Space Weather Highlights
12 October - 18 October 2026

SWPC PRF 2668
19 October 2026

Solar activity reached moderate levels on 16 Oct when Region 4551 (S15, L=102, class/area=Eki/620 on 15 Oct) produced an M1.3 flare (R1-Minor) at 16/1542 UTC, the largest flare of the week. Solar activity was at low levels with C-class flare activity throughout the remainder of the period. 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 16 Oct, with normal to moderate levels observed throughout the remainder of the week.

The geomagnetic field was at quiet to unsettled levels on 12-15 and 17 Oct, with active levels observed on 16 Oct, due primarily to negative polarity CH HSS influences. Quiet conditions were observed on 18 Oct.

Space Weather Outlook
19 October - 14 November 2026

Solar activity is expected to predominately low with M-class flare probabilities ranging between a slight chance to a chance 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 reach high levels on 23-27 Oct and 01-04 Nov, with normal to moderate levels likely the prevail throughout the remainder of the period.

Geomagnetic field activity is likely to reach G1 (Minor) storm levels on 19-20 Oct and 31 Oct-01 Nov, with active conditions likely on 21 and 24 Oct and 09 Nov, due to CH HSS influences. Quiet and quiet to unsettled levels are expected to prevail throughout the remainder 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
12 October	123	93	650	B5.5	4	0	0	0	0	0	0	0
13 October	136	102	745	B6.4	2	0	0	2	0	0	0	0
14 October	123	124	600	B5.8	8	0	0	7	0	0	0	0
15 October	126	104	710	B5.4	11	0	0	8	0	0	0	0
16 October	131	81	700	B6.7	13	1	0	2	1	0	0	0
17 October	132	87	630	B6.0	7	0	0	13	0	0	0	0
18 October	137	82	510	B5.2	4	0	0	10	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	>2MeV
12 October	2.8e+06	2.1e+04	1.4e+07
13 October	8.8e+05	2.0e+04	1.3e+07
14 October	3.6e+05	2.1e+04	1.5e+07
15 October	1.3e+05	2.1e+04	2.2e+07
16 October	2.9e+05	2.1e+04	4.0e+07
17 October	2.6e+05	2.1e+04	2.5e+07
18 October	1.5e+05	2.1e+04	2.0e+07

