



# OSPO Center Update

Will Odell, CAPT/NOAA

CSAB F2F Meeting

March 29-30, 2017

# Satellite Status Summary

1.	GOES 13	Sounder	XRS and SXI	Attitude and Control (One redundant Star Tracker)
2.	GOES 15	Sounder	Attitude and Control (No redundant Star Tracker)	
3.	GOES 14	Systems Nominal		
4.	NOAA 19	MHS and HIOS (out of Spec)	ADCS (no redundancy)	
5.	NOAA 18	HIRS and SBUV		
6.	NOAA 15	HIRS and AMSU-B	AVHRR and AMSU-A	Attitude Control, Thermal Control, and Comm
7.	METOP B	HIRS and AMSU (out of spec)	ADCS and SARSAT (degraded)	
8.	Jason 3	Systems Nominal		
9.	Jason 2	Systems Nominal		
10.	S-NPP	Intermittent issues with VIRS, ATMS motor current		
11.	DSCOVR	CompHub Reboots		
12.	COSMIC	Only two of original six satellites operational		

<b>G</b>	Operational
<b>Y</b>	Operational with Limitation
<b>R</b>	Non-Operational

COSMIC – Constellation Observing System for Meteorology, Ionosphere, and Climate  
 DSCOVR – Deep Space Climate Observatory

GOES – Geostationary Operational Environmental Satellite  
 METOP – Meteorological Operational Satellite  
 SNPP – Suomi National Polar-orbiting Partnership

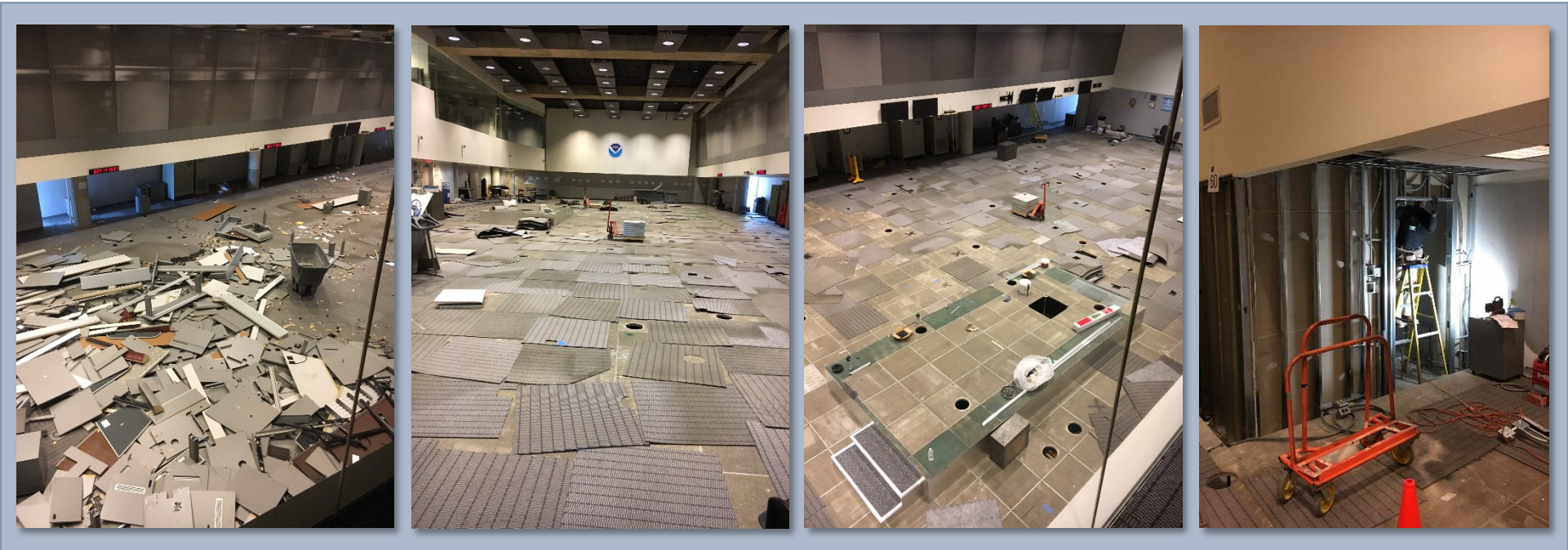
# Major Accomplishments

- FCDAS Power
- S-NPP transition to Block 2.0 for data Ops
- GOES-16
  - Data Released (Beta)

