

National Oceanic and Atmospheric Administration

Natural Disasters and Economic Impacts: Building a Weather-Ready Nation

Christopher Strager

NWS Advisor for Science and Service Integration

National Defense Industrial Association

Arlington, VA

November 14, 2012



Superstorm Sandy

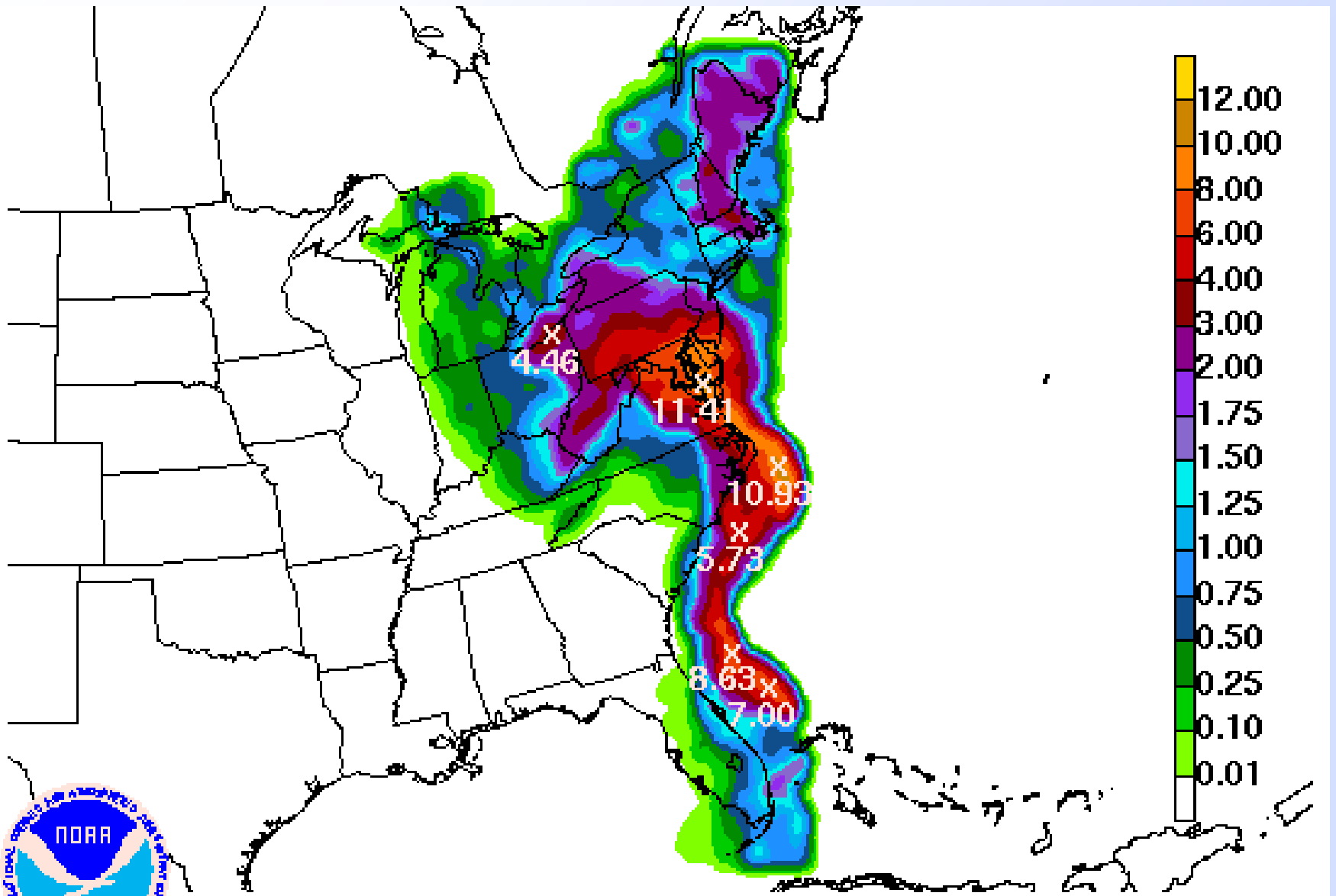
