

# National Weather Service

## *Building a Weather-Ready Nation*

*Friends and Partners of Aviation Weather*

Dr. Jason P. Tuell

October 12, 2011





# 2011: A Year of Extremes



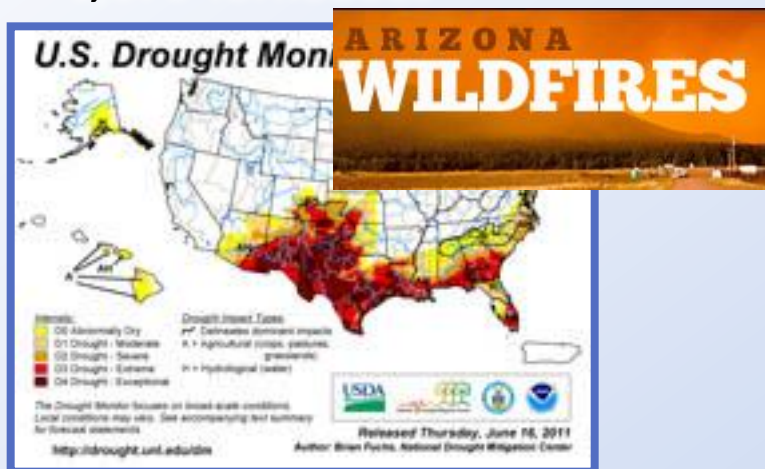
**546 Fatalities from  
1,676 Tornadoes**



