

# Climate Conditions and Outlook for Winter 2016-7

Subcommittee for Disaster Reduction

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3 November 2016

# Summary

## ENSO Alert System Status: La Niña Watch

ENSO-neutral conditions are present.\*

Equatorial sea surface temperatures (SST) are below average in the central and east-central Pacific Ocean.

La Niña is favored to develop (~70% chance) during the Northern Hemisphere fall 2016 and slightly favored to persist (~55% chance) during winter 2016-17.\*

### [ENSO Diagnostics Discussion](http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/enso_advisory/enso_disc.html)

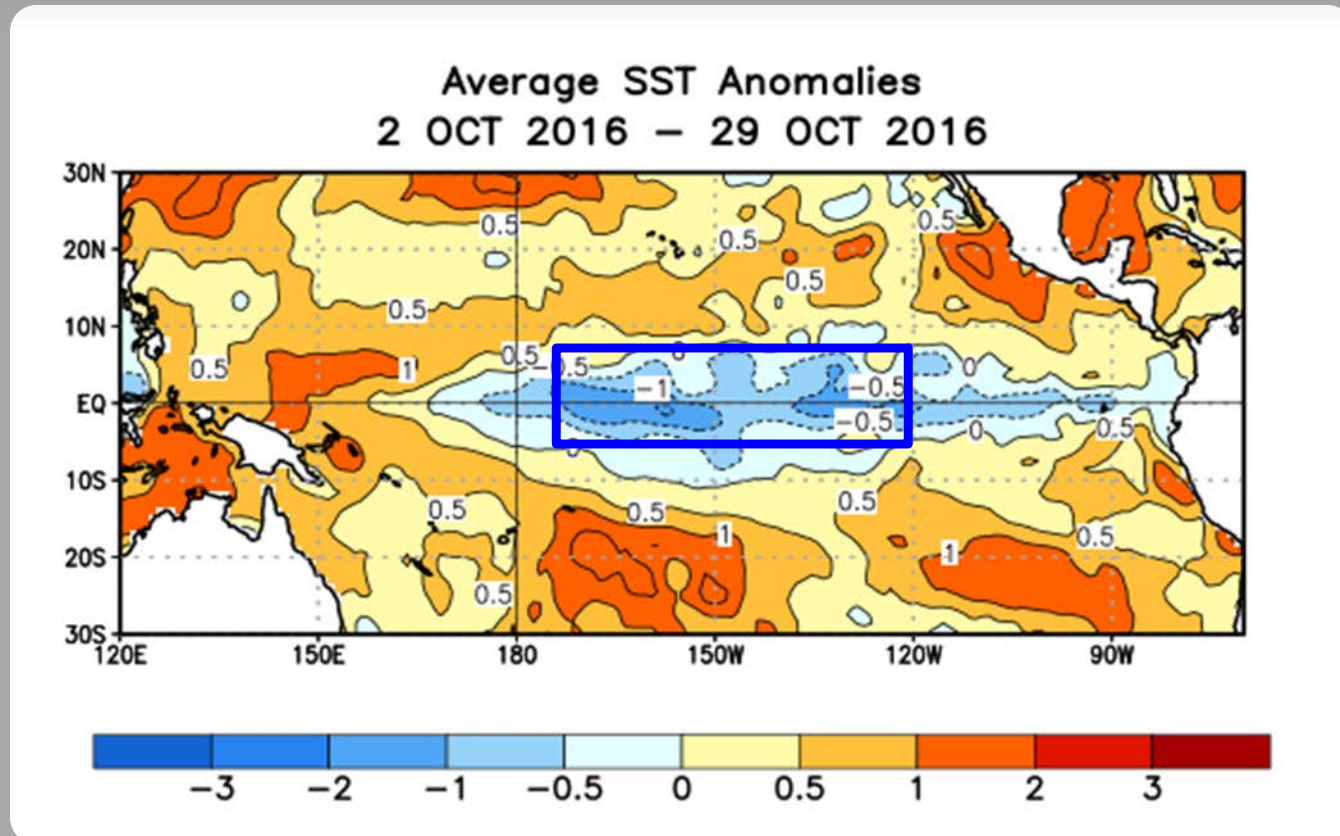
[http://www.cpc.ncep.noaa.gov/products/analysis\\_monitoring/enso\\_advisory/enso\\_disc.html](http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/enso_advisory/enso_disc.html)

