

# NOAA's National Weather Service: Climate, Water, and Weather Teamwork



***Brig. Gen. David L. Johnson***

*NOAA Assistant Administrator for Weather Services*

*NOAA Constituent Meeting*

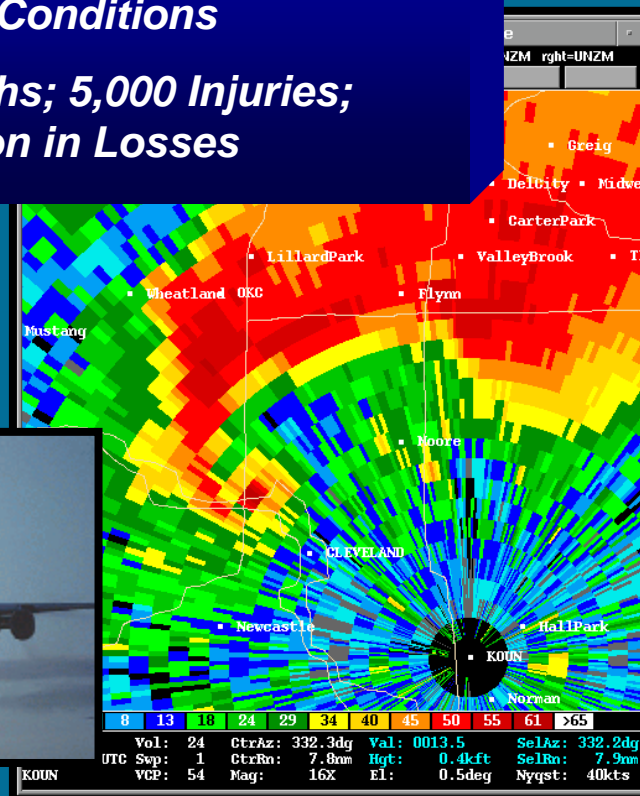
*March 2, 2004*

# About the National Weather Service

- Provide climate, water, weather forecasts and warnings to protect **life** and **property** and enhance the economy
- Data and products are used by other government agencies, the private sector, the public, and the global community.

## A Typical Year Brings:

- 7 Hurricanes
- 1,000 Tornadoes
- 5,000 Floods
- 10,000 Violent Thunderstorms
- Drought Conditions
- 500 Deaths; 5,000 Injuries;  
\$14 Billion in Losses

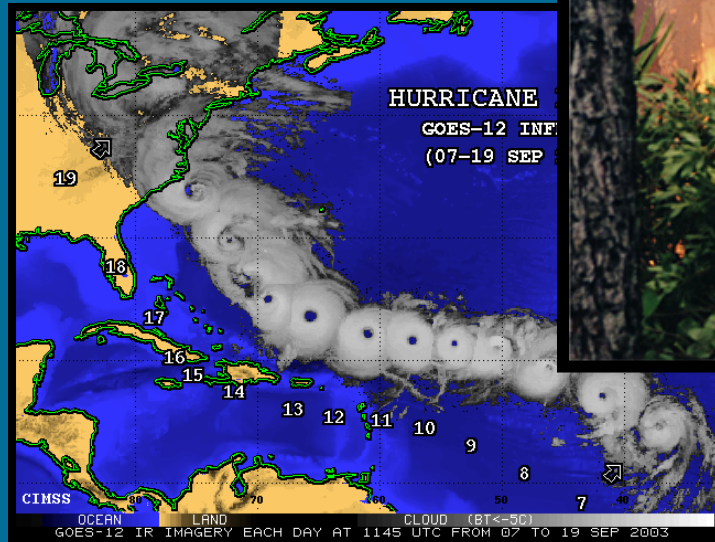


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# About the National Weather Service

## *NWS Priorities*

- Leverage collaborative research to transfer new science and technology into operations
- Codify past investment by providing better climate, weather, and water forecasts for decision-making



# Where We Are Going

## *NOAA's Mission Goals*

Ecosystems

Climate

NOAA  
Homeland Security  
Ships, Planes &  
Satellites  
Research  
Environmental  
Literacy

