Solar activity was at very low levels throughout the period. Region 2692 (N18, L=087, class/area=Eai/160 on 24 Dec) was the only active region with sunspots this period and produced multiple low and mid-level B-class flares throughout the week. No Earth-directed CMEs were observed.

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit reached high levels on 18-23 Dec with moderate levels observed on 24 Dec.

Geomagnetic field activity reached active levels early on 18 Dec in response to the influence of a recurrent, positive polarity CH HSS. Quiet to unsettled conditions were observed on 19 and 23-24 Dec and generally quiet conditions were observed throughout the remainder of the week under a nominal solar wind regime.

#### Space Weather Outlook 25 December - 20 January 2018

Solar activity is expected to persist at very low levels 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 26-30 Dec, 02-06 and 14-19 Jan. Normal and normal to moderate greater than 2 MeV electron flux values are expected throughout the remainder of the forecast period.

Geomagnetic field activity is likely to reach G1 (Minor) geomagnetic storm levels on 01 and 13 Jan with active levels expected on 25 Dec and 02, 08, 14 and 20 Jan under the influences of multiple, recurrent CH HSSs. Quiet and quiet to unsettled conditions are expected throughout the remainder of the forecast period.



			Dun	y Dom	Duiu								
	Radio	Sun	Sunspot	X	-ray	_		I	Flares				
	Flux	spot	Area	Back	ground	_	X-ra	у		Optical			
Date	10.7cm	No.	(10 <sup>-6</sup> hemi.	) F	lux		C M	Х	S	1	2 3	4	
18 December	72	0	0	A4.0	0	0	0	0	0	0	0	0	
19 December	69	0	0	A4.1	0	0	0	0	0	0	0	0	
20 December	74	16	70	A5.6	0	0	0	0	0	0	0	0	
21 December	76	18	70	A5.8	0	0	0	0	0	0	0	0	
22 December	75	18	70	A6.0	0	0	0	0	0	0	0	0	
23 December	76	22	90	A5.7	0	0	0	1	0	0	0	0	
24 December	76	22	160	A5.7	0	0	0	0	0	0	0	0	

### **Daily Solar Data**

# Daily Particle Data

	Proton Flu (protons/cm <sup>2</sup>		Electron Fluence (electrons/cm <sup>2</sup> -day -sr)					
Date	>1 MeV >10 Me		>0.6 MeV	4	>4 MeV			
18 December	4.5e+06	1.6e+04	3.6e+03	1.7e+08				
19 December	1.8e+06	1.6e+04	3.7e+03	1.7e+08				
20 December	1.6e+06	1.6e+04	3.7e+03	1.7e+08				
21 December	1.3e+06	1.6e+04	3.8e+03	1.4e+08				
22 December	1.9e+06	1.6e+04	4.0e+03	1.4e+08	3			
23 December	2.0e+06	1.6e+04	4.0e+03	5.6e+07	7			
24 December	1.5e+06	1.6e+04	3.4e+03	9.3e+06				

# Daily Geomagnetic Data

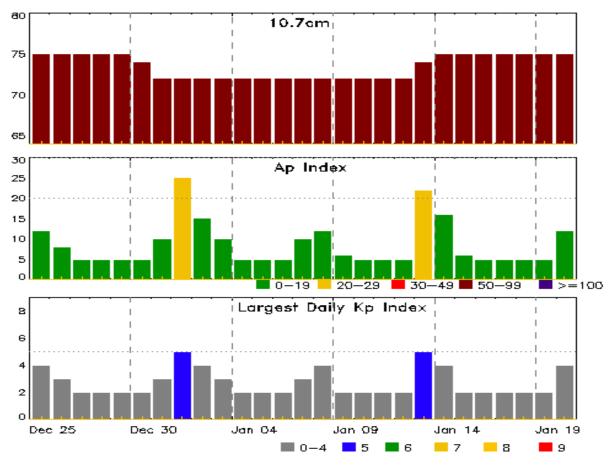
	Middle Latitude		H	igh Latitude	Estimated		
	Fr	edericksburg		College		Planetary	
Date	А	K-indices	А	A K-indices		K-indices	
18 December	12	3-3-4-3-2-2-1-1	37	3-5-7-5-4-2-2-1	17	4-4-4-3-3-2-2-1	
19 December	4	1-1-1-0-1-2-2-2	2	0-0-0-1-2-1-1	6	1-1-1-1-2-2-3	
20 December	3	1-2-1-1-1-1-0	12	2-2-4-5-2-1-0-0	5	2-2-1-2-1-1-2-0	
21 December	2	0-1-0-1-1-1-0-0	6	0-0-1-4-3-1-0-0	3	1-1-1-1-1-0-0	
22 December	2	0-1-1-0-0-1-1-1	0	0-0-0-0-1-0-0-0	2	0-1-1-0-0-0-1	
23 December	4	1-2-1-2-1-0-2-1	6	0-1-1-4-3-0-0-0	5	1-3-2-2-1-0-1-1	
24 December	9	1-2-2-3-2-2-3	32 0-1-2-7-5-5-2-1		5	1-2-2-3-3-3-3-3	