## Projects/Issues

- Operations Floor Re-configuration
- Hiring Freeze
- Budget
- GOES IODC

# NSOF Mission Operations Console Reconfiguration

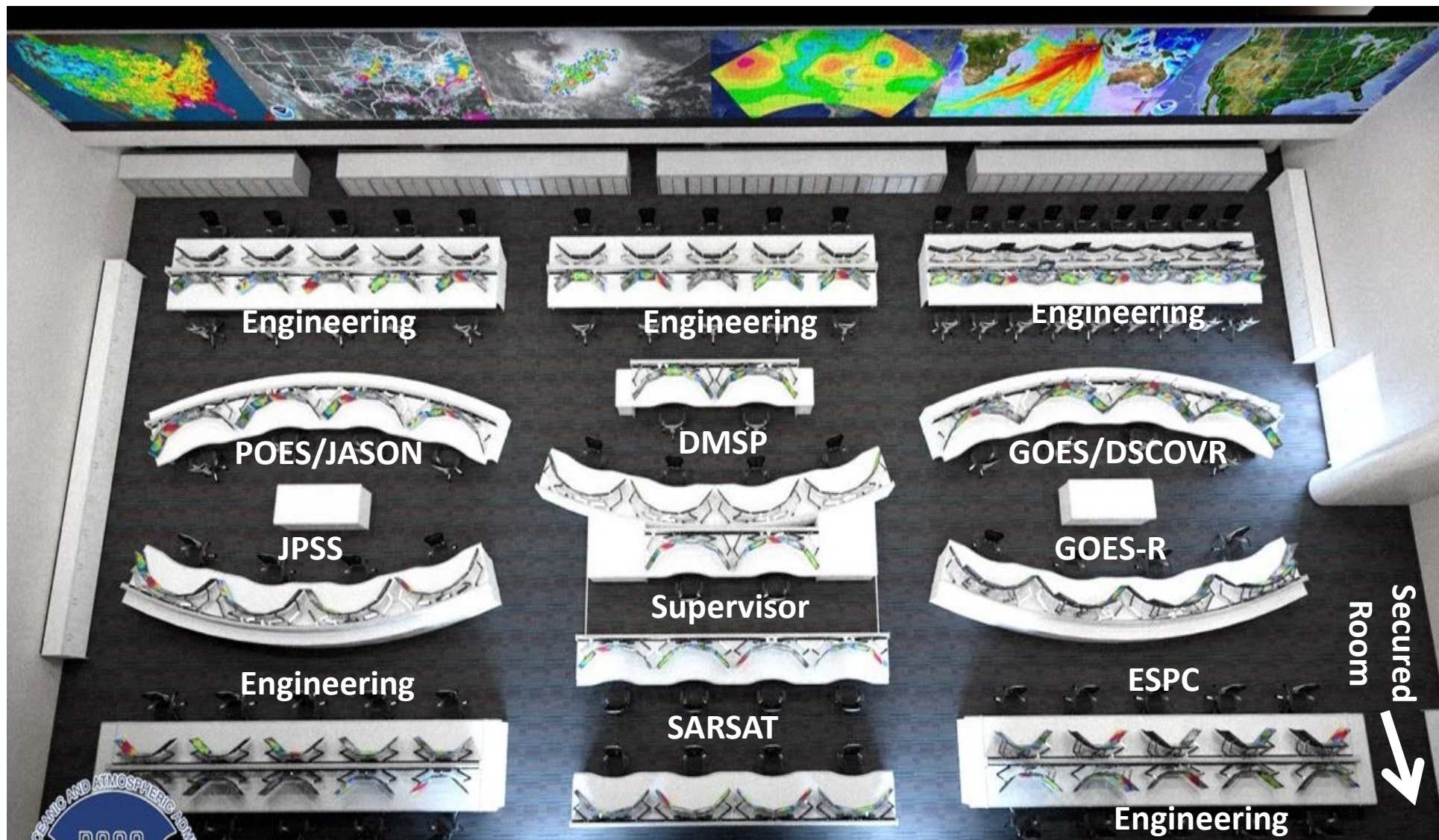


Operations Floor demolition

Secure Room  
Build-out



# OPS Center New Layout



## Upcoming Events

- COOP Exercises
  - MPLS – April 18-20; April 19 actual failover
  - GOES, POES, DMSP – April 24-27
  - S-NPP – July 24-28
- NOAA Satellite Conference – July 17-20
- JPSS-1 Launch – NET Sept 23
- GOES-S – Feb 18, 2018
- MET- 7 Decommissioning – early April



# BACKUP SLIDES



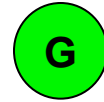
# FY 17 OSPO Performance Metrics

February 2017

**G**

Measure	Planned February	Actual February	Cumulative Year-To-Date	FY 2017 Target
Percentage of GOES satellite data successfully acquired to meet customer requirements	99.0%	99.8%	99.9%	99.0%
Percentage of POES satellite data successfully acquired to meet customer requirements	99.0%	100%	100%	99.0%
Percentage of SNPP satellite data successfully acquired to meet customer requirements	99.0%	100%	100%	99.0%
Percentage of SNPP Successful Product Distribution	95%	99.5%	99.75%	95%
Percentage of NOAA-managed satellite data processed and distributed within targeted time	98.5%	99.55%	99.6%	98.5%
Percentage of Non-NOAA-managed satellite data processed and distributed within targeted time	86.0%	97.6%	98.1%	86.0%
Transition of Satellite Applications to Operations in FY17	0	0	1	19
Percentage of ice and snow products produced and delivered within daily targeted time	98.0%	100%	100%	98.0%
Transmission rate of SARSAT distress alert and location information to search and rescue Authorities within targeted time	95.0%	95.9%	96.4%	95.0%
Percentage of CLASS System Availability or "Up Time" for data archive and access	99.0%	99.9%	99.9%	99%

