

**DEPARTMENT OF WATER RESOURCES**

DIVISION OF FLOOD MANAGEMENT

P.O. BOX 219000

SACRAMENTO, CA 95821-9000



June 10, 2015

To: Long Range Weather Forecasting Committee

SUBJECT: Summer 2015 Forecasts

Springtime this water year has been very disappointing. Spring precipitation in the Central Valley basin watershed was approximately 1/3 of average; about 10 percent in normally wetter March, 50 percent in April, and nearly 70 percent of average in May. The north fared somewhat better in the water year due to good December rains, but the storms were warm with little snowpack buildup. The April 1 mountain snowpack was only about 5 percent of average, by far the worst in history. Even 1977, a drier runoff year, had a 25 percent snowpack on April 1. Forecasted runoff for the water year, October through September, will be the driest since 1977, and comes on the heels of 3 previous dry years. The San Joaquin River system 4 year runoff volume is expected to be lower than the previous record in the early 1930s and, more recently, in the late 1980s.

The first set of charts is from the Climate Prediction Center of the NWS. They show a moderate El Nino condition in the eastern tropical Pacific and, indeed, off much of the west coast. This is projected to increase into the fall and should promote a good monsoon season in the Southwest. Historically, northern California winter wetness doesn't seem to relate well with El Nino, unless a very powerful one, and even that is not certain. The forecasts for June, the summer, and next fall show a wetter trend in the Southwest, possibly drier over the coastal Northwest, and no signal for California, except the desert Southeast. Notable on the CPC forecasts is a warm signal for the west coast states; in other words, a hot summer.

The next three charts are from Dr. Art Douglas, who has kindly agreed to share them with us. Dr. Douglas was formerly head of the Meteorology Department of Creighton University in Omaha and is now retired and living in southeastern Arizona. The first map shows his temperature and precipitation outlooks for summer (June-August) and fall (September-November). In contrast to the CPC, he limits summer warmth to about 100 miles from the west coast. He offers some hope for the fall in the southern half of California and all of Arizona and Nevada. The two colored charts are an early look at the winter based on a composite of comparable years, assuming the present El Nino, Atlantic Multidecadal Oscillation (AMO), and Pacific Decadal Oscillation (PDO) trends continue into fall. One is for temperature and the other is for precipitation.

The PDO, as posted by the University of Washington, was a positive 1.44 in April, following 2.00 in March. Last year's values were high; one has to go back to 1940 and 1941 to find similar high values, although 2003 would be a runner-up.

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The last set of forecast maps are from the IRI of Columbia University at Palisades, NY. It is similar to the CPC, but shows the entire North American continent.

The drought monitor map is attached at the end of the package. California and Nevada seem to be the worst; the previous drought shown for the southern Plains has vanished for now.

If you have questions or comments, please feel free to call me at (916) 574-2625, or email at [Maury.Roos@water.ca.gov](mailto:Maury.Roos@water.ca.gov).

Regards,

A handwritten signature in blue ink that reads "Maurice Roos". The signature is written in a cursive, flowing style.

Maurice Roos, Chief Hydrologist (part time)  
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Long Range Weather Forecasting Committee

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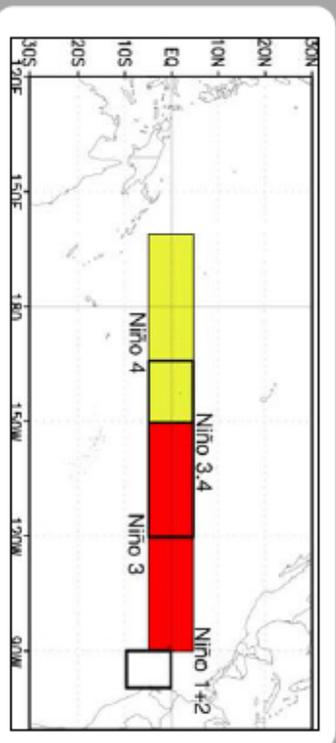
Mr. Toby Goddard  
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Gary Bardini, CDWR  
Keith Swanson, CDWR  
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Elissa Lynn, CDWR  
Matt Winston, CDWR  
Steven Nemeth, CDWR  
Michael Anderson, CDWR  
Jeanine Jones, CDWR  
Jose Faria, CDWR  
Peter Coombe, CDWR  
Laura King-Moon, CDWR

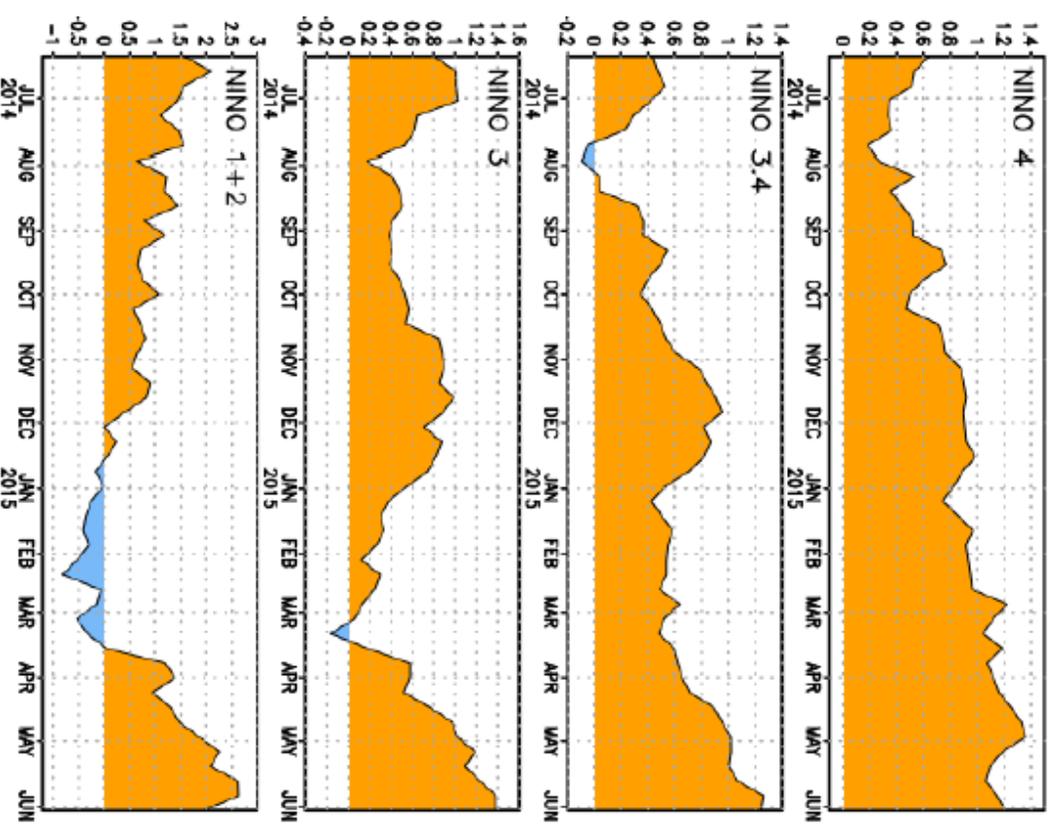
# Niño Region SST Departures ( $^{\circ}\text{C}$ ) Recent Evolution

The latest weekly SST departures are:

- Niño 4      1.2 $^{\circ}\text{C}$
- Niño 3.4    1.2 $^{\circ}\text{C}$
- Niño 3      1.4 $^{\circ}\text{C}$
- Niño 1+2    1.9 $^{\circ}\text{C}$



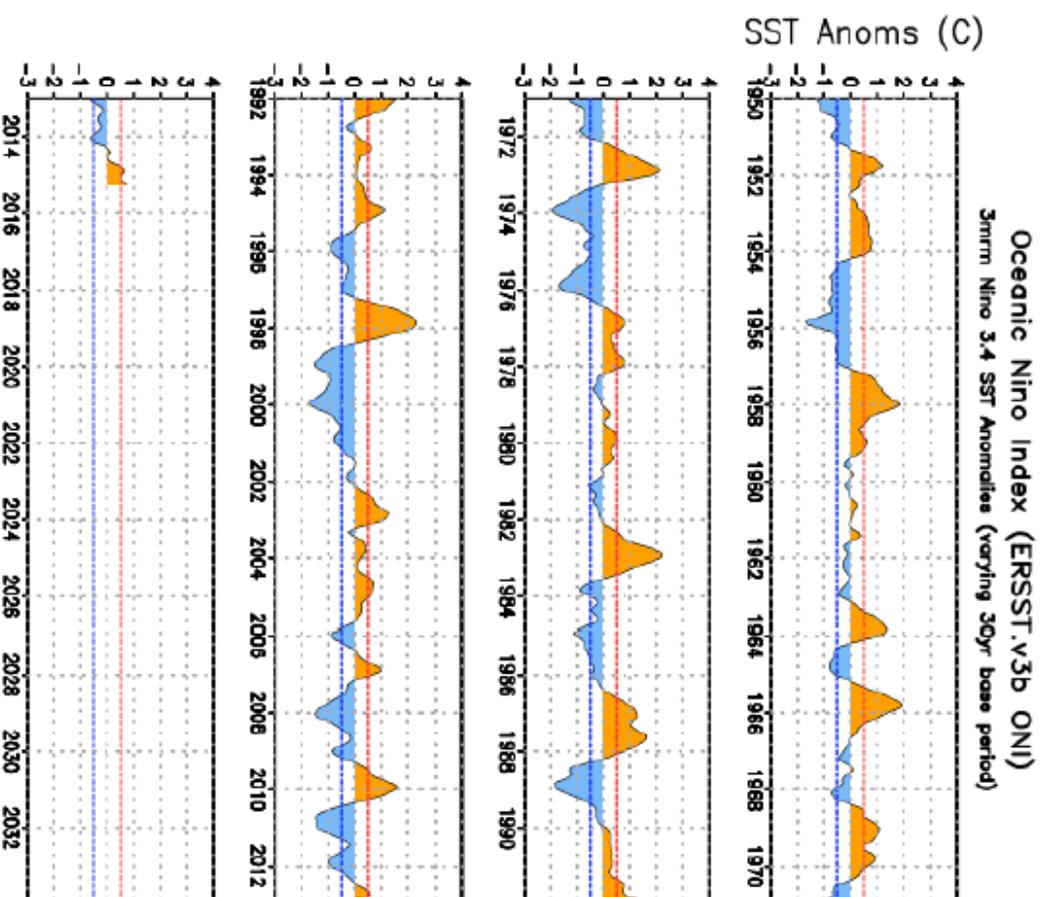
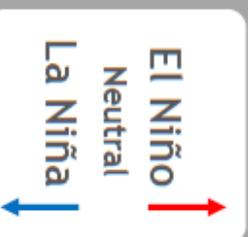
SST Anomalies





