

NOAA's National Weather Service

Meeting National Challenges Locally

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*NOAA Assistant Administrator for Weather Services and Director,
National Weather Service*

National Safety Council

November 6, 2006





National Weather Service

Presentation Overview

- Challenges We Share
- NOAA's National Weather Service Operations
- Integrated Environmental Awareness
- What Will the Future Demand of Us?

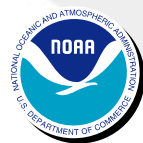




Challenges We Share

As society becomes more complex we become more sensitive to natural and human induced variability.





Challenges We Share

Strategies

- 1. Maximizing the societal value of environmental observations, forecasts and warnings**
- 2. Linking our services to policies and programs to mitigate loss of life**
- 3. Working with safety communities to meet shared challenges.**



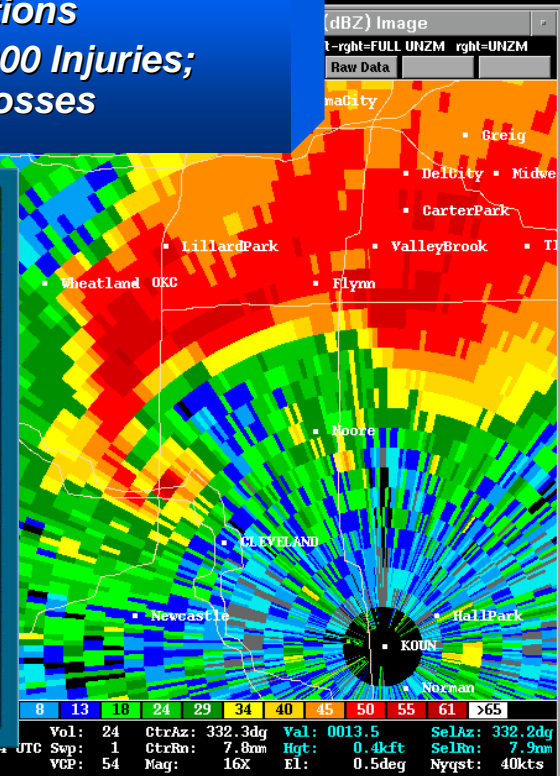
Challenges We Share

Extreme Climate, Weather, and Water

- Provide climate, water, weather forecasts and warnings to protect **life** and **property** and enhance the economy
- 76 billion observations
- 1.5 million forecasts
- 50,000 warnings

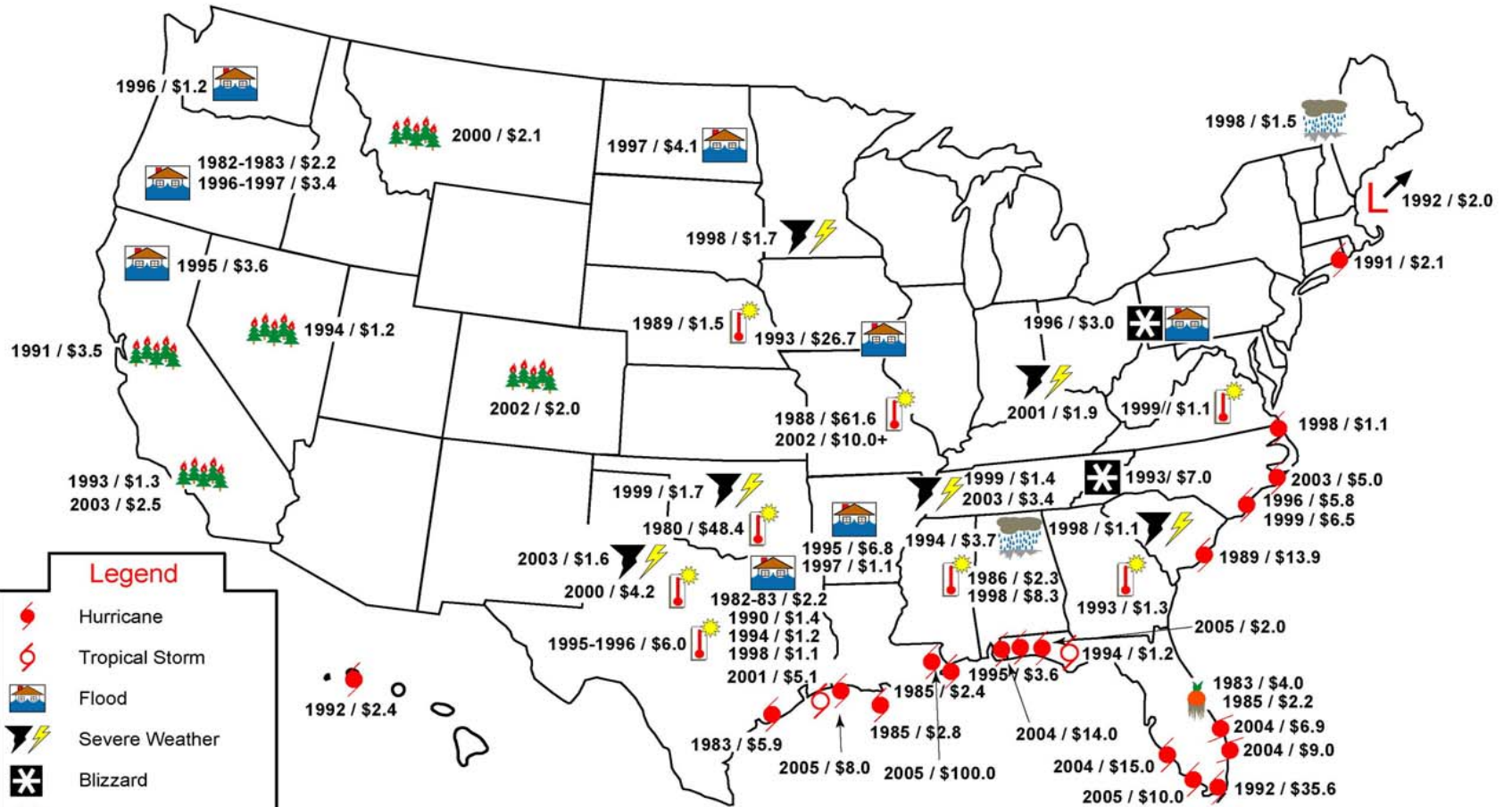
A Typical Year Brings:

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





Billion Dollar Weather Disasters 1980 - 2005



Dollar amounts shown are approximate damages/costs in \$ billions.

Location shown is the general area for the regional event. Several hurricanes made multiple landfalls.

Additional information for these events is available at NCDC WWW site www.ncdc.noaa.gov/ol/reports/billionz.html

The U.S. has sustained 67 weather related disasters over the last 26 years with overall damages/costs exceeding \$1.0 billion for each event. 55 of the disasters occurred during or after 1990. Total costs for the 67 events were over \$500 billion using an inflation/wealth index.