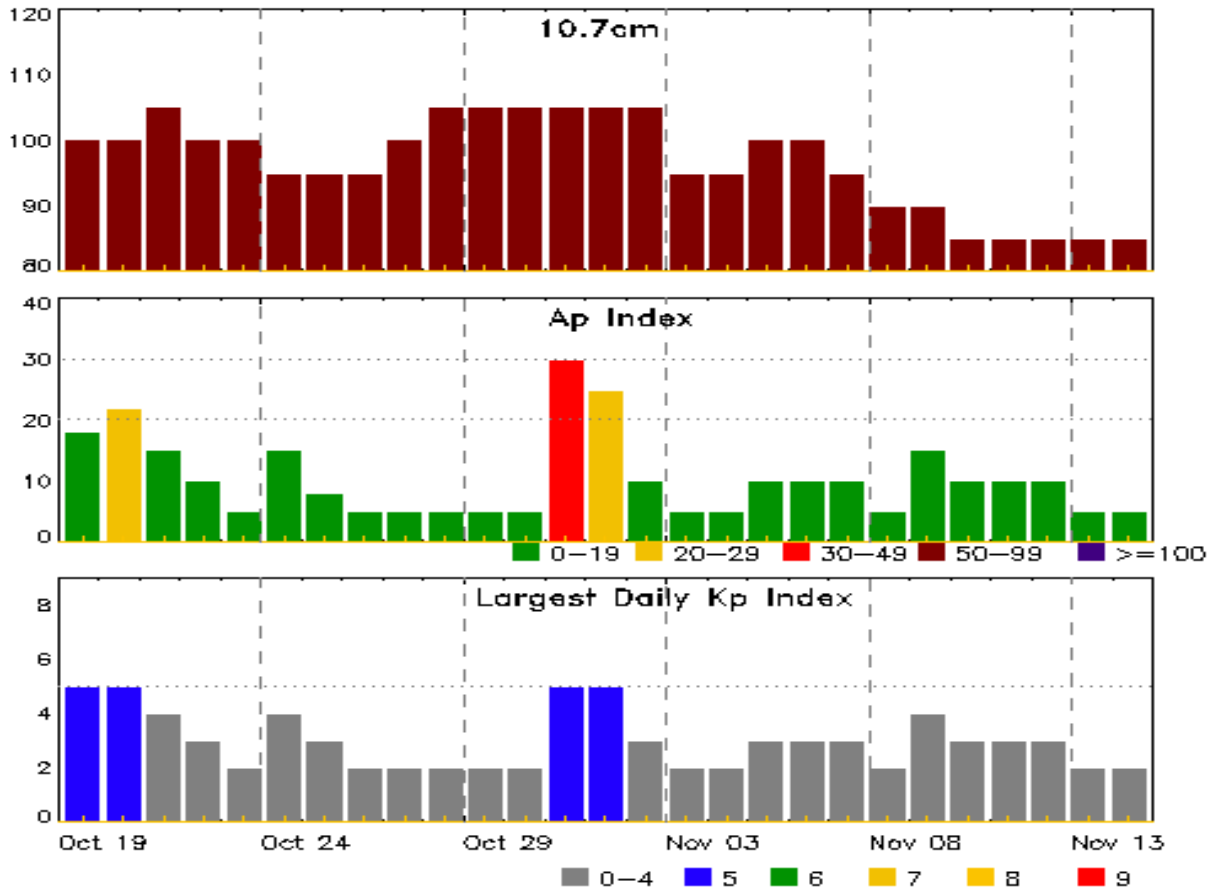
Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
12 October	7	1-2-3-1-1-2-2-2	10	1-3-4-3-0-1-2-2	7	2-2-3-1-1-1-2-1
13 October	12	4-3-1-2-3-2-3-2	16	3-2-3-5-4-2-2-1	13	3-3-2-3-3-2-3-1
14 October	9	2-3-1-2-3-2-2-2	12	2-1-0-5-3-2-2-2	10	2-3-2-2-2-2-3-3
15 October	7	1-1-1-3-2-2-2-2	18	2-1-1-6-4-3-2-1	9	2-1-1-3-3-3-2-2
16 October	10	3-2-2-2-2-3-3-2	15	2-1-3-3-2-5-3-2	12	3-2-2-2-2-3-4-2
17 October	4	1-1-0-1-2-2-2-1	6	1-1-0-1-1-4-2-0	6	2-1-1-1-1-3-3-1
18 October	4	1-2-2-1-1-1-2-0	6	2-3-1-3-0-2-1-0	7	2-2-2-2-0-1-2-0

Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
13 Oct 0115	WARNING: Geomagnetic K = 4	13/0115 - 1500
13 Oct 1431	EXTENDED WARNING: Geomagnetic K = 4	13/0115 - 2100
13 Oct 2058	EXTENDED WARNING: Geomagnetic K = 4	13/0115 - 14/1200
16 Oct 1419	ALERT: Electron 2MeV Integral Flux >= 1000pfu	16/1345
16 Oct 1938	WARNING: Geomagnetic K = 4	16/1938 - 17/0300
16 Oct 1939	ALERT: Geomagnetic K = 4	16/1940
17 Oct 2014	WATCH: Geomagnetic Storm Category G1 predicted	
18 Oct 1724	WATCH: Geomagnetic Storm Category G1 predicted	

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
19 Oct	100	18	5	02 Nov	105	10	3
20	100	22	5	03	95	5	2
21	105	15	4	04	95	5	2
22	100	10	3	05	100	10	3
23	100	5	2	06	100	10	3
24	95	15	4	07	95	10	3
25	95	8	3	08	90	5	2
26	95	5	2	09	90	15	4
27	100	5	2	10	85	10	3
28	105	5	2	11	85	10	3
29	105	5	2	12	85	10	3
30	105	5	2	13	85	5	2
31	105	30	5	14	85	5	2
01 Nov	105	25	5				

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
16 Oct	1538		1542	1545	M1.3		0.003		4551			