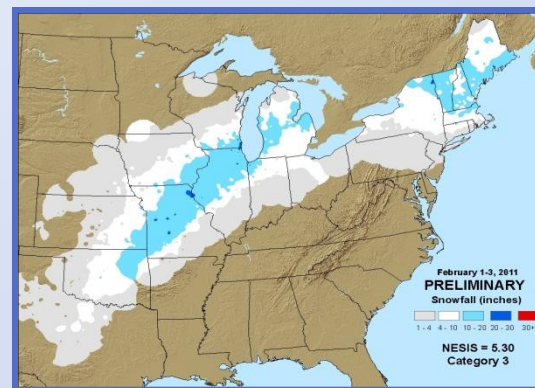
**Historic U.S. Floods**



**Heat Wave**



**6 Million Acres Burned**



**Devastating Blizzards**





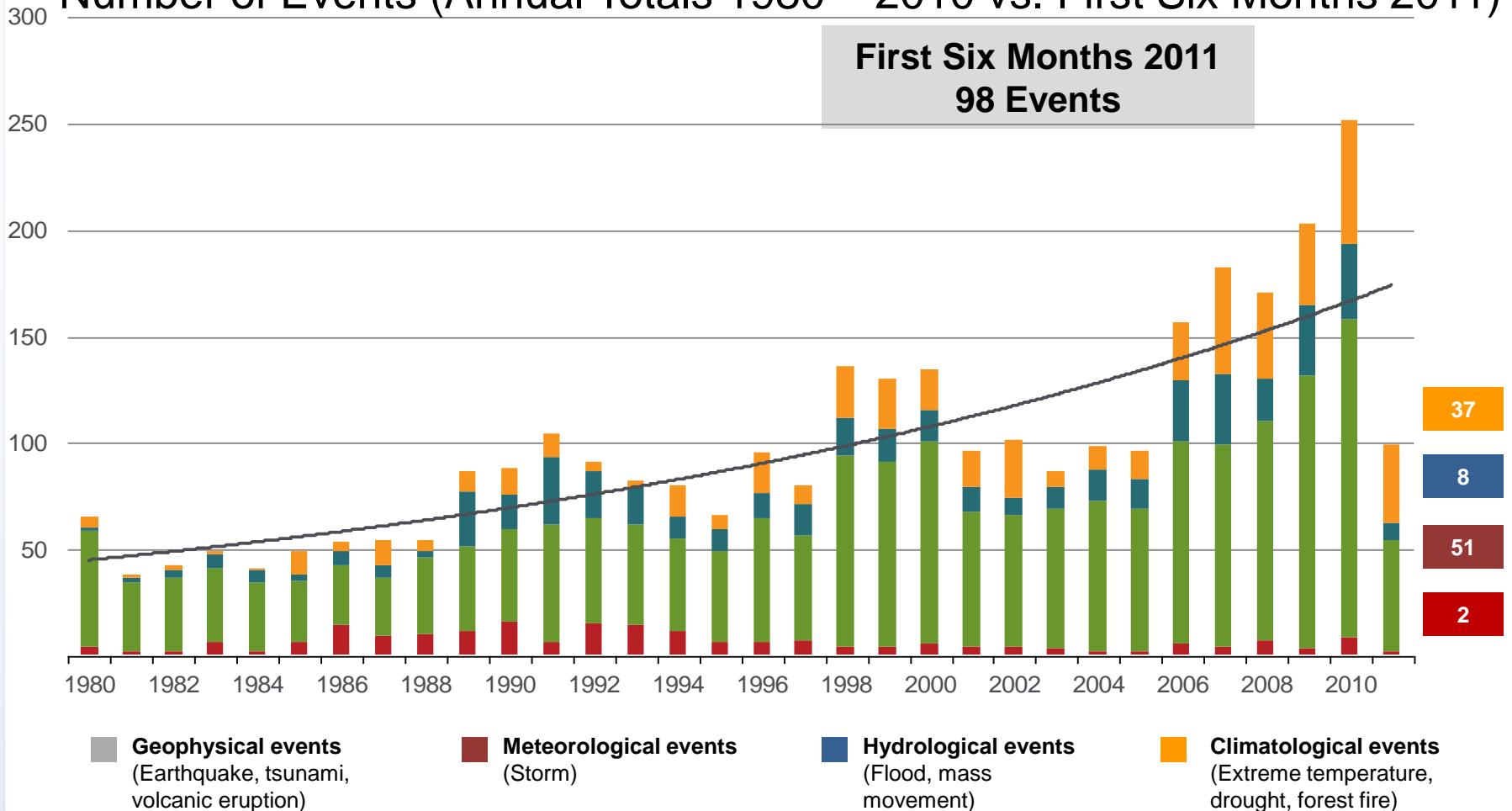
# A Changing World

## *Increased Vulnerability to High-Impact Weather*



Natural Disasters in the United States, 1980 – 2011

Number of Events (Annual Totals 1980 – 2010 vs. First Six Months 2011)