# FCDAS UPS Failures



## Issue:

- On 6/14 during routine maintenance, the Tech UPS suddenly failed.
- The Tech UPS failure prevented station from switching to generator power. Station was running on unprotected commercial power.
- On 6/17 a power outage caused all SATOPS equipment to go down.
- On 8/31, the Utility UPS failed, which was being used by station while Tech UPS being repaired.

## Impact:

- FCDAS had no UPS power system for approximately 10 days and was on generator power.
- All electrical power was lost to satellite ops equipment. The 6/24 outage lasted approximately 6 hours before recovery could begin. On 6/17, the outage was approximately 3 seconds before recovery commenced.
- In all cases, equipment was damaged and needed repair. NSOF personnel assisted in recovery remotely.

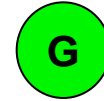
## Action Required:

- Both Tech UPS still require repairs.
- Switch back to nominal UPS configuration after Tech UPS repaired. (Tech for SATOPS equipment).
- Accelerate planning to replace 18 year-old UPS systems.

## Status:

- All station power now conditioned through Utility UPS.
- USACE A&E task underway for UPS replacement design. Using reliability data from commercial power company and recent single-point-of-failure study.
- On Nov 23, the contract to trouble-shoot and repair the TECH UPS was awarded.
- Through load shedding, FCDAS reduced the load on the Utility UPS by 25% with zero impact on station performance and taking the strain off the Utility UPS until the Tech UPS is repaired.
- Repairs completed 2/21. Tech UPS tested and brought back online 2/22.
- Recommend Closure

# GOES-15 Star Tracker 2 (ST2) Anomaly



## Event:

- GOES-15 ST2 tripped the A11/T4 fault test at 2033z on April 23.
- GOES-15 continues to operate under single ST configuration with degraded Image and Navigation Registration (INR) performance.

