2017 Summer Partners Meeting

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NOAA Assistant Administrator for Weather Services

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Madison, WI

Outline

- Weather Research and Forecasting Innovation Act 2017
- FY17 Budget; Annual Operating Priorities
- Dissemination
- GFS Upgrade → Next Generation Global Prediction System
- Connecting Tactical Steps to Strategic Outcomes

Weather Research and Forecasting Innovation Act

Sec. 101 – Directed toward the NWS Mission

15 USC 85011.

SEC. 101. PUBLIC SAFETY PRIORITY.

In conducting research, the Under Secretary shall prioritize improving weather data, modeling, computing, forecasting, and warnings for the protection of life and property and for the enhancement of the national economy.

- Reauthorize USWRP, HFIP, Tornado Research

- 201 – Improving Sub-seasonal and Seasonal Forecasts
- 301 – Weather Satellite and Data Innovation
- 401 – Federal Weather Coordination
- 501 – Tsunami Warning, Education, and Research

Signed into law on April 18

Weather Research and Forecast Innovation Act of 2017

Public Law 115–25
115th Congress

An Act

To improve the National Oceanic and Atmospheric Administration's weather research through a focused program of investment on affordable an in observational, computing, and modeling capabilities t improvement in weather forecasting and prediction of high i to expand commercial opportunities for the provision of other purposes.

Be it enacted by the Senate and House of the United States of America in Congress assembled

SECTION 1. SHORT TITLE; TABLE OF CONTENTS.

(a) SHORT TITLE.—This Act may be cited Research and Forecasting Innovation Act of 2017".

(b) TABLE OF CONTENTS.—The table of cont is as follows:

Signed into law on April 18

(b) PRIMARY ROLE OF WARNING COORDINATION METEOROLOGISTS.—The primary role of the warning coordination meteorologist shall be to carry out the responsibilities required by this section.

(c) RESPONSIBILITIES.—

(1) IN GENERAL.—Subject to paragraph (2), consistent with the analysis described in section 409, and in order to increase impact-based decision support services, each warning coordination meteorologist designated under subsection (a) shall—

(A) be responsible for providing service to the geographic area of responsibility covered by the weather forecast office at which the warning coordination meteorologist is employed to help ensure that users of products of the National Weather Service can respond effectively to improve outcomes from weather events;

(B) liaise with users of products and services of the National Weather Service, such as the public, media outlets, users in the aviation, marine, and agricultural communities, and forestry, land, and water management interests, to evaluate the adequacy and usefulness of the products and services of the National Weather Service;

(C) collaborate with such weather forecast offices and State, local, and tribal government agencies as the Director considers appropriate in developing, proposing, and imple-

Collaboration

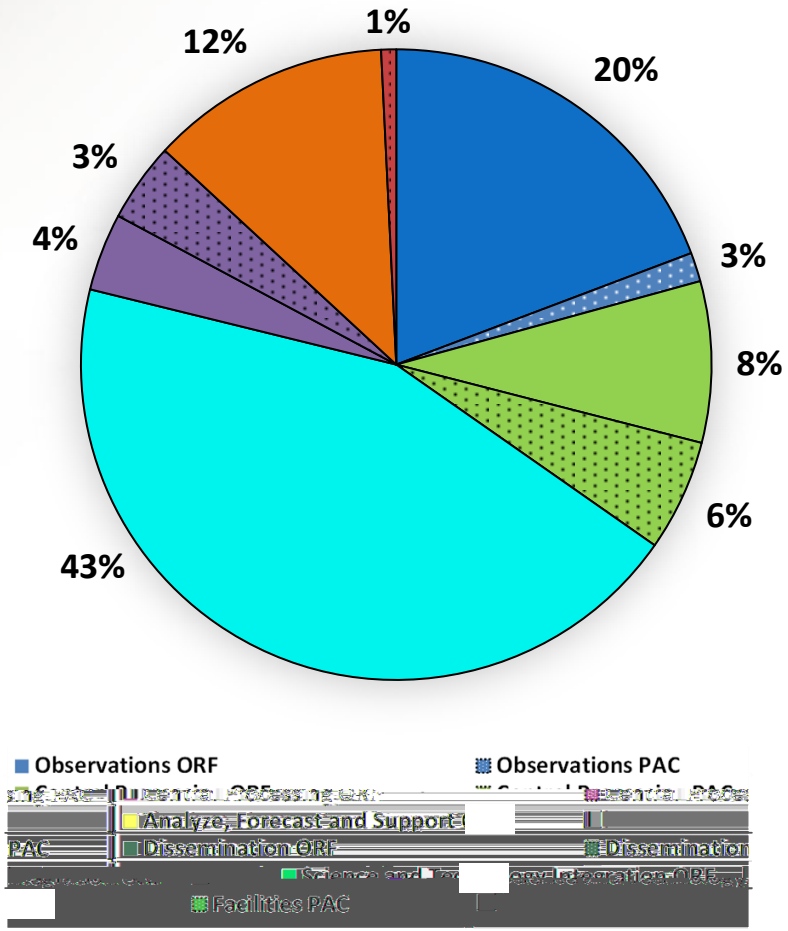
(1) IN GENERAL.—Subject to paragraph (2), consistent with the analysis described in section 409, and in order to increase impact-based decision support services, each warning coordina-

