NOAA Climate Science & Services Monthly Climate Update

A look back at 2011 and a preview for the next 3 months

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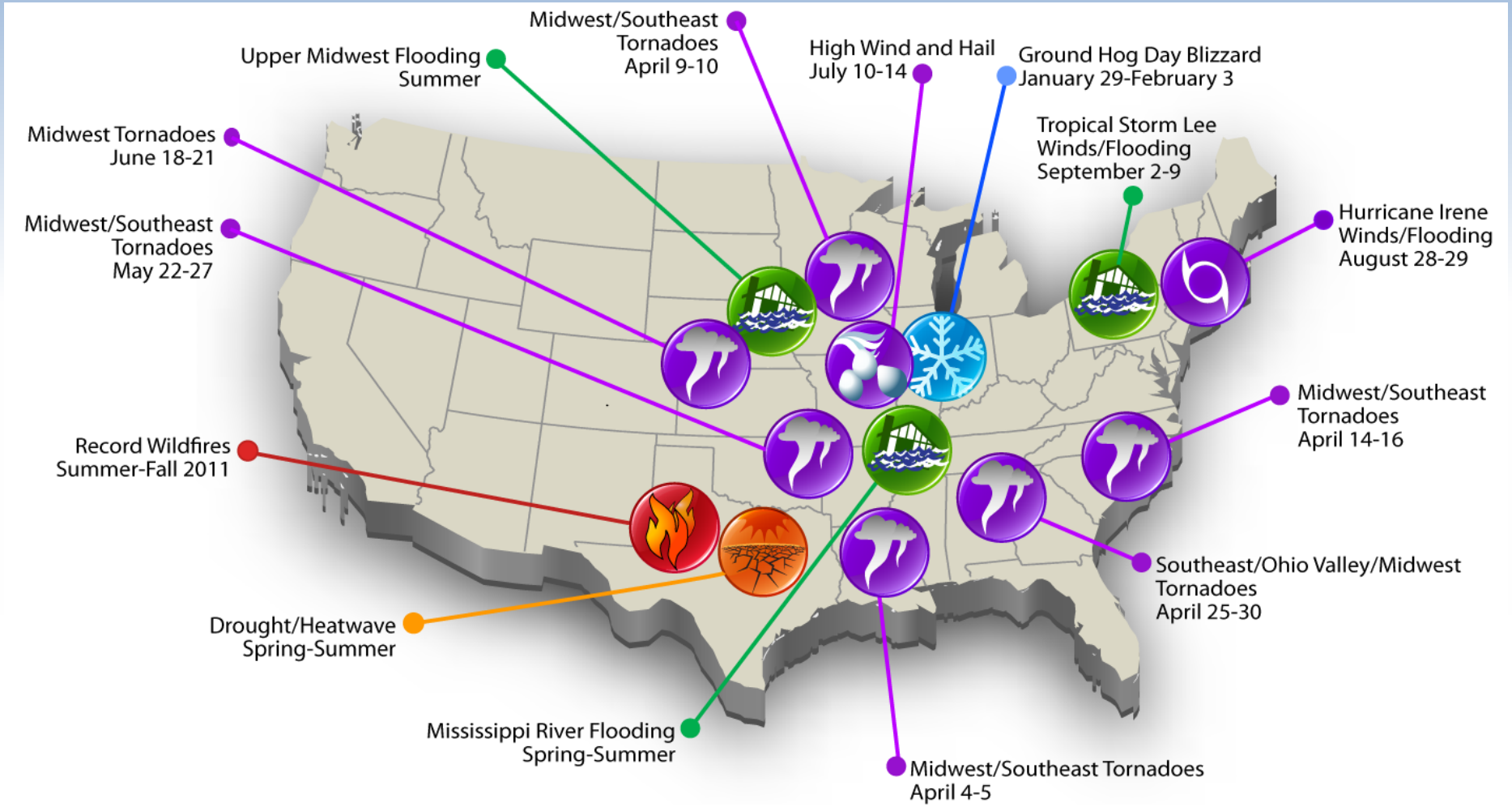
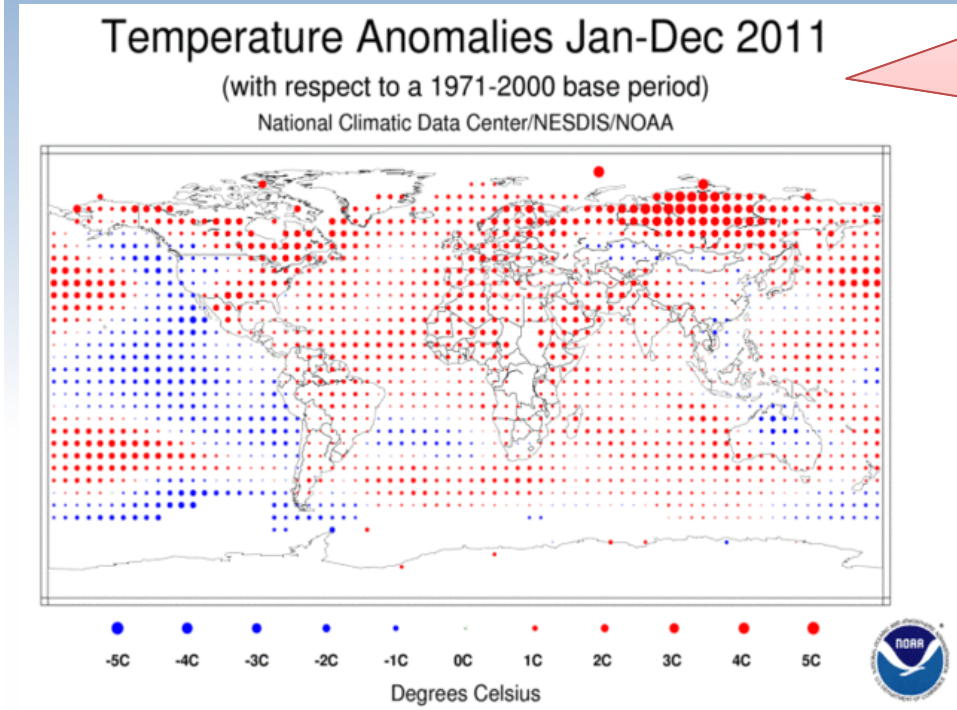
January 19, 2012

2011 Major Weather and Climate Events in the United States

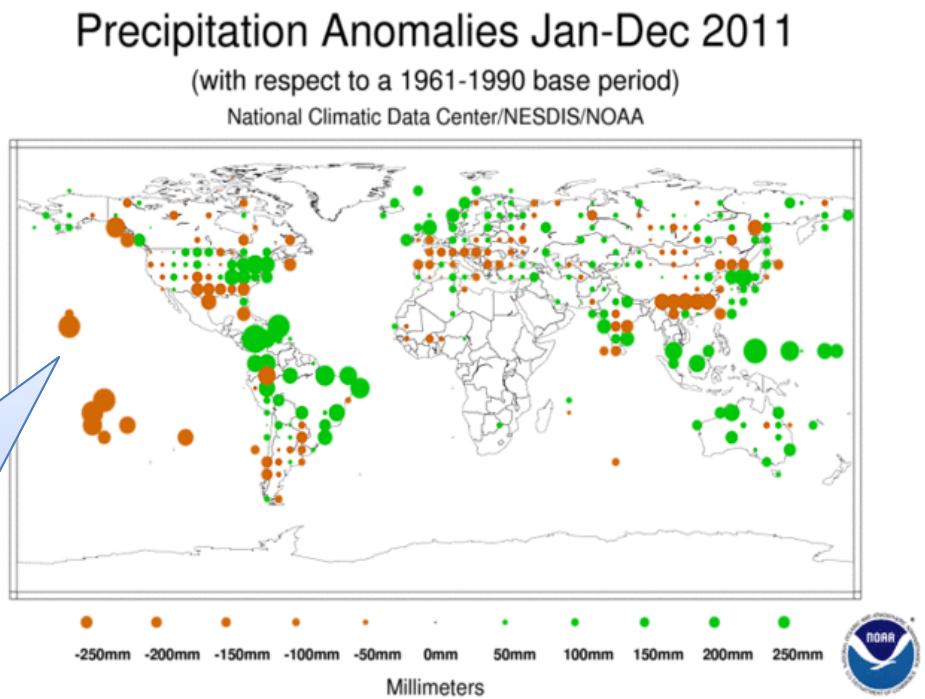


Global Climate Highlights



Temperature (GHCN-Monthly)

