Solar activity was at very low levels the majority of the period with low levels observed on 13 and 19 June due to a C3 flare at 13/0552 UTC from Region 2552 (N15, L=359, class/area Dao/150 on 11 June) and a C1 flare at 19/1158 UTC from Region 2558 (N13, L=215, class/area Cso/030 on 19 June). The majority of the B-class activity was caused by Region 2555 (S09, L=274, class/area Cao/080 on 17 June). No Earth-directed coronal mass ejections were observed during the period.

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit was at normal to moderate levels throughout the period and briefly reached high levels on 19 June with a maximum flux of 1,030 pfu at 19/1640 UTC.

The geomagnetic field ranged from quiet to G2-Moderate storm levels. Solar wind conditions began the period under a waning positive polarity coronal hole high speed stream (CH HSS). Solar wind speeds decreased from approximately 620 km/s to around 420 km/s by midday on 14 June. Total field decreased from 8 nT to 4 nT. By late on 14 June, total field increased to 15 nT with the Bz component mostly southward near -14 nT while solar wind increased to a maximum of 772 km/s at 15/0410 UTC, indicative of a co-rotating interaction region followed by another positive polarity CH HSS. The geomagnetic field responded with quiet to active levels on 13 June, quiet to G2-Moderate storm levels on 14 June and quiet to G1-Minor storm levels on 15 June. By early on 16 June, total field decreased to around 6 nT with solar wind speeds in the 500-600 km/s range. These conditions continued until 19 June when solar wind speeds decreased to nominal levels. Quiet conditions were observed on 16 and 19 June with quiet to unsettled levels on 17-18 June.

Space Weather Outlook 20 June - 16 July 2016

Solar activity is expected to be at very low to low levels for the forecast period.

No proton events are expected at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit is expected to be at normal to moderate levels with high levels likely on 20-22 June, 26 June-01 July, 04-07 July and again on 16 July due to CH HSS activity.

Geomagnetic field activity is expected to be at unsettled to active levels from 23-27 June, 02-03 July, 07-12 July and 14-15 July. G1-Minor storm levels are likely on 02-03 July and 11 July due to recurrent CH HSS activity.



Daily Solar Data

	Radio	Sun	Sı	Sunspot X-ra			Flares						
	Flux	spot	4	Area	Backgrou	nd	X	-ray		Optical			
Date	10.7cm	No.	(10	⁶ hemi.)	Flux		C :	M X	S	1	2 3	4	
13 June	91	27	420	B1.8	1	0	0	1	0	0	0	0	
14 June	88	26	390	B1.2	0	0	0	0	0	0	0	0	
15 June	87	22	350	B1.0	0	0	0	0	0	0	0	0	
16 June	88	26	340	B1.1	0	0	0	7	0	0	0	0	
17 June	87	36	410	B1.0	0	0	0	1	0	0	0	0	
18 June	84	46	310	B1.1	0	0	0	1	0	0	0	0	
19 June	85	48	330	A9.7	1	0	0	0	0	0	0	0	

Daily Particle Data

	P	roton Fluence	Electron Fluence						
	(proto	ons/cm ² -day-sr)	(elec	(electrons/cm ² -day -sr)					
Date	>1 MeV	>10 MeV >100 MeV	>0.6 MeV	>2MeV >4	MeV				
13 June	5.0e+05	1.3e+04	3.0e+03	1.1e+07					
14 June	4.6e+05	1.3e+04	3.0e+03	1.6e + 07					
15 June	3.8e + 05	1.2e+04	2.8e+03	5.4e + 06					
16 June	2.4e+05	1.3e+04	3.0e+03	9.0e+06					
17 June	2.5e+05	1.3e+04	2.9e+03	1.4e+07					
18 June	1.9e+05	1.2e+04	3.0e+03	2.3e+07					
19 June	1.7e+05	1.3e+04	3.3e+03	3.8e+07					

Daily Geomagnetic Data

		Middle Latitude		High Latitude		Estimated
		Fredericksburg		College		Planetary
Date	Α	K-indices	A	K-indices	A	K-indices
13 June	10	3-4-2-2-2-2-1	15	4-4-1-5-2-1-1-0	9	3-4-2-2-1-2-1
14 June	15	3-2-2-3-2-2-5-3	17	1-2-2-2-2-6-3	21	3-2-1-2-2-6-4
15 June	15	5-3-2-3-3-2-1-2	21	4-4-2-5-5-2-1-1	14	5-3-2-3-3-2-1-1
16 June	5	1-1-1-2-2-2-1-2	6	2-1-1-2-3-2-1-1	6	2-1-2-2-2-1-2
17 June	7	2-2-2-2-2-1	27	2-3-3-6-6-3-1-1	8	2-2-2-3-2-2-1
18 June	10	1-3-3-2-3-2-2	17	2-3-3-5-4-2-2-2	8	2-3-2-2-3-1-2-2
19 June	5	1-2-2-2-1-1-1	6	2-2-1-1-3-2-1-0	6	2-2-2-1-2-1-1

