

Space Weather Highlights
30 January - 05 February 2012

SWPC PRF 1901
07 February 2012

Solar activity ranged from very low to low levels throughout the period with two C-class flares observed. Region 1410 (N18, L=056, class/area Cso/240 on 01 February) produced a C1 event at 0440Z on 30 January. The second event was also a C1 flare, at 0441Z on 01 February from Region 1408 (N06, L=132, Class/area Hax/120 on 21 January). Low level B-class activity dominated the remainder of the period. As the summary period ended, there were only three spotted regions on the visible disk, with Regions 1413 (N08, L=062, class/area Csi/100) and 1410 the most pronounced.

The greater than 10 MeV proton event which began at 27/1905Z and reached a maximum of 796 pfu on 28/0205Z, dropped below the 10 pfu threshold and ended at 31/0635Z.

The greater than 2 MeV electron flux at geosynchronous orbit reached high levels on 30 January at 1635Z. Predominantly background levels prevailed with moderate levels observed from 03 - 04 February.

The geomagnetic field was at predominantly quiet to unsettled levels during the past week. The geomagnetic field was quiet, until the arrival of a glancing blow from the asymmetric halo CME that occurred in association with the X1/1f flare on 27 January. The transient passage was observed by the ACE spacecraft at 30/1554Z with a solar wind speed increase from around 320 km/s to near 430 km/s. A weak sudden impulse measuring 8 nT was observed by the Boulder magnetometer at 30/1624Z. The field increased to unsettled levels following the shock but returned to quiet levels by 31/0000Z. Quiet conditions prevailed on 31 January. On 01 February, a coronal hole high speed stream became geoeffective with unsettled to minor storm levels observed at high latitudes and predominantly quiet levels observed at mid latitudes from 01 February through the end of the summary period on 05 February.

Space Weather Outlook
08 February - 05 March 2012

Solar activity is expected to be at very low to low levels until 10 February, when old Region 1402 (N28, L=214) returns. An increase to low levels with a chance for M-class activity is expected as old Region 1402 transits the visible disk. A decrease to very low to levels is expected to prevail for the remainder of the period.

Energetic proton flux at geosynchronous orbit is expected to remain near background levels until old Region 1402 returns on 10 February. A slight chance exists for a proton event from 10 -24 February, as old Region 1402 transits the solar disk. A return to background levels is expected for the remainder of the period.

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

The geomagnetic field is expected to remain at mostly quiet to unsettled levels through the forecast period. There is potential for active periods with isolated minor storm periods at high



latitudes on 09-10 February, on 23 February, and again on 02-03 March, due to effects from coronal hole high speed wind 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
30 January	114	76	330	B2.1	1	0	0	0	0	0	0	0
31 January	117	71	340	B2.5	0	0	0	0	0	0	0	0
01 February	118	85	420	B2.2	1	0	0	0	0	0	0	0
02 February	118	85	420	B2.6	0	0	0	0	0	0	0	0
03 February	111	39	280	B2.1	0	0	0	0	0	0	0	0
04 February	107	43	270	B1.8	0	0	0	0	0	0	0	0
05 February	103	37	170	B1.5	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
	30 January	2.1e+07	3.4e+06	5.1e+03		3.8e+07
31 January	6.2e+06	7.8e+05	3.4e+03		3.6e+06	
01 February	1.8e+06	2.0e+05	2.6e+03		3.3e+06	
02 February	6.8e+05	8.6e+04	3.5e+03		3.1e+06	
03 February	4.1e+05	3.7e+04	3.8e+03		4.8e+06	
04 February	2.4e+05	2.2e+04	3.6e+03		4.5e+06	
05 February	2.6e+05	2.0e+04	3.2e+03		1.5e+07	

Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	30 January	5	0-0-1-0-1-3-2-3	5	0-0-0-0-0-2-3-3	6
31 January	2	2-1-0-0-1-0-1-0	2	2-1-1-1-1-0-0-0	2	2-1-0-0-0-0-0-1
01 February	5	1-2-2-1-2-1-1-1	14	0-1-3-5-5-0-0-0	6	2-2-2-2-2-0-1-1
02 February	3	1-2-1-1-1-0-1-1	5	0-0-1-4-1-0-1-0	4	1-1-1-1-1-0-1-1
03 February	4	2-1-2-1-2-1-1-0	10	1-1-2-4-4-2-1-0	6	2-2-1-2-2-1-1-0
04 February	7	2-2-2-2-2-2-2-2	21	1-2-4-5-5-4-1-2	6	2-2-2-2-2-2-2-2
05 February	6	2-1-1-1-2-2-2-2	11	2-2-1-3-4-3-2-1	6	3-1-1-1-2-2-2-2