# ONI (°C): Evolution since 1950

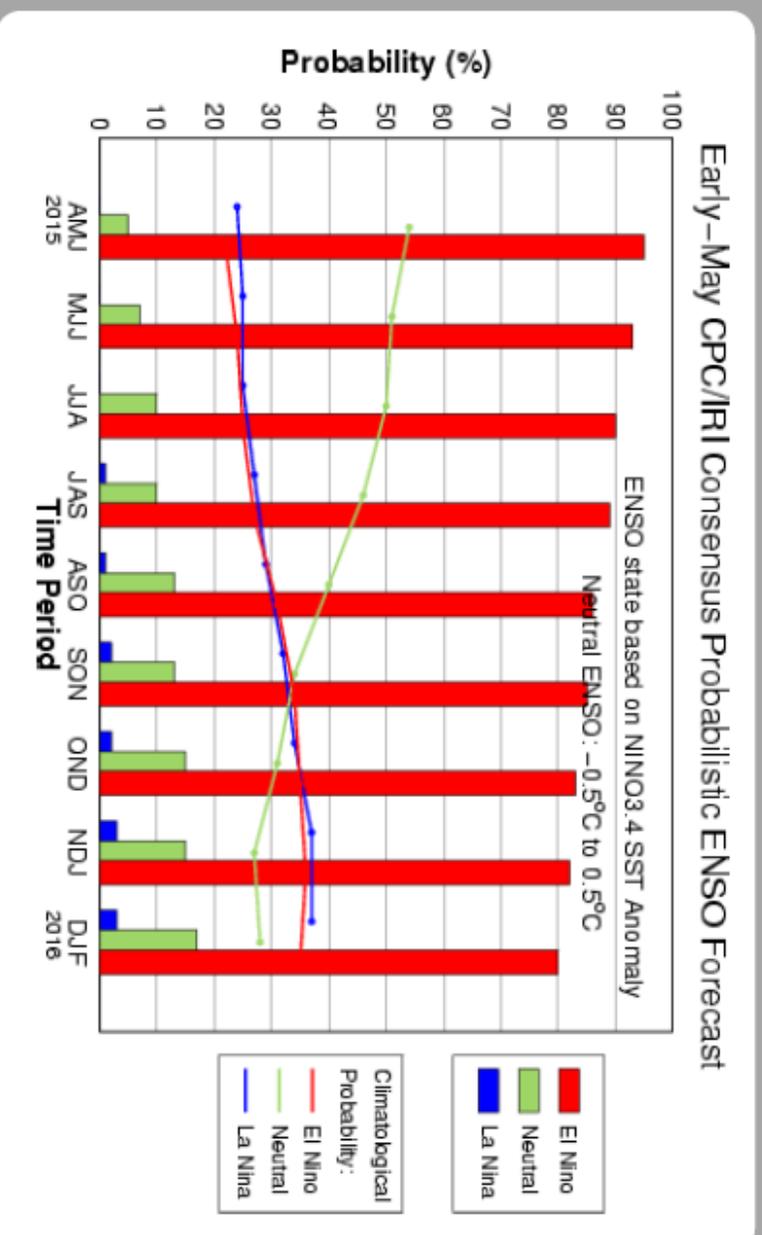
The most recent ONI value (March - May 2015) is 0.7°C.



# CPC/IRI Probabilistic ENSO Outlook

Updated: 14 May 2015

The chance of El Niño is approximately 80-90% through 2015.



# IRI/CPC Pacific Niño 3.4 SST Model Outlook

Almost all of the models indicate Niño 3.4 SST anomalies will remain greater than or equal to +0.5C through the end of 2015.

However, there is a large amount of spread in the potential strength of El Niño.

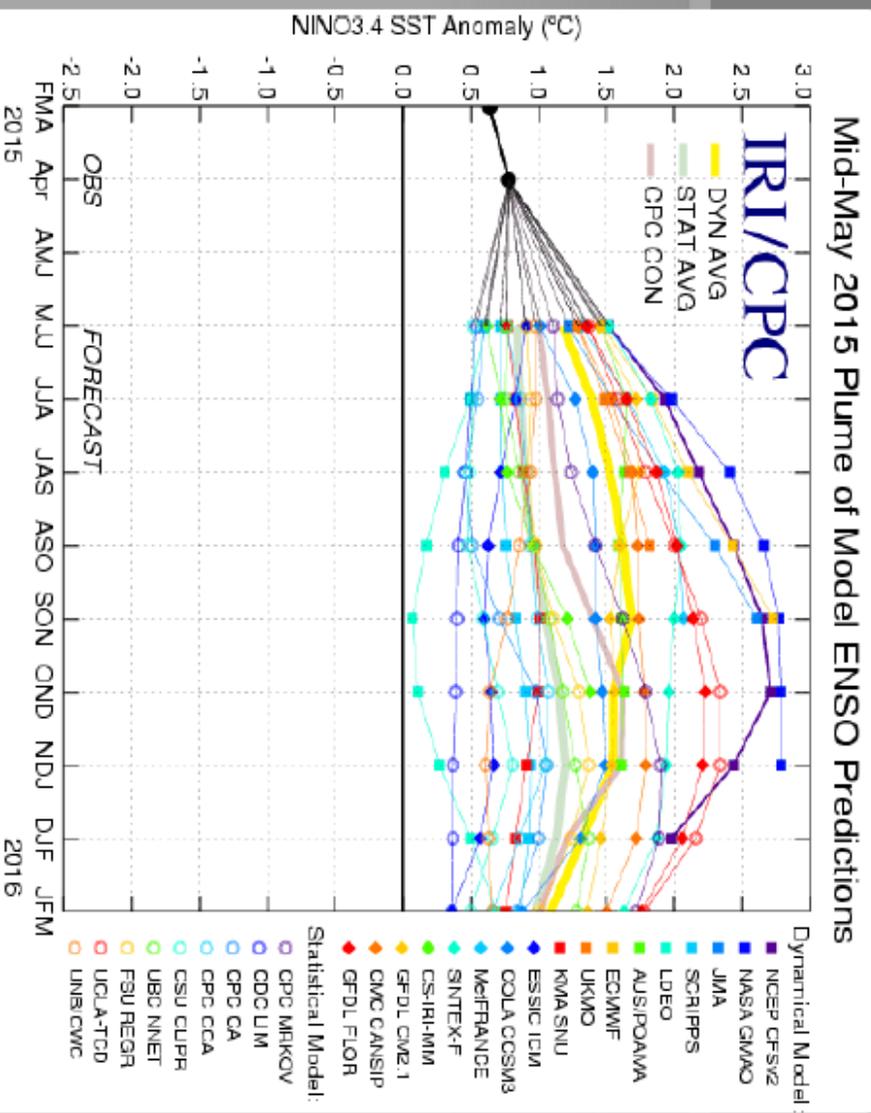
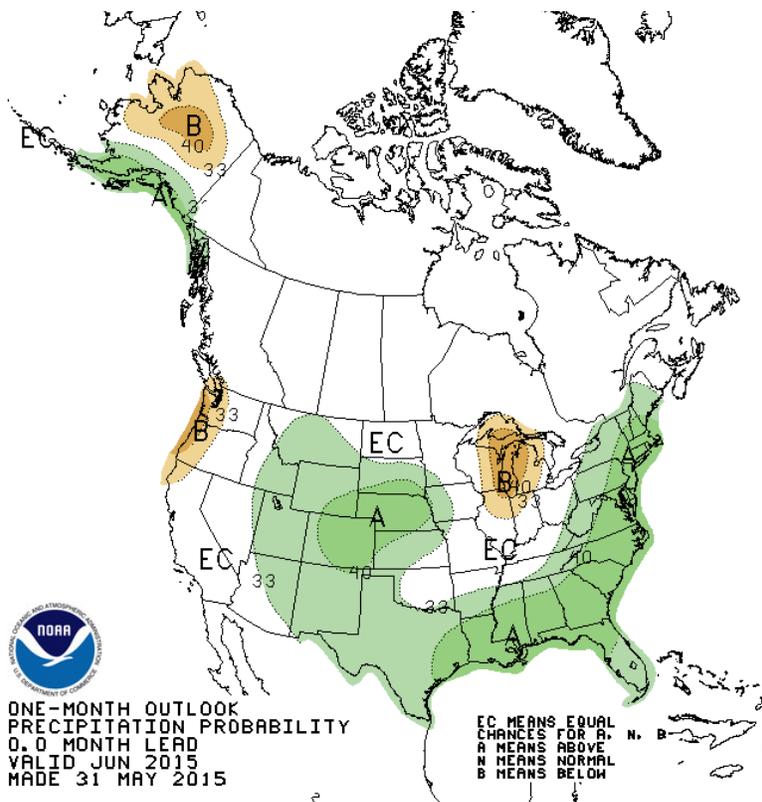
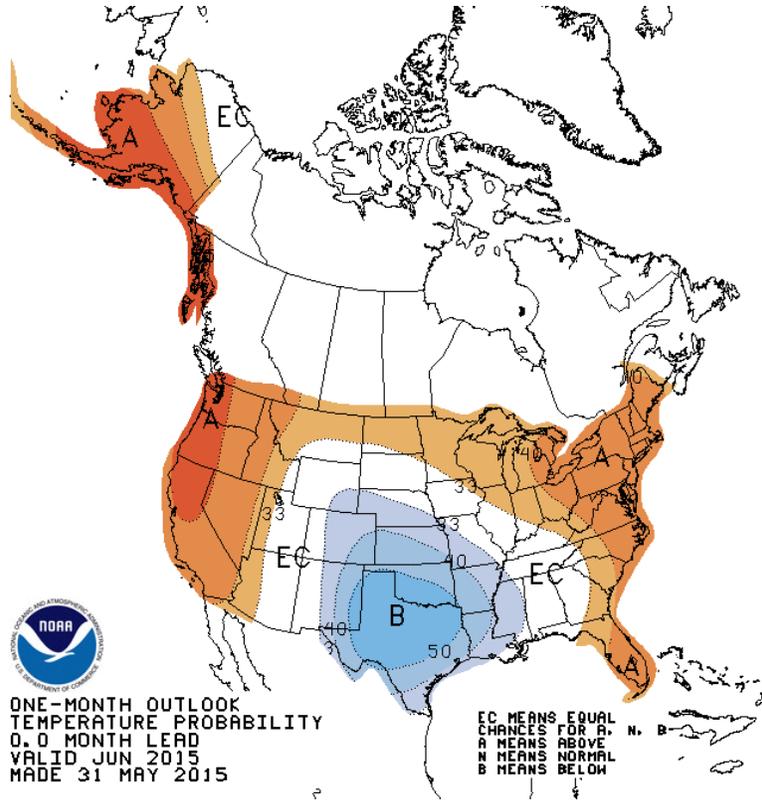


