

Solar activity was mostly at very low levels with low levels observed on 12 January due to an isolated C3 flare observed at 12/1618 UTC from Region 2625 (N03, L=254, class/area Cso/050 on 14 January). An associated coronal mass ejection (CME) was observed off the east limb in coronagraph imagery beginning at 12/1624 UTC, but was determined not to have a geoeffective component. 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 throughout the period. The largest flux of the period was 42,125 pfu observed at 09/1805 UTC.

Geomagnetic field activity ranged from quiet to active levels over the period. Solar wind speed began the period near 700 km/s with total field near 5 nT under the influence of a negative polarity coronal hole high speed stream (CH HSS). By 10 January, solar wind speed was in decline, reaching nominal levels late on 12 January. Total field was variable between 1-7 nT for the rest of the period. The geomagnetic field responded with quiet to active levels on 09 January, quiet to unsettled levels on 10-12 January and quiet levels on 13-15 January.

Space Weather Outlook **16 January - 11 February 2017**

Solar activity is expected to be very low with a chance for C-class flares on 16-26 January as Regions 2625 and 2626 (N09, L=244, class/area Hax/140 on 15 January) rotate across the visible disk. Very low levels are expected from 27 January through 11 February.

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 16, 18-27 January and again on 01-11 February due to CH HSS influence.

Geomagnetic field activity is expected to be at unsettled to active levels on 17-24 and 27 January-07 February with G1 (Minor) geomagnetic storm levels likely on 18-19 January and 03 February due to recurrent CH HSS effects.



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
09 January	71	0	0	A5.5	0	0	0	0	0	0	0	0
10 January	73	0	0	A6.2	0	0	0	3	0	0	0	0
11 January	75	0	0	A8.3	0	0	0	0	0	0	0	0
12 January	76	11	30	A8.5	1	0	0	0	0	0	0	0
13 January	75	24	70	A6.5	0	0	0	0	0	0	0	0
14 January	77	25	190	A6.4	0	0	0	0	0	0	0	0
15 January	78	23	180	A6.3	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
	09 January	3.4e+06	1.5e+04	3.7e+03	1.4e+09	
10 January	2.2e+06	1.5e+04	3.7e+03	9.4e+08		
11 January	1.8e+06	1.5e+04	3.8e+03	3.0e+08		
12 January	1.9e+06	1.5e+04	3.7e+03	3.2e+08		
13 January	1.8e+06	1.5e+04	3.6e+03	2.1e+08		
14 January	9.5e+05	1.6e+04	3.8e+03	1.5e+08		
15 January	9.9e+05	1.5e+04	3.6e+03	1.2e+08		

Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	09 January	8	3-2-2-1-3-2-1-2	20	4-2-1-3-6-3-2-2	12
10 January	5	1-1-2-0-1-2-2-2	9	1-1-2-2-3-3-3-1	10	2-2-2-1-1-3-3-3
11 January	7	3-2-2-1-1-2-2-1	7	1-2-2-0-3-2-2-2	8	3-2-2-1-1-2-2-2
12 January	3	1-2-0-0-2-1-1-1	0	0-1-0-0-0-0-0-0	5	2-3-0-0-1-0-1-1
13 January	3	1-1-0-0-1-2-1-1	3	1-1-0-2-2-1-1-0	4	1-1-1-1-1-2-2-1
14 January	3	1-1-1-0-1-2-1-1	1	0-0-2-0-0-0-0-1	4	1-2-1-0-1-1-1-2
15 January	2	1-0-1-1-1-1-1-0	3	0-0-1-2-2-1-1-0	7	2-1-2-1-1-1-2-1