Weather and  
Water

Commerce  
and  
Transportation



# Teamwork

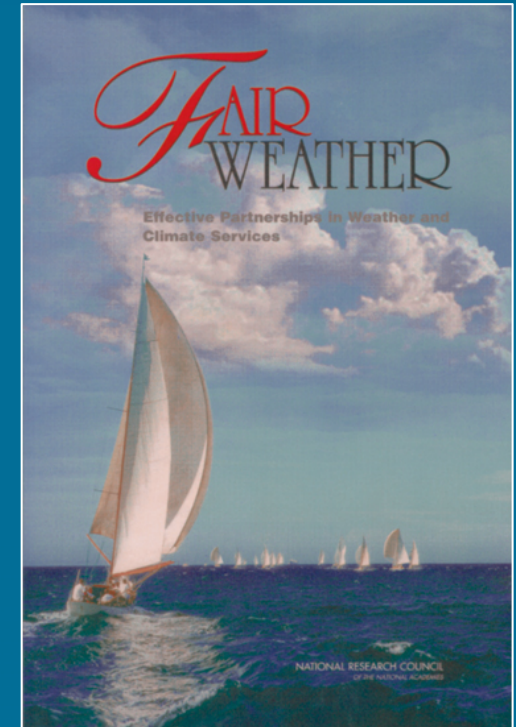


# Partnerships

## *National Research Council's Report*

### *Fair Weather: Effective Partnerships in Weather and Climate Services*

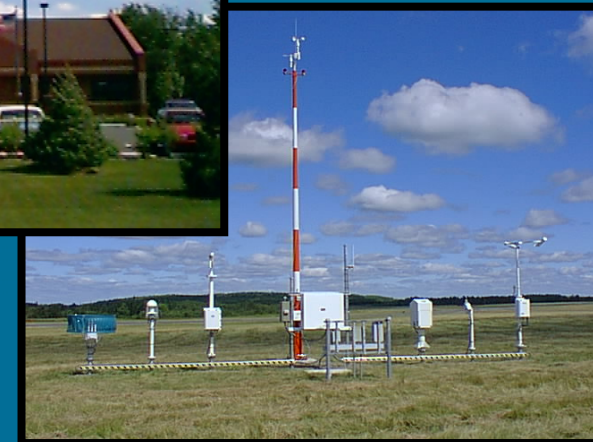
- *Today's partnerships are sound and functioning well*
- *Recommendations include:*
  - Congressional Mandate - protect life and property
  - Public/Private Partnership Process
  - Data and Products in standardized format
  - New/Discontinue Products
  - Communicate Uncertainty



<http://www.nws.noaa.gov/fairweather/>

# Leveraging Taxpayers' \$4.3 Billion Investment

- ASOS (313)
- NEXRAD (121)
- AWIPS (#)
- Supercomputer
- Workforce Restructuring
- Office Construction
- Satellites



