

NOAA Climate Science & Services

Monthly Climate Update

A look back at November

A preview of January - March

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Climate Scientist

NOAA's National Climatic Data Center

Michael Brewer

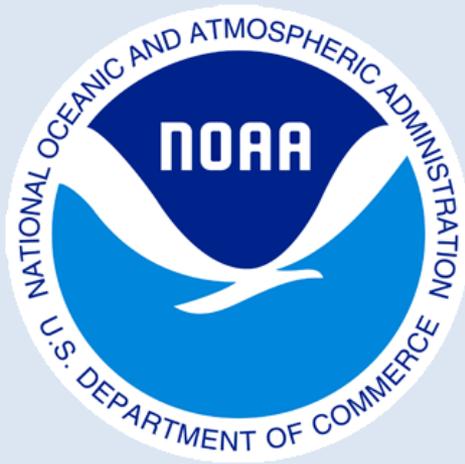
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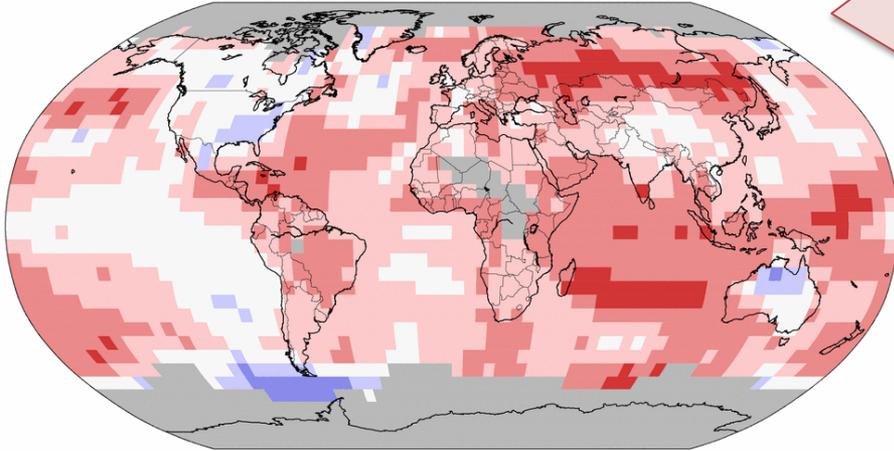


Global Climate Highlights

Land & Ocean Temperature Percentiles Nov 2013

NOAA's National Climatic Data Center

Data Source: GHCN-M version 3.2.2 & ERSST version 3b



Thu Dec 12 08:33:46 EST 2013

November 2013 Temperatures:

- Warmest November globally (+0.78°C/+1.40°F).
- Sixth largest departure from average for any month on record (1,607 months of data).
- 37th consecutive Nov. warmer than 20th C average.
- Land: 2nd warmest; Ocean: Tied 3rd warmest.

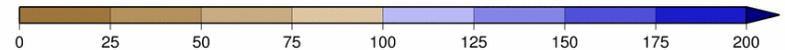
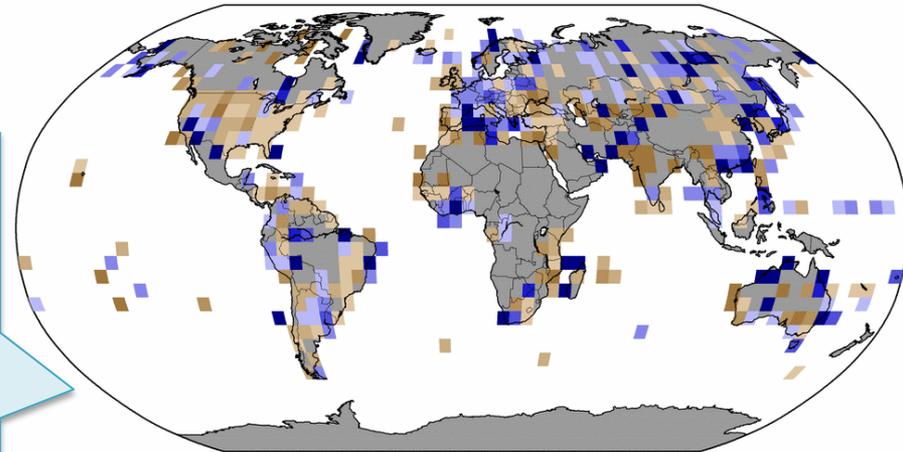
Regional Analysis:

- Russia: Warmest November in 123-year record.
- Spain: Coolest November since 1985.

Land-Only Precipitation Percent of Normal Nov 2013

(with respect to a 1961–1990 base period)

Data Source: GHCN-M version 2



NOAA's National Climatic Data Center
Thu Dec 12 07:55:08 EST 2013

Percent

Please Note: Gray areas represent missing data
Map Projection: Robinson

- Typhoon Haiyan brought storm surge, strong winds, heavy rain, and major flooding to the Philippines, Taiwan, Vietnam, and China. Haiyan was the deadliest Typhoon in Filipino history – over 6,000 fatalities.

Snow Cover: Northern Hemisphere snow cover extent above average—16th largest in 48-year period of record. N. America: 3rd highest; Eurasia: 18th smallest

Global Climate Highlights

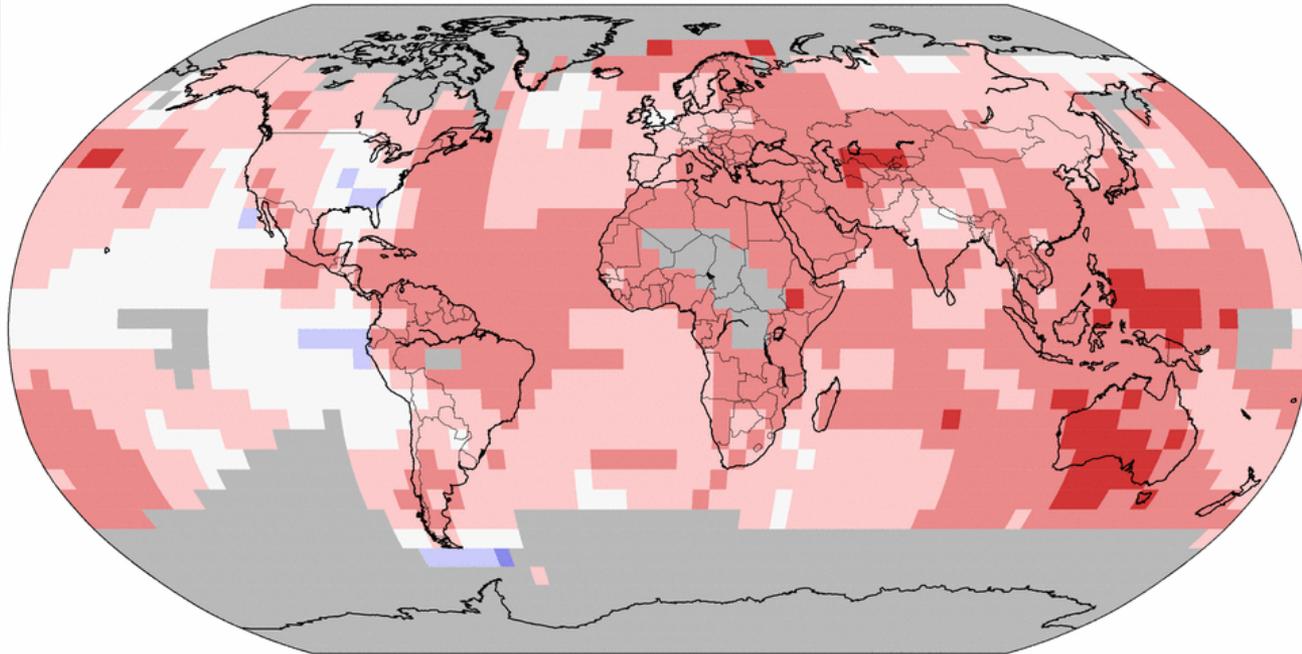
January–November Global Temperature

Tied 2002 as 4th warmest year-to-date on record (+0.62°C/+1.12°F)