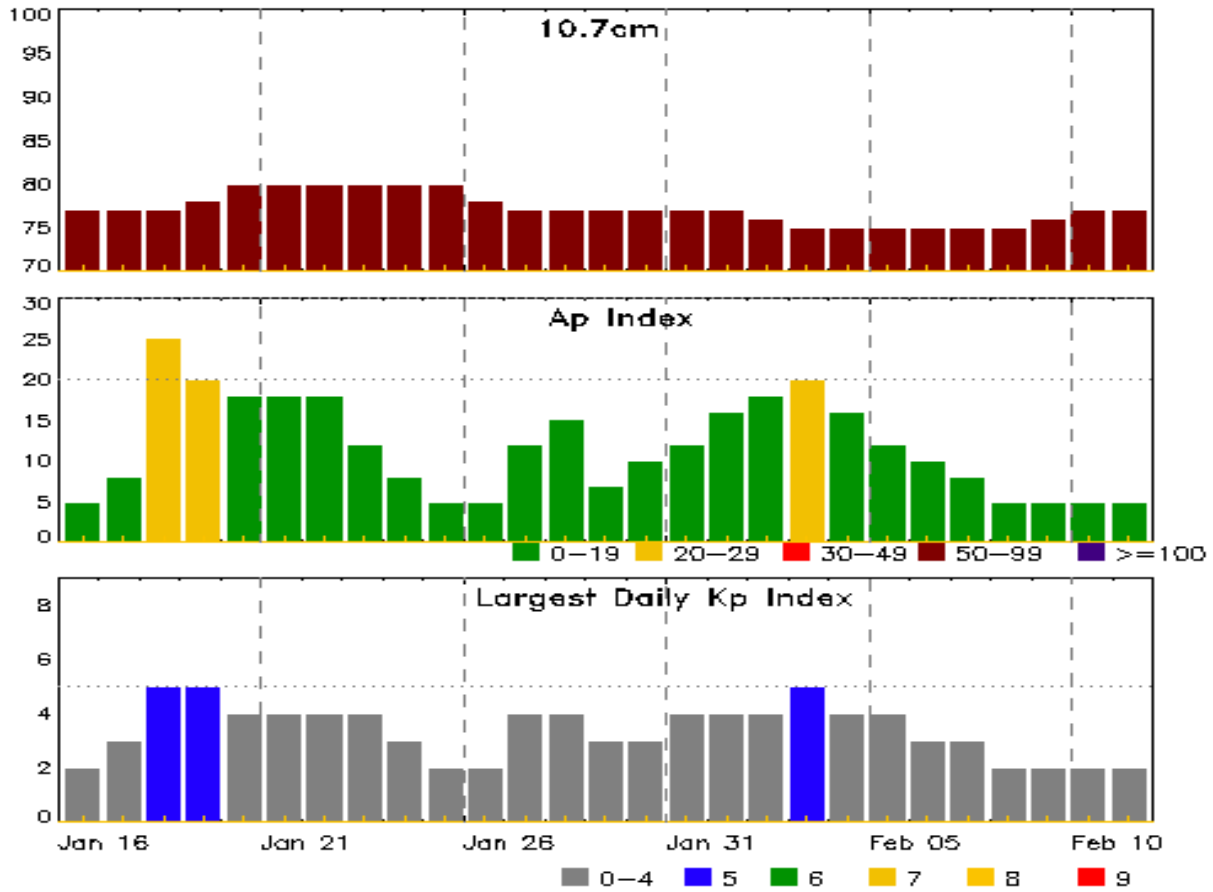


Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
09 Jan 0501	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	05/1520
09 Jan 1155	EXTENDED WARNING: Geomagnetic K = 4	08/1840 - 09/2359
09 Jan 2354	EXTENDED WARNING: Geomagnetic K = 4	08/1840 - 10/0600
10 Jan 0500	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	05/1520
10 Jan 1744	WARNING: Geomagnetic K = 4	10/1745 - 11/0100
11 Jan 0611	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	05/1520
12 Jan 0500	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	05/1520
13 Jan 0952	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	05/1520
14 Jan 0759	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	05/1520
15 Jan 1018	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	05/1520
15 Jan 1655	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
16 Jan	77	5	2	30 Jan	77	10	3
17	77	8	3	31	77	12	4
18	77	25	5	01 Feb	77	16	4
19	78	20	5	02	76	18	4
20	80	18	4	03	75	20	5
21	80	18	4	04	75	16	4
22	80	18	4	05	75	12	4
23	80	12	4	06	75	10	3
24	80	8	3	07	75	8	3
25	80	5	2	08	75	5	2
26	78	5	2	09	76	5	2
27	77	12	4	10	77	5	2
28	77	15	4	11	77	5	2
29	77	7	3				



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	Radio Flux 2695	Intensity II

No Events Observed

Flare List

Date	Time			X-ray Class	Optical		
	Begin	Max	End		Imp/ Brtns	Location Lat CMD	Rgn #
10 Jan	1025	1030	1033	B7.3			
10 Jan	1256	1300	1304	B8.8			
10 Jan	1510	1513	1517	B3.9	SF	N16W81	
10 Jan	1521	1525	1531	B4.1			
10 Jan	1636	1646	1649	B6.6	SF	N17W81	
10 Jan	1803	1808	1813	B5.4	SF	N17W80	
10 Jan	2107	2112	2115	B1.2			
10 Jan	2236	2247	2254	B2.5			
11 Jan	0153	0158	0201	B3.2			
11 Jan	1452	1500	1540	B2.3			
11 Jan	1551	1554	1556	B2.4			
11 Jan	1604	1607	1610	B4.0			
11 Jan	1923	1935	2001	B2.4			
11 Jan	2135	2143	2153	B5.0			
12 Jan	0656	0705	0712	B3.4			
12 Jan	1554	1618	1641	C3.8			
14 Jan	0708	0716	0720	B2.1			