Meteorological Data



Sandy Wind Field

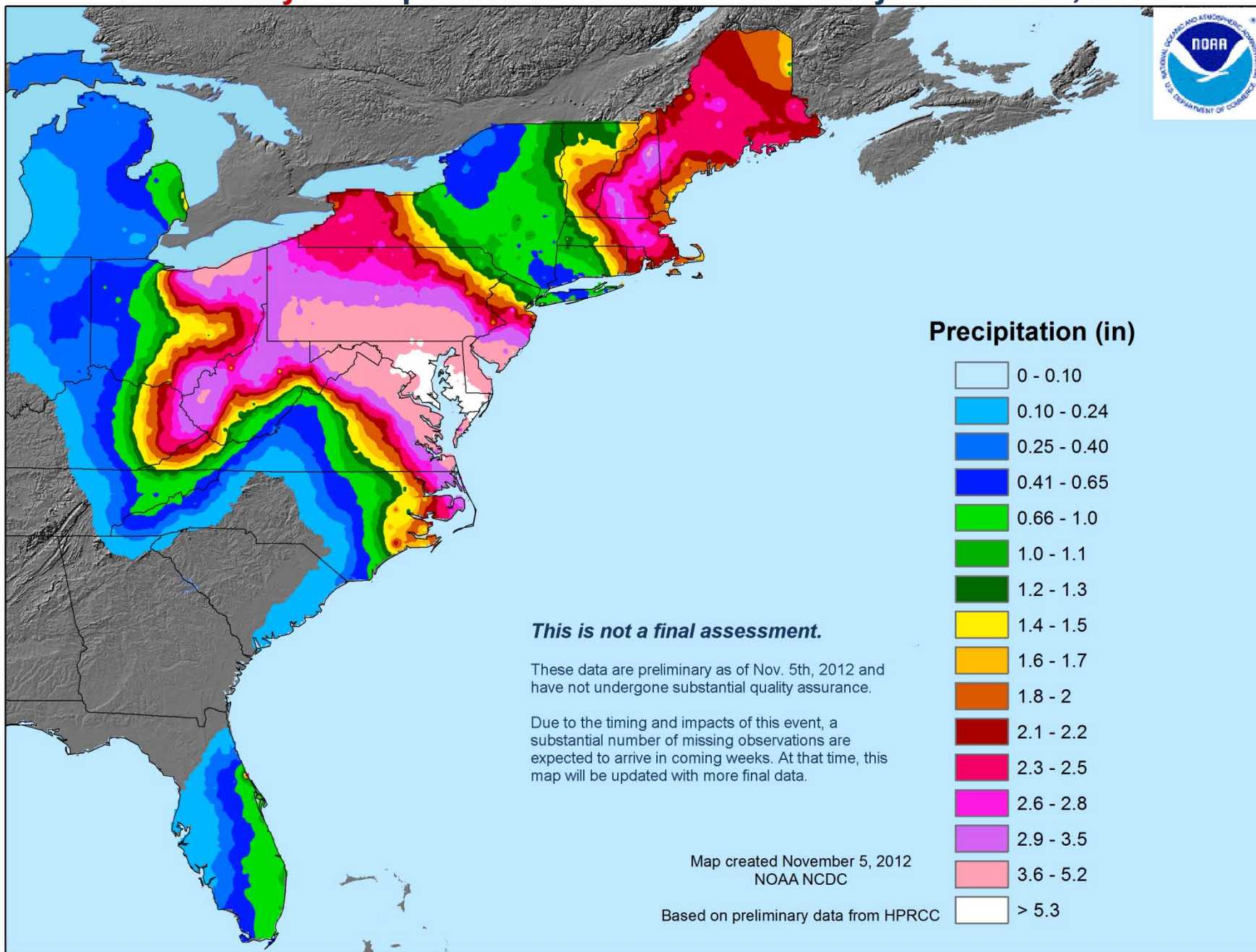


Sandy Total Rainfall



STAGEIV 192-Hour Total QPE
VALID: 12Z OCTOBER 24, 2012 - 12Z NOVEMBER 1, 2012

Preliminary: Precipitation associated with Sandy: Oct. 23-31, 2012



This is not a final assessment.

