



NDIA System Engineering Conference 29 October 2013

Benjie Spencer

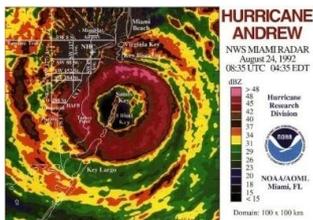
Director, NOAA/NWS Systems Engineering Center



NOAA Composition



- 21,335 Staff (federal, contractor, associate)
- 435 Buildings
- 122 Weather Forecast Offices
- 13 River Forecast Centers
- 1,429 Real-Time Weather Stations
- 17 Satellites
- 8 Buoy Networks: 1042 Stations Deployed
- 19 Ships
- 14 Aircraft
- 3 Weather and Climate Research Supercomputers
- 2 Operational Supercomputers
- 13 National Marine Sanctuaries and 1 Marine National Monument
- 55 Commercial Fishery Management Plans developed by 9 Fishery Management Councils
- 286 Data Centers
- 46 Exhibit 300 IT Investments
- 71 Mission FISMA Systems
- 47 Infrastructure FISMA Systems
- Operates in all states, Puerto Rico, and Guam





SE Organization



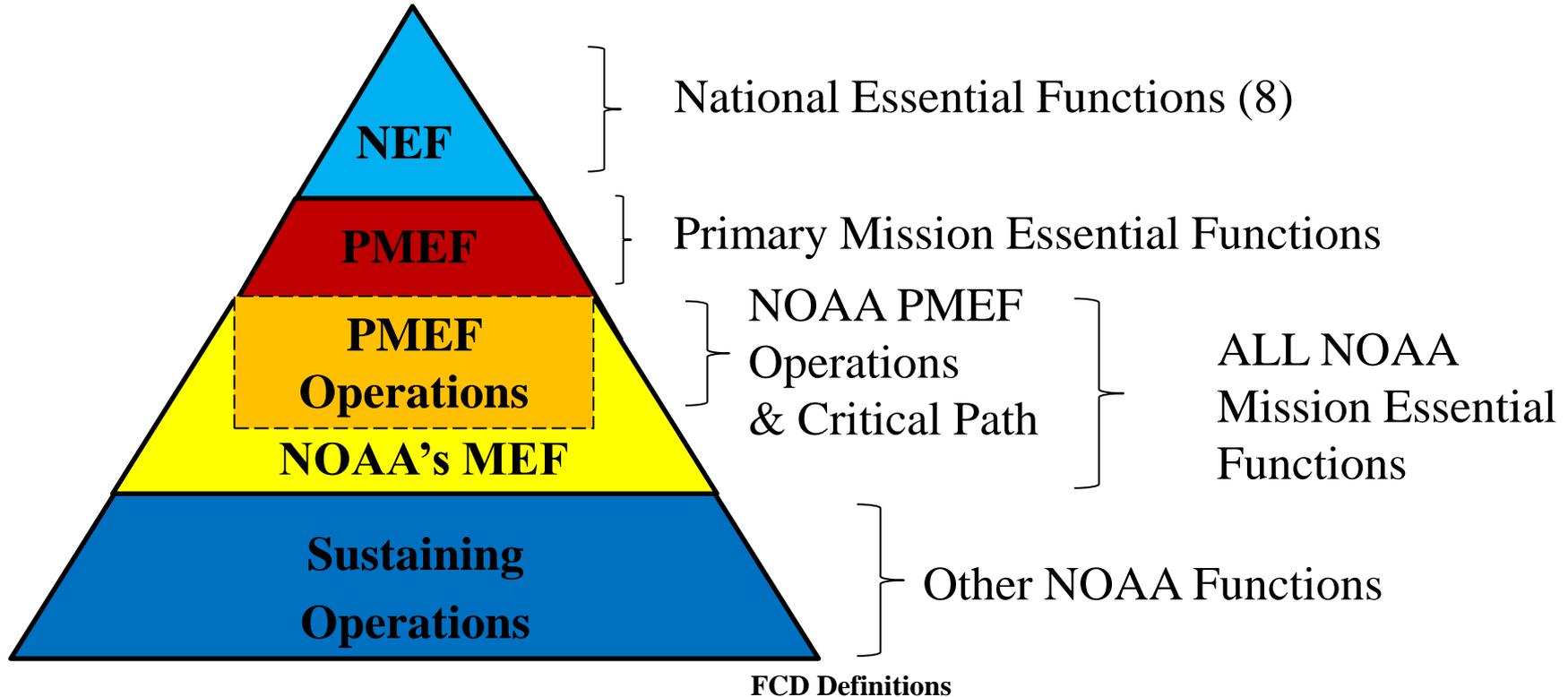
- Only two NOAA Line Offices have Systems Engineering Organizations: NWS and NESDIS
- NWS has three major areas
 - Analysis & HW Development
 - SW Development
 - Enterprise and IT Support
- NESDIS
 - This year is establishing an SE office
 - Two Divisions (SES Director)
 - Policy, Procedures, and Systems Assurance
 - Systems Architecture and Requirements



Primary Mission Essential Functions



National Essential Functions (NEF)



MEFs: The limited set of department- and agency-level government functions that must be continued throughout, or resumed rapidly after, a disruption of normal activities.

