Space Weather Highlights **SWPC PRF 2166**
27 February - 05 March 2017 **06 March 2017**

Solar activity was at very low levels. The strongest flare of the period, a B9, was produced by Region 2641 (N15, L=041, class/area Cao/100 on 28 Feb).

A ten degree long filament, centered at approximately S21W35, erupted from the solar disk around 27/1421 UTC. A subsequent CME was observed in SOHO C2 imagery. Analysis and modeling of the event suggested no Earth-directed component was present.

On 05 Feb, coronal dimming was observed in SDO/AIA 193 imagery near the location of N10E33 around 05/1200 UTC. SOHO C2 imagery displayed a faint, slow-moving eruption that appeared to be associated with the dimming. At the time of this writing, analysis is ongoing to determine if the likelihood of an Earth-directed component.

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit was at normal background to moderate levels on 27 Feb and normal background levels on 28 Feb. From Mar 01-05, an increase to moderate to high levels was observed in response to the onset and persistent influence of a negative polarity CH HSS.

Geomagnetic field activity ranged from quiet to unsettled levels from 27 Feb through the beginning of 01 Mar. Unsettled levels transitioned to G1 (Minor) storm levels, with a peak activity level of G2 (Moderate) by the end of the day on 01 Mar due to the onset of southern polar connected, negative polarity CH HSS. The CIR enhanced total magnetic field strength to maximum value of 21 nT by midday on 01 Mar. Solar wind speeds steadily increased from around 390 km/s at the beginning of the day to 750 km/s by the end of the 01 Mar. As the CH HSS persisted, unsettled to G1 (Minor) activity was observed on 02 Mar, quiet to G1 (Minor) activity on 03-04 Mar, and finally quiet to active conditions were observed on 05 Mar. Solar wind speeds were still elevated, mostly between 600-650 km/s, by the end of the period.

Space Weather Outlook
06 March - 01 April 2017

Solar activity is expected to be at very low levels throughout the outlook period.

No proton events are expected at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit is expected to be at high levels on 06-13 Mar, 19-20 Mar, 24 Mar, and 29 Mar - 01 Apr due to influences from multiple, recurrent, CH HSSs. Normal to moderate levels are expected on 14-18 Mar, 21-23 Mar, and 25-28 Mar.

Geomagnetic field activity is expected to be at quiet to G2 (Moderate) levels over the next 27 days. Unsettled conditions are likely on 09-10 Mar, 15 Mar, 18-19 Mar, and 24 Mar. Active

conditions are likely on 06 Mar, 17 Mar, 23 Mar, and 01 Apr. G1 (Minor) conditions are likely on 16 Mar and 30-31 Mar. G2 (Moderate) conditions are likely on 28-29 Mar. All enhancements in geomagnetic activity are due to the influences of multiple, anticipated, recurrent CH HSSs. Mostly quiet conditions are expected for the remaining days of the outlook period.

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
27 February	82	40	150	A7.8	0	0	0	2	0	0	0	0
28 February	82	39	210	A6.2	0	0	0	3	0	0	0	0
01 March	81	55	190	A6.5	0	0	0	2	0	0	0	0
02 March	79	52	140	A5.1	0	0	0	0	0	0	0	0
03 March	78	36	100	A4.7	0	0	0	0	0	0	0	0
04 March	75	0	0	A3.0	0	0	0	0	0	0	0	0
05 March	73	11	10	A1.7	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
27 February	1.3e+06	1.5e+04	3.5e+03	2.6e+07		
28 February	3.8e+05	1.5e+04	3.6e+03	1.8e+06		
01 March	1.8e+06	1.5e+04	3.4e+03	1.2e+06		
02 March	8.9e+06	1.5e+04	3.3e+03	5.8e+08		
03 March	8.2e+06	1.5e+04	3.6e+03	5.1e+08		
04 March	3.2e+06	1.4e+04	3.5e+03	7.1e+08		
05 March	3.3e+06	1.5e+04	3.5e+03	7.9e+08		

Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
27 February	6	1-2-1-1-2-2-2-2	14	0-0-4-5-4-1-2-1	8	1-2-2-2-1-1-3-3
28 February	5	2-2-1-1-2-0-2-2	6	1-1-1-2-3-1-1-2	8	3-2-2-1-1-1-2-3
01 March	21	4-3-3-4-3-3-4-4	50	1-2-3-6-7-6-4-5	36	3-3-3-5-5-4-5-6
02 March	23	5-4-4-4-4-2-3-2	49	4-4-5-7-6-4-4-3	32	5-4-4-5-5-3-4-3
03 March	15	3-4-4-3-2-3-2-1	52	3-4-7-6-5-6-3-2	22	4-4-5-4-3-4-2-1
04 March	18	5-4-2-2-2-3-2-4	31	3-4-4-6-5-4-2-3	22	5-5-3-3-3-3-2-4
05 March	11	2-2-3-3-2-2-3-3	24	3-2-4-5-5-3-3-3	15	3-2-3-3-3-3-4-4

