



# International Association of Emergency Managers 57<sup>th</sup> Annual Conference



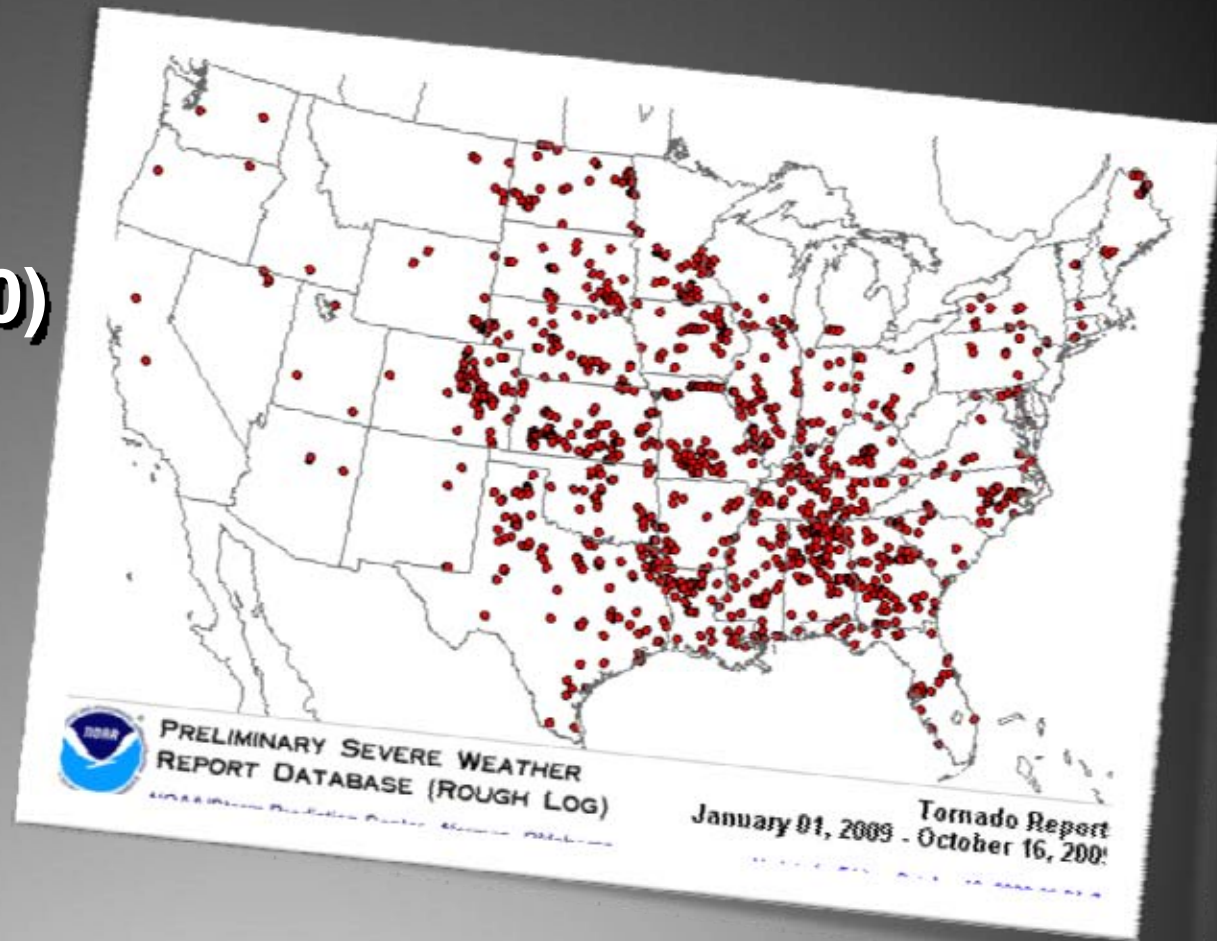
**Jack Hayes**

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

**Orlando, Florida  
November 2, 2009**