Figure provided by the International Research Institute (IRI) for Climate and Society (updated 19 May 2015).

# One-Month Outlook

## Revised OFFICIAL Forecasts

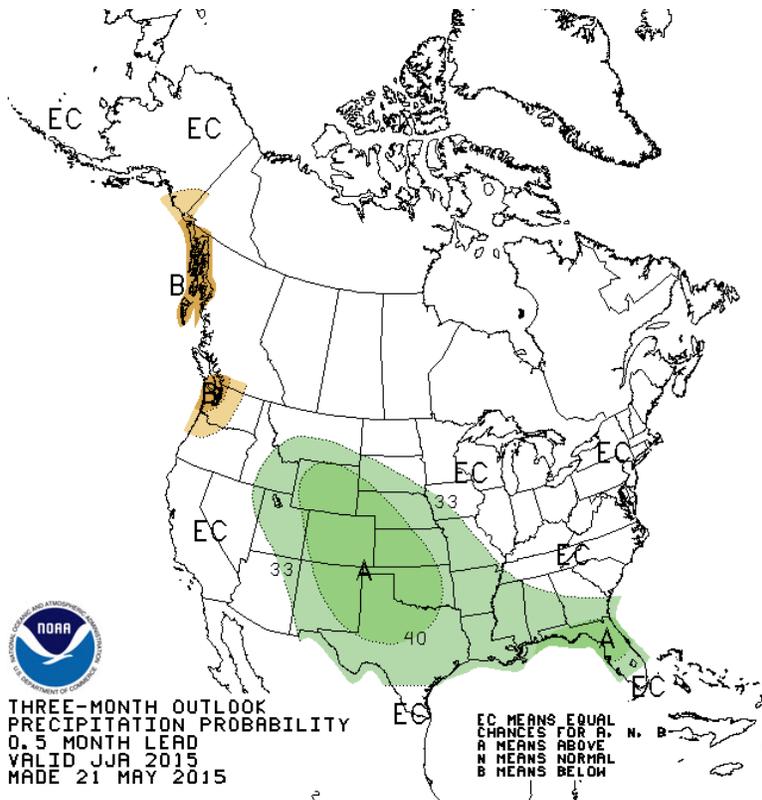
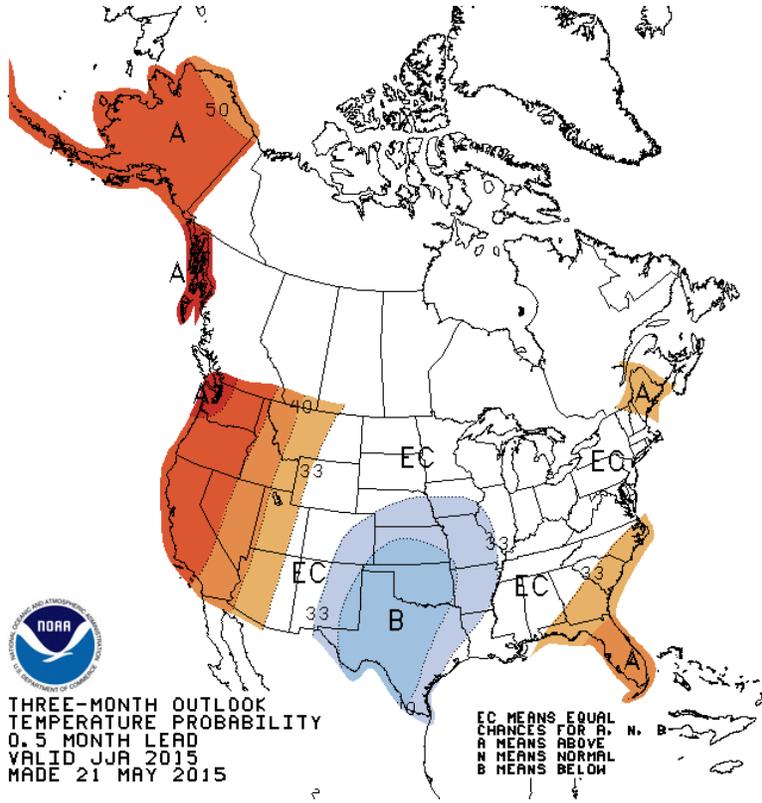
### June 2015