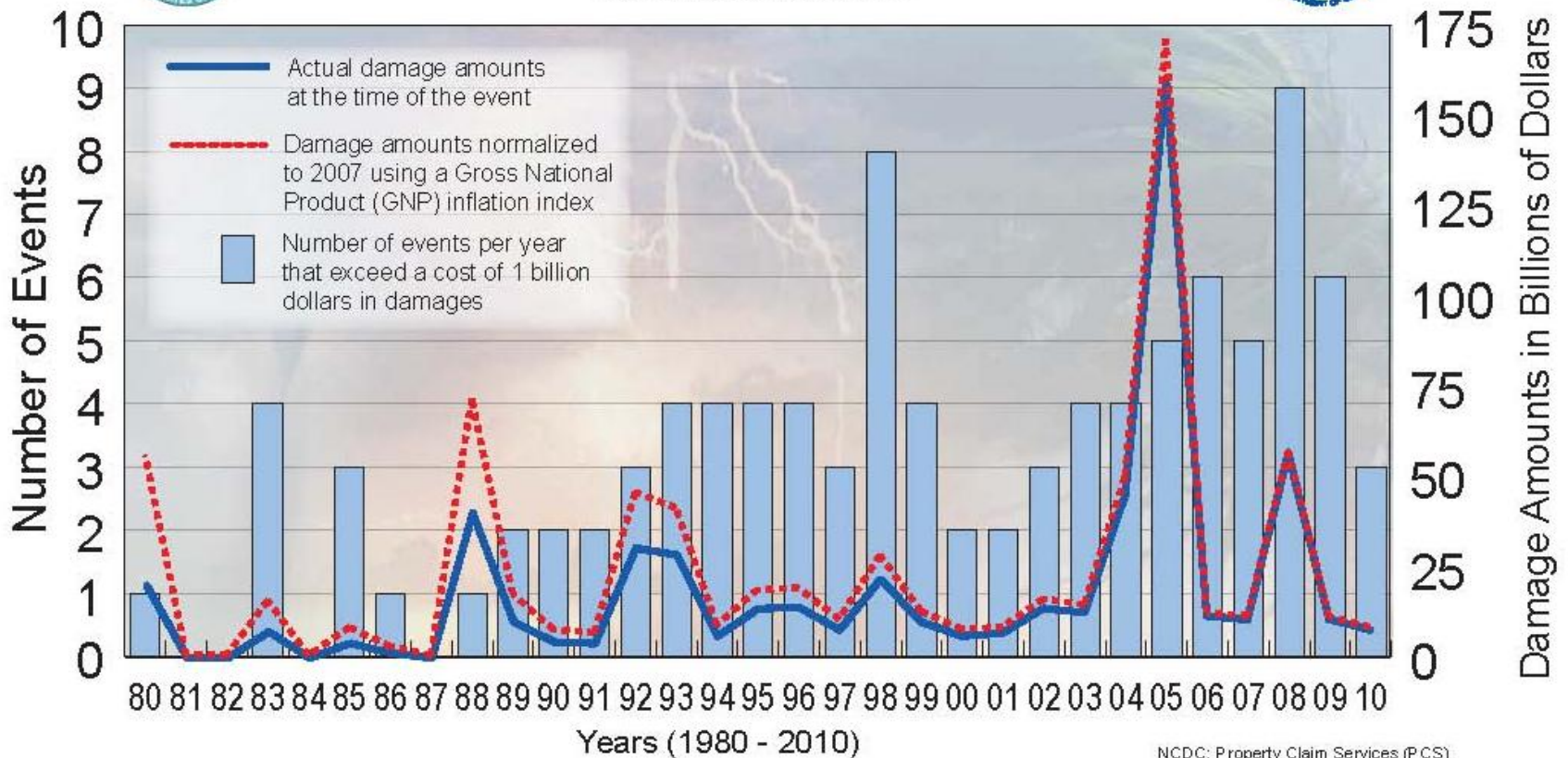


# Billion Dollar Disasters



## Billion Dollar U.S. Weather Disasters 1980 - 2010