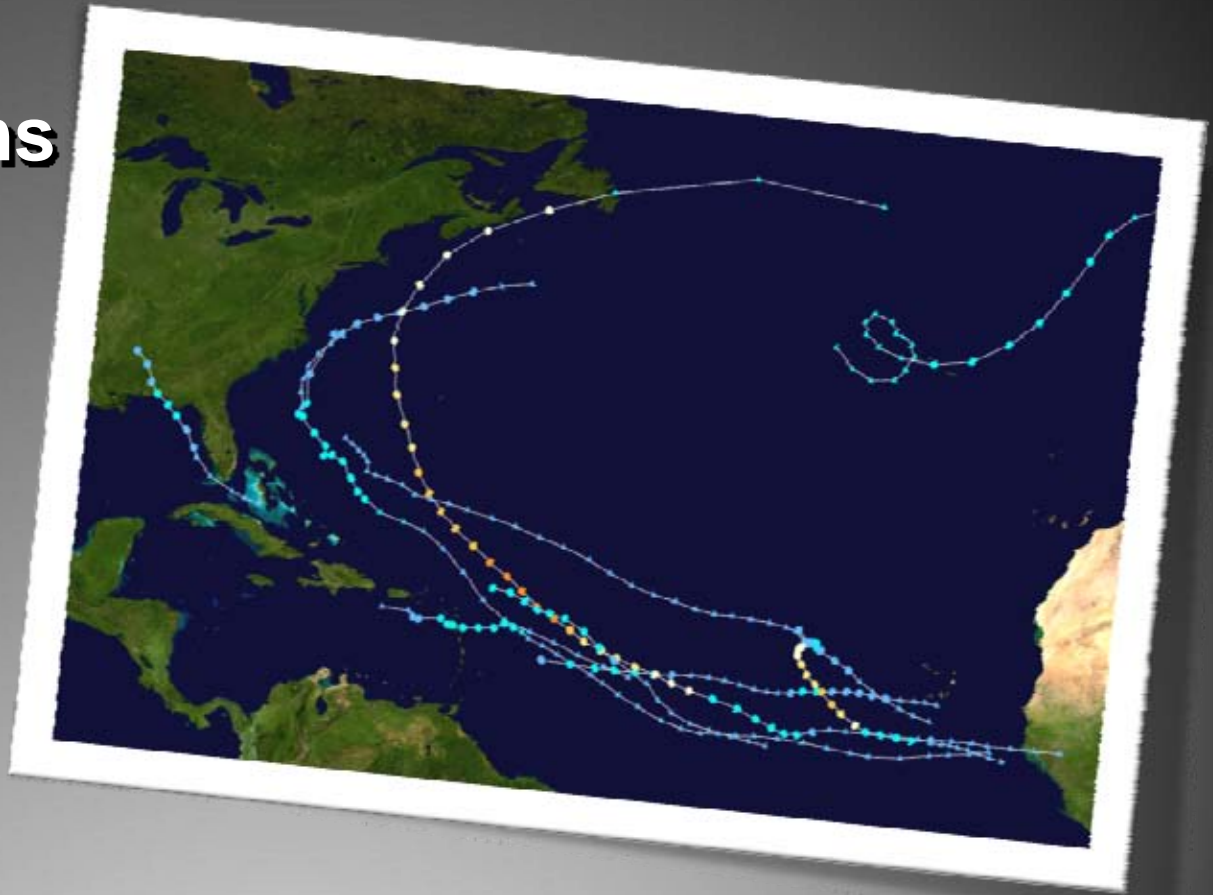
# 2009 Recap: Tornadoes

- ~1,000 so far  
(last year: 1,700)
- Avg. lead time:  
12 min.



# 2009 Recap: Atlantic Hurricanes

- **8 named storms**  
**(last year: 16)**
- **2 hurricanes**  
**(last year: 8)**