[ENSO Blog](http://www.climate.gov/news-features/department/enso-blog) <http://www.climate.gov/news-features/department/enso-blog>

\* Note: These statements are updated once a month (2<sup>nd</sup> Thursday of each month) in association with the ENSO Diagnostics Discussion, which can be found by clicking [here](#).

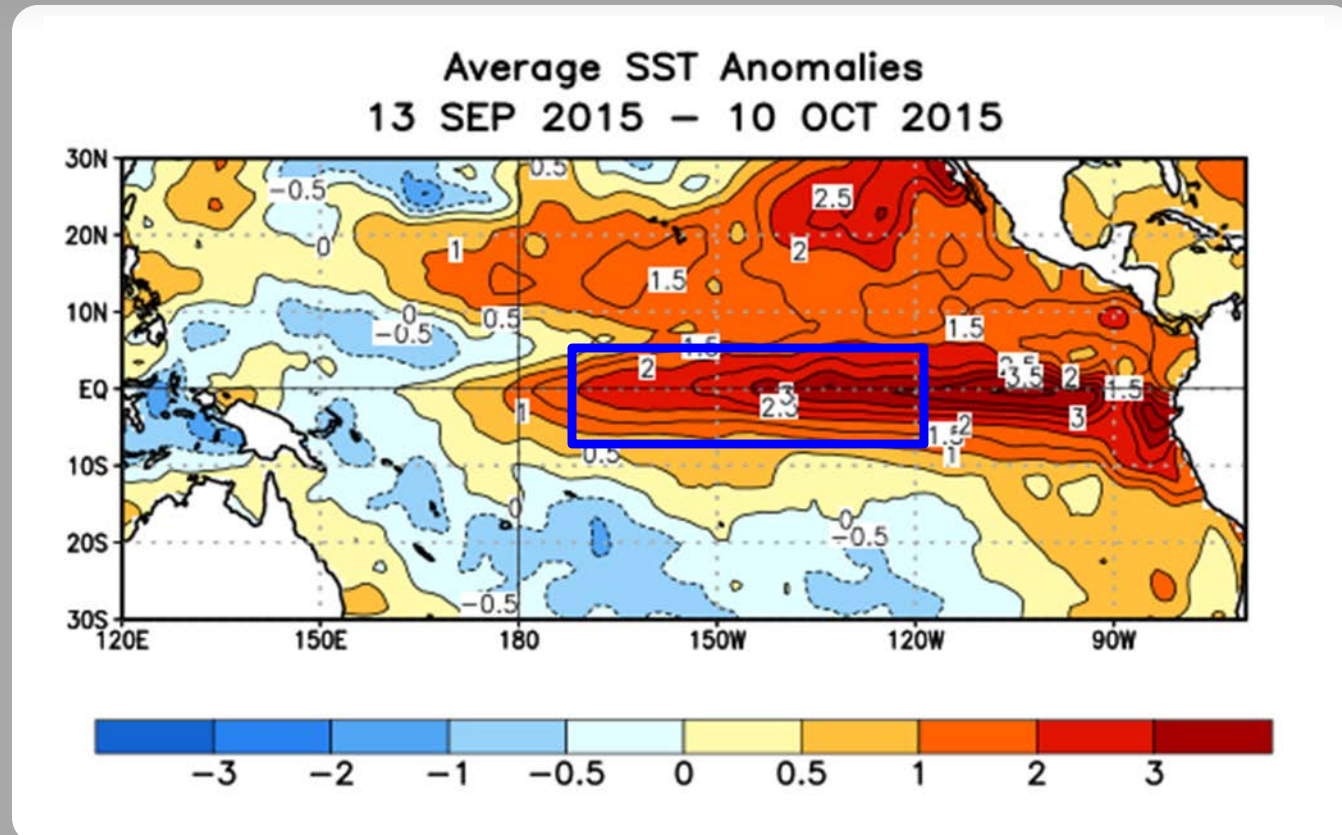
# SST Departures (°C) in the Tropical Pacific During the Last Four Weeks

During the last four weeks, equatorial SSTs were below average across the central and east-central equatorial Pacific, and near average in the eastern Pacific.