# Performance

## NWS National Measures

### FY 2003 – FY 2009

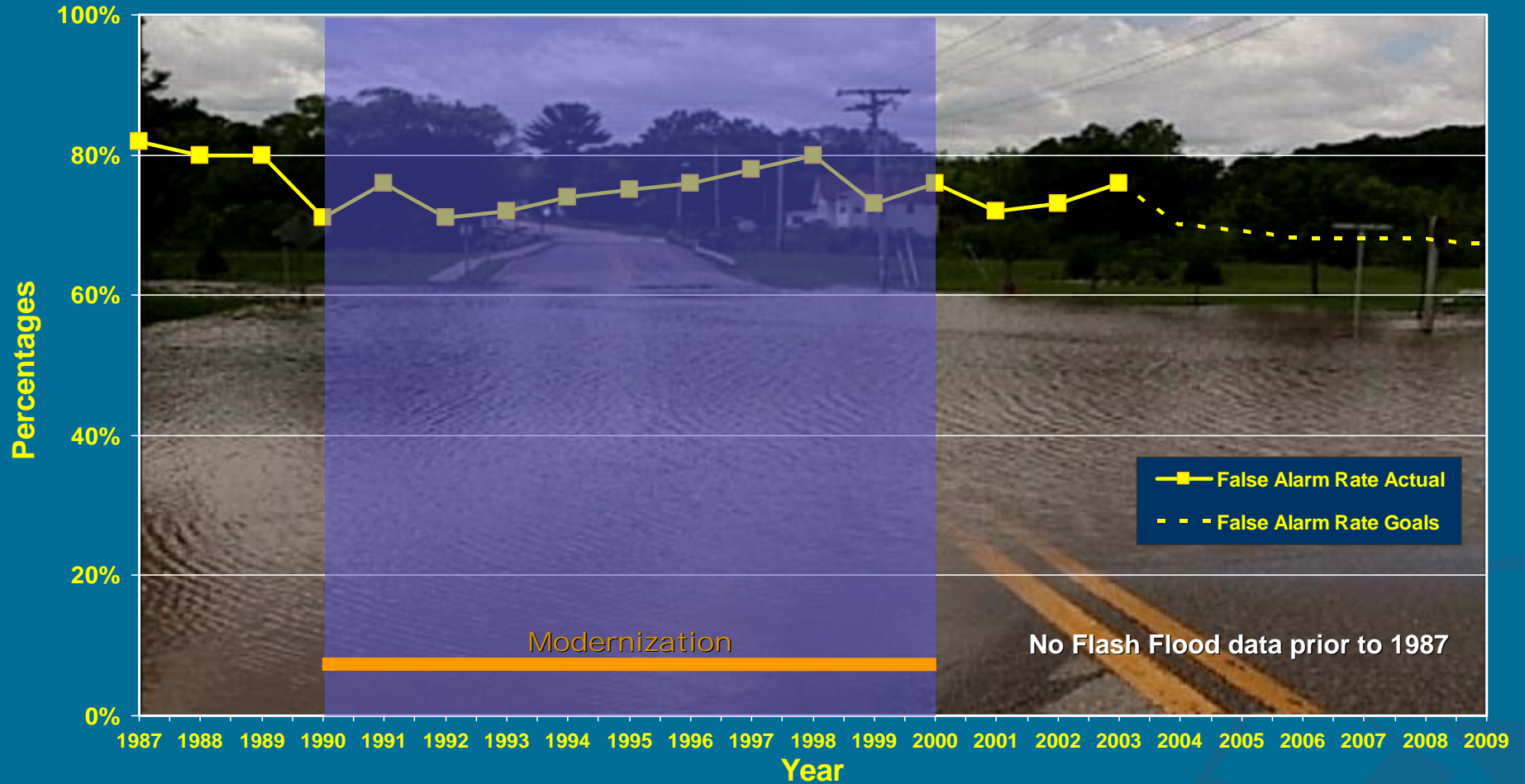
Government Performance Requirements Act (GPRA) Performance Measure	Goals	Actual	Goals					
	2003	2003	2004	2005	2006	2007	2008	2009
Tornado Warnings - Accuracy (%)	72	79	72	73	75	75	76	76
Tornado Warnings - False Alarm Rate (%)	72	76	70	69	68	68	68	67
Tornado Warnings - Lead Time (Min)	12	13	12	13	14	15	15	16
Flash Flood Warnings - Accuracy (%)	87	89	88	89	90	90	90	91
Flash Flood Warnings - Lead Time (Min)	50	41	50	53	56	58	58	59
Winter Storm Warnings - Accuracy (%)	88	90	89	90	90	90	90	91
Winter Storm Warnings - Lead Time (Hours)	13	14	14	15	15	15	15	16
Hurricane Track Forecasts (48 Hours Fcst Error (RMS))	130	107*	129	128	128	126	126	125
Aviation Forecasts (Ceiling & Visibility) - Accuracy (%)	45	48	46	46	48	50	52	55
Aviation Forecasts - (Ceiling & Visibility) False Alarm Rate (%)	71	64	70	68	68	67	66	65
U.S. Seasonal Temperature – Skill	20	17	21	22	22	23	23	24
Precipitation Forecast – Day-1 Threat Score (%)	25	27	25	27	28	29	29	29
Marine Wind Speed Forecasts - Accuracy (%)	54	57	57	60	63	66	68	69
Marine Wave Height Forecasts - Accuracy (%)	66	71	69	72	75	78	80	81