Date & Time of Issue UTC		Date & Time of Event UTC			
18 Dec 0225	EXTENDED WARNING: Geomagnetic K = 5	17/1900 - 18/1500			
18 Dec 0225	EXTENDED WARNING: Geomagnetic K = 4	17/0445 - 18/2100			
18 Dec 0900	CONTINUED ALERT: Electron 2MeV Integral Flux >= 1000pfu	17/2100			
18 Dec 1950	CANCELLATION: Geomagnetic Storm Category G1 predicted				
19 Dec 0900	CONTINUED ALERT: Electron 2MeV Integral Flux >= 1000pfu	17/2100			
20 Dec 1135	CONTINUED ALERT: Electron 2MeV Integral Flux >= 1000pfu	17/2100			
21 Dec 1155	CONTINUED ALERT: Electron 2MeV Integral Flux >= 1000pfu	17/2100			
22 Dec 1155	CONTINUED ALERT: Electron 2MeV Integral Flux >= 1000pfu	17/2100			
23 Dec 1903	CONTINUED ALERT: Electron 2MeV Integral Flux >= 1000pfu	17/2100			
24 Dec 1341	WARNING: Geomagnetic K = 4	24/1340 - 25/0600			

# Alerts and Warnings Issued





## Twenty-seven Day Outlook

Date	Radio Flux 10.7cm	Planetary A Index	Largest Kp Index	Date	Radio Flux 10.7cm	-	Largest Kp Index
25 D.	75	10	4	09.1	70	10	4
25 Dec	75	12	4	08 Jan	72	12	4
26	75	8	3	09	72	6	2
27	75	5	2	10	72	5	2
28	75	5	2	11	72	5	2
29	75	5	2	12	72	5	2
30	74	5	2	13	74	22	5
31	72	10	3	14	75	16	4
01 Jan	72	25	5	15	75	6	2
02	72	15	4	16	75	5	2
03	72	10	3	17	75	5	2
04	72	5	2	18	75	5	2
05	72	5	2	19	75	5	2
06	72	5	2	20	75	12	4
07	72	10	3				



		Time				tic Evo		ion	D	aalt	Crucor	Erec
		Time	Half	X·	-ray		cal Informat		Peak n Radio Flux		Sweep Freq Intensity	
Date	Begin	Max	Max	Class	Integ Flux	Imp/ Brtns	Location Lat CMD	Rgn #	 245	2695	Inter	ISILY IV
	Zvents O											
					Fla	re List	ţ					
								Optica	al			
		Tir	ne			X-ray	Imp/	L	ocation	Rg	gn	
Date	Begi	in 1	Max	End		Class	Brtns	La	Lat CMD		ŧ	
19 Dec	1952	2 1	958	2003		B2.4				269	92	
20 Dec	075	6 (	0800	0806		B1.6			2692			
20 Dec	1814	4 1	822	1827		B3.0				92		
20 Dec	2049	9 2	2053	2101		B1.2				92		
20 Dec	232	8 2	2331	2334		B1.0				269	92	
21 Dec	232	5 2	2330	2334		B1.2				269	92	
22 Dec	001′	7 (	0021	0023		B1.7				269	92	
22 Dec	011	1 (	)115	0117		B3.3				269	92	
22 Dec	0140	0 0	0150	0205		B7.2				269	92	
22 Dec	0223	8 (	)231	0233		B2.4				269	92	
22 Dec	0242	3 (	0250	0306		B4.7				269	92	
22 Dec	033	1 (	)336	0344		B2.6				269	92	
22 Dec	040.	3 (	)406	0408		B1.2				269	92	
22 Dec	0623	8 (	)631	0636		B1.5				269	92	
22 Dec	113	6 1	140	1144		B3.0				269	92	
23 Dec	0624	4 (	)629	0631		B3.3	SF	N	17E19	269	92	
23 Dec	203	3 2	2036	2043		B1.0						





				Keg	gion 2	Summ	ary								
	Locatio	on	Su	nspot C	haracte	eristics				I	Flares	3			
		Helio	Area	_	ent Spot Spot Mag			X-ray				0	ptica	ıl	
Date	Lat CMD	Lon 1	0 <sup>-6</sup> hemi.	(helio)	Class	Count	Class	С	Μ	Χ	S	1	2	3	4
		Regio	on 2691												
10 Dec	S03E42	221	10	1	Axx	1	А								
11 Dec	S03E29	220	10	1	Bxo	3	В								
12 Dec	S03E16	220	10	4	Bxo	3	В								
13 Dec	S03E01	222	plage												
14 Dec	S03W12	222	plage												
15 Dec	S03W25	222	plage												
16 Dec	S03W38	222	plage												
17 Dec	S03W52	222	plage												
18 Dec	S03W67	224	plage												
19 Dec	S03W82	226	plage						_	_	_	_	_	_	_
9								0	0	0	0	0	0	0	0
	West Lim		. 1 0	22											
Absolut	te heliograp	onic long	gitude: 2	22											
		Regio	on 2692												
20 Dec	N16E45	86	70	4	Cao	6	В								
21 Dec	N18E30	88	70	8	Dao	8	В								
22 Dec	N18E16	89	70	8	Dao	8	В								
23 Dec	N18E03	87	90	10	Dao	12	В				1				
24 Dec	N18W09	87	160	12	Eai	12	В								
								0	0	0	1	0	0	0	0
Still on	Diek														

