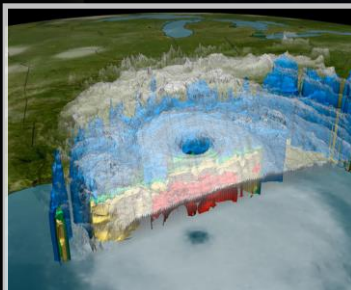
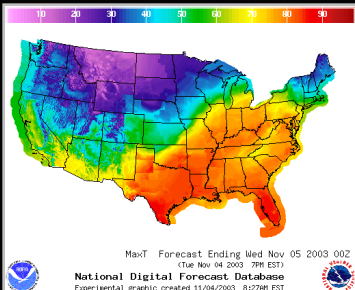
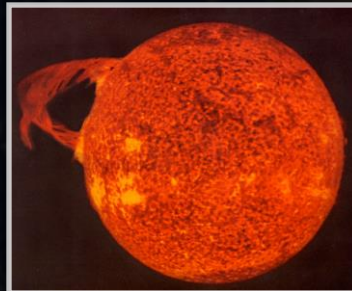
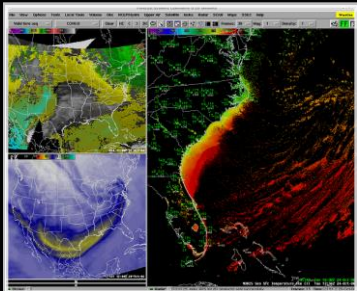


# The National Weather Service of the Future: Building a Weather-Ready Nation



**Dr. Louis W. Uccellini**

Director, National Weather Service

NOAA Assistant Administrator for Weather Services

**August 3, 2015 – NWS Partners**



# Outline

- **Weather-Ready Nation Ambassadors**
- **New Budget Structure/Headquarters Reorganization**
- **NWS Portfolio Updates**
- **Budget Status & Congressional Activity**

# **Weather-Ready Nation Ambassadors**



# NWS Strategic Outcome: A Weather-Ready Nation

Becoming a Weather-Ready Nation is about building **community resiliency** in the face of increasing vulnerability to extreme weather, water and climate events

**“Ready, Responsive, Resilient”**

## REQUIRES NWS TO:

- Fully Integrate our Field Structure:
  - Better Forecasts and Warnings
  - Consistent Products and Services
  - Actionable Environmental Intelligence
- Provide Impact-based Decision Support Services (IDSS)
- Deliver through Multiple and Reliable Dissemination Pathways
- Work with Partners to **gain needed response**; includes Embedding NWS in Emergency Operations Centers and Incorporating Social Sciences

WRN

We have 1800  
WRN Ambassadors

***Involves entire US Weather, Water and Climate Enterprise WORKING TOGETHER  
to achieve far-reaching national preparedness for weather events***





# Ambassadors as Force Multipliers

## #LightningSafety



**American Red Cross** ✓

@RedCross



Following

Severe weather in some parts of the country this week. Stay safe w/ these tips!  
[rdcrss.org/LIGHTNING](http://rdcrss.org/LIGHTNING)



**Penny Pritzker** @PennyPritzker 1d

Learn more about @NOAA's tips for staying safe this summer during a storm #LightningSafety  
[lightningsafety.noaa.gov](http://lightningsafety.noaa.gov)



**Utah Emergency Mgmt** @Ut... 3d

Our latest blog post: When Thunder Roars, Go Indoors  
[dem.utah.gov/2015/07/15/whe...](http://dem.utah.gov/2015/07/15/whe...)  
#lightningsafety #summersafety



**USCG (Official)** @USCG  
#DYK

8d



Most lightning fatalities happen on or near water? #LightningSafety @NWS

[goo.gl/KVF07V](http://goo.gl/KVF07V)  
[pic.twitter.com/IIQ4y6L12o](http://pic.twitter.com/IIQ4y6L12o)



**APHA** @PublicHealth  
DYK? 17 people in US have died from lightning this year. @NWS safety tips: [goo.gl/V9YsyR](http://goo.gl/V9YsyR)  
#LightningSafety  
[pic.twitter.com/RZk7hksMWL](http://pic.twitter.com/RZk7hksMWL)

4d



**Defense Logistics** @DLAMIL 1d

Lightning deaths continue to rise. #LightningSafety critical when outdoors, esp. when camping:  
[weather.gov/lightning](http://weather.gov/lightning)  
[pic.twitter.com/yUxNlv4Bdl](http://pic.twitter.com/yUxNlv4Bdl)



# **New Budget Structure & HQ Reorganization**

**Starting on April 1, 2015, the approved budget portfolio structure and HQ reorganization was aligned and put in place.**



# New Planning & Budget Structure Increases Transparency and enhances Service Delivery

## Observations

- A focused effort on sustaining & integrating all observations supporting the NWS mission and ensuring continuous situational awareness.

