov	S23E66	200	10	5	Bxo	3	B	1			1					
08 Nov	S23E50	203	10	5	Bxo	3	B	1	0	0	1	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 203

Region 2451

07 Nov	N03E24	242	30	2	Cro	4	B									
08 Nov	N03E11	242	20	1	Hrx	1	A	0	0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 242

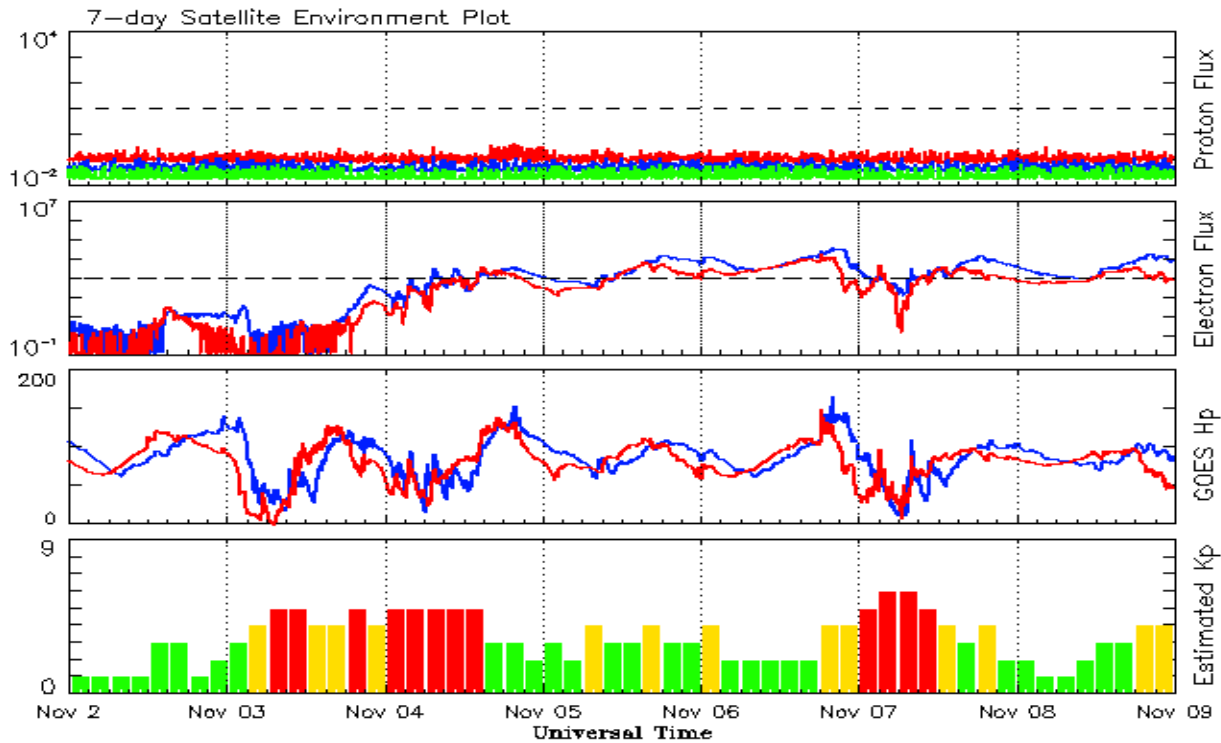


Recent Solar Indices (preliminary)
Observed monthly mean values

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	
2013										
November	125.7	77.6	0.62	114.6	114.6	75.3	148.4	135.4	5	7.9
December	118.2	90.3	0.76	115.4	115.4	75.9	147.7	135.9	5	7.5
2014										
January	125.9	81.8	0.65	117.7	117.7	77.3	158.6	137.3	6	7.1
February	174.6	102.3	0.59	119.5	119.5	78.3	170.3	138.6	12	6.9
March	141.1	91.9	0.65	123.2	123.2	80.8	149.9	140.8	6	7.2
April	130.5	67.5	0.65	124.8	124.8	69.8	144.3	143.5	9	7.5
May	116.8	67.5	0.64	122.3	122.3	69.0	130.0	144.7	7	7.9
June	107.7	61.7	0.66	121.4	121.4	68.5	122.2	145.5	7	8.4
July	113.6	60.1	0.64	120.4	120.4	67.6	137.3	145.2	5	8.8
August	106.2	64.1	0.70	115.1	115.1	65.0	124.7	142.8	9	8.9
September	127.4	78.0	0.69	107.4	107.4	61.1	146.1	140.1	11	9.3
October	92.0	54.0	0.66	101.7	101.7	58.4	153.7	138.4	10	9.9