FY 2017 Omnibus Enacted Level Composition by Portfolio

PPA	Funds*	Full Time Employees (FTE)
Observations ORF	216,363	804
Observations PAC	32,755	-
Central Processing ORF	92,790	232
Central Processing PAC	66,761	24
Analyze, Forecast and Support ORF	487,325	3,010
Dissemination ORF	46,743	81
Dissemination PAC	34,619	-
Science and Technology Integration ORF	136,558	488
Facilities PAC	7,650	-
TOTAL	1,121,564	4,638

** In thousands of dollars*

Funds Breakdown



FY 2017 Portfolio Highlights

Observations

- NEXRAD Service Life Extension
- ASOS SLEP
- Radiosonde frequency migration
- Achieve IOC for GOES-16
- Weather Buoy Recapitalization
- Auto-launchers

Central Processing

- AWIPS configured for GOES-16 data
- Complete use case development for NAWIPS
- Extend the performance period WCOSS (4.2 PF) supercomputing systems and service.

Science & Tech Integration

- Complete GOES–16 training development (SIFT)
- National Water Model v 1.1
- GDAS/GFS upgrade (last spectral upgrade)
- NGGPS Dynamic Core Integration
- HWRF upgrade
- Implement Impacts Catalog IDSS Portal
- National Blend of Models v3.0

WRN Ambassador Initiative 5900+ Ambassadors

Facilities

- Complete relocation of WFO Davenport & WFO Boston
- Initiate Facility Assessments for 3rd 1/3
- Complete Phase 1 disposal of Annette Island, Alaska