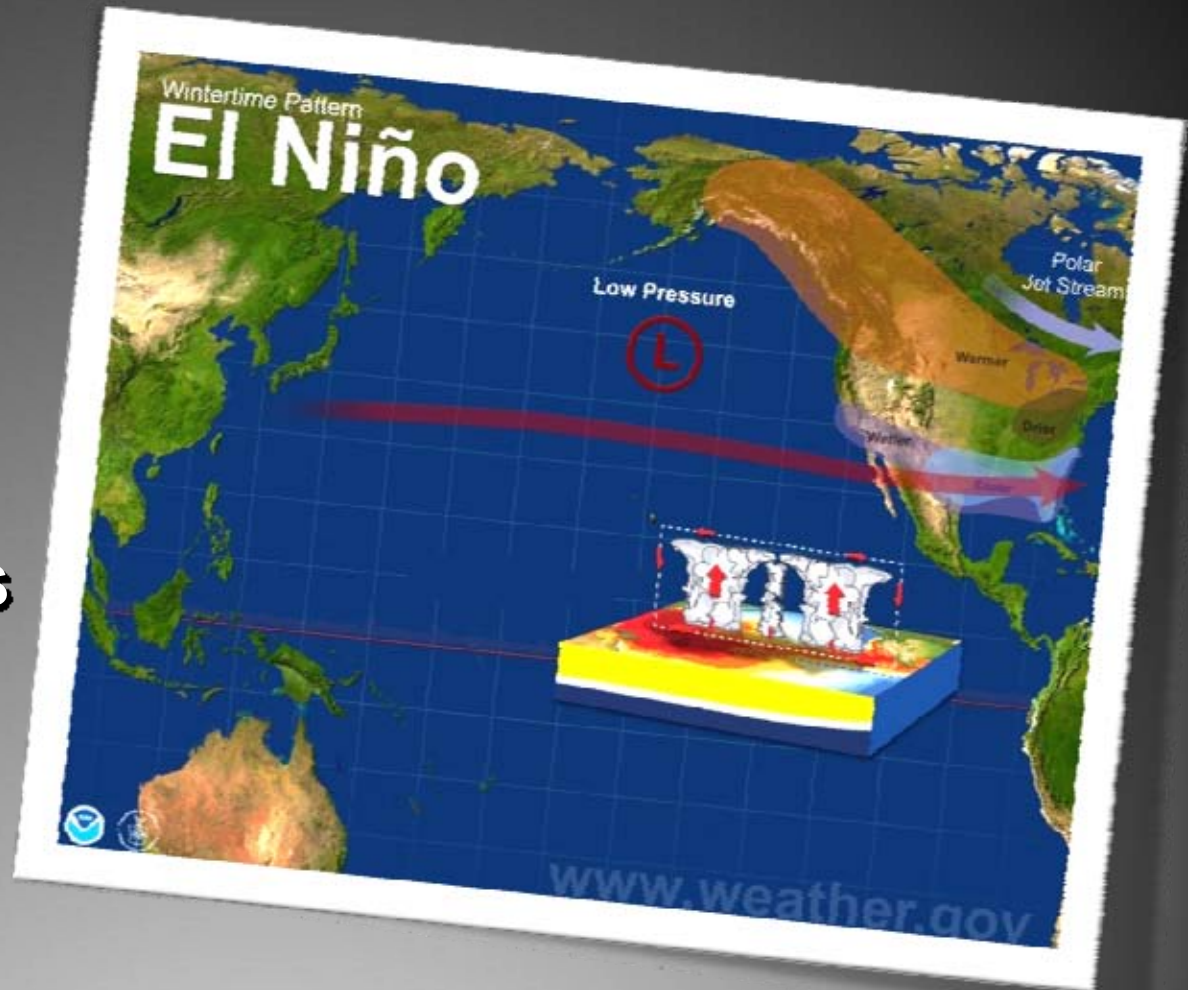
# 2009 Recap: Flooding

- **Major flooding along Red River and elsewhere**
- **Avg. lead time for flash floods: 73 min.**