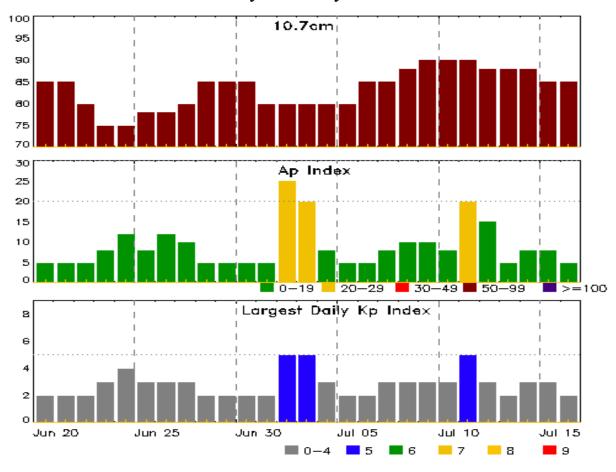


Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
13 Jun 0504	ALERT: Geomagnetic K = 4	13/0503
13 Jun 1907	ALERT: Type II Radio Emission	13/1836
14 Jun 1822	WARNING: Geomagnetic $K = 4$	14/1825 - 15/1300
14 Jun 1839	WARNING: Geomagnetic $K = 5$	14/1838 - 15/2300
14 Jun 1908	ALERT: Geomagnetic $K = 4$	14/1905
14 Jun 1936	WATCH: Geomagnetic Storm Category G1 predict	ed
14 Jun 1943	ALERT: Geomagnetic $K = 5$	14/1942
14 Jun 1950	WARNING: Geomagnetic $K = 6$	14/1950 - 2300
14 Jun 1956	ALERT: Geomagnetic $K = 6$	14/1955
15 Jun 0133	ALERT: Geomagnetic $K = 5$	15/0128
15 Jun 1122	CANCELLATION: Geomagnetic K = 5	
15 Jun 1252	EXTENDED WARNING: Geomagnetic K = 4	14/1825 - 15/2300
15 Jun 1809	WATCH: Geomagnetic Storm Category G1 predict	ed
15 Jun 2255	EXTENDED WARNING: Geomagnetic K = 4	14/1825 - 16/0700



Twenty-seven Day Outlook



	Radio Flux	Planetary	Largest		Radio Flux	Planetary	Largest
Date	10.7cm	A Index	Kp Index	Date	10.7cm	A Index	Kp Index
20 Jun	85	5	2	04 Jul	80	8	3
21	85	5	2	05	80	5	2
22	80	5	2	06	85	5	2
23	75	8	3	07	85	8	3
24	75	12	4	08	88	10	3
25	78	8	3	09	90	10	3
26	78	12	3	10	90	8	3
27	80	10	3	11	90	20	5
28	85	5	2	12	88	15	3
29	85	5	2	13	88	5	2
30	85	5	2	14	88	8	3
01 Jul	80	5	2	15	85	8	3
02	80	25	5	16	85	5	2
03	80	20	5				



Energetic Events

	Time		Time		Time X-ray		Optio	cal Informat	ion	P	eak	Sweep	Freq
			Half		Integ	Imp/	Location	Rgn	Radi	Radio Flux		Intensity	
Date	Begin	Max	Max	Class	Flux	Brtns	Lat CMD	#	245	2695	II	IV	