## Central Processing

- Fully integrating the central and distributed computing system from central computer to AWIPS/AHPS

## AFS

- Working toward “fully integrated field structure” providing consistent products & services
- Supports local/national IDSS, outreach, & social science integration (*nature of work will change*)

## Dissemination

- Better managed, reliable, centralized, and more responsive network, especially during high impact events.

## STI

- Accelerates numerical model advances, supports forecaster training/development
- Provides a centralized development environment to enable Research to Operations (R2O) & a visible “catcher’s mitt” for the rest of the research community interested in the R2O process (e.g., CSTAR, SOO/DOH ...)

## Facilities

- Make sustaining all of the NWS facilities a fundamental part of the NWS mission execution

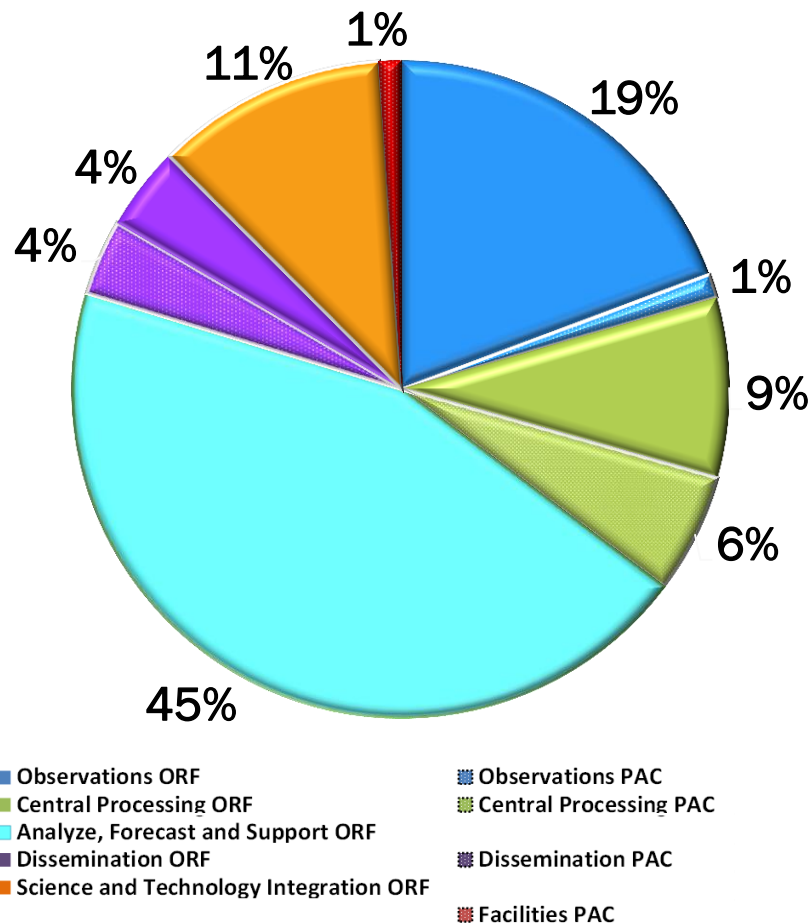


# NWS Budget Composition by Portfolio

Consolidated and Further Continuing Appropriations Act, 2015

PPA	Funds*	Full Time Employees (FTE)
Observations ORF	210,777	804
Observations PAC	12,300	-
Central Processing ORF	96,617	232
Central Processing PAC	64,000	22
Analyze, Forecast and Support ORF	483,060	3,010
Dissemination ORF	40,099	82
Dissemination PAC	45,000	-
Science and Technology Integration ORF	123,600	488
Facilities PAC	12,000	-
<b>TOTAL</b>	<b>1,087,453</b>	<b>4,638</b>