# Global SST Departures (°C) During the Last Four Weeks

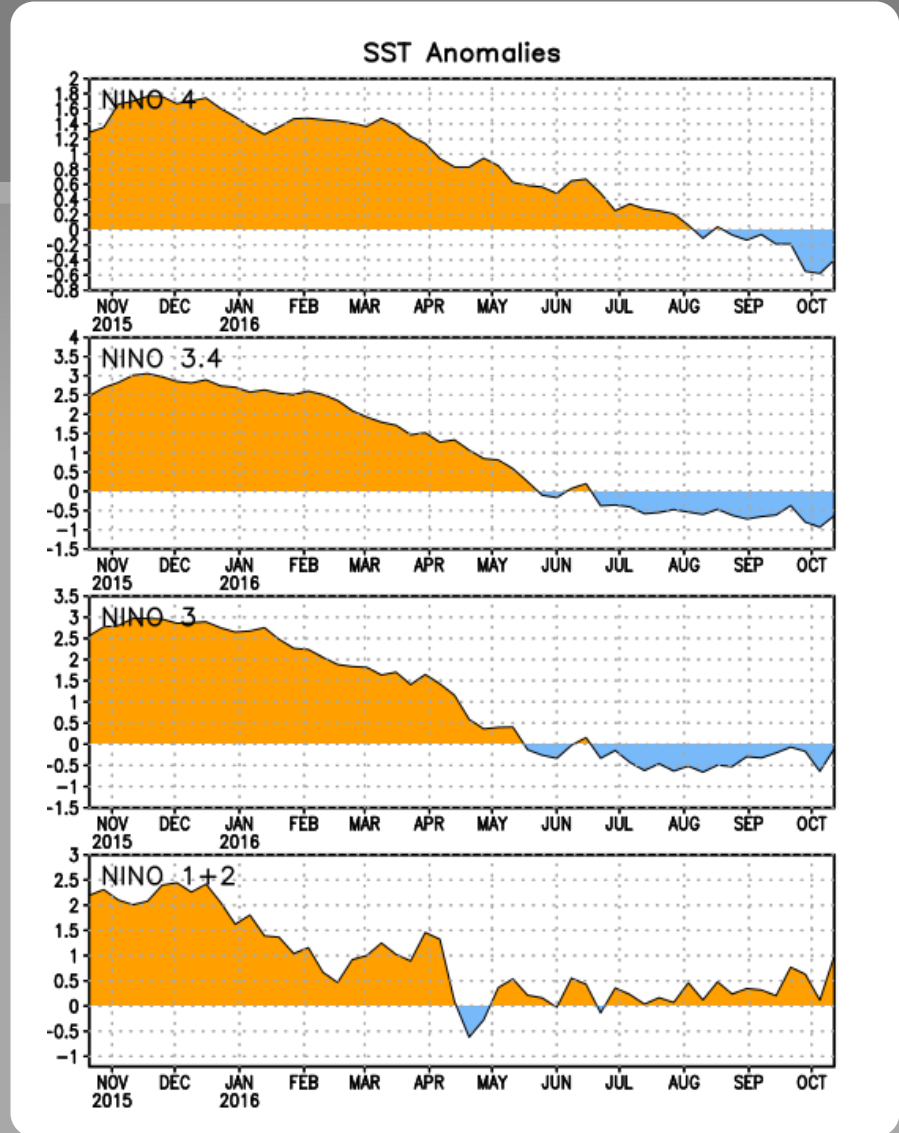
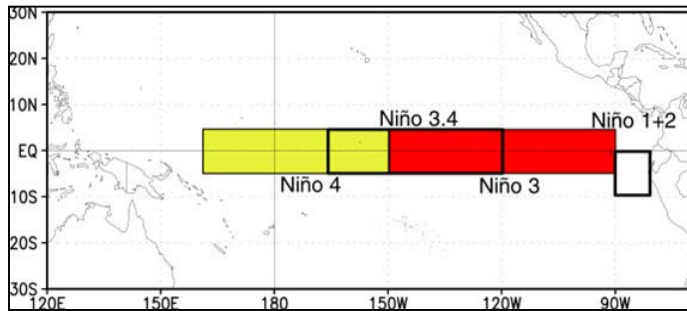
During the last four weeks, equatorial SSTs were above average across the central and eastern Pacific and the Indian Ocean.