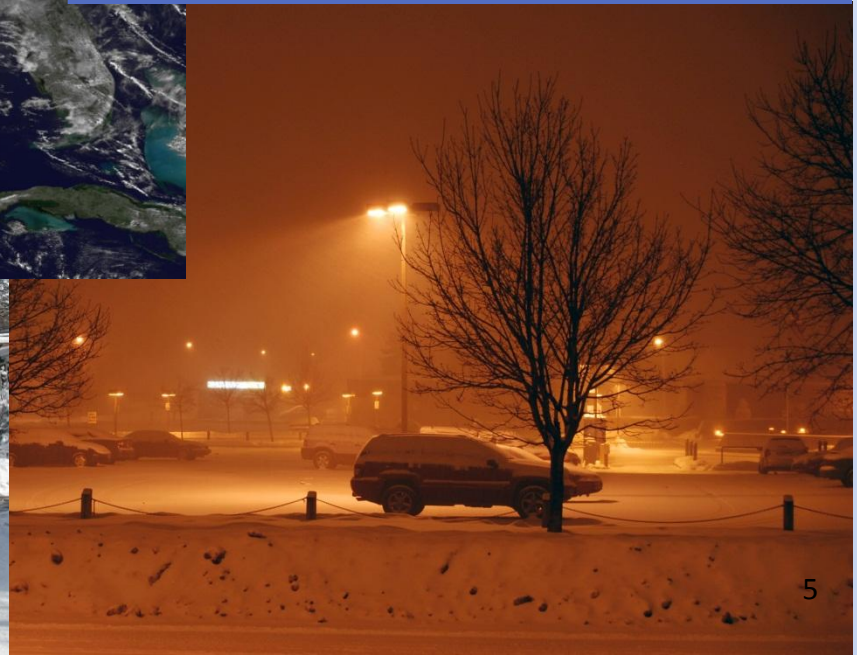
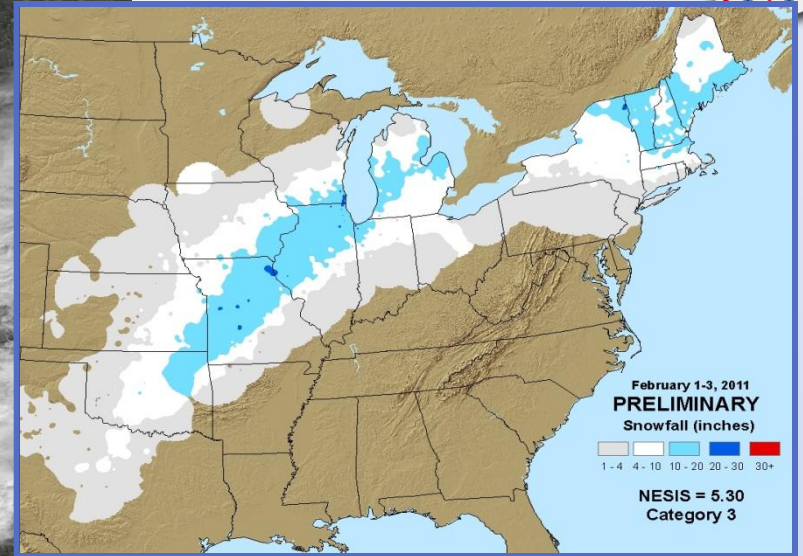
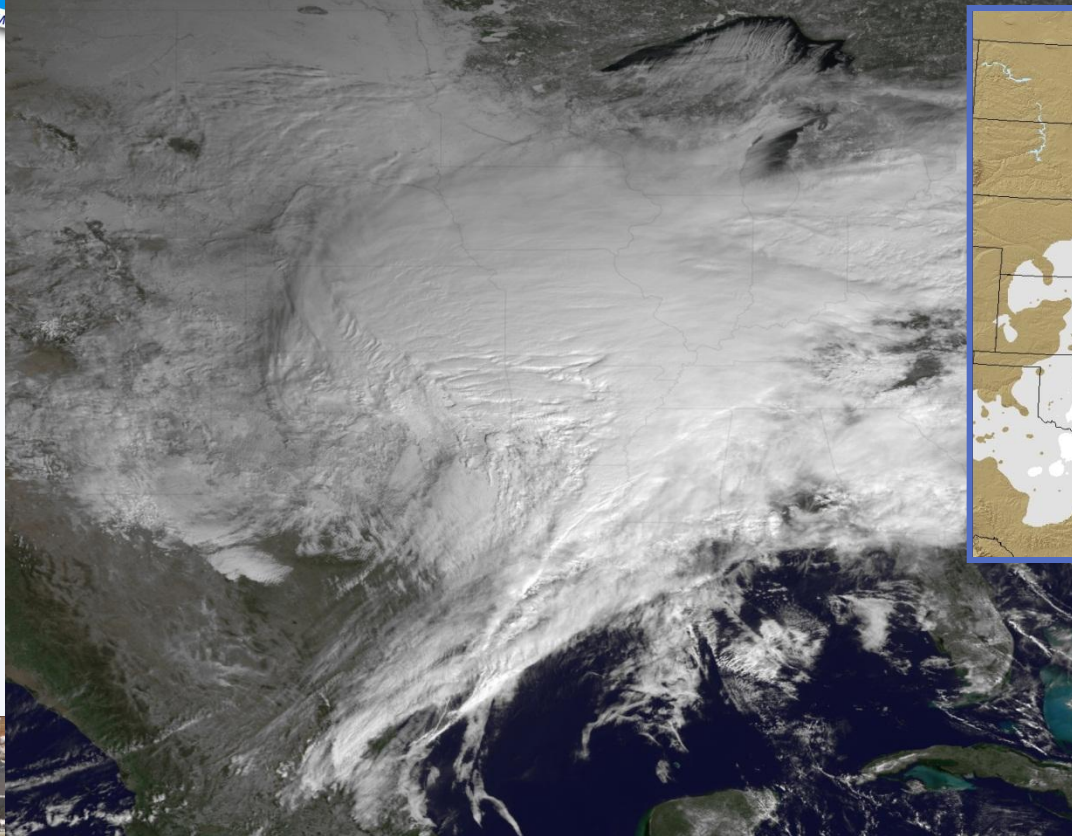
NOAA/NESDIS/NCDC