These data are preliminary as of Nov. 5th, 2012 and have not undergone substantial quality assurance.

Due to the timing and impacts of this event, a substantial number of missing observations are expected to arrive in coming weeks. At that time, this map will be updated with more final data.

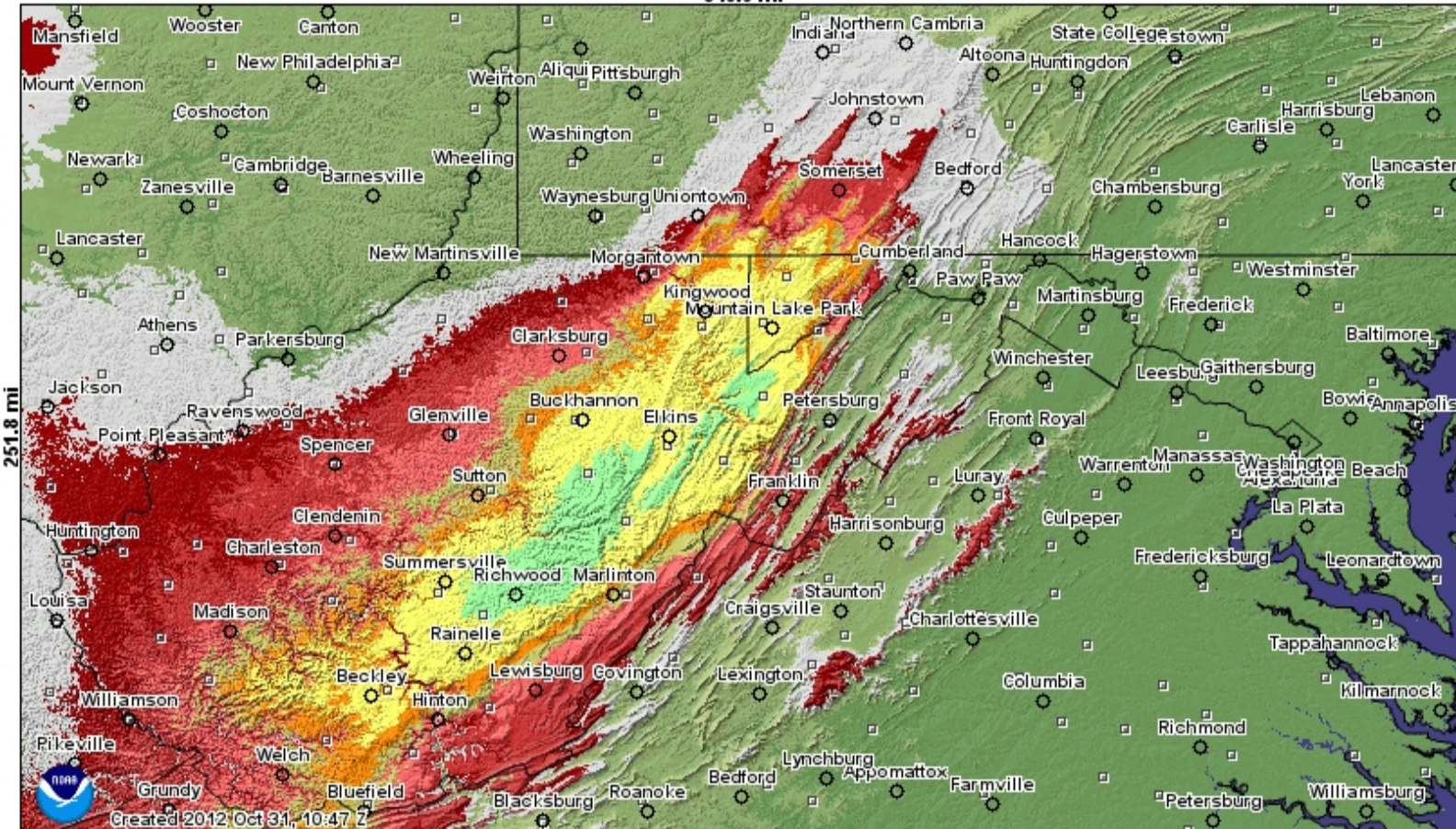
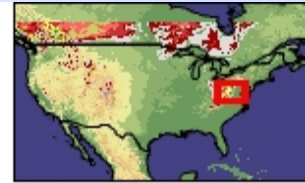
Map created November 5, 2012
NOAA NCDC