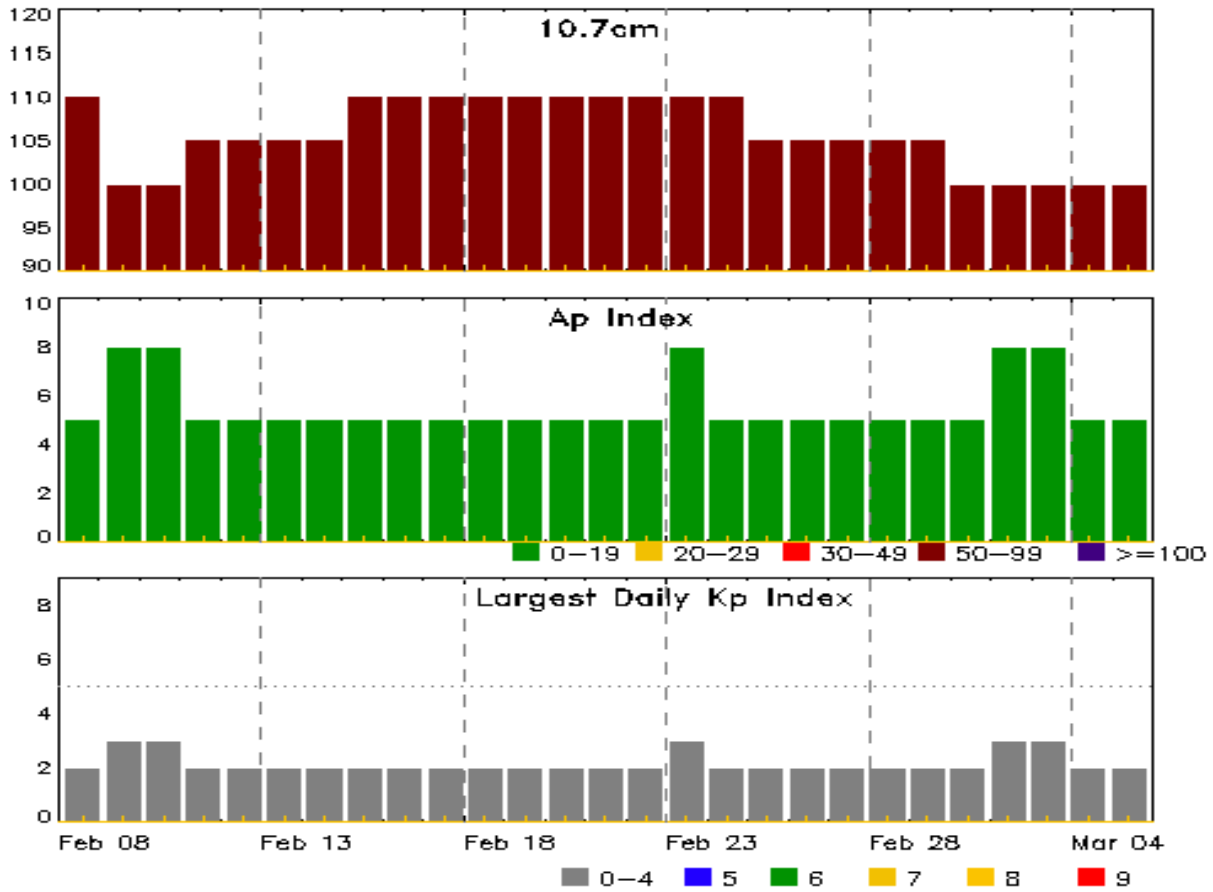


Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
30 Jan 1557	WARNING: Geomagnetic Sudden Impulse expected	30/1645 - 1745
30 Jan 1559	WARNING: Geomagnetic K = 4	30/1645 - 2100
30 Jan 1640	ALERT: Electron 2MeV Integral Flux \geq 1000pfu	30/1635
30 Jan 1653	SUMMARY: Geomagnetic Sudden Impulse	30/1624
31 Jan 0959	SUMMARY: Proton Event 10MeV Integral Flux \geq 10pfu	27/1905 - 31/0635



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
08 Feb	110	5	2	22 Feb	110	5	2
09	100	8	3	23	110	8	3
10	100	8	3	24	110	5	2
11	105	5	2	25	105	5	2
12	105	5	2	26	105	5	2
13	105	5	2	27	105	5	2
14	105	5	2	28	105	5	2
15	110	5	2	29	105	5	2
16	110	5	2	01 Mar	100	5	2
17	110	5	2	02	100	8	3
18	110	5	2	03	100	8	3
19	110	5	2	04	100	5	2
20	110	5	2	05	100	5	2
21	110	5	2				



Energetic Events

Date	Time			X-ray	Optical Information			Peak		Sweep Freq	
	Begin	Max	Half Max	Class	Integ Flux	Imp/ Brtns	Location Lat CMD	Rgn #	Radio Flux 245	Radio Flux 2695	Intensity II