NCDC; Property Claim Services (PCS)

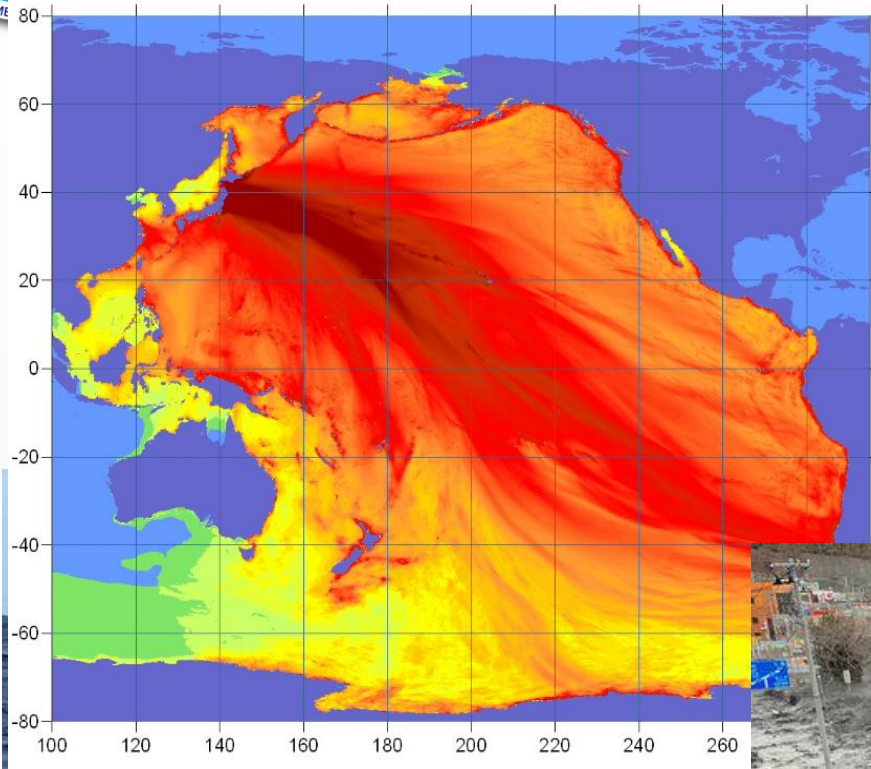


# Winter Storms

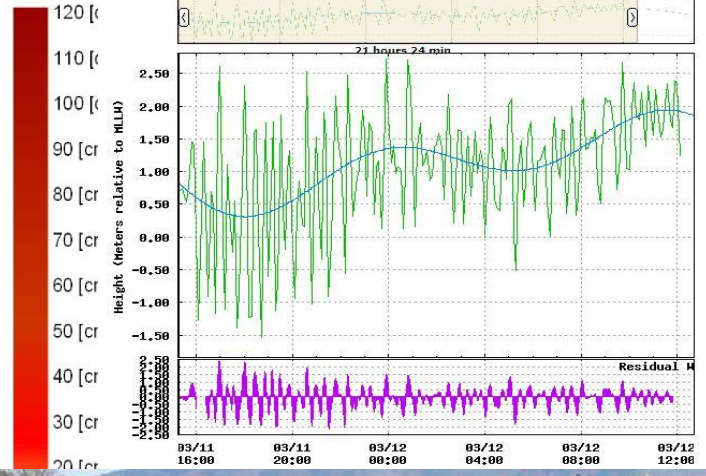




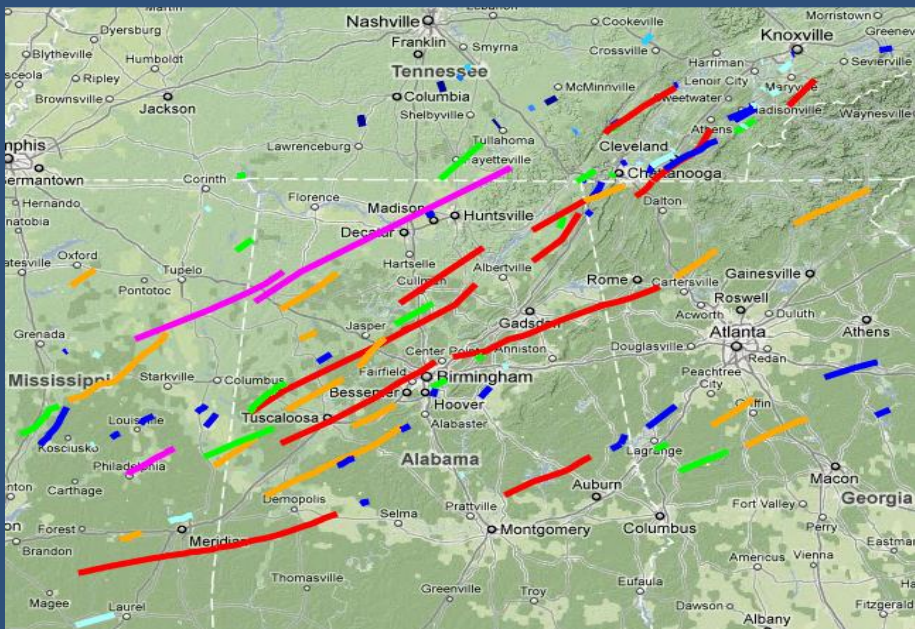
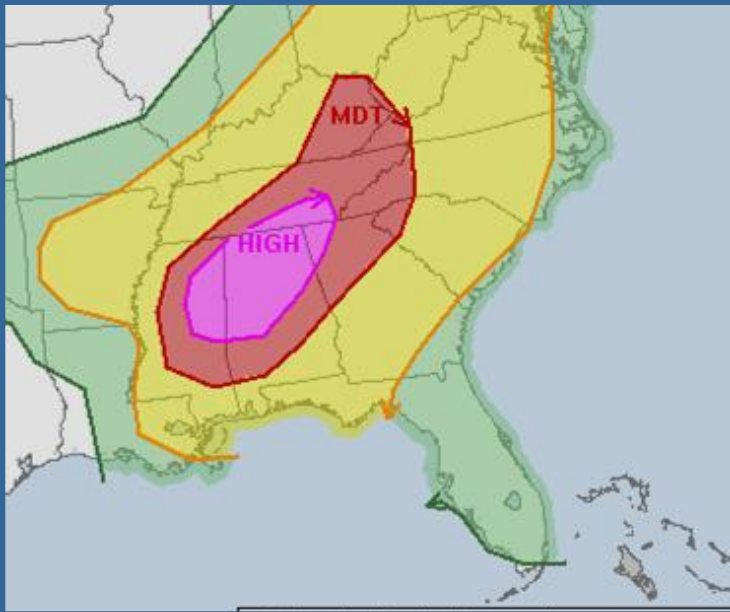
# Tsunami



Display: 1 min 6 min 6 min alt Predicted  
From: Mar 11 2011 1517 h:mm  
Retrieve: [Data Listing](#) [Import to Excel](#)  
To: Mar 12 2011 1517 h:mm Go