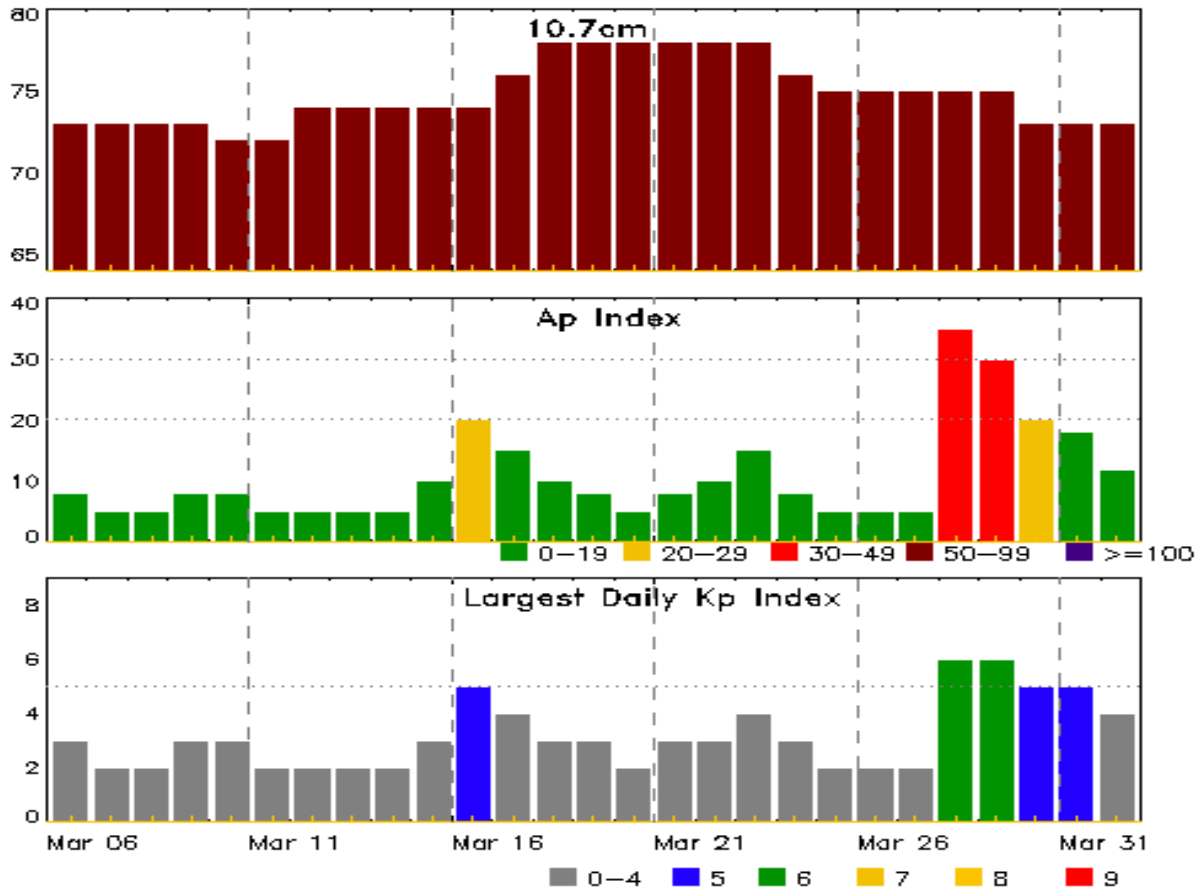
Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
27 Feb 0830	WATCH: Geomagnetic Storm Category G1 predicted	
01 Mar 0132	WARNING: Geomagnetic K = 4	01/0131 - 1500
01 Mar 0850	EXTENDED WARNING: Geomagnetic K = 4	01/0131 - 2100
01 Mar 0850	WARNING: Geomagnetic K = 5	01/0850 - 1500
01 Mar 1016	ALERT: Geomagnetic K = 4	01/1016
01 Mar 1036	ALERT: Geomagnetic K = 5	01/1036
01 Mar 1433	EXTENDED WARNING: Geomagnetic K = 4	01/0131 - 02/1200
01 Mar 1433	EXTENDED WARNING: Geomagnetic K = 5	01/0850 - 2359
01 Mar 1501	ALERT: Geomagnetic K = 5	01/1459
01 Mar 2010	ALERT: Geomagnetic K = 5	01/2009
01 Mar 2031	WARNING: Geomagnetic K = 6	01/2031 - 2359
01 Mar 2239	ALERT: Geomagnetic K = 5	01/2238
01 Mar 2305	ALERT: Geomagnetic K = 6	01/2300
01 Mar 2305	EXTENDED WARNING: Geomagnetic K = 6	01/2031 - 02/0400
01 Mar 2305	EXTENDED WARNING: Geomagnetic K = 5	01/0850 - 02/0900
02 Mar 0057	ALERT: Geomagnetic K = 5	02/0057
02 Mar 0458	ALERT: Electron 2MeV Integral Flux >= 1000pfu	02/0440
02 Mar 0501	CONTINUED ALERT: Electron 2MeV Integral Flux >= 1000pfu	02/0440
02 Mar 0858	EXTENDED WARNING: Geomagnetic K = 5	01/0850 - 02/1500
02 Mar 0910	EXTENDED WARNING: Geomagnetic K = 4	01/0131 - 02/1800
02 Mar 1056	ALERT: Geomagnetic K = 5	02/1055
02 Mar 1413	ALERT: Geomagnetic K = 5	02/1412
02 Mar 1430	EXTENDED WARNING: Geomagnetic K = 5	01/0850 - 02/2100
02 Mar 1430	EXTENDED WARNING: Geomagnetic K = 4	01/0131 - 03/0600
03 Mar 0500	CONTINUED ALERT: Electron 2MeV Integral Flux >= 1000pfu	02/0440
03 Mar 0555	EXTENDED WARNING: Geomagnetic K = 4	01/0131 - 03/2359
03 Mar 0842	WARNING: Geomagnetic K = 5	03/0841 - 1500
03 Mar 0844	ALERT: Geomagnetic K = 5	03/0844

Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
03 Mar 1441	EXTENDED WARNING: Geomagnetic K = 5	03/0841 - 2359
03 Mar 1441	EXTENDED WARNING: Geomagnetic K = 4	01/0131 - 04/1200
04 Mar 0214	WARNING: Geomagnetic K = 5	04/0215 - 1159
04 Mar 0221	ALERT: Geomagnetic K = 5	04/0220
04 Mar 0502	CONTINUED ALERT: Electron 2MeV Integral Flux >= 1000pfu	02/0440
04 Mar 0600	ALERT: Geomagnetic K = 5	04/0559
04 Mar 2146	WARNING: Geomagnetic K = 4	04/2146 - 05/0300
04 Mar 2159	ALERT: Geomagnetic K = 4	04/2159
04 Mar 2203	WATCH: Geomagnetic Storm Category G1 predicted	
04 Mar 2301	WARNING: Geomagnetic K = 5	04/2301 - 05/0300
04 Mar 2301	EXTENDED WARNING: Geomagnetic K = 4	04/2146 - 05/0600
05 Mar 0501	CONTINUED ALERT: Electron 2MeV Integral Flux >= 1000pfu	02/0440
05 Mar 0558	CANCELLATION: Geomagnetic Storm Category G1 predicted	
05 Mar 1939	WARNING: Geomagnetic K = 4	05/1938 - 2359
05 Mar 2022	ALERT: Geomagnetic K = 4	05/2022

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
06 Mar	73	8	3	20 Mar	78	5	2
07	73	5	2	21	78	8	3
08	73	5	2	22	78	10	3
09	73	8	3	23	78	15	4
10	72	8	3	24	76	8	3
11	72	5	2	25	75	5	2
12	74	5	2	26	75	5	2
13	74	5	2	27	75	5	2
14	74	5	2	28	75	35	6
15	74	10	3	29	75	30	6
16	74	20	5	30	73	20	5
17	76	15	4	31	73	18	5
18	78	10	3	01 Apr	73	12	4
19	78	8	3				

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

No Events Observed

Flare List

	Time				Optical		
Date	Begin	Max	End	X-ray Class	Imp/ Brtns	Location Lat CMD	Rgn #
27 Feb	0457	0500	0504	B1.5			2640
27 Feb	1220	1220	1225		SF	N17E54	2641
27 Feb	1712	1723	1804	B2.9			2641
27 Feb	2007	2017	2025	B9.3			2641
27 Feb	2136	2139	2142	B2.6	SF	N13E46	2641
28 Feb	0030	0045	0054	B5.1			
28 Feb	0430	0438	0445	B3.3	SF	N17E47	2641
28 Feb	0623	0629	0632	B3.5	SF	N16E43	2641
28 Feb	1142	1151	1215	B7.7	SF	N15E42	2641
01 Mar	0407	0412	0419	B2.1			2641
01 Mar	0430	0433	0437	B1.9	SF	N15E28	2641
01 Mar	0739	0743	0749	B1.2			2641
01 Mar	0757	0800	0802	B2.8			2641
01 Mar	0803	0807	0810	B2.6	SF	N15E26	2641
02 Mar	0116	0119	0126	B1.2			
02 Mar	2312	2353	0008	B1.7			2641
03 Mar	0655	0732	0746	B1.7			2641
04 Mar	0533	0538	0544	B1.1			2641
04 Mar	1012	1018	1027	B1.7			2641
04 Mar	2255	2259	2308	B1.3			2641