No Events Observed

Flare List

					Optical						
		Time		X-ray	Imp/	Location	Rgn				
Date	Begin	Max	End	Class	Brtns	Lat CMD	#				
13 Jun	0145	0153	0158	B4.9			2552				
13 Jun	0249	0253	0257	B5.0			2554				
13 Jun	0404	0415	0423	B9.3			2554				
13 Jun	0435	0449	0502	B9.2			2552				
13 Jun	0533	0552	0618	C3.0			2552				
13 Jun	B0751	U0751	A0828		SF	N07W48	2554				
13 Jun	1843	1855	1907	B4.9							
15 Jun	1053	1056	1058	B1.7							
15 Jun	1300	1311	1330	B4.2							
15 Jun	2043	2047	2049	B2.2							
16 Jun	0020	0025	0034	B3.2	SF	S04E03	2553				
16 Jun	0944	0948	0952	B2.1							
16 Jun	1040	1044	1046	B3.8			2555				
16 Jun	1158	1203	1209	B2.6			2555				
16 Jun	1212	1218	1221	B3.5			2555				
16 Jun	1317	1324	1327	B8.8	SF	S08W50	2555				
16 Jun	1400	1402	1417		SF	S08W50	2555				
16 Jun	1517	1523	1532	B3.8	SF	S08W50	2555				
16 Jun	1553	1554	1556		SF	N05E05	2555				
16 Jun	1609	1613	1617	B2.9							
16 Jun	1746	1753	1806	B4.0			2556				
16 Jun	1959	2000	2006		SF	S08W52	2555				
16 Jun	2042	2043	2044		SF	S08W53	2555				
17 Jun	0404	0421	0428	B2.3							
17 Jun	0456	0519	0540	B2.7			2556				
17 Jun	0825	0831	0838	B3.4			2555				
17 Jun	0916	0926	0934	B4.0			2555				
17 Jun	1224	1229	1234	B3.3			2555				
17 Jun	1310	1314	1316	B1.7			2555				
17 Jun	1400	1403	1405	B1.9	SF	S06W64	2555				
17 Jun	2034	2040	2049	B2.7			2555				



Flare List

					Optical					
		Time		X-ray	Imp/	Location	Rgn			
Date	Begin	Max	End	Class	Brtns	Lat CMD	#			
18 Jun	1144	1148	1151	B3.8			2555			
18 Jun	1430	1435	1439	B3.1			2556			
18 Jun	1604	1611	1615	B2.7			2555			
18 Jun	2031	2045	2050	B3.2	SF	N07W24				
19 Jun	0731	0757	0823	B2.3			2558			
19 Jun	1144	1158	1209	C1.7			2558			
19 Jun	2308	2347	0113	B5.0			2555			