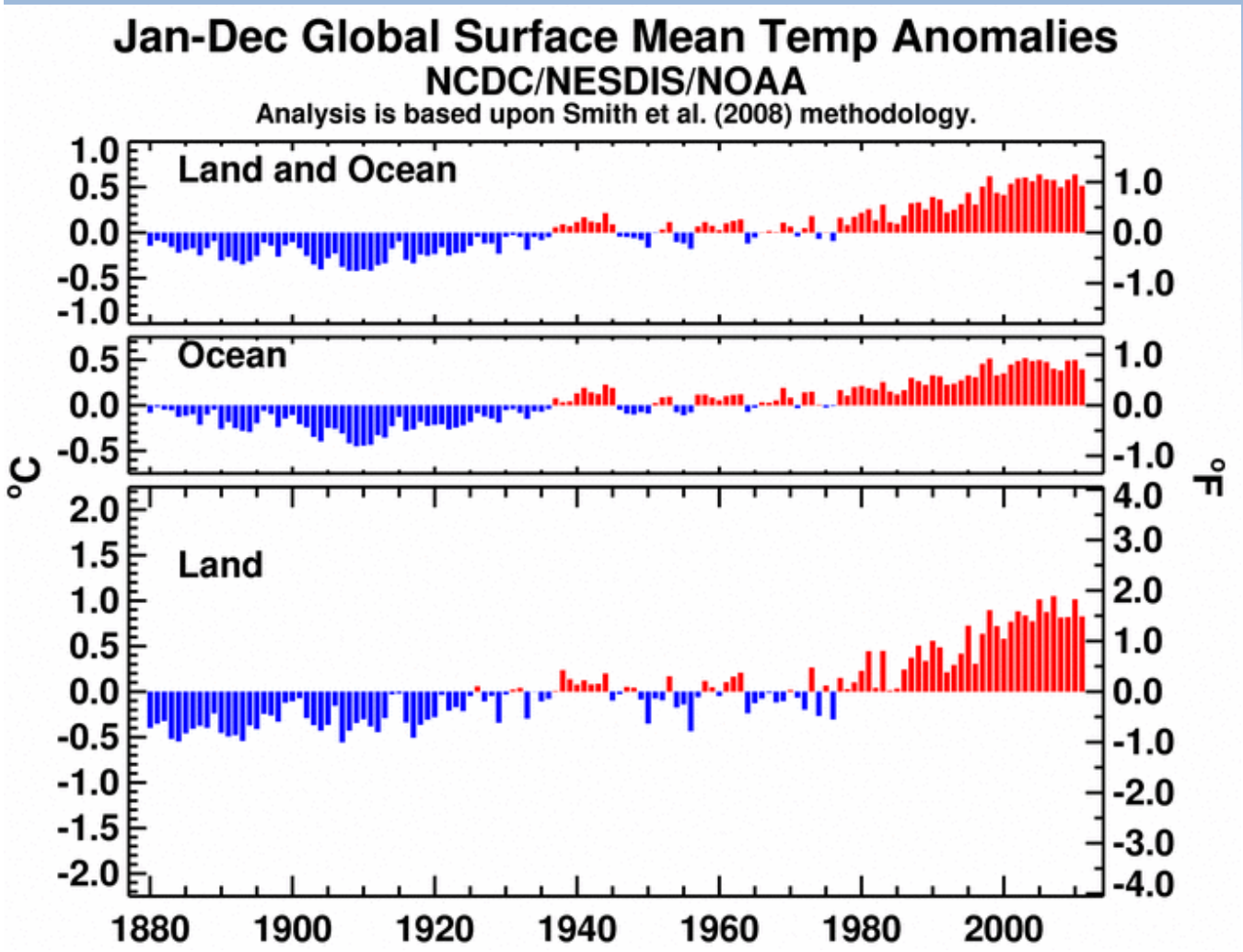
- La Niña pattern shows up well in Pacific
  - ***La Niña was a major factor in annual outcomes in many regions***
- Warmest year for Spain, Norway (tied). 2nd warmest for UK
- Near-polar land areas continue very warm



Precipitation (GHCN-Monthly)

- Globally: 2011 2nd wettest year over land (2010), with regional extremes
- Major Droughts: East Africa, Mexico/USA border, Central to Southeast Europe
- Extreme wet in Central & adjacent South America
- Wettest year for Norway, 3rd wettest for Australia

Global Temperatures During 2011



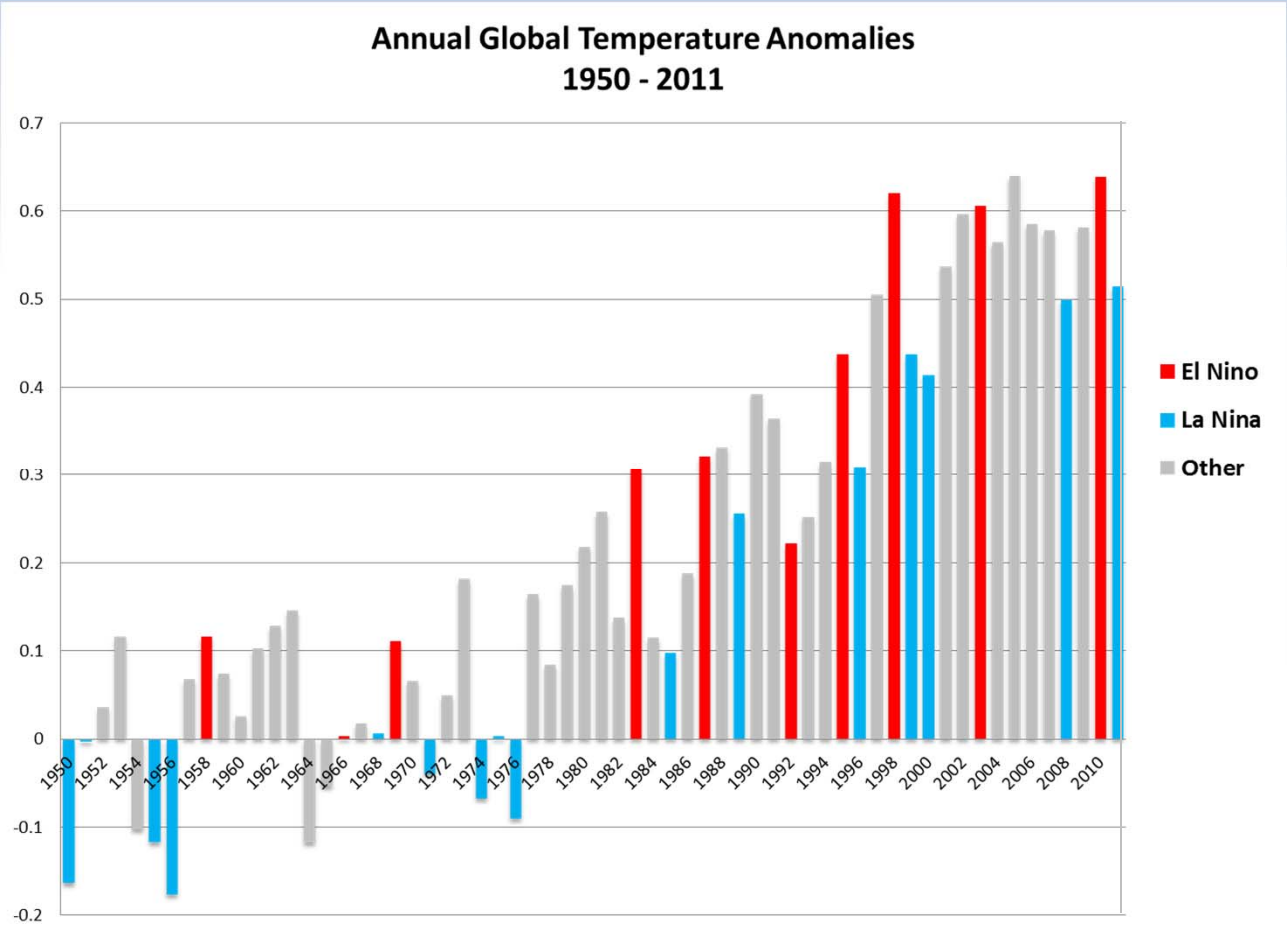
Period of record: 133 years (1880-2011)