#### **Region Summary**

Still on Disk. Absolute heliographic longitude: 87

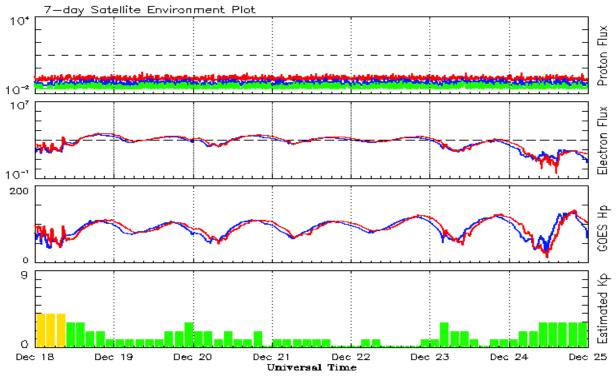


Sunspot NumbersRadioFluxGeomagneticMonthSECRatioSECRatioFluxMedioFluxMedioPlanetarySmoothMonthSECR1RISECRIRICSmoothPlanetarySmooth		Observed moniniy mean values											
$\begin{array}{c c c c c c c c c c c c c c c c c c c $		S	Sunspot N						Geomagnetic				
<b>2015</b> December $54.1$ $34.8$ $0.64$ $55.1$ $34.7$ $112.8$ $102.5$ $15$ $12.5$ <b>2016</b> 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 $36.8$ $19.4$ $0.53$ $36.5$ $23.1$ $85.9$ $87.7$ $10$ $11.2$ August $50.4$ $30.1$ $0.60$ $34.2$ $21.6$ $85.5$ $10$ $11.2$ September $37.4$ $26.8$ $0.72$ $32.1$ $19.9$ $87.8$ $83.7$ $16$ $11.3$ October $30.0$ $20.0$ $0.67$ $31.1$ $18.9$ $86.1$ $82.5$ $16$ $11.6$ November $22.4$ $12.8$ $0.57$ $29.4$ $17.9$ $77.7$ $79.4$ $10$ $11.3$ March $25.4$ $10.6$ $0.42$ $24.6$ $15.5$ <td></td> <td>Observed values</td> <td>Ratio</td> <td colspan="2"></td> <td></td> <td></td> <td>Smooth</td> <td>Planetary</td> <td>Smooth</td>		Observed values	Ratio					Smooth	Planetary	Smooth			
December   54.1   34.8   0.64   55.1   34.7   112.8   102.5   15   12.5     January February March   50.4   34.2   0.67   51.4   32.6   103.5   99.9   10   12.3     March   30.9   33.8   0.61   49.6   31.5   103.5   98.1   10   12.0     March   39.2   22.7   0.58   45.0   28.7   93.4   95.3   10   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   23.1   85.9   87.7   10   11.2     September   37.4   26.8   0.72   32.1 <td>Month</td> <td>SEC RI</td> <td>RI/SEC</td> <td>SEC</td> <td>C RI</td> <td></td> <td>10.7 cm</td> <td>Value</td> <td>Ap</td> <td>Value</td>	Month	SEC RI	RI/SEC	SEC	C RI		10.7 cm	Value	Ap	Value			
January February $50.4$ $56.0$ $32.5$ $34.2$ $0.67$ $0.67$ $49.6$ $49.6$ 					2015								
January February $50.4$ $56.0$ $33.8$ $40.9$ $32.5$ $0.80$ $51.4$ $49.6$ $47.7$ $32.6$ $103.5$ $103.5$ $98.1$ $103.5$ $98.1$ $103.5$ $98.1$ $105.5$ $98.1$ $105.5$ $98.1$ $105.5$ $98.1$ $105.5$ $98.1$ $105.5$ $98.1$ $105.5$ $98.1$ $105.5$ $98.1$ $105.5$ $98.1$ $105.5$ $98.1$ $105.5$ $98.1$ $105.5$ $98.1$ $105.5$ $98.1$ $105.5$ $98.1$ $105.5$ $98.1$ $105.5$ $98.1$ $105.5$ $98.1$ $105.5$ $105.5$ $105.8$ $105.3$ $105.5$ $105.3$ $106.5$ $106.7$ 	December	54.1	34.8	0.64	55.1	34.7	112.8	102.5	15	12.5			
February March56.0 $40.9$ 33.8 $32.5$ 0.61 $0.80$ 49.6 $47.7$ 31.5 $30.2$ 103.5 $91.6$ 98.1 $96.6$ 10 $11$ 12.0 $11.8$ April May June39.2 $19.3$ 22.7 $12.3$ 0.58 $0.64$ 45.0 $28.7$ 28.7 $93.4$ 95.3 $93.1$ 10 $93.2$ 11.8 $12.2$ June19.3 $12.3$ 0.65 $0.65$ 39.0 $24.9$ 24.9 $81.9$ 90.4 $90.4$ 9 $91.4$ July August36.8 $50.4$ 19.4 $0.63$ 0.53 $34.2$ 36.5 $21.6$ 23.1 $85.0$ 85.7 $85.5$ 10 $11.2$ July August36.8 $50.4$ 19.4 $0.60$ 0.53 $34.2$ 21.6 $21.6$ 85.0 $85.5$ 85.5 $10$ 11.2 $11.2$ September37.4 $26.8$ 0.72 $32.1$ 19.9 $87.8$ 83.7 $83.7$ 16 $11.3$ October December30.0 $22.4$ 20.0 $12.8$ 0.67 $22.4$ 31.1 $12.8$ 18.9 $86.1$ 82.5 $82.5$ 