Funds Breakdown



\* In thousands of dollars

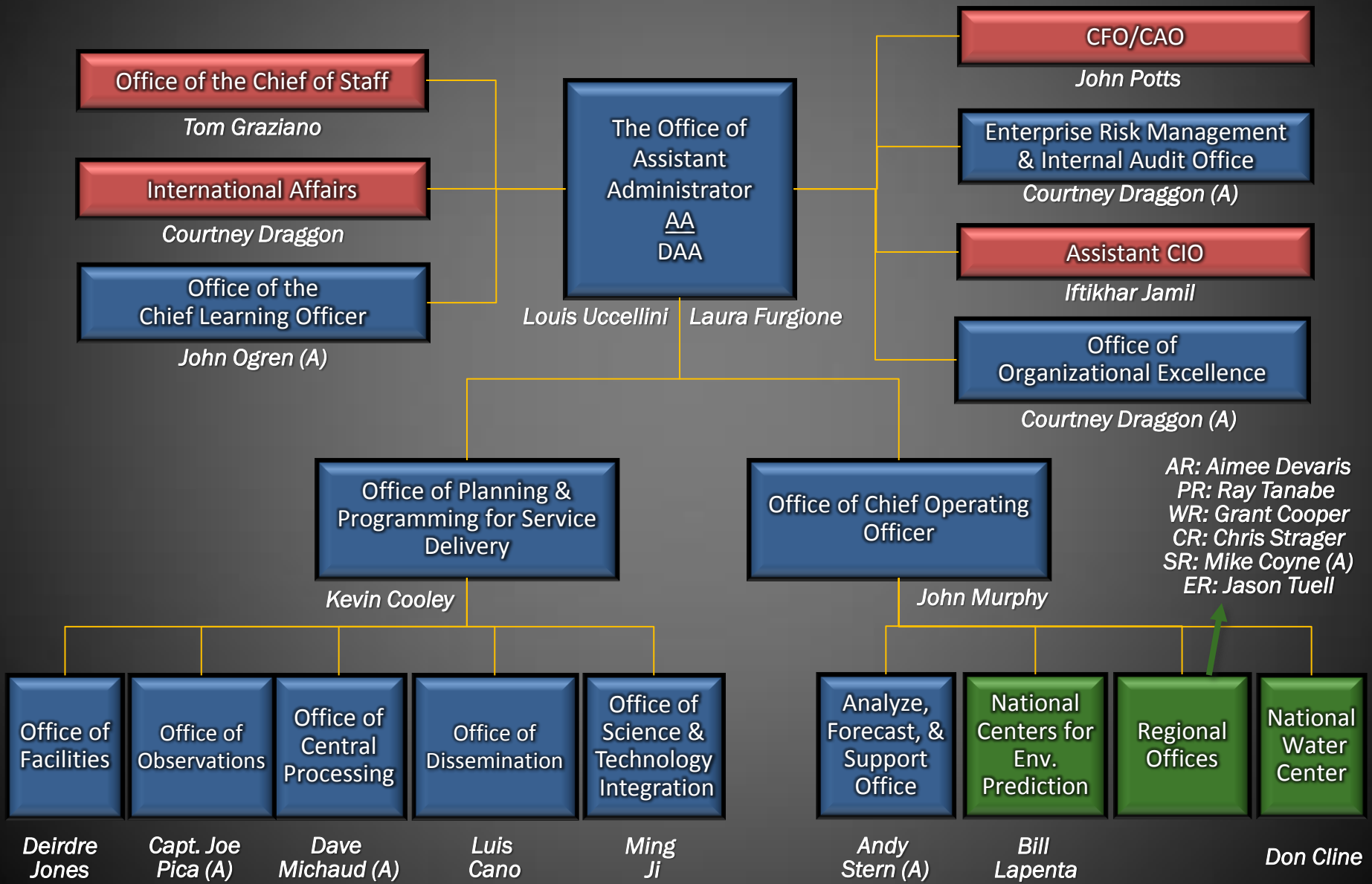


# HQ Organization

New HQ Office

Field Office

Existing HQ Office



# **NWS Portfolio Updates**



# Value of Partnerships

## NWS is rooted in the principle of partnerships

### Observations

- JPSS/GOES-R Readiness
- NEXRAD Service Extension
- Autosondes

**STI**

Point-n-Click Icons	Model Implementation
National Water Center	Storm Surge
FACETs Concept	Warn-on-Forecast

**Facilities**

- Co-location with universities/EM offices



**WRN Ambassador Initiative**  
1800+ strong

**Dissemination**

- “One NWS Network”
- MADIS
- MRMS
- NIDS

**Central Processing**

- Central Computer
- AHPS
- AWIPS

**AFS**

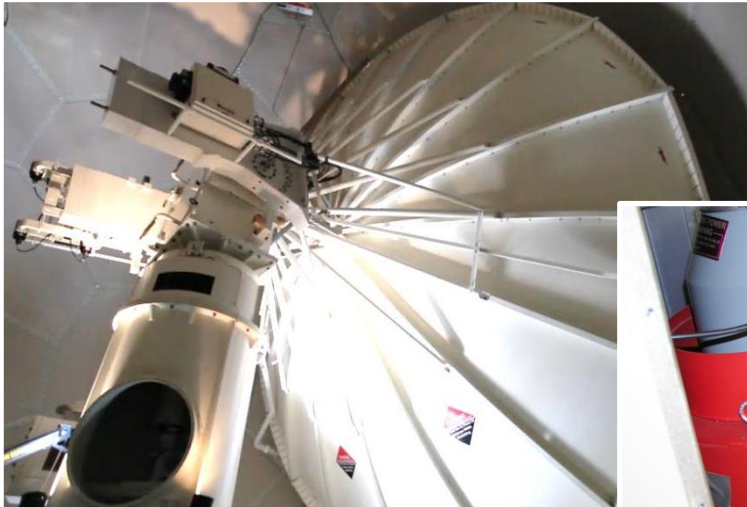
Integrated Environmental Services	Integrated Warning Team
Hazard Simplification	National & Regional Operations Centers
National Impacts Catalog	Emergency Response Specialists
GIS Format	(Local EM)