November	101.8	62.2	0.69	97.9	97.9	56.8	155.3	137.4	10	10.1
December	120.0	67.7	0.65	95.2	95.2	55.3	158.7	137.0	12	10.5
2015										
January	101.2	55.8	0.66	92.1	92.1	53.6	141.7	135.8	10	11.0
February	70.6	40.0	0.63	88.3	88.3	51.7	128.8	133.8	10	11.5
March	61.7	32.7	0.62	84.2	84.2	49.3	126.0	131.2	17	12.0
April	72.5	45.2	0.75	80.5	80.5	47.3	129.2		12	12.4
May	83.0	53.3	0.71				120.1		9	
June	77.3	39.9	0.53				123.2		14	
July	68.4	39.8	0.58				107.0		10	
August	61.6	38.8	0.63				106.2		16	
September	72.5	46.9	0.65				102.1		16	
October	59.5	37.0	0.62						15	

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 02 November 2015*

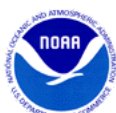
The proton flux plot contains the five-minute averaged integral proton flux (protons/cm²-sec -sr) as measured by the SWPC Primary GOES satellite, near West 75, for each of three energy thresholds: greater than 10, 50, and 100 MeV.

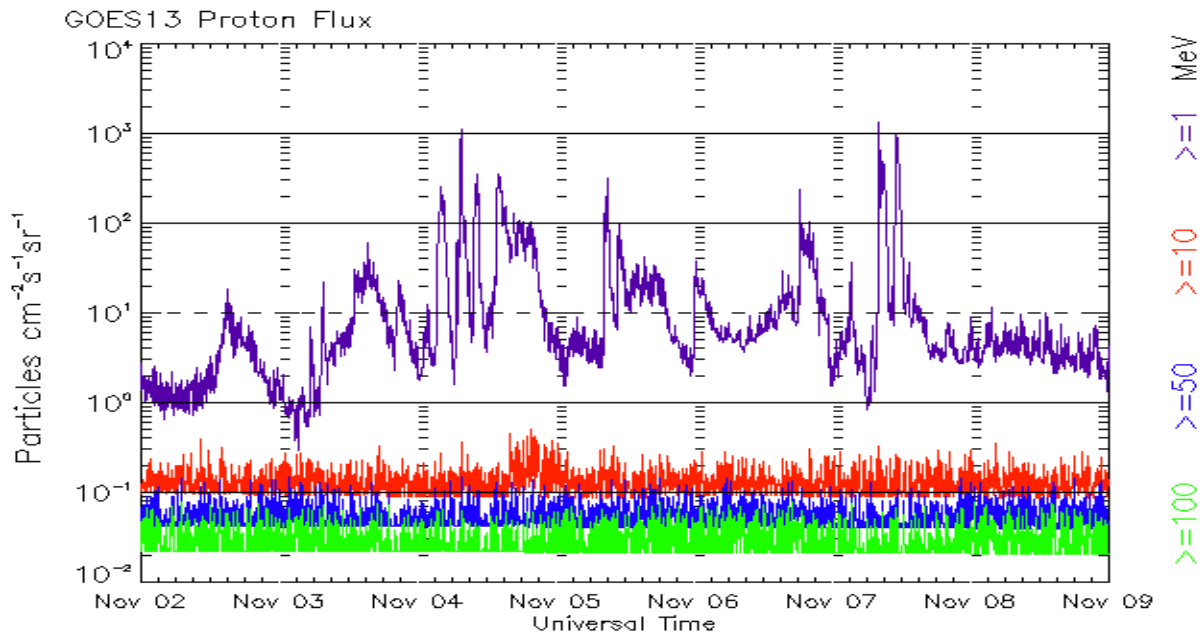
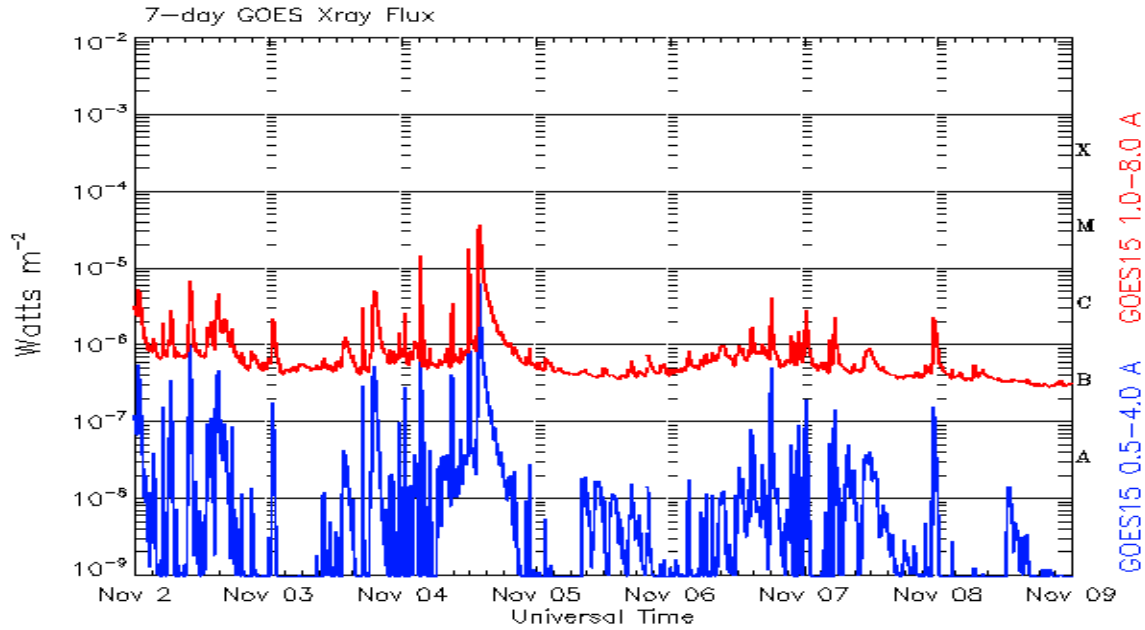
The electron flux plot contains the five-minute averaged integral electron flux (electrons/cm²-sec -sr) with energies greater than 2 MeV by the SWPC Primary GOES satellite.