Region Summary

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

Region 2625

12 Jan	N03E72	254	30	1	Hsx	1	A										
13 Jan	N03E58	254	50	4	Cso	3	B										
14 Jan	N03E45	254	50	8	Cso	3	B										
15 Jan	N03E31	255	40	1	Hsx	1	A										
									0	0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 255

Region 2626

13 Jan	N08E67	245	20		Hsx	1	A										
14 Jan	N08E55	244	140	2	Hsx	2	A										
15 Jan	N09E42	244	140	3	Hax	2	A										
									0	0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 244

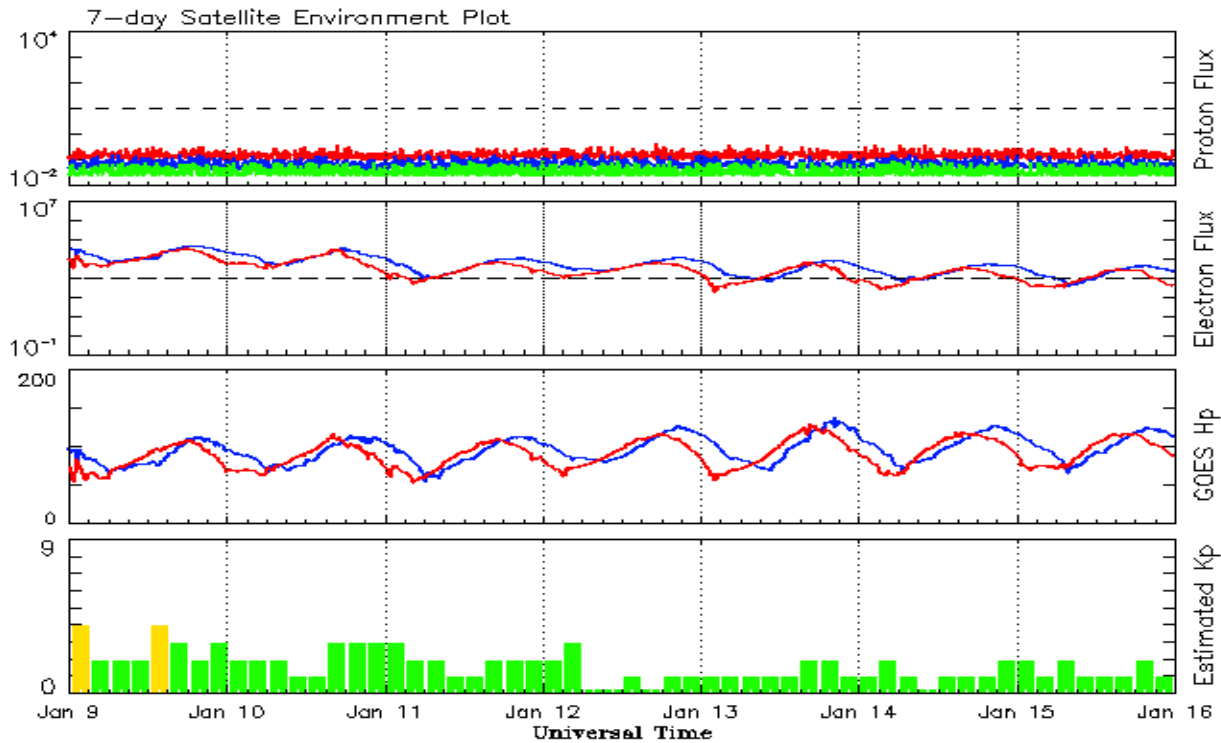


Recent Solar Indices (preliminary)
Observed monthly mean values

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
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	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	39.5	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	36.7	109.6	105.3	13	12.5
December	54.1	34.8	0.64	55.1	34.7	112.8	102.5	15	12.5
2016									
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			85.9		10	
August	50.4	30.1	0.60			85.0		10	
September	37.4	26.8	0.72			87.8		16	
October	30.0	20.2	0.67			86.1		16	
November	22.4	12.8	0.57			78.7		10	
December	17.6	11.3	0.64			75.1		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 09 January 2017*

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.