## Impact:

- Initial INR performance with shifting images on single ST3 operations have stabilized.
- NWS has not reported any user related impacts upon their operations.
- Procedures to recover from spacecraft anomaly are not designed for single star tracker operations.

## Actions Required:

- Conduct anomaly investigation to find root cause and recovery path. – *suspended*
- Collect telemetry data for anomaly investigation and perform recovery tests as directed. – *suspended*
- Modify procedures and contingency plans to ensure safe single star tracker operations. – *suspended*
- Perform studies to improve INR performance. *MOD to analyze results following GOES-14 single tracker testing. – ongoing*
- Create test plan to implement before clearing s/w patch. – *suspended*

## Status:




- NOAA informed Boeing/Ball to suspend anomaly recovery activities and deliver an anomaly closeout report. Vendor report expected NLT early March 2017. OSPO recommendation will follow the Vendor's report and discussions with NASA.
- No Update; pending vendor's report in March




# Suomi National Polar-orbiting Partnership (S-NPP) Performance Status – February 21, 2017

<b>Spacecraft</b>	S-NPP
<b>Launch Date</b>	Oct 28, 2011
<b>Mission Category</b>	LTAN 1330 (PM) +/- 10 mins

Payload Instruments	Status
ATMS	G
CERES	G
CrIS	G
OMPS – Nadir	G
OMPS – Limb	G
VIIRS	G

Spacecraft Subsystem	Status
TLM, Command & Control	G
ADCS	G
EPS	G
Thermal Control	G
Communications	G
CDP	G
SCC	G
GPS	G
1553	G
1394	G

	Operational (or capable of)
	Operational with limitations (or in standby)
	Operational with degraded performance

	Not functional
	Functional but turned off
	No status reported



## Additional Notes:

1-Mar-2017: All instruments operating normally and are meeting/exceeding their established performance specifications.

Extensive monitoring of the ATMS scan drive motor current loads and temperatures is ongoing.

ATMS Instrument - Routine execution of twice an orbit ATMS scan drive motor reversal activities been ongoing since 18 Aug 2016 – this activity will continue indefinitely. These reversal activations are performed near high latitudes (70N, 70S, 75N, 75S, 80N, 80S) in order to provide for a more consistent placement of the reversal-induced data gaps.

Note - The purpose of the ATMS scan driver motor reversal is to extend the bearing life. During each reversal activity, expect up to a one minute ATMS data outage. ATMS data resumes normally after each scan drive motor reversal activity is completed.



# Deep Space Climate Observatory (DSCOVR) Performance Status – February 21, 2017

<b>Spacecraft</b>	<b>DSCOVR</b>
<b>Launch Date</b>	Feb 11, 2015
<b>Activation</b>	June 2015



<b>Payload Instruments</b>	<b>Status</b>
EPIC	G
PlasMag	G
NISTAR	G
Faraday Cup	G (1)
ESA	G
Magnetometer	G
PHA	G

<b>Spacecraft Subsystem</b>	<b>Status</b>
Telemetry, Command & Control	G
Guidance, Navigation and Control	G
Attitude Control System	G
Propulsion	G
Mechanisms	G
Electrical Power	G
Thermal Control	G
Communications Payloads	G
Flight Software	G
1394	G

- Operational (or capable of)
- Operational with limitations (or in standby)
- Operational with degraded performance
- Not functional