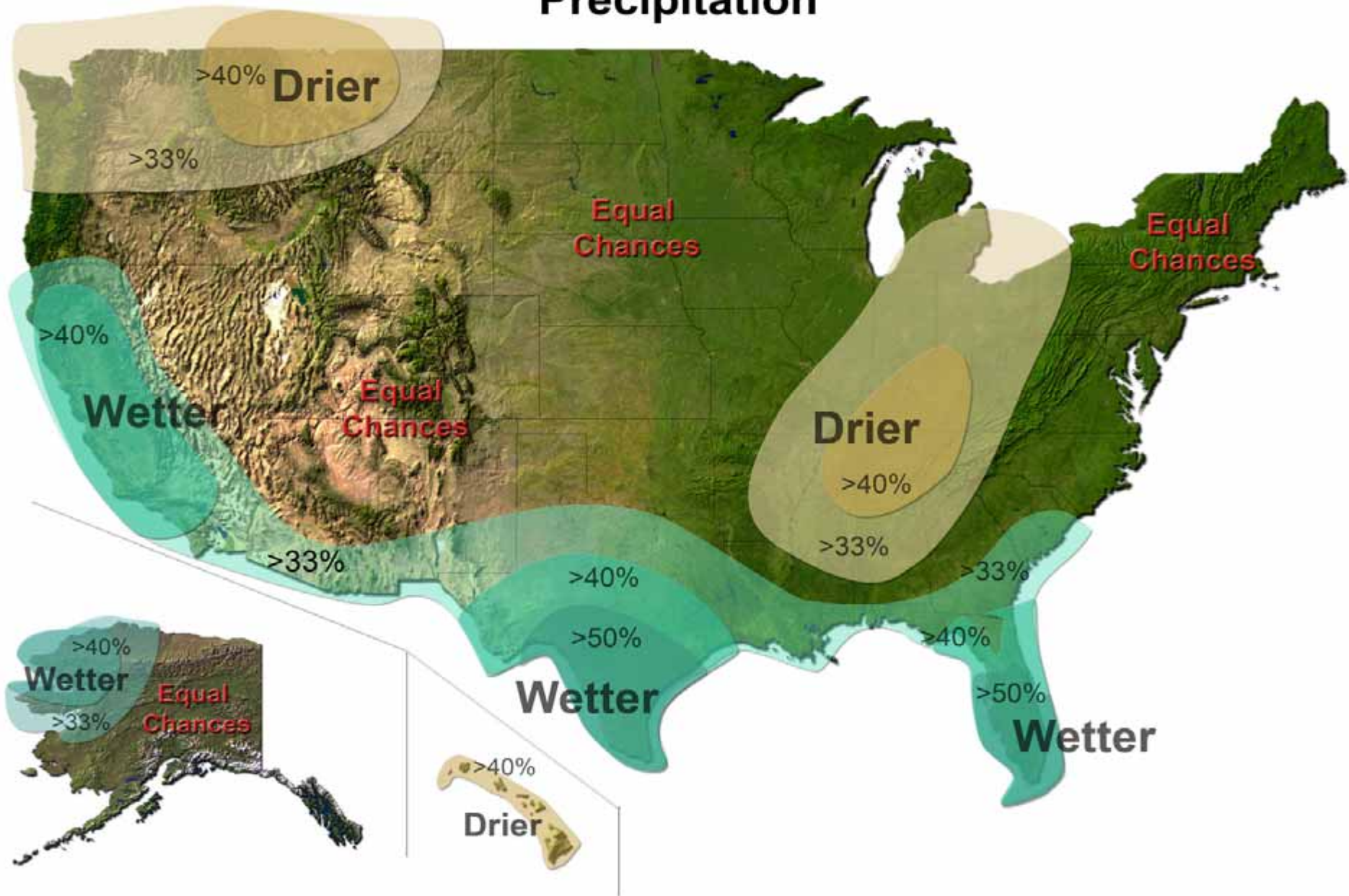
# Happening Now: El Niño

- Expected to strengthen through winter
- Impacts across United States



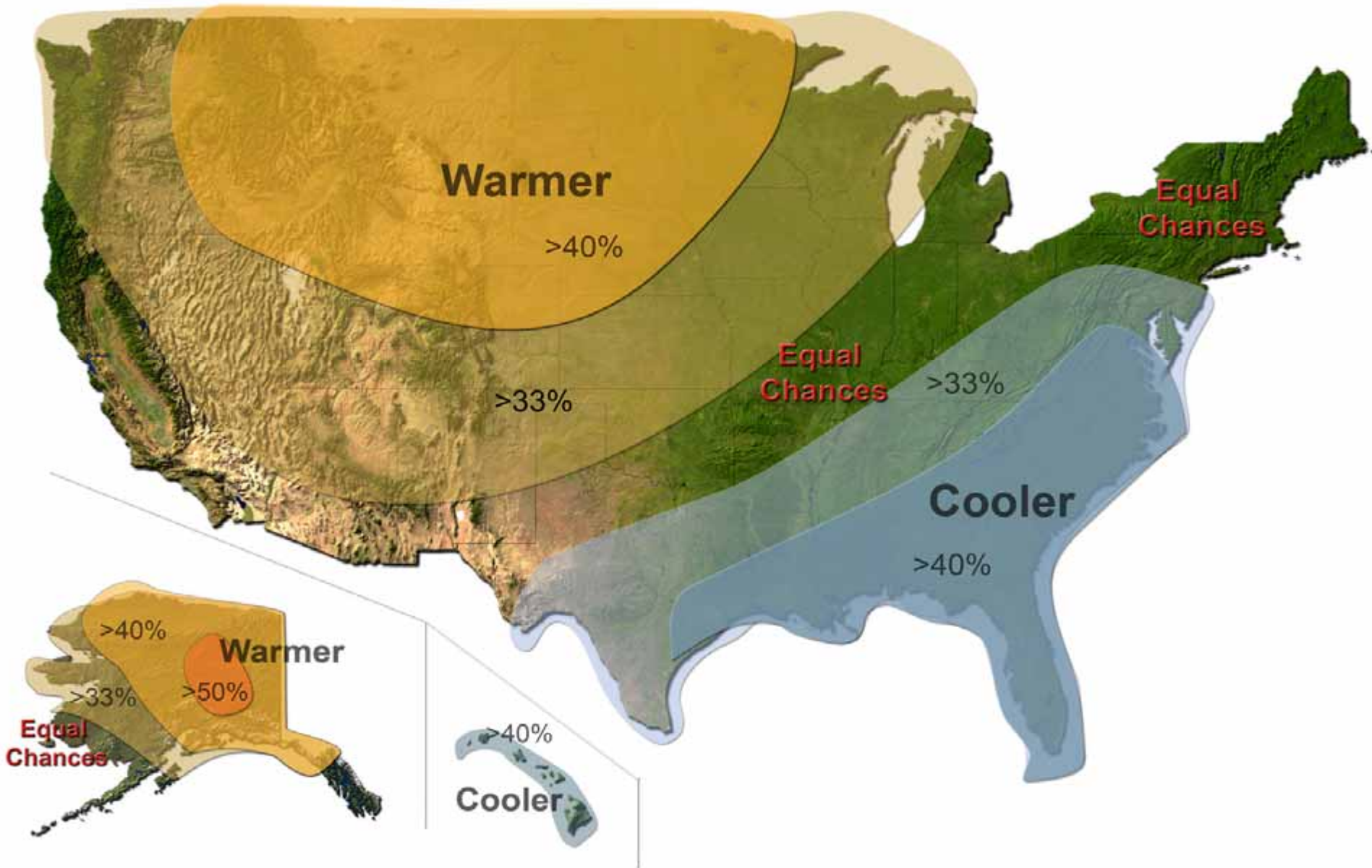
# U.S. Winter Outlook

## Precipitation