# OBSERVATIONS

## NEXRAD Service Life Extension Program (SLEP)

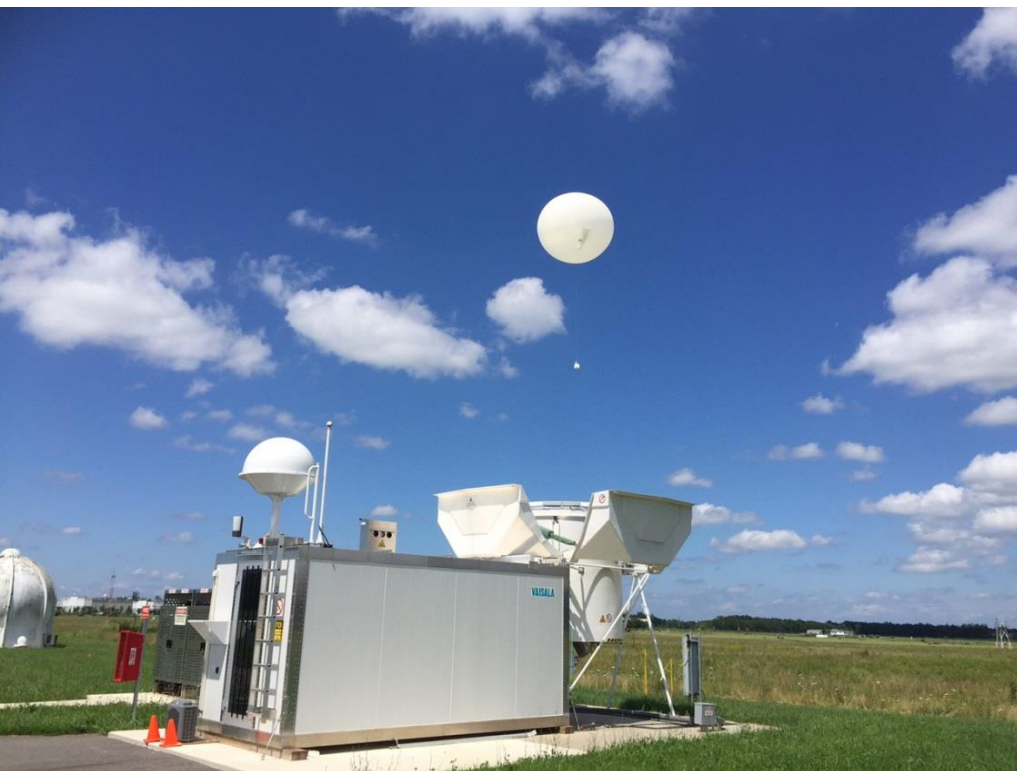
- **NWS Investment: \$115M, FY15-22**
- **FY15 review indicates program is on target**
- **4 Projects**
  - **Obsolete/End of Life: Signal processor technology**
  - **Physical wear-out: Transmitter, pedestal, and shelter refurbishment**