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 2637												
19 Feb	S03E61	124	20	1	Axx	2	A								
20 Feb	S04E47	125	10	1	Axx	1	A								
21 Feb	S04E32	127	plage												
22 Feb	S04E17	129	plage												
23 Feb	S04E02	131	plage												
24 Feb	S04W13	132	plage												
25 Feb	S04W28	134	plage												
26 Feb	S04W43	136	plage												
27 Feb	S04W58	138	plage												
28 Feb	S04W73	140	plage												
01 Mar	S04W88	142	plage												
								0	0	0	0	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 131

			Region 2638												
20 Feb	N18E58	114	80	10	Dao	4	B				1				
21 Feb	N18E49	110	140	10	Dso	9	B				3				
22 Feb	N19E35	111	150	10	Dso	7	B	1			1	1			
23 Feb	N18E20	113	150	10	Cso	8	BG	1			4				
24 Feb	N18E08	111	120	6	Cso	5	B	1			2				
25 Feb	N18W03	109	100	5	Cso	2	B								
26 Feb	N18W16	109	100	2	Hsx	1	A								
27 Feb	N16W29	109	90	2	Hsx	1	A								
28 Feb	N16W43	110	80	2	Hsx	1	A								
01 Mar	N16W55	109	80	1	Hsx	1	A								
02 Mar	N16W69	109	80	1	Hsx	1	A								
03 Mar	N16W83	110	80	1	Hsx	1	A								
								3	0	0	11	1	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 109

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 2639												
24 Feb	S09W34	153	20	2	Hrx	2	A								
25 Feb	S08W48	154	20	2	Cro	3	B								
26 Feb	S08W61	154	10	2	Bxo	2	B								
27 Feb	S08W74	154	plage												
28 Feb	S08W88	155	plage												
								0	0	0	0	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 153

			Region 2640												
26 Feb	N11E24	69	10	2	Bxo	2	B				1				
27 Feb	N09E11	69	20	4	Bxo	4	B								
28 Feb	N08W04	71	30	4	Axx	2	A								
01 Mar	N09W18	72	10	4	Axx	2	A								
02 Mar	N08W33	73	10		Axx	1	A								
03 Mar	N08W47	74	plage												
04 Mar	N08W61	75	plage												
05 Mar	N08W75	76	plage												
								0	0	0	1	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 71

			Region 2641												
27 Feb	N15E46	34	40	5	Cro	5	B				2				
28 Feb	N15E26	41	100	11	Cao	6	B				3				
01 Mar	N14E19	35	60	5	Dro	7	B				2				
02 Mar	N15E04	36	30	5	Bxo	7	B								
03 Mar	N15W10	37	10	4	Bxo	3	B								
04 Mar	N15W24	38	plage												
05 Mar	N15W38	39	10	1	Axx	1	A								
								0	0	0	7	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 36

Region Summary - continued

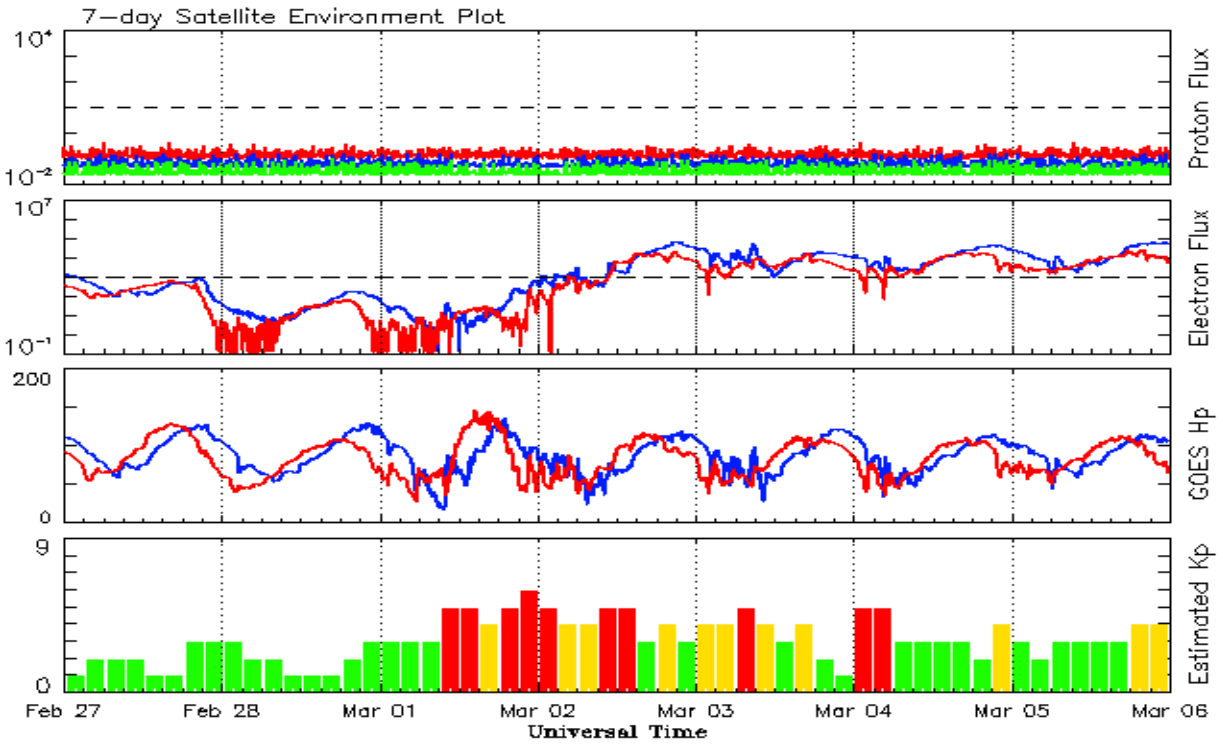
	Location		Sunspot Characteristics					Flares							
		Helio	Area	Extent	Spot	Spot	Mag	X-ray			Optical				
Date	Lat CMD	Lon	10^{-6} hemi.	(helio)	Class	Count	Class	C	M	X	S	1	2	3	4
		Region 2642													
01 Mar	N14E11	43	40	5	Cro	5	B								
02 Mar	N15W03	43	20	5	Bxo	3	B								
03 Mar	N15W17	44	10	5	Bxo	2	B								
04 Mar	N15W31	45	plage												
05 Mar	N15W45	46	plage												
								0	0	0	0	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 43