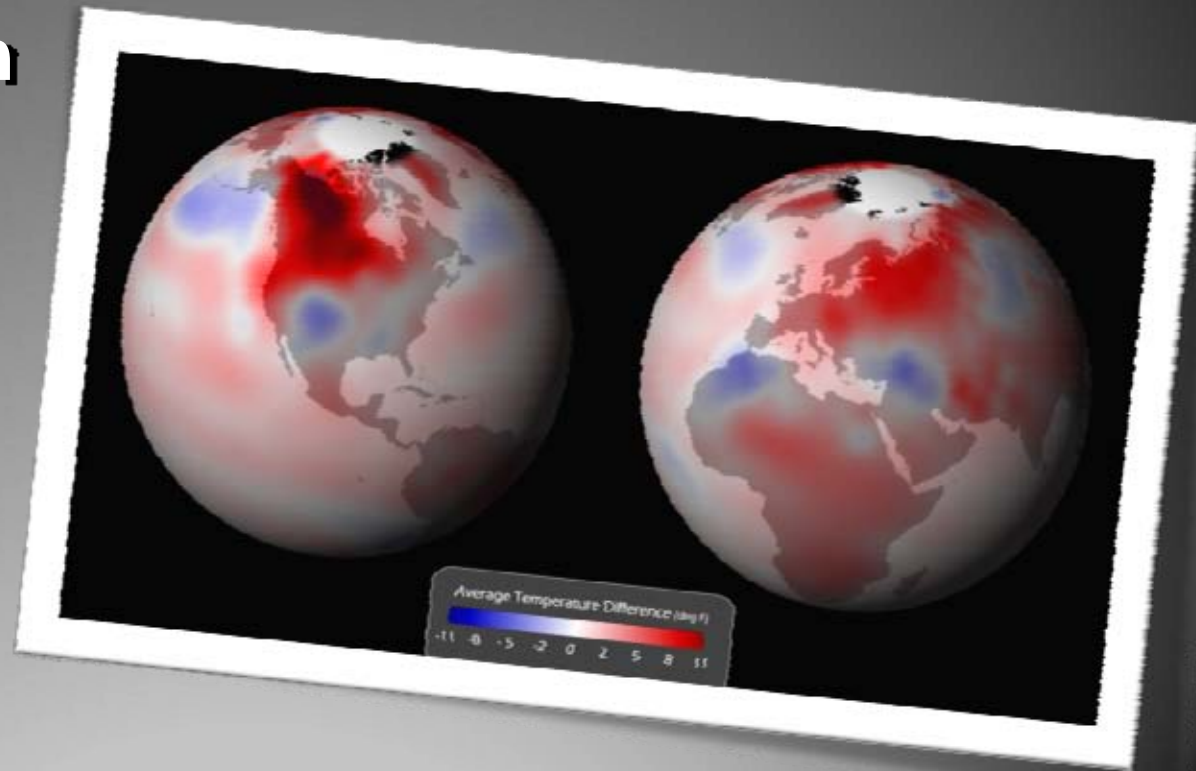
# U.S. Winter Outlook

## Temperature



# Climate Services Development

- A NOAA-wide priority
- Climate observations and monitoring
- Climate research and modeling
- Adaptation