PMEFs: Those department and agency Mission Essential Functions, *validated by the National Continuity Coordinator*, which must be performed in order to support the performance of NEFs before, during, and in the aftermath of an emergency.

PMEFs need to be continuous or resumed within 12 hours after an event and Maintained for up to 30 days or until normal operations can be resumed.

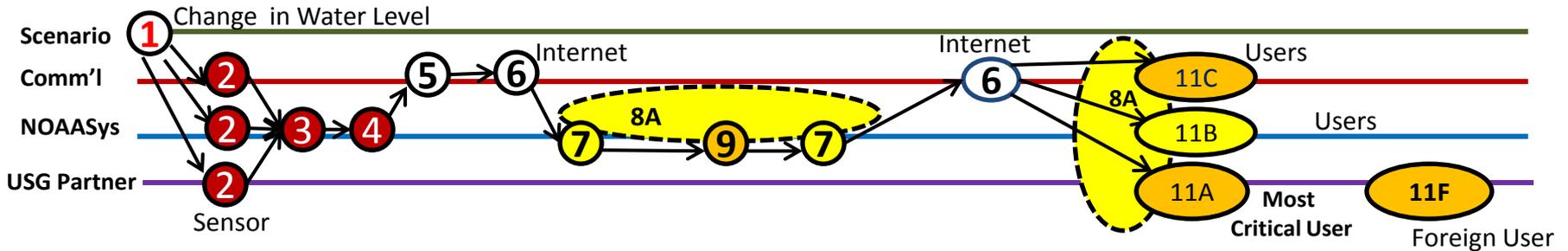


Primary Mission Essential Functions



Transaction Analysis Map

Operational Ocean Products: PORTS/NWLON - Normal Operations



Ⓡ MTD=0hr
 Ⓞ MTD<4hr
 Ⓞ MTD<12hr
 Ⓞ MTD<24hr
 Ⓞ MTD<72hr
 Ⓥ MTD>72hr
 Ⓤ Unknown

MTD: Maximum Tolerable Downtime; RTO: Recovery Time Objective; CFS: Critical Support Function; MCU: Most Critical User

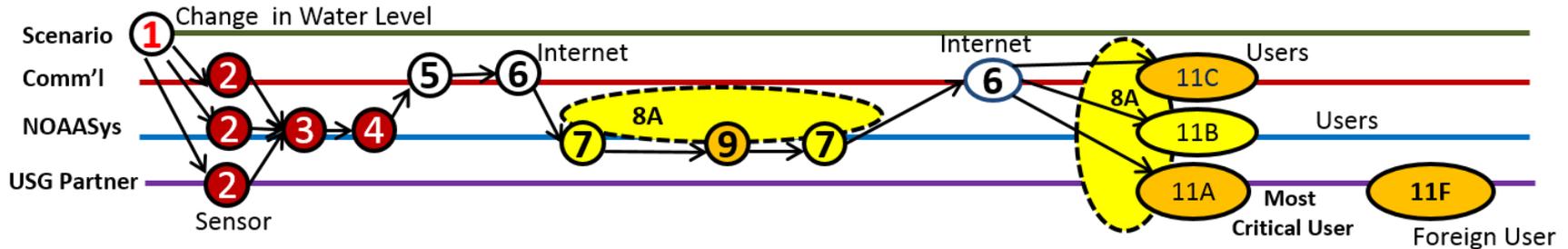


Primary Mission Essential Functions



Transaction Analysis Map

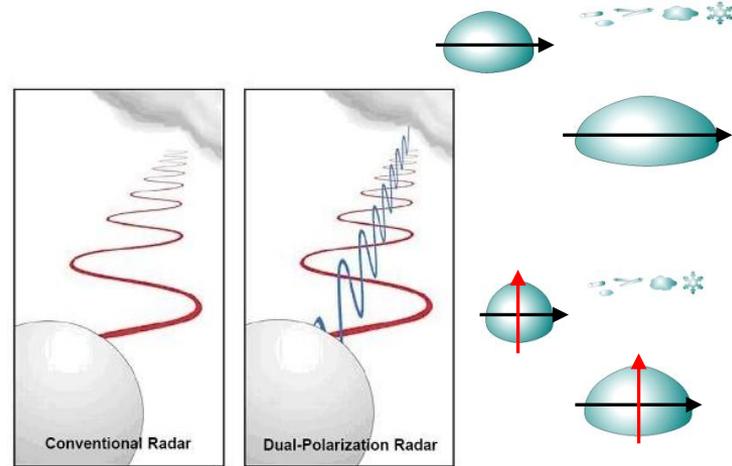
Operational Ocean Products: PORTS/NWLON - Normal Operations