Dissemination

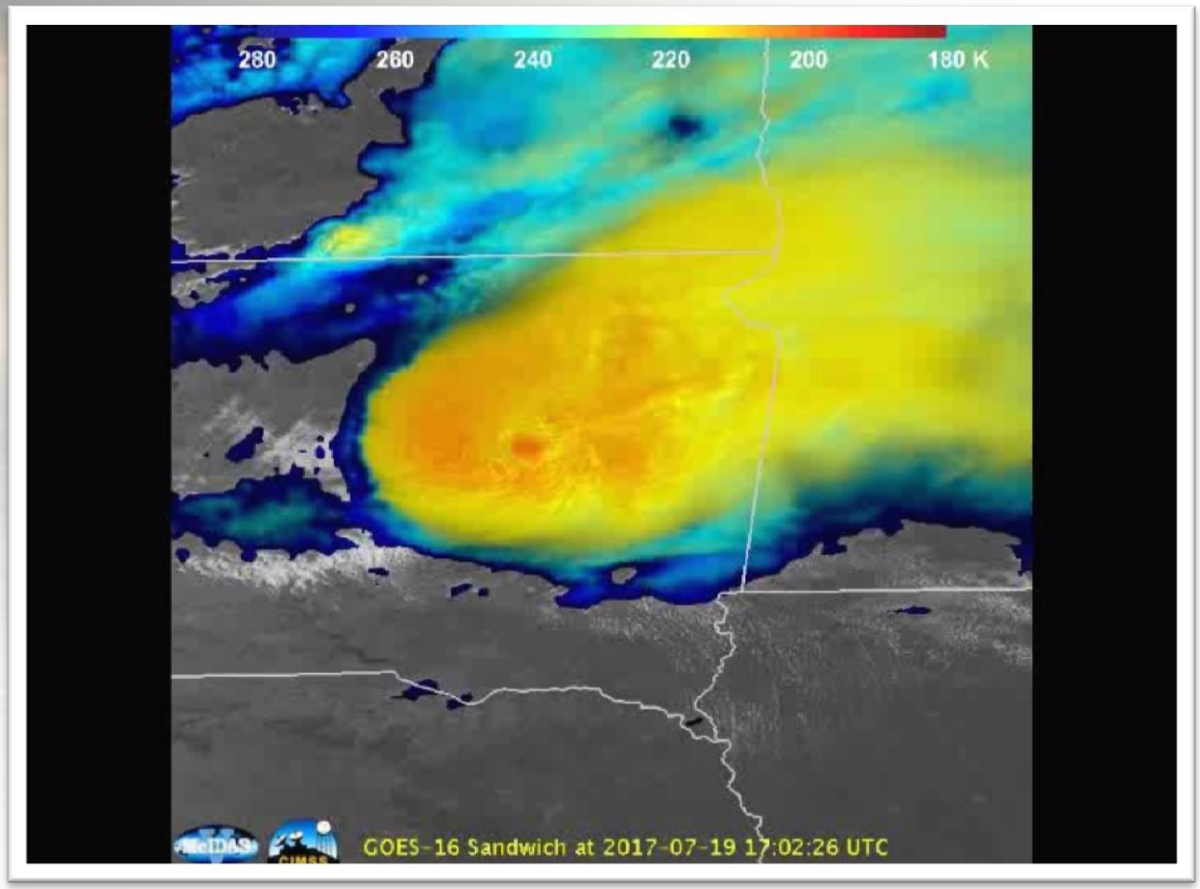
- Shutdown legacy NWSTG
- OneNWS upgrades for 50 CONUS sites
- Mass Dissemination for hazardous weather
- GOES-16 Readiness

Analyze, Forecast, Support

- Evaluation of National Blend of Models prototype demonstration
- Impacts Catalog demonstration to show integration with field ops
- Operational Storm Surge Watch/Warning in 2017
- Integration of GOES-16 products into SWPC operations & website
- CONOPS for NWC Operations Center
- Probabilistic snowfall experiment expanded to 44 WFOs
- Add WFOs to DOT Pathfinder Project

GOES-16: Redefining Mesoscale Meteorology

Derecho that moved across South Dakota and Minnesota, and into northern Iowa on July 19, 2017.