Land & Ocean Temperature Percentiles Jan–Nov 2013

NOAA's National Climatic Data Center

Data Source: GHCN–M version 3.2.2 & ERSST version 3b



Record Coldest

Much Cooler than Average

Cooler than Average

Near Average

Warmer than Average

Much Warmer than Average

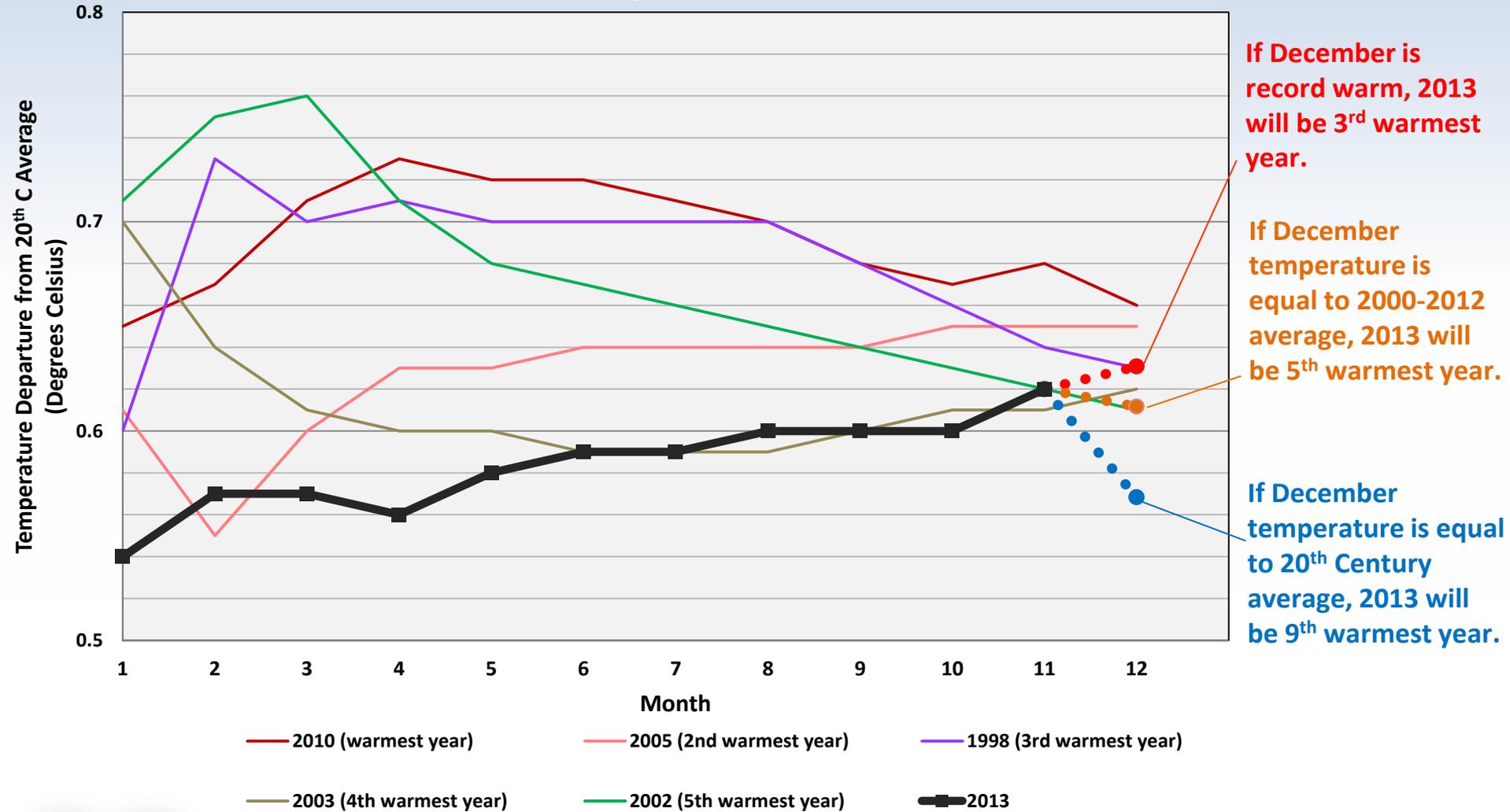
Record Warmest



Thu Dec 12 08:33:46 EST 2013

Global Climate Highlights

2013 Annual Global Temperature Outcome Scenarios

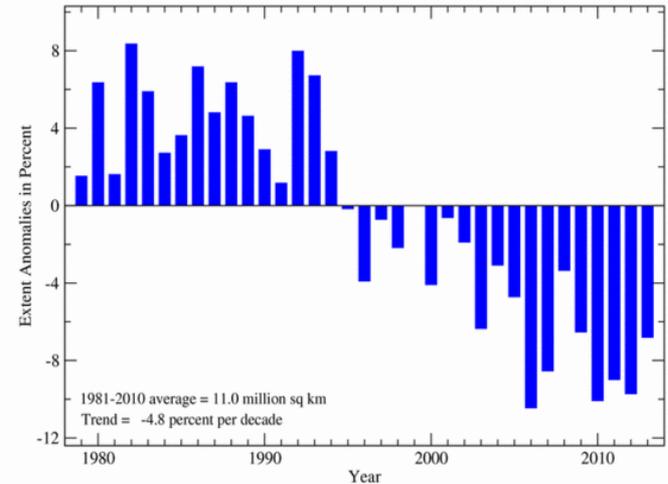


Global Climate Highlights

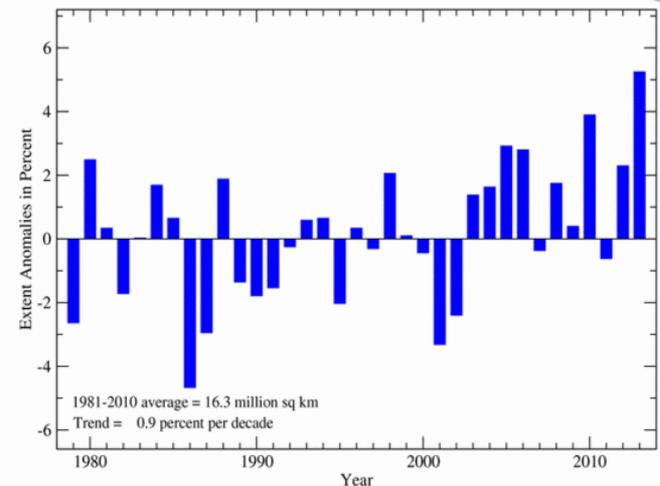
Global Sea Ice Conditions

- Arctic sea ice extent 6.82 percent below average – the 6th smallest November extent on record.
- Antarctic sea ice extent 5.28 percent above average. The record largest November extent on record, surpassing November 2010.
- Last four months have had record large Antarctic sea ice extent.
- Global sea ice was 0.40 percent above average and the 12th largest for the month. This was the largest November global sea ice extent since 1994.