No Events Observed

Flare List

Date	Time			X-ray Class	Optical			Rgn #
	Begin	Max	End		Imp/ Brtns	Location Lat CMD	Rgn #	
30 Jan	0315	0323	0330	B5.1			1410	
30 Jan	0435	0440	0443	C1.3			1410	
30 Jan	2143	2148	2154	B4.9				
31 Jan	0616	0624	0641	B6.7			1408	
31 Jan	1404	1415	1428	B9.9			1408	
01 Feb	0413	0441	0455	C1.0			1408	
01 Feb	0850	0916	0937	B6.4			1408	
02 Feb	0857	0907	0917	B7.8			1408	
02 Feb	1151	1154	1156	B5.0				
02 Feb	1806	1815	1821	B8.9			1413	
03 Feb	0439	0447	0452	B7.4			1410	
05 Feb	0725	0729	0734	B3.1			1410	
05 Feb	1243	1247	1251	B2.4			1410	



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 1401																							
14 Jan	N15E73	215	40	2	Hsx	2	A	4	1														
15 Jan	N17E60	218	200	7	Dai	14	B	1				1											
16 Jan	N17E51	216	420	12	Eso	13	B	4				3											
17 Jan	N18E38	216	480	13	Ekc	18	BG	3	1			1	1										
18 Jan	N16E27	214	450	15	Ekc	18	BG	2	1				1										
19 Jan	N18E13	213	540	15	Eki	22	BG																
20 Jan	N16W00	213	380	15	Eki	19	B																
21 Jan	N17W12	213	350	15	Eki	19	B					1											
22 Jan	N16W26	213	260	15	Eki	21	BG	3				5	1										
23 Jan	N16W39	214	170	14	Eso	22	BG	1				4	1										
24 Jan	N16W52	214	170	14	Eso	22	BG	1				1											
25 Jan	N16W66	215	50	6	Cso	6	B																
26 Jan	N16W80	215	plage																				
								19	3	0	16	4	0	0	0								

Crossed West Limb.

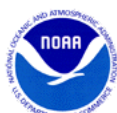
Absolute heliographic longitude: 213

Region 1402

14 Jan	N26E75	212	100	3	Hsx	3	A														
15 Jan	N27E64	215	270	6	Dho	7	B														
16 Jan	N28E53	214	480	7	Cko	6	B	1													
17 Jan	N28E40	214	630	11	Eko	7	BG					2									
18 Jan	N28E27	214	550	8	Dko	8	B					1									
19 Jan	N29E15	211	500	9	Dko	12	B		1			2		1							
20 Jan	N28E03	211	310	9	Dki	9	B														
21 Jan	N29W11	212	360	7	Dko	7	B	1				1									
22 Jan	N29W23	211	370	7	Dko	8	B					4									
23 Jan	N28W36	211	290	7	Cko	11	B		1			3	2	1							
24 Jan	N29W49	211	370	6	Dhi	12	B	1				4									
25 Jan	N26W60	209	200	7	Dai	6	BG					1									
26 Jan	N29W72	207	270	8	Dsc	9	B	5				1									
27 Jan	N29W88	210	60	6	Cso	3	B	1		1	1	1	1								
								9	2	1	20	3	2	0	0						

Crossed West Limb.

Absolute heliographic longitude: 211



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 1405																	
16 Jan	N13E65	202	20	2	Hsx	1	A										
17 Jan	N13E51	203	50	1	Hsx	1	A										
18 Jan	N11E39	202	40	2	Hsx	2	A										
19 Jan	N13E25	201	40	1	Hsx	1	A										
20 Jan	N11E13	200	30	1	Hsx	1	A										
21 Jan	N13E01	200	30	4	Cso	4	B										
22 Jan	N12W13	200	10	1	Axx	1	A										
23 Jan	N13W24	199	30	10	Cso	5	B										
24 Jan	N12W37	199	30	12	Cso	3	B										
25 Jan	N12W48	197	20	6	Cso	2	B										
26 Jan	N13W60	194	10	1	Axx	1	A										
27 Jan	N13W74	196	plage														
28 Jan	N13W88	197	plage														
								0	0	0	0	0	0	0	0	0	0

Crossed West Limb.
 Absolute heliographic longitude: 200

Region 1408																	
21 Jan	N06E68	132	120	3	Hax	1	A										
22 Jan	N08E57	131	70	2	Hsx	2	A										
23 Jan	N08E44	131	100	3	Hsx	2	A										
24 Jan	N08E31	131	100	3	Hsx	2	A										
25 Jan	N08E17	132	70	2	Hsx	2	A										
26 Jan	N08E03	131	110	3	Cso	4	B										
27 Jan	N08W11	133	80	3	Cao	5	B										
28 Jan	N08W25	133	60	2	Hax	2	A										
29 Jan	N08W37	132	90	2	Hax	2	A										
30 Jan	N08W50	132	60	2	Hsx	3	A										
31 Jan	N08W64	133	50	1	Hsx	1	A										
01 Feb	N07W79	134	70	1	Hsx	1	A	1									
								1	0	0	0	0	0	0	0	0	0