16 $11.6$ January February $22.0$ 15.8 $15.8$ 0.71 $25.5$ 25.7 $15.9$ $76.9$ 78.7 $78.7$ 10 $11.3$ January February $25.4$ 10.6 $10.6$ 0.42 $24.3$ 14.9 $24.6$ 80.9 $78.4$ 78.4 $13$ 11.5April May June30.4 $18.1$ 10.4 $11.3$ 0.62 $23.1$ 23.1 $14.0$ 14.0 $73.5$ 77.7 $77.7$ $9$ $11.3$ July August September18.8 $11.0$ 0.59 $0.64$ </td <td></td> <td></td> <td></td> <td></td> <td>2016</td> <td></td> <td></td> <td></td> <td></td> <td></td>					2016								
March40.9 $32.5$ $0.80$ $47.7$ $30.2$ $91.6$ $96.6$ $11$ $11.8$ 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 $36.8$ $19.4$ $0.53$ $36.5$ $23.1$ $85.9$ $87.7$ $10$ $11.2$ August $50.4$ $30.1$ $0.60$ $34.2$ $21.6$ $85.0$ $85.5$ $10$ $11.2$ September $37.4$ $26.8$ $0.72$ $32.1$ $19.9$ $87.8$ $83.7$ $16$ $11.3$ October $30.0$ $20.0$ $0.67$ $31.1$ $18.9$ $86.1$ $82.5$ $16$ $11.6$ November $22.4$ $12.8$ $0.57$ $29.4$ $17.9$ $78.7$ $81.1$ $10$ $11.6$ December $17.6$ $11.1$ $0.64$ $28.1$ $17.1$ $75.1$ $80.0$ $10$ $11.3$ February $22.0$ $15.8$ $0.71$ $25.5$ $15.9$ $76.9$ $78.7$ $10$ $11.3$ March $25.4$ $10.6$ $0.42$ $24.6$ $15.5$ $74.6$ $78.6$ $15$ $11.5$ April $30.4$ $19.4$ $0.64$ $24.3$ $14.9$ $80.9$ $78.4$ $13$ $11.5$	January	50.4	34.2	0.67	51.4	32.6	103.5	99.9	10	12.3			
April May June $39.2$ $48.9$ $19.3$ $22.7$ $12.3$ $0.58$ $0.64$ $45.0$ $42.1$ $28.7$ $26.9$ $93.4$ $93.1$ $93.2$ $95.3$ $10$ $10$ $11.8$ $11.7$ June $19.3$ $12.3$ $12.3$ $0.65$ $0.65$ $39.0$ $24.9$ $81.9$ $81.9$ $90.4$ $90.4$ $9$ $11.4$ July August September $36.8$ $37.4$ $19.4$ $26.8$ $0.53$ $0.72$ $36.5$ $23.1$ $23.1$ $85.9$ $87.7$ $85.0$ $10$ $85.5$ $11.2$ $11.2$ September $37.4$ $26.8$ $0.72$ $22.1$ $32.1$ $19.9$ $87.8$ $83.7$ $83.7$ $16$ $16$ $11.3$ October November $30.0$ $22.4$ $20.0$ $12.8$ $0.67$ $29.4$ $17.9$ $78.7$ $81.1$ $10$ $10$ $11.6$ $11.6$ December $17.6$ $11.1$ $0.64$ $28.1$ $28.1$ $25.5$ $16.7$ $77.4$ $78.7$ $81.1$ $10$ $10$ $11.3$ January February March $28.1$ $15.8$ $0.71$ $25.5$ $25.5$ $15.9$ $74.6$ $78.7$ $10$ $10$ $11.3$ April May June $30.4$ $18.0$ $19.4$ $0.64$ $24.3$ $14.9$ $23.1$ $80.9$ $74.6$ $78.4$ $13$ $11.5$ April May June $18.8$ $11.0$ $0.59$ $15.8$ $77.7$ $79$ $23.1$ $92.0$ $19$ July August September $18.8$ $11.5$ $0.64$ $77.7$ $92.0$ $92.0$ $19$ October $16.0$ $7.9$ $0.49$ $76.$	February	56.0	33.8	0.61	49.6	31.5	103.5	98.1	10	12.0			
May June $48.9$ $19.3$ $30.9$ $12.3$ $0.64$ $39.0$ $42.1$ $24.9$ $26.9$ $81.9$ $93.1$ $90.4$ $93.2$ $9$ $12$ $11.4$ July August $36.8$ $50.4$ $30.1$ $0.65$ $30.1$ $36.5$ $32.1$ $23.1$ $85.9$ $85.9$ $85.5$ $87.7$ $10$ $10$ $11.2$ $11.2$ SeptemberOctober November $30.0$ $22.4$ $22.4$ $26.8$ $0.72$ $0.72$ $32.1$ $32.1$ $19.9$ $85.5$ $87.8$ $83.7$ $16$ $11.1$ $11.2$ October November $30.0$ $22.4$ $17.6$ $20.0$ $11.1$ $0.67$ $28.1$ $17.6$ $31.1$ $18.9$ $28.1$ $17.1$ $86.1$ $78.7$ $81.1$ $80.0$ $82.5$ $10$ $16$ $11.4$ January February March $28.1$ $25.4$ $15.7$ $0.64$ $0.57$ $24.6$ $77.4$ $77.4$ $78.6$ $79.4$ $10$ $11.3$ $11.3$ April May June $30.4$ $18.1$ $19.4$ $0.64$ $24.3$ $14.9$ $23.1$ $80.9$ $78.4$ $13$ $11.5$ April May June $18.8$ $11.0$ $0.59$ $0.59$ $77.7$ $79.4$ $77.7$ $92.0$ $92.0$ $19$ October (16.0) $7.9$ $0.49$ $0.49$ $76.4$ $11$	March	40.9	32.5	0.80	47.7	30.2	91.6	96.6	11	11.8			