\*Preliminary; will be finalized in April 2004



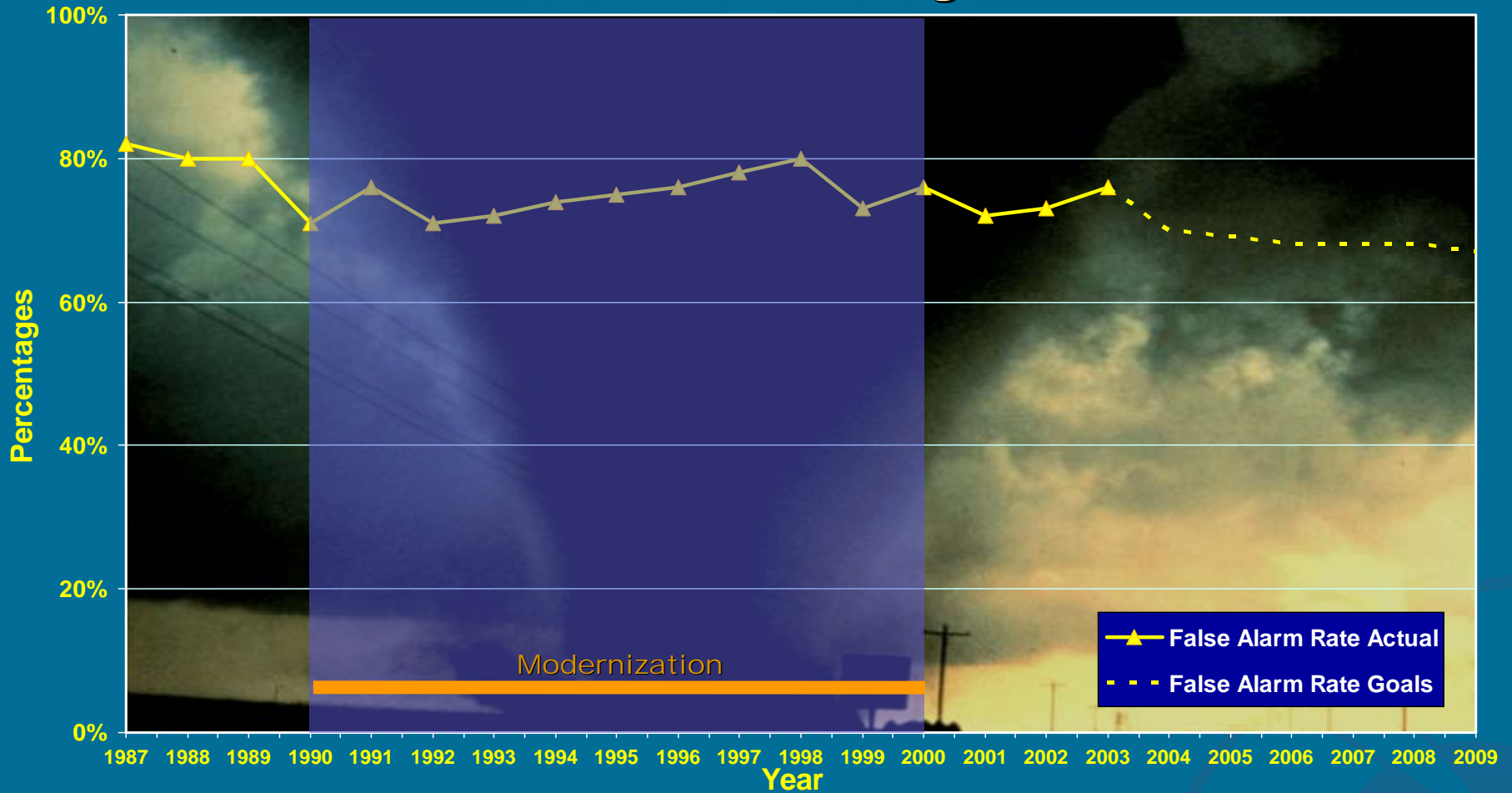
# Performance

## Flash Flood Warnings



# Performance

## Tornado Warnings



# Performance

## U.S. Seasonal Temperature - Skill



# Highlights of the President's Budget Proposal:

- **Mandatory Adjustments** **\$20.1 M**
- **Telecommunications Gateway** **\$900 K**
- **Space Environment Center** **\$2.2 M**
- **Cooperative Observer (COOP) Modernization** **\$1.4 M**
- **Air Quality Ozone Forecasts** **\$5.5 M**
- **Facilities Security** **\$2.0 M**
- **Coastal-Global Observing System (C-GOOS)** **\$2.0 M**
- **U.S. Weather Research Program/THORPEX (improvements in 7-14 day forecasts)** **\$1 M**



# NWS FY 2005 President's Budget - Highlights

FY 05 Change Increase	\$ M	Category	Comments
Adjustments to Base (ATBs)	\$20.1	Sustain Operations	Funds Federal Pay Raise as well as non-labor inflationary costs. Critical to sustain NWS operations and services
Telecommunications Gateway	\$0.9	Sustain Operations	Complete replacement of the Telecommunications Gateway Hardware & Software in Silver Spring, MD. The current system uses outdated technology and experiences delays in transmitting critical weather warning messages to the private sector and public
Space Environment Center	\$2.2	Sustain Operations	Budget transfers SEC from OAR to NWS to reflection operational mission of SEC. Increase restores funding to maintain operations and provide critical solar warnings and forecasts
Cooperative Observer Network Modernization	\$1.4	Sustain Operations	Provide operations & maintenance funding for 460 new COOP stations deployed in Northeastern US in FY 2003-2004. Observations will allow NWS forecasters to improve drought monitoring capabilities and improve daily temperature forecasts which are critical to the energy sector.
Air Quality Forecasting	\$5.5	New Service Capability	Sustain operational Ozone forecasts in Northeastern US and continue efforts to deliver Nationwide Ozone forecasts by FY 08 (CONUS)
Facilities Security	\$2.0	Enhance Security Capability	Provide enhanced security at NWS Weather Forecast Offices and National Prediction Centers. Multi-year funding initiative to meet Dept of Justice "Level II" Standards. This is a component of NOAA's Homeland Security Initiative and needed to protect NOAA employees and facilities from potential terrorist attacks
Coastal Global Ocean Observing System (CGOOS)	\$2.0	Enhance Observing Capability	Multi-year funding initiative to leverage investment in marine buoys to improve monitoring of the oceans, including salinity, currents, and sea surface temperature. The initiative will also address gaps in Nation's buoy network, improving marine warnings and forecasts to mariners.
Weather Research - THORPE	\$1.0	Enhance Weather Research	Program increase reflects a transfer for OAR to NWS. This multi-year international weather research initiative seeks to improve the accuracy of 7-14 day weather forecasts by improving global and regional weather models.