# Three-Month Outlooks

## OFFICIAL Forecasts

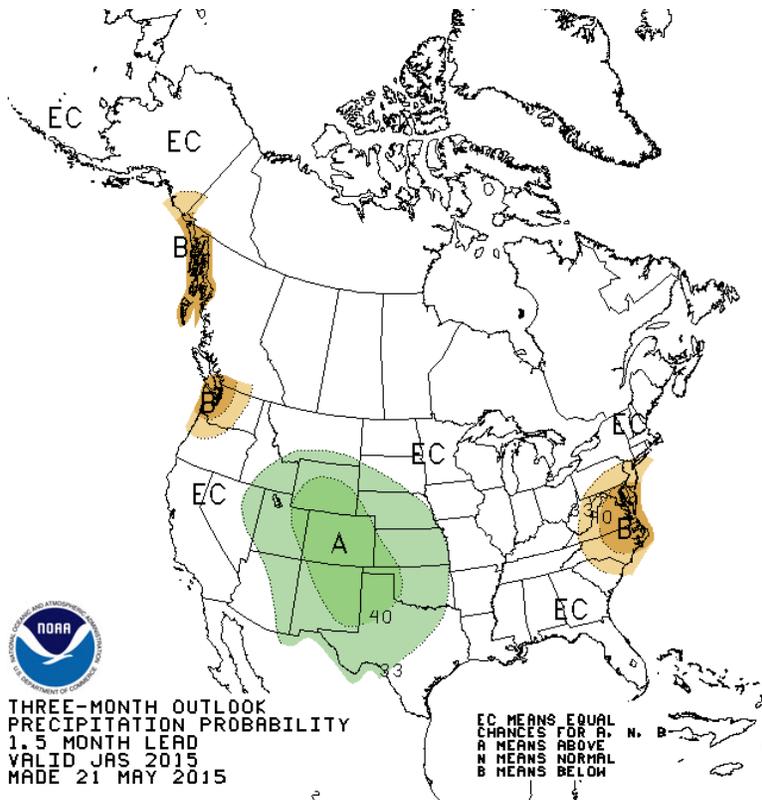
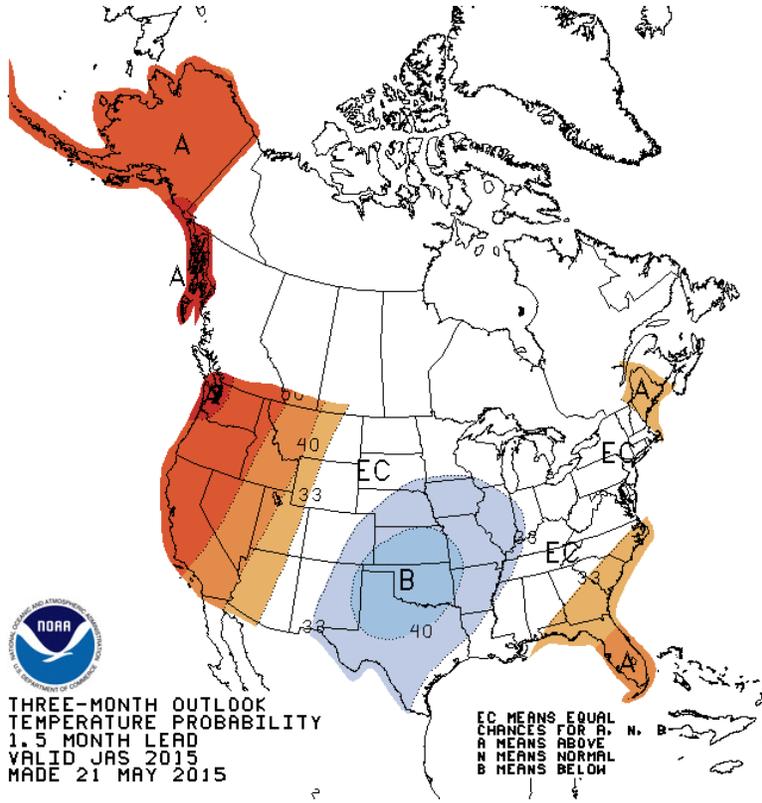
### Jun-Jul-Aug 2015



# Three-Month Outlooks

## OFFICIAL Forecasts

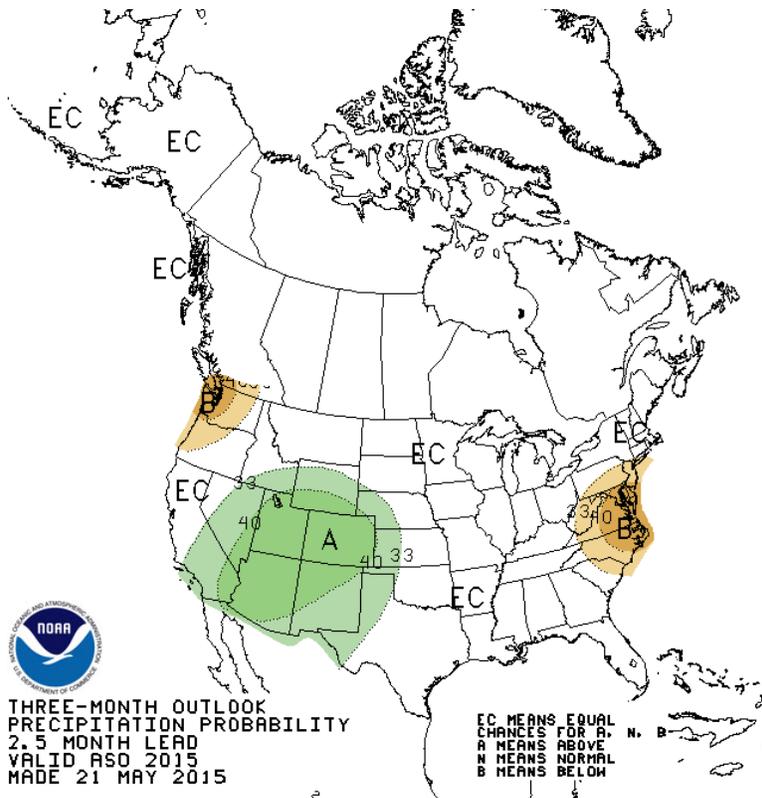
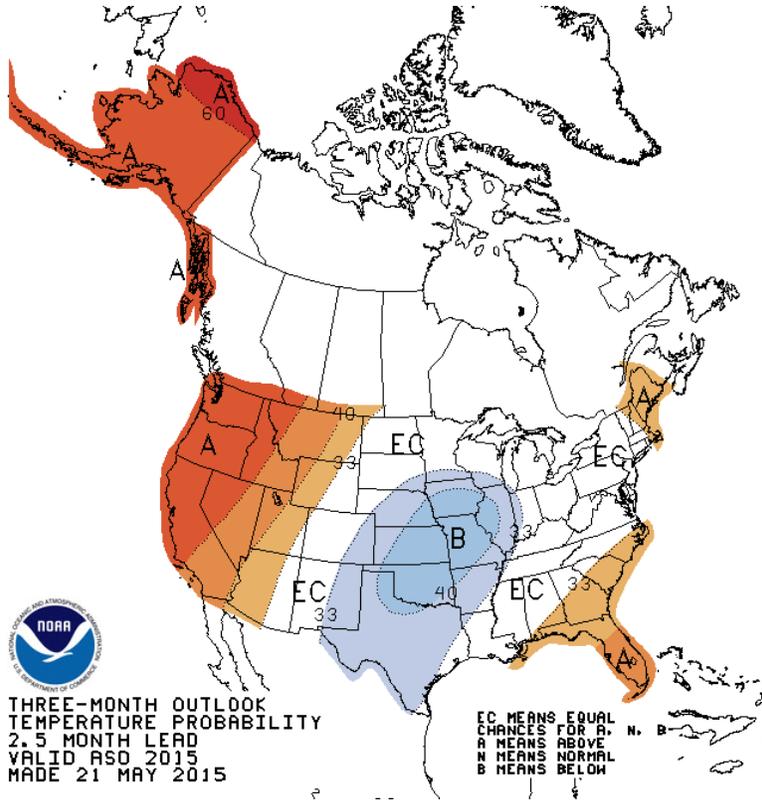
Jul-Aug-Sep 2015



# Three-Month Outlooks

## OFFICIAL Forecasts

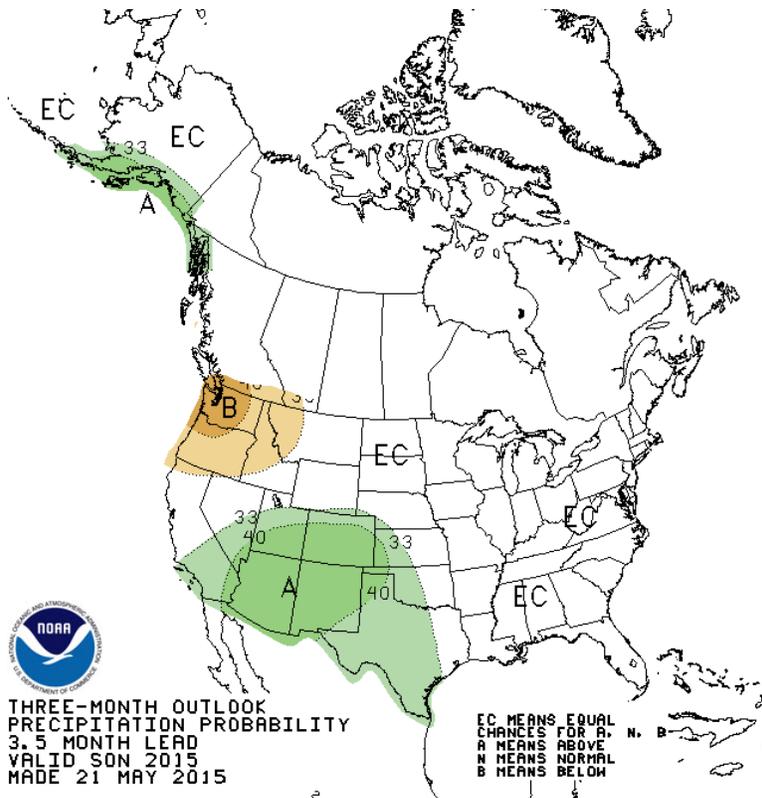
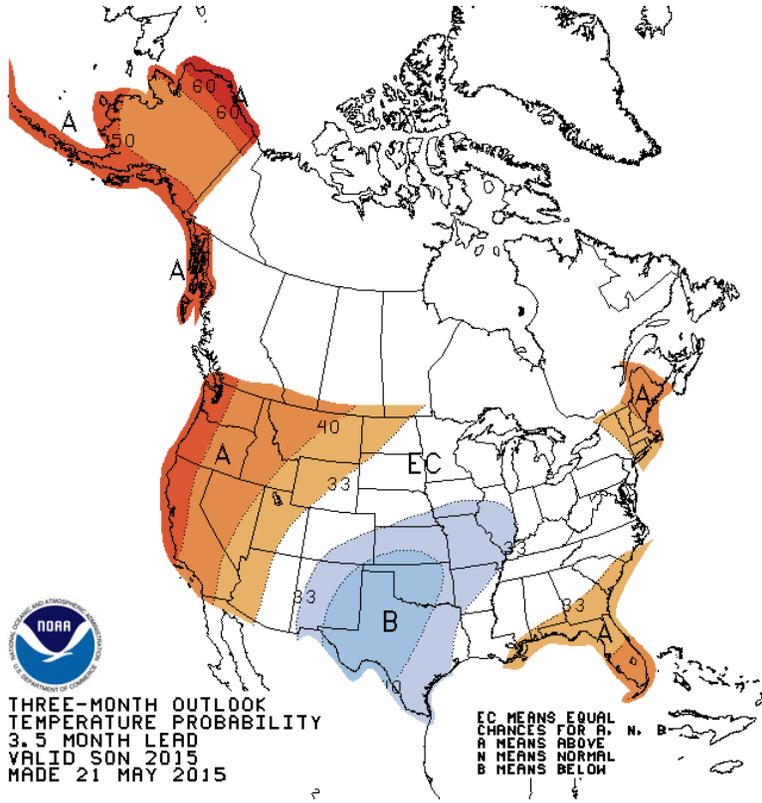
### Aug-Sep-Oct 2015