Based on preliminary data from HPRCC

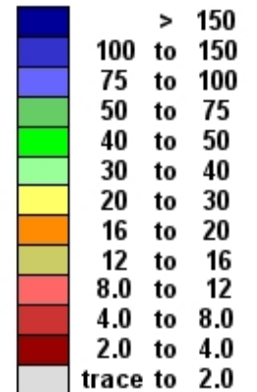
Snow Depth – October 31

Modeled Snow Depth for 2012 October 31, 6:00 Z

340.6 mi

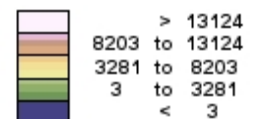


Inches of depth



Not Estimated

Elevation in feet



358.6 mi

Highest Reported Total: 36" in Webster County, WV

Sandy “Fast Facts”

- Sandy had all-time lowest central pressure to make landfall north of Cape Hatteras, NC (940 MB)
- Tropical storm-force winds measured 950 miles in diameter
- Sandy covered 1.8 million square miles
 - Over half the size of the continental US
- Highest water level occurred at Bergen Point, NY with 14.6 feet
- Highest storm total rainfall: Easton MD with 12.49”
- Highest storm total snowfall 36” in Webster County, WV
- Highest wind gust on land: 140 mph, at Mount Washington, NH

Superstorm Sandy

Social and Economic Impacts

- 69 deaths in the Caribbean; 55 US deaths
- 17 US states affected; damages between \$30-\$50 billion
- 8.5 million without power at the height of the storm
- Over 18,000 airline flights canceled
- Evacuation zone from Ocean City, MD to Dartmouth, MA (400 miles of coastline)