# OBSERVATIONS

## Status of Autosondes

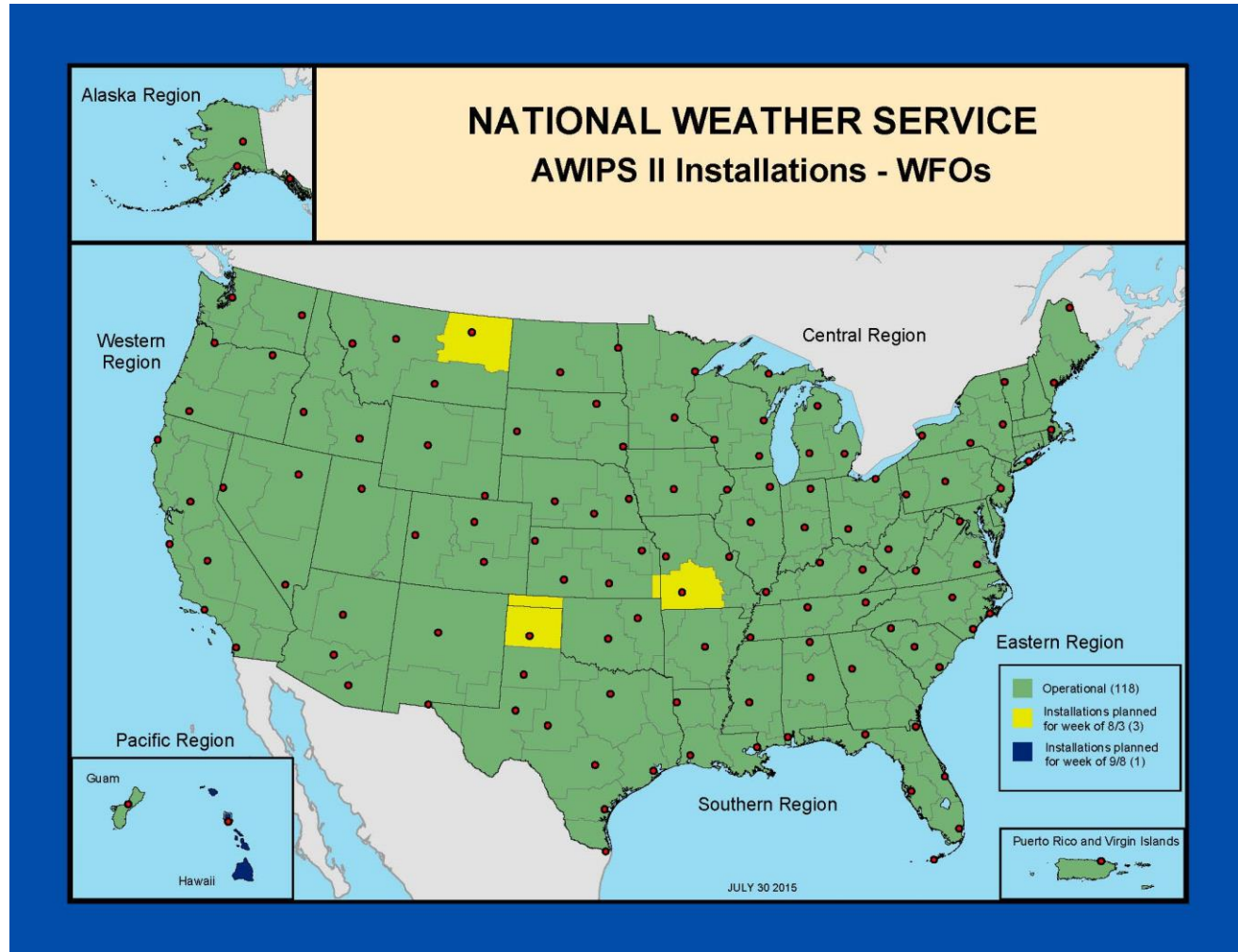


- The NWS is testing the feasibility of utilizing an automatic radiosonde launcher, the Autosonde.
- Evaluation has been ongoing at the Sterling Field Support Center (SFSC) since March 2015.
  - Passed initial challenges, testing on schedule
- The next site to receive an Autosonde for field testing is Kodiak, AK. November 15<sup>th</sup>, 2015.



