

Space Weather Highlights
07 May - 13 May 2018

SWPC PRF 2228
14 May 2018

Solar activity was very low throughout the period and no reportable events were observed.

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit reached very high levels on 9-11 May and high levels were observed throughout the remainder of the period.

Geomagnetic field activity was at quiet to active levels on 07-09, 11-12 May due to the influence of a negative polarity coronal hole/high speed solar wind stream. Quiet to unsettled levels were observed on 10 May, and conditions were quiet on 13 May.

Space Weather Outlook
14 May - 09 June 2018

Solar activity is expected to persist at very low levels 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 very high levels on 05-07 Jun with high levels expected on 14-26 May and 02-04, 08-09 Jun. Moderate flux levels are likely through the remainder of the outlook period.

Geomagnetic field activity is expected to reach G2 (Moderate) geomagnetic storm levels on 02 Jun with G1 (Minor) geomagnetic storms levels expected on 17 May and 01 Jun due to the influence of multiple coronal hole/high speed solar wind streams. Active conditions are expected on 18 May and 03-05 Jun and generally quiet or quiet to unsettled conditions are expected to prevail for the remainder of the outlook period.



Daily Solar Data

Date	Radio	Sun	Sunspot	X-ray		Flares							
	Flux	spot	Area	Background		X-ray			Optical				
	10.7cm	No.	(10 ⁻⁶ hemi.)	Flux		C	M	X	S	1	2	3	4
07 May	70	14	10	A2.6	0	0	0	0	0	0	0	0	0
08 May	70	25	20	A2.4	0	0	0	0	0	0	0	0	0
09 May	70	22	20	A2.7	0	0	0	0	0	0	0	0	0
10 May	70	11	10	A2.9	0	0	0	0	0	0	0	0	0
11 May	70	11	10	A2.2	0	0	0	0	0	0	0	0	0
12 May	70	12	10	A2.0	0	0	0	0	0	0	0	0	0
13 May	71	11	10	A1.9	0	0	0	0	0	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	>100 MeV	>0.6 MeV	>2MeV	>4 MeV
07 May	1.0e+06	1.7e+04	3.6e+03		7.3e+08	
08 May	2.8e+06	1.7e+04	3.3e+03		7.1e+08	
09 May	1.8e+06	1.7e+04	3.4e+03		1.6e+09	
10 May	1.8e+06	1.7e+04	3.6e+03		2.3e+09	
11 May	1.1e+06	1.7e+04	3.6e+03		1.3e+09	
12 May	9.3e+05	1.8e+04	3.5e+03		4.2e+08	
13 May	1.1e+06	1.8e+04	3.9e+03		3.6e+08	

Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
07 May	14	3-4-3-2-3-2-2-3	31	3-5-5-4-5-5-1-2	17	4-4-3-2-3-3-2-3
08 May	12	2-3-3-3-2-3-3-2	27	3-5-4-5-3-5-2-2	14	3-3-3-3-2-4-4-2
09 May	13	3-3-3-2-3-2-3-3	29	3-3-6-4-5-3-3-3	16	3-3-3-2-3-2-4-4
10 May	11	3-2-4-3-2-2-1-2	21	3-2-4-5-4-4-2-2	12	3-3-3-3-2-3-1-2
11 May	19	2-4-3-2-4-2-5-3	28	2-3-6-4-5-4-2-3	16	2-4-4-2-3-2-4-4
12 May	10	3-4-2-2-2-1-2-2	9	3-3-2-4-1-0-1-1	10	3-4-2-2-1-1-2-2
13 May	10	1-2-3-3-3-2-2-2	12	1-1-3-5-3-2-1-1	6	2-2-2-2-2-2-2-2