# *Integrated Global Observations*

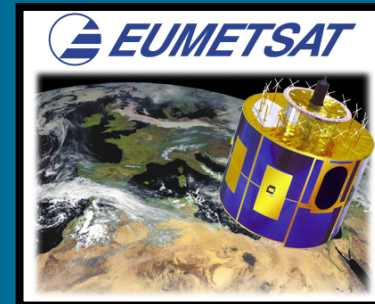
*What's on your mind?*



# Teamwork

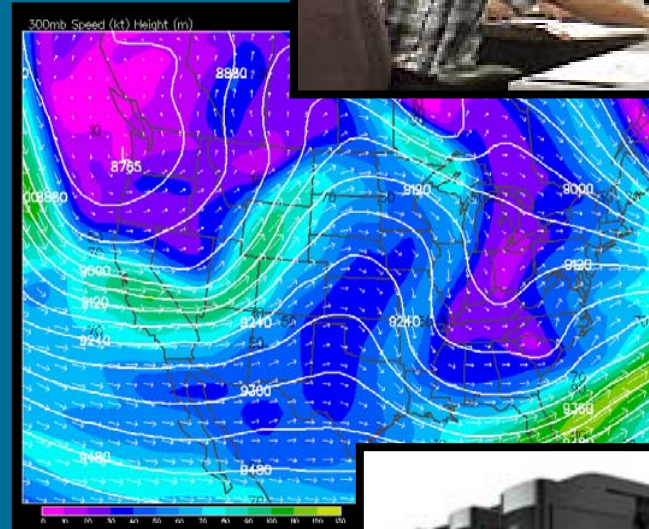
## Observe

- **NESDIS**
- **OAR**
- **Department of Homeland Security**
  - *U.S. Coast Guard*
- **Department of Defense**
  - *U.S. Air Force*
  - *U.S. Navy*
  - *U.S. Army Corps of Engineers*
- **Department of Transportation**
  - *Federal Aviation Administration*
  - *Federal Highway Administration*
- **Department of Interior**
  - *Minerals Management Service*
  - *U.S. Geological Survey*
- **NASA**
- **State, Local, Regional, Tribal agencies**
- **Academia**
- **World Meteorological Organization**
- **EUMETSAT**
- **Regional and State Climatologists**
- **Skywarn Spotters**
- **Cooperative Observers**
- **Airlines**
- **Voluntary Observing Ships**
- **State Departments of Transportation**
- **Lightning Network**



# Teamwork Process

- OAR
- NESDIS
- Academia
- National Science Foundation
- Department of Defense
  - U.S. Air Force
  - U.S. Navy
  - U.S. Army Corps of Engineers
- NASA
- UCAR
- ECMWF
- World Meteorological Organization  
(Canada, EU, UK, Japan)
- IBM



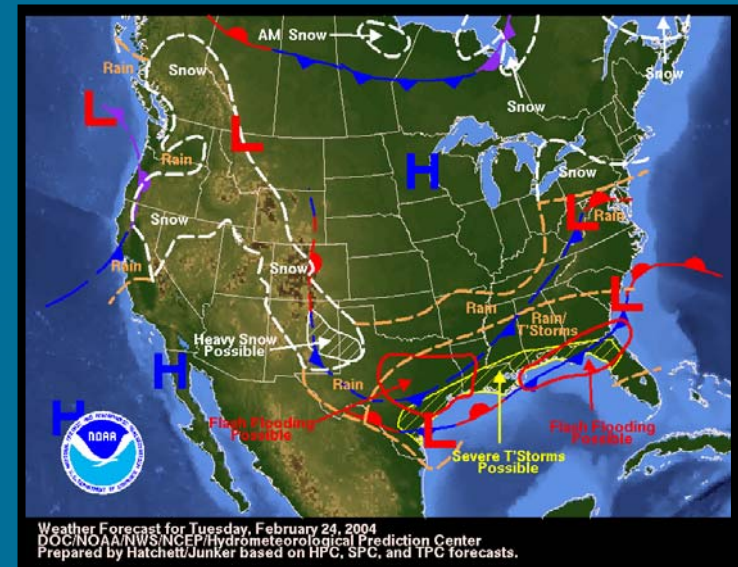


# Teamwork

## Forecast and Warn

- OAR
- NOS
- Commercial Weather Sector
- Water Management Agencies
- FAA
- Bureau of Land Management
- U.S. Geological Survey
- Department of Defense
  - U.S. Air Force
  - U.S. Navy
  - U.S. Army Corps of Engineers
- Environmental Protection Agency
- Department of Homeland Security
- Academia