# Central Processing Upgraded AWIPS2 Installation

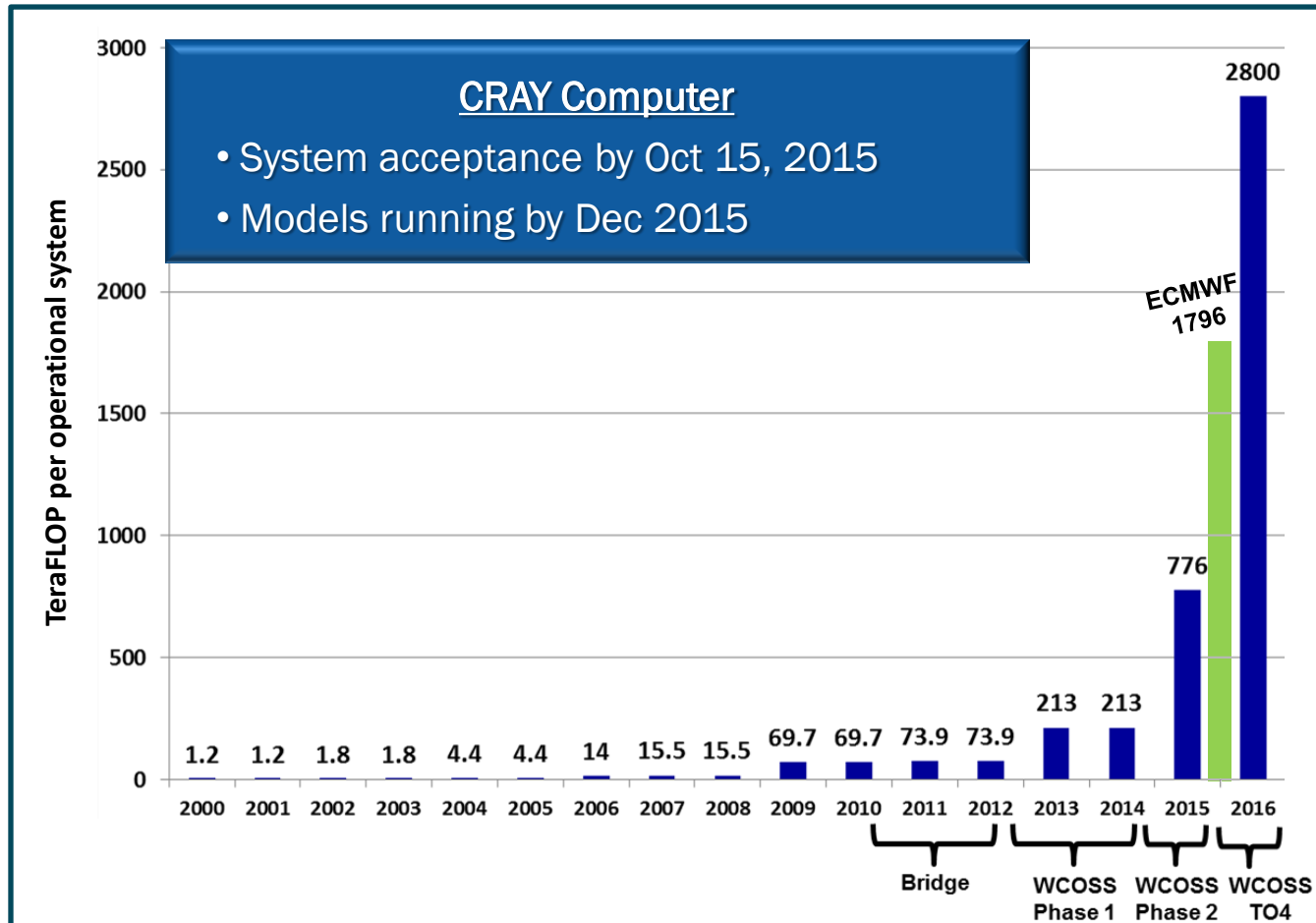
For the week of 8/03/2015





# Central Processing Current Status of Supercomputer

Increased HPC capacity to 2.8petaFLOPs (for primary and backup, respectively – for a total of 5.6 PF) by the end of CY 2015



# Analyze, Forecast, Support Last Mile

## NWS Hazards Simplification Project Issues with WWA?

"How far in advance can I issue this?"

**"WA-WA!"**

**WARNING**

**WATCH**

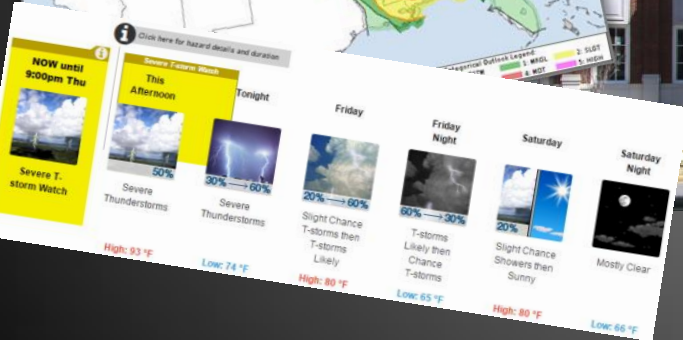
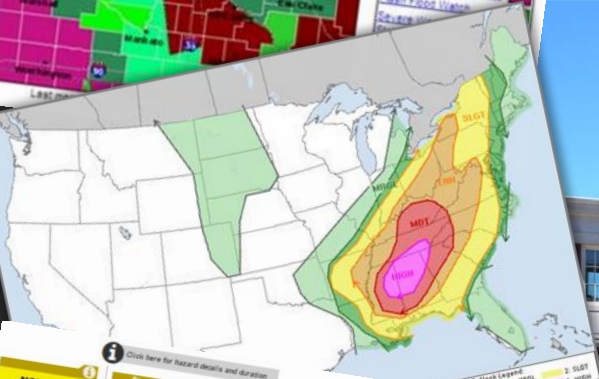
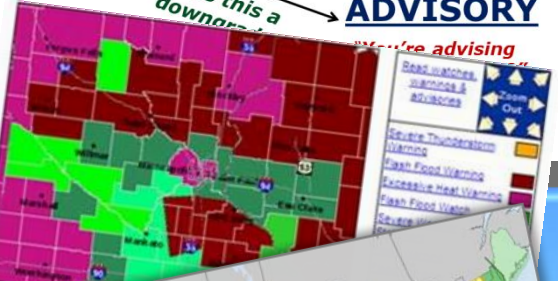
"Watch out!"

"Is this a downgrade?"

"Which is worse?"

**ADVISORY**

"We're advising"



**National Water Center  
May 26, 2015, Initial Operating Capacity Achieved**



# Dissemination NWS Network Updates

## “One NWS” Network

100% Dissemination Backup with College Park and Boulder

1. Fit-up at IDP Infrastructure in Boulder spaces - Jul 2015
2. IT Equip Install in Boulder - Sep 2015
3. Failover set-up between College Park and Boulder - Mar 2016

IDP Dissemination Site DSRC (Boulder, CO)

IDP Dissemination Site NCWCP (College Park, MD)

IDP Functionality already in place at College Park

- NOMADS
- MADIS
- MRMS
- MAG
- VLAB
- Weather.gov

Network “Backbone”

Supercomputer (Reston, VA)

Supercomputer (Orlando, FL)

WFOs  
117/122 upgr

RFCs  
13/13 upgr

National Centers (upgr)

Internet

External Partners

The future One-NWS network will consolidate all operational networks (OPSnet, Regional, etc.) under a single managed network.



