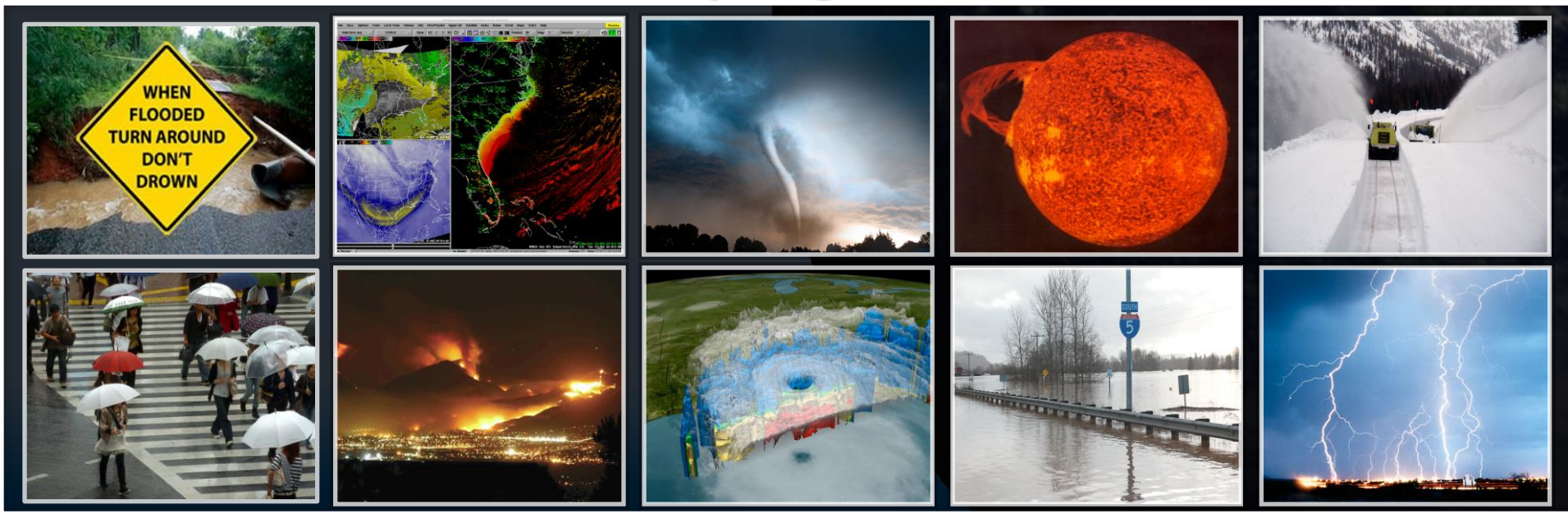
Observations that Support a Weather-Ready Nation