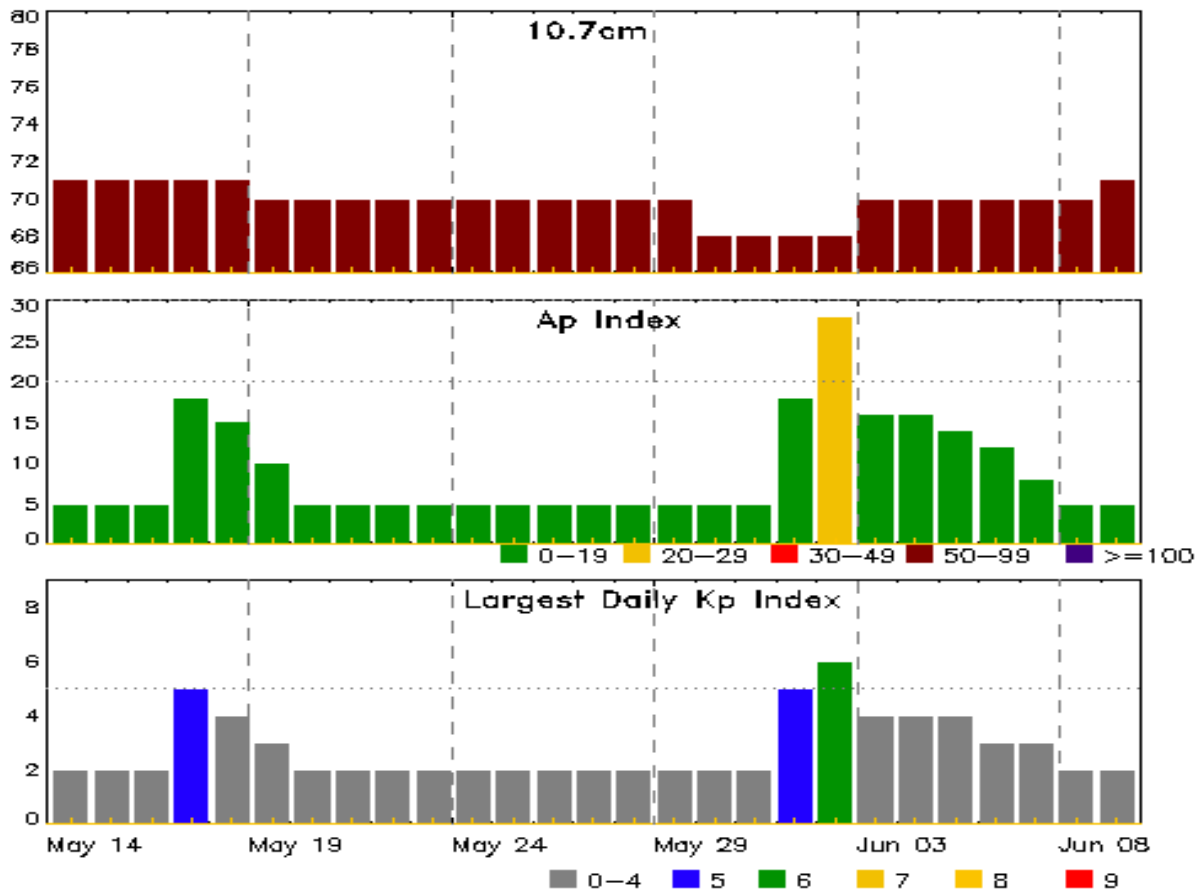


Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
07 May 0001	ALERT: Geomagnetic K = 5	06/2359
07 May 0906	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	06/1400
08 May 0546	WARNING: Geomagnetic K = 4	08/0546 - 1200
08 May 0908	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	06/1400
08 May 1534	WARNING: Geomagnetic K = 4	08/1535 - 2100
08 May 1800	ALERT: Geomagnetic K = 4	08/1759
08 May 2026	EXTENDED WARNING: Geomagnetic K = 4	08/1535 - 09/0300
09 May 0256	EXTENDED WARNING: Geomagnetic K = 4	08/1535 - 09/1200
09 May 0900	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	06/1400
09 May 1942	WARNING: Geomagnetic K = 4	09/1942 - 2359
09 May 2023	ALERT: Geomagnetic K = 4	09/2022
09 May 2341	EXTENDED WARNING: Geomagnetic K = 4	09/1942 - 10/0900
10 May 0855	EXTENDED WARNING: Geomagnetic K = 4	09/1942 - 10/1800
10 May 0900	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	06/1400
10 May 1757	EXTENDED WARNING: Geomagnetic K = 4	09/1942 - 10/2359
11 May 0527	WARNING: Geomagnetic K = 4	11/0525 - 1500
11 May 0603	ALERT: Geomagnetic K = 4	11/0559
11 May 0859	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	06/1400
11 May 1931	WARNING: Geomagnetic K = 4	11/1932 - 2359
11 May 2101	ALERT: Geomagnetic K = 4	11/2059
11 May 2316	EXTENDED WARNING: Geomagnetic K = 4	11/1932 - 12/0900
12 May 0859	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	06/1400
13 May 0941	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	06/1400



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
14 May	71	5	2	28 May	70	5	2
15	71	5	2	29	70	5	2
16	71	5	2	30	68	5	2
17	71	18	5	31	68	5	2
18	71	15	4	01 Jun	68	18	5
19	70	10	3	02	68	28	6
20	70	5	2	03	70	16	4
21	70	5	2	04	70	16	4
22	70	5	2	05	70	14	4
23	70	5	2	06	70	12	3
24	70	5	2	07	70	8	3
25	70	5	2	08	70	5	2
26	70	5	2	09	71	5	2
27	70	5	2				

Energetic Events

Date	Time			X-ray		Optical Information			Peak		Sweep Freq	
	Begin	Max	Half	Class	Flux	Imp/	Location	Rgn	Radio Flux		Intensity	
			Max			Brtns			245	2695	II	IV