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 02 November 2015

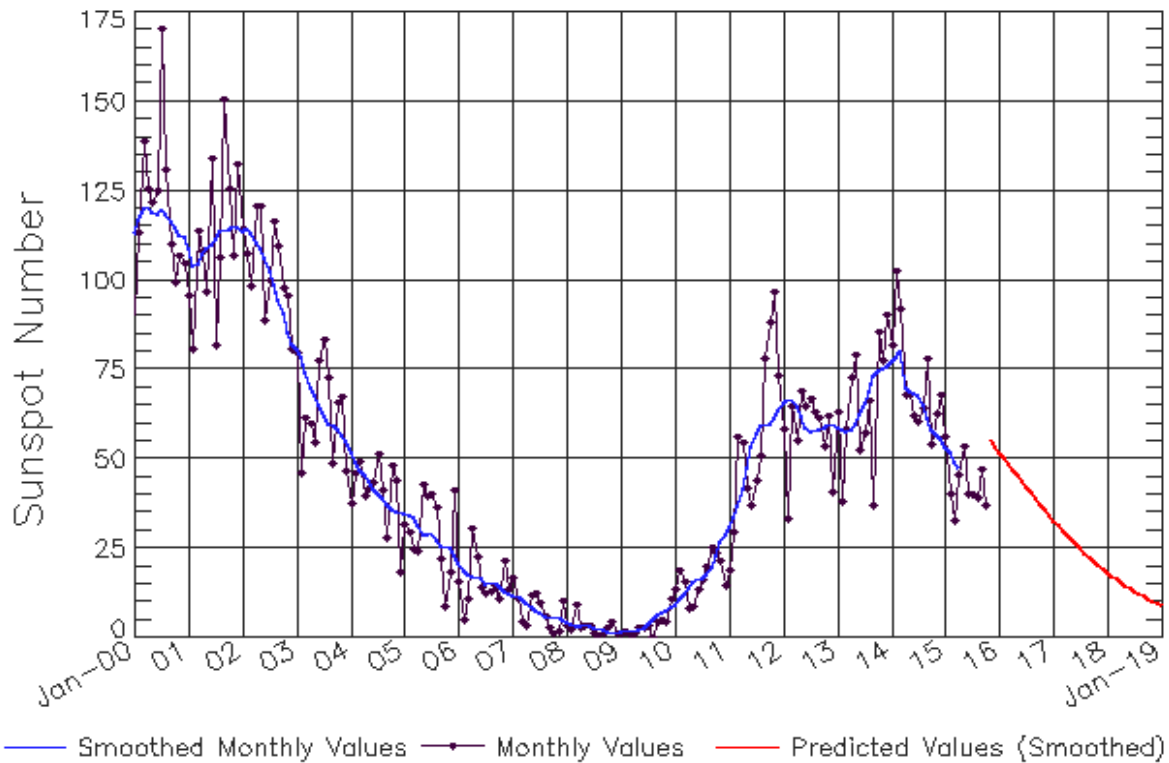
The x-ray plots contains five-minute averages x-ray flux (Watt/ m^2) as measure by the SWPC primary GOES X-ray satellite, usually at West 105 longitude, in two wavelength bands, 0.05 - 0.4 and 0.1 - 0.8 nm. The letters A, B, C, M and X refer to x-ray event levels for the 0.1 - 0.8 nm band.