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
				2015					
March	61.7	32.7	0.62	84.2	49.3	126.0	131.2	17	12.0
April	72.5	45.2	0.75	80.5	47.3	129.2	127.3	12	12.4
May	83.0	53.3	0.71	77.5	45.7	120.1	123.3	9	12.7
June	77.3	39.9	0.53	73.1	43.3	123.2	119.5	14	13.0
July	68.4	39.5	0.58	68.2	41.0	107.0	116.0	10	13.1
August	61.6	38.6	0.63	65.5	39.8	106.2	113.3	16	13.1
September	72.5	47.2	0.65	64.0	39.5	102.1	110.8	16	12.8
October	59.5	38.2	0.62	61.8	38.6	104.1	107.9	15	12.5
November	61.8	37.3	0.61	59.0	36.7	109.6	105.3	13	12.5
December	54.1	34.8	0.64	55.1	34.7	112.8	102.5	15	12.5
				2016					
January	50.4	34.2	0.67	51.4	32.6	103.5	99.9	10	12.3
February	56.0	33.8	0.61	49.6	31.5	103.5	98.1	10	12.0
March	40.9	32.5	0.80	47.7	30.2	91.6	96.6	11	11.8
April	39.2	22.7	0.58	45.0	28.7	93.4	95.3	10	11.8
May	48.9	30.9	0.64	42.1	26.9	93.1	93.2	12	11.7
June	19.3	12.3	0.65	39.0	24.9	81.9	90.4	9	11.4
July	36.8	19.4	0.53	36.5	23.2	85.9	87.7	10	11.2
August	50.4	30.1	0.60	34.2	21.6	85.0	85.5	10	11.2
September	37.4	26.8	0.72			87.8		16	
October	30.0	20.2	0.67			86.1		16	
November	22.4	12.8	0.57			78.7		10	
December	17.6	11.3	0.64			75.1		10	
				2017					
January	28.1	15.5	0.55			77.4		10	
February	22.0	15.7	0.71			76.9		10	