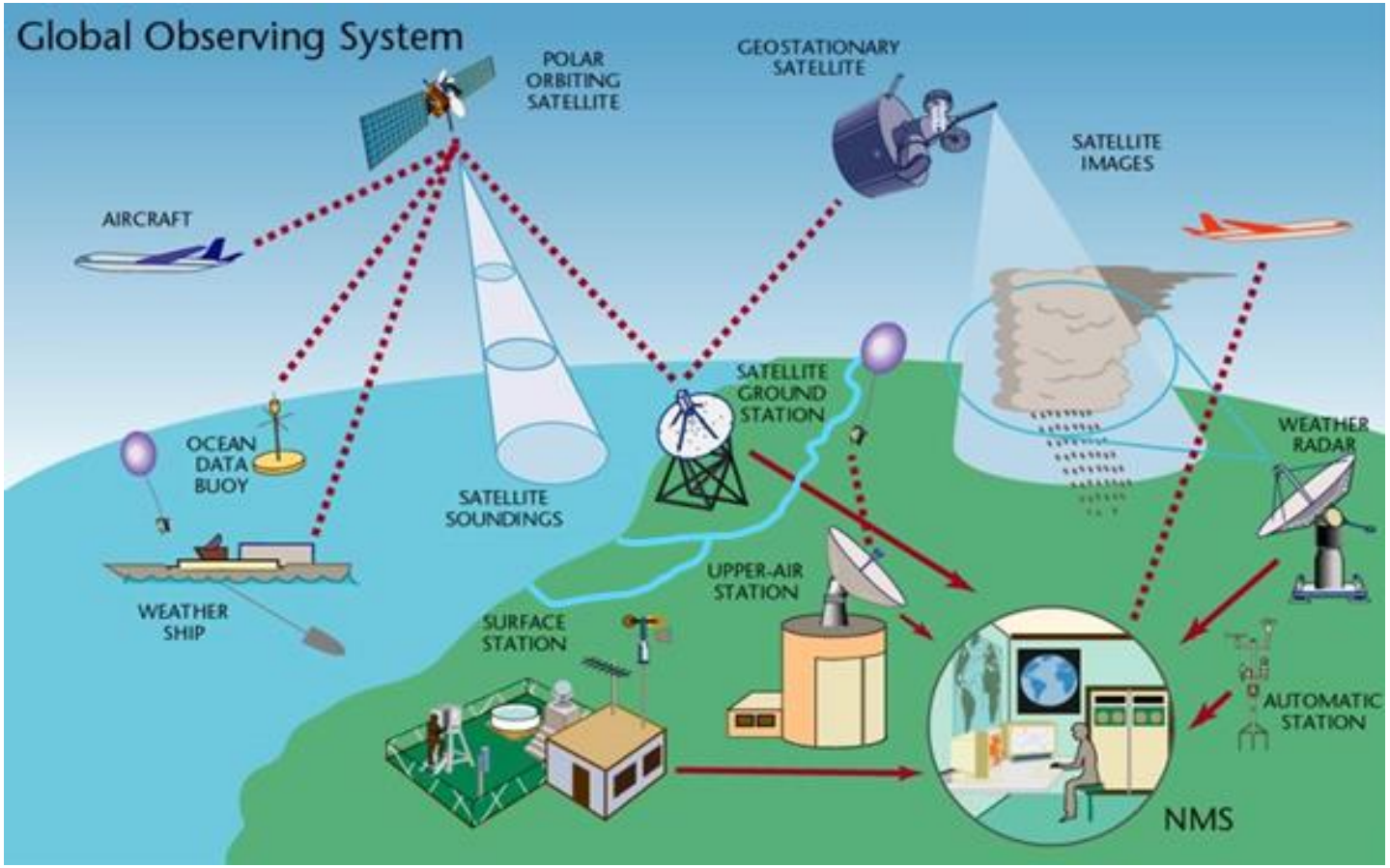
NWS Partners Meeting
November 1, 2016 • Silver Spring, MD



Joseph A. Pica, Director
NWS Office of Observations

Observations Portfolio

Responsible for the collection of space, atmosphere, water, and climate <u>observational data owned or leveraged</u> by the NWS



Sustaining Critical Observations

Maintaining System Availability to Support the NWS Mission

NEXRAD

- Maintain system availability > 96%

Upper Air

- Maintain 102 sites with GPS radiosondes; 2 launches per day

ASOS

- Maintain system at required sensor availability > 96%

Buoy Networks – Weather, DART, TAO

- Average network data availability > 80%

Investing in Observation Infrastructure

NEXRAD Service Life Extension Program (SLEP)

- Signal Processor Technology Refresh
  - Deployment underway
  - 19 sites completed as of November 1
  - Will be completed June 2017
- Transmitter Technology Refresh
  - First of three transmitter projects beginning deployment now
- Shelter and Pedestal Refurbishments
  - 2017-2022 time frame

Photo: NOAA, KLGX

Investing in Observation Infrastructure

NEXRAD Radar Data (Level II, III) Distribution

Level II Impacts to External Users:

- Model data added to data stream
- Model data includes environmental info
- Bandwidth increase ~500 Kb/hour per radar
- Interface Control Document (ICD) on ROC website

Level III Impacts to External Users:

- Archive Status Product (ASP) frequency increased to once every three hours
- Adding Level III Collection/Distribution for Korea (Camp Humphreys & Kunsan) and Japan (Kadena) AFB