Northern Hemisphere Sea Ice Extent
November Anomalies, 1979-2013



Southern Hemisphere Sea Ice Extent
November Anomalies, 1979-2013



Data provided by the National Snow and Ice Data Center (NSIDC)

U.S. Climate Highlights – Autumn

Nation slightly warmer and wetter than average

Alaska had 10th warmest autumn in 96-year period of record

Temperature: 0.5°F above average

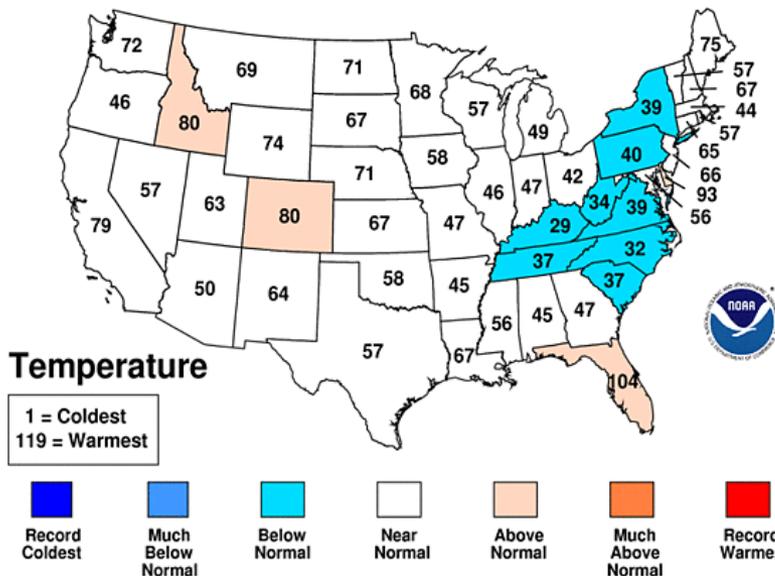
- Most locations near average for the season.
- **Cool:** Parts of Ohio Valley. Southeast, Northeast.
- **Warm:** FL and parts of the West.

Precipitation: 0.52” above average – 34th wettest

- **Dry:** Southeast, Northeast, Mid-Mississippi Valley. CA had 10th driest autumn, record dry Jan-Nov.
- **Wet:** High Plains and Rockies. 5 states top 10 wet.

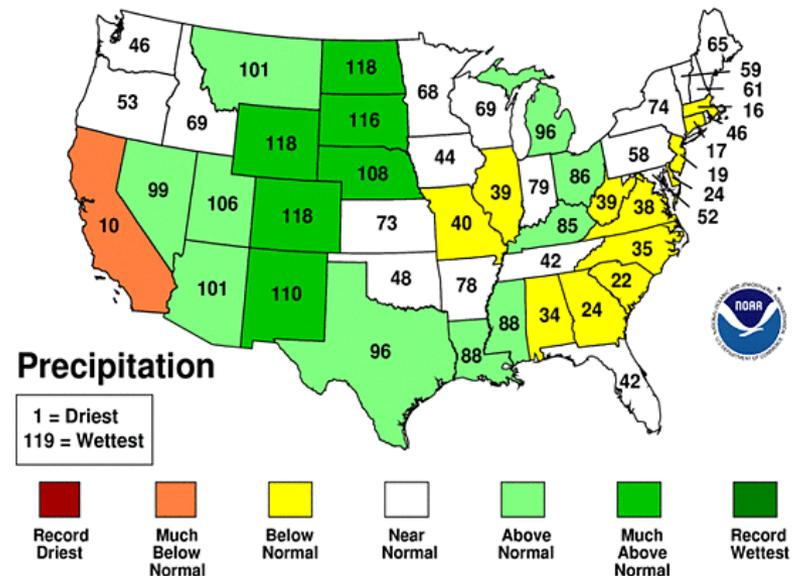
September-November 2013 Statewide Ranks

National Climatic Data Center/NESDIS/NOAA



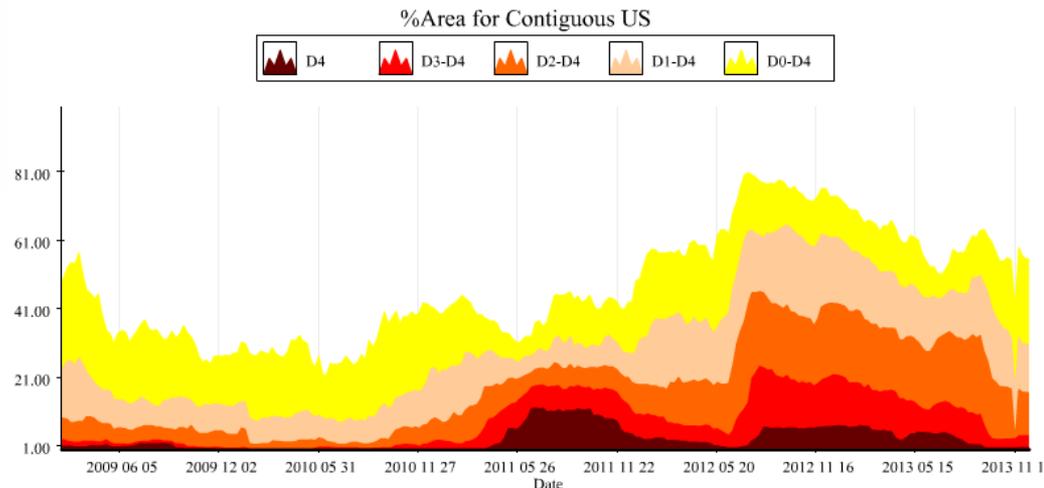
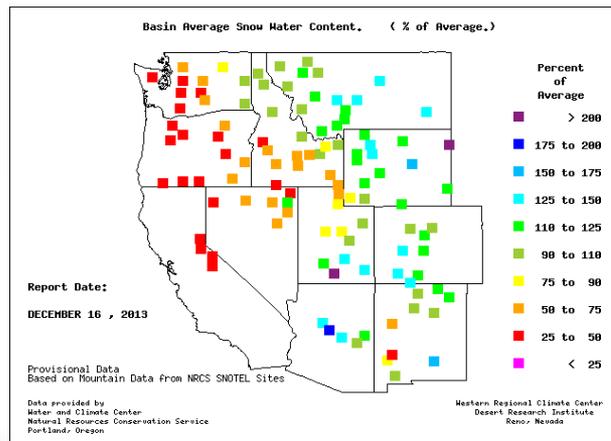
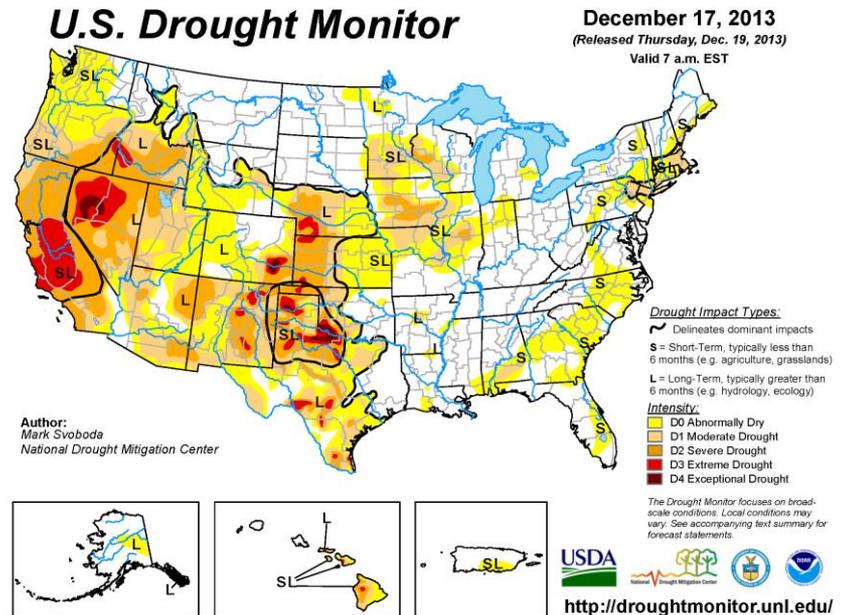
September-November 2013 Statewide Ranks