# Niño Region SST Departures (°C) Recent Evolution

The latest weekly SST departures are:

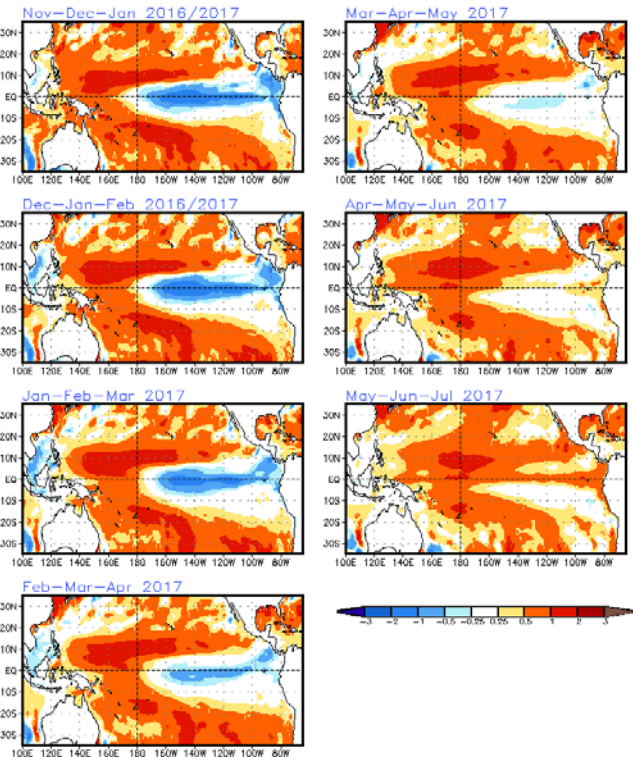
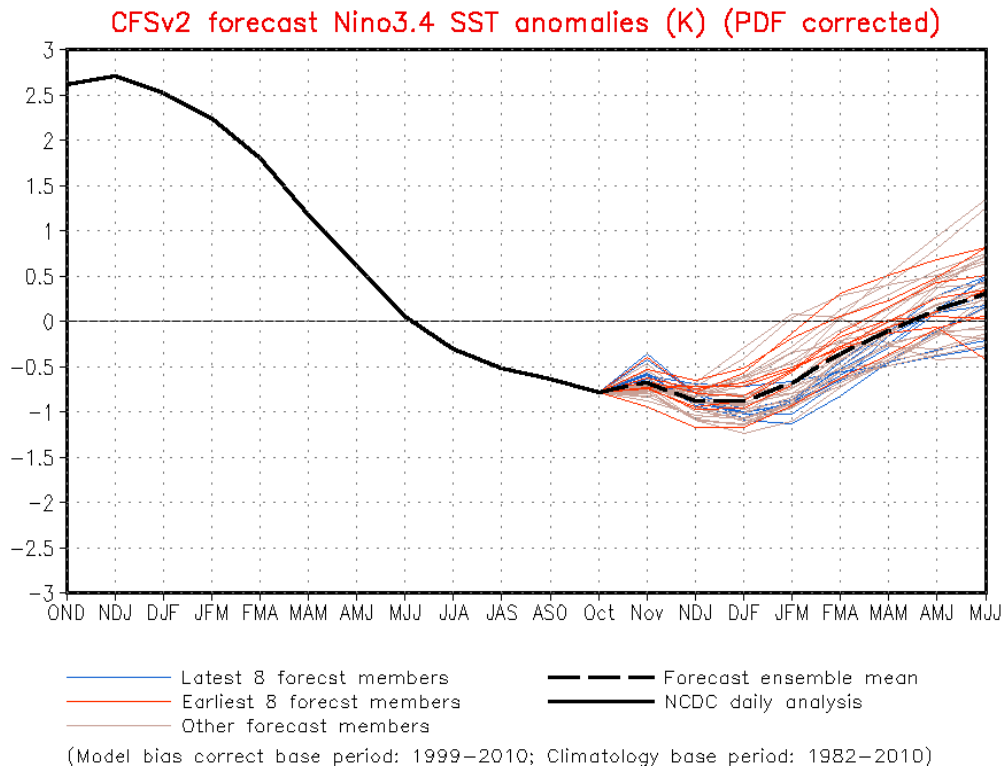
Niño 4	-0.4°C
Niño 3.4	-0.6°C
Niño 3	-0.1°C
Niño 1+2	1.0°C