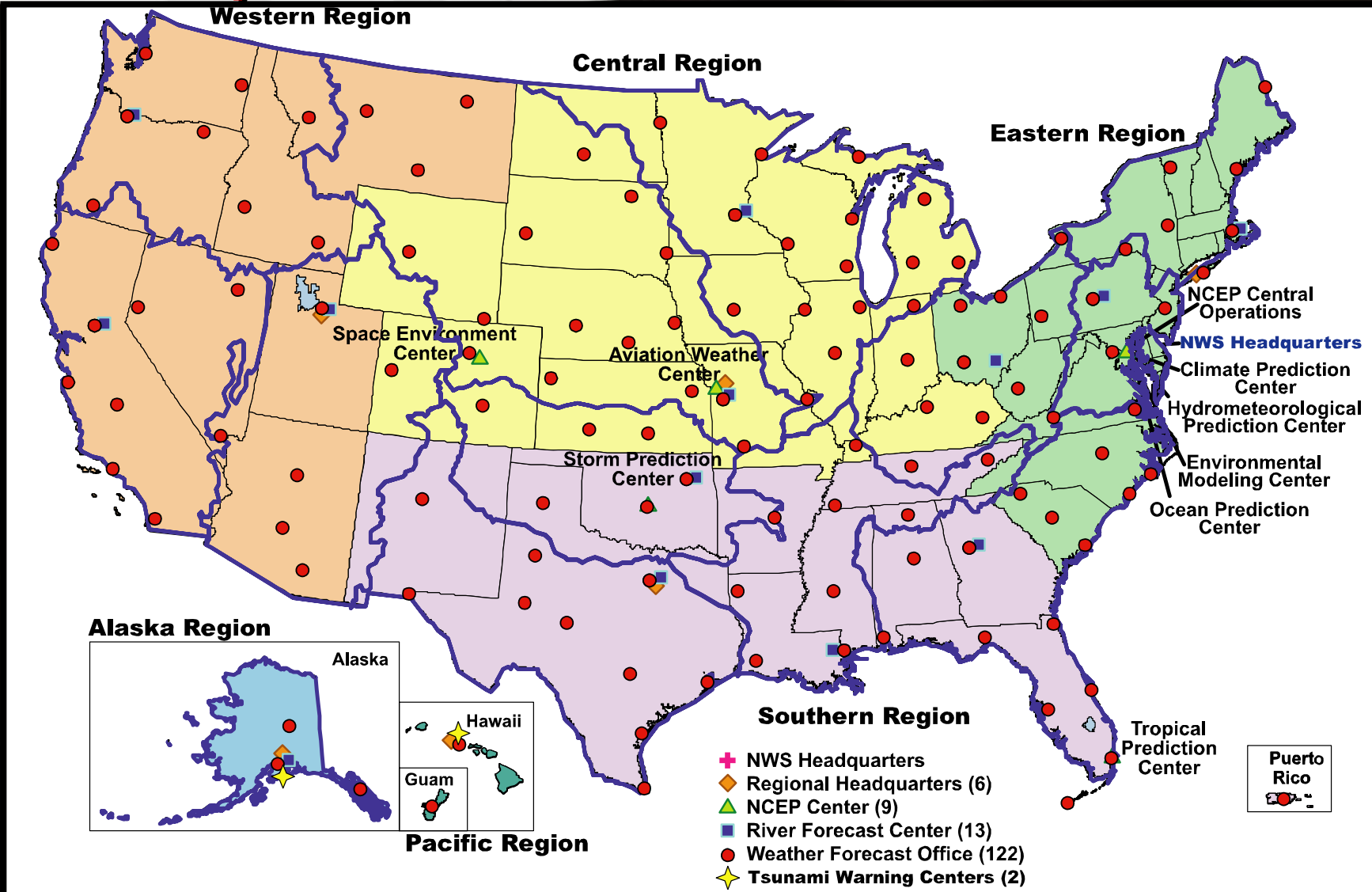


NOAA's
National Climatic Data Center



NWS Operations

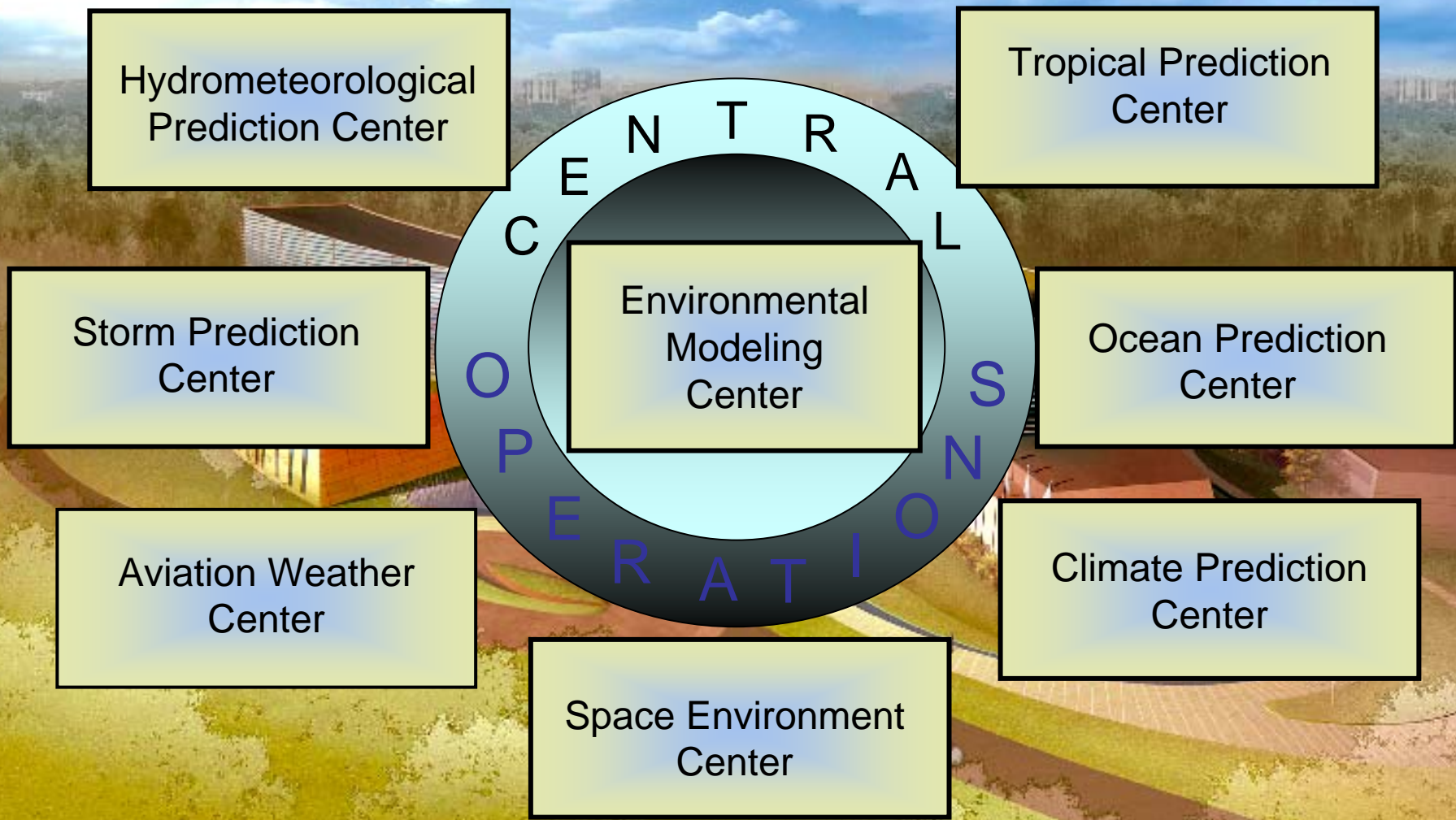
Operational Locations





NWS Operations

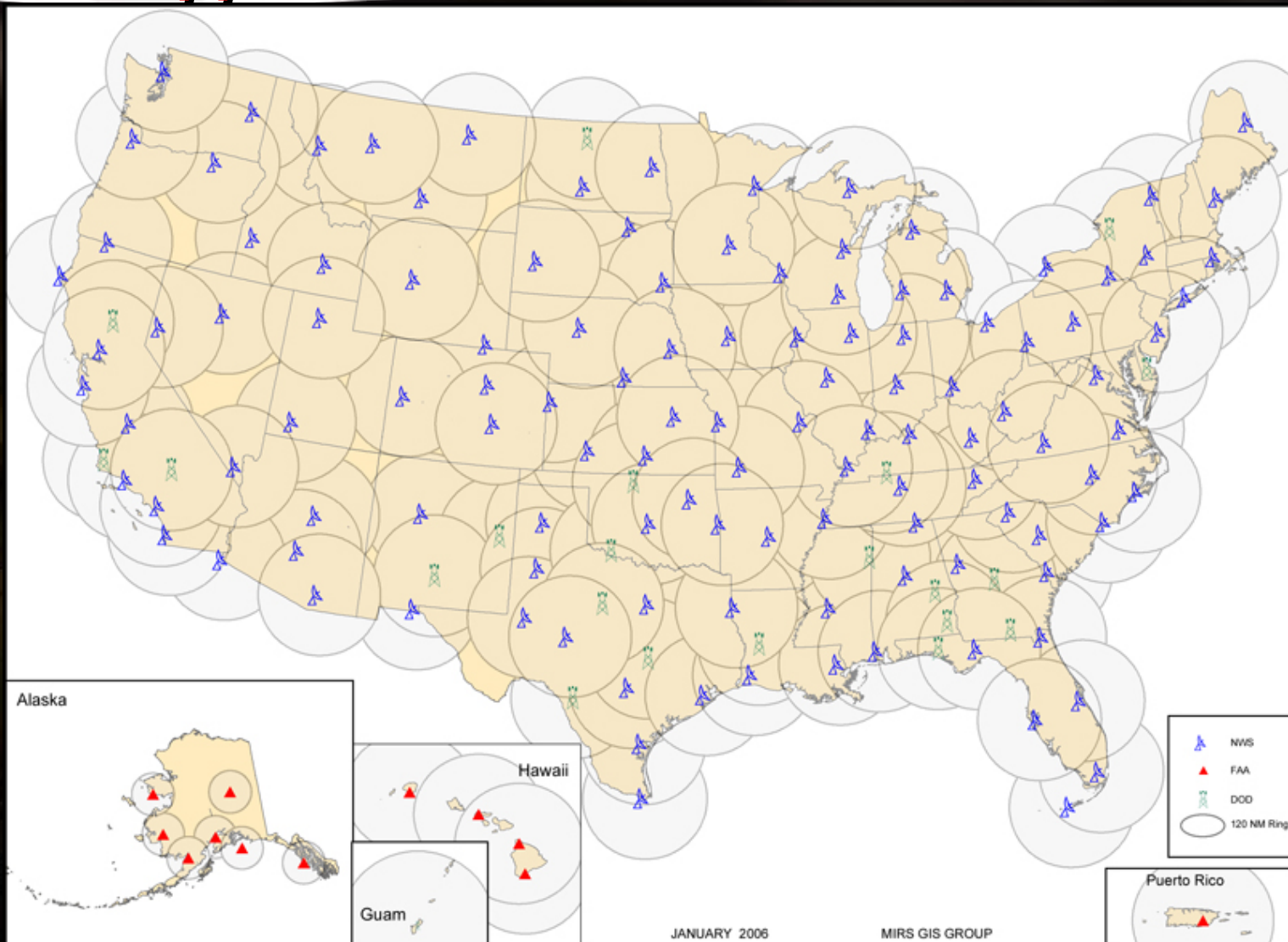
National Centers





NWS Operations

Doppler Radars



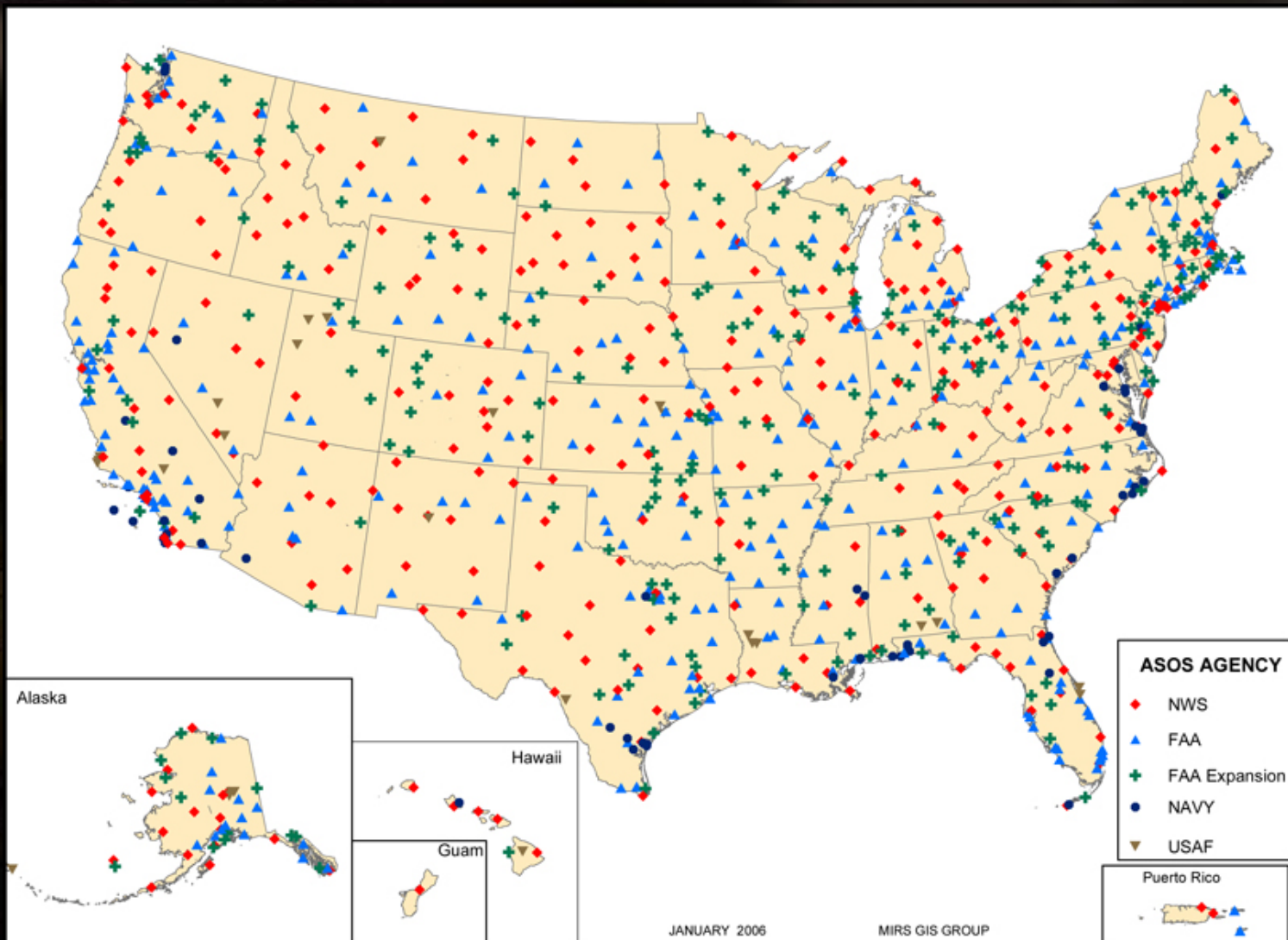
JANUARY 2006

MIRS GIS GROUP



NWS Operations

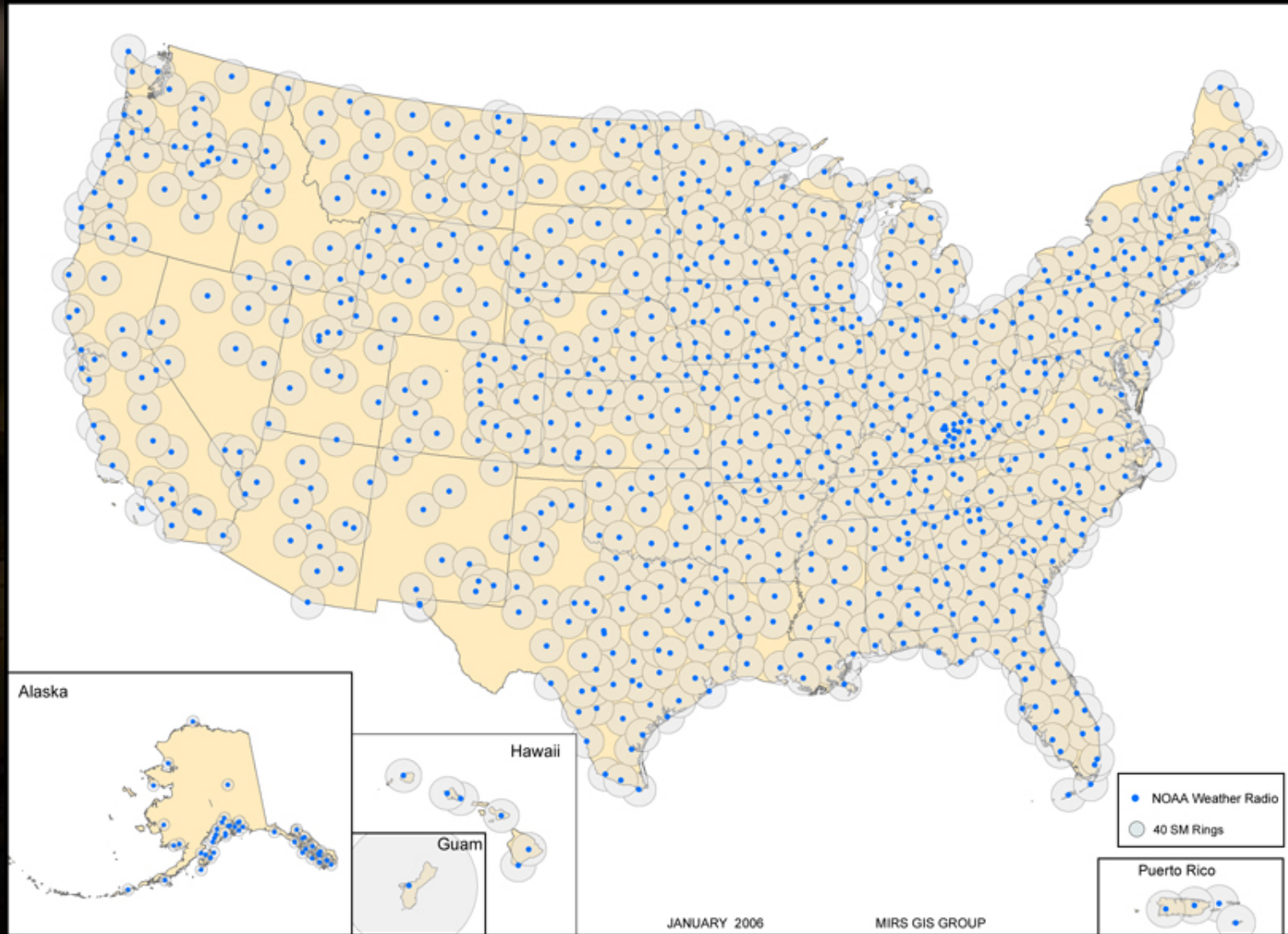
ASOS Sites

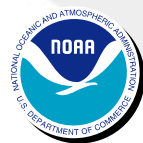




NWS Operations

NOAA Weather Radio All Hazards






NWS Operations

NOAA Weather Radio All Hazards

When Seconds Count




- **Public School Campaign**
 - 97,000 Radios
 - Every Public School in America
- **Partners**
 - DHS Citizen Corps
 - NOAA NWS
 - DOE Office of Safe and Drug-Free Schools


America is safer when our schools are safer 

a new program to protect our children


REGISTER YOUR DEVICE PROGRAM INFORMATION ON-LINE INSTRUCTIONS CITIZEN CORPS VOLUNTEER MATERIAL

Program Information:



AMERICA IS SAFER WHEN OUR SCHOOLS ARE SAFER



Title Page

When Seconds Count

Radio Provides Alerts

Emergency Plan

How Radio Works



Planning for Safety

Register Radio

Sponsors

View PDF Version

A New Program to Protect Our Schoolchildren

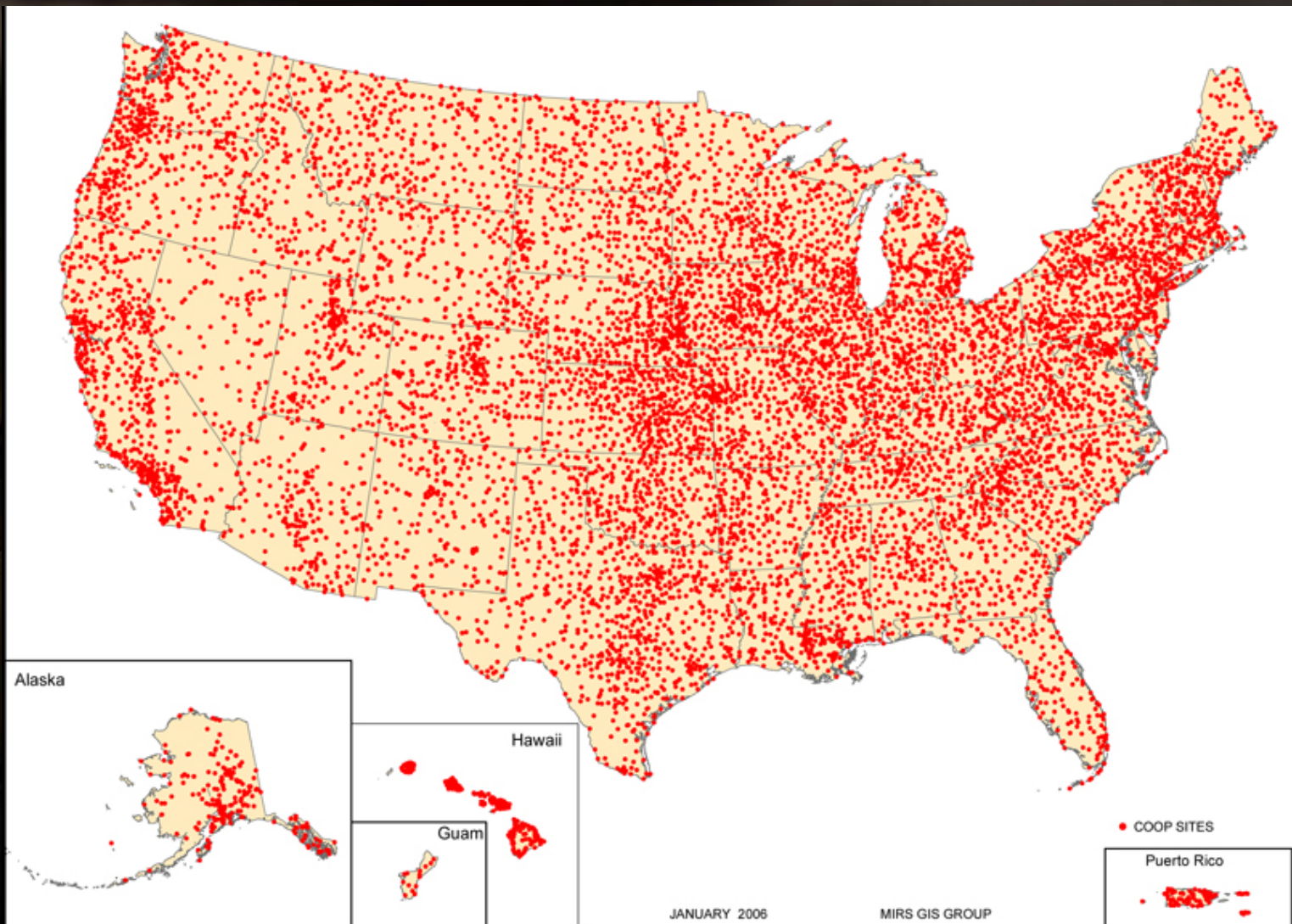
 

<http://public-alert-radio.nws.noaa.gov>



NWS Operations

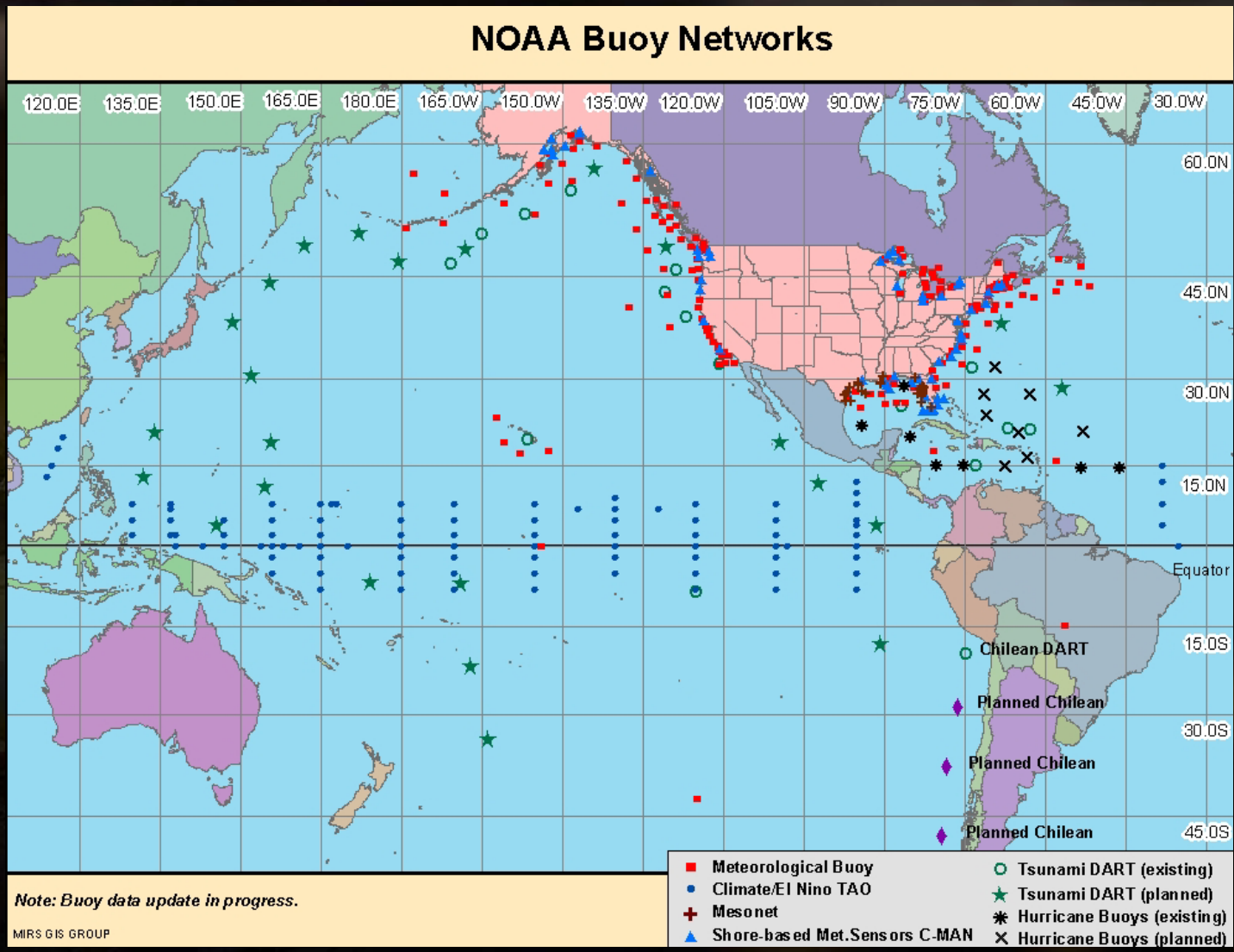
Cooperative Observer Sites





NWS Operations

Ocean Observing Network

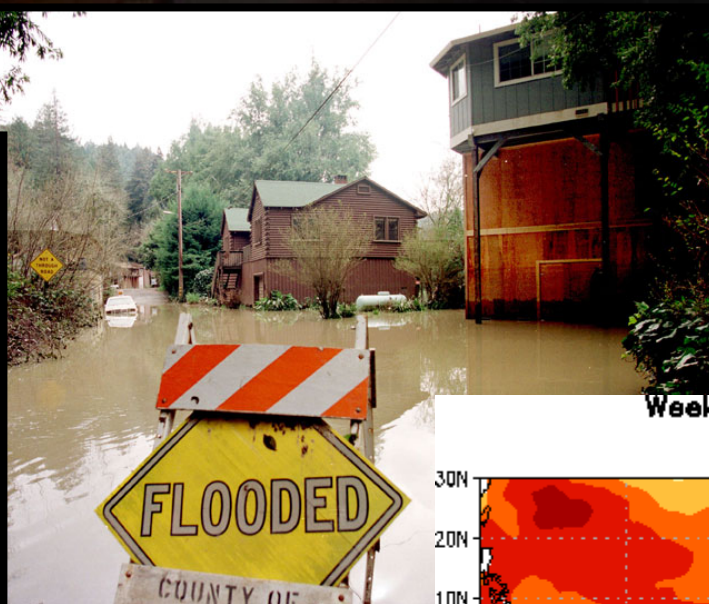




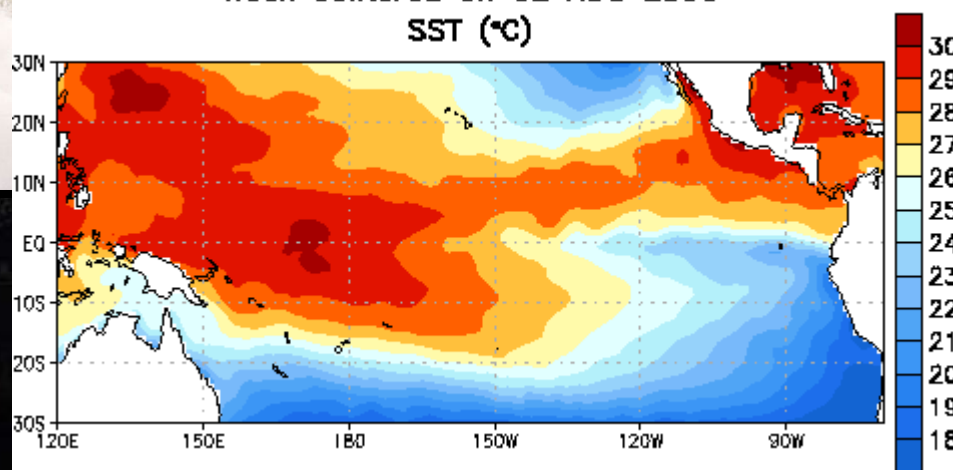
Challenges We Share

Extreme Climate, Weather, and Water

- Current Forecast: *El Niño*



Week centered on 02 AUG 2006
SST (°C)





NWS Operations

Advanced Hydrologic Prediction Service

Accessing AHPS Information

National Oceanic and Atmospheric Administration's
National Weather Service

Site Map News Organization Search

Local forecast by "City, St"

XML RSS Feeds

Warnings
 Current
 By State/County...
 UV Alerts

Observations
 Radar
 Satellite
 Snow Cover
 Surface Weather...