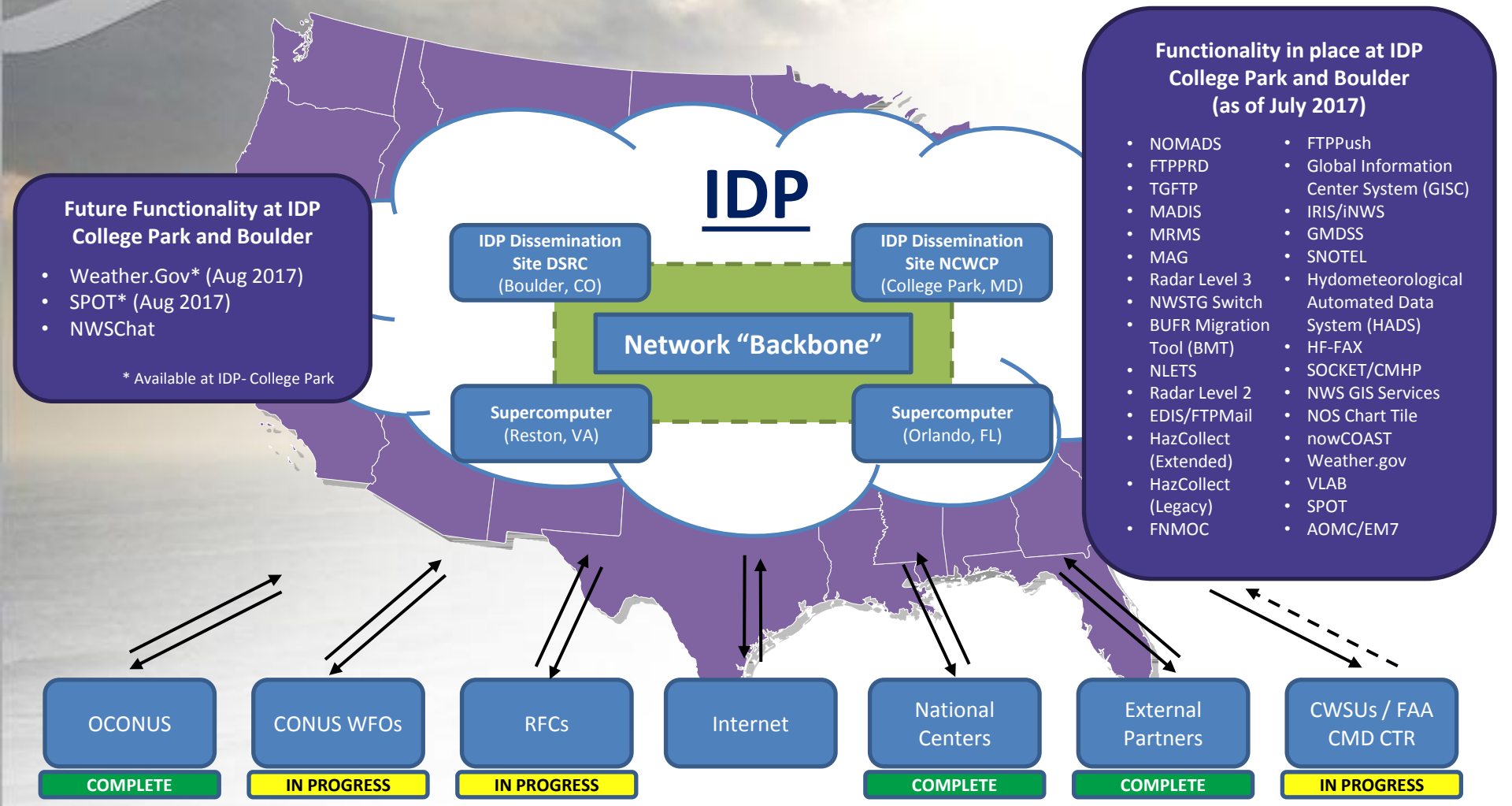


Credit CIMSS for this imagery

The GOES-16 data is preliminary, non-operational data and undergoing testing

Integrated Dissemination Program (IDP)

Long-Term Sustainable Solution



Future Functionality at IDP College Park and Boulder

- Weather.Gov* (Aug 2017)
- SPOT* (Aug 2017)
- NWSChat

* Available at IDP- College Park

Functionality in place at IDP College Park and Boulder (as of July 2017)

- NOMADS
- FTPPRD
- TGFTP
- MADIS
- MRMS
- MAG
- Radar Level 3
- NWSTG Switch
- BUFR Migration Tool (BMT)
- NLETS
- Radar Level 2
- EDIS/FTPMail
- HazCollect (Extended)
- HazCollect (Legacy)
- FNMOC
- FTPPush
- Global Information Center System (GISC)
- IRIS/iNWS
- GMDSS
- SNOTEL
- Hydometeorological Automated Data System (HADS)
- HF-FAX
- SOCKET/CMHP
- NWS GIS Services
- NOS Chart Tile
- nowCOAST
- Weather.gov
- VLAB
- SPOT
- AOMC/EM7

"OneNWS" Network

The future OneNWS network will consolidate all operational networks (OPSnet, Regional, etc.) as a single managed network under NCEP Central Operations (NCO).

