Space Weather Highlights 06 February - 12 February 2017

Solar activity reached low levels on 09 Feb due to C-class flare activity from Region 2635 (N14, L=304, class/area=Dai/110 on 10 Feb). Solar activity was at very low levels throughout the remainder of the period and no Earth-directed coronal mass ejections (CMEs) were observed.

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit reached high levels each day of this period.

Geomagnetic field activity was at quiet to active levels on 06 Feb, quiet to unsettled levels on 07, 10-11 Feb, and quiet throughout the remainder of the period.

Space Weather Outlook 13 February - 11 March 2017

Solar activity is expected to be at very low levels with a slight chance for isolated C-class flare activity throughout the period.

No proton events are expected at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit is expected to reach high levels on 13, 16-18, 22-26, 28 Feb, and 01-11 Mar. Normal to moderate flux levels are expected for the remainder of the period.

Geomagnetic field activity is expected to reach G2 (Moderate) geomagnetic storm levels on 28 Feb and G1 (Minor) storm levels on 27 Feb, 01-02 Mar due to recurrent coronal hole high speed stream influence. Active geomagnetic field activity is expected on 15, 23 Feb, and 03-04 Mar. Quiet and quiet to unsettled geomagnetic activity is expected for the remainder of the period under a nominal solar wind regime.



				<i>.</i>										
	Radio	Radio Sun		t	X-ray		Flares							
	Flux	spot	Area	Ba	ckground		X-ra	У		0	ptical			
Date	10.7cm	No.	(10 ⁻⁶ hem	ni.)	Flux		C M	Х	S	1	2 3	4		
06 February	73	15	10	A6.7	0	0	0	0	0	0	0	0		
07 February	72	11	10	A6.3	0	0	0	0	0	0	0	0		
08 February	73	0	0	A5.8	0	0	0	2	0	0	0	0		
09 February	73	15	70	A6.4	3	0	0	1	0	0	0	0		
10 February	74	18	110	A5.9	0	0	0	0	0	0	0	0		
11 February	76	18	110	A6.2	0	0	0	0	0	0	0	0		
12 February	76	18	90	A6.4	0	0	0	0	0	0	0	0		

Daily Solar Data

Daily Particle Data

		Proton Fluer	nce	Electron Fluence							
	(pr	otons/cm ² -d	ay -sr)	(electrons/cm ² -day -sr)							
Date	>1 MeV	>10 MeV	>100 MeV	>0.6 N	feV >2MeV	>4 MeV					
06 February	1.1	e+06	1.5e+04	3.7e+03	5.30	e+08					
07 February	8.9e+05		1.5e+04	3.8e+03	5.20	e+08					
08 February	1.8	8e+06	1.5e+04	3.7e+03	7.10	e+08					
09 February	1.8	8e+06	1.5e+04	3.7e+03	4.4	e+08					
10 February	1.4e+06		1.5e+04	3.4e+03	2.10	e+08					
11 February	1.0e+06		1.5e+04	3.6e+03	1.00	e+08					
12 February	1.3e+06		1.6e+04	3.8e+03	1.60	e+08					

Daily Geomagnetic Data

	M	liddle Latitude	H	ligh Latitude	Estimated		
	F	redericksburg		College	Planetary		
Date	А	K-indices	А	K-indices	А	K-indices	
06 February	10	3-3-1-2-2-2-3	16	3-3-1-2-5-4-2-2	13	3-3-2-2-3-3-4	
07 February	5	2-2-1-1-2-1-2-1	8	2-2-1-3-3-2-2-1	7	3-2-1-1-2-2-2-2	
08 February	3	1-0-0-1-2-2-1-1	7	0-0-1-3-2-3-2-2	5	1-0-1-1-2-2-1-2	
09 February	5	2-1-1-1-2-1-2-2	6	1-0-1-3-2-2-2-1	7	2-1-1-2-1-2-2-2	
10 February	5	2-0-1-2-2-2-1-2	11	1-0-1-4-4-4-0-1	8	2-1-2-2-3-2-3	
11 February	3	2-1-0-1-1-1-1-0	2	1-1-0-2-0-0-0-1	5	3-2-1-1-0-0-1-1	
12 February	2	0-0-1-0-1-1-1-0	1	0-0-0-1-0-0-1-0	3	1-0-1-0-1-1-1-1	