Forecasts
 Local
 Graphical
 Aviation
 Marine
 Hurricanes
 Severe Weather
 Fire Weather

Text Messages
 By State
 By Message Type
 National

Forecast Models
 Numerical Models
 Statistical Models...

Climate
 Past Weather
 Predictions

...**U.S. Winter Update...**
 NOAA Climate Prediction Center released the latest seasonal outlook, which reiterates this winter is likely to be warmer than the 30-year norm (1971-2000) over much of the nation, yet cooler than last year's very warm winter season. Details...

...**U.S. Seasonal Drought Outlook...**
 NOAA has issued the seasonal drought outlook through January 2007. The intensifying El Niño should play a role in bringing plentiful moisture to the southern tier of the U.S. this winter. Details...

Warnings & Forecasts Graphical Forecasts National Maps Radar Rivers Air Quality Satellite Climate

Warnings By State Click Below To Zoom In. Tabs At A Glance

American Samoa · Guam · Puerto Rico/Virgin Islands

- Storm Warning
- Flood Warning
- Freeze Warning
- Small Craft Advisory
- Lake Wind Advisory
- Frost Advisory
- Fire Weather Watch
- Flood Statement
- Short Term Forecast

National Oceanic and Atmospheric Administration's
National Weather Service

Site Map News Organization Search

Local forecast by "City, St"

XML RSS Feeds

Warnings
 Current
 By State/County...
 UV Alerts

Observations
 Radar
 Satellite
 Snow Cover
 Surface Weather...

Forecasts
 Local
 Graphical
 Aviation
 Marine
 Hurricanes
 Severe Weather
 Fire Weather

Text Messages
 By State
 By Message Type
 National

Forecast Models
 Numerical Models
 Statistical Models...

Climate
 Past Weather
 Predictions

Home > Rivers

Experimental National Precipitation Graphics Suite.

Warnings & Forecasts Graphical Forecasts National Maps Radar Rivers Air Quality Satellite Climate

All Locations Click The Map To Zoom In.

American Samoa · Guam · Puerto Rico/Virgin Islands

3627 Total Gauges
12 Locations in Flood

- 312 Gauges: Observations older than 24 hours
- 16 Gauges: Out of Service
- 2 Gauges: Major Flooding
- 4 Gauges: Moderate Flooding
- 6 Gauges: Minor Flooding
- 26 Gauges: Near Flood Stage
- 3261 Gauges: No Flooding

Last map update: Tue, Oct, 24, 2006 at 03:11:08 pm EDT.

<http://www.weather.gov/>



NWS Operations

Advanced Hydrologic Prediction Service

Accessing AHPS Information

National Weather Service
Advanced Hydrologic Prediction Service

Home News Organization Search for: NWS All NOAA

Weather Forecast Office Lake Charles, LA

Experimental National Precipitation Graphics Suite.

ALERT! A Flood Statement is in effect for portions of the area. [View all valid statements/warnings](#) or choose a specific point or river to get the details for that location.

Updated 02:44 PM CDT Oct 24 2006

Adjacent Areas

Map Legend

- Hydrograph Information Available
- Probability and Hydrograph Information Available
- Major Flooding
- Moderate Flooding
- Minor Flooding
- Near Flood Stage
- No Flooding
- Observation More Than 24 Hours Old
- Out of Service

Local weather forecast by "City, ST" City, ST

National Conditions: Rivers, Satellite, Climate

Local Conditions: Warnings, Weather Forecast, Radar

What is AHPS? Facts, Our Partners

Feedback/Questions: Provide Feedback, Ask Questions

FIRSTGOV.gov

National Weather Service
Advanced Hydrologic Prediction Service

Home News Organization Search for: NWS

Weather Forecast Office Lake Charles, LA West Gulf River Forecast Center

Hydrograph River at a Glance Weekly Chance of Exceeding Levels Chance of Exceeding Levels During Entire Period

PINE ISLAND BAYOU 5.1 SE SOUR LAKE

Universal Time (UTC)

18Z Oct 19 18Z Oct 20 18Z Oct 21 18Z Oct 22 18Z Oct 23 18Z Oct 24 18Z Oct 25 18Z Oct 26 18Z Oct 27 18Z Oct 28 18Z Oct 29

Latest observed value: 30.01 ft at 12:45 PM CDT 24-Oct-2006. Flood Stage is 25.0 ft. Forecast data shown here are guidance values only. Please refer to your local NWS office for the latest official public river forecasts.

Major Stage: 32.0'
Moderate Stage: 29.0'
Flood Stage: 25.0'

31.03 ft

Stage (ft) 37 36 35 34 33 32 31 30 29 28 27 26 25 24

Flow (cfs) 44.1 36.0 29.1 23.5 19.0 14.9 11.4 8.70 6.40 4.50 3.08 2.18 1.75 1.36

1 pm Thu Oct 19 1 pm Fri Oct 20 1 pm Sat Oct 21 1 pm Sun Oct 22 1 pm Mon Oct 23 1 pm Tue Oct 24 1 pm Wed Oct 25 1 pm Thu Oct 26 1 pm Fri Oct 27 1 pm Sat Oct 28 1 pm Sun Oct 29

Site Time (CDT)

Local weather forecast by "City, ST" City, ST

National Conditions: Rivers, Satellite, Climate

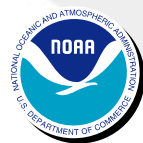
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What is AHPS? Facts, Our Partners