June19.312.3 $0.65$ $39.0$ $24.9$ $81.9$ $90.4$ $9$ $11.4$ July $36.8$ $19.4$ $0.53$ $36.5$ $23.1$ $85.9$ $87.7$ $10$ $11.2$ August $50.4$ $30.1$ $0.60$ $34.2$ $21.6$ $85.0$ $85.5$ $10$ $11.2$ September $37.4$ $26.8$ $0.72$ $32.1$ $19.9$ $87.8$ $83.7$ $16$ $11.3$ October $30.0$ $20.0$ $0.67$ $31.1$ $18.9$ $86.1$ $82.5$ $16$ $11.6$ November $22.4$ $12.8$ $0.57$ $29.4$ $17.9$ $78.7$ $81.1$ $10$ $11.6$ December $17.6$ $11.1$ $0.64$ $28.1$ $17.1$ $75.1$ $80.0$ $10$ $11.4$ January $28.1$ $15.7$ $0.55$ $27.3$ $16.7$ $77.4$ $79.4$ $10$ $11.3$ February $22.0$ $15.8$ $0.71$ $25.5$ $15.9$ $76.9$ $78.7$ $10$ $11.3$ March $25.4$ $10.6$ $0.42$ $24.6$ $15.5$ $74.6$ $78.6$ $15$ $11.5$ April $30.4$ $19.4$ $0.64$ $24.3$ $14.9$ $80.9$ $78.4$ $13$ $11.5$ May $18.8$ $11.0$ $0.59$ $77.7$ $9$ $11.3$ June $18.8$ $11.0$ $0.59$ $77.7$ $9$ $22.0$ $19$ October $16.0$ $7.9$ $0.49$ $76.4$ <	April	39.2	22.7	0.58	45.0	28.7	93.4	95.3	10	11.8			
July August $36.8$ $50.4$ $19.4$ $30.1$ $0.53$ $0.60$ $36.5$ $34.2$ $21.6$ $23.1$ $19.9$ $87.8$ $87.7$ $87.8$ $10$ $83.7$ $11.2$ $11.1$ October November $30.0$ $22.4$ $12.4$ $26.8$ $0.72$ $31.1$ $29.4$ $18.9$ $29.4$ $86.1$ $79.7$ $82.5$ $81.1$ $16$ $11.6$ $11.3$ October November $30.0$ $22.4$ $17.6$ $20.0$ $11.1$ $0.67$ $29.4$ $31.1$ $17.9$ $18.9$ $78.7$ $86.1$ $81.1$ $80.0$ $82.5$ $10$ $16$ $11.6$ January February $28.1$ $25.4$ $15.7$ $10.6$ $0.55$ $27.3$ $25.5$ $16.7$ $15.8$ $25.5$ $77.4$ $74.6$ $79.4$ $78.7$ $10$ $11.3$ April May June $30.4$ $18.1$ $19.4$ $11.3$ $0.62$ $23.1$ $23.1$ $14.9$ $14.0$ $80.9$ $73.5$ $78.4$ $77.7$ $13$ $9$ $11.5$ April May June $30.4$ $18.0$ $19.4$ $11.5$ $0.64$ $24.3$ $23.1$ $14.9$ $74.8$ $80.9$ $77.7$ $78.4$ $74.8$ $13$ $77.7$ $11.3$ July August September $18.8$ $42.2$ $11.0$ $0.59$ $42.2$ $77.7$ $92.0$ $9$ $19$ $12$ $92.0$ $19$ October $16.0$ $7.9$ $0.49$ $76.4$ $11$	May	48.9	30.9	0.64	42.1	26.9	93.1	93.2	12	11.7			
August September $50.4$ $37.4$ $30.1$ $26.8$ $0.60$ $32.1$ $34.2$ $32.1$ $21.6$ $19.9$ $85.0$ $87.8$ $85.5$ $83.7$ $10$ $11.2$ October November $30.0$ $22.4$ $20.0$ $22.4$ $0.67$ $12.8$ $31.1$ $29.4$ $18.9$ $17.9$ $86.1$ $78.7$ $82.5$ $81.1$ $10$ $11.6$ December $17.6$ $11.1$ $0.64$ $0.64$ $28.1$ $28.1$ $17.1$ $17.1$ $75.1$ $80.0$ $10$ $10$ $11.3$ January February March $28.1$ $25.4$ $15.7$ $0.55$ $0.55$ $27.3$ $27.3$ $16.7$ $25.5$ $16.7$ $77.4$ $74.6$ $79.4$ $78.7$ $10$ $11.3$ April May June $30.4$ $18.1$ $19.4$ $0.64$ $24.3$ $23.1$ $14.9$ $73.5$ $80.9$ $77.6$ $78.4$ $74.8$ $13$ $71.7$ $11.5$ April May June $30.4$ $18.0$ $19.4$ $11.5$ $0.64$ $24.3$ $23.1$ $14.9$ $73.5$ $80.9$ $77.7$ $78.4$ $74.8$ $13$ $71.7$ $11.5$ July August September $18.8$ $42.2$ $26.2$ $26.2$ $0.62$ $77.7$ $92.0$ $9$ $19.9$ $10.49$ October $16.0$ $7.9$ $0.49$ $76.4$ $11$	June	19.3	12.3	0.65	39.0	24.9	81.9	90.4	9	11.4			