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 27 February 2017

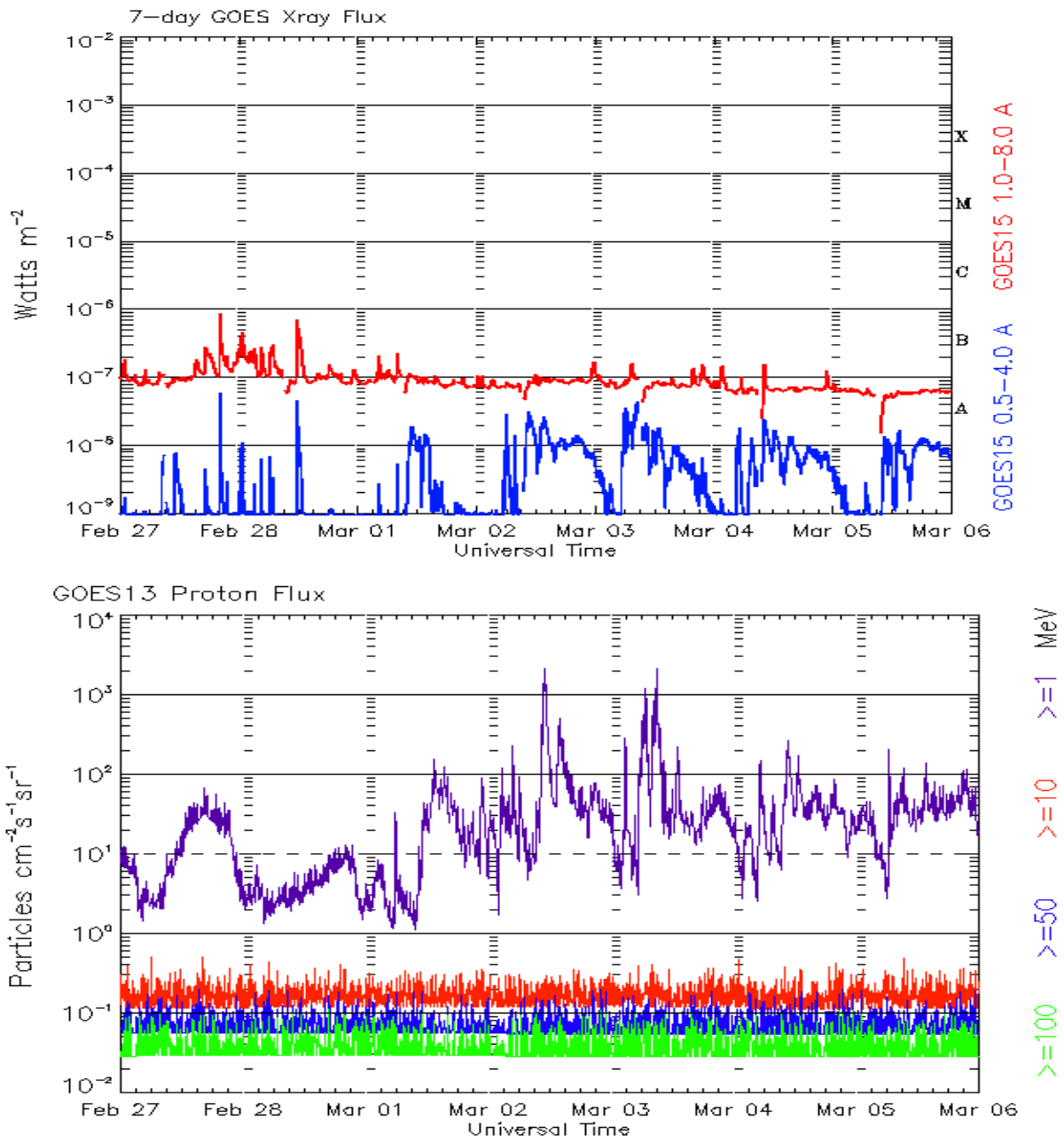
The proton flux plot contains the five-minute averaged integral proton flux (protons/cm^2-sec -sr) as measured by the SWPC Primary GOES satellite, near West 75, for each of three energy thresholds: greater than 10, 50, and 100 MeV.

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.

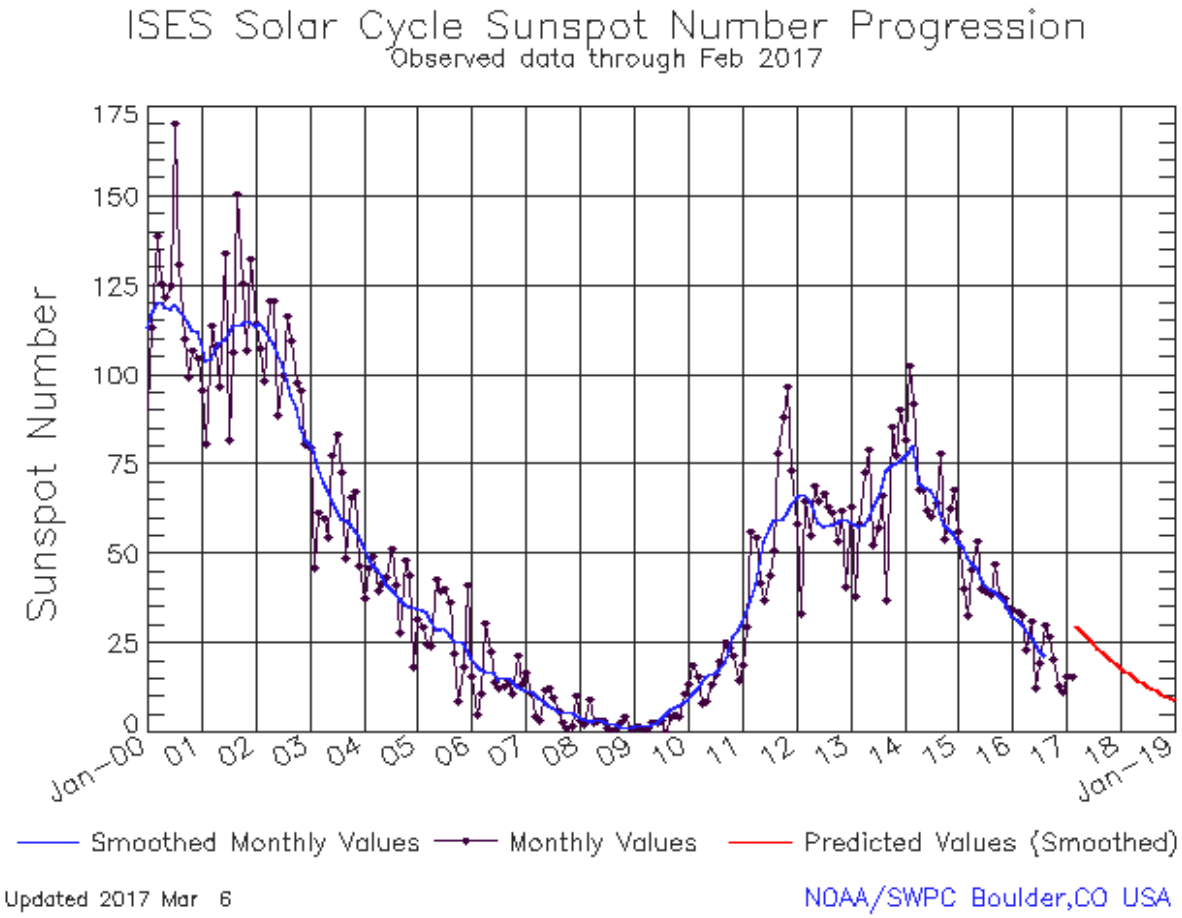
The data included here are those now available in real time at the SWPC and are incomplete in that they do not include the full set of parameters and energy ranges known to cause satellite operating anomalies. The proton and electron fluxes and Kp are 'global' parameters that are applicable to a first 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 27 February 2017