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.



ISES Solar Cycle Sunspot Number Progression

Observed data through Oct 2015



Updated 2015 Nov 9

NOAA/SWPC Boulder, CO USA

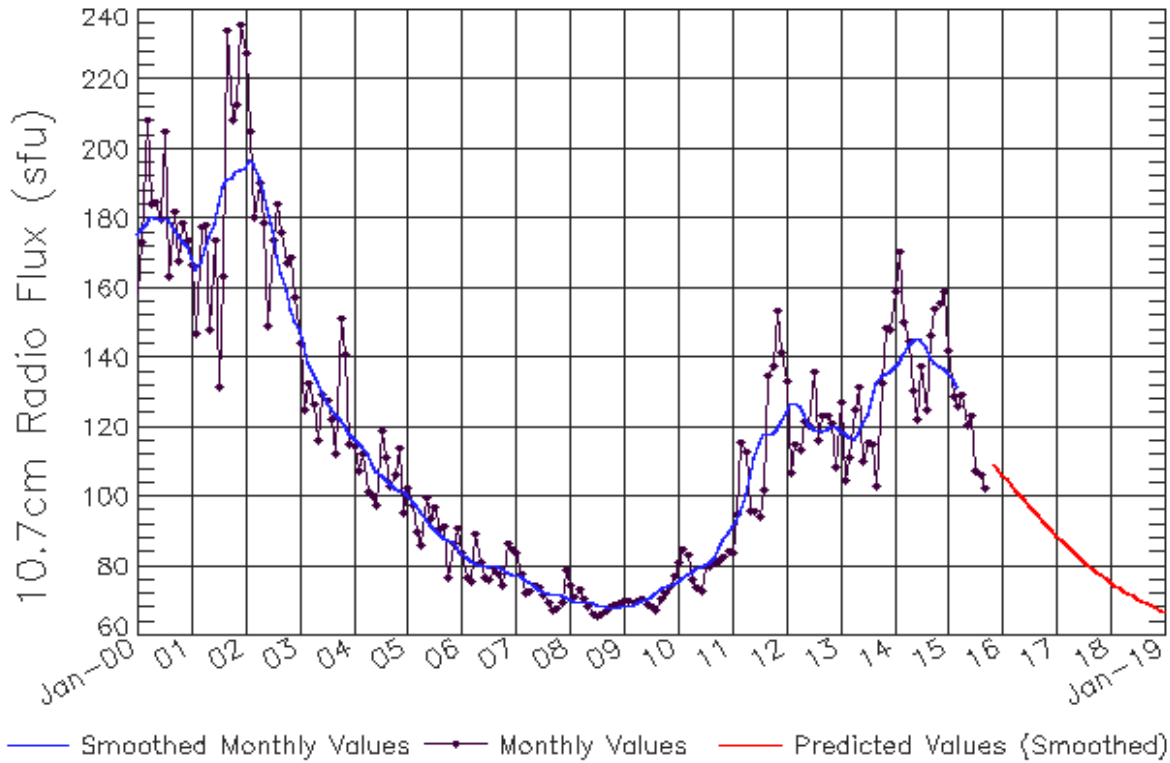
Smoothed Sunspot Number Prediction

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2010	9	10	11	13	15	16	17	17	20	23	27	29
	(1)	(2)	(3)	(5)	(5)	(6)	(7)	(7)	(8)	(9)	(9)	(10)
2011	19	30	56	54	42	37	44	51	78	88	97	73
	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)
2012	58	33	64	55	69	65	67	63	61	53	62	41
	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)
2013	63	38	58	72	79	53	57	66	37	86	78	90
	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)
2014	82	102	92	68	68	62	60	64	78	54	62	68
	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)
2015	56	40	33	45	53	40	40	39	47	37	55	54
	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)
2016	52	50	49	47	45	44	42	40	39	37	36	34
	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)
2017	33	31	30	29	27	26	25	24	23	21	20	19
	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)
2018	18	17	16	15	15	14	13	12	12	11	10	10
	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)
2019	9	8	8	7	7	6	6	6	5	5	4	4
	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)