No Events Observed

Flare List

Date	Time			X-ray	Optical		
	Begin	Max	End		Imp/	Location	Rgn
				Class	Brtns	Lat CMD	#
10 May	0328	0329	0330	A1.1			



Region Summary

Date	Location		Sunspot Characteristics					Flares							
	Lat CMD	Helio Lon	Area 10 ⁻⁶ hemi.	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical				
								C	M	X	S	1	2	3	4

Region 2708

04 May	S09E53	204	30	3	Cro	3	B								
05 May	S08E39	99	10	5	Bxo	4	B								
06 May	S10E26	99	10	5	Bxo	4	B								
07 May	S11E12	100	10	4	Bxo	4	B								
08 May	S09W01	100	10	3	Bxo	3	B								
09 May	S10W13	98	10	2	Axx	1	A								
10 May	S10W27	99	plage												
11 May	S10W41	100	plage												
12 May	S10W55	101	plage												
13 May	S10W69	101	plage												
								0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 100

Region 2709

08 May	N05E65	34	10	2	Axx	2	A								
09 May	N05E52	33	10	1	Axx	1	A								
10 May	N05E38	34	10	1	Axx	1	A								
11 May	N05E24	35	10	1	Axx	1	A								
12 May	N06E11	35	10	2	Axx	2	A								
13 May	N04W02	34	10	1	Axx	1	A								
								0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 34

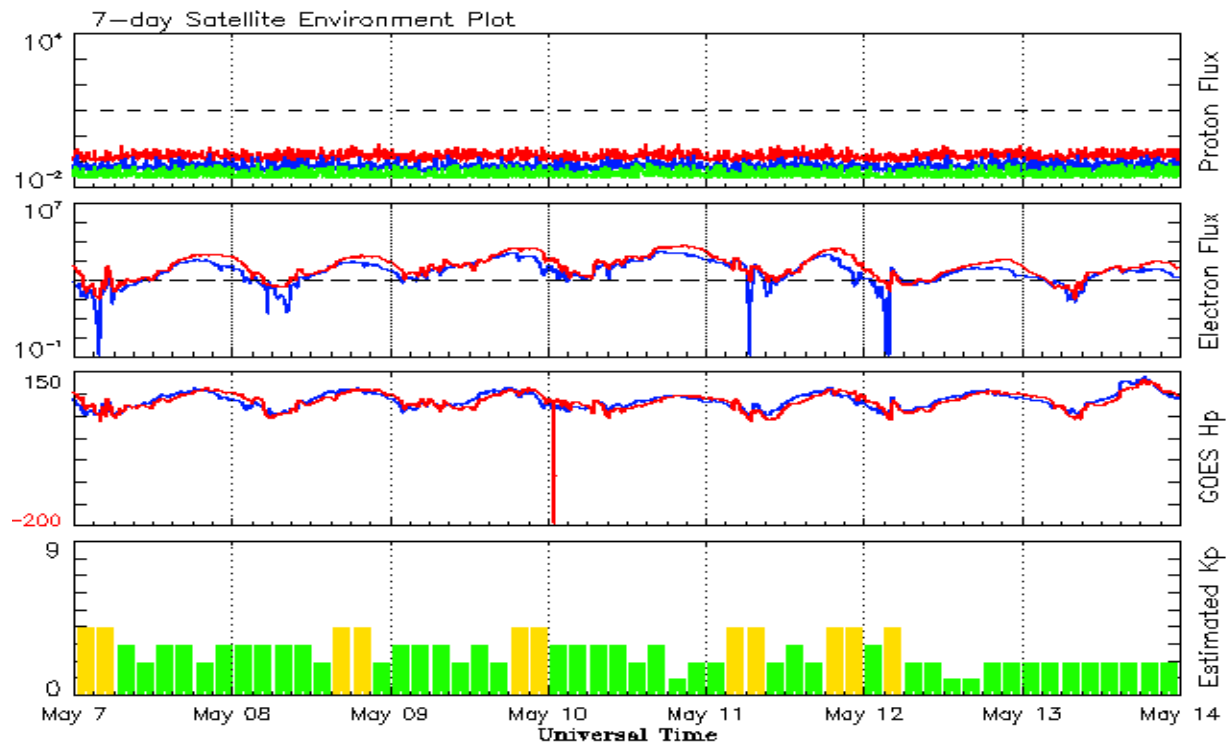


Recent Solar Indices (preliminary)
Observed monthly mean values

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
2016									
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	11.4
2017									
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	15.4	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	22.0	13.3	74.8	77.3	7	11.3
July	18.8	10.7	0.59	20.8	12.6	77.7	76.8	9	11.0
August	25.0	19.6	0.80	19.7	11.7	77.9	76.3	12	10.7
September	42.2	26.2	0.62	18.6	10.9	92.0	75.9	19	10.3
October	16.0	7.9	0.49	16.8	10.0	76.4	75.1	11	9.8
November	7.7	3.4	0.44			72.1		11	
December	7.6	4.9	0.64			71.5		8	
2018									
January	7.8	4.0	0.51			70.0		6	
February	16.0	6.4	0.40			72.0		7	
March	6.0	1.5	0.25			68.4		8	
April	7.0	5.3	0.76			70.0		7	