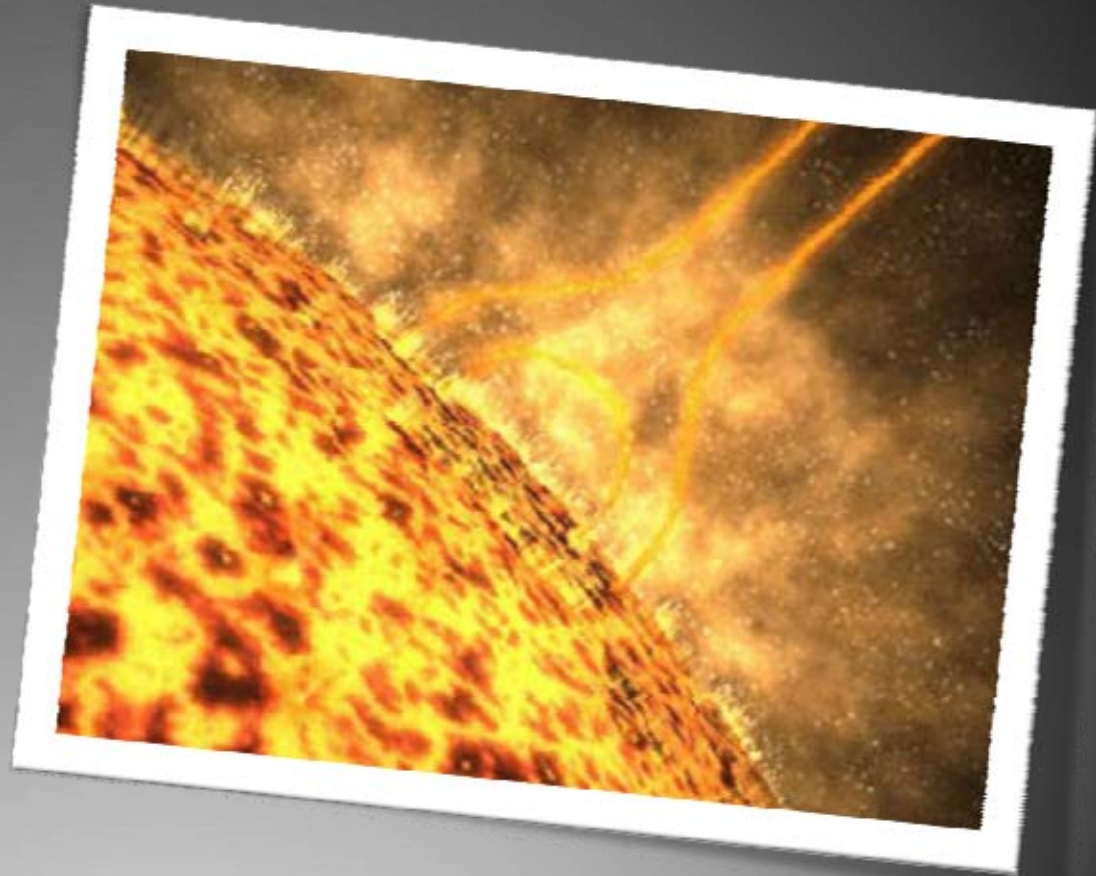




# Space Weather Services

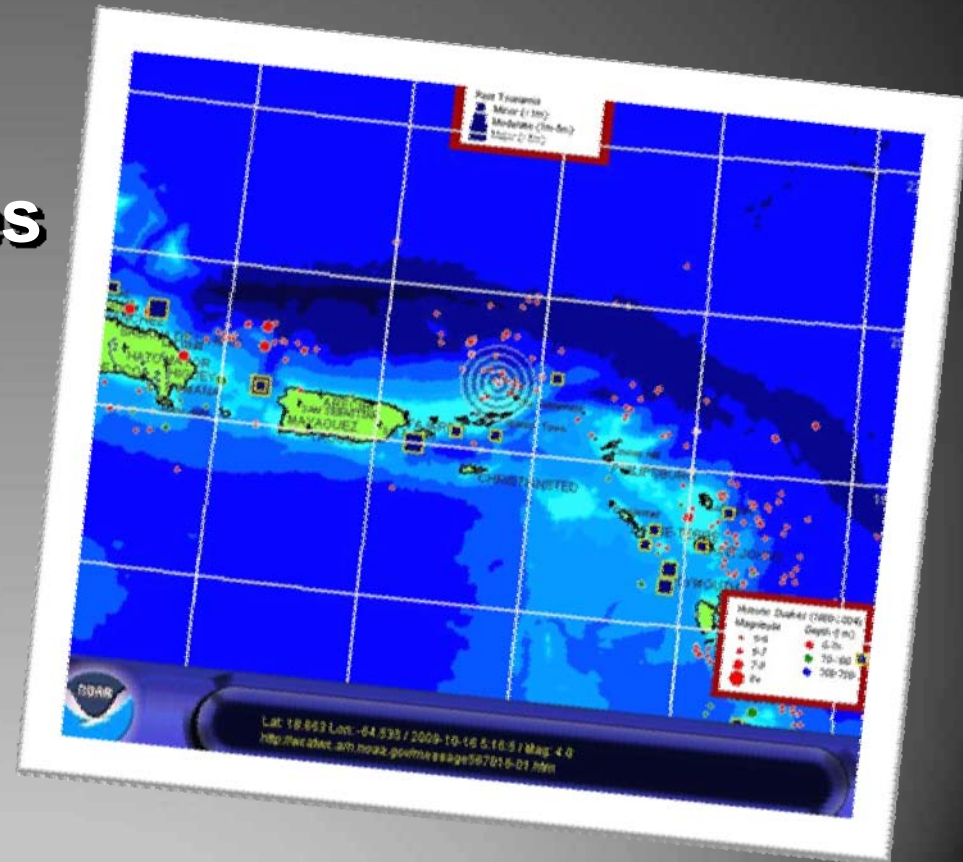
Reduces threats to:

- *National security*
- *Communication*
- *Our economy*



# Tsunami Warning Services

- U.S. West Coast and Alaska Warning Center
- Pacific Tsunami Warning Center
- 24/7 operations
- Strengthening Services in Caribbean



# Responding to Changing Needs

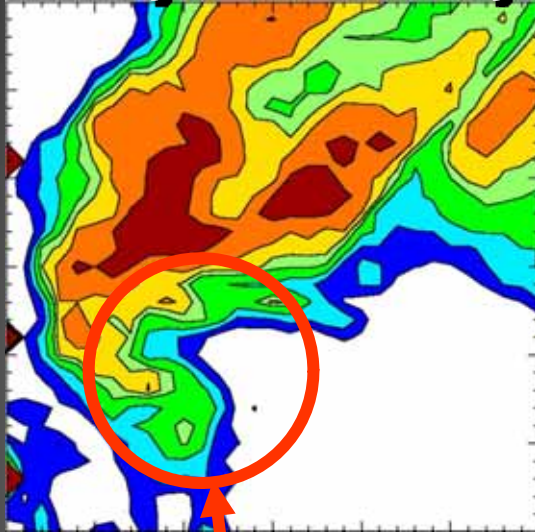