Date & Time	Type of Alert or Warning	Date & Time
06 Feb 0501	CONTINUED ALERT: Electron 2MeV Integral Flux >= 1000pfu	01/1240
06 Feb 2251	WARNING: Geomagnetic $K = 4$	06/2252 - 07/0600
06 Feb 2306	ALERT: Geomagnetic $K = 4$	06/2306
07 Feb 0501	CONTINUED ALERT: Electron 2MeV Integral Flux >= 1000pfu	01/1240
08 Feb 0500	CONTINUED ALERT: Electron 2MeV Integral Flux >= 1000pfu	01/1240
09 Feb 0555	CONTINUED ALERT: Electron 2MeV Integral Flux >= 1000pfu	01/1240
10 Feb 0821	CONTINUED ALERT: Electron 2MeV Integral Flux >= 1000pfu	01/1240
11 Feb 1020	CONTINUED ALERT: Electron 2MeV Integral Flux >= 1000pfu	01/1240
12 Feb 0941	CONTINUED ALERT: Electron 2MeV Integral Flux >= 1000pfu	01/1240

Alerts and Warnings Issued





Twenty-seven Day Outlook

	Radio Flux	Planetary	Largest		Radio Flux	Planetary	Largest
Date	10./cm	A Index	Kp Index	Date	10./cm	A Index	Kp Index
13 Feb	78	5	2	27 Feb	76	25	5
14	78	8	3	28	76	30	6
15	78	12	4	01 Mar	75	25	5
16	78	10	3	02	75	20	5
17	80	8	3	03	73	15	4
18	80	8	3	04	73	15	4
19	80	5	2	05	72	15	3
20	82	5	2	06	72	8	3
21	85	5	2	07	72	5	2
22	82	10	3	08	73	5	2
23	80	15	4	09	74	5	2
24	80	10	3	10	75	5	2
25	78	10	3	11	75	5	2
26	78	5	2				



				E	nerge	IIC EV	enis						
		Time		X	-ray	Opti	cal Informat	ion	Р	eak	Sweep Freq		
			Half		Integ	Imp/	Location	Rgn	Radi	o Flux	Inte	nsity	
Date	Begin	Max	Max	Class	Flux	Brtns	Lat CMD	#	245	2695	II	IV	
No E	vents O	bserve	d										
					Fla	re List	t.						
								Optic	al				
		Tin	ne			X-ray	Imp/	L	ocation	R	gn		
Date	Begi	in l	Max	End		Class	Brtns	La	at CMD	#	ŧ		
6 Feb	161	6 1	622	1631		B1.5				263	34		
8 Feb	230	8 2	311	2318		B1.1	SF	Ν	12E28	263	35		
8 Feb	2320	6 2	335	2336			SF	Ν	12E28	263	35		
9 Feb	0042	2 0	050	0055		B2.7				263	35		
9 Feb	013	5 0	140	0142		B3.1				263	35		
9 Feb	014	5 0	151	0156		C1.1				263	35		
9 Feb	025	6 0	309	0316		B6.0				263	35		
9 Feb	0320	0 0	326	0329		C1.3				263	35		
9 Feb	053	1 0	542	0549		B6.1				263	35		
9 Feb	060	5 0	612	0615		B3.8				263	35		
9 Feb	063	1 0	635	0637		B3.3				263	35		
9 Feb	065	5 0	702	0704		C1.1	SF	N	06E23	263	35		
9 Feb	073	9 0	748	0750		B3.0				263	35		
9 Feb	0932	2 0	937	0939		B3.0				263	35		
9 Feb	1032	2 1	035	1037		B1.5				263	35		
9 Feb	105	6 1	059	1103		B1.1				263	35		
9 Feb	1154	4 1	204	1231		B1.7				263	35		
2 Feb	0430	0 0	434	0438		B1.5				263	35		
9 Feb 9 Feb 9 Feb 9 Feb 9 Feb 2 Feb	073 093 103 105 115 043	9 0 2 0 2 1 5 1 4 1 0 0	748 937 035 059 204 434	0750 0939 1037 1103 1231 0438		B3.0B3.0B1.5B1.1B1.7B1.5				263 263 263 263 263 263	3 3 3 3 	5 5 5 5 5 5	