Region Summary

Marie Melio Area Extent Spot Spot Marge Cx my X S 1 2 3 4		Location	on	Su	Sunspot Characteristics Flares					<u> </u>						
N16W22 S552		-		,	_			Mag	X	-ray				ptica	.1	
07 Jun N16W22 359 10 1 Bxo 2 B 08 Jun N17W35 359 20 1 Cro 5 B 09 Jun N15W48 358 140 4 Dac 12 BD 1 4 4 10 Jun N15W48 358 140 4 Dac 12 BD 1 4 4 10 Jun N15W75 359 150 5 Dao 5 B 1 1 Jun N15W75 359 150 5 Dao 5 B 1 1 Jun N15W75 359 150 5 Dao 5 B 1 1 Jun N15W75 359 150 5 Dao 5 B 1 1 Jun N14W91 2 80 3 Cao 2 B 1 1 Jun N14W91 2 80 3 Cao 2 B 1 1 Jun N14W91 2 BO 3 Cao 2 B 1 1 Jun N14W91 2 BO 3 Cao 2 B 1 1 Jun N14W91 2 BO 3 Cao 2 B 1 1 Jun N14W91 2 BO 3 Cao 2 B 1 1 Jun N14W91 2 BO 3 Cao 2 B 1 1 Jun SOGE41 226 120 6 Hsx 1 A 1 Jun SOGE56 228 270 4 Hhx 1 A 1 Jun SOGE56 228 270 4 Hhx 1 A 13 Jun SOGE31 226 290 3 Hhx 1 A 14 Jun SOTE18 226 290 4 Hhx 1 A 15 Jun SOTE06 225 300 3 Hhx 1 A 15 Jun SOTE06 225 300 3 Hhx 1 A 16 Jun SOTW22 226 300 4 Hhx 1 A 17 Jun SOTW22 226 300 4 Hhx 1 A 19 Jun SOTW36 227 250 4 Hhx 1 A 19 Jun SOTW36 227 250 4 Hhx 1 A 19 Jun SOTW36 227 250 4 Hhx 1 A 19 Jun SOTW36 227 250 4 Hhx 1 A 19 Jun SOTW36 315 227 250 4 Hhx 1 A 19 Jun SOTW36 315 316 90 4 Dao 6 B 13 Jun N08W35 316 50 2 Hsx 1 A 14 Jun N08W72 316 100 6 Dso 5 B 13 Jun N08W45 316 50 2 Hsx 1 A 15 Jun N08W72 316 100 6 Dso 5 B 15 Jun N08W72 316 100 6 Dso 5 B 15 Jun N08W72 316 100 6 Dso 5 B 15 Jun N08W72 316 100 6 Dso 5 B 15 Jun N08W72 316 100 6 Dso 5 B 15 Jun N08W72 316 100 6 Dso 5 B 15 Jun N08W72 316 100 6 Dso 5 B 15 Jun N08W72 316 100 6 Dso 5 B 15 Jun N08W72 316 100 6 Dso 5 B 15 Jun N08W72 316 100 6 Dso 5 B 15 Jun N08W72 316 100 6 Dso 5 B 15 Jun N08W85 316 50 2 Hsx 1 A	Date	Lat CMD	Lon 1	10 ⁻⁶ hemi.	(helio)	Class	Count	Class	С	M	X	S	1	2	3	4
N17W35			Regio	on 2552												
08 Jun N17W35	07 Jun	N16W22	359	10	1	Bxo	2	В								
10 Jun	08 Jun	N17W35	359	20	1	Cro		В								
10 Jun	09 Jun	N15W48	358	140	4	Dac	12	BD	1			4				
12 Jun	10 Jun		359	60	4	Dai	7	BD								
Crossed West Limb. Absolute heliographic longitude: 359 Region 2553 10 Jun S06E71 226 120 6 Hsx 1 A A	11 Jun	N15W75	359	150	5	Dao	5	В	1							
Crossed West Limb. Absolute heliographic longitude: 359 Region 2553	12 Jun	N14W91	2	80	3	Cao	2	В	1							
## Absolute heliographic longitude: 359 Region 2553									3	0	0	4	0	0	0	0
10 Jun S06E71 226 120 6 Hsx 1 A 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1				gitude: 3	59											
11 Jun			Regio	on 2553												
11 Jun	10 Jun	S06E71	226	120	6	Hsx	1	A				1				
12 Jun					4			A								
13 Jun S06E31 226 290 3 Hhx 1 A 14 Jun S07E18 226 290 4 Hhx 1 A 15 Jun S07E06 225 300 3 Hhx 1 A 16 Jun S07W09 225 310 4 Hhx 2 A 17 Jun S07W22 226 300 4 Hhx 1 A 18 Jun S07W36 227 250 4 Hhx 1 A 19 Jun S07W49 227 260 4 Hhx 1 A 19 Jun S07W49 227 260 4 Hhx 1 A 19 Jun S07W49 227 260 4 Hhx 1 A 19 Jun S07W49 316 316 90 4 Dao 6 B 13 Jun N08W38 315 130 5 Dao 6 B 13 Jun N08W72 316 100 6 Dso 5 B 15 Jun N08W72 316 50 2 Hsx 1 A 10 0 0 0 3 0 0 0 10 0 0 0 0 0 11 Jun N08W85 316 50 2 Hsx 1 A 10 0 0 0 3 0 0 0 11 Jun N08W85 316 50 2 Hsx 1 A 11 Jun N08W85 316 50 2 Hsx 1 A 12 Jun N08W85 316 50 2 Hsx 1 A 13 Jun N08W85 316 50 2 Hsx 1 A 14 Jun N08W85 316 50 2 Hsx 1 A 15 Jun N08W85 316 50 2 Hsx 1 A 16 Jun Jun																