Crossed West Limb.
 Absolute heliographic longitude: 131



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

Region 1409

21 Jan	N16E50	150	0		Axx	1	A										
22 Jan	N19E40	147	10	2	Bxo	3	B										
23 Jan	N09E27	148	100	2	Cao	3	B										
24 Jan	N18E14	148	110	3	Hsx	2	A										
25 Jan	N18W00	149	plage														
26 Jan	N18W14	149	plage														
27 Jan	N18W28	150	plage														
28 Jan	N18W42	151	plage														
29 Jan	N18W56	152	plage														
30 Jan	N18W70	153	plage														
31 Jan	N18W84	154	plage														
									0	0	0	0	0	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 149

Region 1410

26 Jan	N16E66	69	120	3	Hsx	1	A										
27 Jan	N16E52	70	150	3	Hsx	1	A										
28 Jan	N16E38	71	150	3	Hsx	1	A	1									
29 Jan	N19E37	59	160	6	Cso	4	B										
30 Jan	N20E20	62	170	3	Hsx	4	A	1									
31 Jan	N18E11	59	200	8	Cso	8	B										
01 Feb	N18W00	56	240	13	Cso	13	B										
02 Feb	N18W14	57	240	13	Cso	13	B										
03 Feb	N17W29	59	190	5	Cso	4	B										
04 Feb	N16W44	61	190	3	Cso	2	B										
05 Feb	N17W57	61	130	3	Cso	3	B										
									2	0	0	0	0	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 56



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

Region 1411

28 Jan	S26E09	100	0		Axx	1	A										
29 Jan	S25W05	101	10	5	Bxo	6	B										
30 Jan	S27W16	98	10	4	Bxo	6	B										
31 Jan	S27W28	97	30	4	Dro	7	B										
01 Feb	S28W41	97	10	5	Bxo	7	B										
02 Feb	S28W55	97	10	5	Bxo	7	B										
03 Feb	S28W69	99	plage														
04 Feb	S28W83	100	plage														
									0	0	0	0	0	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 101

Region 1412

29 Jan	S15W41	137	10	2	Bxo	4	B										
30 Jan	S16W53	135	10	2	Axx	2	A										
31 Jan	S16W67	137	plage														
01 Feb	S16W81	137	plage														
									0	0	0	0	0	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 137

Region 1413

29 Jan	N08E38	58	20	3	Bxo	8	B										
30 Jan	N08E22	60	80	4	Dso	11	B										
31 Jan	N08E08	60	60	5	Cso	15	B										
01 Feb	N08W07	62	100	6	Csi	24	B										
02 Feb	N08W20	64	100	6	Csi	24	B										
03 Feb	N08W33	63	90	6	Dso	15	B										
04 Feb	N07W47	64	70	4	Dso	9	B										
05 Feb	N08W59	63	30	3	Cso	2	B										
									0	0	0	0	0	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 62

Region 1414

04 Feb	S06W19	36	10	3	Bxo	2	B										
05 Feb	S05W34	38	10	3	Bxo	2	B										
									0	0	0	0	0	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 36