National Climatic Data Center/NESDIS/NOAA



November 2013 US Drought

- 31.5% of CONUS in drought
- Drought episode extent smallest in nearly two years
- Cool temperatures in the north means little relief over frozen soils
- Dry in the Southwest –
 - Call for drought declaration in California
 - Largest extent of Extreme Drought in California since November 2007
- Drought entrenched in West but Rockies snowpack starting OK



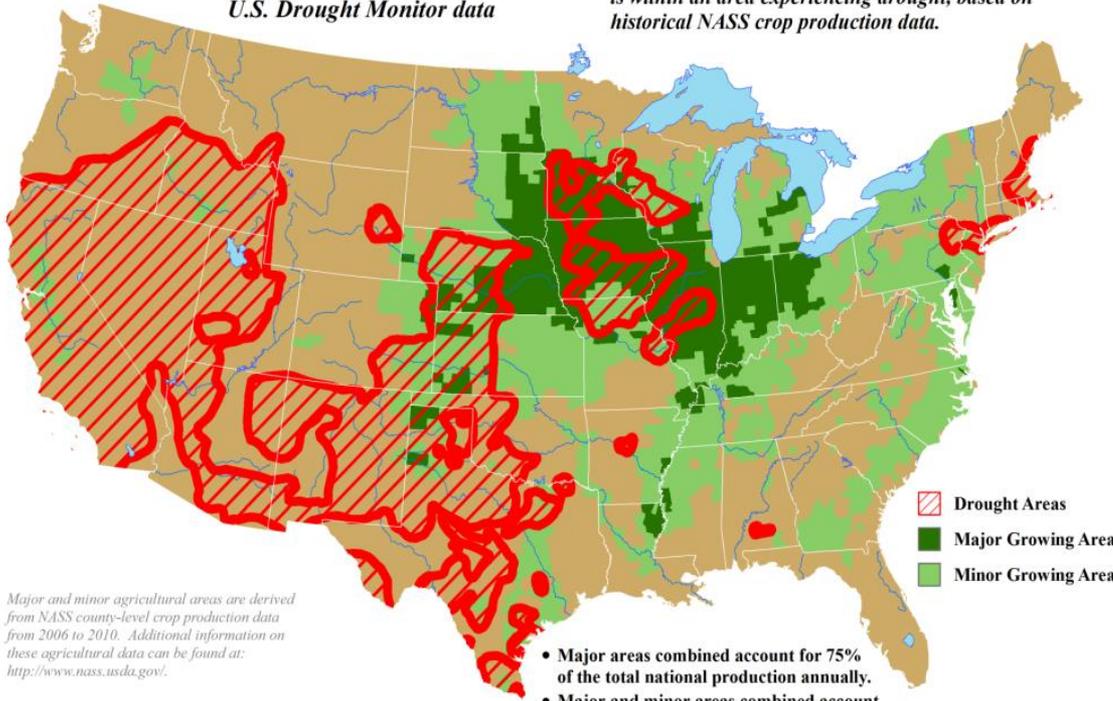
November 2013 US Drought

- Conditions improve for many major agricultural commodities

U.S. Corn Areas Experiencing Drought

Reflects December 10, 2013
U.S. Drought Monitor data

Approximately 29% of the corn grown in the U.S. is within an area experiencing drought, based on historical NASS crop production data.



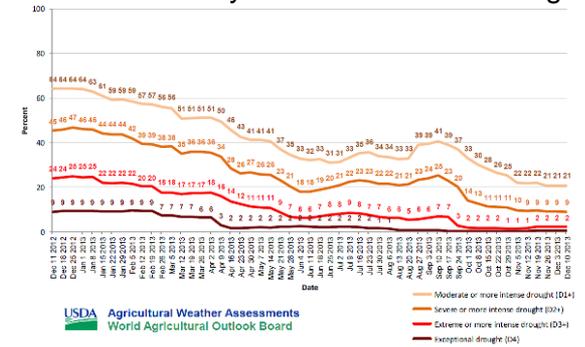
Major and minor agricultural areas are derived from NASS county-level crop production data from 2006 to 2010. Additional information on these agricultural data can be found at: <http://www.nass.usda.gov/>.

- Major areas combined account for 75% of the total national production annually.
- Major and minor areas combined account for 99% of the total national production annually.

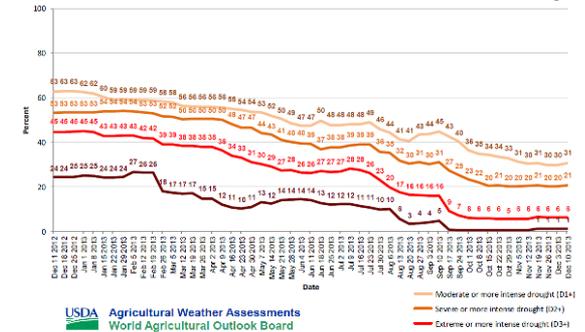
USDA Agricultural Weather Assessments
World Agricultural Outlook Board

Mapped drought areas are derived from the U.S. Drought Monitor product and do not depict the intensity of drought in any particular location. More information on the Drought Monitor can be found at: <http://droughtmonitor.unl.edu/>.

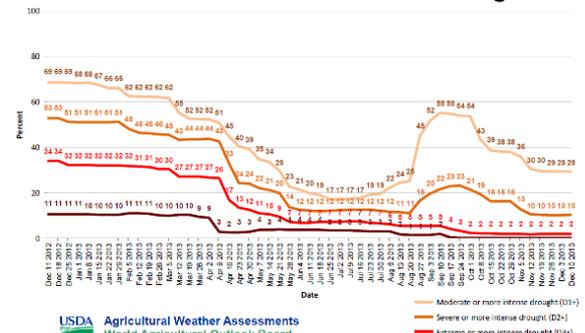
United States Hay Areas Located in Drought