- Infuse better science
- Exploit new technologies
- User-focused products
- Broader range of services
- Direct, expert collaboration



# NEXRAD Dual Polarization

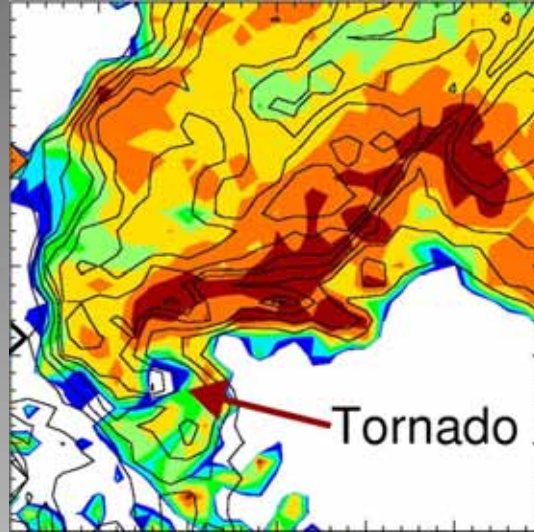
- Current radar transmits horizontal beam only
- Dual Polarization radar will transmit horizontal and vertical beams
- Complete deployment to all 122 NWS NEXRAD radars in FY 2013