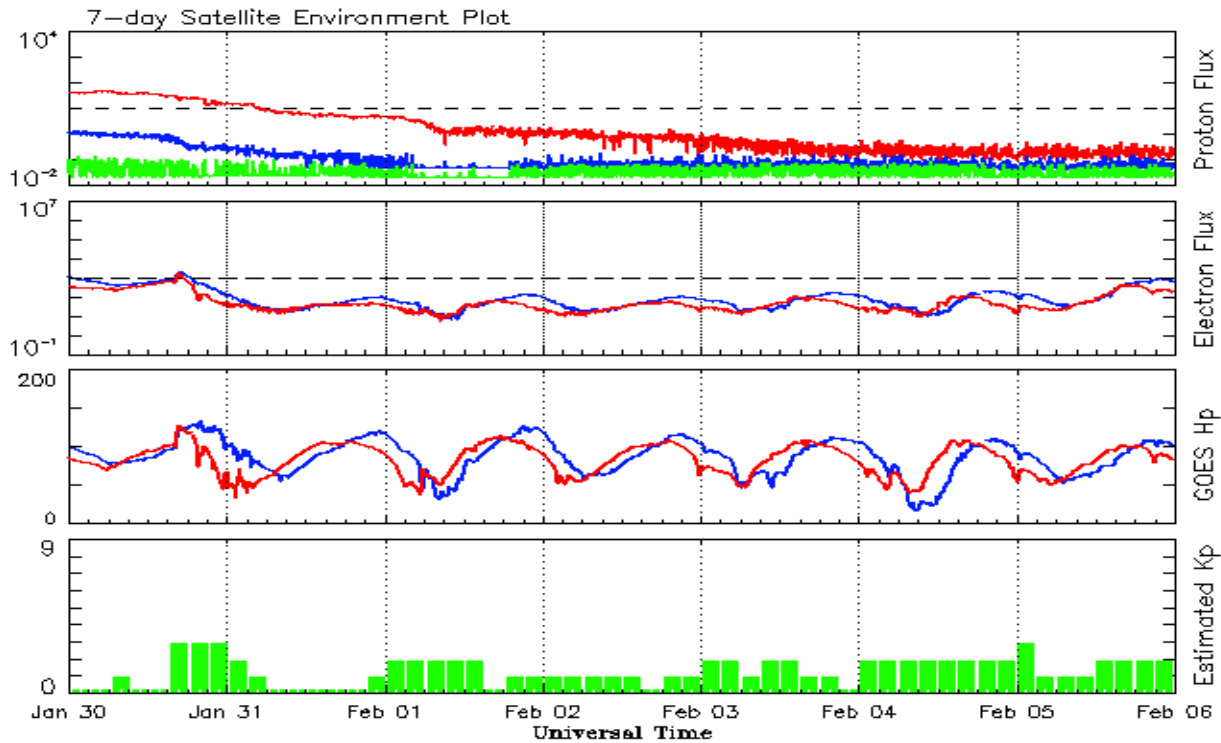


Recent Solar Indices (preliminary)
Observed monthly mean values

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
2010									
February	31.0	18.8	0.60	16.7	10.6	84.7	76.5	5	5.1
March	24.7	15.4	0.62	19.1	12.3	83.3	77.5	5	5.3
April	11.2	8.0	0.71	21.4	14.0	75.9	78.3	10	5.5
May	19.9	8.7	0.44	23.8	15.5	73.8	79.0	8	5.7
June	17.9	13.6	0.75	25.2	16.4	72.6	79.7	7	5.8
July	23.1	16.1	0.70	25.9	16.7	79.9	80.1	5	6.0
August	28.2	19.6	0.70	27.3	17.4	79.7	80.7	8	6.2
September	35.6	25.2	0.71	30.6	19.6	81.1	82.4	5	6.3
October	35.0	23.5	0.67	35.9	23.2	81.6	85.3	6	6.4
November	36.1	21.5	0.60	40.5	26.5	82.5	87.7	5	6.4
December	22.0	14.4	0.66	43.8	28.8	84.3	89.6	4	6.5
2011									
January	32.1	18.8	0.59	47.2	30.9	83.7	91.2	6	6.7
February	53.2	29.6	0.55	50.6	33.4	94.5	92.7	6	6.8
March	81.0	55.8	0.69	55.2	36.9	115.3	95.8	7	7.2
April	81.7	54.4	0.67	61.5	41.8	112.6	100.4	9	7.5
May	61.4	41.5	0.68	69.0	47.6	95.9	105.6	9	7.5
June	55.5	37.0	0.67	76.5	53.2	95.8	110.9	8	7.4
July	67.0	43.8	0.66	82.5	57.2	94.2	115.4	9	7.3
August	66.1	50.6	0.77			101.7		8	
September	106.4	78.0	0.73			134.5		13	
October	116.8	88.0	0.75			137.2		7	
November	133.1	96.7	0.73			153.1		3	
December	106.3	73.0	0.69			141.2		3	
2012									
January	91.3	58.3	0.64			133.1		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 30 January 2012*

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.

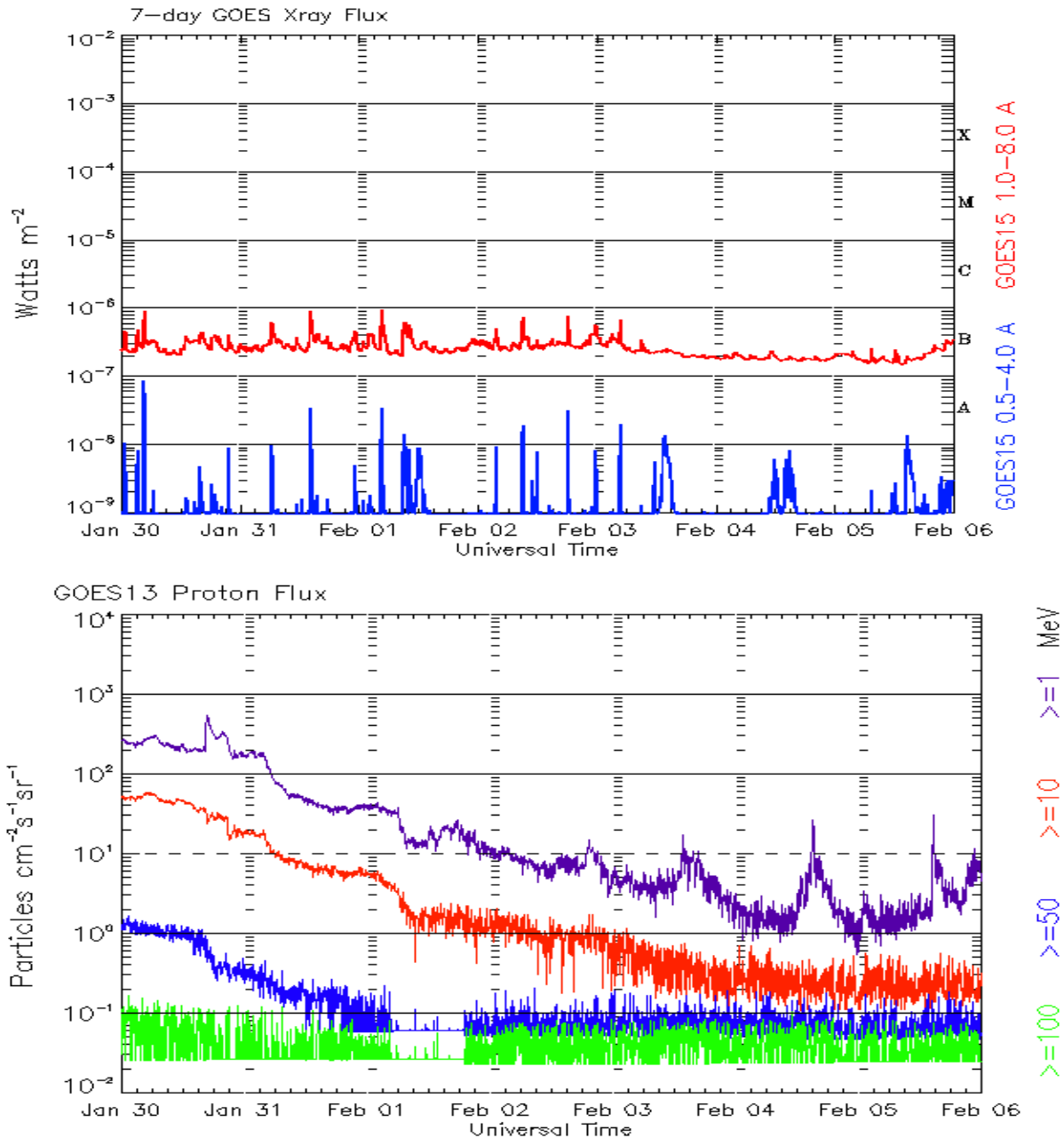
The electron flux plot contains the five-minute averaged integral electron flux (electrons/cm²-sec -sr) with energies greater than 2 MeV by the SWPC Primary GOES satellite.