U.S. Winter Wheat Areas Located in Drought

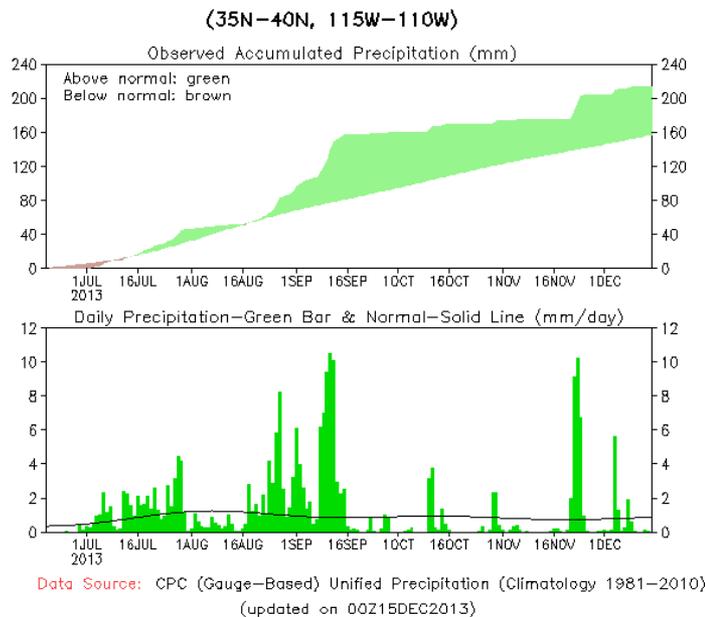


U.S. Corn Areas Located in Drought



November North American Drought

- 11.7% of continent in drought
- Least amount of drought since January, 2011
- Improvements in northern latitudes which had a dry end of summer/fall
- Very low amount of drought in Mexico
 - Good monsoons season in many locations
 - Continued above normal precipitation



North American Drought Monitor

November 30, 2013

Released: Tuesday December 10, 2013

<http://www.drought.gov/nadm/>

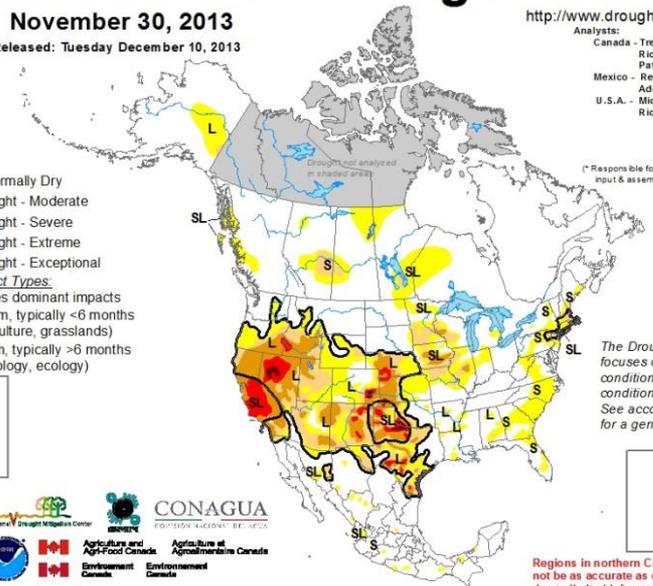
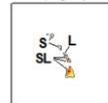
Analysts:
Canada - Trevor Madwin
Richard Rieger
Patrick Bell
Mexico - Reynaldo Pascual
Adelina Albanil
U.S.A. - Michael Brewer
Richard Heim

Intensity

- D0 Abnormally Dry
- D1 Drought - Moderate
- D2 Drought - Severe
- D3 Drought - Extreme
- D4 Drought - Exceptional

Drought Impact Types

- S = Short-Term, typically <6 months (e.g. agriculture, grasslands)
- L = Long-Term, typically >6 months (e.g. hydrology, ecology)

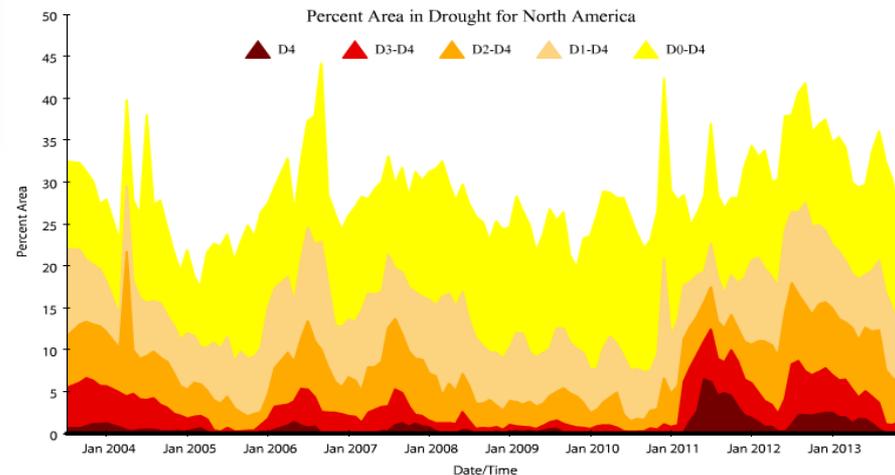


(* Responsible for onboarding analysts' input & assembling the NA-DM map)

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text for a general summary.



Regions in northern Canada may not be as accurate as other regions due to limited information.



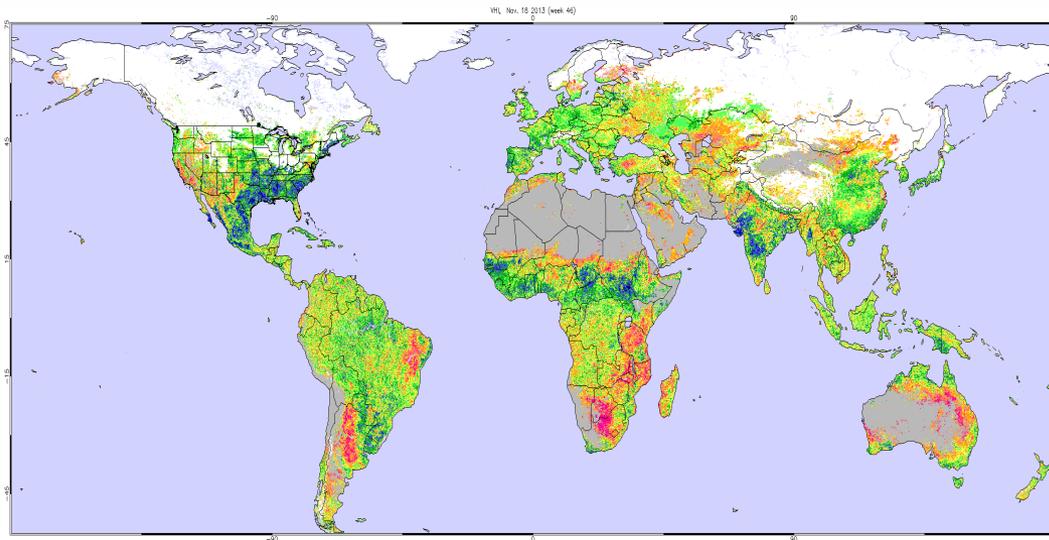
November 2013 Global Drought

South Africa

- South Africa – numerous drought disaster declarations this year
- Corn crop hit especially hard
- R400M in aid requested by 23,000 farmers
- Corn futures climbed 23%
- Gov't call for credible early warning system