LaGuardia airport – Courtesy of Jet Blue

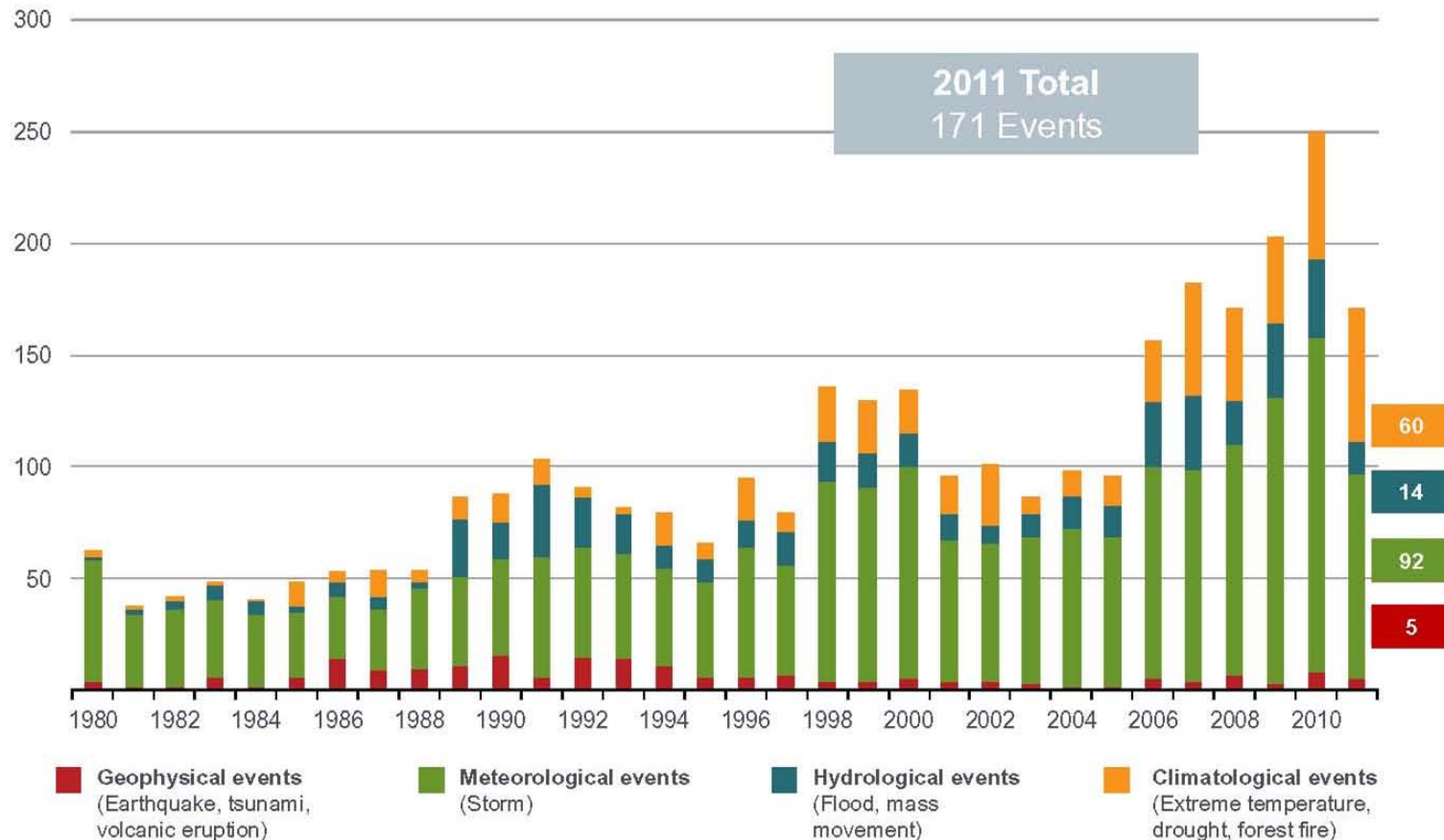
A Changing World

Increased Vulnerability to High-Impact Weather

U.S. Natural Catastrophe Update

Natural Disasters in the United States, 1980 – 2011

Number of Events, Annual Totals



A Changing World

Weather Impacts on Sectors:

Air Travel Flight Delays

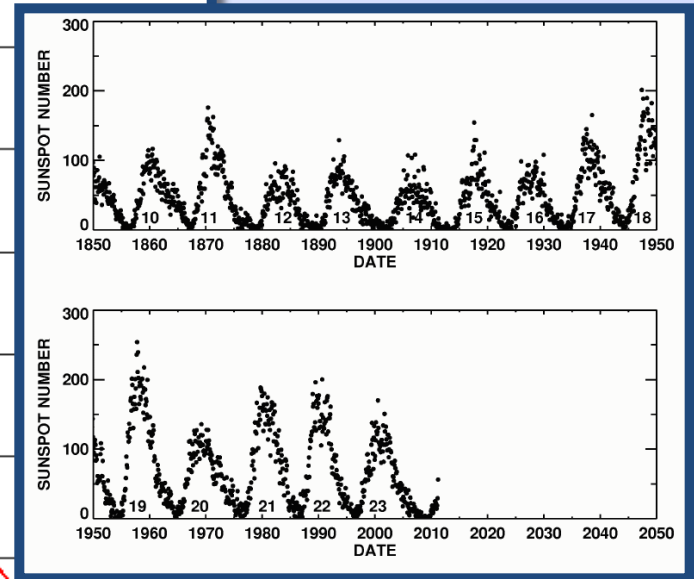
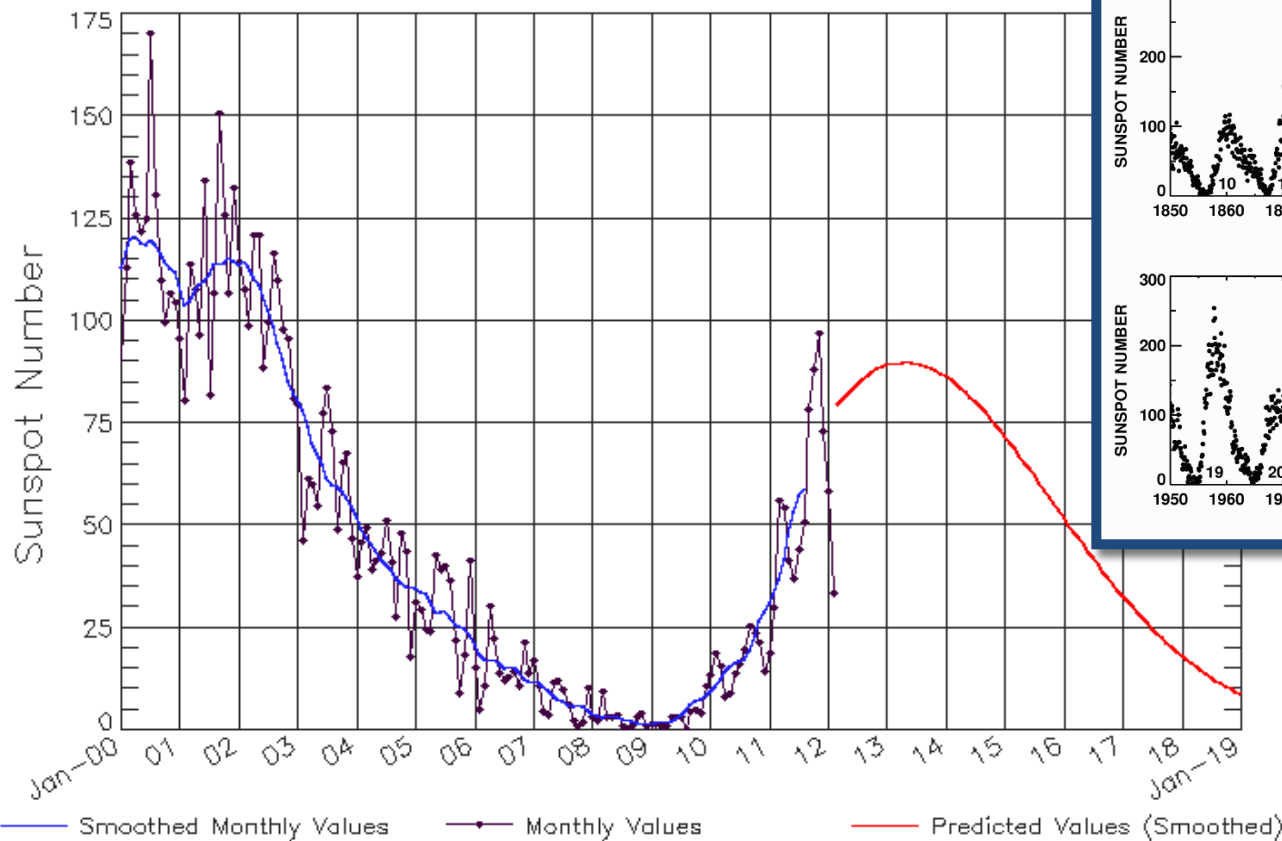
- \$40 Billion Yearly Cost to U.S.
- Weather Responsible for 2/3 Delays