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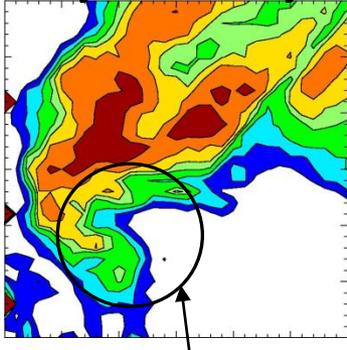
NEXRAD Dual Pol Modification

- Current radar transmits horizontal beam only
- Dual Polarization radar will transmit horizontal and vertical beams
- Provides improved detection of weather events
- Beta sites demonstrating these improvements already



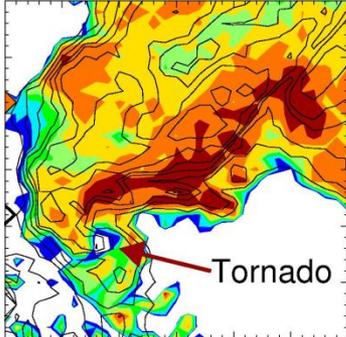
Specific Location of Tornadoes

Today's Reflectivity



Possible Tornado
Anywhere in Circle

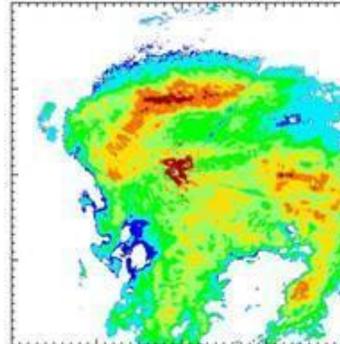
Dual Polarization Data



Actual Tornado
Debris Cloud

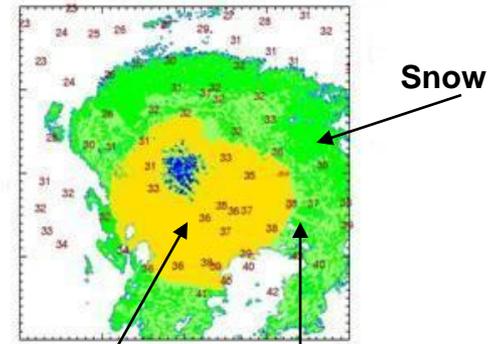
Better Rain/Snow Discrimination

Today's Reflectivity



Rain/Snow Line
Not Clear

Dual Polarization Data



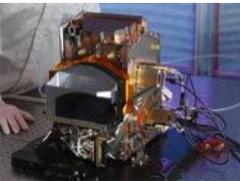
Rain

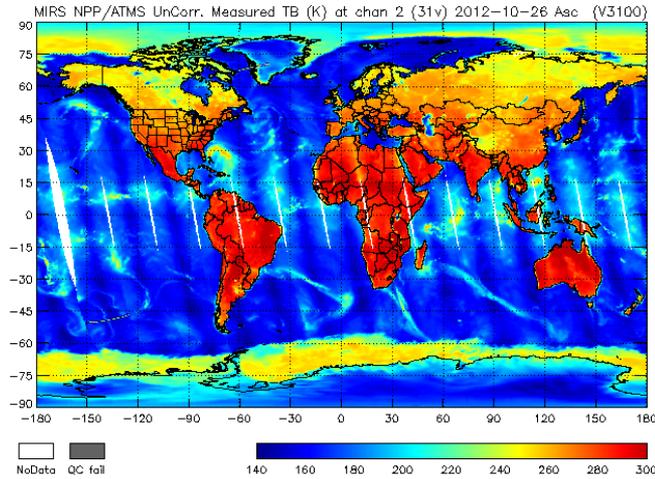
Freezing
Rain



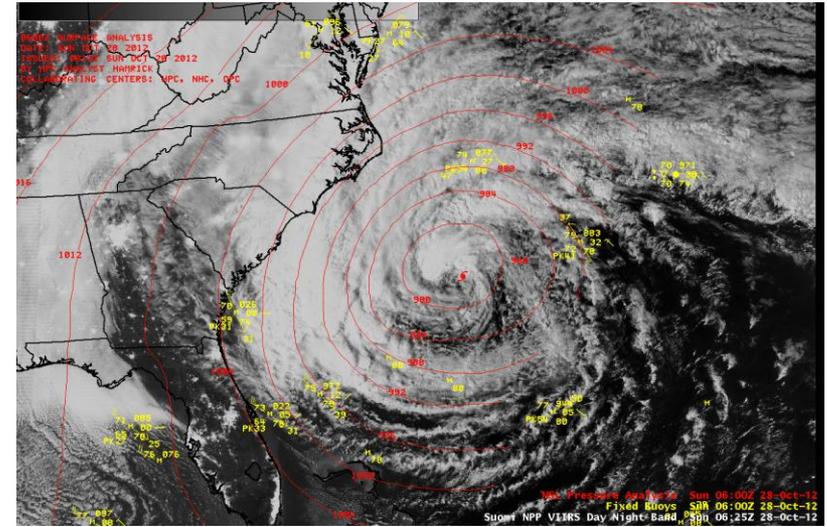
Suomi National Polar-orbiting Partnership



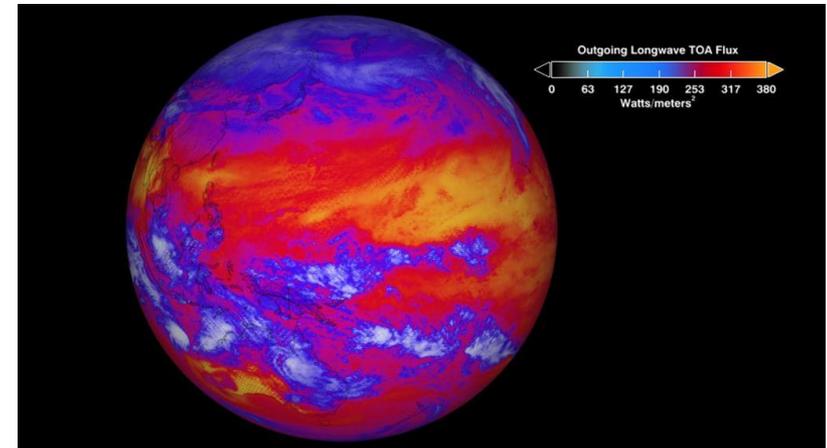
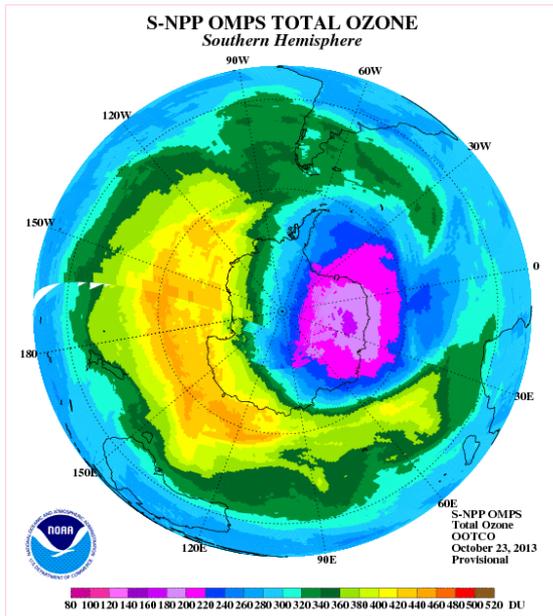
JPSS Instruments		Measurements
	ATMS - Advanced Technology Microwave Sounder	ATMS and CrIS together provide high vertical resolution temperature and water vapor information needed to maintain and improve forecast skill out to 5 to 7 days in advance for extreme weather events, including hurricanes and severe weather outbreaks
	CrIS - Cross-track Infrared Sounder	
	VIIRS - Visible Infrared Imaging Radiometer Suite	VIIRS provides many critical imagery products including snow/ice cover, clouds, fog, aerosols, fire, smoke plumes, vegetation health, phytoplankton abundance/chlorophyll
	OMPS - Ozone Mapping and Profiler Suite	Ozone spectrometers for monitoring ozone hole and recovery of stratospheric ozone and for UV index forecasts
	CERES - Clouds and the Earth's Radiant Energy System	Scanning radiometer which supports studies of Earth Radiation Budget (ERB)



ATMS 31GHz Oct. 26, 2012



VIIRS Imagery of Hurricane Sandy OCT 28, 2012



**CERES Longwave flux radiation
at the top-of-atmosphere Jan 26-27, 2012**



Backup



NOAA HEADQUARTERS ORGANIZATION



CORPORATE FUNCTIONS

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Assistant Secretary
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Ciaran Clayton
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Maureen Wylie

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Edward Horton
Chief Financial Officer
Maryjean Buhler
Chief Information Officer/HP
Computing & Communications
Joe Klimavicz
Workforce Management
Sandra Manning

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Samuel Rauch

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Dr. Richard Merrick

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Charlie Baker

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Patricia Montanio

PPI ORGANIZATION