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Overall Status:	Additional Operational and/or Milestone Comments:
Dissemination	07/26 1015Z-1115Z: IDP's CP unexpectently lost a compute blade causing multiple processes to fail, most of which had redundant processes running on other blades. NOMADS lost radar3 data and the GFS model stopped updating on tgftp at 198 hrs for approx. 30 min. Processes were shifted to alternate blades. Root cause of the blade failure remains under investigation. 07/26 1915Z-2045Z: IDP College Park processing contention cause multiple products to be missed or delayed. Failing MRMS, NOMADS and FTPPRD process to IDP Boulder restored full functionality. IMPACTS: -- MRMS failed to create tiles across as much as 1/4 of the USA (mainly NE area) -- data transfer queues from Tide to NOMADS delayed RTMA, weatherfax, and AWC files for up to 2 hrs

IDP Applications

BMT	Chart Tile	EDIS	FTP	FTPMail	FTPPush
FTPS	GIS	GISC/OpenWIS	GMDSS	HC Extended	HC Legacy
HF Fax	Himawari	iNWS	IRIS	MADIS	MAG
MRMS	Network	NIDS (IDP)	NLETS	NOMADS	nowCOAST
Radar 2	Radar 3	SNOTEL	Sockets	SPOT	TGFTP
Trouble Tickets	VLAB				

Non-IDP Applications

AHPS	CADAS	EMWIN	NDFD	NIDS (Non-IDP)	NWSChat
Other					

Color-Code Key: Milestone Achieved | Fully Capable | Degraded Capability | No Capability

 Last Updated: 7/27/2017 7:23:39

Overall Status:	Additional Operational and/or Milestone Comments:

Circuits	07/24 0600Z-Present (onenwsnet)(backup): PAGO PAGO lost connectivity via 1 of 2 antennas due to a faulty cooling fan. The 2nd replacement fan has been requested. Minimal impact while remaining antenna continues to function. 07/26 2230Z-0000Z (onenwsnet)(outage): Canada unable to send data to NWS due to an incorrect NCO firewall change. Queued data was received once the firewall configuration was reverted back to working state.				
Observations	Lightning	Marine	RADAR	Satellite	Surface
	Upper Air	Other			
	07/1530Z-1645Z: GOES-16 data unavailable on remote centers' GWSAS system. Harris advised that they were experiencing processing issues and only sending approx. 1/3 of the products.				
Central Proc.	AWIPS	Models	NAWIPS	Regional IT	WCOSS
	Sunday-Thursday: WCOSS system in Orlando unavailable to developers due to scheduled maintenance.				
AFS	None				
Facilities	None				

Color-Code Key:	Milestone Achieved	Fully Capable	Degraded Capability	No Capability

Computer Status/Model Implementation
Supported through HFIP and Sandy Supplemental