14 Jun S07E18 226 290 4 Hhx 1 A 15 Jun S07E06 225 300 3 Hhx 1 A 16 Jun S07W09 225 310 4 Hhx 2 A 17 Jun S07W22 226 300 4 Hhx 1 A 18 Jun S07W36 227 250 4 Hhx 1 A 19 Jun S07W49 227 260 4 Hhx 1 A 19 Jun S07W49 227 260 4 Hhx 1 A 19 Jun S07W49 227 260 4 Hhx 1 A 19 Jun S07W49 227 260 4 Hhx 1 A 19 Jun S07W49 227 260 6 Hhx 1 A 19 Jun N08W33 317 20 3 Dro 4 B 12 Jun N08W35 316 90 4 Dao 6 B 13 Jun N08W58 315 130 5 Dao 6 B 13 Jun N08W58 315 130 5 Dao 6 B 14 Jun N08W72 316 100 6 Dso 5 B 15 Jun N08W85 316 50 2 Hsx 1 A 0 0 0 0 3 0 0 0 0 0																
15 Jun S07E06 225 300 3 Hhx 1 A 16 Jun S07W09 225 310 4 Hhx 2 A 17 Jun S07W22 226 300 4 Hhx 1 A 18 Jun S07W36 227 250 4 Hhx 1 A 19 Jun S07W49 227 260 4 Hhx 1 A 19 Jun S07W49 227 260 4 Hhx 1 A 19 Jun S07W49 227 260 4 Hhx 1 A 19 Jun S07W49 227 260 4 Hhx 1 A 19 Jun S07W49 227 260 4 Hhx 1 A 19 Jun N08W45 316 90 4 Dao 6 B 13 Jun N08W45 316 90 4 Dao 6 B 13 Jun N08W58 315 130 5 Dao 6 B 14 Jun N08W72 316 100 6 Dso 5 B 15 Jun N08W85 316 50 2 Hsx 1 A 0 0 0 0 3 0 0 0 0 0																
16 Jun S07W09 225 310 4 Hhx 2 A 1 17 Jun S07W22 226 300 4 Hhx 1 A 18 Jun S07W36 227 250 4 Hhx 1 A 19 Jun S07W49 227 260 4 Hhx 1 A 19 Jun S07W49 227 260 4 Hhx 1 A Still on Disk. Absolute heliographic longitude: 225 Region 2554																
17 Jun S07W22 226 300 4 Hhx 1 A 18 Jun S07W36 227 250 4 Hhx 1 A 19 Jun S07W49 227 260 4 Hhx 1 A 19 Jun S07W49 227 260 4 Hhx 1 A Still on Disk. Absolute heliographic longitude: 225 Region 2554 11 Jun N08W33 317 20 3 Dro 4 B 12 Jun N08W45 316 90 4 Dao 6 B 13 Jun N08W58 315 130 5 Dao 6 B 13 Jun N08W58 315 130 5 Dao 6 B 14 Jun N08W72 316 100 6 Dso 5 B 15 Jun N08W85 316 50 2 Hsx 1 A 0 0 0 0 3 0 0 0 0 0 0							2					1				
18 Jun S07W36 227 250 4 Hhx 1 A 19 Jun S07W49 227 260 4 Hhx 1 A 19 Jun S07W49 227 260 4 Hhx 1 A 0 0 0 0 2 0 0 0 0 Still on Disk. Absolute heliographic longitude: 225 **Region 2554** 11 Jun N08W33 317 20 3 Dro 4 B 12 Jun N08W45 316 90 4 Dao 6 B 13 Jun N08W58 315 130 5 Dao 6 B 13 Jun N08W58 315 130 5 Dao 6 B 14 Jun N08W72 316 100 6 Dso 5 B 15 Jun N08W85 316 50 2 Hsx 1 A 0 0 0 0 3 0 0 0 0 0	17 Jun	S07W22	226	300	4	Hhx	1	A								
19 Jun S07W49 227 260 4 Hhx 1 A 0 0 0 2 0 0 0 0 Still on Disk. Absolute heliographic longitude: 225					4		1									
Still on Disk. Absolute heliographic longitude: 225 **Region 2554** 11 Jun N08W33 317 20 3 Dro 4 B 2 2 12 Jun N08W45 316 90 4 Dao 6 B 13 Jun N08W58 315 130 5 Dao 6 B 1 1 1 14 Jun N08W72 316 100 6 Dso 5 B 15 Jun N08W85 316 50 2 Hsx 1 A 0 0 0 0 3 0 0 0 0 0	19 Jun		227	260	4	Hhx	1	A								
Absolute heliographic longitude: 225 **Region 2554** 11 Jun N08W33 317 20 3 Dro 4 B 2 2 12 Jun N08W45 316 90 4 Dao 6 B 13 Jun N08W58 315 130 5 Dao 6 B 1 1 1 14 Jun N08W72 316 100 6 Dso 5 B 15 Jun N08W85 316 50 2 Hsx 1 A 0 0 0 0 3 0 0 0 0 0									0	0	0	2	0	0	0	0
11 Jun N08W33 317 20 3 Dro 4 B 2 12 Jun N08W45 316 90 4 Dao 6 B 13 Jun N08W58 315 130 5 Dao 6 B 1 14 Jun N08W72 316 100 6 Dso 5 B 15 Jun N08W85 316 50 2 Hsx 1 A 0 0 0 0 3 0 0 0 0			hic lon	gitude: 2	25											
12 Jun N08W45 316 90 4 Dao 6 B 13 Jun N08W58 315 130 5 Dao 6 B 1 14 Jun N08W72 316 100 6 Dso 5 B 15 Jun N08W85 316 50 2 Hsx 1 A			Regio	on 2554												
12 Jun N08W45 316 90 4 Dao 6 B 13 Jun N08W58 315 130 5 Dao 6 B 1 14 Jun N08W72 316 100 6 Dso 5 B 15 Jun N08W85 316 50 2 Hsx 1 A	11 Jun	N08W33	317	20	3	Dro	4	В				2				
13 Jun N08W58 315 130 5 Dao 6 B 1 14 Jun N08W72 316 100 6 Dso 5 B 15 Jun N08W85 316 50 2 Hsx 1 A 0 0 0 0 3 0 0 0 0												_				
14 Jun N08W72 316 100 6 Dso 5 B 15 Jun N08W85 316 50 2 Hsx 1 A 0 0 0 3 0 0 0												1				
15 Jun N08W85 316 50 2 Hsx 1 A 0 0 0 3 0 0 0 0												-				
0 0 0 3 0 0 0																
									0	0	0	3	0	0	0	0