# NWS Science & Technology Integration: Numerical Model Upgrades

Increased HPC capacity to 2.8petaFLOPs (*for primary and backup, respectively – for a total of 5.6 PF*) by the end of CY 2015

## Key Atmospheric Model Upgrades:

- Sept 2014: High-Resolution Rapid Refresh (HRRR) operational – 3km every hr.
- Jan 2015: Global Forecast System (GFS) upgraded – 13km out to 10d.
- June 9, 2015: 2km HWRF

## Upcoming Model Upgrades:

- SREF (Q1; FY16) , GEFS (Q4; FY15)
- DA/GFS/4D ENKF (Q2; FY16)
- HRRR (HRRRe)

## HPC-Based Water Modeling:

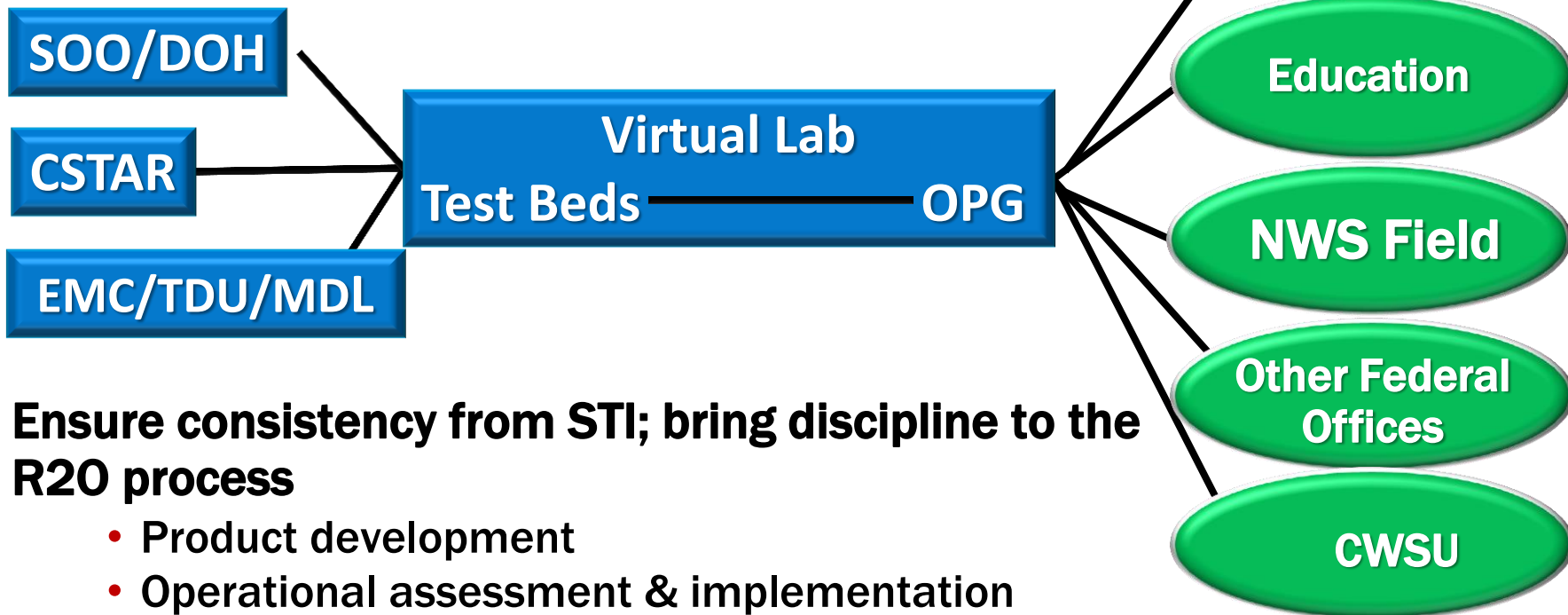
- Deploy WRF-Hydro v1.0 on WCOSS (FY16)



# NWS Science & Technology Integration:

*Accelerating R20 Process and Ensuring a Transition Path*

- **Coordinate and manage local research applications and R20 for national implementation**



- **Ensure consistency from STI; bring discipline to the R20 process**
  - Product development
  - Operational assessment & implementation
  - Service delivery
- **CSTAR Call: Call for proposals will be published mid-to-late August**



# Facilities

- NAPA study recommends a focus on collocations
- Opportunities to collocate yield improved decision support service delivery or improved science collaboration

WFO	Relocation Information
WFO Cleveland, OH	Design underway and will be completed in 8/2015, Construction scheduled for 12/2015 with move tentatively scheduled for 9/2016
WFO Phoenix, AZ	Construction underway move scheduled for 5/2016) (\$1,200K Construction
WFO Davenport/Quad Cities, IA	Lease award scheduled for 9/2015 move scheduled for 6/2016
WFO/RFC Sacramento, CA	FY 2017
WFO/RFC Boston, MA	FY 2018
WSO Koror, Palau	Schedule pending land lease through Compact Treaty Agreement