September $37.4$ $26.8$ $0.72$ $32.1$ $19.9$ $87.8$ $83.7$ $16$ $11.3$ October $30.0$ $20.0$ $0.67$ $31.1$ $18.9$ $86.1$ $82.5$ $16$ $11.6$ November $22.4$ $12.8$ $0.57$ $29.4$ $17.9$ $78.7$ $81.1$ $10$ $11.6$ December $17.6$ $11.1$ $0.64$ $28.1$ $17.1$ $75.1$ $80.0$ $10$ $11.4$ <b>2017</b> January $28.1$ $15.7$ $0.55$ $27.3$ $16.7$ $77.4$ $79.4$ $10$ $11.3$ February $22.0$ $15.8$ $0.71$ $25.5$ $15.9$ $76.9$ $78.7$ $10$ $11.3$ March $25.4$ $10.6$ $0.42$ $24.6$ $15.5$ $74.6$ $78.6$ $15$ $11.5$ April $30.4$ $19.4$ $0.64$ $24.3$ $14.9$ $80.9$ $78.4$ $13$ $11.5$ May $18.1$ $11.3$ $0.62$ $23.1$ $14.0$ $73.5$ $77.7$ $9$ $11.3$ June $18.0$ $11.5$ $0.64$ $77.9$ $77.7$ $9$ $11.3$ July $18.8$ $11.0$ $0.59$ $77.7$ $9$ $12$ September $42.2$ $26.2$ $0.62$ $92.0$ $19$ October $16.0$ $7.9$ $0.49$ $76.4$ $11$	July	36.8	19.4	0.53	36.5	23.1	85.9	87.7	10	11.2			
October November $30.0$ $22.4$ $17.6$ $20.0$ $12.8$ $17.6$ $0.67$ $12.8$ $11.1$ $31.1$ $0.64$ $18.9$ $28.1$ $17.1$ $86.1$ $75.1$ $82.5$ $81.1$ $10$ $11.6$ $11.4$ January February $28.1$ $22.0$ $25.4$ $15.7$ $10.6$ $0.55$ $25.5$ $27.3$ $25.5$ $16.7$ $15.9$ $76.9$ $74.6$ $79.4$ $78.7$ $74.6$ $10$ $78.7$ $10$ $11.3$ $11.3$ $11.3$ $11.3$ $11.5$ April May June $30.4$ $18.1$ $11.5$ $10.64$ $0.64$ $24.3$ $23.1$ $14.9$ $23.1$ $14.0$ $73.5$ $77.7$ $77.7$ $9$ $11.3$ July August September $18.8$ $42.2$ $25.0$ $11.0$ $0.62$ $77.7$ $92.0$ $92.0$ October $16.0$ $7.9$ $0.49$ $76.4$ $11$	August	50.4	30.1	0.60	34.2	21.6	6 85.0	85.5	10	11.2			
November December   22.4 17.6   12.8 11.1   0.57 0.64   29.4 28.1   17.9 17.1   78.7 75.1   81.1 80.0   10   11.6 11.4     January February March   28.1 25.4   15.7 0.6   0.55 0.42   27.3 25.5   16.7 25.5   77.4 79.4   79.4 10   10   11.3 11.3     April May June   30.4 18.0   19.4 11.5   0.64 0.42   24.6   15.5   74.6   78.4 78.6   13 15   11.5     July August September   18.8 42.2   11.0   0.59 0.62   77.7 9   9 12 92.0   11.3     October   16.0   7.9   0.49   76.4   11	September	37.4	26.8	0.72	32.1	19.9	87.8	83.7	16	11.3			
December 17.6 11.1 0.64 28.1 17.1 75.1 80.0 10 11.4   January 28.1 15.7 0.55 27.3 16.7 77.4 79.4 10 11.3   January 22.0 15.8 0.71 25.5 15.9 76.9 78.7 10 11.3   March 25.4 10.6 0.42 24.6 15.5 74.6 78.6 15 11.5   April 30.4 19.4 0.64 24.3 14.9 80.9 78.4 13 11.5   May 18.1 11.3 0.62 23.1 14.0 73.5 77.7 9 11.3   July 18.8 11.0 0.59 77.7 9 12   September 25.0 19.9 0.80 77.9 12 92.0 19   October 16.0 7.9 0.49 76.4 11	October	30.0	20.0	0.67	31.1	18.9	86.1	82.5	16	11.6			
January 28.1 15.7 0.55 27.3 16.7 77.4 79.4 10 11.3   February 22.0 15.8 0.71 25.5 15.9 76.9 78.7 10 11.3   March 25.4 10.6 0.42 24.6 15.5 74.6 78.6 15 11.5   April 30.4 19.4 0.64 24.3 14.9 80.9 78.4 13 11.5   May 18.1 11.3 0.62 23.1 14.0 73.5 77.7 9 11.3   June 18.8 11.0 0.59 74.8 7 7 9 11.3   July 18.8 11.0 0.59 77.7 9 12   September 25.0 19.9 0.80 77.9 12 19   October 16.0 7.9 0.49 76.4 11 11	November	22.4	12.8	0.57	29.4	17.9	78.7	81.1	10	11.6			