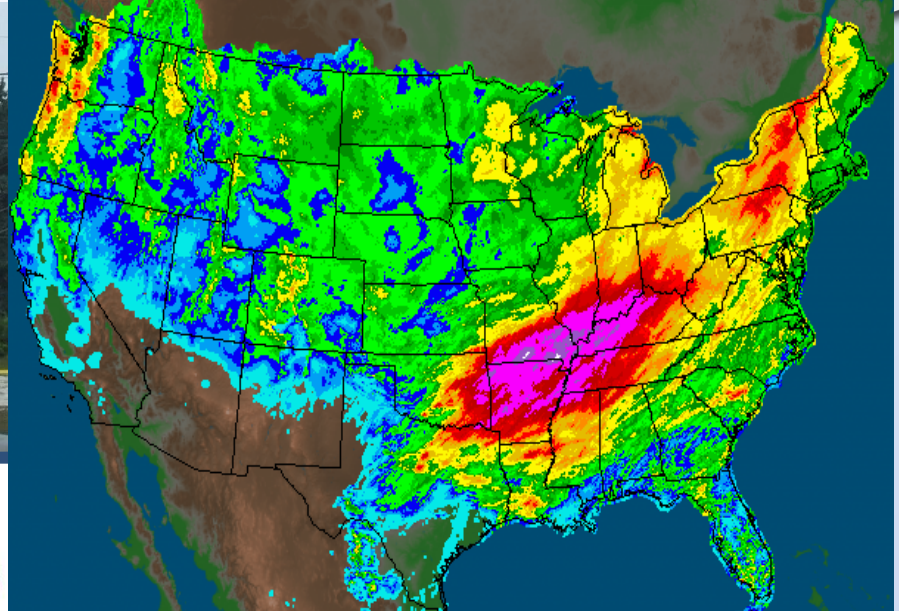


# 2011 Historic Tornado Year

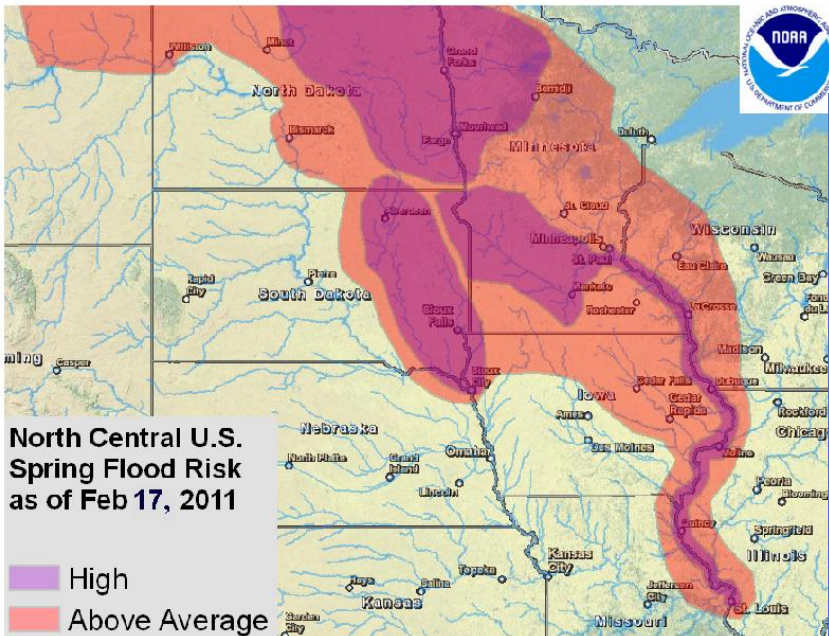




# Flooding



## North Central U.S. Spring Flood Risk

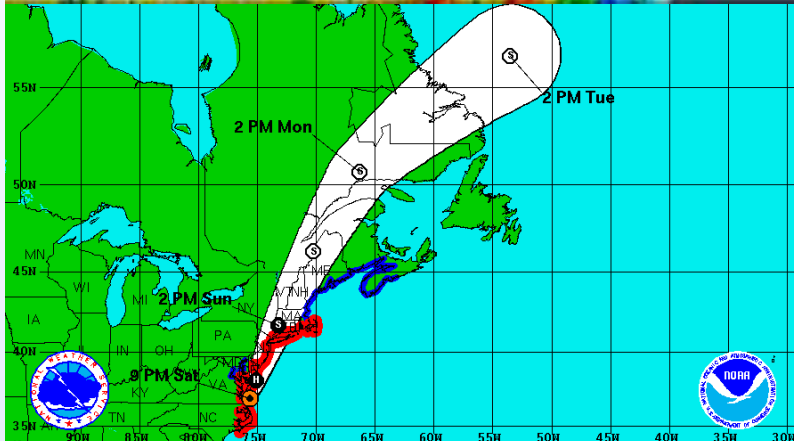
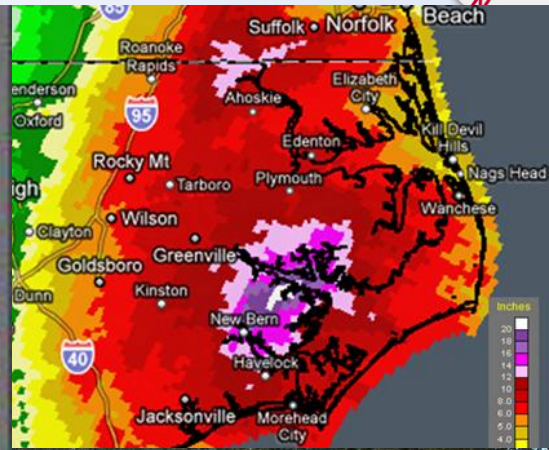


(February 17, 2011) This initial release of the Hydrologic Assessment only focuses on the North