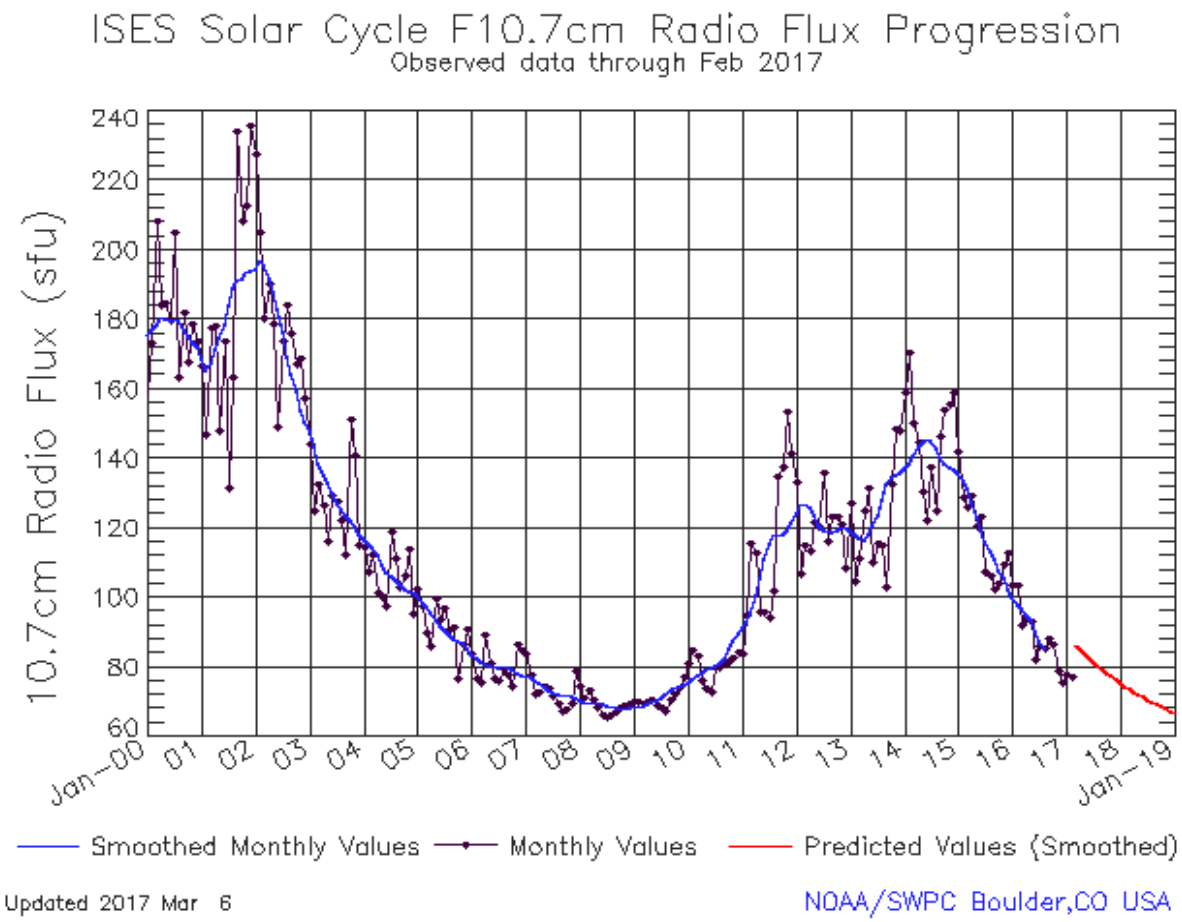
The x-ray plots contains five-minute averages x-ray flux (Watt/m^2) as measure by the SWPC primary GOES X-ray satellite, usually at West 105 longitude, in two wavelength bands, 0.05 - 0.4 and 0.1 - 0.8 nm. The letters A, B, C, M and X refer to x-ray event levels for the 0.1 - 0.8 nm band.