- Functional but turned off
- No status reported

# Geostationary Operational Environmental Satellite (GOES)

## Performance Status – February 21, 2017

<i>Payload Instrument</i>	<b>GOES-13 (East)</b> Launch: May 06 Activation: Apr 10	<b>GOES-14 (Standby)</b> Launch: Jun 09 Activation:	<b>GOES-15 (West)</b> Launch: Mar 10 Activation: Dec 11
Imager	G	G	G
Sounder	R (4)	G	Y (3)
Energetic Particle Sensor (EPS)	G	G	G
Magnetometers	G	G	G
High Energy Proton and Alpha Detector (HEPAD)	G	G	G
X-Ray Sensor (XRS)	Y (1)	G	G
Solar X-Ray Imager (SXI)	Y (2)	G	G
<b><i>Spacecraft Subsystems</i></b>			
Telemetry, Command & Control	G	G	G
Attitude and Orbit Control	G	G	G
Fuel for Inclination Control	G	G	G
Propulsion	G	G	G
Mechanisms	G	G	G
Electrical Power	G	G	G
Thermal Control	G	G	G
Communications Payloads	G	G	G

**Key**

Operational
<span style="background-color: #90EE90; padding: 5px; display: inline-block;">G</span>
Operational with limitations
<span style="border: 1px solid black; padding: 5px; display: inline-block;">Y</span>
Non-operational
<span style="background-color: #FF0000; color: white; padding: 5px; display: inline-block;">R</span>

# Polar Operational Environmental Satellite (POES) Performance Status - February 21, 2017

Spacecraft Subsystems	METOP-A	METOP-B	NOAA-19	NOAA-18	NOAA-15
Launch Date	Oct 2006	Sept 2012	Feb 2009	May 2005	May 1998
Operational Date	May 2007	April 2013	Jun 2009	Aug 2005	Dec 1998
Mission Data Category	Secondary (AM)	Primary (AM)	Prime Services Mission (PM)	Secondary (PM)	Secondary (AM)
Payload Instruments					
AVHRR	G	G	G	G	Y(19)
HIRS	G	Y(32)	O (31)	R (3)	R (5)
AMSU-A1	O (30)	Y (36)	G	P (33)	Y(20)
AMSU-A2	G	G	G	G	G
AMSU-B	N/A		N/A	N/A	R (11)
MHS	G	G	Y (6)	G	N/A
SEM	G	G	G	G	G
SBUV	N/A		S/C (9)	R(27)	N/A
Spacecraft Subsystems					
Telemetry, Command & Control	G	G	G	G	G
ADACS	G	G	G	G	O (10)
EPS	G	G	G	G	G
Thermal Control	G	G	G	G	Y(21)
Communications	Y (1)	G	G	G	Y(22)
APT/LRPT	R (2)	G	G	G	G
DCS	N/A	N/A	N/A	G	G
ADCS	G	O(29)	Y(34)	N/A	N/A
SAR: SARR & SARP	G	Y(35)	G	G	Y(23)

Operational	G
Spacecraft Issue but No User Impact	S/C
Investigating Performance Issue which will Impact Users	P
Operational with Limitation	Y
Operational with Degradation	O
Non-Operational	R
Not Applicable	

# Defense Meteorological Satellite Program Spacecraft Status

## February 17, 2017

### Spacecraft Subsystem Status Change\*\*

Flight Number	F-14		F-15		F-16		F-17		F-18		F-19	
Operations Number	48		49		54		51		53		52	
LTAN (+/- 5 Mins)	1627		1439		1601		1826		1847		1837	
Launch Date	4/4/1997		12/12/1999		10/18/2003		11/4/2006		10/18/2009		4/3/2014	
Spacecraft Subsystems [Bus]												
Command & Control												
Power												
Attitude Control												
Communications												
Primary Sensors & Recorders												
Visible/IR Imager (OLS)												
Individual Recorder Status	1	2	1	2*	1*	2*	1*	2*	1*	2*	1*	2*
	3	4	3	4*	3*	4*	3*	4*	3*	4*	3*	4*
Microwave Imager/Sounder (SSMI/SSMIS)												
Microwave Temp Sounder(SSMT1)												
Microwave Water Vapor Sounder(SSMT2)												
Spacecraft Transmitters												
Transmitter Status	DDT	PDT1	DDT	PDT1	DDT	PDT1	DDT	PDT1	DDT	PDT1	DDT	PDT1
		PDT2	RAD	PDT2		PDT2		PDT2		PDT2		PDT2
	EDT1	EDT2	EDT1	EDT2	EDT1	EDT2	EDT1	EDT2	EDT1	EDT2	EDT1	EDT2
Secondary Sensors												
X/Gamma Ray Detector(SSB-X family)												
Magnetometer (SSM)												
Ionosphere (SSI-ES2/-ES3)												
Electron/Proton (SSJ4/SSJ5)												
UV Limb Imager (SSULI)												
UV Spectrographic Imager (SSUSI)												

