

Solar activity was at very low levels with numerous B-class flares observed from new Region 2765 (S24, L=116, class/area Cao/130 on 05 Jun). This reverse polarity region was mostly stable since it rotated onto the disk on 03 Jun. No Earth-directed CMEs 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 through the period.

Geomagnetic field activity was at mostly quiet levels, with some isolated unsettled periods late on 01 Jun through early 02 Jun. A nominal solar wind environment was prevalent with wind speeds ranging from 300-400 km/s, total field (Bt) 5 nT or less and the Bz component mostly neutral.

Solar wind parameters became enhanced after midday on 07 Jun. Wind speeds increased to near 475 km/s, Bt reached a maximum of 13 nT and Bz reached a maximum southward extent of -8 nT. A suspected weak, positive polarity CH HSS resulted in this enhanced wind environment. The geomagnetic field reacted with unsettled to active conditions the last half of 07 Jun.

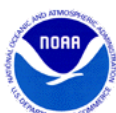
### **Space Weather Outlook** **08 June - 04 July 2020**

Solar activity is expected to be at mostly very low levels. A slight chance of low level activity exists through 15 Jun while Region 2765 remains on the visible disk. Very low levels will then persist through 28 Jun. Old Region 2765 (S24, L=116) is expected to return after 28 Jun with a possible increase in low level flare activity to a slight chance.

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 through the outlook period.

Geomagnetic field activity is expected to be at unsettled to isolated active levels on 08 Jun due to influence from a weak, positive polarity CH HSS. From 09 Jun to 04 Jul, mostly quiet levels are anticipated.



### *Daily Solar Data*

Date	Radio Flux 10.7cm	Sun spot No.	Sunspot Area (10 <sup>-6</sup> hemi.)	X-ray Background Flux	Flares							
					X-ray			Optical				
					C	M	X	S	1	2	3	4
01 June	69	11	0	A1.7	0	0	0	0	0	0	0	0
02 June	70	0	0	A4.5	0	0	0	0	0	0	0	0
03 June	70	12	70	A2.6	0	0	0	0	0	0	0	0
04 June	70	12	100	A2.3	0	0	0	0	0	0	0	0
05 June	71	13	130	A3.6	0	0	0	0	0	0	0	0
06 June	72	15	110	A4.1	0	0	0	0	0	0	0	0
07 June	73	16	100	A3.5	0	0	0	1	0	0	0	0

### *Daily Particle Data*

Date	Proton Fluence (protons/cm <sup>2</sup> -day -sr)		Electron Fluence (electrons/cm <sup>2</sup> -day -sr)	
	>1 MeV	>10 MeV	>2MeV	
	01 June	5.8e+04	4.6e+04	1.5e+06
02 June	5.3e+04	4.5e+04	1.4e+06	
03 June	5.2e+04	4.5e+04	1.4e+06	
04 June	5.3e+04	4.6e+04	1.5e+06	
05 June	5.4e+04	4.6e+04	1.7e+06	
06 June	5.5e+04	4.6e+04	1.4e+06	
07 June	6.1e+04	4.7e+04	1.1e+06	

### *Daily Geomagnetic Data*

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	01 June	7	1-2-0-1-2-2-3-3	3	1-1-0-1-1-0-2-2	6
02 June	7	1-3-2-1-2-2-2-2	11	2-4-3-3-3-1-1-0	7	2-3-2-1-2-1-2-1
03 June	3	1-1-0-1-1-2-2-0	3	1-1-1-1-3-0-0-0	4	1-1-1-1-1-1-1-1
04 June	5	1-1-2-1-2-1-2-2	2	1-1-1-0-0-1-0-1	4	1-1-2-0-1-1-2-2
05 June	4	1-0-1-2-2-2-1-1	4	1-1-0-2-3-0-0-0	4	1-1-1-1-1-1-0-1
06 June	2	0-0-0-1-1-1-1-0	4	1-1-0-3-2-0-0-0	3	1-1-1-1-1-0-0-0
07 June	10	1-2-1-2-2-2-4-3	5	1-2-1-1-0-1-3-2	4	1-2-1-1-1-2-4-3