Crossed West Limb. Absolute heliographic longitude: 317



Region Summary - continued

	Location	on	Su	nspot C	haracte	ristics		Flares							
		Helio	Area	Extent	Spot	pot Spot Mag			K-ray			0	ptica	1	
Date	Lat CMD	Lon 1	0 ⁻⁶ hemi.	(helio)	Class	Count	Class	C	M	X	S	1	2	3	4
		Regio	n 2555												
16 Jun	S09W57	273	30	4	Cao	4	В				6				
17 Jun	S09W70	274	80	5	Cao	4	В				1				
18 Jun	S09W83	274	20	6	Bxo	3	В								
								0	0	0	7	0	0	0	0
	l West Lim e heliograp		gitude: 2	73											
		Regio	n 2556												
17 Jun	N05E72	132	30	1	Hsx	1	A								
18 Jun	N05E57	134	30	1	Hsx	1	A								
19 Jun	N06E43	135	30	2	Hsx	1	A								
								0	0	0	0	0	0	0	0
Still on															
Absolut	e heliograp	hic long	gitude: 1	35											
		Regio	n 2557												
18 Jun	N10E07	184	10	1	Axx	1	A								
19 Jun	N09W07	185	10	1	Axx	1	A								
								0	0	0	0	0	0	0	0
Still on Absolut	Disk. e heliograp	hic long	gitude: 1	84											
		Regio	n 2558												
		_		_	~	_	_								
19 Jun	N13W37	215	30	5	Cso	5	В	1 1	0	0	0	0	0	0	0
Ctill on	Dielz							1	U	U	U	U	U	U	0
Still on Absolut	e heliograp	hic long	gitude: 2	15											