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 07 May 2018*

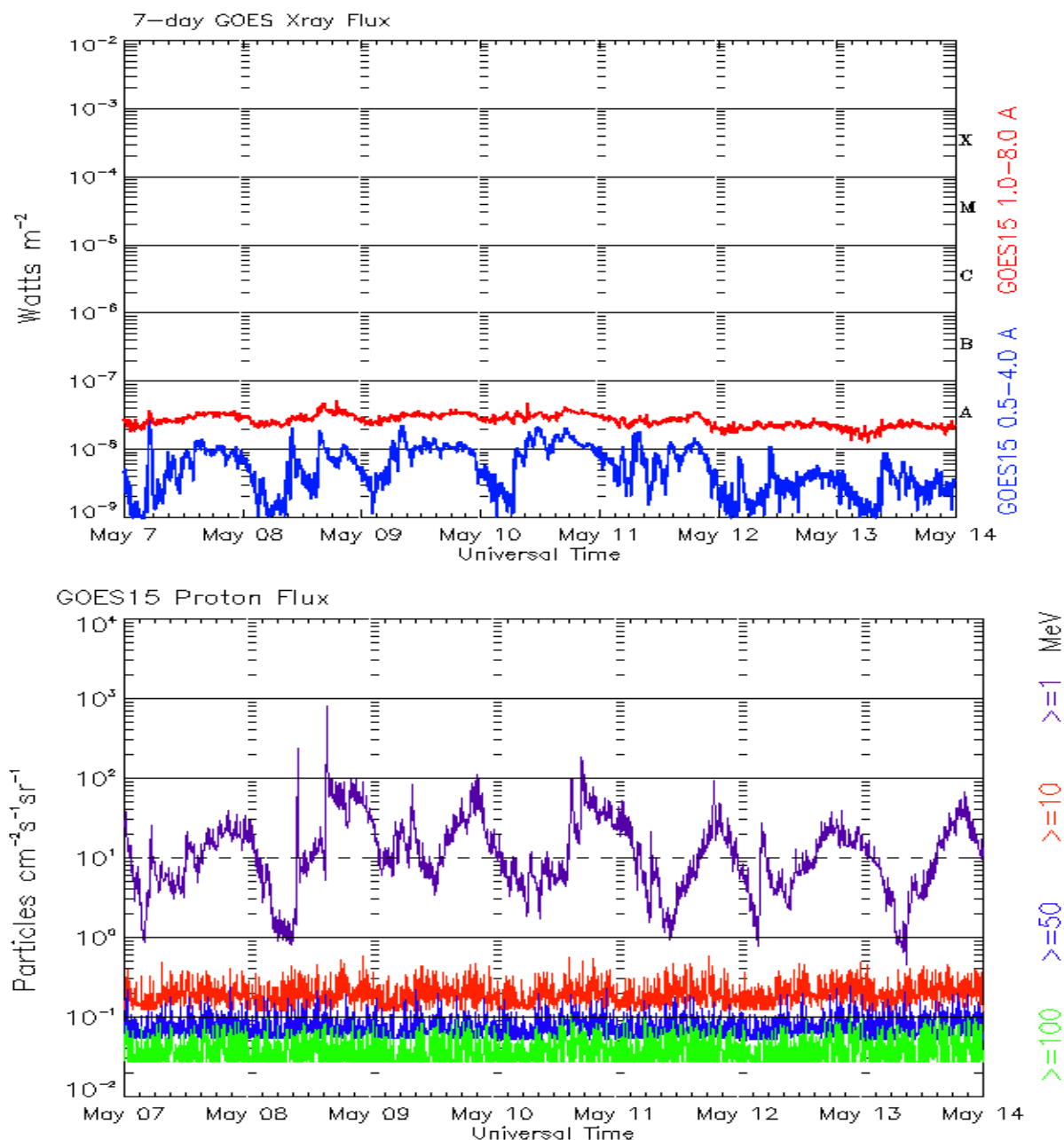
The proton flux plot contains the five-minute averaged integral proton flux (protons/cm²-sec -sr) as measured by the SWPC Primary GOES satellite, near West 75, for each of three energy thresholds: greater than 10, 50, and 100 MeV.

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 07 May 2018*

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 integral 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.



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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

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