Australia

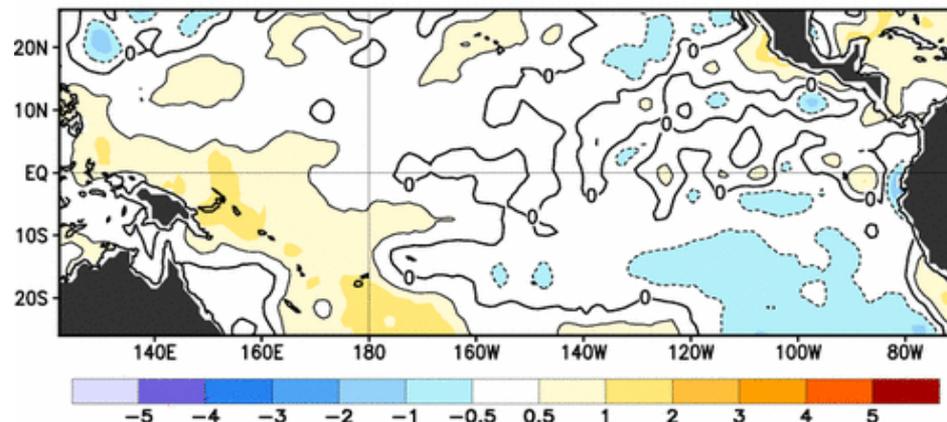
- Good rainfall in north but streamflow, pasture conditions poor elsewhere in East
- In Queensland, Emus have been driven out of the Bush by drought and are invading towns like Longreach
- Only a year since end of “Big Dry”



El Niño/La Niña Southern Oscillation (ENSO) Sea Surface Temperature Update

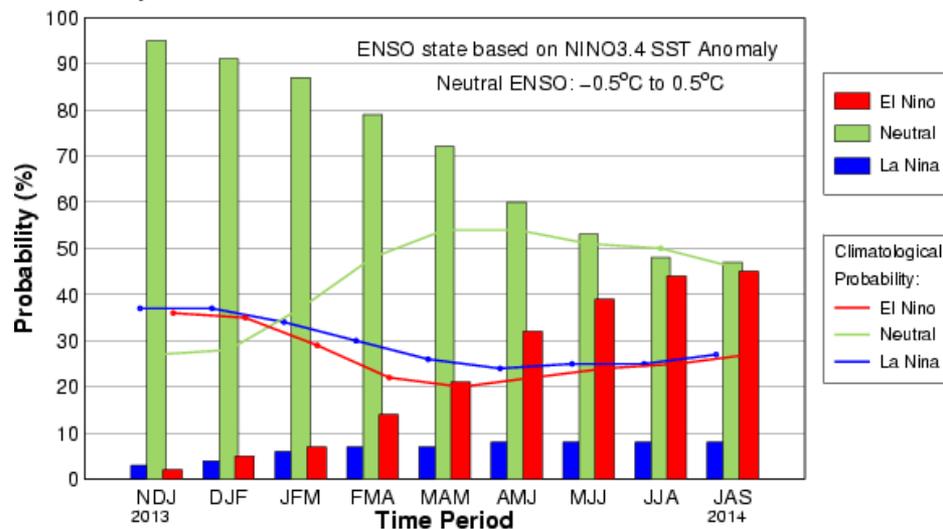
- SSTs near normal across much of Pacific.
- Warmer than normal waters west of the Date Line.
- ENSO Neutral conditions continued through Mid-Dec.
- Expected to persist into the Northern Hemisphere summer 2014.

Observed Sea Surface Temperature Anomalies (°C)



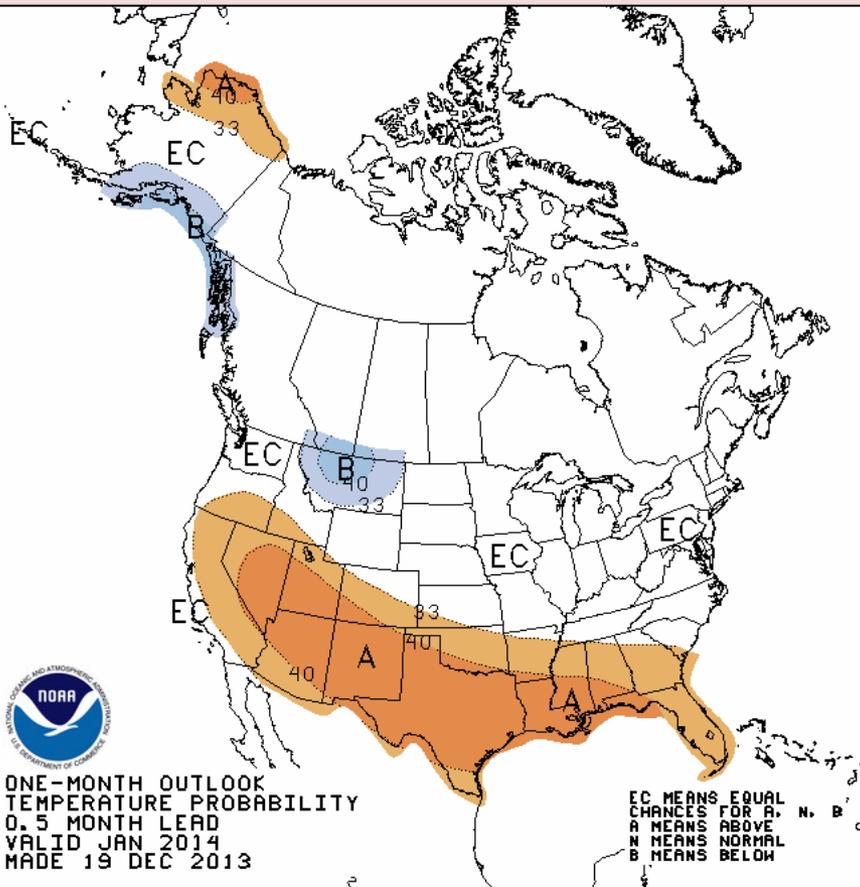
7-day Average Centered on 11 December 2013

Early-Dec CPC/IRI Consensus Probabilistic ENSO Forecast

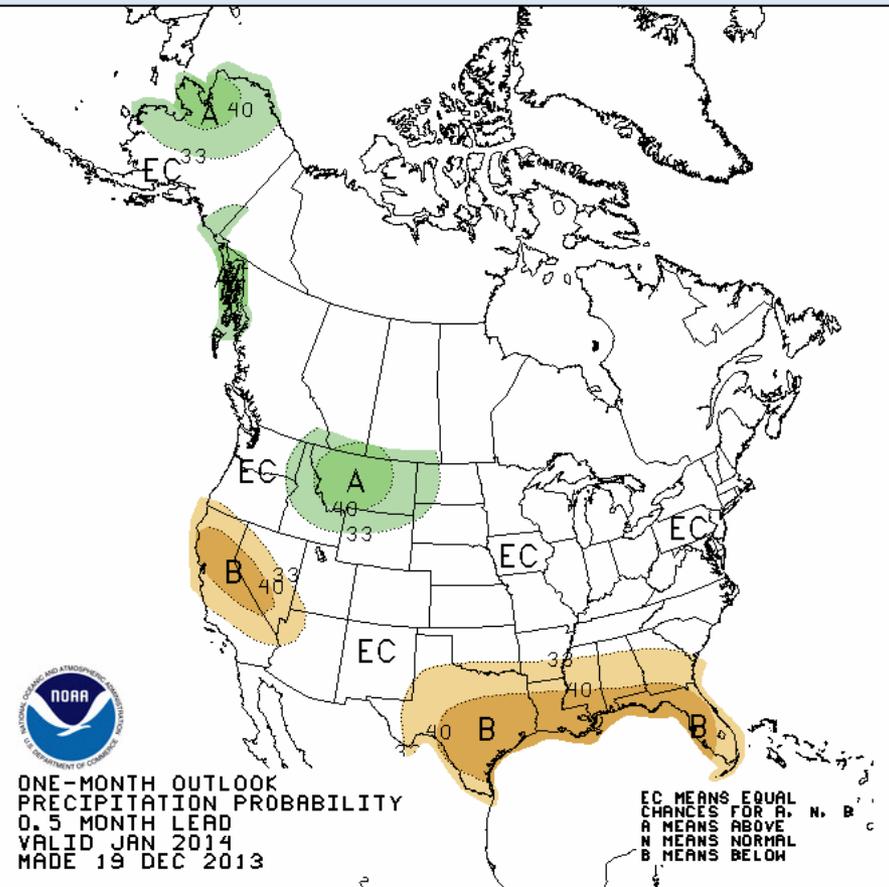


Monthly Forecast (January)