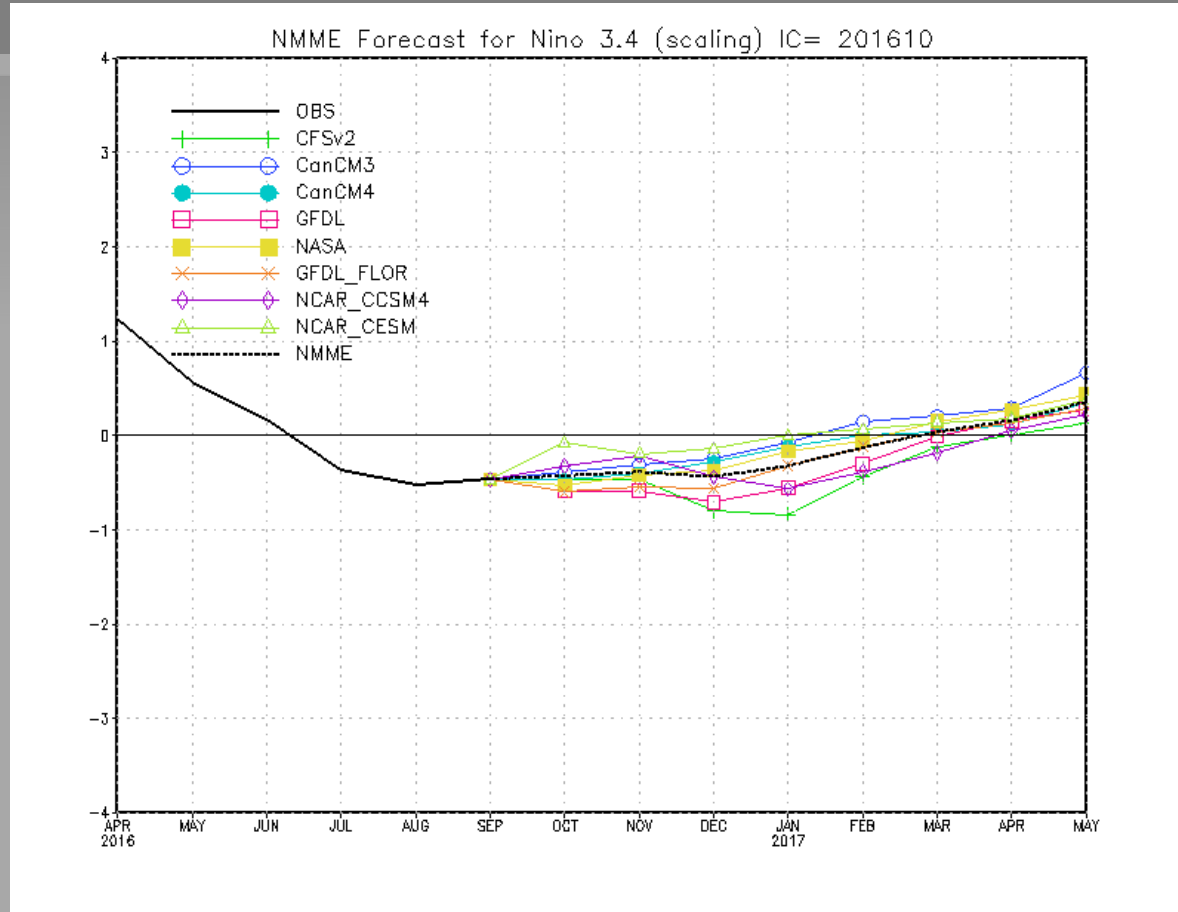
# SST Outlook: NCEP CFS.v2 Forecast (PDF corrected)