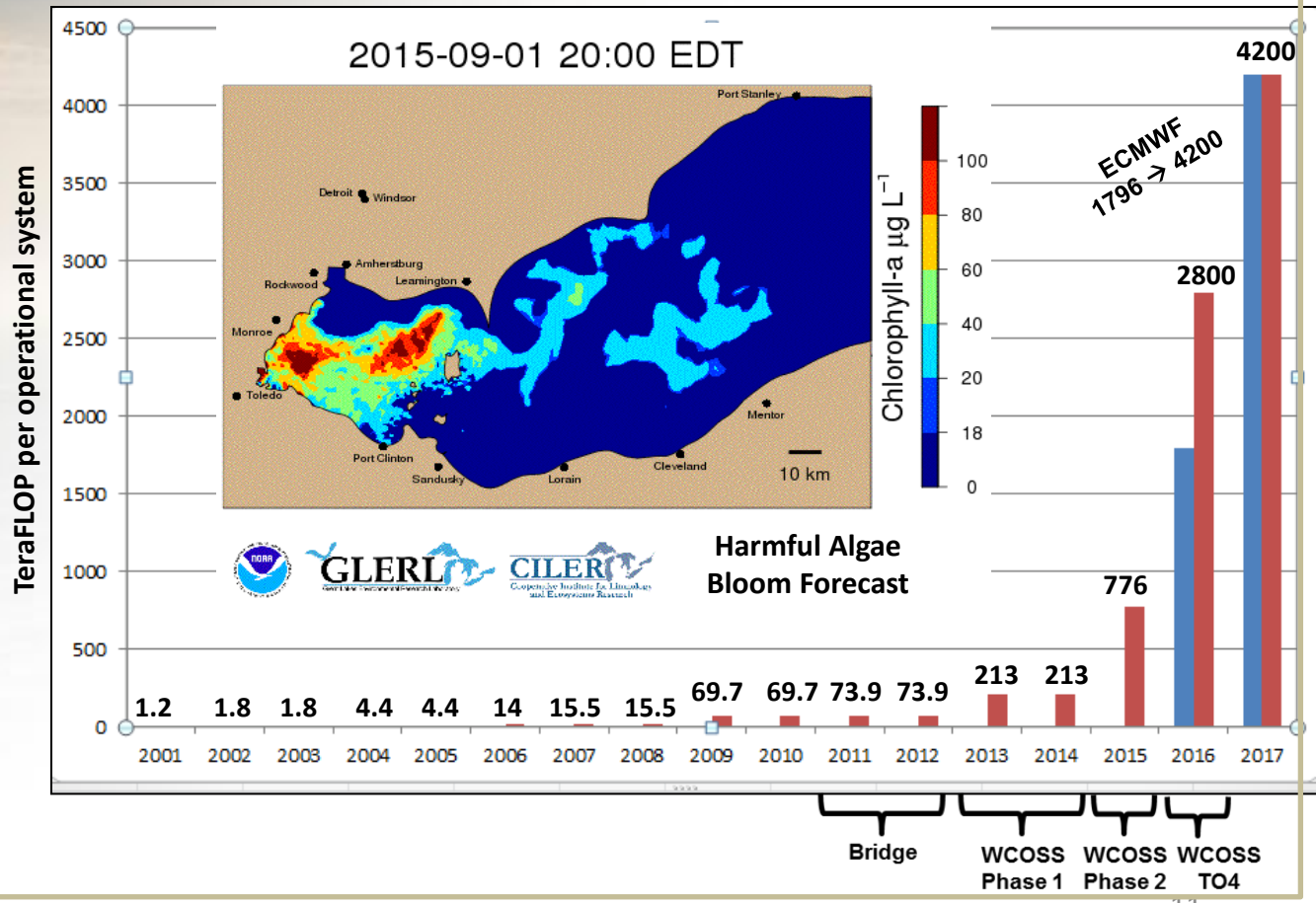
Key Atmospheric Model Upgrades Complete:

- August 2016: HRRR v2.0 and RAP v3.0
- August 2016: National Water Model (NWM) initial implementation
- Mar 2017: NAM v4.0
- Apr 2017: Probabilistic Storm Surge (PSURGE) upgrade
- May 2, 2017: RTMA upgrade
- **Global Forecast System (GFS) v14 upgrade - July 19**
- Hurricane WRF (HWRF) - July 26
- National Blend of Models v3.0 - July 27