Feedback/Questions: Provide Feedback, Ask Questions

FIRSTGOV.gov

<http://www.weather.gov/>



NWS Operations

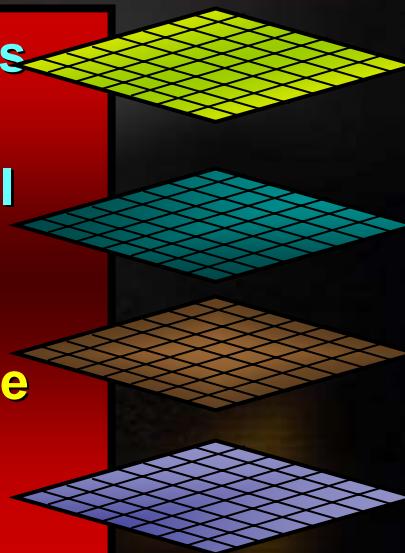
Debris Flow Forecasting

NOAA - USGS Partnership



La Conchita, CA

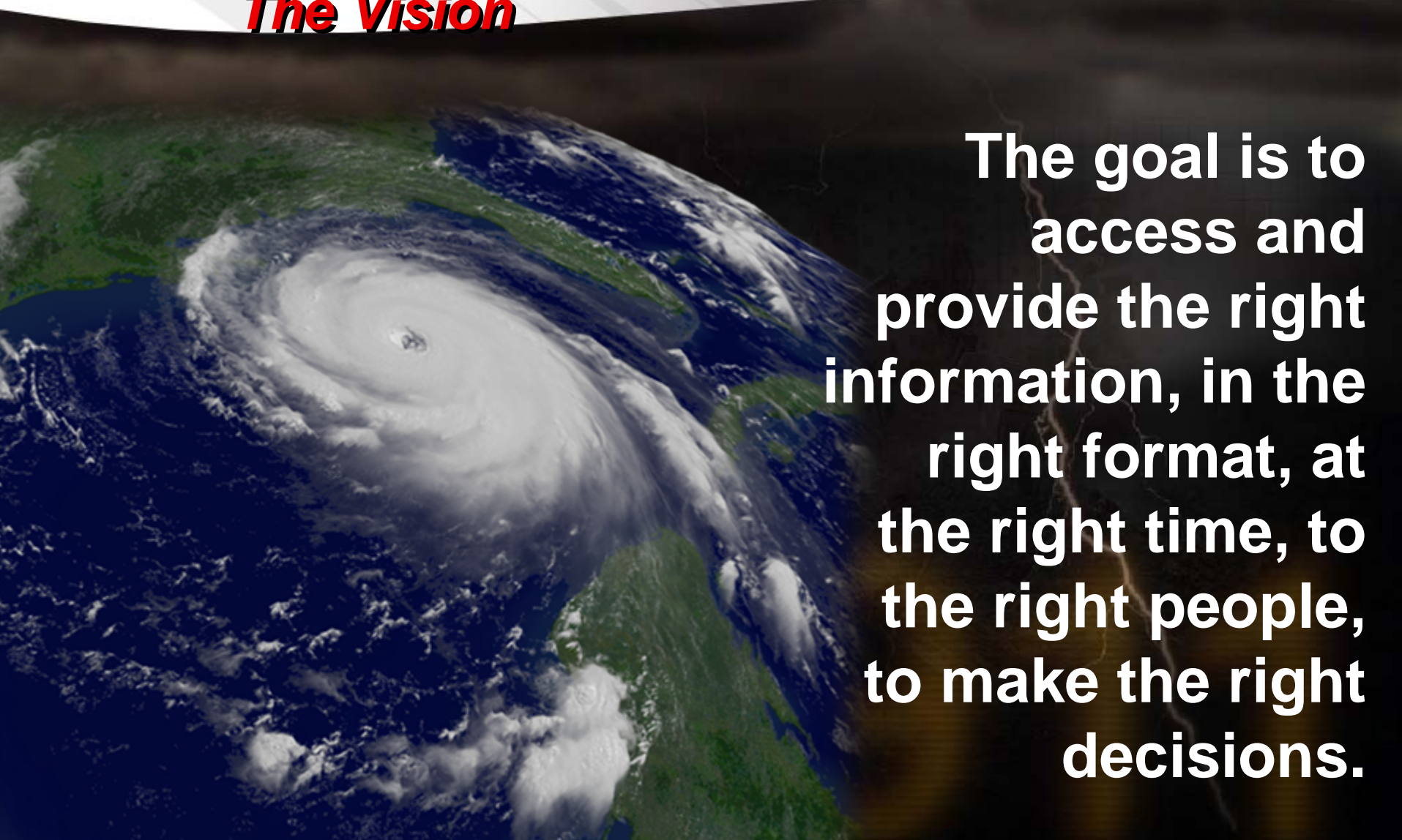
- Precipitation Analysis
- Precipitation and Soil Moisture Forecasts
- Debris Flow Guidance
- Service Delivery





Integrated Environmental Awareness

The Vision



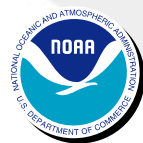
The goal is to
access and
provide the right
information, in the
right format, at
the right time, to
the right people,
to make the right
decisions.



Integrated Environmental Awareness

The Action

- **Hear**
 - *Always plugged into public threat alerts*
- **Understand**
 - *Public education facilitates understanding of message and appropriate response*
- **Believe**
 - *Credibility of messenger ensures appropriate response*
- **Act**
 - *Individual takes appropriate specified action*



Integrated Environmental Awareness

The Action

High-Impact Services

- **Natural hazards**
 - *Tornadoes*
 - *Hurricanes*
 - *Floods*
 - *Droughts*
 - *Volcanic eruptions*
 - *Tsunamis*
- **Manmade**
 - *Industrial and Transportation*
 - *Chemical releases*
 - *Oil spills*
 - *Nuclear power plant emergencies*
- **Terrorism**





Integrated Environmental Awareness

National, Regional & Local Operations



2005 Hurricane Season

- Tropical Storms 28
- Hurricanes 15
- Major Hurricanes 7

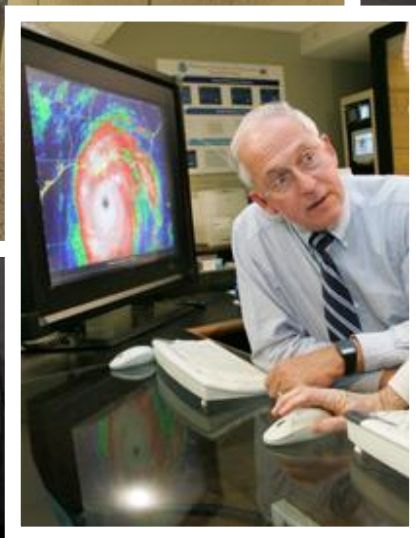
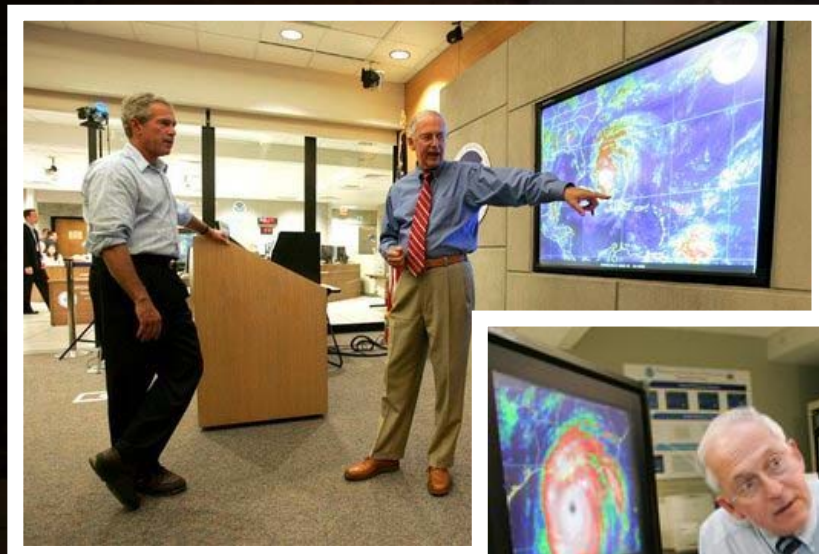
Most Active Hurricane Season on Record
Costliest Natural Disaster: Hurricane Katrina



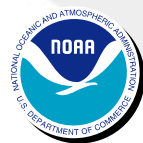
Integrated Environmental Awareness

National, Regional, & Local Operations

Hurricane Katrina Operations



- Before The Storm
- During The Storm
- After The Storm



Integrated Environmental Awareness

National, Regional, & Local Operations

BEFORE

National Centers:

National Public Education
(*Presidential Proclamation, Season outlook, national news conference, hurricane tour,*)

Modeling Improvements

Observations Improvements

(*SFMR, dropsondes*)

Coordination and Planning with
FEMA

Regional HQ:

Coordination and Planning with
FEMA Regions

Weather & River Forecast Offices:

Local Public Outreach &
Education

Local Disaster Preparedness with
EMs

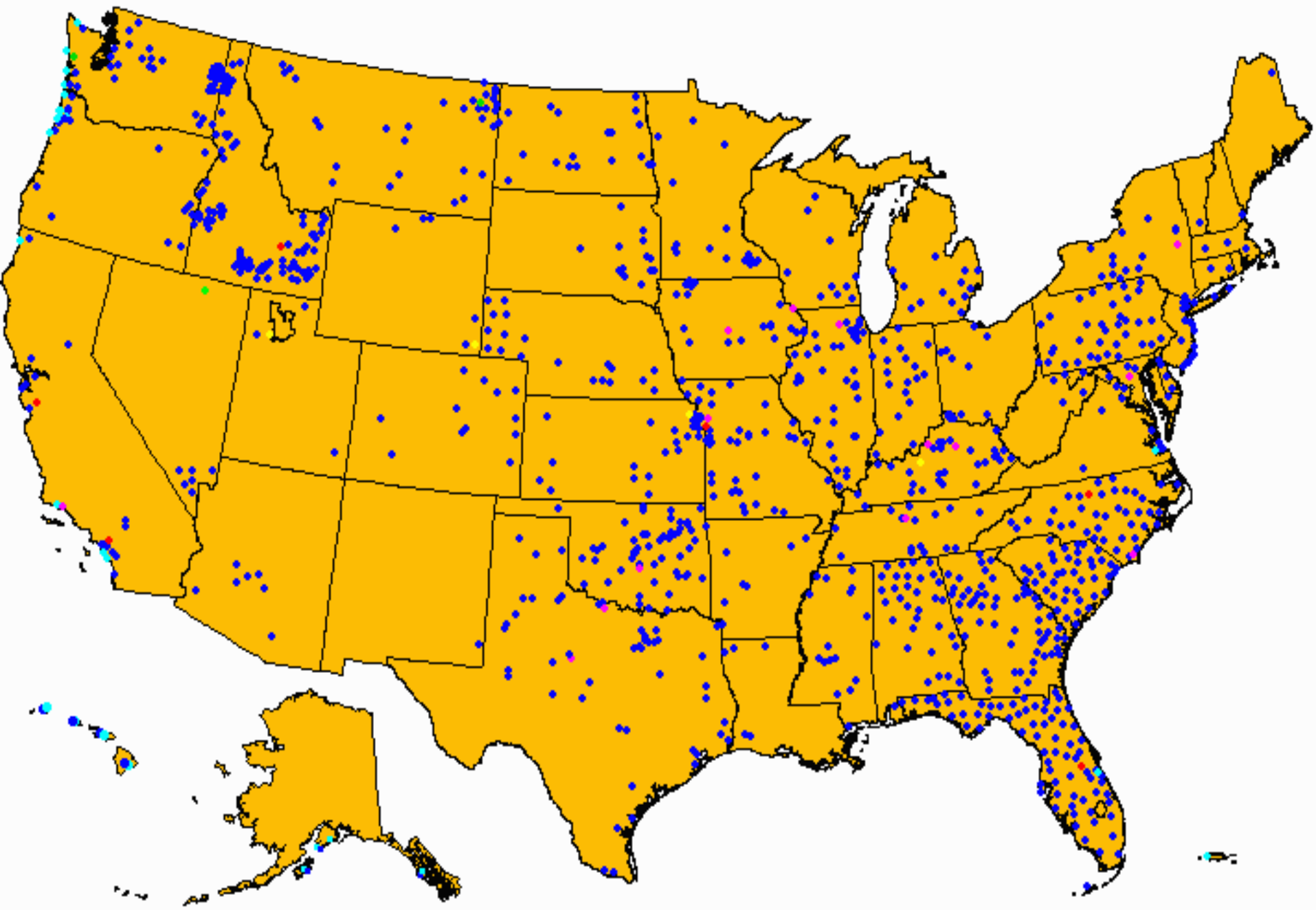
Hazard Assessment

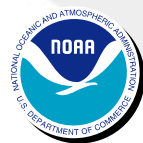
Continuity of Operations Planning



These are critical services in case of hurricanes and other natural and human-induced disasters