Surface Temperature Anomalies and Ranks

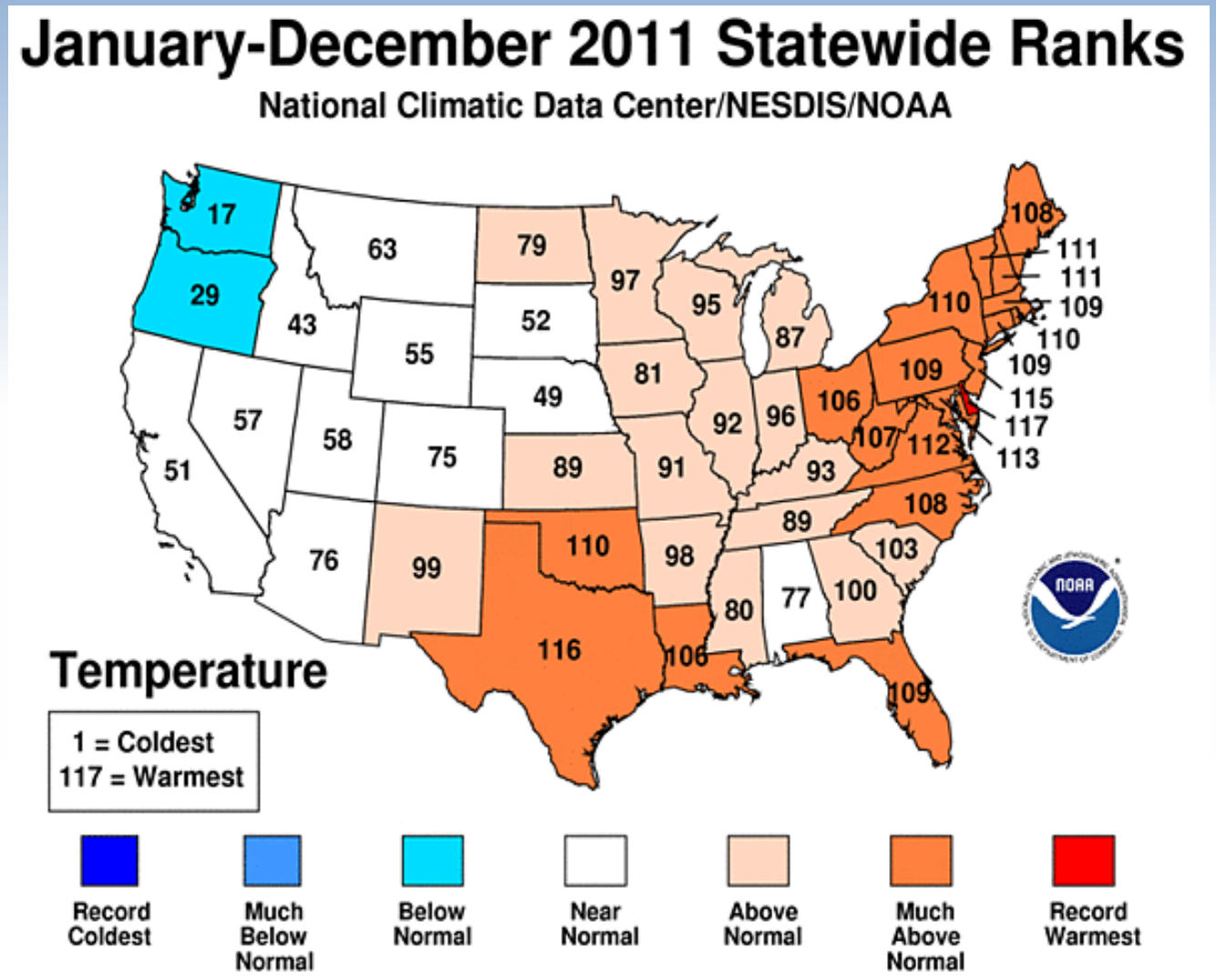
- **Land & ocean:**
  - +0.51 C / 0.92 F
  - 11th warmest on record (tied)
  - 2nd coolest year of 21st C. (2008)
  - Equal to 2nd warmest of 20th C.
- **Land:**
  - +0.83 C / 1.49 F
  - 8th warmest
- **Ocean:**
  - +0.40 C / 0.72 F
  - 11th warmest (tied)

La Niña & Global Temps

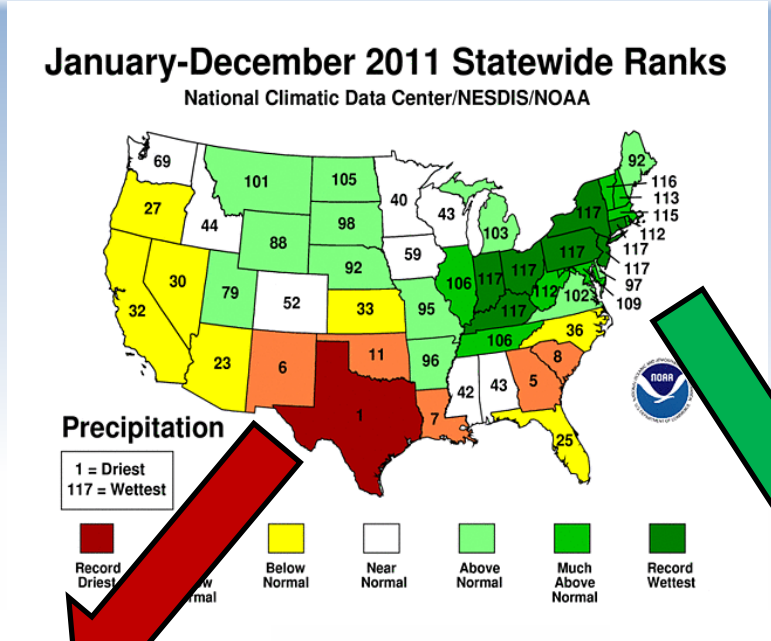
This year was the warmest "La Niña year" on record for the land, the ocean and the combined temperatures. La Niña years are defined as having the first three months of the year in La Niña, as determined by NOAA's Climate Prediction Center.