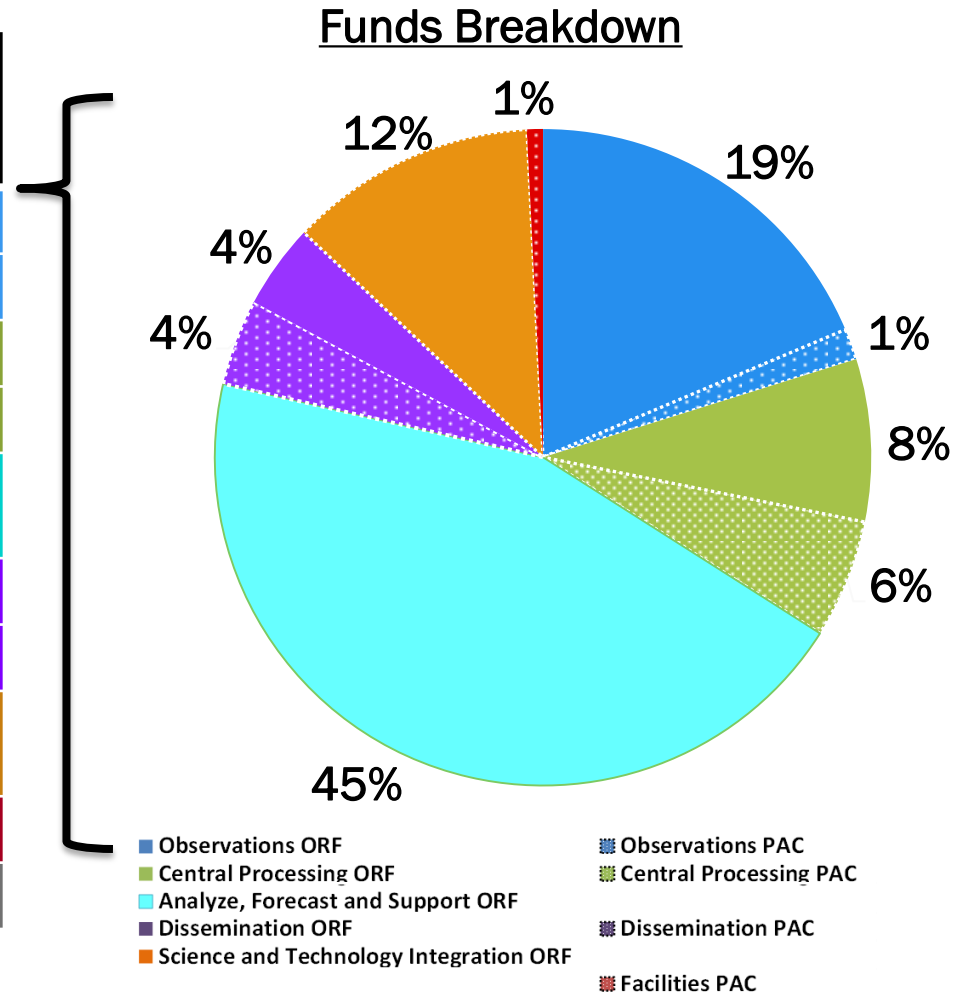
# **Budget Status & Congressional Activity**



# FY2016 NWS President's Budget Request Composition by Portfolio

PPA	Funds*	Full Time Employees (FTE)
Observations ORF	204,876	804
Observations PAC	16,720	-
Central Processing ORF	87,902	134
Central Processing PAC	64,261	22
Analyze, Forecast and Support ORF	489,845	3,010
Dissemination ORF	46,743	82
Dissemination PAC	45,684	-
Science and Technology Integration ORF	134,197	488
Facilities PAC	8,650	-
<b>TOTAL</b>	<b>1,098,878</b>	<b>4,540</b>

\* In thousands of dollars





# Significant NWS-Related Legislation in Congress

## **HR 1561, Weather Research and Forecasting Innovation Act of 2015** (Reps Bridenstine and Bonamici)

- To improve NOAA's weather research through a focused program of investment on affordable and attainable advances in observational, computing, and modeling capabilities to support substantial improvement in weather forecasting and prediction of high impact weather events, to expand commercial opportunities for the provision of weather data, and for other purposes.
- Legislates Science Advisory Board Environmental Information Services Working Group as the NWS Federal Advisory Committee
- Passed House committee 3/25/15. Passed full House 5/19/15.

## **S 1331, Seasonal Forecasting Improvement Act** (Senators Thune and Schatz)

- A bill to help enhance commerce through improved seasonal forecasts, and for other purposes.
- Passed Senate committee 5/20/15.

## **S 1573, Weather Alerts for a Ready Nation Act of 2015** (Senators Thune and Schatz)

- Initial bill called for only six regional forecast centers
- Substitute bill focuses on WCMs and improved watches and warnings
- Substitute bill passed Senate committee 6/25/15.

## **Appropriations Bills:**

HR 2578, Commerce, Justice, Science, and Related Agencies Appropriations Act, 2016

Passed House committee 5/2/15. Passed House 6/3/15. Passed Senate committee 6/11/15.

House Mark - \$1,103 million; (\$4 million above the President's request)

Senate Mark- \$1,112 million; (\$13.5 million above the President's request)

# THANK YOU!