Issued: 17 October 2016

The CFS.v2 ensemble mean (black dashed line) favors La Niña during the Northern Hemisphere fall and winter 2016-17.



# North American Multi-Model Ensemble (NMME) Niño 3.4 SST Model Outlook

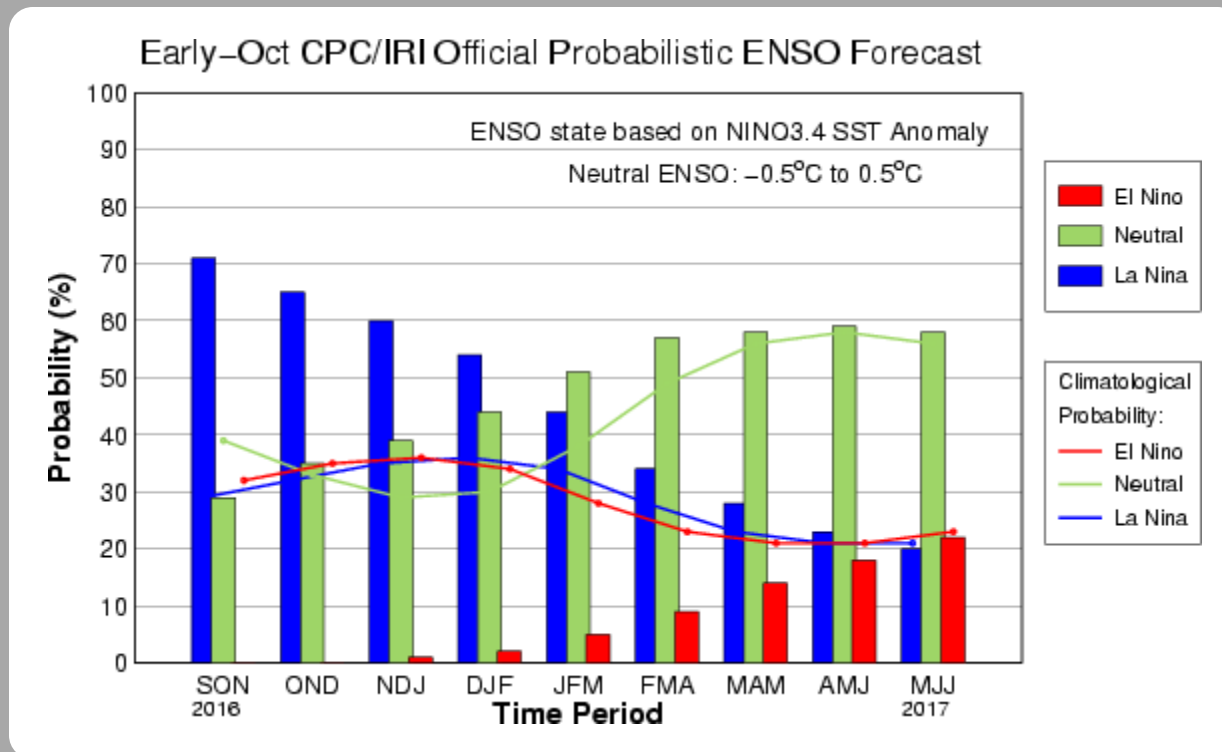


At this time, CPC/IRI forecasters favor “weak” (ONI < -0.5°C) peak amplitude during the late fall and early winter.