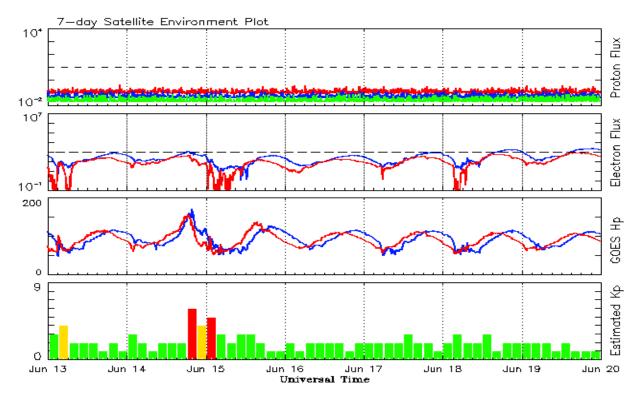


Recent Solar Indices (preliminary) Observed monthly mean values

Month Observery law of SEC Ratio of SEC SEC RI Period of SEC RI Period of SEC Period of			Sunspot N	umbers	nbers Rad			Flux	Geoma	gnetic
Z014 June 107.7 61.7 0.66 121.4 68.5 122.2 145.5 7 8.4 July 113.6 60.1 0.64 120.4 67.6 137.3 145.2 5 8.8 August 106.2 64.1 0.70 115.1 65.0 124.7 142.8 9 8.9 September 127.4 78.0 0.69 107.4 61.1 146.1 140.1 11 9.3 October 92.0 54.0 0.66 101.7 58.4 153.7 138.4 10 9.9 November 101.8 62.2 0.69 97.9 56.8 155.3 137.4 10 10.1 December 120.0 67.7 0.65 95.2 55.3 158.7 137.0 12 10.5 2015 January 70.6 40.0 0.63 88.3 51.7 128.8 133.8 10 11.5		Observed values	Ratio	Smo	ooth values	_	Penticton	Smooth	Planetary	Smooth
June 107.7 61.7 0.66 121.4 68.5 122.2 145.5 7 8.4 July 113.6 60.1 0.64 120.4 67.6 137.3 145.2 5 8.8 August 106.2 64.1 0.70 115.1 65.0 124.7 142.8 9 8.9 September 127.4 78.0 0.69 107.4 61.1 146.1 140.1 11 9.3 October 92.0 54.0 0.66 101.7 58.4 153.7 138.4 10 9.9 November 101.8 62.2 0.69 97.9 56.8 155.3 137.4 10 10.1 December 120.0 67.7 0.65 95.2 55.3 158.7 137.0 12 10.5 2015 2015 January 70.6 40.0 0.63 88.3 51.7 128.8 133.8 10 11.5	Month	SEC RI	RI/SEC	SE	C RI		10.7 cm	Value	Ap	Value
June 107.7 61.7 0.66 121.4 68.5 122.2 145.5 7 8.4 July 113.6 60.1 0.64 120.4 67.6 137.3 145.2 5 8.8 August 106.2 64.1 0.70 115.1 65.0 124.7 142.8 9 8.9 September 127.4 78.0 0.69 107.4 61.1 146.1 140.1 11 9.3 October 92.0 54.0 0.66 101.7 58.4 153.7 138.4 10 9.9 November 101.8 62.2 0.69 97.9 56.8 155.3 137.4 10 10.1 December 120.0 67.7 0.65 95.2 55.3 158.7 137.0 12 10.5 2015 2015 January 70.6 40.0 0.63 88.3 51.7 128.8 133.8 10 11.5					2014				_	
August September 106.2 bigs 64.1 bigs 0.70 bigs 115.1 bigs 65.0 bigs 124.7 bigs 142.8 bigs 9 bigs 8.9 bigs September 127.4 bigs 78.0 bigs 0.69 bigs 107.4 bigs 11.1 bigs 146.1 bigs 140.1 bigs 11 bigs 9.9 bigs October October 92.0 bigs 54.0 bigs 0.66 bigs 101.7 bigs 58.4 bigs 153.7 bigs 138.4 bigs 10 bigs 9.9 bigs November Docember 101.8 bigs 62.2 bigs 0.69 bigs 97.9 bigs 56.8 bigs 155.3 bigs 137.4 bigs 10 bigs 10.1 bigs December 120.0 bigs 67.7 bigs 0.65 bigs 95.2 bigs 55.3 bigs 158.7 bigs 137.0 bigs 12 bigs January 101.2 bigs 55.8 bigs 0.66 bigs 92.1 bigs 53.6 bigs 141.7 bigs 135.8 bigs 10 bigs 11.0 bigs February 70.6 bigs 40.0 bigs 88.3 bigs 51.7 bigs 128.8 bigs 133.8 bigs 10 bigs 11.0 bigs 12.4 bigs 11.0 bigs <t< td=""><td>June</td><td>107.7</td><td>61.7</td><td>0.66</td><td></td><td>68.5</td><td>5 122.2</td><td>145.5</td><td>7</td><td>8.4</td></t<>	June	107.7	61.7	0.66		68.5	5 122.2	145.5	7	8.4
September 127.4 78.0 0.69 107.4 61.1 146.1 140.1 11 9.3 October 92.0 54.0 0.66 101.7 58.4 153.7 138.4 10 9.9 November 101.8 62.2 0.69 97.9 56.8 155.3 137.4 10 10.1 December 120.0 67.7 0.65 95.2 55.3 158.7 137.0 12 10.5 2015 January 101.2 55.8 0.66 92.1 53.6 141.7 135.8 10 11.0 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 <td>July</td> <td>113.6</td> <td>60.1</td> <td>0.64</td> <td>120.4</td> <td>67.6</td> <td>5 137.3</td> <td>145.2</td> <td>5</td> <td>8.8</td>	July	113.6	60.1	0.64	120.4	67.6	5 137.3	145.2	5	8.8
October 92.0 54.0 0.66 101.7 58.4 153.7 138.4 10 9.9 November 101.8 62.2 0.69 97.9 56.8 155.3 137.4 10 10.1 December 120.0 67.7 0.65 95.2 55.3 158.7 137.0 12 10.5	August	106.2	64.1		115.1	65.0) 124.7	142.8		8.9
November December 101.8 62.2 0.69 97.9 56.8 155.3 137.4 10 10.1 December 120.0 67.7 0.65 95.2 55.3 158.7 137.0 12 10.5 Z015 January 101.2 55.8 0.66 92.1 53.6 141.7 135.8 10 11.0 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 Jauury 68.4 <td>September</td> <td>127.4</td> <td>78.0</td> <td>0.69</td> <td>107.4</td> <td>61.1</td> <td>146.1</td> <td>140.1</td> <td>11</td> <td>9.3</td>	September	127.4	78.0	0.69	107.4	61.1	146.1	140.1	11	9.3
December 120.0 67.7 0.65 95.2 55.3 158.7 137.0 12 10.5	October	92.0	54.0	0.66	101.7	58.4	153.7	138.4	10	9.9
Z015 January 101.2 55.8 0.66 92.1 53.6 141.7 135.8 10 11.0 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 39.6 102.1 110.8 16 12.8 October 59.5 38.2 0.62 61.8 38.6 104.1 107.9 15 12.5 November	November	101.8	62.2	0.69	97.9	56.8	3 155.3	137.4	. 10	10.1
January 101.2 55.8 0.66 92.1 53.6 141.7 135.8 10 11.0 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 <td>December</td> <td>120.0</td> <td>67.7</td> <td>0.65</td> <td>95.2</td> <td>55.3</td> <td>3 158.7</td> <td>137.0</td> <td>12</td> <td>10.5</td>	December	120.0	67.7	0.65	95.2	55.3	3 158.7	137.0	12	10.5
January 101.2 55.8 0.66 92.1 53.6 141.7 135.8 10 11.0 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 <td></td> <td></td> <td></td> <td></td> <td>2015</td> <td></td> <td></td> <td></td> <td></td> <td></td>					2015					
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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 39.6 102.1 110.8 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 36.8 109.6 105.3 13 12.5 January 56.0 <td>_</td> <td></td> <td>40.0</td> <td>0.63</td> <td></td> <td>51.7</td> <td></td> <td></td> <td>10</td> <td>11.5</td>	_		40.0	0.63		51.7			10	11.5
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 39.6 102.1 110.8 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 36.8 109.6 105.3 13 12.5 December 54.1 34.8 0.64 112.8 15 2016 January 56.0 34.3 0.61 103.5 10 March 40.9 32.9 0.80 91.6 11 <	•	61.7	32.7	0.62	84.2	49.3	3 126.0	131.2	17	12.0
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 39.6 102.1 110.8 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 36.8 109.6 105.3 13 12.5 December 54.1 34.8 0.64 112.8 15 2016 January 56.0 34.3 0.61 103.5 10 March 40.9 32.9 0.80 91.6 11 <	April	72.5	45.2	0.75	80.5	47.3	3 129.2	127.3	12	12.4
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 39.6 102.1 110.8 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 36.8 109.6 105.3 13 12.5 December 54.1 34.8 0.64 112.8 15 2016 January 50.4 34.3 0.61 103.5 10 February 56.0 34.3 0.61 103.5 10 March 40.9 32.9 0.80 91.6 11 April 39.2 22.8 0.58	_									
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September 72.5 47.2 0.65 64.0 39.6 102.1 110.8 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 36.8 109.6 105.3 13 12.5 December 54.1 34.8 0.64 112.8 15 2016 January 50.4 34.0 0.67 103.5 10 February 56.0 34.3 0.61 103.5 10 March 40.9 32.9 0.80 91.6 11 April 39.2 22.8 0.58 93.4 10	•									
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January 50.4 34.0 0.67 103.5 10 February 56.0 34.3 0.61 103.5 10 March 40.9 32.9 0.80 91.6 11 April 39.2 22.8 0.58 93.4 10										
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February 56.0 34.3 0.61 103.5 10 March 40.9 32.9 0.80 91.6 11 April 39.2 22.8 0.58 93.4 10	Januarv	50.4	34.0	0.67	2010		103.5		10	
March 40.9 32.9 0.80 91.6 11 April 39.2 22.8 0.58 93.4 10	-									
•	•									
•	April	39.2	22.8	0.58			93.4		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 13 June 2016