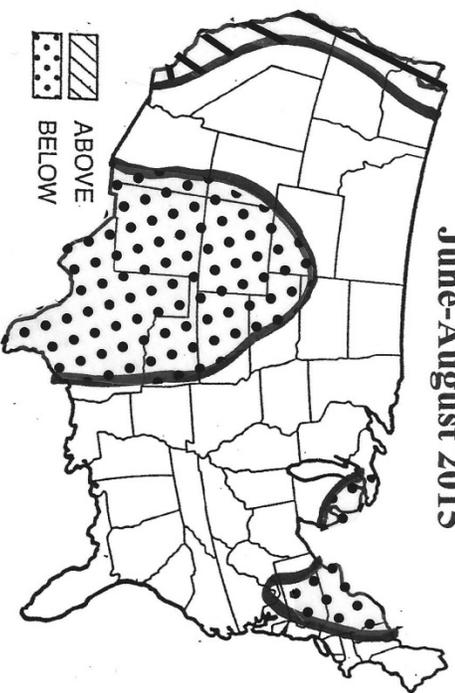
# Three-Month Outlooks

## OFFICIAL Forecasts

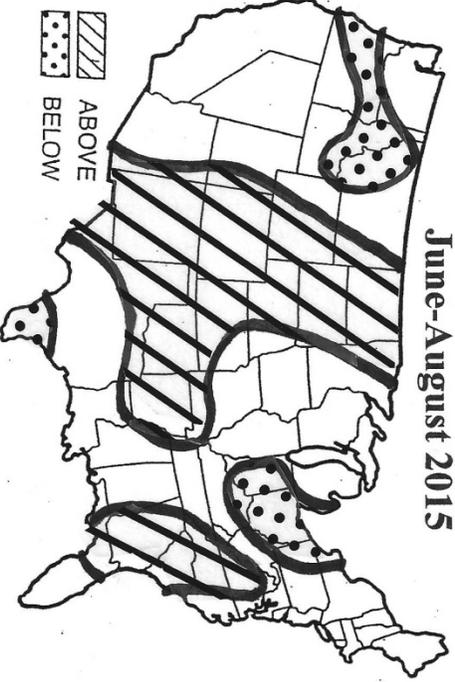
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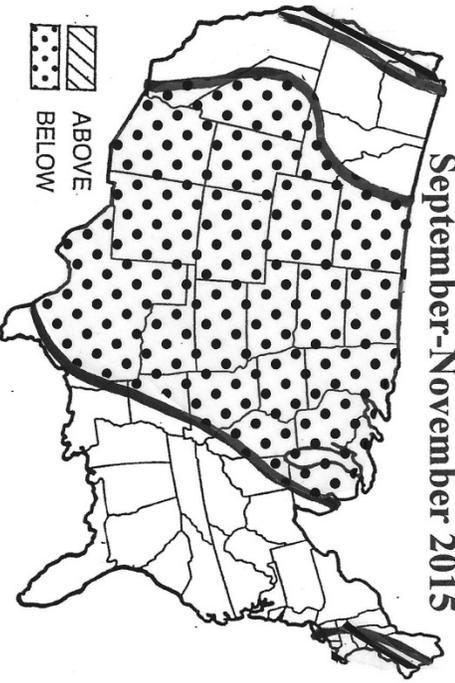
**Temperature Outlook  
June-August 2015**



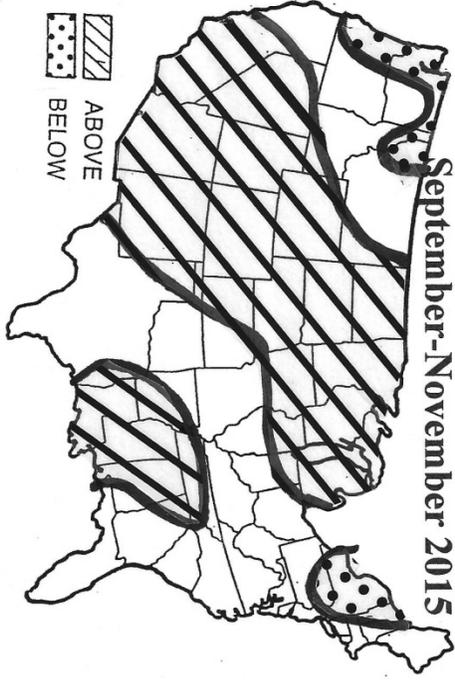
**Precipitation Outlook  
June-August 2015**