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 30 January 2012*

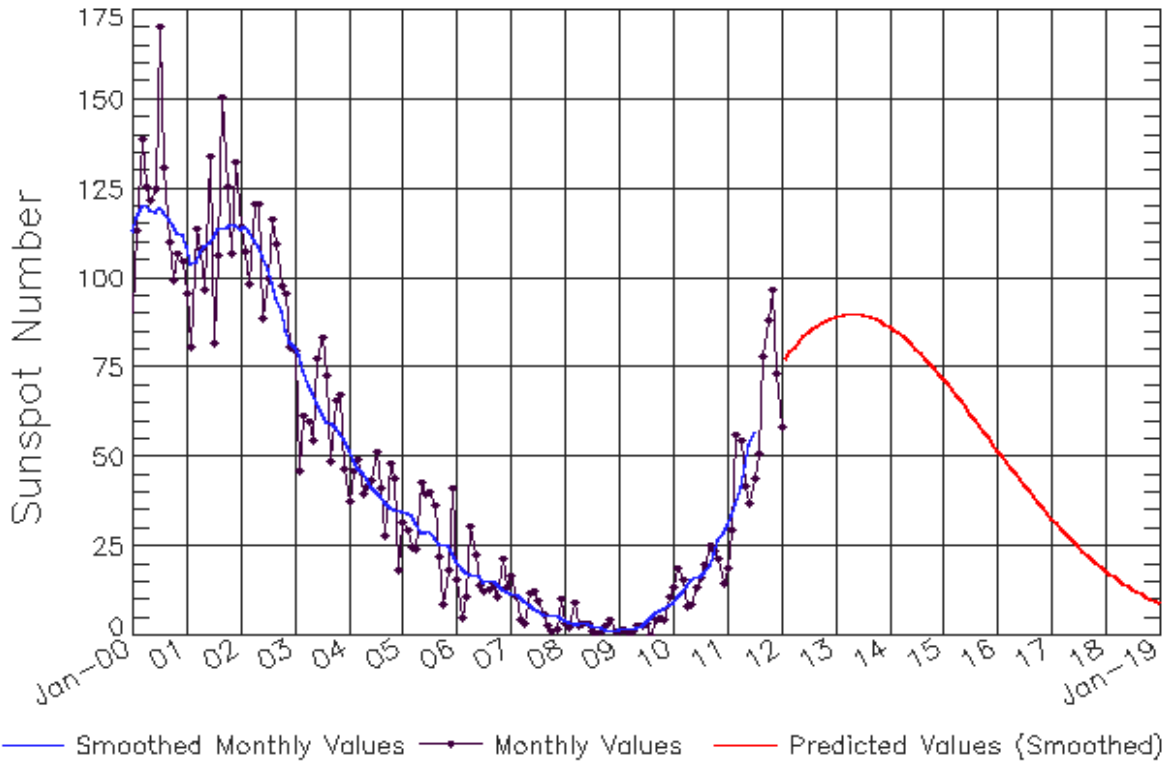
The x-ray plots contains five-minute averages x-ray flux (Watt/m²) as measure by the SWPC primary GOES X-ray satellite, usually at West 105 longitude, in two wavelength bands, 0.05 - 0.4 and 0.1 - 0.8 nm. The letters A, B, C, M and X refer to x-ray event levels for the 0.1 - 0.8 nm band.