January Average Temperature Probability

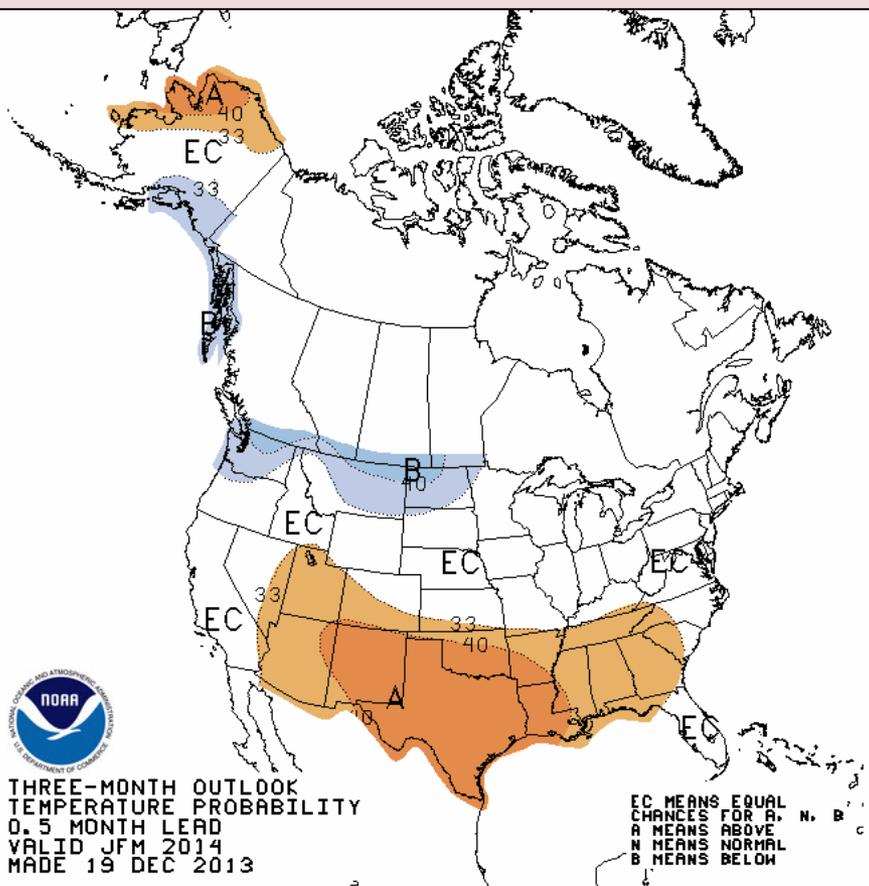


January Total Precipitation Probability

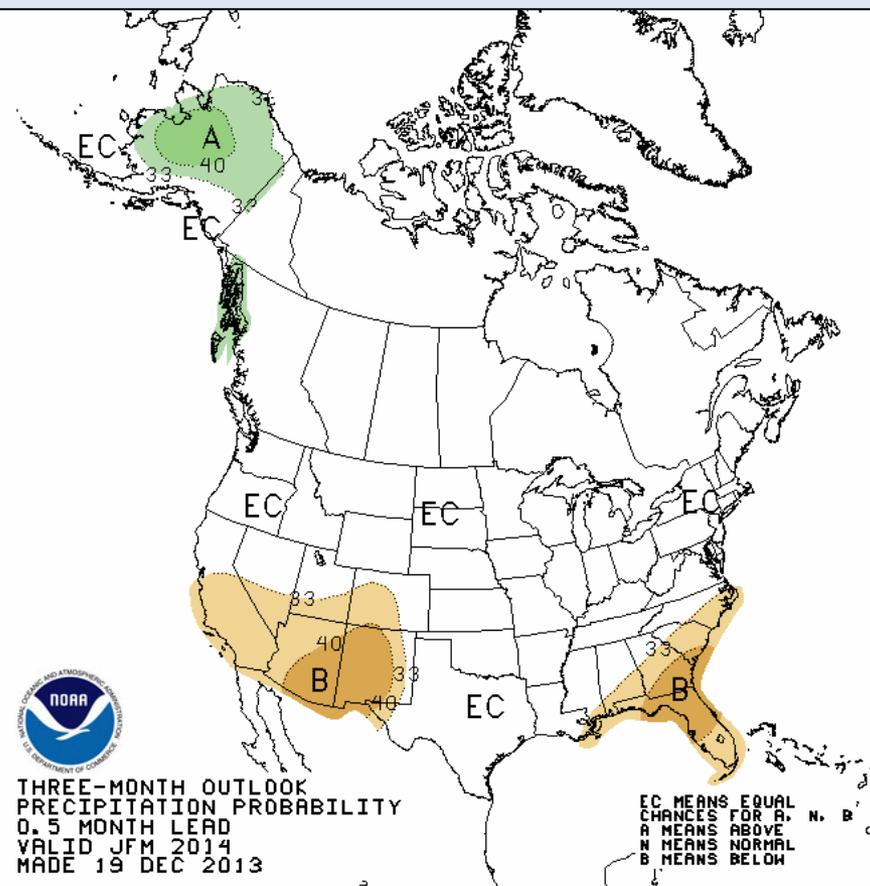


Seasonal Forecast (Jan-Feb-Mar)