The screenshot shows the NOAA National Weather Service website. At the top, it says "National Oceanic and Atmospheric Administration National Weather Service" with the tagline "WORKING TOGETHER TO SAVE LIVES". Below the header is a navigation menu with "Site Map", "News", "Organization", and a search bar. A main news article is titled "NOAA Issues Draft Policy to Foster 'Fair Weather' Partnerships". Below the article are tabs for "Warnings and Forecasts", "Graphical Forecasts", "National Maps", "Radar", "Rivers", and "Satellite". A map of the United States is displayed, showing various weather alerts. A sidebar on the left contains a "Local forecast by 'City, St'" search box and a list of categories including "Warnings", "Observations", "Forecasts", and "Forecast Models".



# Teamwork

## *Distribute*

- **NESDIS**
- **Media**
- **Commercial Weather Services**
- **Emergency Management Community**
- **World Meteorological Organization/National Meteorological Services**
- **Federal, State, and Local Governments**



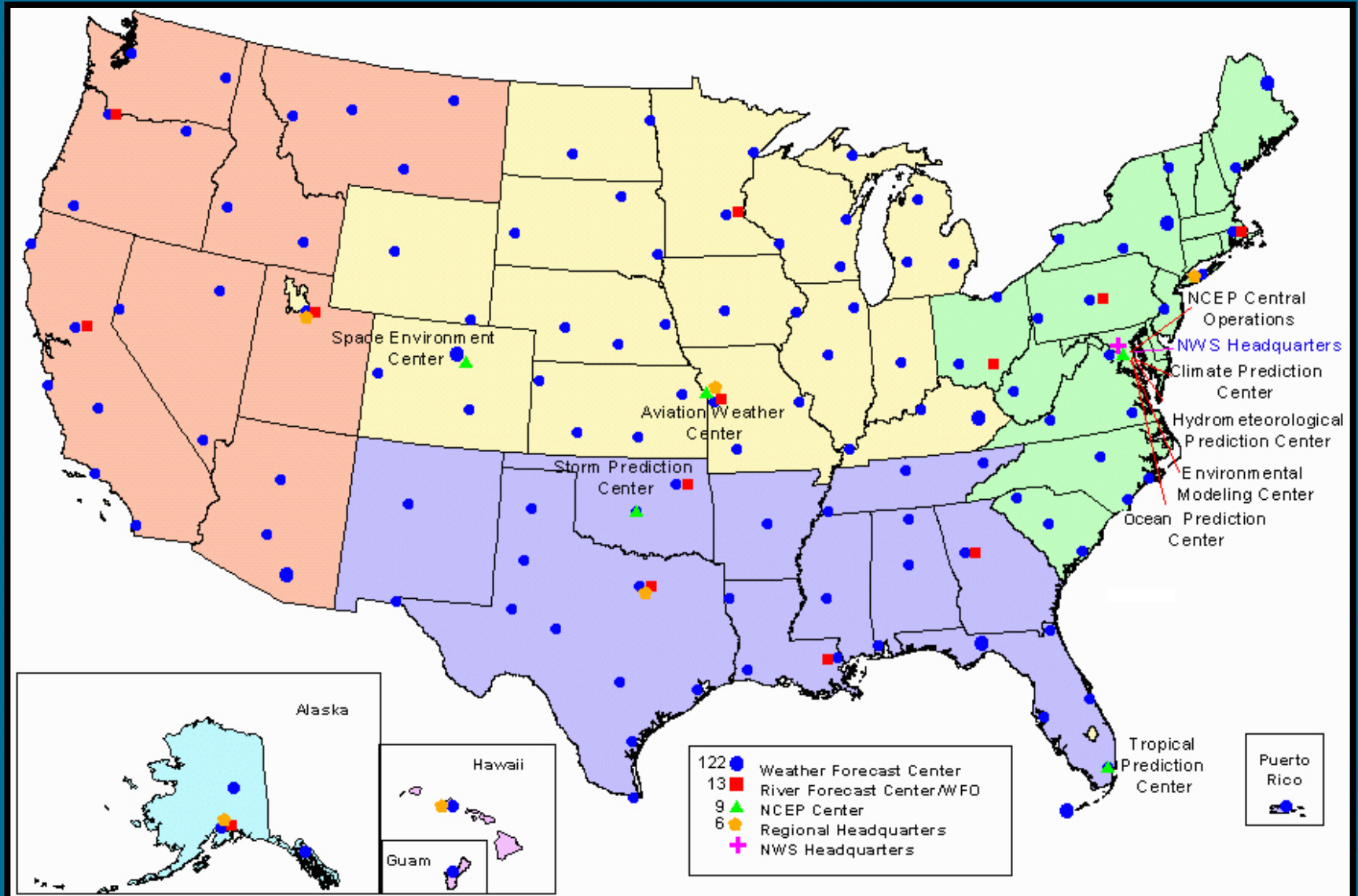
# Teamwork

## *Response and Feedback*

- **Emergency Managers**
- **Media**
- **Elected officials**
- **Federal, State, and Local Governments**
- **American Red Cross**
- **National Safety Council**
- **Constituent Groups**
- **Associations**