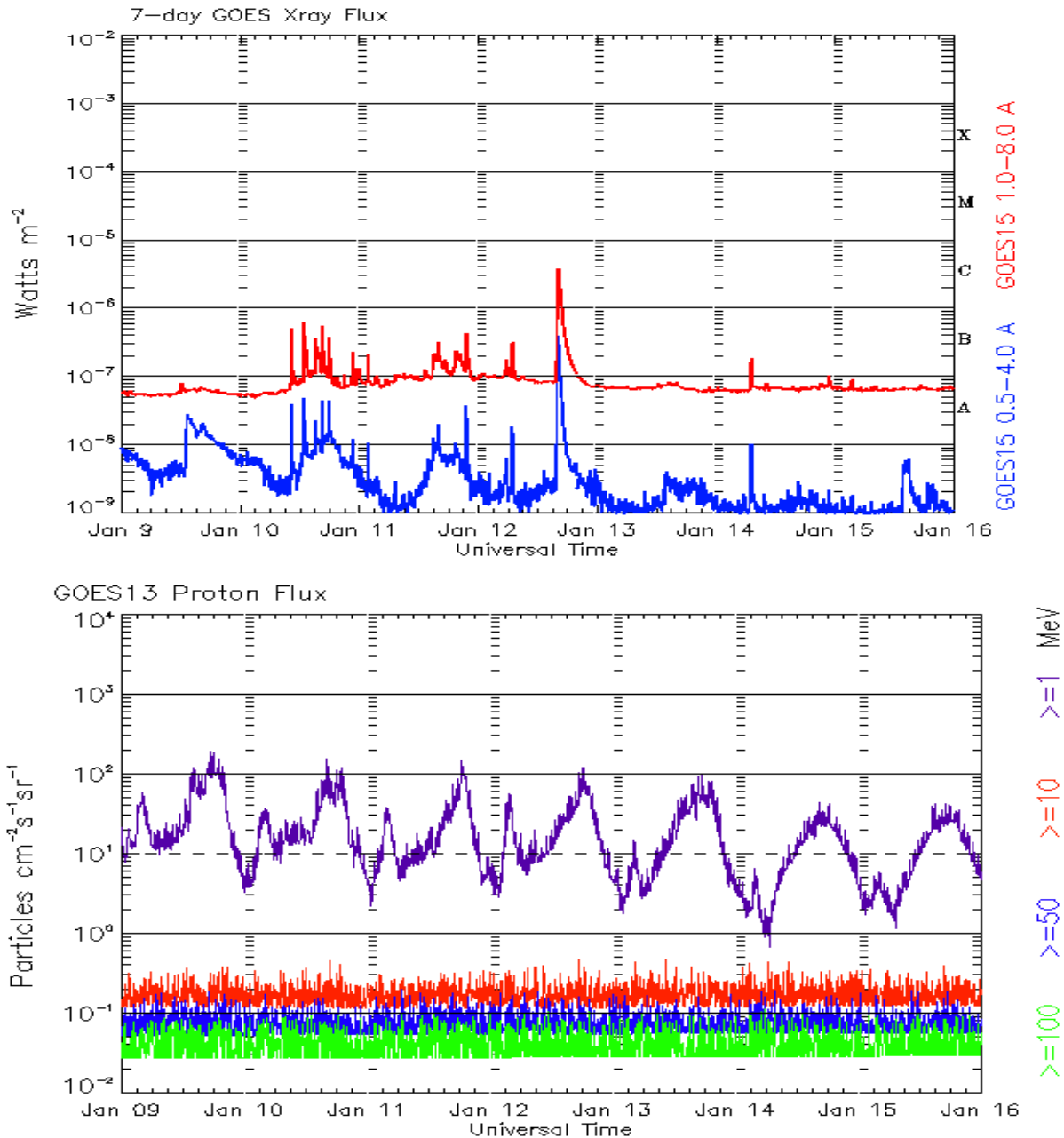
The electron flux plot contains the five-minute averaged integral electron flux (electrons/cm²-sec -sr) with energies greater than 2 MeV by the SWPC Primary GOES satellite.

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.

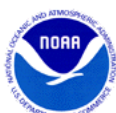




*Weekly GOES Satellite X-ray and Proton Plots
Week Beginning 09 January 2017*

The x-ray plots contains five-minute averages x-ray flux (Watt/m²) 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/cm² -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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