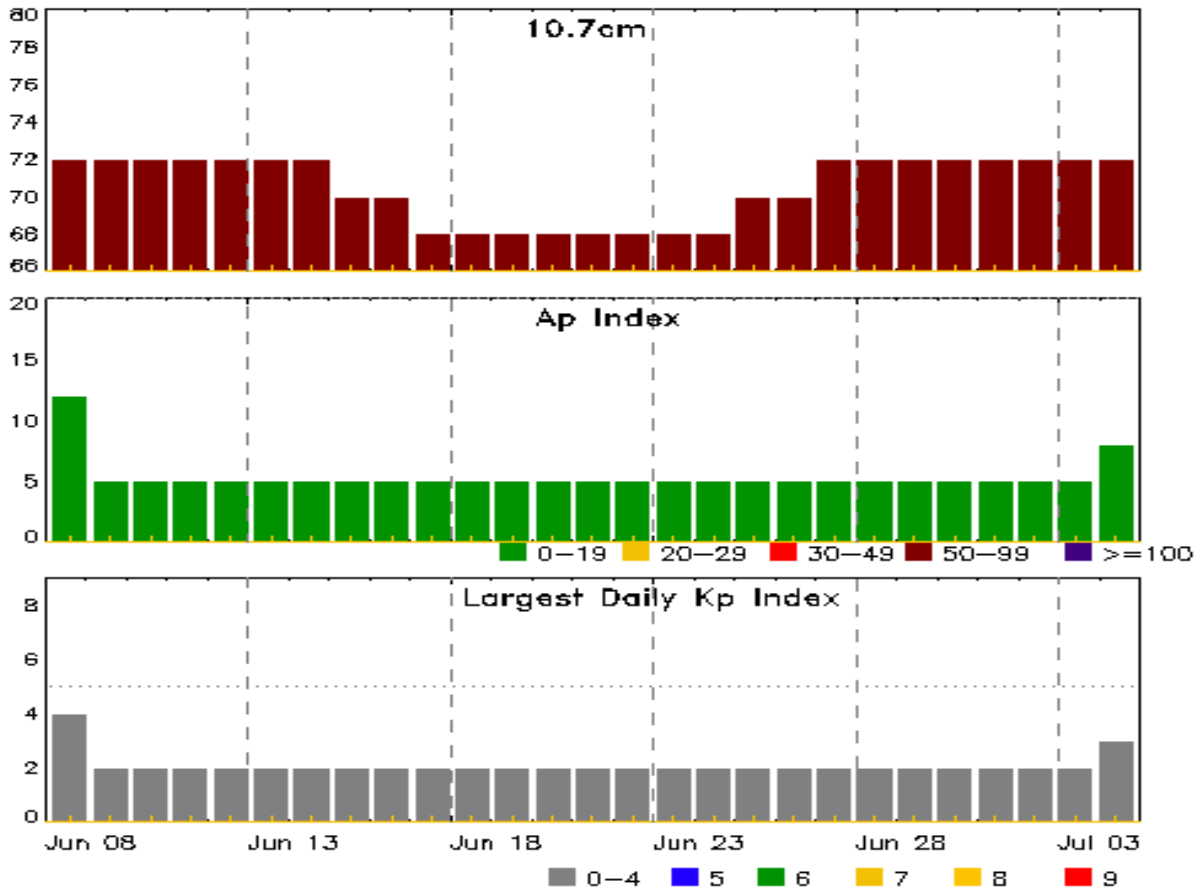


### *Alerts and Warnings Issued*

<b>Date &amp; Time of Issue UTC</b>	<b>Type of Alert or Warning</b>	<b>Date &amp; Time of Event UTC</b>
01 Jun 2208	WARNING: Geomagnetic K = 4	01/2207 - 02/0600
02 Jun 0558	EXTENDED WARNING: Geomagnetic K = 4	01/2207 - 02/1500
07 Jun 2051	WARNING: Geomagnetic K = 4	07/2050 - 08/0600
07 Jun 2059	ALERT: Geomagnetic K = 4	07/2059



## 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 Jun	72	12	4	22 Jun	68	5	2
09	72	5	2	23	68	5	2
10	72	5	2	24	68	5	2
11	72	5	2	25	70	5	2
12	72	5	2	26	70	5	2
13	72	5	2	27	72	5	2
14	72	5	2	28	72	5	2
15	70	5	2	29	72	5	2
16	70	5	2	30	72	5	2
17	68	5	2	01 Jul	72	5	2
18	68	5	2	02	72	5	2
19	68	5	2	03	72	5	2
20	68	5	2	04	72	8	3
21	68	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	2695	Intensity II