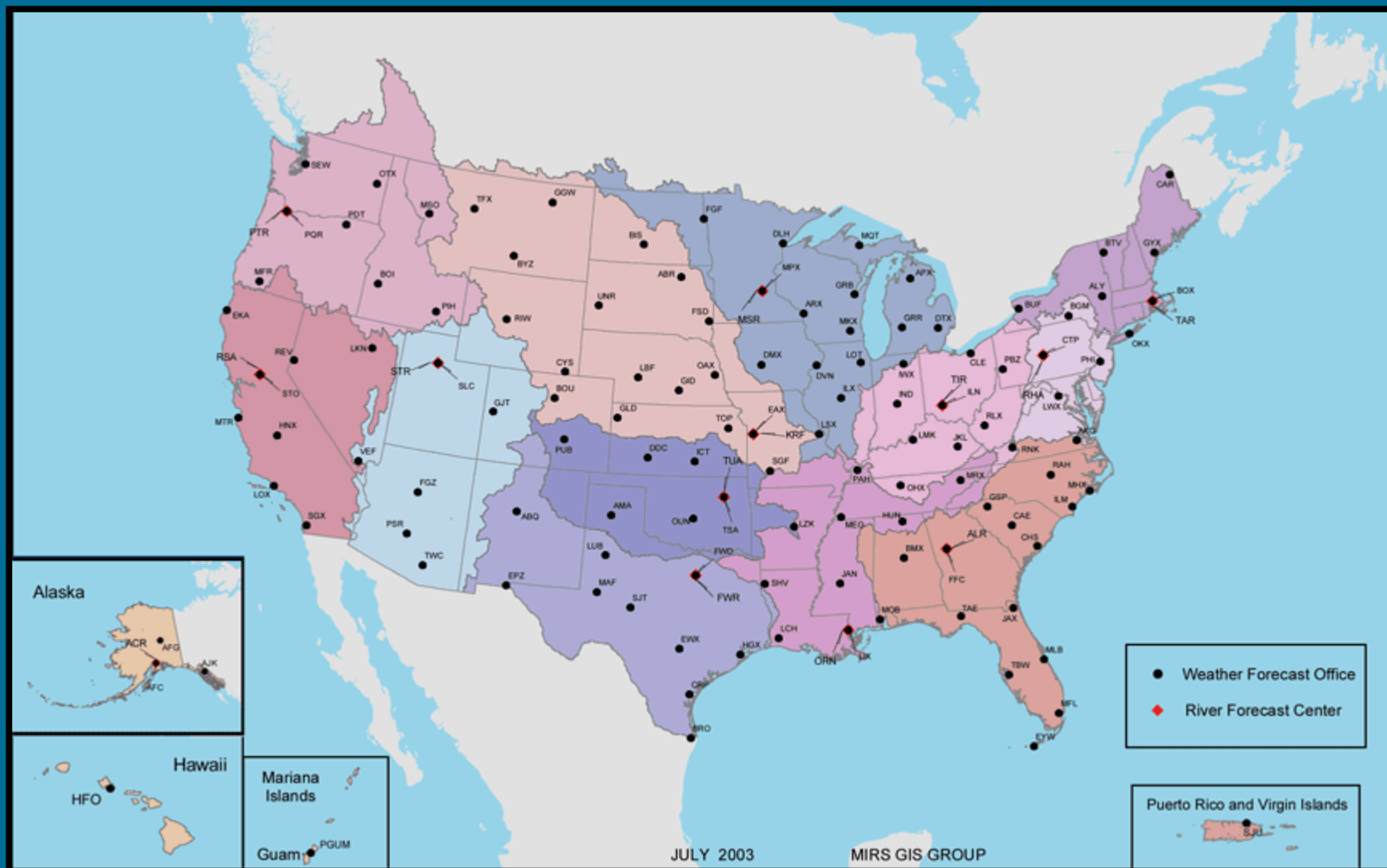


# NWS Service Delivery Facilities



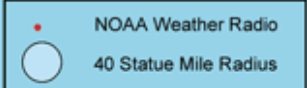
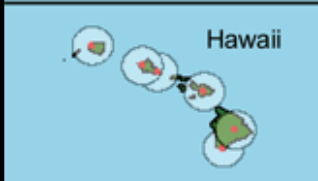
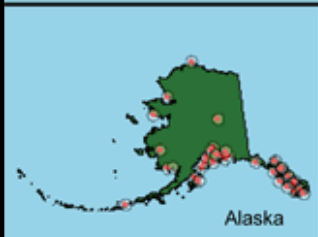