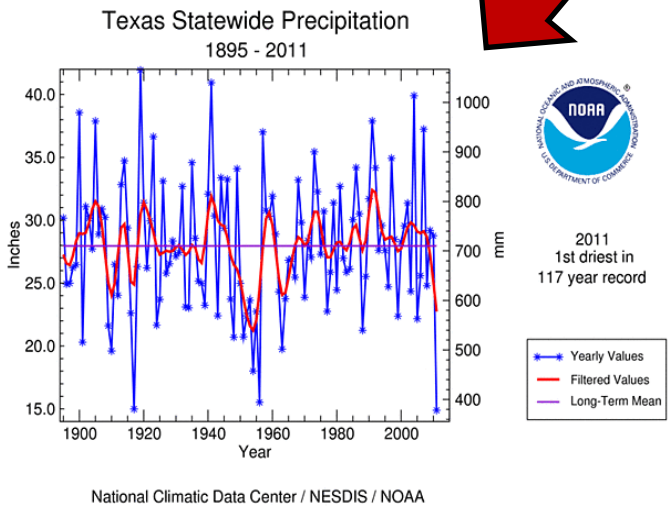


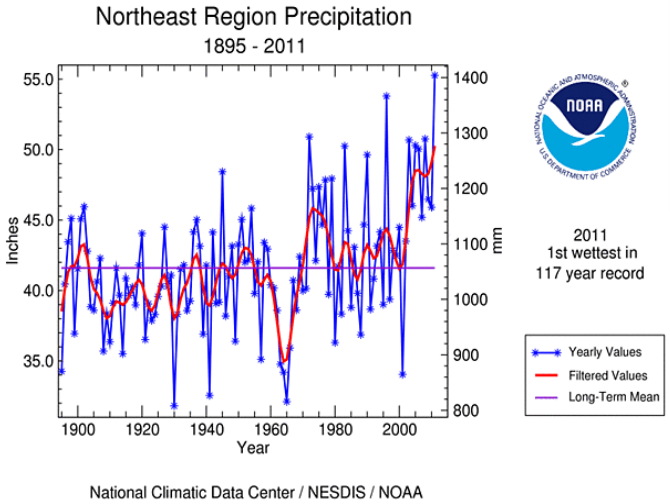
U.S. Annual Temperature Ranks



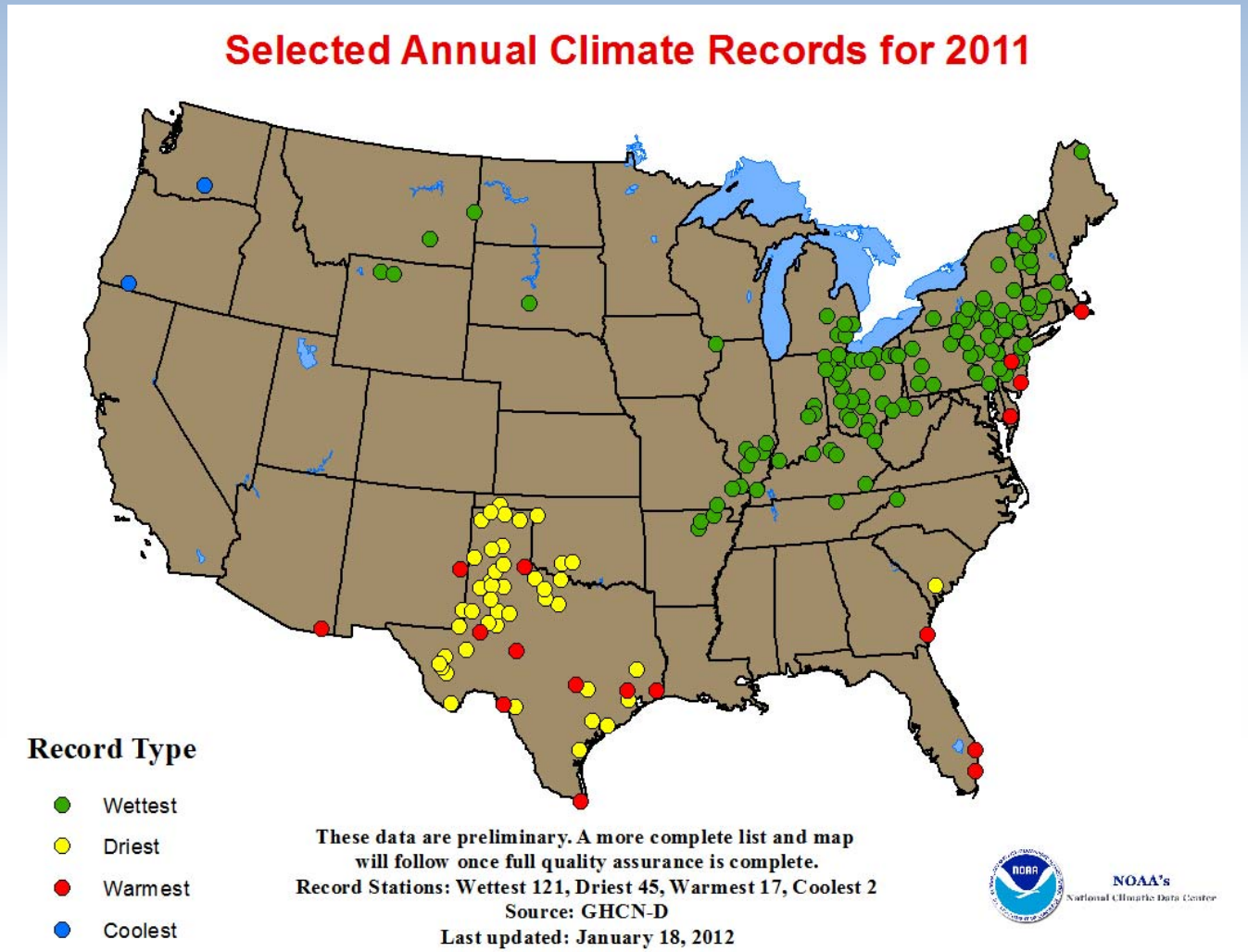
U.S. Annual Precipitation Ranks





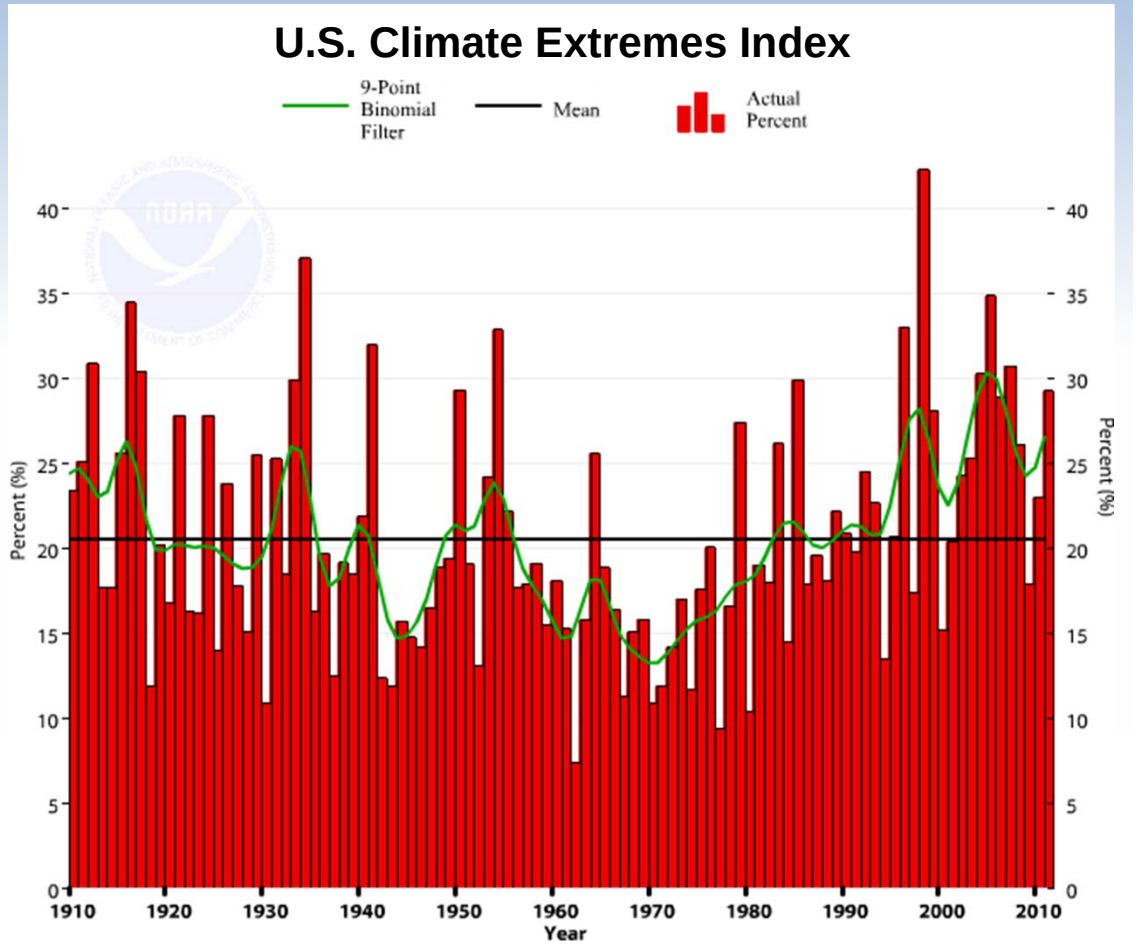


Climate of 2011 in the U.S. – A year of Extremes

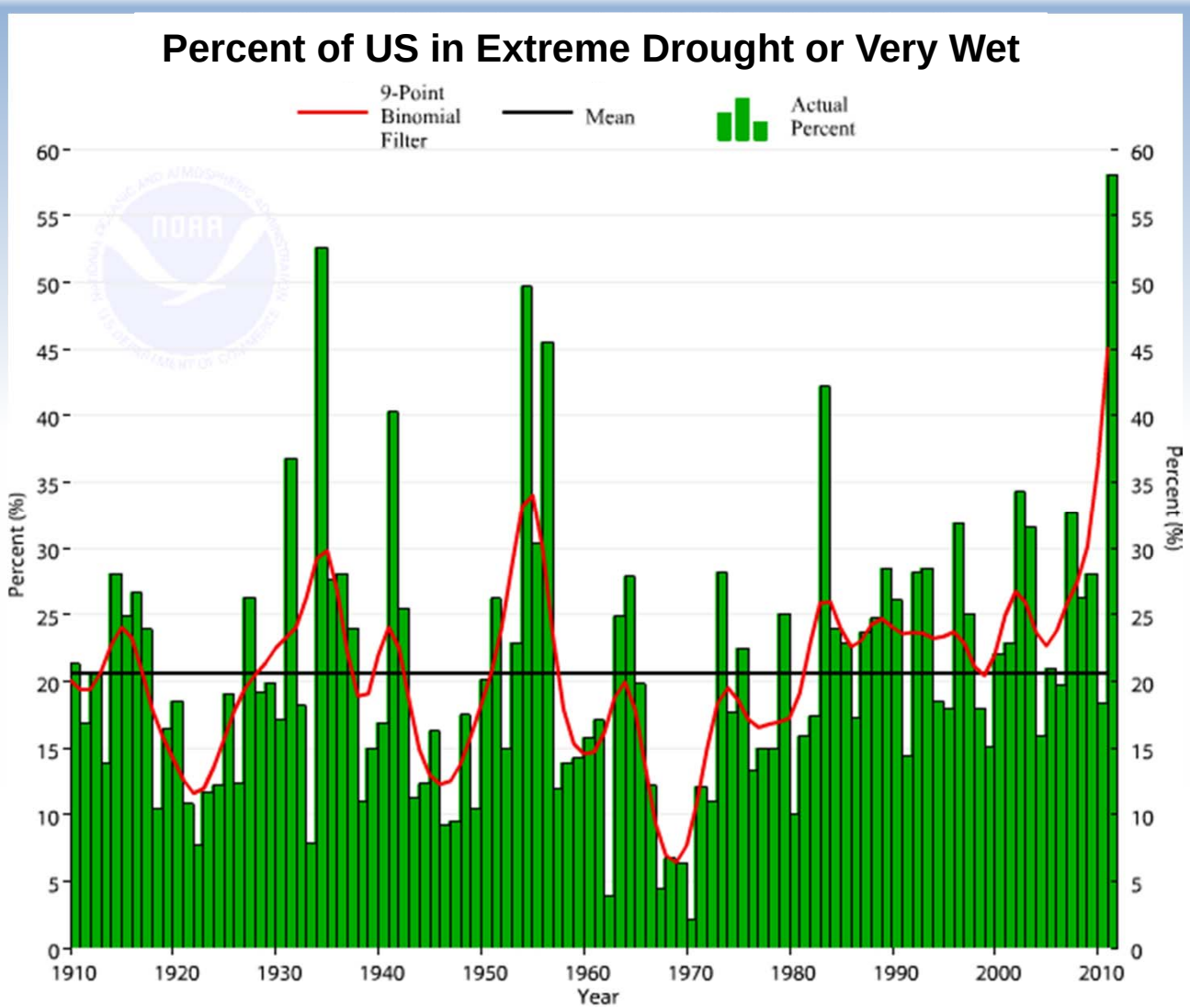


Climate of 2011 in the U.S. – A year of Extremes

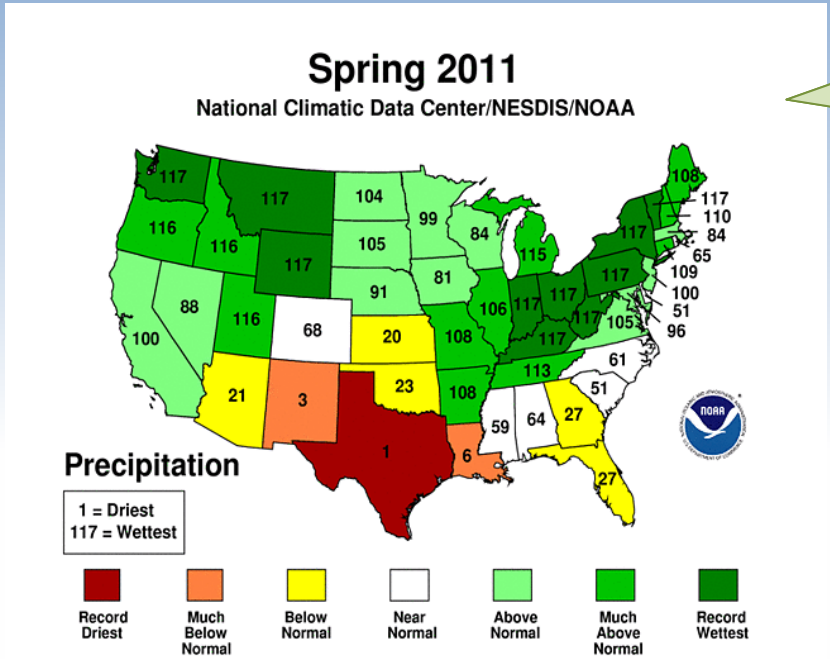
CEI Component (type of extreme)	2011's Historical Fit
Max. Temperature ("afternoon highs")	Above Normal
Min. Temperature ("overnight lows")	Above Normal