Photo: Tanja Fransen, WFO GGW, @mtwxgirl

Investing in Observation Infrastructure

Radiosonde Frequency Migration Project

- Due to sale of “spectrum,” radiosondes in 1680 MHz band must be migrated to the 403 MHz band
- Migration funded by “spectrum” sale funds
- Eight sites migrated as stop-gap due to GOES-R satellite launch on November 16
- Auto-launching technologies evaluated as preferred alternative
- Testing at Sterling, VA and Kodiak, AK

Investing in Observation Infrastructure

Automated Surface Observing System (ASOS) SLEP

$7.5M identified in FY17 President Budget includes funding for:

- ACU/DCP replacement
- Telecommunications upgrade
- Replacement of 3 sensors
  - All-Weather Precipitation Accumulation Gage
  - Wind sensor
  - Dew point sensor

Investing in Observation Infrastructure

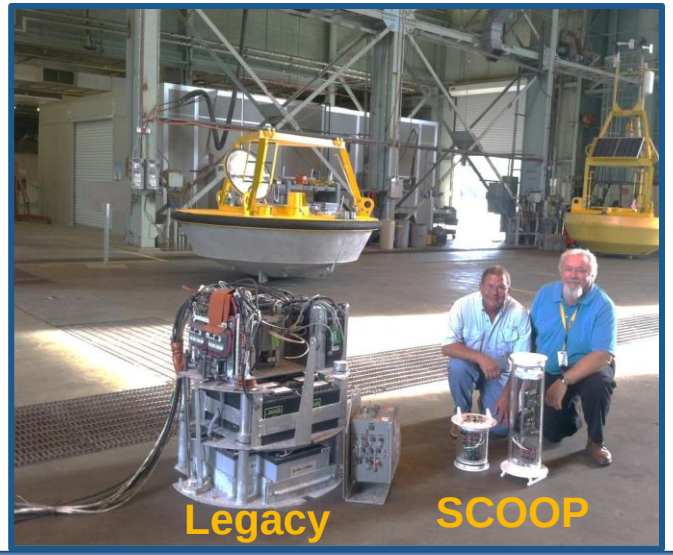
ASOS One Minute Data

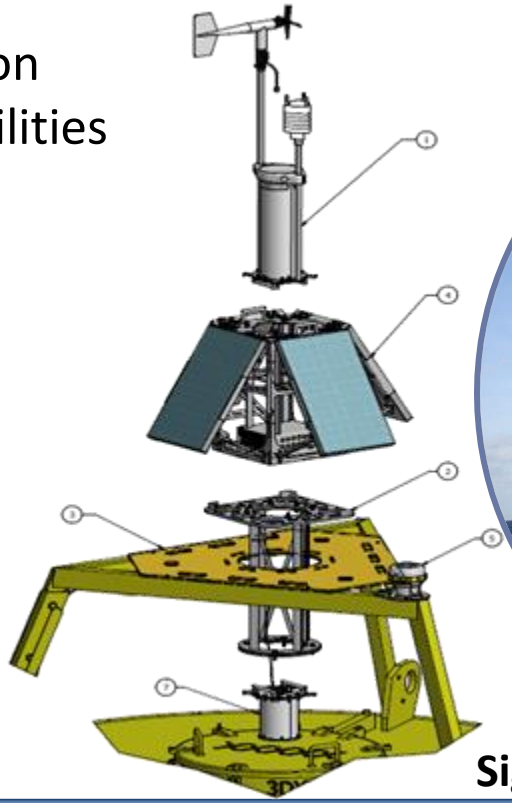
- Status: FAA ASOS 1-minute data is being obtained via MADIS
- The following shortcomings have been identified by the user community:
  - Truncated to whole degrees Celsius
  - Data latency issues
    - Observations are taken every minute but transmitted every 30 minutes
- **Long term fix:** ASOS Program to address as a part of the SLEP telecommunications upgrade, software development