The proton plot contains the five-minute averaged intergral 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 Jan 2012



Updated 2012 Feb 7

NOAA/SWPC Boulder, CO USA

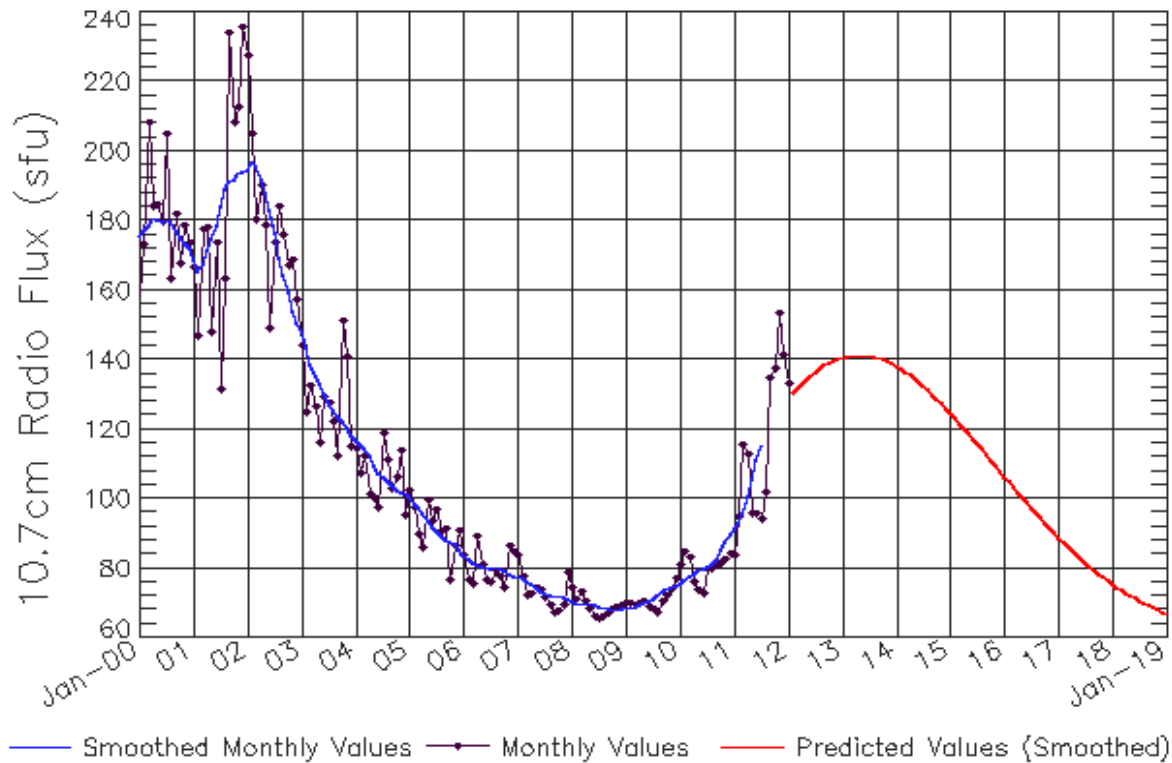
Smoothed Sunspot Number Prediction

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 (***)	61 (1)	64 (2)	66 (3)	69 (5)	72 (5)
2012	76 (6)	79 (7)	81 (7)	81 (8)	81 (9)	81 (9)	83 (10)	86 (10)	87 (10)	88 (10)	88 (10)	89 (10)
2013	89 (10)	90 (10)	90 (10)	90 (10)	90 (10)	90 (10)	90 (10)	89 (10)	89 (10)	89 (10)	88 (10)	87 (10)
2014	86 (10)	86 (10)	85 (10)	84 (10)	83 (10)	81 (10)	80 (10)	79 (10)	78 (10)	76 (10)	75 (10)	73 (10)
2015	72 (10)	70 (10)	69 (10)	67 (10)	65 (10)	64 (10)	62 (10)	60 (10)	59 (10)	57 (10)	55 (10)	54 (10)
2016	52 (10)	50 (10)	49 (10)	47 (10)	45 (10)	44 (10)	42 (10)	40 (10)	39 (10)	37 (10)	36 (10)	34 (10)
2017	33 (10)	31 (10)	30 (10)	29 (10)	27 (10)	26 (10)	25 (10)	24 (10)	23 (10)	21 (10)	20 (10)	19 (10)
2018	18 (10)	17 (10)	16 (10)	15 (10)	15 (10)	14 (10)	13 (10)	12 (10)	12 (10)	11 (10)	10 (10)	10 (10)
2019	9 (10)	8 (10)	8 (10)	7 (10)	7 (10)	6 (10)	6 (10)	6 (10)	5 (10)	5 (10)	4 (10)	4 (10)