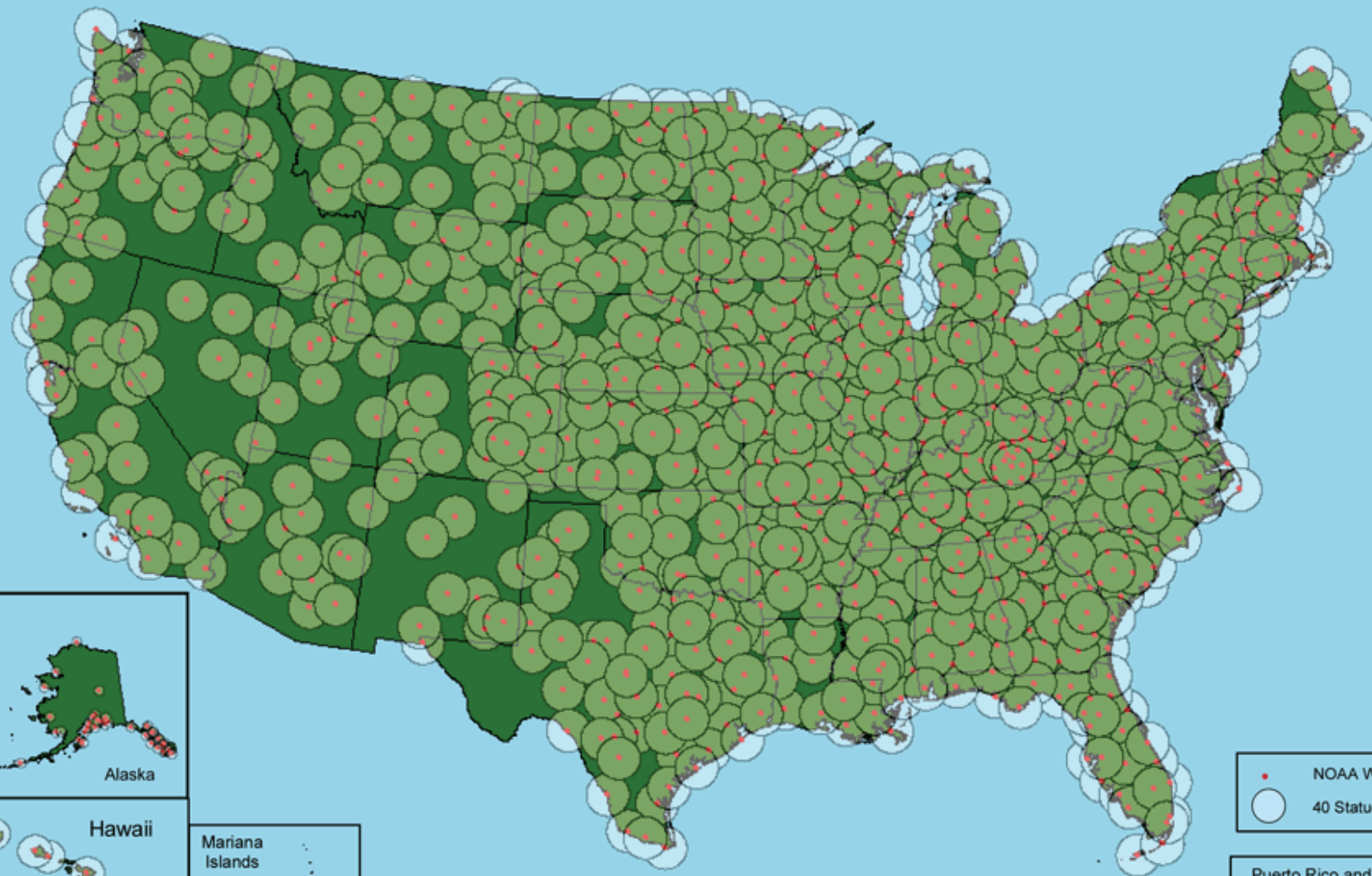
# NWS Service Delivery

## Hydrologic Coverage



# NWS Service Delivery

*800+ NOAA Weather Radio Stations*



# NWS Service Delivery *Doppler Radar Locations*