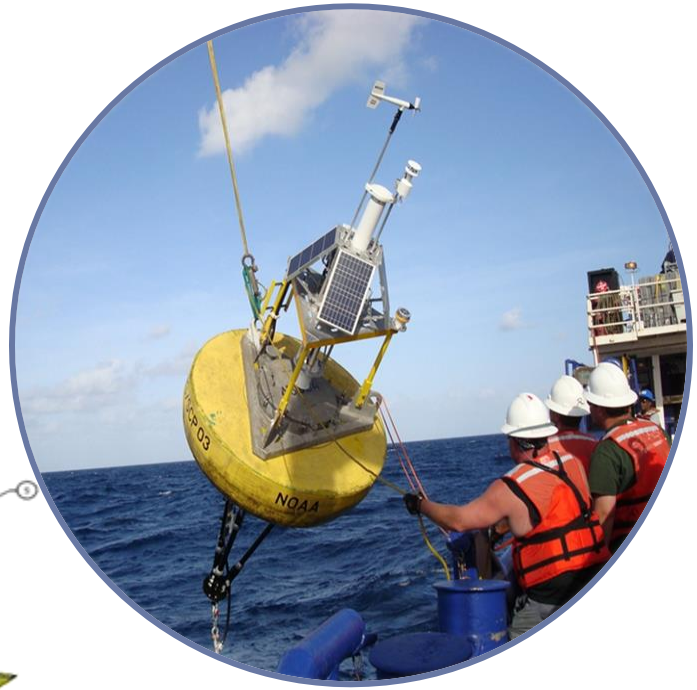
Investing in Observation Infrastructure

Self-Contained Ocean Observations Payload (SCOOP) Systems

- Less labor intensive assembly
- Allows use of ships with less lift capacity
- At-sea servicing
- Requires less time on station
- Expanded observing capabilities







Significantly increased reliability

Observations Portfolio Management

As our portfolio management matures, the following are <u>guiding principles towards which we are striving:</u>

- Mission-Effective
- Superior Service and Reputation
- Adaptable
- Cost-Effective, Affordable, and Sustainable
- Integrated
- Global Context and Commitments
- In-House Expertise
- *Well-Governed, Understood, and Trusted*

Emerging Technologies

NOAA's Observing Systems Council hosted the first
Emerging Technologies Workshop for Observations

- Provided a forum for NOAA to gather, share, and communicate technology, research, and development activities
- Integration of all of our observing systems and technologies
- Solid requirement processes and sound prioritization methods are needed for mission efficiency, integration, adaptability, and affordability
- Smaller, more targeted, and nimble technologies could improve the time needed for acquisition and development, while keeping costs down and maintaining pace with rapid technology advances
- Find and leverage technologies that allow NOAA to share its data more readily and to a larger range of users

Observations Portfolio

Upcoming AMS Highlights:

- Keynote address to the 21st AMS Conference on Integrated Observing and Assimilation Systems for the Atmosphere, Ocean, and Land Surface (IOAS-AOLS) - Louis W. Uccellini, NWS Director
- “State of NOAA's Observing System Architecture Portfolio” - Joseph A. Pica, NWS Office of Observations Director
- “National Strategy for Sustained Network of Coastal Moorings” - Joseph A. Pica on behalf of NOAA authors Kathleen Bailey, Shannon McArthur, and Teresa Murphy
- “NOAA's First Emerging Technologies Workshop Summary” Richard Edwing, NOS Center for Operational Oceanographic Products and Services Director

Questions?

Investing in Observation Infrastructure

NEXRAD Upcoming Builds/Deployment

- **RDA/RPG Build 18**
  - Surveillance Cut DP variable windowing (improves DP data quality)
  - Increases size of RDA Status Message (adds 40 bytes of unused halfwords)
  - Removes seven unused products from the RPG
  - Adds VCPs 215 (Precip) & 35 (Clear Air)
  - Removes Precip VCPs 21, 221, 11 & 211
  - Adds Super-Res Data Quality Edited Reflectivity product (FAA)
  - Improvements to Hydrometeor Classification Algorithm (HCA)
  - Adapts Tornado Detection Algorithm & Mesocyclone Detection Algorithms to use SAILS cuts
  - Deployment scheduled for Sept/2017
- **SPG**
  - Build 9.0 – Supports FAA TDWR Build 2
  - Deployment tentative for Nov/2016 or Jan/2017