**Temperature Outlook  
September-November 2015**

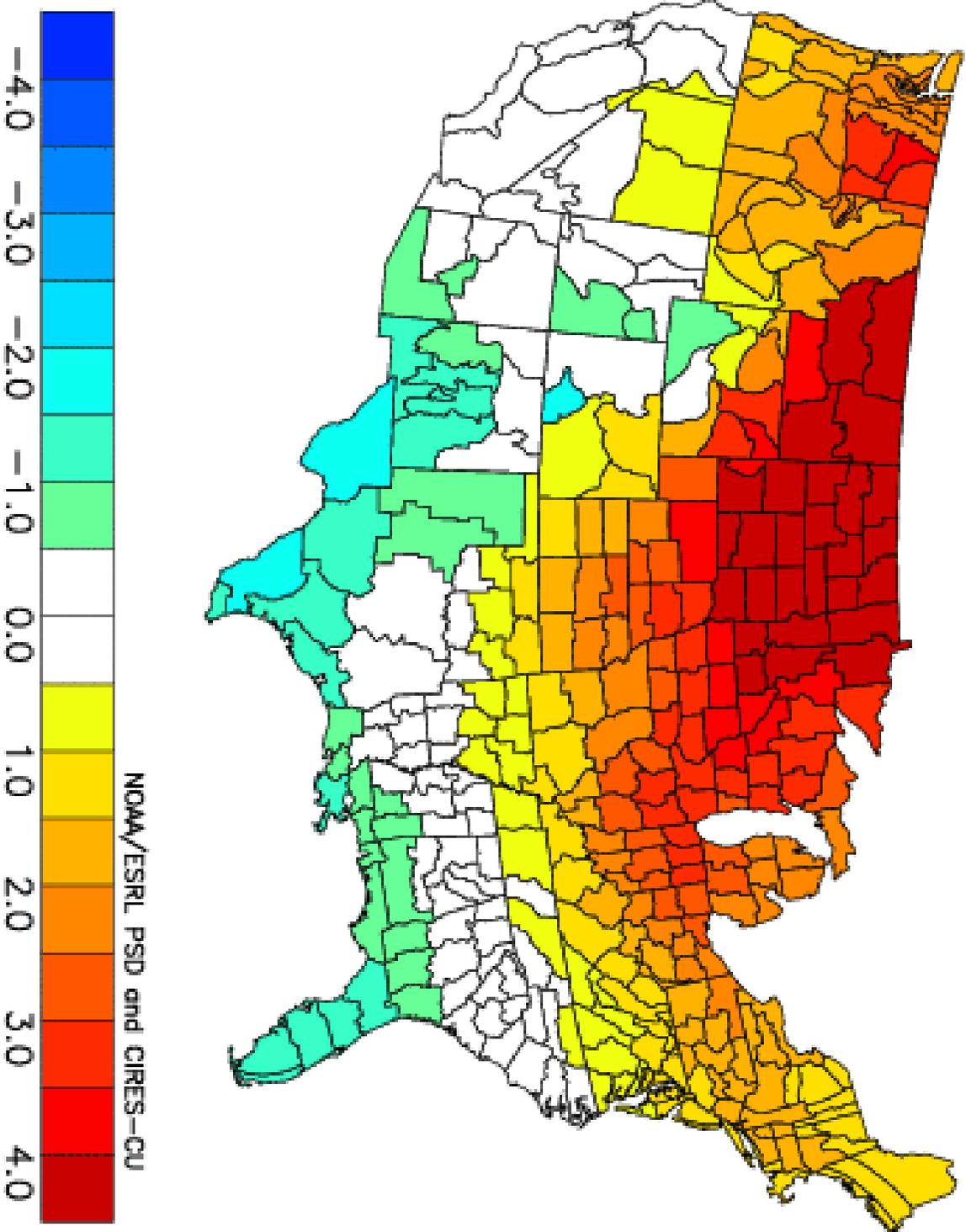


**Precipitation Outlook  
September-November 2015**



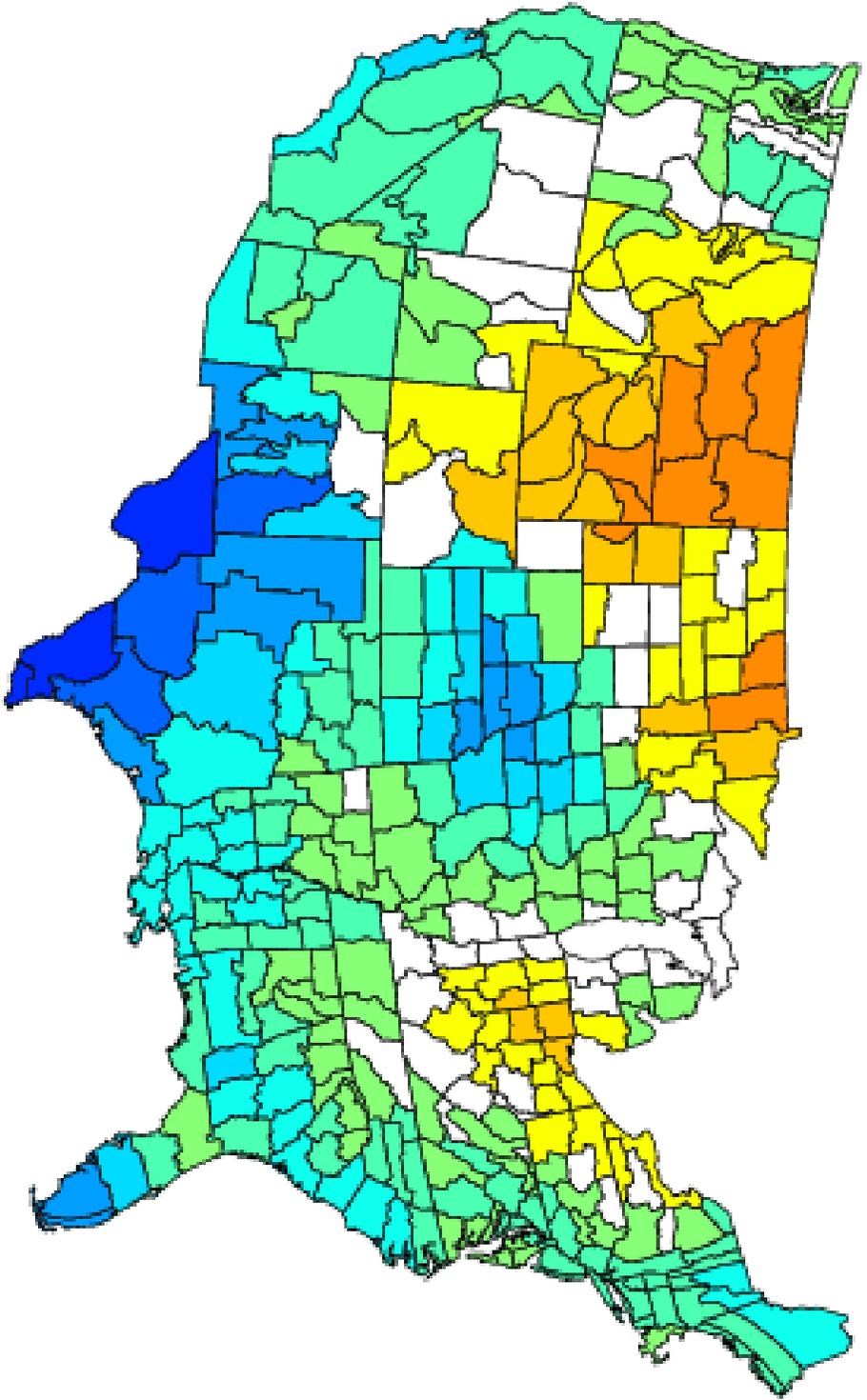
**Art Douglas**

**NOAA/NCDC Climate Division Composite Temperature Anomalies (F)**  
**Dec to Feb 1957–58, 1972–73, 1982–83, 1991–92**  
**Versus 1951–2010 Longterm Average**

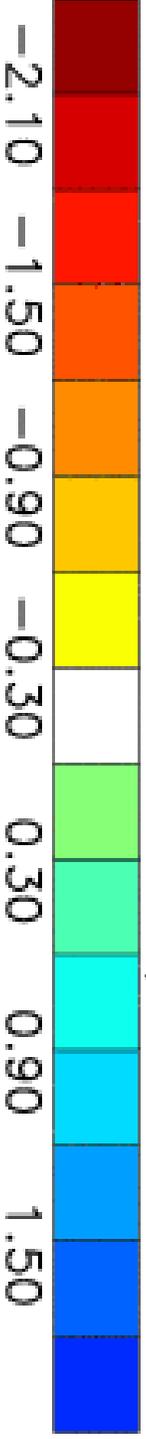


**Art Douglas**

**NOAA/NCDC Climate Division Composite Standardized Precipitation Anomalies**  
Dec to Feb 1957–58, 1972–73, 1982–83, 1991–92  
Versus 1951–2010 Longterm Average