Central U.S. and will be updated on February 24. The final 2011 assessment to be issued March 17th will include a hydrologic assessment for the entire United States.



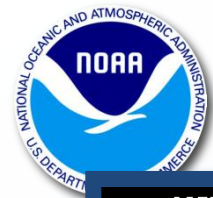


# Hurricanes

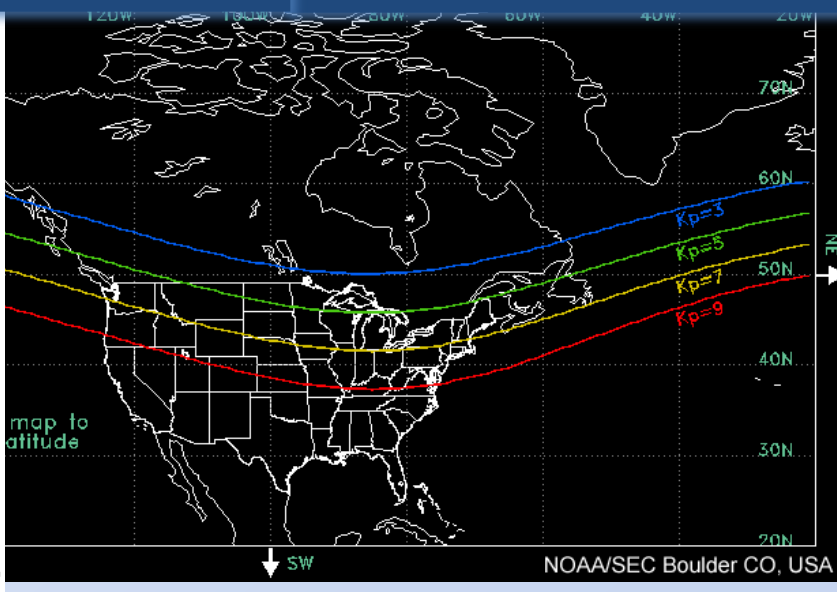
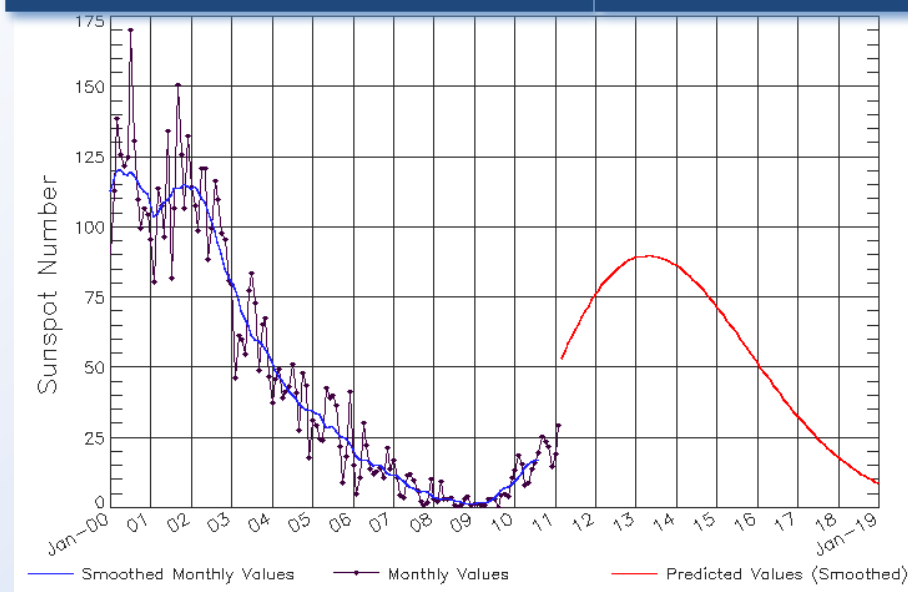
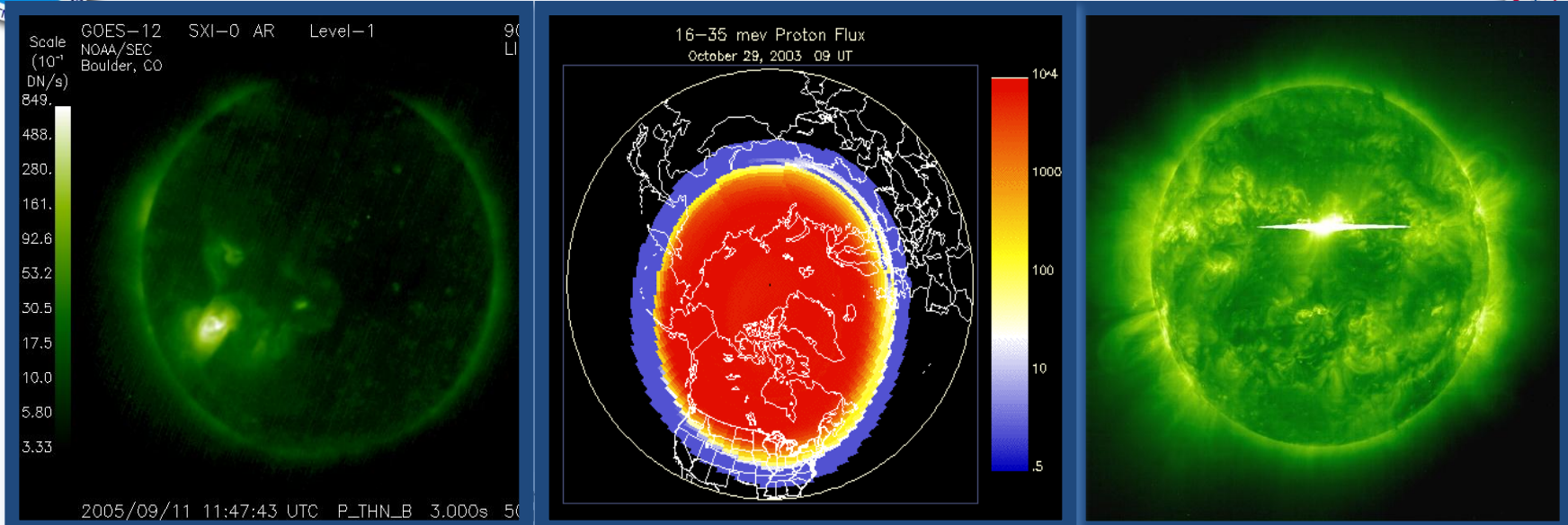