**No Events Observed**

### *Flare List*

Date	Time			X-ray Class	Imp/ Brtns	Optical		Rgn #
	Begin	Max	End			Location Lat CMD	Rgn #	
02 Jun	0421	0455	0439	B1.5				
02 Jun	0613	0619	0624	B2.9				
04 Jun	2352	0001	0006	B3.5				
05 Jun	1207	1246	1239	B0.9				
06 Jun	1013	1020	1027	B1.0				
06 Jun	1907	1919	1930	B2.7				
06 Jun	1958	2002	2007	B1.1				
06 Jun	2018	2027	2031	B1.4				
06 Jun	2354	0001	0010	B1.0				
07 Jun	0507	0514	0527	B1.6				2765
07 Jun	2038	2047	2051	B1.4				
07 Jun	2133	2146	2156	B6.4	SF	S24E24		2765



## Region Summary

Date	Location		Sunspot Characteristics				Flares								
	Lat	CMD	Helio Lon	Area 10 <sup>6</sup> hemi.	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical			
									C	M	X	S	1	2	3

### Region 2764

29 May	N35E88	165	plage							2	1						
01 Jun	N35E47	165	0		Axx	1	A										
02 Jun	N34E35	165	plage														
03 Jun	N34E21	165	plage														
04 Jun	N34E07	166	plage														
05 Jun	N34W07	167	plage														
06 Jun	N34W21	168	plage														
07 Jun	N34W35	168	plage														
										2	1	0	0	0	0	0	0

Still on Disk.

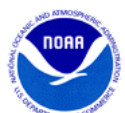
Absolute heliographic longitude: 166

### Region 2765

03 Jun	S24E71	115	70	3	Hsx	2	A										
04 Jun	S24E58	115	100	3	Hsx	2	A										
05 Jun	S24E44	116	130	5	Cao	3	B										
06 Jun	S22E33	114	110	5	Dso	5	B										
07 Jun	S23E20	113	100	4	Cao	6	B					1					
										0	0	0	1	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 113