Flare List

	Time				Optical		
Date	Begin	Max	End	X-ray Class	Imp/ Brtns	Location Lat CMD	Rgn #
12 Oct	0154	0202	0212	C1.1			4549
12 Oct	0739	0747	0751	B9.3			4551
12 Oct	1226	1233	1245	B8.8			
12 Oct	1909	1916	1920	C1.0			4549
12 Oct	2029	2039	2045	C1.0			4554
12 Oct	2348	2353	2358	C1.0			4549
13 Oct	0329	0340	0347	C1.2			4549
13 Oct	1608	1632	1643	C4.2			4549
13 Oct	1844	1852	1858	B9.1			4549
13 Oct	1858	1903	1905	B9.6			4549
13 Oct	2015	2017	2021		SF	S11E19	4551
13 Oct	2020	2021	2026		SF	N06E60	4556
13 Oct	2142	2150	2155	B9.9			4549
14 Oct	0049	0106	0116	B9.7			4551
14 Oct	0159	0221	0239	C6.9			4549
14 Oct	0349	0356	0402	C1.1			4551
14 Oct	0822	0836	0854	C1.3			4551
14 Oct	1316	1324	1328	C1.0			4551
14 Oct	1328	1336	1339	C1.3			4551
14 Oct	1426	1434	1439	C1.3			4551
14 Oct	1440	1444	1447	C1.9	SF	S13E13	4551
14 Oct	1548	1557	1604	C2.2	SF	S12E13	4551
14 Oct	2035	2035	2039		SF	S11E10	4551
14 Oct	2111	2112	2117		SF	S11E09	4551
14 Oct	2118	2125	2128		SF	S11E10	4551
14 Oct	2131	2140	2141		SF	S11E10	4551
14 Oct	2313	2314	2318		SF	S10E04	4551
15 Oct	0134	0143	0148	B9.4			4551
15 Oct	0200	0207	0221	C2.8	SF	S14E07	4551
15 Oct	0720	0727	0732	C1.0			4551

Flare List

Date	Time			Optical			
	Begin	Max	End	X-ray Class	Imp/ Brtns	Location Lat CMD	Rgn #
15 Oct	1137	1144	1153	C1.0			4551
15 Oct	1355	1402	1405	C1.3	SF	S11E02	4551
15 Oct	1413	1419	1423	C1.0			4551
15 Oct	1433	1441	1449		SF	S12W01	4551
15 Oct	1511	1517	1520	C1.4			4551
15 Oct	1549	1555	1559	C4.9			4551
15 Oct	1619	1754	1831	C2.8	SF	S12W01	4551
15 Oct	1840	1840	1846		SF	S13W03	4551
15 Oct	1840	1840	1851		SF	N09E34	4557
15 Oct	2050	2056	2059	C1.1			4551
15 Oct	2131	2136	2146	C1.0			4557
15 Oct	2253	2255	2302		SF	S09W12	4551
15 Oct	2349	2350	A2359	C1.9	SF	S10W09	4551
16 Oct	B0000	0000	A0008	C3.1	SF	S10W09	4551
16 Oct	0104	0117	0131	C3.0			4557
16 Oct	0326	0334	0337	C1.6			4551
16 Oct	0420	0431	0445	C1.7			4551
16 Oct	0614	0622	0630	C1.3	SF	S13W08	4551
16 Oct	1042	1054	1104	C1.5			4551
16 Oct	1104	1108	1110	C1.4			
16 Oct	1538	1542	1545	M1.3			4551
16 Oct	1808	1814	1824	C1.6			
16 Oct	1843	1913	2022	C2.1	1N	S14W15	4551
16 Oct	1911	1914	1916	C1.5			4551
16 Oct	2224	2232	2238	C1.2			4551
16 Oct	2259	2306	2312	C1.0			4556
17 Oct	0041	0048	0055	B8.7			4551
17 Oct	0358	0410	0415	C2.8	SF	S10W23	4551
17 Oct	0518	0523	0531	B9.5			4556
17 Oct	0622	0630	0640	C1.2			4551
17 Oct	0932	0941	0947	B8.6			4557
17 Oct	0947	0952	0957	B8.2			
17 Oct	1232	1239	1245	C1.5			
17 Oct	1522	1526	1529	C1.4	SF	S11W28	4551
17 Oct	1536	1540	1544	C1.7	SF	S12W26	4551
17 Oct	1715	1723	1733	B7.6			
17 Oct	1912	1915	1918		SF	N06E03	4557
17 Oct	2006	2017	2028	C1.1	SF	S15W28	4551