ISES Solar Cycle F10.7cm Radio Flux Progression

Observed data through Oct 2015



Updated 2015 Nov 9

NOAA/SWPC Boulder, CO USA

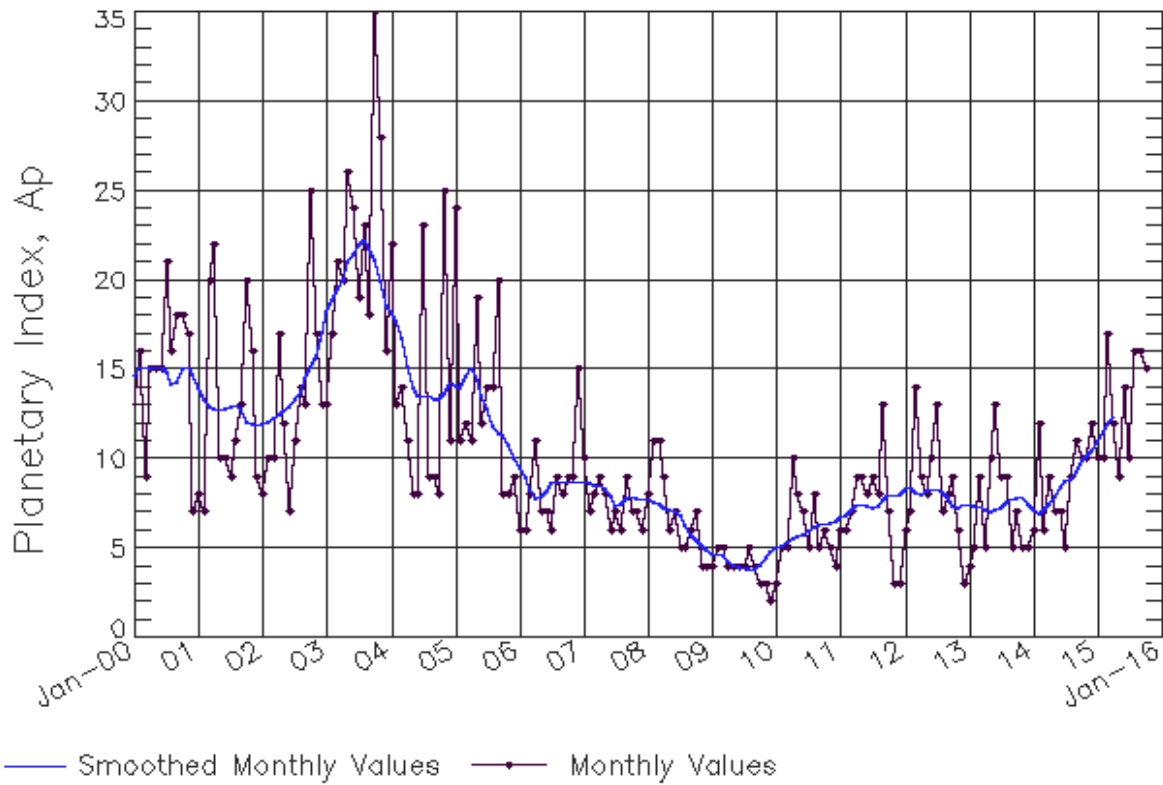
Smoothed F10.7cm Radio Flux Prediction

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 (***)	121 (***)	124 (***)	128 (***)	132 (***)	135 (***)	135 (***)	136 (***)
2014	137 (***)	139 (***)	141 (***)	144 (***)	145 (***)	146 (***)	145 (***)	143 (***)	140 (***)	138 (***)	137 (***)	137 (***)
2015	136 (***)	134 (***)	131 (***)	123 (1)	115 (1)	111 (2)	107 (3)	104 (4)	103 (4)	100 (5)	98 (6)	97 (7)
2016	95 (8)	94 (8)	94 (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 2015



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Solar Cycle Comparison charts are temporarily unavailable.



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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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<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