|   |   |  |
|---|---|--|
| <b>Hurricane Irene</b><br>Saturday August 27, 2011<br>9 PM EDT Intermediate Advisory 30B<br>NWS National Hurricane Center | <b>Current Information:</b><br>Center Location 36.9 N 75.6 W<br>Max Sustained Wind 80 mph<br>Movement NNE at 16 mph | <b>Forecast Positions:</b><br>● Tropical Cyclone ○ Post-Tropical<br>Sustained Winds: D < 39 mph<br>S 39-73 mph H 74-110 mph M > 110mph |
| <b>Potential Track Area:</b><br>Day 1-3   | <b>Watches:</b><br>Hurricane Trop.Storm   | <b>Warnings:</b><br>Hurricane Trop.Storm   |





# Space Weather





# The Situation

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- **Extreme impacts are real threat**
  - *Societal changes: Vulnerable infrastructure, population growth and density in high-risk areas*
- **NWS has done an extraordinary job**
  - *Saved countless lives*
  - *Homes and business are still standing after floods*
- **Aviation driven by day to day weather in addition to high impact weather**
  - *Increasing confidence in high impact forecasts*
  - *Challenges remain in certain day-to-day forecasts*



# NWS Roadmaps





# What We're Doing Now

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- **Science and Technology**
  - *Dual Pol, IWRSS, JPSS, HFIP, TRWG, NextGen*
- **Weather-Ready Roadmap**
  - *Provides practical and tangible actions*
  - *Developed in cooperation with NWSEO and provides new and exciting opportunities*
  - *Test projects: testing WRN Roadmap concepts in strategic locations across the country*



# Challenges Ahead



- **Moving forward in an uncertain fiscal environment**
  - *Funding new S&T as well as focusing on services*
  - *NextGen concepts threaded throughout Roadmaps*
- **Changing the culture to allow innovation and failure**
  - *Lessons learned from failed pilots as well as successful ones – “fail well”*