Flare List

Date	Time			Optical			
	Begin	Max	End	X-ray Class	Imp/ Brtns	Location Lat CMD	Rgn #
17 Oct	2040	2040	2042		SF	S15W28	4551
17 Oct	2044	2047	2049		SF	S15W26	4551
17 Oct	2048	2050	2054		SF	S15W26	4551
17 Oct	2115	2116	2120		SF	S15W28	4551
17 Oct	2142	2143	2143		SF	S15W28	4551
17 Oct	2145	2146	2153		SF	S16W31	4551
17 Oct	2221	2223	2227		SF	S15W29	4551
17 Oct	2319	2326	2338	C1.5	SF	S17W30	4551
18 Oct	0332	0353	0409	C3.4	SF	N04W00	4557
18 Oct	0627	0644	0657	C3.7	SF	S15W33	4551
18 Oct	0813	0813	0827		SF	S16W33	4551
18 Oct	1045	1050	1053	C1.3	SF	S17W35	4551
18 Oct	1431	1442	1451	B8.6	SF	S13W40	4551
18 Oct	1556	1557	1559		SF	N04W10	4557
18 Oct	1711	1714	1722	B9.6	SF	N05W11	4557
18 Oct	1821	1826	1827		SF	S11W43	4551
18 Oct	1910	1917	1928	C2.1	SN	S08W38	4551
18 Oct	1957	1958	2003		SF	S20W35	4559

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 4545												
01 Oct	N20E61	220	10	4	Bxo	3	B	1							
02 Oct	N20E46	222	20	6	Cro	2	B								
03 Oct	N20E33	222	20	6	Dao	5	B								
04 Oct	N20E20	221	20	8	Cro	6	B								
05 Oct	N20E07	221	20	3	Dro	6	BG	1	1		1				
06 Oct	N19W06	221	50	4	Dao	12	B								
07 Oct	N18W19	221	50	6	Dao	8	B								
08 Oct	N17W33	222	70	8	Dso	9	B								
09 Oct	N18W46	222	40	8	Dao	8	B								
10 Oct	N17W60	222	20	6	Cao	5	B	1			1				
11 Oct	N16W73	222	20	6	Bxo	8	B	2							
12 Oct	N17W86	222	plage												
								5	1	0	2	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 221

			Region 4548												
03 Oct	S11E64	191	30	1	Hsx	1	A								
04 Oct	S11E51	190	60	2	Hsx	1	A								
05 Oct	S12E38	190	40	2	Hsx	1	A								
06 Oct	S12E25	190	40	1	Hsx	1	A								
07 Oct	S12E13	189	50	1	Hsx	1	A								
08 Oct	S13W01	190	40	2	Hsx	1	A								
09 Oct	S13W14	190	40	2	Hsx	1	A								
10 Oct	S13W26	188	40	2	Hsx	1	A								
11 Oct	S13W39	188	40	2	Hsx	1	A								
12 Oct	S13W53	189	30	2	Hsx	2	A								
13 Oct	S13W66	189	30	1	Hsx	1	A								
14 Oct	S13W79	189	20	1	Hsx	1	A								
15 Oct	S13W93	189	20	1	Hsx	1	A								
								0	0	0	0	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 190

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 4549												
05 Oct	N10E15	213	40	4	Dai	4	BGD	1							
06 Oct	N10E01	214	60	5	Dac	16	BGD	11	2		4	1			
07 Oct	N10W13	215	150	8	Dai	16	BGD	7			6				
08 Oct	N10W29	218	260	12	Eki	29	BGD	4	1		7		1		
09 Oct	N10W41	216	290	11	Eki	30	BGD	12			1				
10 Oct	N09W54	216	260	11	Eki	28	BGD	4	2		3	2			
11 Oct	N09W67	216	200	11	Eai	20	BD								
12 Oct	N09W81	217	180	10	Dao	8	B	3							
13 Oct	N09W95	218	180	10	Dao	8	B	2							
								44	5	0	21	3	1	0	0

Crossed West Limb.
Absolute heliographic longitude: 214

			Region 4550												
07 Oct	S15W22	224	10	3	Bxo	2	B								
08 Oct	S16W37	226	plage												
09 Oct	S16W51	227	plage												
10 Oct	S16W65	227	plage												
11 Oct	S16W79	228	plage												
								0	0	0	0	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 224

			Region 4551												
09 Oct	S13E71	105	170	6	Dao	2	B	1							
10 Oct	S14E61	102	360	12	Eko	12	B	1							
11 Oct	S15E47	102	400	13	Eko	14	BG	1			3				
12 Oct	S15E34	102	400	12	Eko	13	B								
13 Oct	S15E21	102	480	12	Eho	9	BG				1				
14 Oct	S15E07	103	500	13	Eki	23	BGD	7			7				
15 Oct	S15W06	102	620	12	Eki	32	BGD	10			7				
16 Oct	S14W19	102	600	13	Eki	34	BG	9	1		2	1			
17 Oct	S15W32	102	510	15	Eki	27	BG	6			12				
18 Oct	S16W46	103	350	12	Eki	12	BG	3			6				
								38	1	0	38	1	0	0	0