January February $28.1$ $15.7$ $0.55$ $27.3$ $16.7$ $77.4$ $79.4$ $10$ $11.3$ March $22.0$ $15.8$ $0.71$ $25.5$ $15.9$ $76.9$ $78.7$ $10$ $11.3$ March $25.4$ $10.6$ $0.42$ $24.6$ $15.5$ $74.6$ $78.6$ $15$ $11.5$ April $30.4$ $19.4$ $0.64$ $24.3$ $14.9$ $80.9$ $78.4$ $13$ $11.5$ May $18.1$ $11.3$ $0.62$ $23.1$ $14.0$ $73.5$ $77.7$ $9$ $11.3$ June $18.0$ $11.5$ $0.64$ $74.8$ $7$ $7$ $7$ July $18.8$ $11.0$ $0.59$ $77.7$ $9$ $12$ September $42.2$ $26.2$ $0.62$ $92.0$ $19$ October $16.0$ $7.9$ $0.49$ $76.4$ $11$	December	17.6	11.1	0.64	28.1	17.1	75.1	80.0	10	11.4			
January February $28.1$ $15.7$ $0.55$ $27.3$ $16.7$ $77.4$ $79.4$ $10$ $11.3$ March $22.0$ $15.8$ $0.71$ $25.5$ $15.9$ $76.9$ $78.7$ $10$ $11.3$ March $25.4$ $10.6$ $0.42$ $24.6$ $15.5$ $74.6$ $78.6$ $15$ $11.5$ April $30.4$ $19.4$ $0.64$ $24.3$ $14.9$ $80.9$ $78.4$ $13$ $11.5$ May $18.1$ $11.3$ $0.62$ $23.1$ $14.0$ $73.5$ $77.7$ $9$ $11.3$ June $18.0$ $11.5$ $0.64$ $74.8$ $7$ $7$ $7$ July $18.8$ $11.0$ $0.59$ $77.7$ $9$ $12$ September $42.2$ $26.2$ $0.62$ $92.0$ $19$ October $16.0$ $7.9$ $0.49$ $76.4$ $11$					2017								
March 25.4 10.6 0.42 24.6 15.5 74.6 78.6 15 11.5   April 30.4 19.4 0.64 24.3 14.9 80.9 78.4 13 11.5   May 18.1 11.3 0.62 23.1 14.0 73.5 77.7 9 11.3   June 18.0 11.5 0.64 24.3 14.0 73.5 77.7 9 11.3   July 18.8 11.0 0.59 77.7 9 12   August 25.0 19.9 0.80 77.9 12 12   September 42.2 26.2 0.62 92.0 19 19   October 16.0 7.9 0.49 76.4 11	January	28.1	15.7	0.55		16.7	77.4	79.4	10	11.3			
April May June30.4 18.1 11.319.4 0.62 0.620.64 23.124.3 14.014.9 73.5 74.880.9 77.778.4 9 9 11.311.5 11.3July August September18.8 25.0 42.211.0 26.20.59 0.80 0.6277.7 9 77.9 92.09 12 19October16.0 7.97.9 0.490.4976.411	February	22.0	15.8	0.71	25.5	15.9	76.9	78.7	10	11.3			
May 18.1 11.3 0.62 23.1 14.0 73.5 77.7 9 11.3   June 18.0 11.5 0.64 74.8 7 7   July 18.8 11.0 0.59 77.7 9 11.3   July 18.8 11.0 0.59 77.7 9 12   August 25.0 19.9 0.80 77.9 12   September 42.2 26.2 0.62 92.0 19   October 16.0 7.9 0.49 76.4 11	March	25.4	10.6	0.42	24.6	15.5	74.6	78.6	15	11.5			
May 18.1 11.3 0.62 23.1 14.0 73.5 77.7 9 11.3   June 18.0 11.5 0.64 74.8 7 7   July 18.8 11.0 0.59 77.7 9 11.3   July 18.8 11.0 0.59 77.7 9 12   August 25.0 19.9 0.80 77.9 12   September 42.2 26.2 0.62 92.0 19   October 16.0 7.9 0.49 76.4 11	April	30.4	19.4	0.64	24.3	14.9	80.9	78.4	13	11.5			
July18.811.00.5977.79August25.019.90.8077.912September42.226.20.6292.019October16.07.90.4976.411	-	18.1	11.3	0.62	23.1	14.0	73.5	77.7	9	11.3			
August25.019.90.8077.912September42.226.20.6292.019October16.07.90.4976.411	June	18.0	11.5	0.64			74.8		7				
August25.019.90.8077.912September42.226.20.6292.019October16.07.90.4976.411	July	18.8	11.0	0.59			77.7		9				
September   42.2   26.2   0.62   92.0   19     October   16.0   7.9   0.49   76.4   11	•												
		42.2					92.0						
	October	16.0	7.9	0.49			76.4		11				