Looking Ahead: Primary Threats in 2013

Space Weather

2011 Sunspot Number Progressions



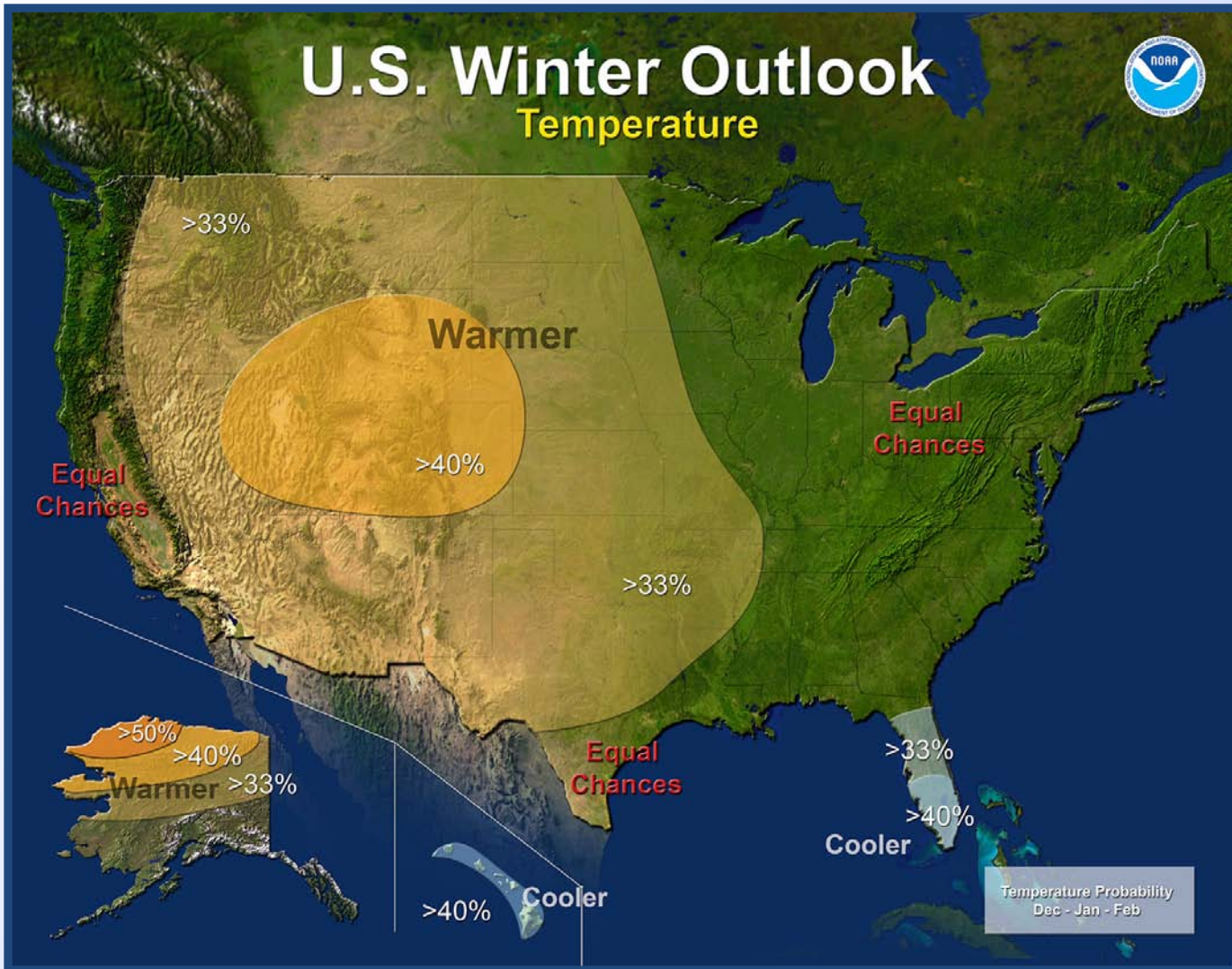
- Solar minimum in December 2008
- Solar Cycle 24 now well underway
- Cycle 24 maximum forecast - May 2013