Palmer Drought Severity Index	Record High
1-Day Precipitation	Above Normal
Days with/without Precipitation	Above Normal
Landfalling Tropical Cyclones	Near Normal
Total	**29.3** Above Normal



Precipitation Extremes

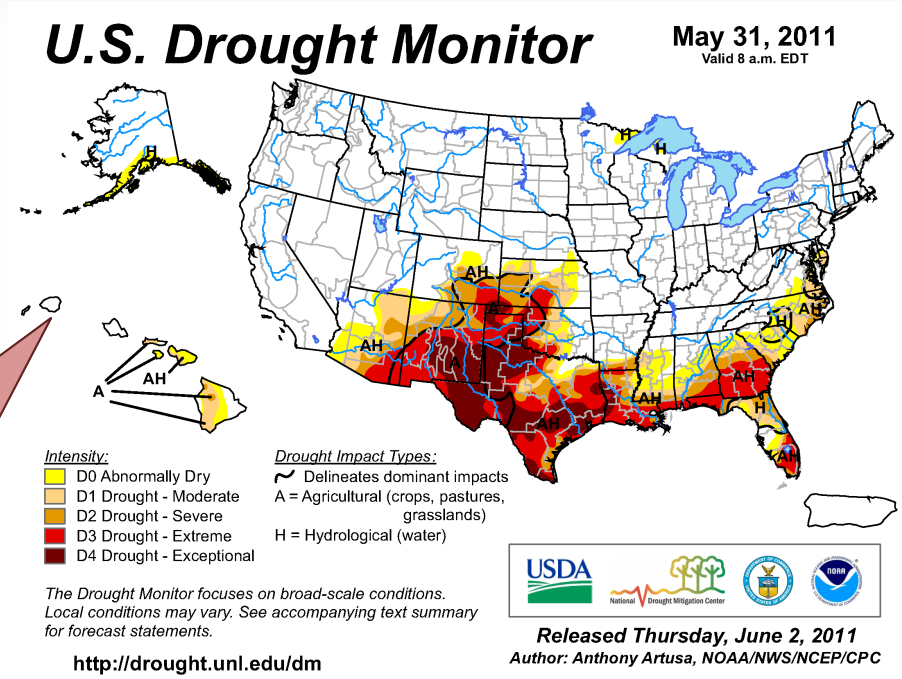


Spring Precipitation Extremes



Spring (March-May) Precipitation

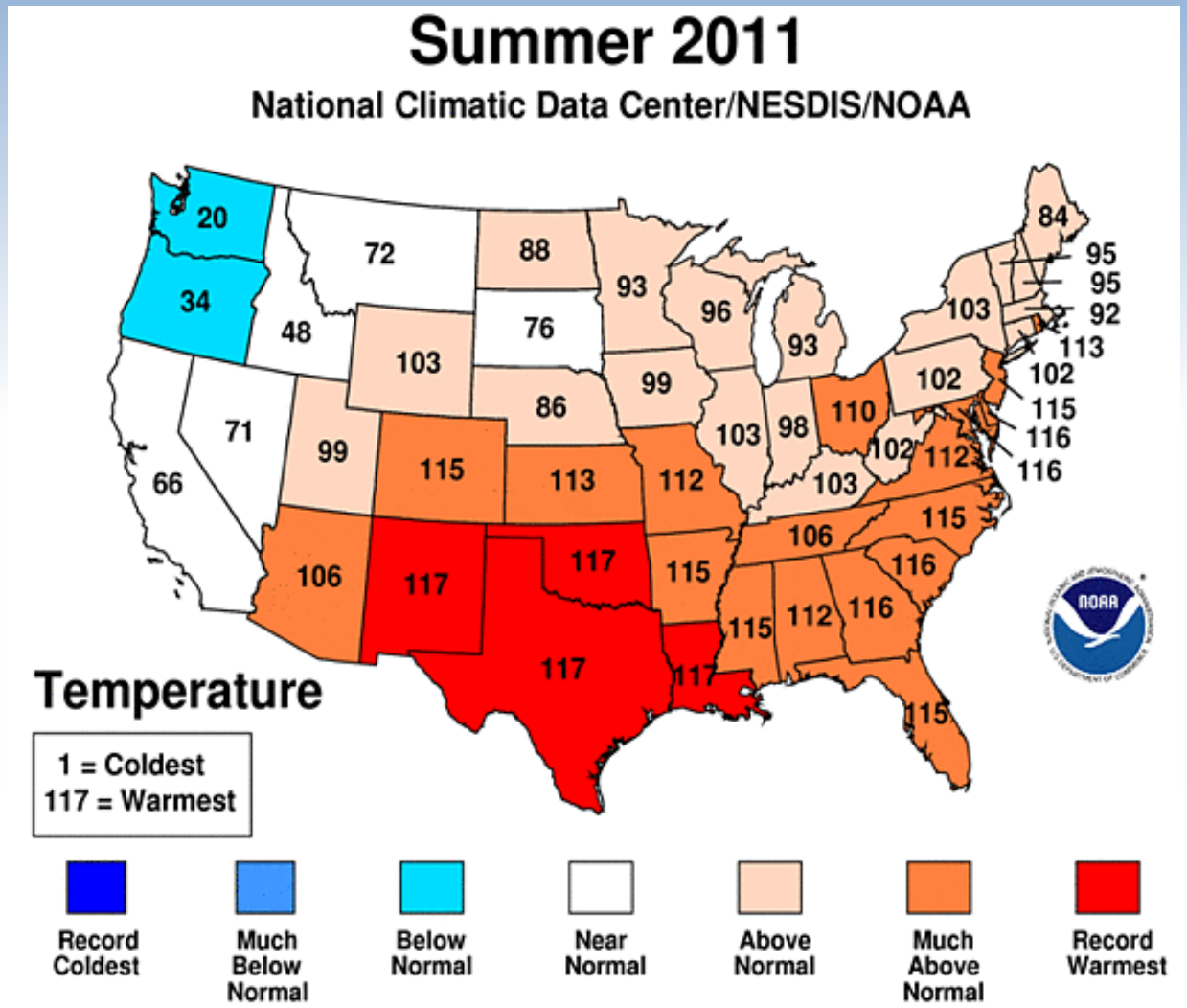
- 10 states record wet across the northern U.S.
- 11 additional states top ten wet.
- Spring precipitation, combined with snow melt, contributed to historic flooding.
- Texas was record dry – precipitation more than 5 inches below average.