**Recent Solar Indices (preliminary)**  
**Observed monthly mean values**

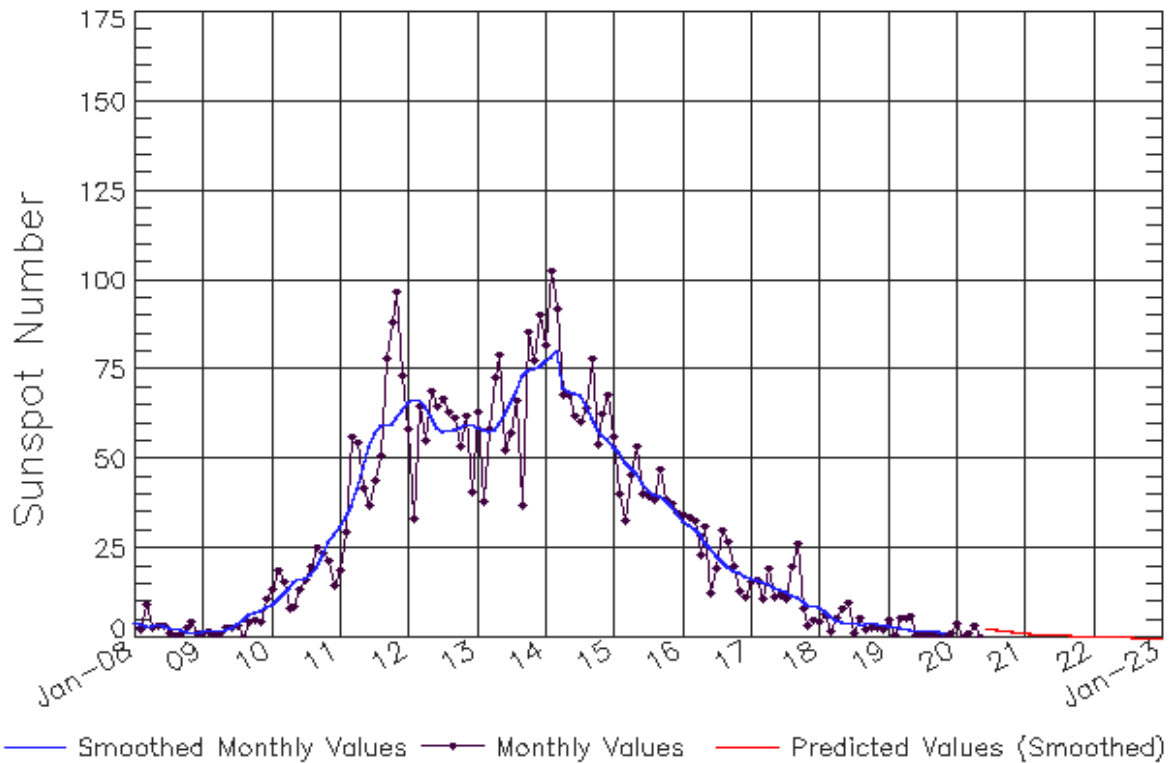
Month	Sunspot Numbers					Radio Flux		Geomagnetic		
	Observed values		Ratio	Smooth values		Penticton	Smooth	Planetary	Smooth	
	SEC	RI	RI/SEC	SEC	RI	10.7 cm	Value	Ap	Value	
<b>2018</b>										
June		19.7	9.4	0.48	9.1	4.3	72.5	70.0	7	7.4
July		1.3	1.0	0.77	9.4	4.2	69.7	70.0	6	7.3
August		10.0	5.2	0.53	9.0	4.0	69.1	70.0	10	7.3
September		5.7	2.0	0.35	8.7	3.9	68.3	70.1	9	7.3
October		6.9	2.9	0.42	9.2	4.1	69.5	70.3	7	7.1
November		7.3	2.9	0.48	9.5	4.0	68.9	70.4	6	7.0
December		5.6	1.9	0.34	9.3	3.6	70.0	70.3	7	6.9
<b>2019</b>										
January		16.0	4.6	0.29	9.0	3.2	71.6	70.0	6	6.8
February			0.5		8.7	3.0	70.6	69.8	7	6.7
March		14.8	5.6	0.39	8.3	2.8	71.5	69.7	6	6.6
April		11.5	5.5	0.48	7.9	2.6	72.4	69.6	6	6.7
May		18.1	5.9	0.34	7.4	2.3	71.3	69.6	7	6.7
June		11.6	0.7	0.06	7.3	2.2	68.1	69.6	5	6.5
July		1.6	0.5	0.31	7.0	2.1	67.1	69.7	6	6.3
August		2.5	0.3	0.16	7.0	2.1	67.0	69.8	7	6.2
September		2.6	0.7	0.27	6.8	1.9	68.1	69.7	10	6.2
October		1.8	0.2	0.11	6.2	1.6	67.4	69.5	8	6.2
November		1.1	0.3	0.27	5.3	1.3	70.2	69.3	4	6.0
December		7.2	0.9	0.14			70.9		4	
<b>2020</b>										
January		9.2	3.8	0.41			72.3		5	
February		5.5	0.2	0.04			71.0		6	
March		3.0	0.9	0.30			70.1		6	
April		8.5	3.2	0.38			69.5		6	
May		0.0	0.1				69.2		4	