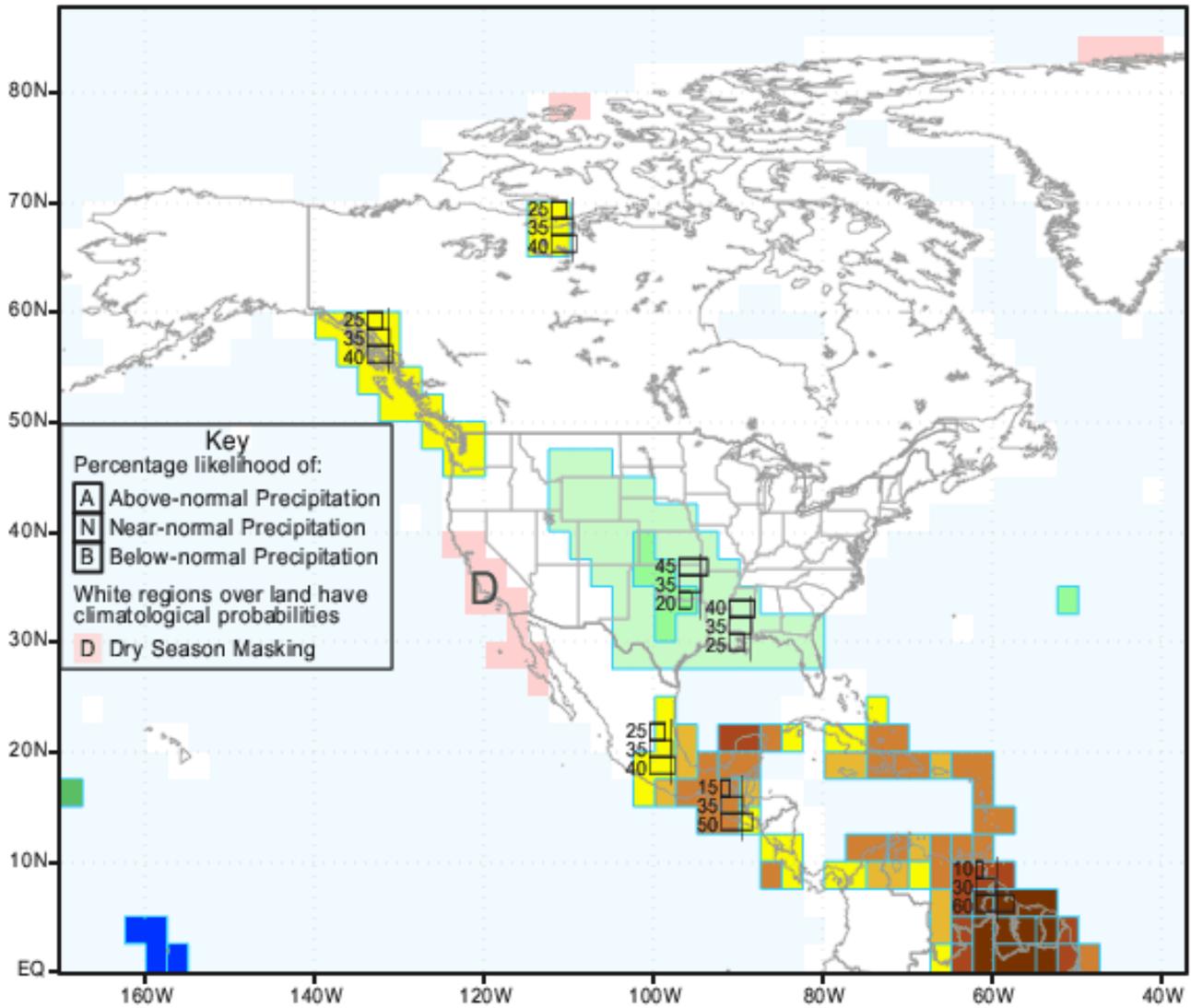


NOAA/ESRL PSD and CIRES-CU

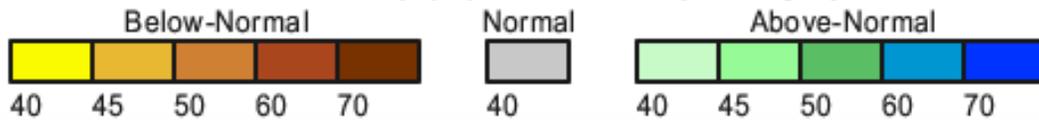


**Art Douglas**

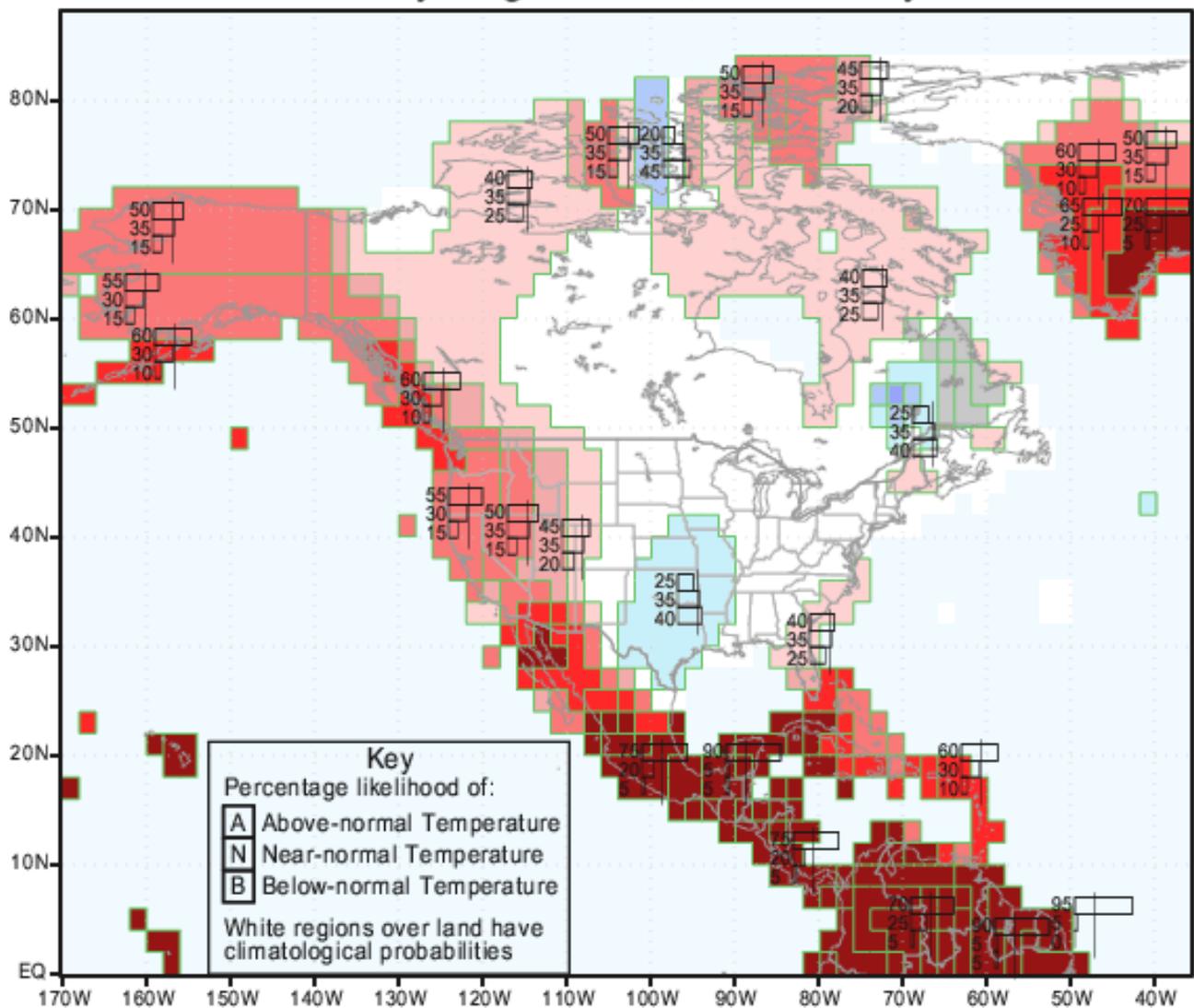
# IRI Multi-Model Probability Forecast for Precipitation for June-July-August 2015, Issued May 2015



## Probability (%) of Most Likely Category



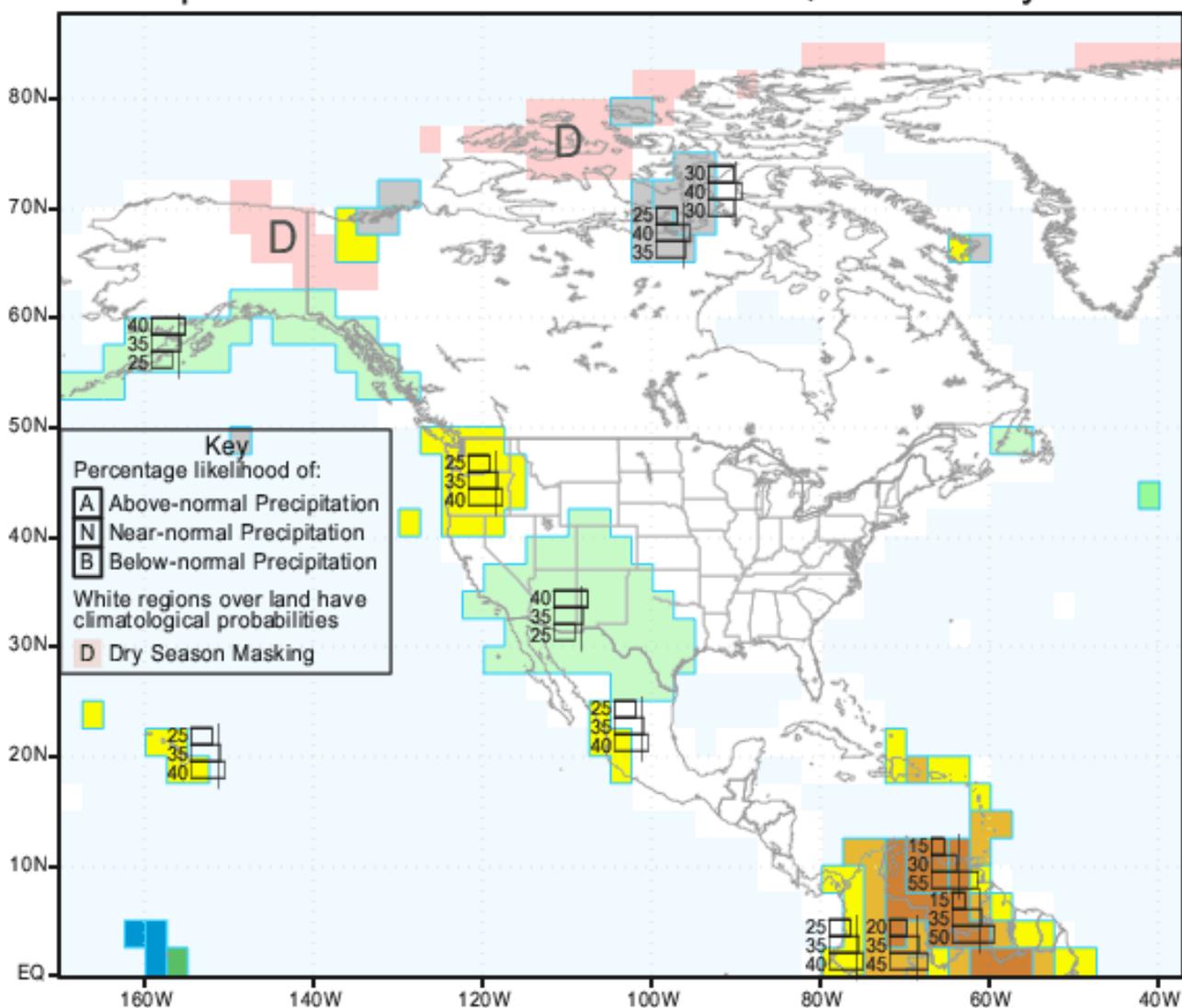
# IRI Multi-Model Probability Forecast for Temperature for June-July-August 2015, Issued May 2015