*~1,077 StormReady Communities in 50 States
29 TsunamiReady Communities in 7 States*





Integrated Environmental Awareness

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EMs

Hazard Assessment

Continuity of Operations Planning

DURING

National Centers:

Modeling

Hurricane Track Forecasts

Storm Surge Forecasts

Coordination Calls

National Media Interviews

Regional HQ:

Ongoing coordination with FEMA
Regions, State Governors, and
Regional Media

Weather & River Forecast Offices:

Local Forecasts and Warnings
after hurricane makes landfall

State, & Local Emergency
Managers Communication

Local Media Interviews

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During The Storm

Hurricane Katrina Eyewall Penetration, NOAA P3



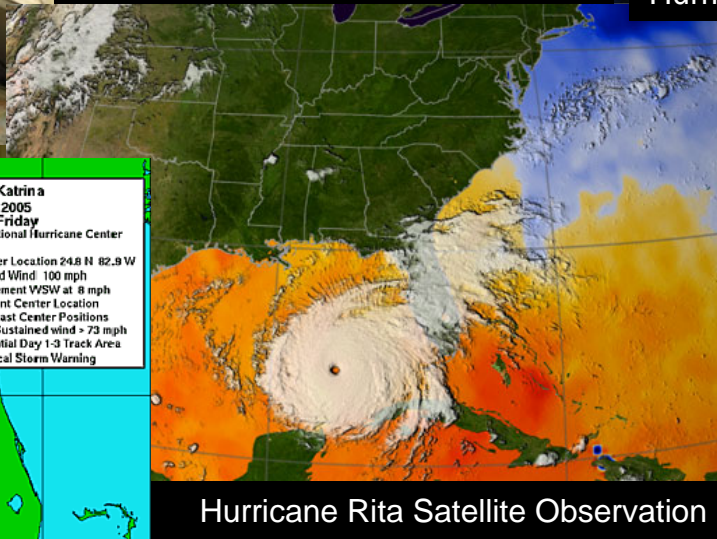
Hurricane Liaison Team



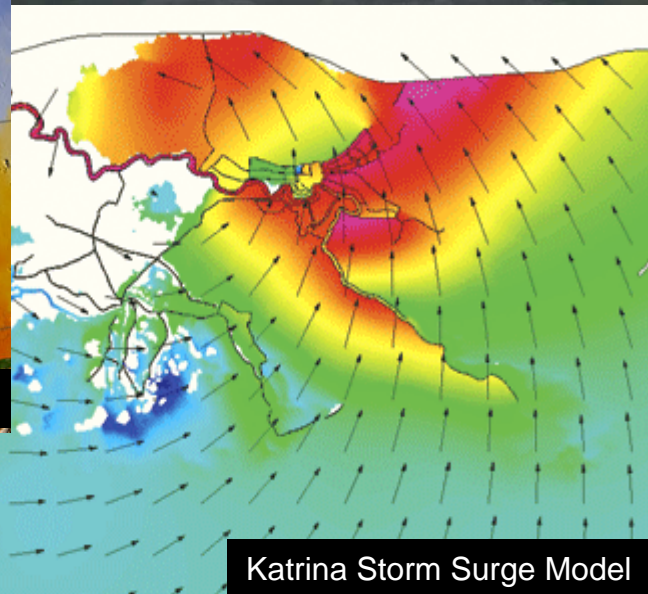
Emergency Managers Briefing



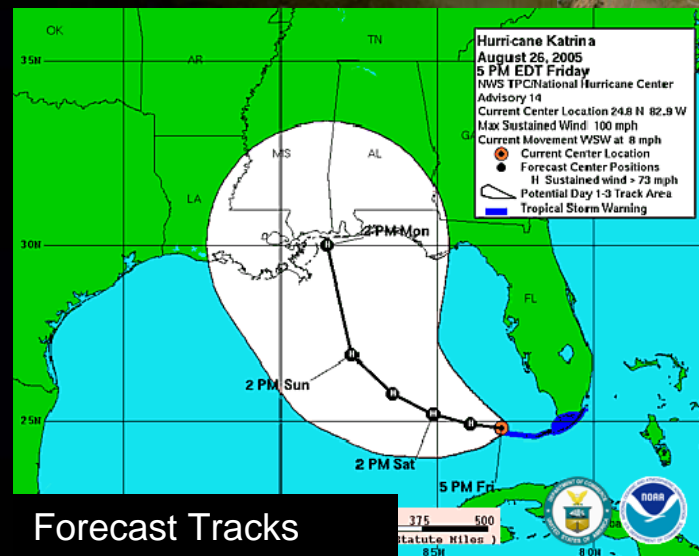
Dropsonde from P3, Hurricane Katrina



Hurricane Rita Satellite Observation



Katrina Storm Surge Model



Forecast Tracks

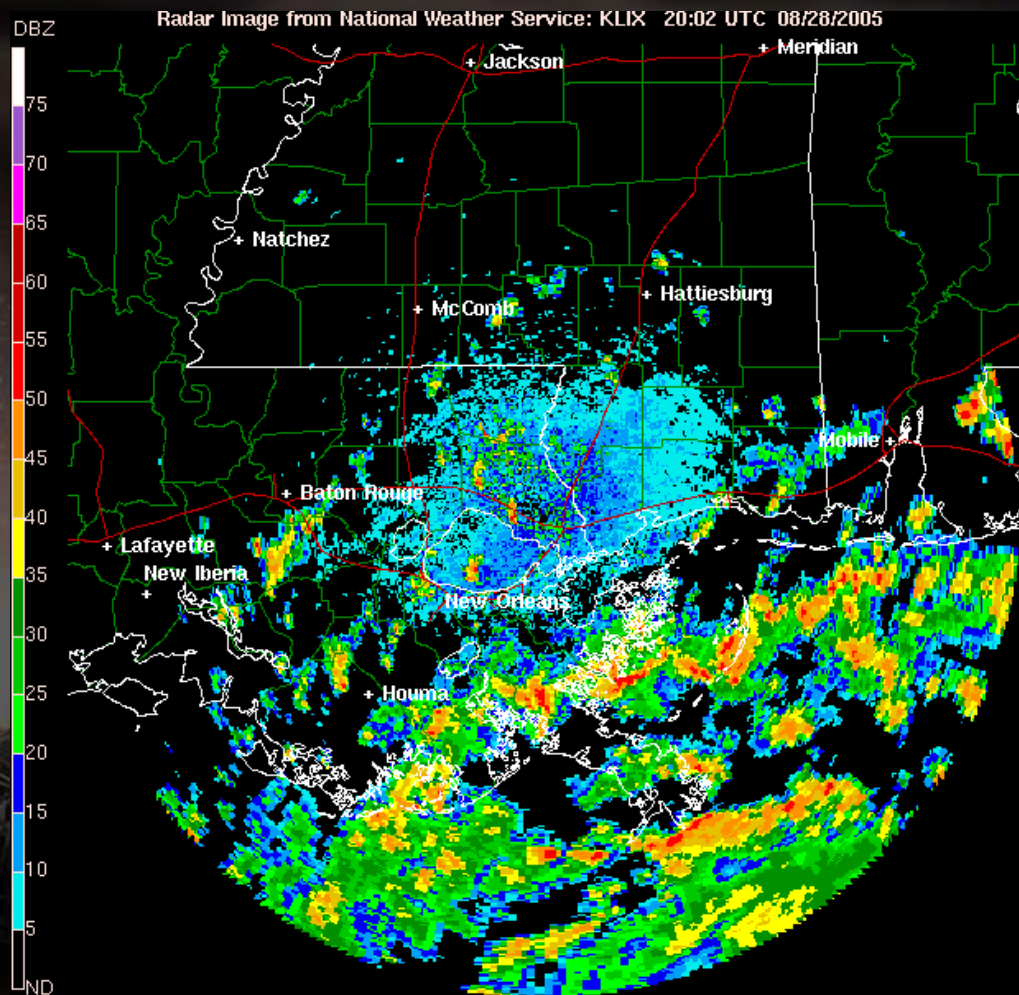


During The Storm

- **National Coordination Calls led by National Hurricane Center.**
 - *Participants: Regional and Local NWS Offices, FEMA, Local Emergency Managers*



Hurricane Coordination Call



Radar Image from National Weather Service: KLIX 20:02 UTC 08/28/2005

Hurricane Katrina's Radar Loop—Slidell, LA



During the Storm

- **NOAAWatch Web Page**
 - *www.noaawatch.gov*
- **NOAA Weather Radio All Hazards**
 - **“SAME” capable**
- **Local Media**

United States Department of Commerce
National Oceanic and Atmospheric Administration

NOAA Home | Weather | Oceans | Satellites | Fisheries | Climate | Research | Education | Aircraft/Ships

Current Conditions | **NOAAWatch** | NOAA's All Hazard Monitor

Local forecast by City, State
City, St Go

Weather Warnings

Doppler Radar

River and Lake Levels

Event Imagery

Serious Flooding In Northeast

River and Lake Levels - Flooding Reported from the Carolinas to New England

Runoff from the recent torrential rains across the eastern U.S. led to widespread river and flash flooding. Thousands of people have been evacuated from flooded areas.