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31 Jan N16E39 36 plage 1									А	1	Axx	1	10	35	N16E54	30 Jan
01 Feb N16E12 37 plage 02 Feb N16E11 38 plage 03 Feb N16W03 39 plage 03 Feb N16W03 39 plage 04 Feb N16W17 40 plage 05 Feb N16W31 41 plage 06 Feb N16W45 41 plage 07 Feb N16W59 42 plage 08 Feb N16W73 43 plage 09 Feb N16W87 44 plage 0 0 0 0 0 Crossed West Limb. Absolute heliographic longitude: 39 31 31 4 Bxo 6 B 01 Feb N14W08 83 10 4 Bxo 6 B 01 Feb N14W22 84 50 5 Dao 7 B 02 Feb N14W36 85 60 7 Dao 6 B 03 Feb N16W50 86 30 8 Cao 6 B 04 Fe										-		-	plage	36	N16E39	31 Jan
02 Feb N16E11 38 plage 03 Feb N16W03 39 plage 04 Feb N16W17 40 plage 05 Feb N16W17 40 plage 05 Feb N16W17 40 plage 06 Feb N16W45 41 plage 07 Feb N16W59 42 plage 08 Feb N16W73 43 plage 09 Feb N16W87 44 plage 09 Feb N16W87 44 plage 00 0 0 0 0 0 Crossed West Limb. Absolute heliographic longitude: 39 39 0 </td <td></td> <td>plage</td> <td>37</td> <td>N16E25</td> <td>01 Feb</td>													plage	37	N16E25	01 Feb
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09 Feb N16W87 44 plage 0													plage	43	N16W73	08 Feb
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09 Feb N03E16 301 plage													plage	301	N03E16	09 Feb
10 Feb N03E02 302 plage													plage	302	N03E02	10 Feb
11 Feb N03W12 303 plage													plage	303	N03W12	11 Feb
12 Feb N03W26 303 plage													plage	303	N03W26	12 Feb
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Still on Disk. Absolute heliographic longitude: 302





	Locatio	on	Su	inspot C	haracte	eristics		Flares							
		Helio	Area	Extent	Spot	Spot	Mag	<u> </u>	K-ray			0	ptica	ıl	
Date	Lat CMD	Lon	10 ⁻⁶ hemi.	(helio)	Class	Count	Class	С	Μ	Χ	S	1	2	3	4
		Regi	on 2635												
08 Feb	N13E28	302	plage								2				
09 Feb	N13E13	303	70	5	Dao	5	В	3			1				
10 Feb	N14W00	304	110	6	Dai	8	В								
11 Feb	N12W15	304	110	6	Dai	8	В								
12 Feb	N12W27	303	90	6	Dai	8	В								
								3	0	0	3	0	0	0	0
Still on	Disk.														

Region Summary - continued

Absolute heliographic longitude: 304



	S	unspot N	t Numbers			Radio	Geomagnetic		
	Observed values	Ratio	Smoo	th values		Penticton	Smooth	Planetary	Smooth
Month	SEC RI	RI/SEC	SEC	RI		10.7 cm	Value	Ap	Value
				2015					
February	70.6	40.0	0.63	88.3	51.7	128.8	133.8	10	11.5
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			85.0		10	
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	

Recent Solar Indices (preliminary) Observed monthly mean values

Note: Values are final except for the most recent 6 months which are considered preliminary. Cycle 24 started in Dec 2008 with an RI=1.7.





Weekly Geosynchronous Satellite Environment Summary Week Beginning 06 February 2017

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.







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/cnf -sec -sr) as measured by the primary SWPC GOES Proton satellite for each of the energy thresholds: >1, >10, >30, and >100 MeV. The P10 event threshold is 10 pfu at greater than 10 MeV.



Preliminary Report and Forecast of Solar Geophysical Data (The Weekly)

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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