\*\* NOTE: Spacecraft subsystem status changes will be reported for each spacecraft regardless of overall mission OPSCAP




# NESDIS OSPO – Monthly Product Status NOAA Operational Satellites

## February 2017

	METOP-B	NOAA-19	S-NPP*	GOES-13	GOES-15
<b>Launch Date</b>	Sept 2012	Feb 2009	Oct 2011	May 2006	March 2010
<b>Operational Date</b>	April 2013	Jun 2009	Sept 2013 (NDE)	April 2010	December 2011
<b>Mission Data Category</b>	Primary (AM)	Secondary (PM)	Primary (PM)	GOES-East	GOES-West
<b>Product Areas</b>					
<b>Imagery</b>	G	G	G	G	G
<b>Radiances</b>	G	G	G (CrIS/ATMS)	G	G
<b>RadBud/Emissivity</b>	G	G	G (Emissivity)	G	G
<b>Soundings</b>	G	G	G (CrIS/ATMS Moist and Temp Profiles)	R	G
<b>Winds</b>	G	G	G (VIIRS PW)	G	G
<b>Sea Surface Temp</b>	G	G	G (VIIRS SST)	G	G
<b>Precipitation</b>	G	G	G (MIRS RR+TPW)	G	G
<b>Volcanic Ash</b>	G	G	Future	G	G
<b>Tropical Products</b>	G	G	G(NTCP)	G	G
<b>Ozone</b>	G	G	G (OMPS TC/Profile + CrIS Ozone)	N/A	N/A
<b>Fire and Smoke</b>	G	G	G(Active fires and AOT)	G	G
<b>Snow and Ice</b>	G	G	G (Binary Snow Cover)	G	G
<b>Vegetation</b>	G	G	G (VIIRS Green Vegetation Fraction)	N/A	N/A
<b>Broadcast Services</b>	G	G	G	G	G

\*NPP Products includes only those deemed operational since NDE handover Sept 26, 2013


Operational	G	Future S-NPP products	
Operational with Issues During Reporting Period	Y	Operational with Degradation	
Non-Operational	R	Not Applicable	N/A

# NESDIS OSPO – Monthly Product Status Backup NOAA Satellites

## February 2017

	METOP-A	NOAA-18	NOAA-15	GOES-14
Launch Date	Oct 2006	May 2005	May 1998	June 2009
Operational Date	May 2007	Aug 2005	Dec 1998	N/A
Mission Data Category	Secondary (AM)	Secondary (PM)	Secondary (AM)	Storage / Space Weather
<b>Product Areas</b>				
Imagery	G	G	G	N/A
Radiances	G	Y	Y	N/A
Radiation Budget/Emissivity	G	G	G	N/A
Soundings	Y	R	R	N/A
Winds	G	G	G	N/A
Sea Surface Temp	G	G	R	N/A
Precipitation	G	G	Y (TPW Only)	N/A
Volcanic Ash	G	G	N/A	N/A
Tropical Products	G	G	G	N/A
Ozone	G	Y	R	N/A
Fire and Smoke	G	G	G	N/A
Snow and Ice	G	G	G	N/A
Vegetation	G	G	R	N/A
Broadcast Services	Y*1	G	G	N/A

- \*2Metop-A AHRPT does not support full global coverage due to earlier failure of part of the AHRPT system

Operational	G		
Operational with Issues During Reporting Period	Y	Operational with Degradation	
Non-Operational	R	Not Applicable	N/A