**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.



# ISES Solar Cycle Sunspot Number Progression

Observed data through May 2020



Updated 2020 Jun B

NOAA/SWPC Boulder, CO USA

## *Smoothed Sunspot Number Prediction*

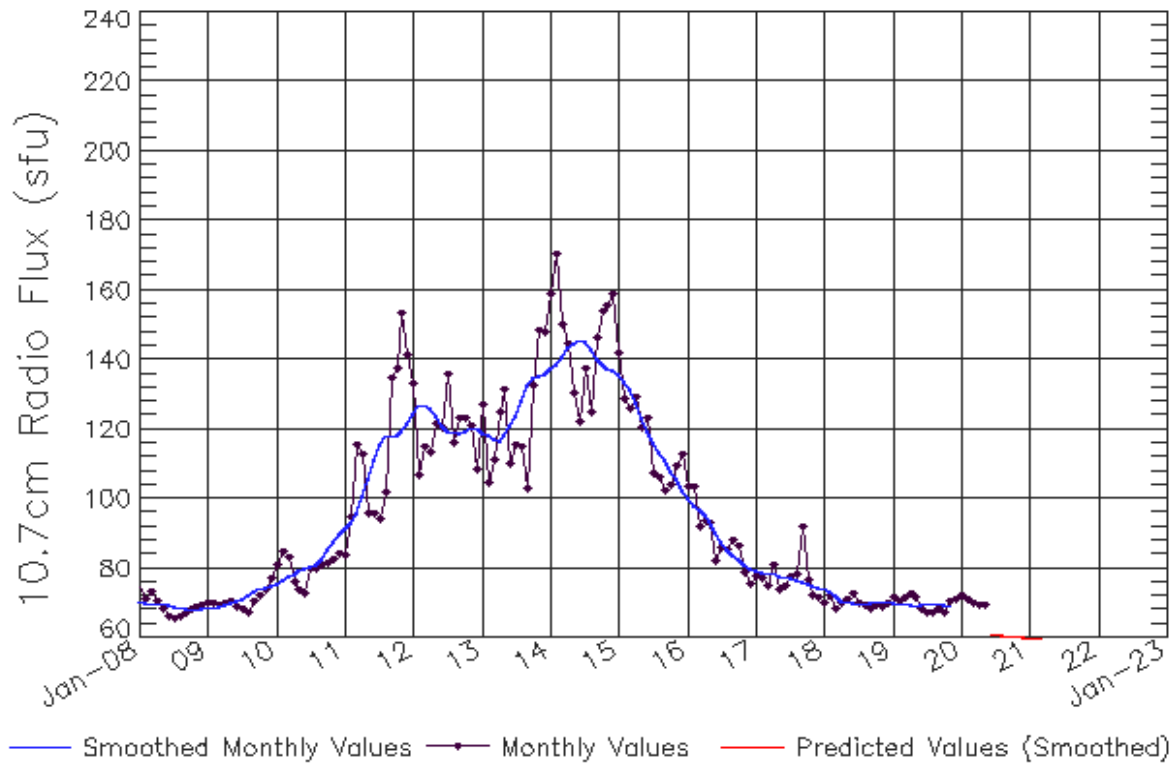
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2016	33	32	30	29	27	25	23	22	20	19	18	17
	(**)	(**)	(**)	(**)	(**)	(**)	(**)	(**)	(**)	(**)	(**)	(**)
2017	17	16	15	15	14	13	13	12	11	10	9	9
	(**)	(**)	(**)	(**)	(**)	(**)	(**)	(**)	(**)	(**)	(**)	(**)
2018	9	8	6	5	5	4	4	4	4	4	4	4
	(**)	(**)	(**)	(**)	(**)	(**)	(**)	(**)	(**)	(**)	(**)	(**)
2019	3	3	3	3	2	2	2	2	2	2	1	1
	(**)	(**)	(**)	(**)	(**)	(**)	(**)	(**)	(**)	(**)	(**)	(1)
2020	1	1	2	2	2	2	2	2	2	2	2	2
	(2)	(3)	(5)	(5)	(6)	(7)	(7)	(8)	(9)	(9)	(10)	(10)
2021	2	1	1	1	1	1	1	1	1	1	1	1
	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)
2022	1	0	0	0	0	0	0	0	0	0	0	0
	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)





# ISES Solar Cycle F10.7cm Radio Flux Progression

Observed data through May 2020



Updated 2020 Jun B

NOAA/SWPC Boulder, CO USA

## Smoothed F10.7cm Radio Flux Prediction

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2016	100	98	97	95	93	90	88	86	84	83	81	80
	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)
2017	79	79	79	78	78	77	77	76	76	75	75	74
	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)
2018	74	73	72	71	70	70	70	70	70	70	70	70
	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)
2019	70	70	70	70	70	70	70	70	70	70	69	69
	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(1)
2020	68	68	67	67	66	65	64	63	62	62	61	60
	(1)	(2)	(3)	(4)	(4)	(5)	(6)	(7)	(8)	(8)	(9)	(9)
2021	60	60	60	60	60	60	60	59	59	59	59	59
	(9)	(9)	(9)	(9)	(9)	(9)	(9)	(9)	(9)	(9)	(9)	(9)
2022	59	59	59	59	59	59	59	59	59	59	59	59
	(9)	(9)	(9)	(9)	(9)	(9)	(9)	(9)	(9)	(9)	(9)	(9)





## ***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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