# CPC/IRI Probabilistic ENSO Outlook

Updated: 13 October 2016

La Niña is favored to develop (~70% chance) during the Northern Hemisphere fall 2016 and slightly favored to persist (~55% chance) during winter 2016-17.





Typical Wintertime Pattern

# La Niña

Polar Jet Stream

High Pressure



Cool

Wet

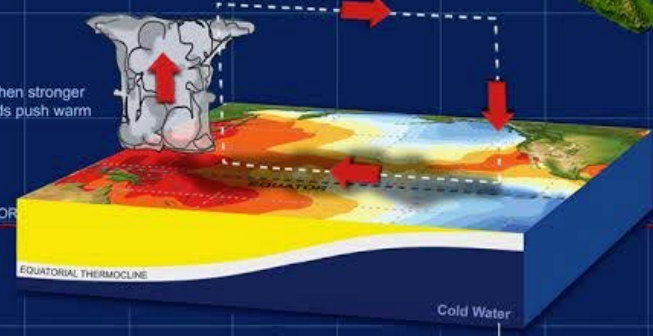
Pacific Jet Stream

Dry

Wet

Warm

La Niña develops when stronger than normal trade winds push warm water farther west.



Enhanced upwelling makes surface waters in the eastern Pacific cooler than normal.



[www.weather.gov](http://www.weather.gov)