Updated 2012 Mar 12

NOAA/SWPC Boulder, CO USA

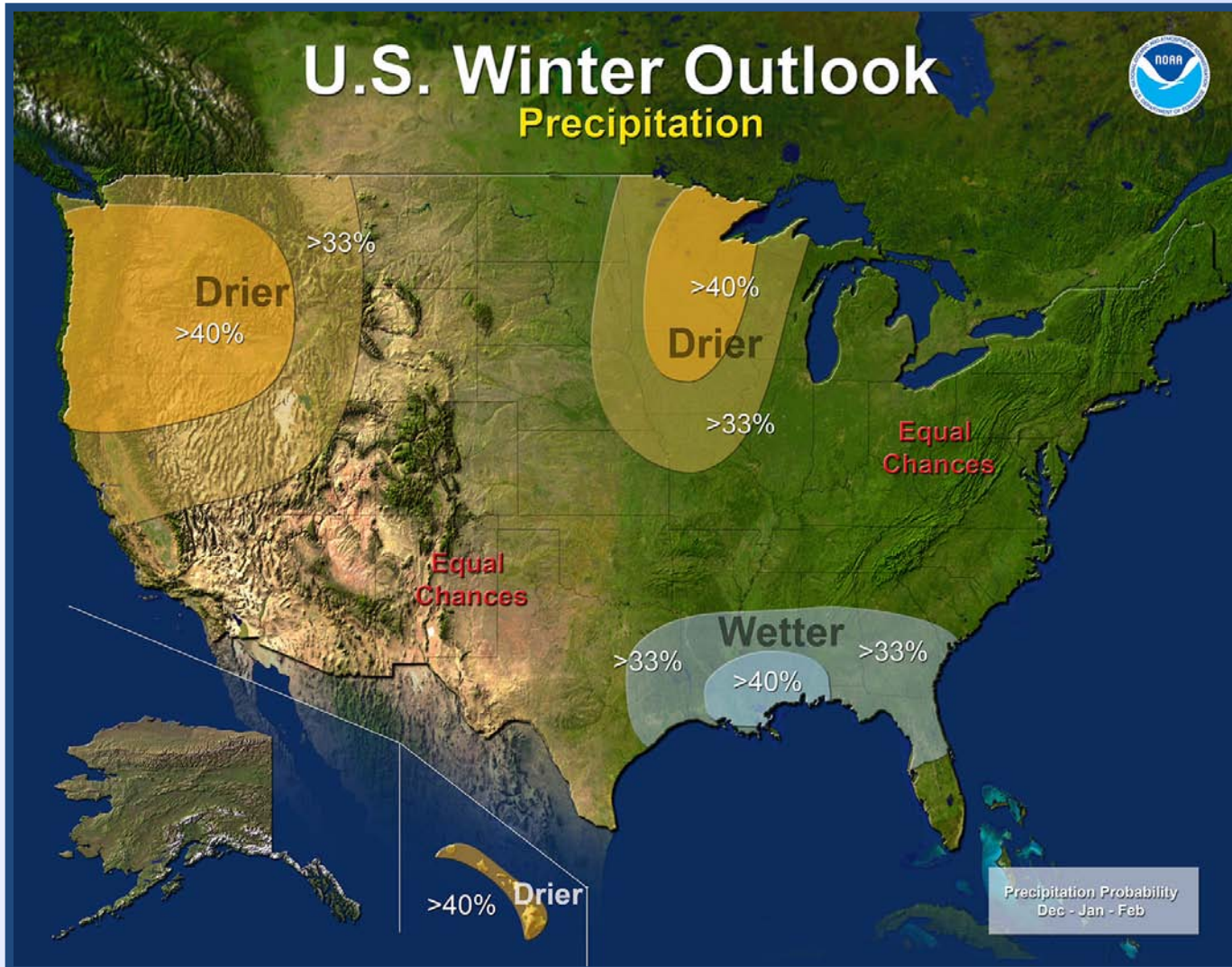
Winter Outlook

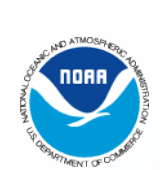
Temperature



Winter Outlook

Precipitation





Building a Weather-Ready Nation



Looking Forward – Four Years and Beyond

Becoming a Weather-Ready Nation is about building community resilience in the face of increasing vulnerability to extreme weather.



NOAA's NWS is developing new decision support services, improving technology to track and forecast storms, and expanding its dissemination efforts to achieve far-reaching national preparedness for weather events.

Building a Weather-Ready Nation

Emphasis on Decision Support Services



- Provide superior decision support and foundational information services
 - NWS will use our unique, local relationships with Core Partners to help them to **better prepare our communities** for extraordinary events



- Invest in Science and Technology
 - Use **state-of-the-art technology** and **cutting-edge science** to provide the best service possible



- Empower our workforce
 - Workforce is trained and equipped to meet America's evolving needs
 - **Emergency Response Specialists (ERS)** are accessible on-site and through remote technologies to provide **Impact-based Decision Support Services (IDSS)**

Building a Weather Ready Nation

NWS Partnerships