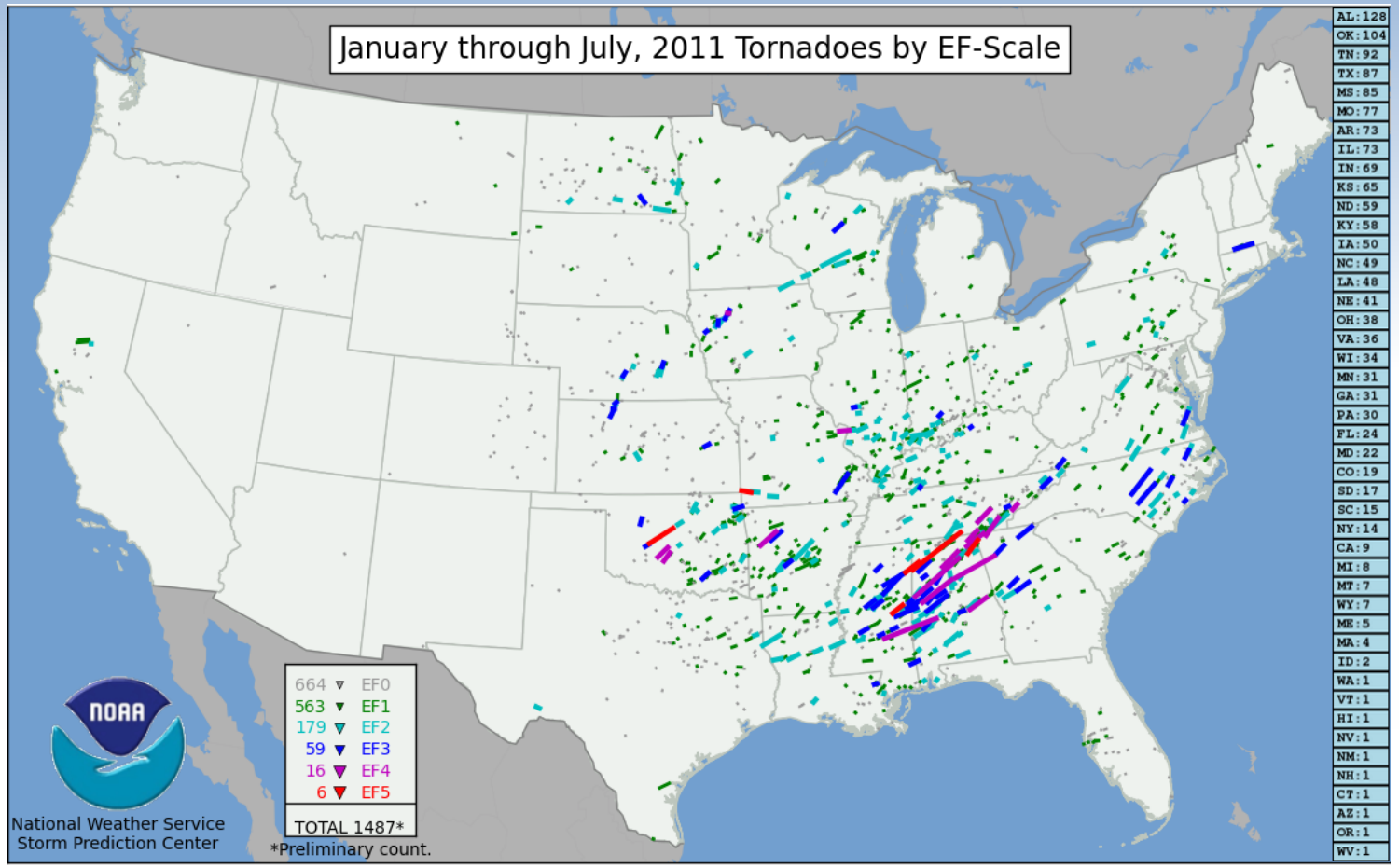
Drought and Wildfires

- Exceptional Drought developed across the Southern Plains, Gulf Coast, and Southeast.
- Very dry conditions contributed to a record wildfire season – 3.2 million acres burned nationwide.
- Lack of spring rains was a precursor to the summer drought.

U.S. Summer Temperatures



U.S. Tornadoes



Top Ten Weather / Climate Events of 2011

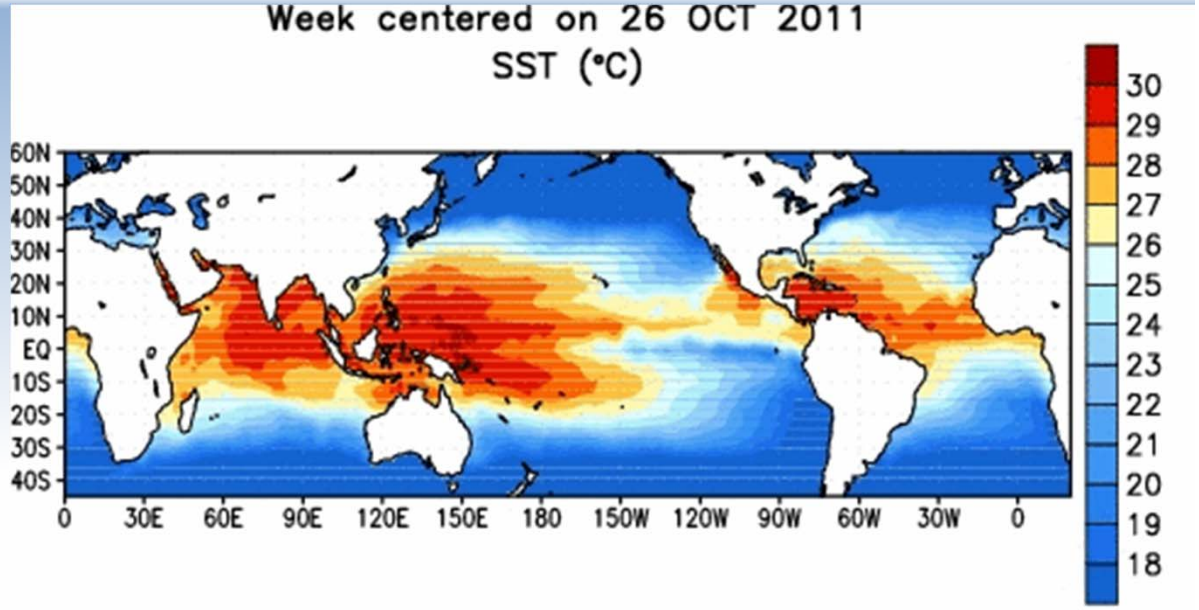
- Climate scientists within NCDC and in partner/peer institutions in the U.S. and around the world voted on the top ten events of 2011.
- The criteria were significance in:
  - Physical science: Unusual / Rare / Extreme
  - Impacts: on people, property and governance
  - Emblematic / Indicative of major trends in variability or change

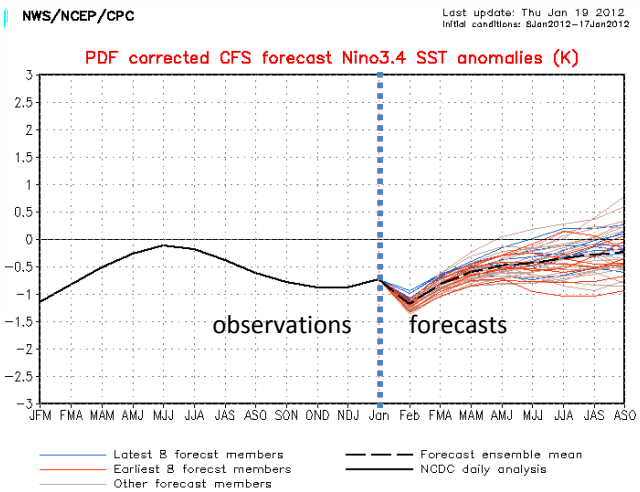
Rank	United States Event
1	April 25-28 Tornado Super Outbreak
2	Southern Drought
3	Joplin Tornado
4	River Flooding on the Mississippi and Ohio
5	Hottest Statewide Summers on Record for OK, TX
6	Hurricane Irene
7	Flooding on the Missouri and Environs
8	U.S. Wildfire Season
9-tie	April 14-16 Tornado Outbreak
9-tie	Tropical Storm Lee