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.



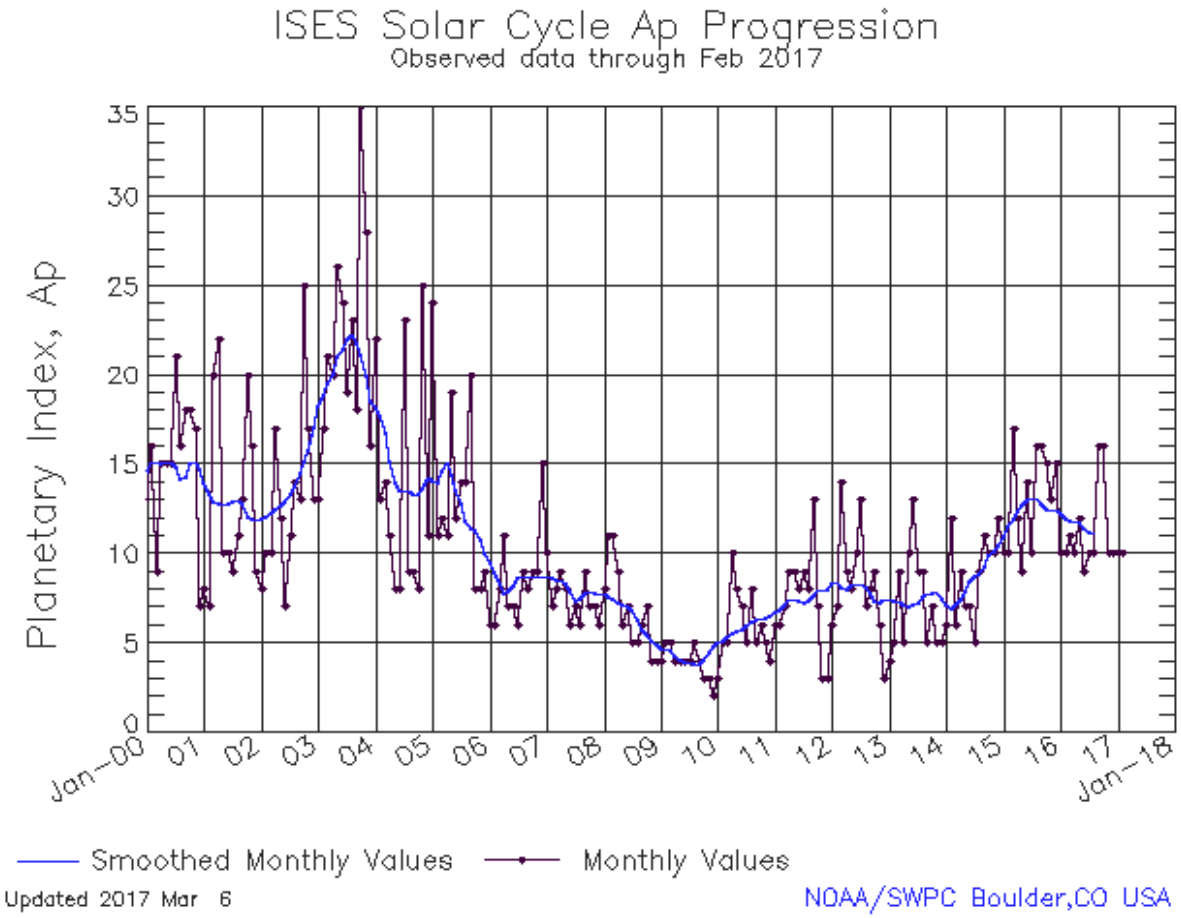
Smoothed Sunspot Number Prediction

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	38	37	35
	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)
2016	34	34	33	23	31	12	19	30	27	20	13	11
	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)
2017	16	16	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)



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	127	123	120	116	113	111	108	105	103
	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)
2016	100	98	97	95	93	90	88	86	84	84	83	83
	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(1)	(1)	(2)	(3)
2017	82	82	81	81	80	80	80	80	79	78	77	76
	(4)	(4)	(5)	(6)	(7)	(8)	(8)	(9)	(9)	(9)	(9)	(9)
2018	75	75	74	73	72	71	71	70	69	69	68	67
	(9)	(9)	(9)	(9)	(9)	(9)	(9)	(9)	(9)	(9)	(9)	(9)
2019	67	66	66	65	65	65	64	64	63	63	63	63
	(9)	(9)	(9)	(9)	(9)	(9)	(9)	(9)	(9)	(9)	(9)	(9)



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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