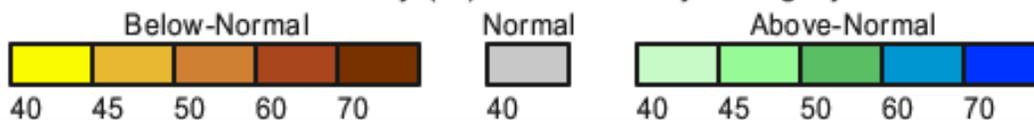
Probability (%) of Most Likely Category



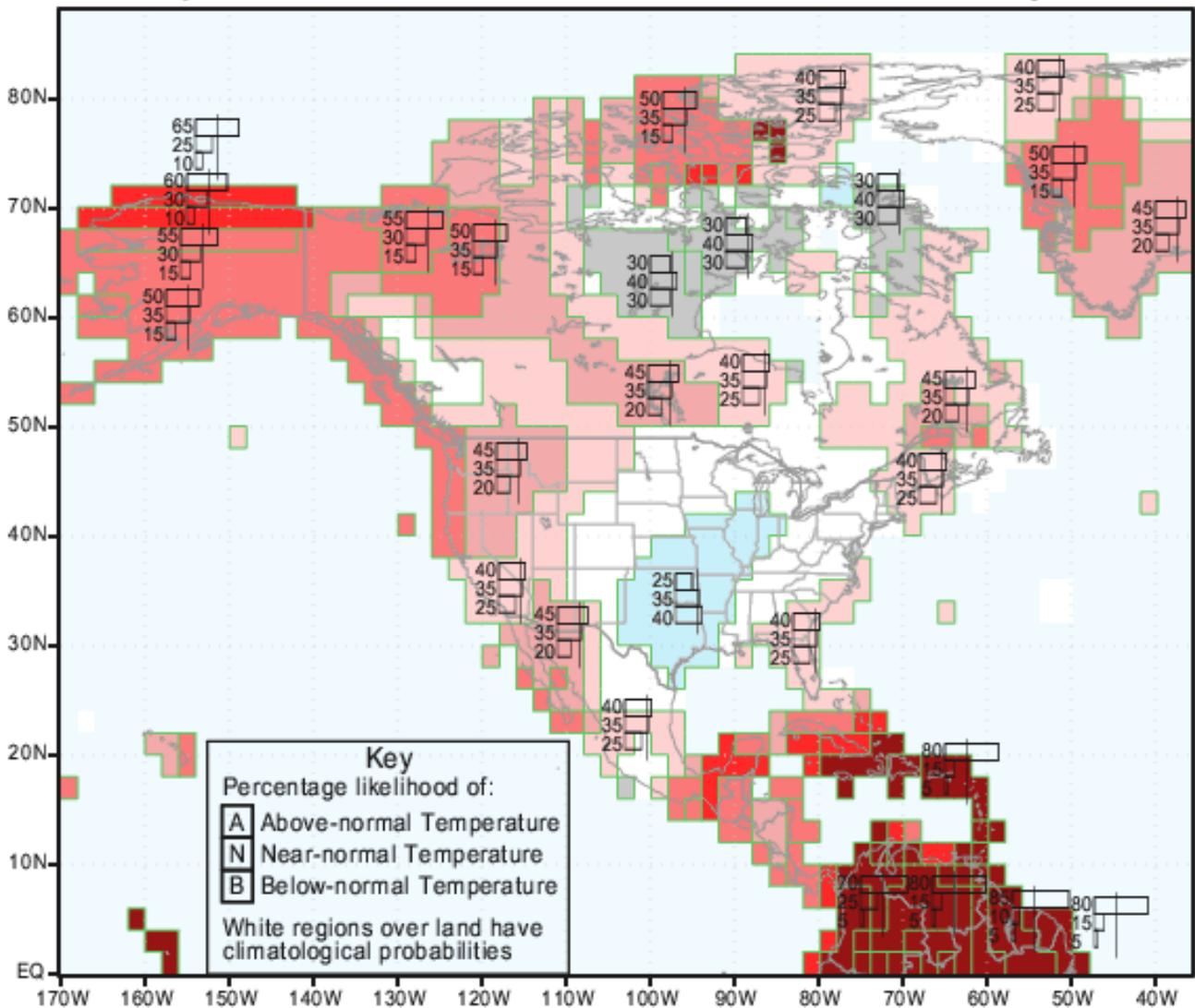
# IRI Multi-Model Probability Forecast for Precipitation for September-October-November 2015, Issued May 2015



## Probability (%) of Most Likely Category



# IRI Multi-Model Probability Forecast for Temperature for September-October-November 2015, Issued May 2015



Probability (%) of Most Likely Category

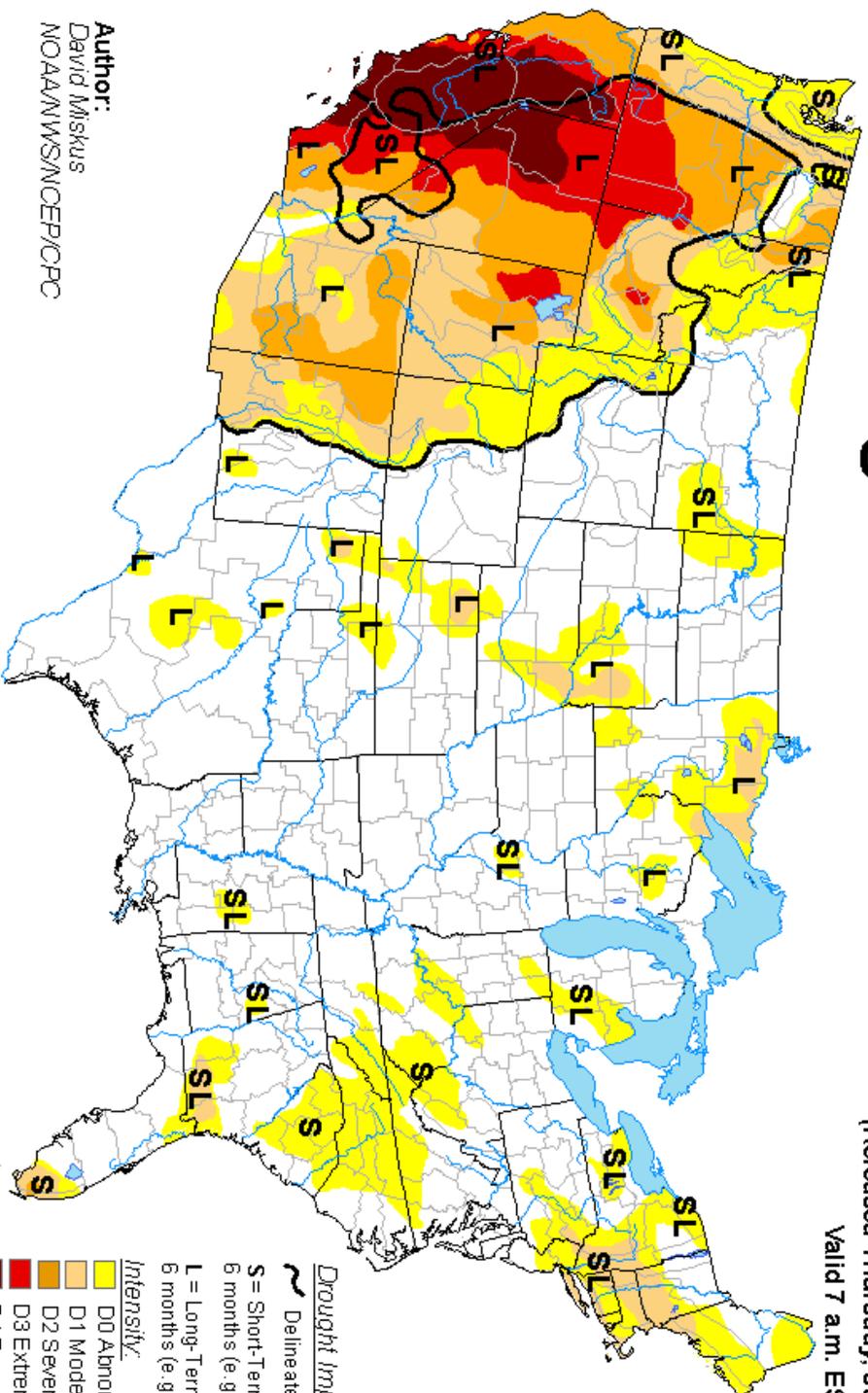


# U.S. Drought Monitor

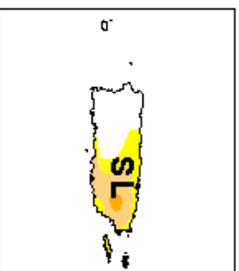
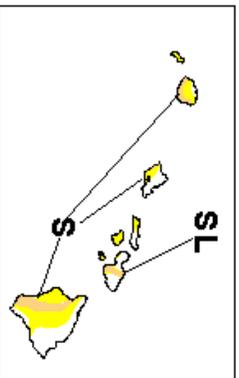
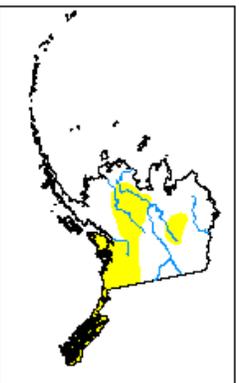
June 2, 2015

(Released Thursday, Jun. 4, 2015)

Valid 7 a.m. EST



**Author:**  
David Miskus  
NOAA/NWS/NCEP/CPC



- Drought Impact Types:**
- ~ Delineates dominant impacts
  - S = Short-Term, typically less than 6 months (e.g. agriculture, grasslands)
  - L = Long-Term, typically greater than 6 months (e.g. hydrology, ecology)
- Intensity:**
- D0 Abnormally Dry
  - D1 Moderate Drought
  - D2 Severe Drought
  - D3 Extreme Drought
  - D4 Exceptional Drought

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



<http://droughtmonitor.unl.edu/>