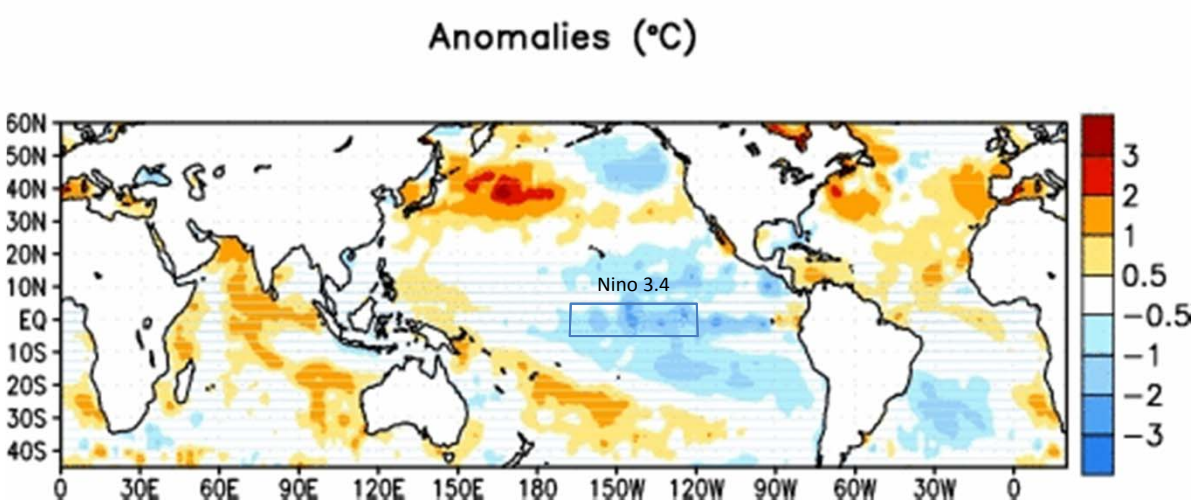
Rank	Global (non-US) Event
1	Drought in eastern Africa
2	Thailand Flooding
3	Flooding across eastern Australia
4	Double-Dip La Niña
5	Flash Floods in Brazil
6	Tropical Storm Washi (Sendong)
7	Arctic Sea Ice Extent
8	Heavy Rain and Flooding in Colombia
9	Drought in Mexico
10	Drought across Europe

Current El Nino/Southern Oscillation (ENSO) Status

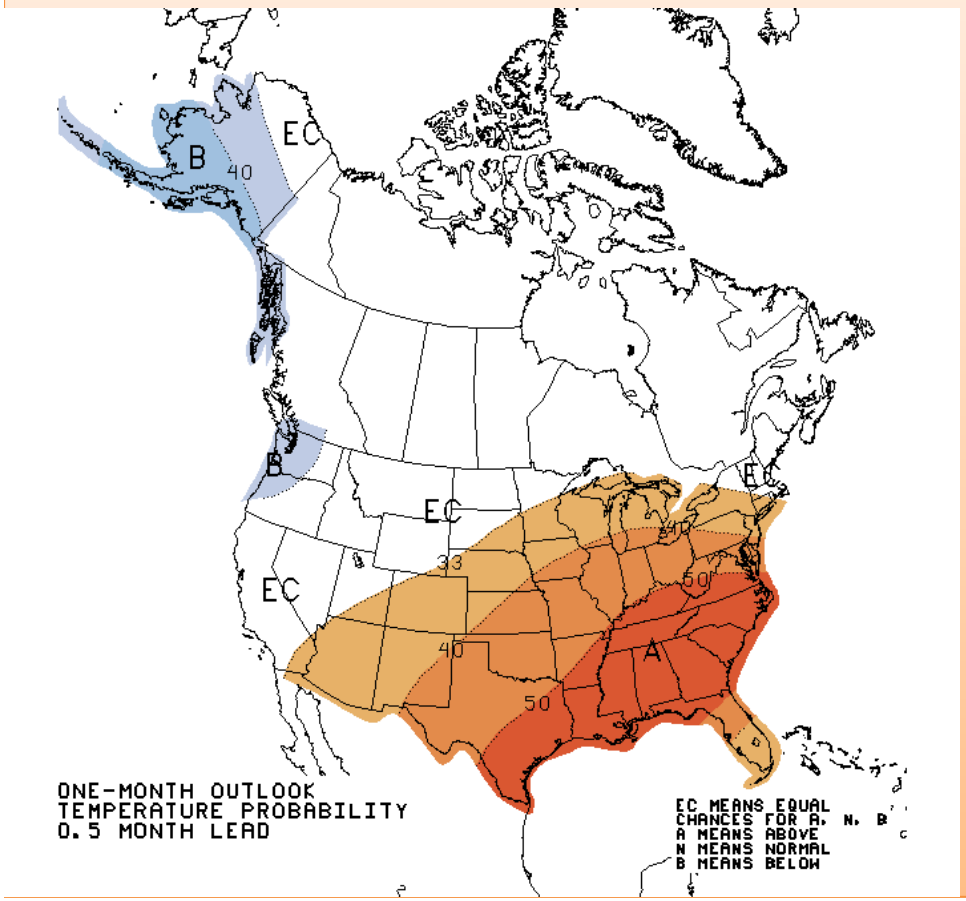
La Niña continues, likely, through early spring