Jan-Feb-Mar Average Temperature Probability

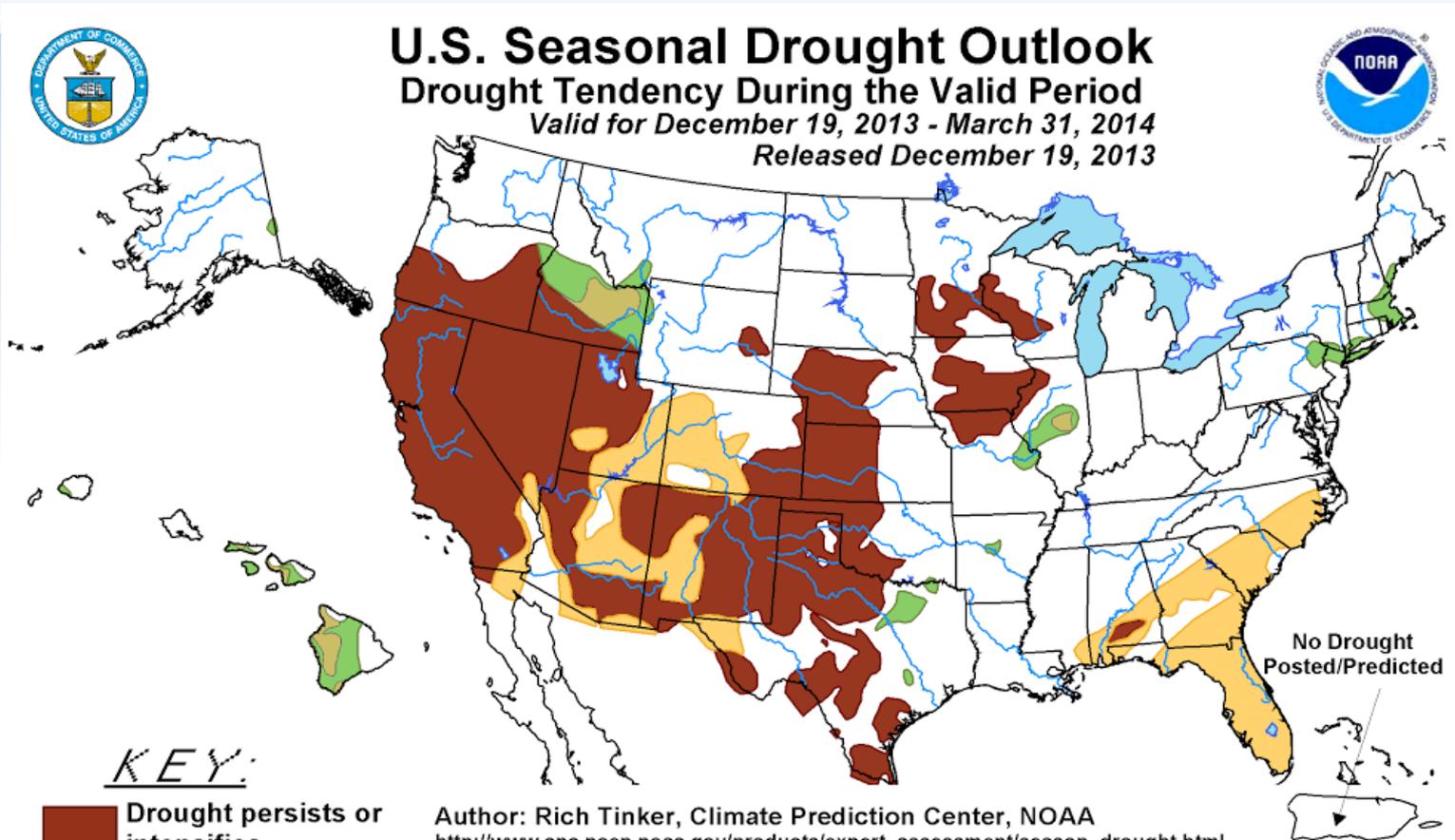


Jan-Feb-Mar Total Precipitation Probability



U.S. Drought Outlook

3-month forecast



KEY:

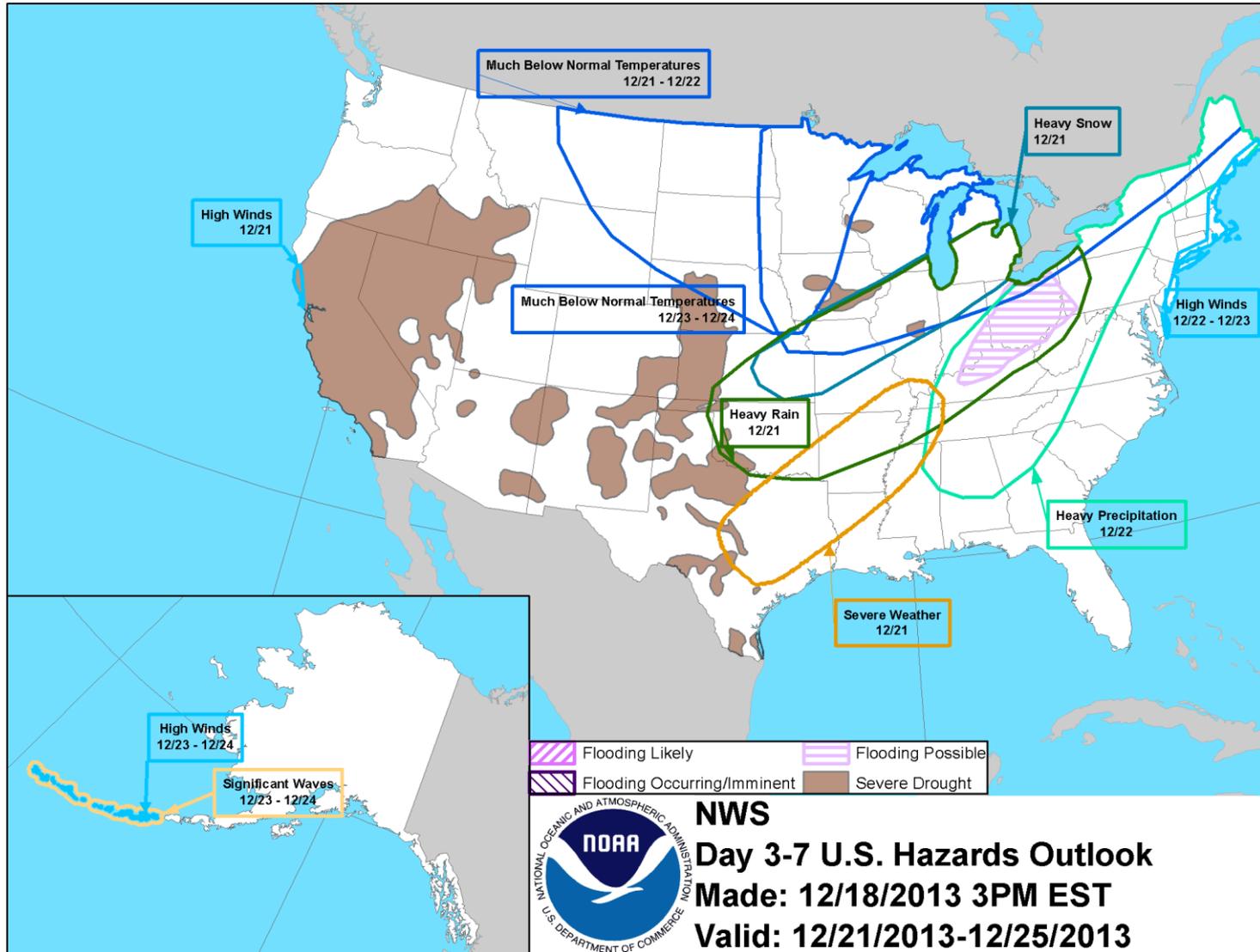
- Drought persists or intensifies
- Drought remains but improves
- Drought removal likely
- Drought development likely

Author: Rich Tinker, Climate Prediction Center, NOAA
http://www.cpc.ncep.noaa.gov/products/expert_assessment/season_drought.html

Depicts large-scale trends based on subjectively derived probabilities guided by short- and long-range statistical and dynamical forecasts. Short-term events -- such as individual storms -- cannot be accurately forecast more than a few days in advance. Use caution for applications -- such as crops -- that can be affected by such events. "Ongoing" drought areas are approximated from the Drought Monitor (D1 to D4 intensity). For weekly drought updates, see the latest U.S. Drought Monitor.

NOTE: The tan area areas imply at least a 1-category improvement in the Drought Monitor intensity levels by the end of the period although drought will remain. The Green areas imply drought removal by the end of the period (D0 or none)

U.S. Hazards Outlook (3-7 Days)



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/
- Dates for upcoming reports: <http://www.ncdc.noaa.gov/monitoring-references/dyk/monthly-releases>

NOAA's Climate Prediction Center: www.cpc.ncep.noaa.gov

U.S. Drought Monitor: <http://drought.gov>

Climate Portal: www.climate.gov

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- Katy.Vincent@noaa.gov, 828-257-3136 (NOAA/NCDC)