Still on Disk.
Absolute heliographic longitude: 102

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 4552												
09 Oct	N22W21	197	10	2	Cao	2	B								
10 Oct	N22W34	196	10	3	Bxo	3	B								
11 Oct	N23W45	194	plage												
12 Oct	N23W59	195	plage												
13 Oct	N23W73	196	plage												
14 Oct	N23W87	196	plage												
								0	0	0	0	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 197

			Region 4553												
11 Oct	N07E60	89	10	1	Axx	1	A	1							
12 Oct	N07E47	89	10	2	Bxo	4	B								
13 Oct	N07E47	89	plage												
14 Oct	N06E20	90	10	1	Axx	1	A								
15 Oct	N06E06	90	10	1	Axx	1	A								
16 Oct	N06W09	92	plage												
17 Oct	N06W24	94	plage												
18 Oct	N06W39	96	plage												
								1	0	0	0	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 90

			Region 4554												
12 Oct	N07E61	75	20	5	Bxo	3	B	1							
13 Oct	N07E48	75	10	4	Bxo	4	B								
14 Oct	N07E33	77	10	1	Axx	1	A								
15 Oct	N07E20	76	plage												
16 Oct	N07E05	78	plage												
17 Oct	N07W10	80	plage												
18 Oct	N07W25	82	plage												
								1	0	0	0	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 78

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 4555												
12 Oct	S08W17	153	10	3	Cro	3	B								
13 Oct	S06W30	152	5	2	Bxo	2	B								
14 Oct	S07W43	153	10	4	Bxo	5	B								
15 Oct	S07W56	152	10	4	Cro	3	B								
16 Oct	S08W70	153	20	5	Cro	2	B								
17 Oct	S07W84	154	10	1	Axx	1	A								
								0	0	0	0	0	0	0	0
Crossed West Limb.															
Absolute heliographic longitude: 153															
			Region 4556												
13 Oct	N03E59	63	10	3	Bxo	3	B				1				
14 Oct	N03E45	64	10	4	Bxo	4	B								
15 Oct	N03E32	64	plage												
16 Oct	N03E17	66	plage					1							
17 Oct	N03E03	67	plage												
18 Oct	N03W12	69	plage												
								1	0	0	1	0	0	0	0
Still on Disk.															
Absolute heliographic longitude: 67															
			Region 4557												
13 Oct	N06E57	66	30	4	Cro	5	B								
14 Oct	N07E43	67	30	5	Cro	8	B								
15 Oct	N07E29	67	50	5	Dri	17	B	1			1				
16 Oct	N07E16	67	80	8	Dsi	15	B	1							
17 Oct	N17E01	69	110	9	Dai	29	B				1				
18 Oct	N06W13	70	140	11	Eai	22	B	1			3				
								3	0	0	5	0	0	0	0
Still on Disk.															
Absolute heliographic longitude: 69															

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 4558												
14 Oct	S08W34	144	10	1	Axx	1	A								
15 Oct	S08W48	144	plage												
16 Oct	S08W62	145	plage												
17 Oct	S08W76	146	plage												
18 Oct	S08W90	147	plage												
								0	0	0	0	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 144

			Region 4559												
18 Oct	S19W37	94	10	3	Bxo	4	B				1				
								0	0	0	1	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 94

			Region 4560												
18 Oct	N14E12	44	10	4	Cro	4	B								
								0	0	0	0	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 44

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.

https://www.swpc.noaa.gov/products/weekly-highlights-and-27-day-forecast -- Current
ftp://ftp.swpc.noaa.gov/pub/warehouse -- Online archive from 1997
https://www.ngdc.noaa.gov/stp/satellite/goes-r.html -- NCEI GOES data textarchive
https://www.swpc.noaa.gov/products/solar-cycle-progression -- Solar Cycle Progression web site
https://www.swpc.noaa.gov/content/contact-us -- Contact and Copyright information
https://www.swpc.noaa.gov/sites/default/files/images/u2/Usr_guide.pdf -- User Guide