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.

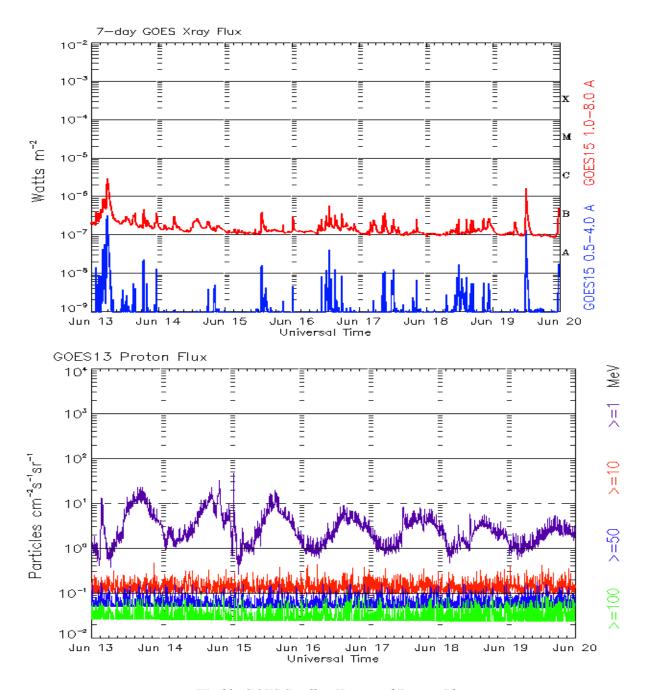
The electron flux plot contains the five-minute averaged integral electron flux (electrons/cm²-sec -sr) with energies greater than 2 MeV by the SWPC Primary GOES satellite.

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 13 June 2016

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.



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.

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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