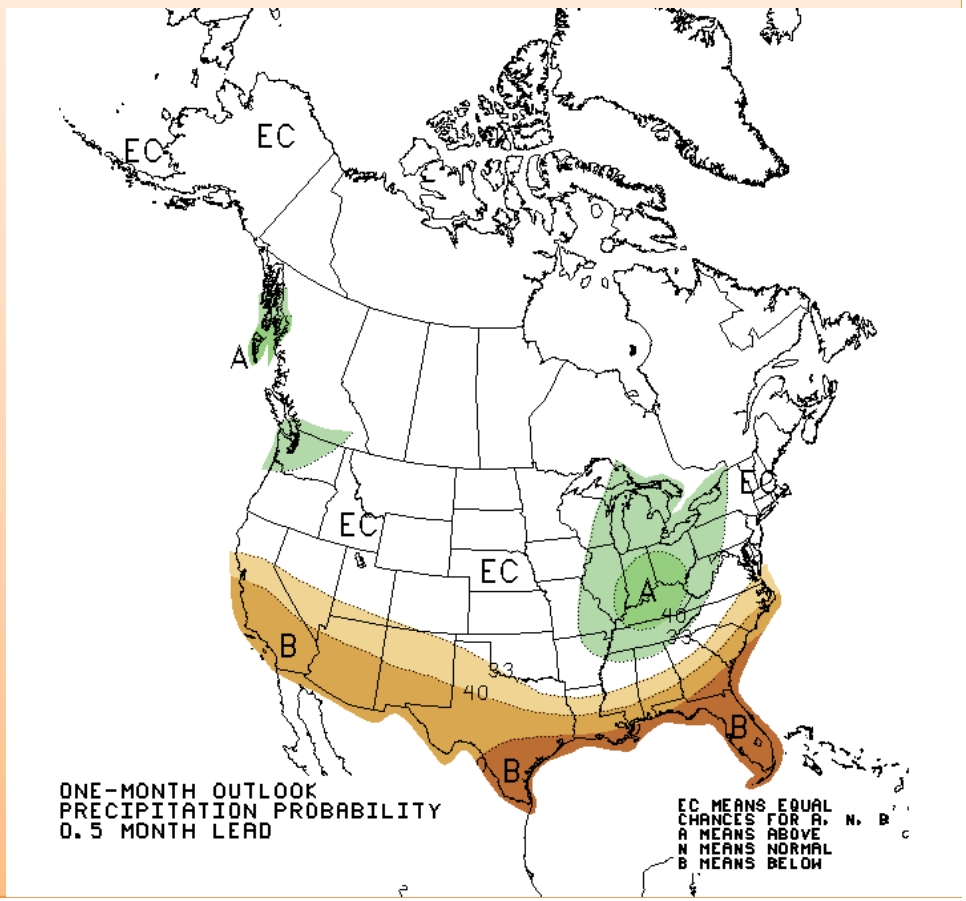




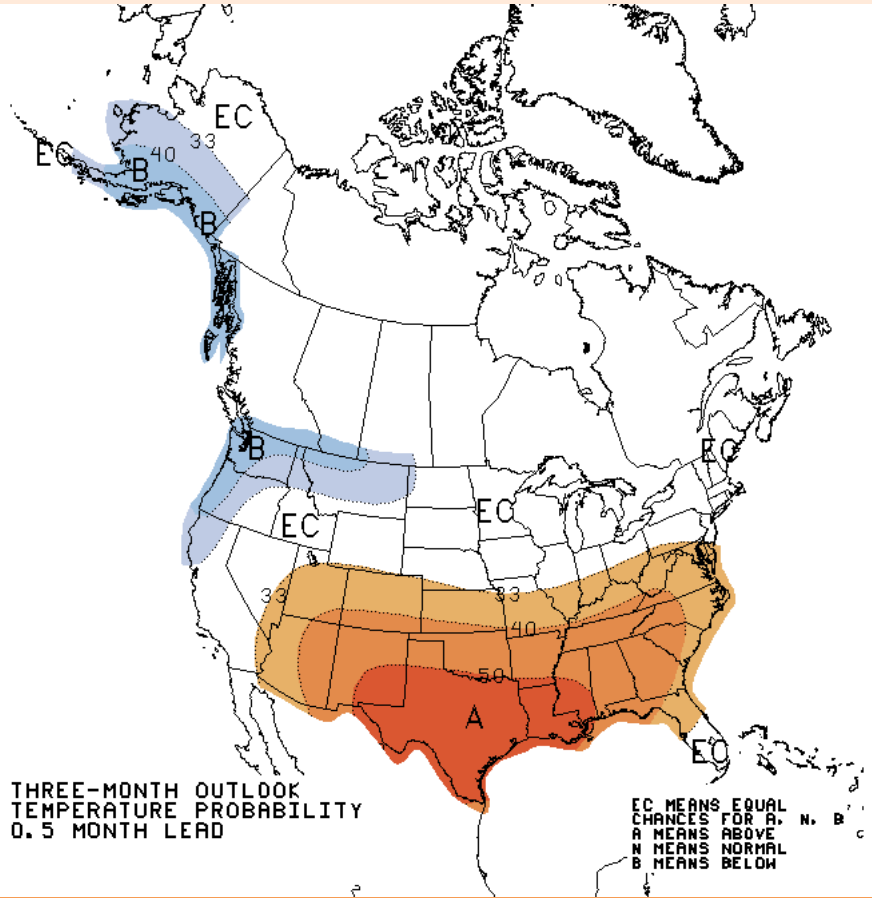


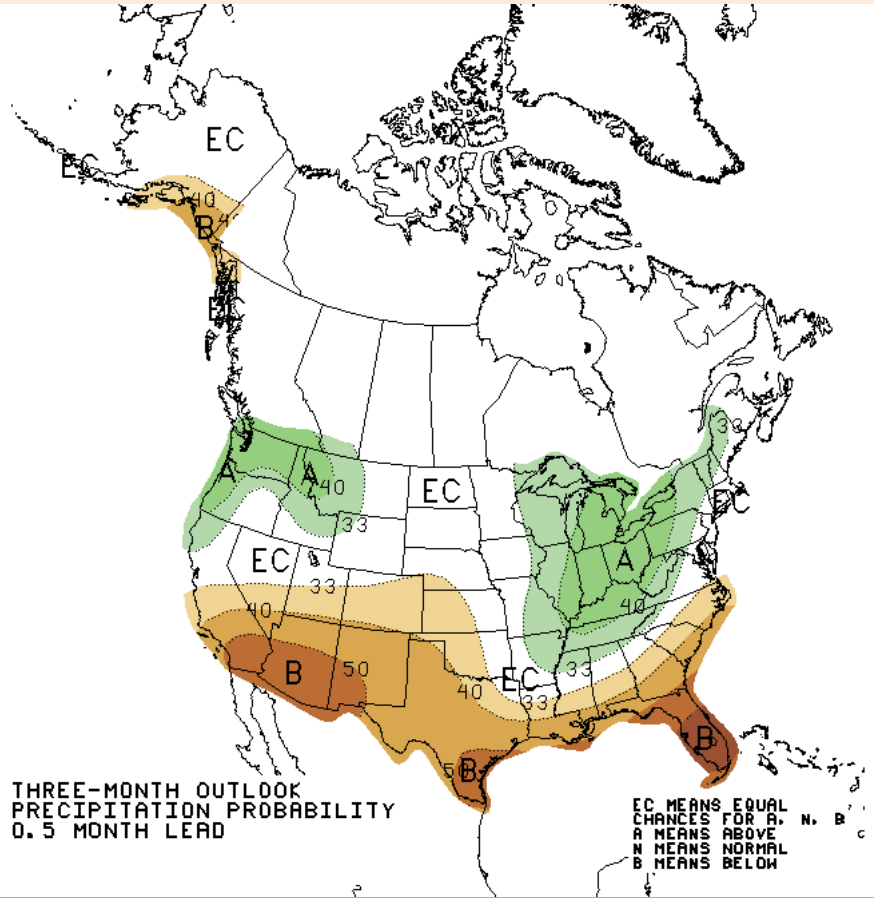
1-Month Temperature and Precipitation Outlooks





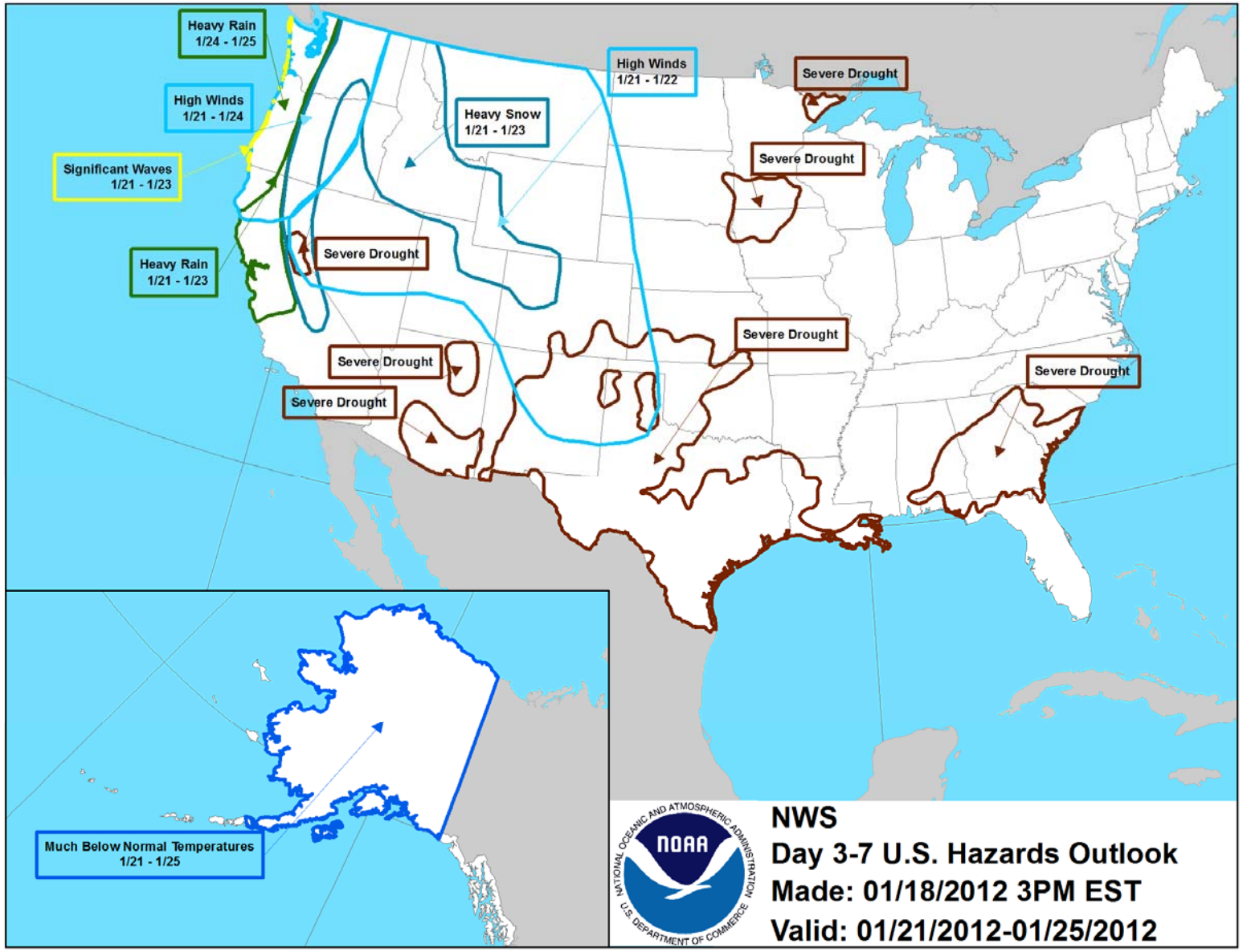
3-Month Temperature and Precipitation Outlooks





U.S. Hazards Outlook for Days 3-14

(produced 01/18/12)



For More Information

- Today's Presentation:
  http://www.ncdc.noaa.gov/sotc/briefings
- NOAA's National Climatic Data Center: www.ncdc.noaa.gov
  — Monthly climate reports (U.S. & Global): www.ncdc.noaa.gov/sotc/
- NOAA's Climate Prediction Center: www.cpc.ncep.noaa.gov
- Climate Portal: www.climate.gov
- U.S. Drought Monitor: www.drought.gov