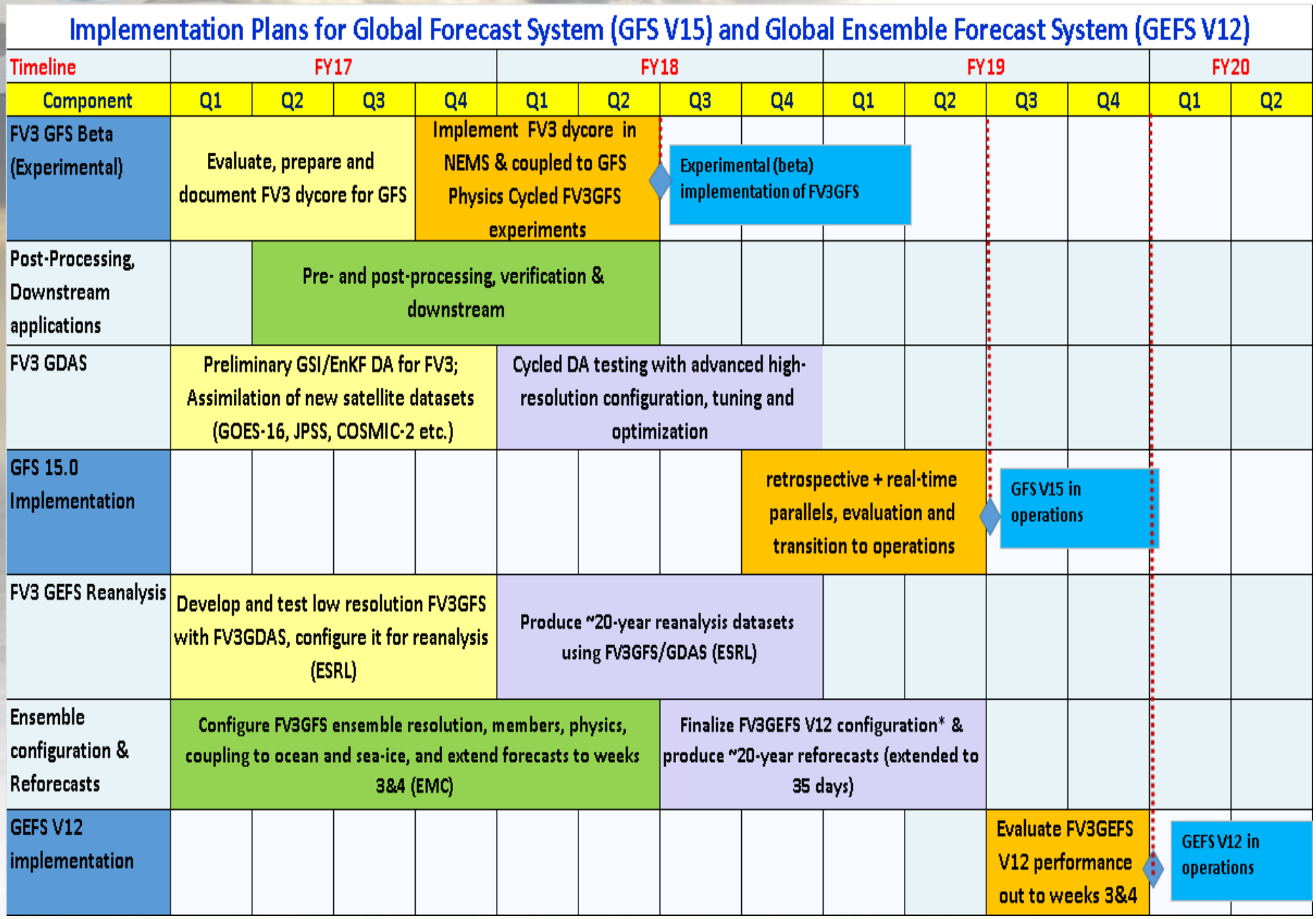
Upcoming Model Upgrades:

- Initial implementation of Hurricanes in a Multi-scale Ocean-coupled Non-hydrostatic (HMON) - August 1