ISES Solar Cycle F10.7cm Radio Flux Progression

Observed data through Jan 2012



Updated 2012 Feb 7

NOAA/SWPC Boulder, CO USA

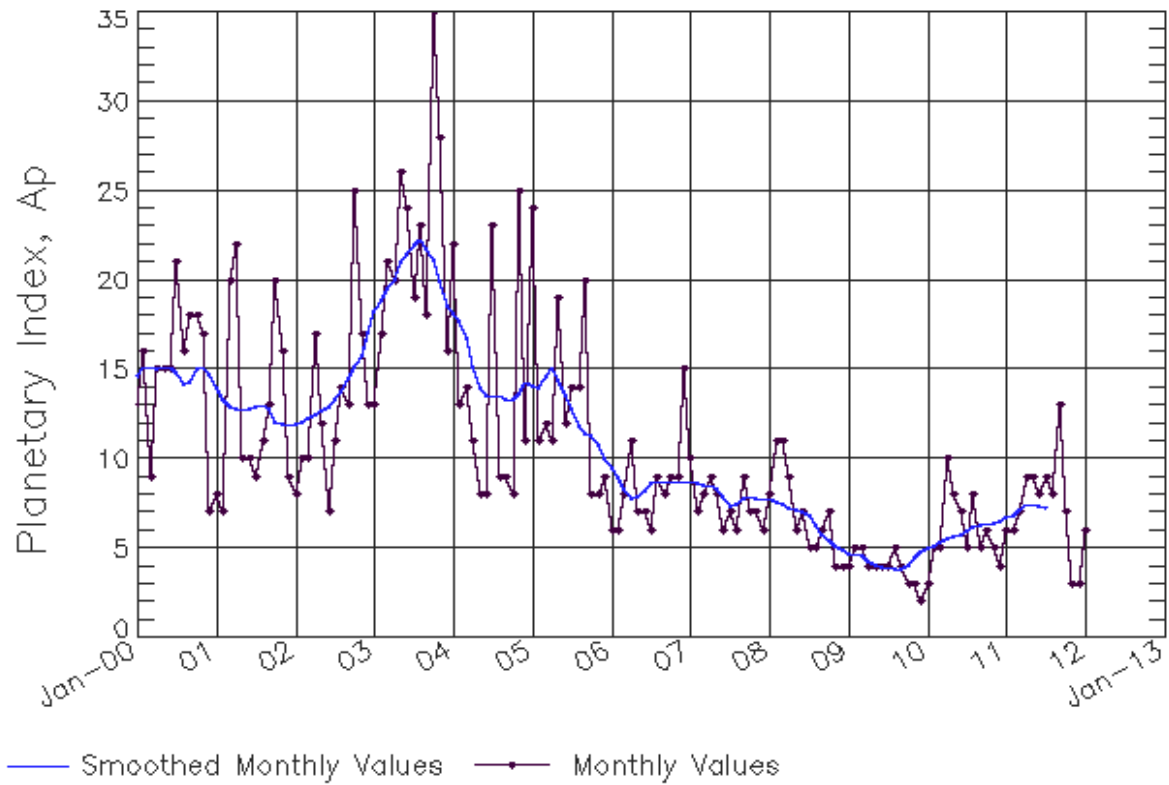
Smoothed F10.7cm Radio Flux Prediction

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 (***)	119 (1)	121 (1)	123 (2)	125 (3)	128 (4)
2012	132 (4)	135 (5)	137 (6)	137 (7)	136 (8)	136 (8)	136 (9)	137 (9)	138 (9)	139 (9)	140 (9)	140 (9)
2013	141 (9)	141 (9)	141 (9)	141 (9)	141 (9)	141 (9)	141 (9)	141 (9)	140 (9)	140 (9)	139 (9)	139 (9)
2014	138 (9)	137 (9)	136 (9)	136 (9)	135 (9)	134 (9)	132 (9)	131 (9)	130 (9)	129 (9)	127 (9)	126 (9)
2015	125 (9)	123 (9)	122 (9)	120 (9)	119 (9)	117 (9)	116 (9)	114 (9)	113 (9)	111 (9)	110 (9)	108 (9)
2016	106 (9)	105 (9)	103 (9)	102 (9)	100 (9)	99 (9)	97 (9)	96 (9)	94 (9)	93 (9)	92 (9)	90 (9)
2017	89 (9)	88 (9)	86 (9)	85 (9)	84 (9)	83 (9)	82 (9)	80 (9)	79 (9)	78 (9)	77 (9)	76 (9)
2018	75 (9)	75 (9)	74 (9)	73 (9)	72 (9)	71 (9)	71 (9)	70 (9)	69 (9)	69 (9)	68 (9)	67 (9)
2019	67 (9)	66 (9)	66 (9)	65 (9)	65 (9)	65 (9)	64 (9)	64 (9)	63 (9)	63 (9)	63 (9)	63 (9)



ISES Solar Cycle Ap Progression

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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/SolarCycle/> -- Solar Cycle Progression web site

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