Heavy rain is expected over parts of New England and the Hudson Valley, while flooding problems will persist from the Mid Atlantic to New York as recent torrential rains run off.

For additional information for your specific local area, please consult messages and products from the local [Weather Forecast Office...](#)

Fire Danger Continues in Western U.S.

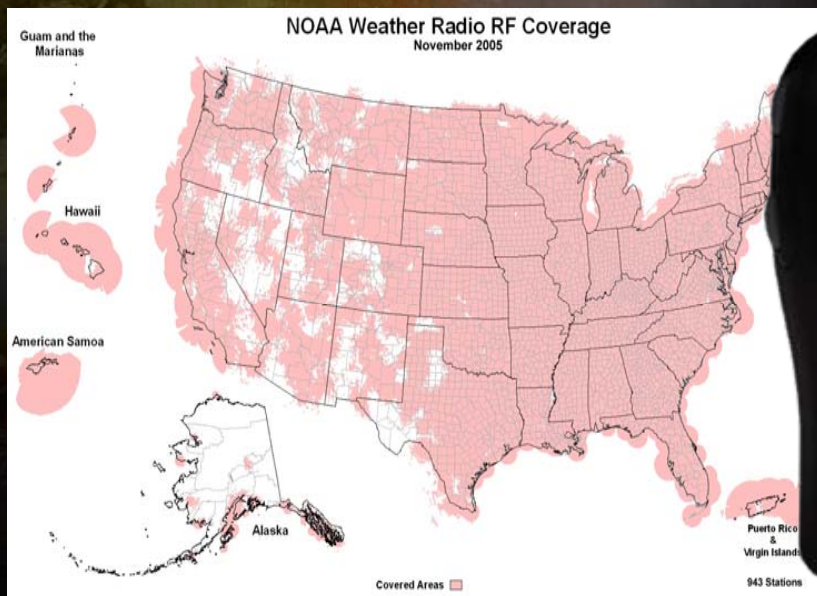
Thunderstorms in the western U.S. bring lightning and gusty winds...increasing the risks of fire to many areas. The combination low humidity, warm temperatures, and winds can create explosive fire growth potential.

NOAAWatch & Learn
Explore these NOAA Watch themes:

- Tropical Weather
- Fire Weather
- Tsunamis
- Severe Weather
- Droughts
- Volcanoes
- Earthquakes
- Harmful Algal Blooms (HABs)
- Coral Bleaching

NOAA
Stay informed 24/7 with the NOAA All Hazards Weather radio.

XML
RSS Feeds

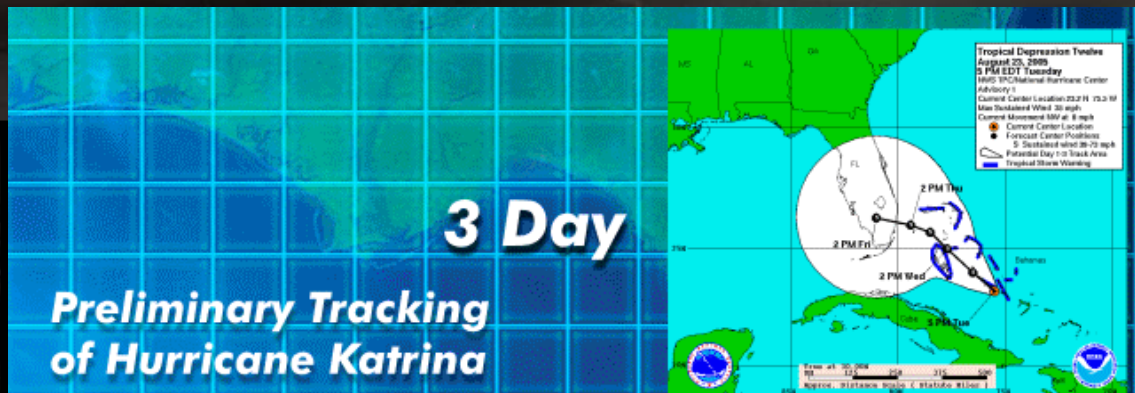




Integrated Environmental Awareness

National, Regional, & Local Operations

Hurricane Katrina Operations





Integrated Environmental Awareness

National, Regional, & Local Operations

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Managers Communication

Local Media Interviews

AFTER

National Centers:

Ongoing Model development
Infusing new research findings

Regional HQ:

Identifies need for National
Service Assessments
Employee Tracking & Support

Weather & River Forecast Offices:

Local damage assessment

Infrastructure Assessment

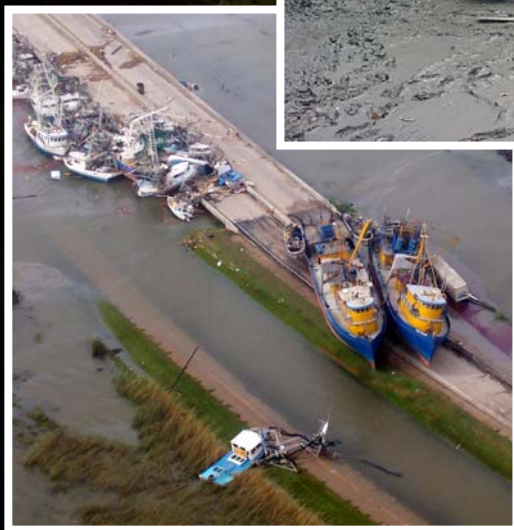
Continued public education and
media interviews

These are critical services in case of hurricanes and other natural and human-induced disasters



After The Storm

National Service Assessment



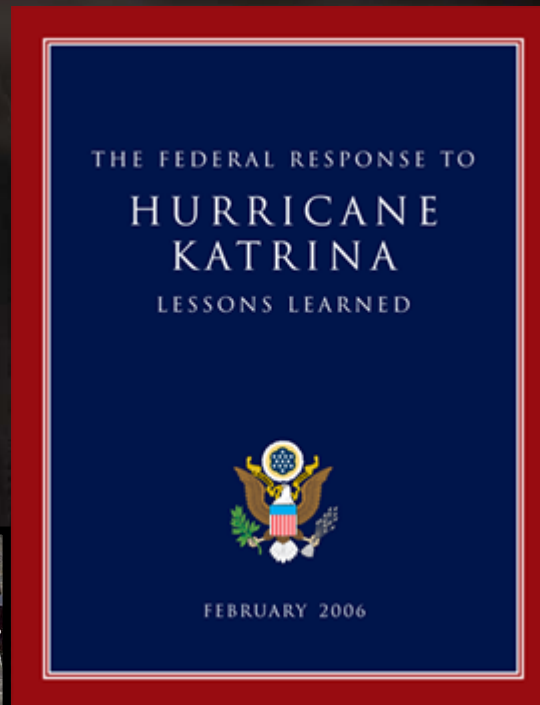
1,330 lives lost
770,000 displaced persons
~\$120 billion in damages



Integrated Environmental Awareness

National, Regional, & Local Operations

- Hurricane Katrina Key Lessons:
 - *Partnerships*
 - *Integration*
 - *Communication*



August 31, 2005



What Will The Future Demand of Us?

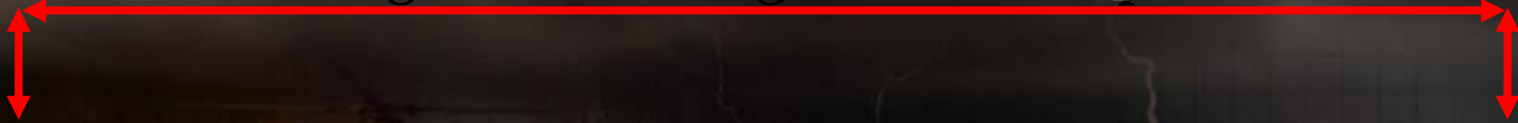
Integrated Environmental Awareness

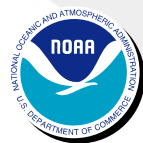
Saving Lives Through Partnerships

NOAA TEAM

PARTNERS

END USERS





What Will The Future Demand of Us? *Integrated Environmental Awareness*

The Future Demands Local Partnerships
to Meet National Challenges

That Requires

You!

Email us at: NWS.Communications.Office@noaa.gov