#### 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 18 December 2017

The proton flux plot contains the five-minute averaged integral proton flux (protons/cm<sup>2</sup>-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.

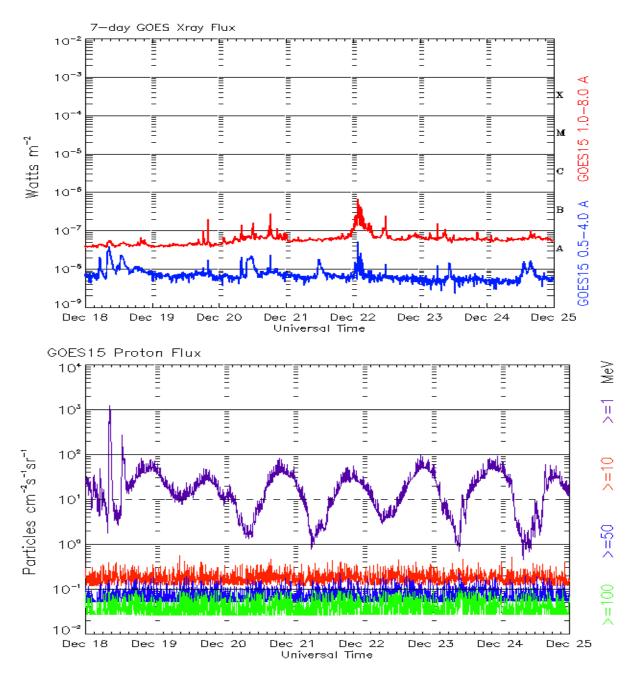
The electron flux plot contains the five-minute averaged integral electron flux (electrons/cm<sup>2</sup>-sec -sr) with energies greater than 2 MeV by the SWPC Primary GOES satellite.

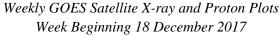
The Hp plot contains the five minute averaged Hp magnetic field component in nanoteslas (nT) as by the SWPC Primary GOES satellite. The Hp component is parallel to the spin axis of the satellite, which is nearly parallel to the Earth's rotation axis.

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/m<sup>2</sup>) 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)

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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

The Weekly has been published continuously since 1951 and is available online since 1997.

http://spaceweather.gov/weekly/ -- Current and previous year http://spaceweather.gov/ftpmenu/warehouse.html -- Online achive 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

