Warning Research at NSSL

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Results from 2009 Review

	QUALITY	RELEVANCE	PERFORMANCE
RADAR R&D	HIGH	HIGH	VERY HIGH
FORECAST AND WARNING R&D	VERY HIGH	EXTREMELY HIGH	VERY GOOD
HYDROMET R&D	HIGH FOR QPE ONLY	HIGH	*UNKNOWN AT THIS TIME*

Worked to improve

Performance

|	2003-2008	2009-2014
Journal Articles	15	45
HWT/EWP Projects - total	3	28[1]
Grants for EWP	~$200k-$300k (2008)	$1.307M (2014)[2]

[1]Does not include HWT-Hydro starting in 2014 in collaboration with WPC

[2]Grants in 2014 include: NASA/GOES-R risk reduction, OWAQ, Sandy Supplemental, NWS (FACETs), Radar Operations Center

Relevance to Warnings R&D

➢ **NOAA Next Generation Strategic Plan**

  ✧ Overarching NOAA Goal: *Weather Ready Nation*

    ✓ **Objective**: Reduced loss of life, property, and disruption from high-impact events

➢ **NOAA/OAR 5-year Research Plan** (2013-2017)

  ✧ R&D supporting improved prediction of high-impact events (improved observations, predictive guidance, decision support tools)
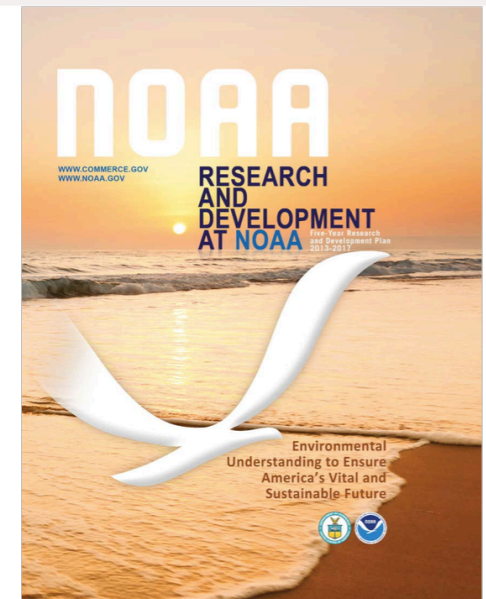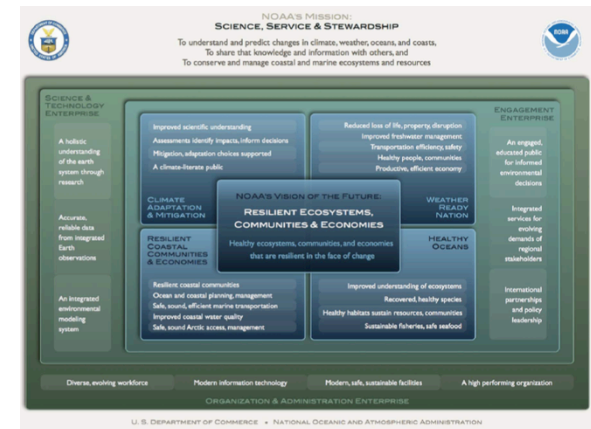
Quality

- ➤ Peer-Reviewed Publications: 45 since 2009
- ➤ FACETs added to NWS DRAFT *Weather Ready Nation* Action Plan
- ➤ WRDD Awards (since 2009)
  - ✓ DOC Gold Medal (2014)
  - ✓ NOAA Bronze Medal (2011)
  - ✓ 4 NOAA Outstanding Paper Awards
  - ✓ NWA Operational Achievement Individual Award (2014)
  - ✓ NOAA Technology Transfer Award (2013)
  - ✓ AMS Charles Franklin Brooks Award (2015)

Warnings R&D Contribution

1. Probabilistic guidance products
2. Enhanced radar technology
3. Improved flash flood Prediction

4. Lightning Warnings
5. Observing systems for CI
6. Probabilistic warning uncertainties

GOAL 6: Provide grid-based probabilistic uncertainty information for high-impact weather to reduce warning false alarms

FACETs

NOAA Priorities

- Provide information and services to make communities more resilient
  - ➢ FACETs

- Evolve the Weather Service
  - ➢ MRMS-severe, FACETs

- Invest in observational infrastructure
  - ➢ Lightning Mapping Array, GOES-R Risk Reduction

- Achieve organizational excellence
  - ➢ MRMS transition to operations example

PERFORMANCE, QUALITY, RELEVANCE

Experimental Warning Program

➢ HWT Experimental Warning Program History & Successes – *Kingfield*

➢ Meteorological & Warning Process Studies – *Heinselman*

➢ GOES-R Research to Operations (R2O) – *Calhoun*

➢ Forecasting a Continuum of Environmental Threats (FACETs) – *Rothfusz*

➢ Lightning Research & Forecasting – *MacGorman*

➢ Warnings R&D Q&A

See also electronic posters

Summary

Successes

- MRMS-severe proven technology

- Successful MRMS-severe transition to NWS operations

- Successful MRMS-severe transition to private enterprise

- Muti-Year Reanalysis nearly complete

Remaining Challenges

- Prove FACETs and transition to NWS

- Integration of FACETs with WoF and flash flood prediction