Today's Reflectivity

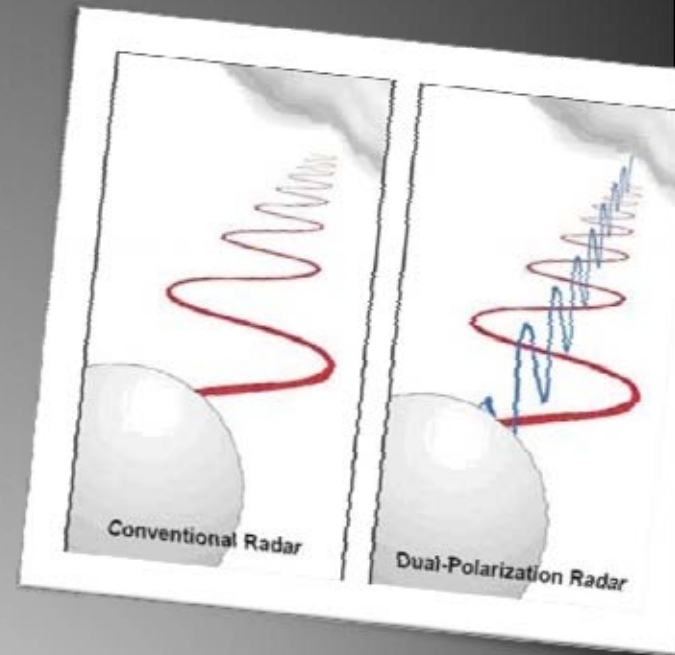


Possible Tornado  
Anywhere in Circle

Dual Polarization



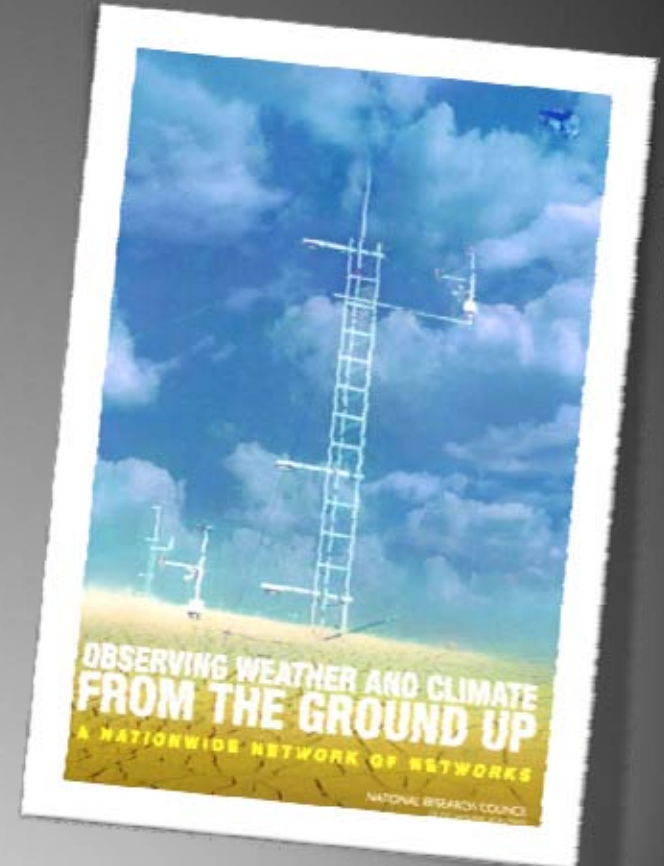
Actual Tornado  
Debris Cloud



# National Mesonet

## *NRC Report on Network of Networks (NoN):*

- U.S. capabilities are uncoordinated
- Overarching national strategy needed
  - *Build infrastructure for data exchange*
  - *Fill data gaps*
    - Spatial
    - Temporal
    - Elements



# National Hurricane Forecast Improvement Project

## Goals:

- **Improve Forecast Accuracy**
  - *Hurricane impact areas (track): 50% in 10 years*
  - *Severity (intensity): 50% in 10 years*
  - *Storm surge impact locations and severity*
- **Extend forecast reliability out to 7 days**
- **Quantify, bound and reduce forecast uncertainty to enable risk management decisions**



# Where We're Headed

## Coastal Inundation

## River & Flash Flooding

New forecast tools and capabilities to provide finer-scale warnings to decision makers



# Looking Ahead

***NWS Strategic Plan Will Help Us Create Expanded and More Robust:***

- **Decision support services**
- **NOAA climate services**
- **Water services**
- **Sector-specific services**
- **Earth System prediction capabilities**