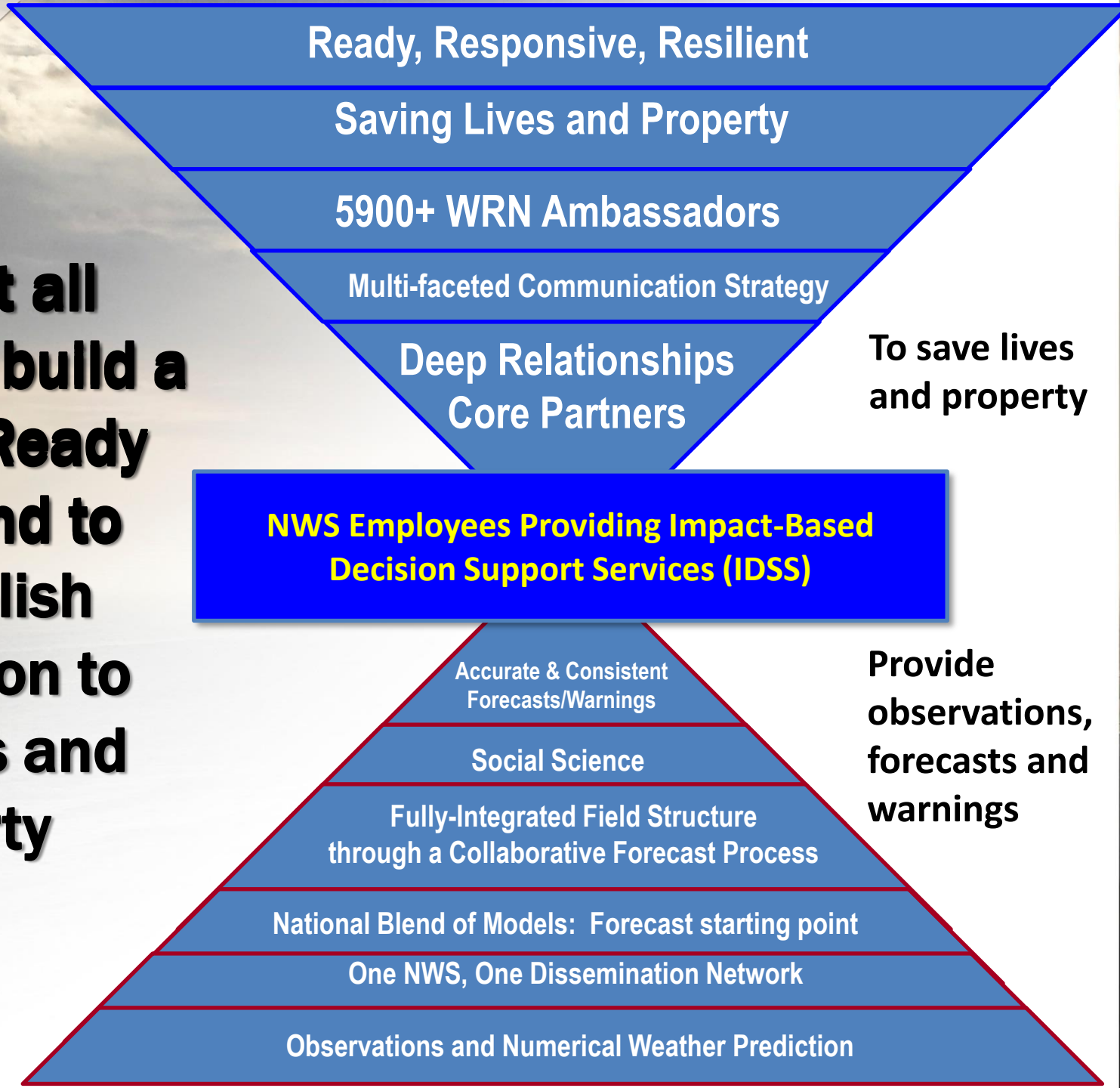
In Progress Increase of HPC capacity to 4.2 petaFLOPs
(for primary and backup, respectively–for a total of 8.4 PF)
Planned Acceptance for Operations: January 15, 2018



GFS V15 and GEFS V12 Implementation



Pulling it all together to build a Weather-Ready Nation and to accomplish our mission to save lives and property



2017 East New Orleans Tornado

Date :	February 7, 2017
Strength:	EF-3
Track Width:	1/3 mile
Tornado Track Length:	10 miles
Warning lead time:	~33 minutes
Injuries	33
Fatalities:	**0**

- NWS local outreach and preparedness activities over a 4-year period
- Deep relationships with Emergency Managers/WRN Ambassadors
- Dissemination of forecasts and warnings
- Public awareness
  - Daytime event, visual confirmation, schools sheltered
- Collaborative forecast preparations within NWS and the larger enterprise a success
  - **Over 100 meetings and table-top exercises held in the city in the years preceding event**
- IDSS provided days in advance of the tornado

A Measure of Success

"Partnership with the NWS has revolutionized the EM community from one that reacts to events to one that proactively prepares and stays ahead of extreme events."

Eric Waage*
Director of Emergency Management, Hennepin County Minnesota

*Northern Plains Winter Weather Workshop, Nov 2016

Summary

- NWS is Building a Weather Ready Nation - Touching every county in the U.S.
- Weather Research and Forecasting Innovation Act is directed toward the Mission of the NWS
- System upgrades (GOES 16, WCOSS, etc) are providing our workforce with the tools needed to carry out the mission.
- Emergency Management – Partnership with the NWS has revolutionized the EM community from one that reacts to events to one that proactively prepares and stays ahead of extreme events.
- Ongoing effort to Evolve the NWS to focus on the partnerships with the Emergency Management and Water Resource Managers – Build the reliable state of the technology/services infrastructure from observations – to modeling – to dissemination – to forecasts for IDSS support.