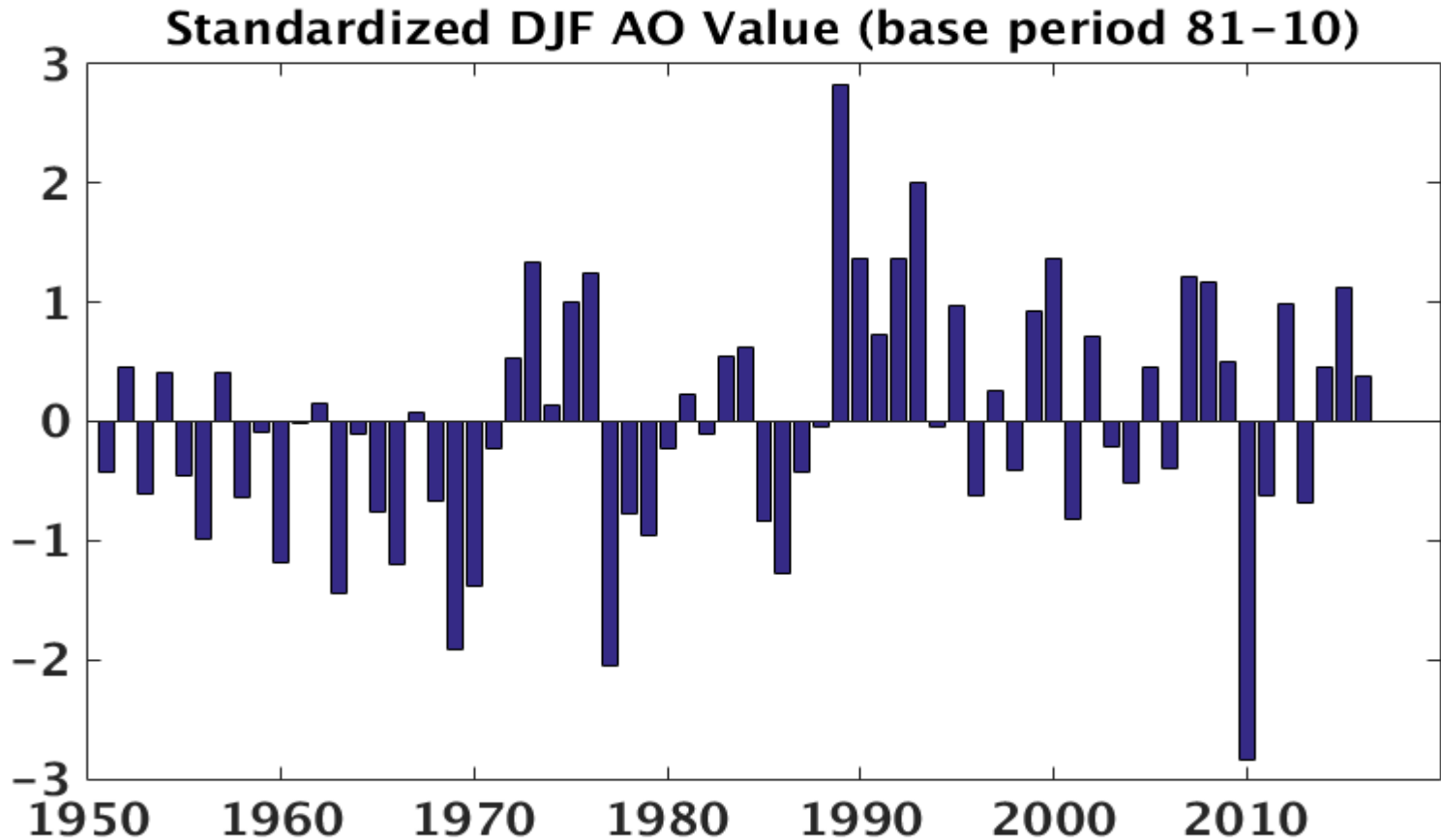


# **NORTH ATLANTIC OSCILLATION/ ARCTIC OSCILLATION**

- **A major source of intraseasonal variability over the U. S., Atlantic and Europe during winter.**
- **Modulates the circulation pattern over the high latitudes thereby regulating the number and intensity of significant weather events affecting the U.S., such as cold air outbreaks.**
- **Currently there is no reliable capability to forecast the seasonal phase.**

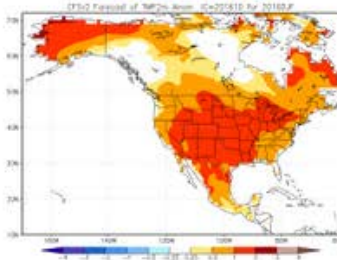


# NH Winter Arctic Oscillation (AO)

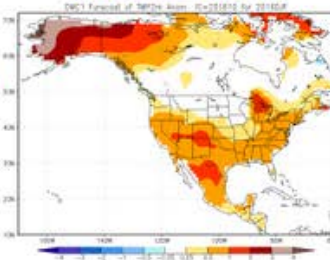


# Individual NMME Model Forecasts DJF 2016-17

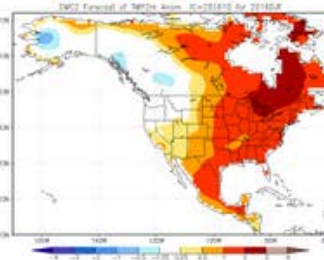
NCEP CFSv2



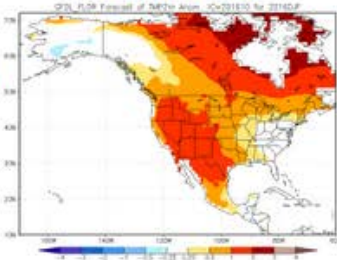
CMC1 CanCM3



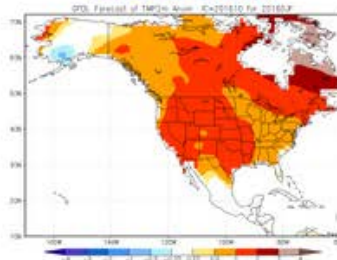
CMC2 CanCM4



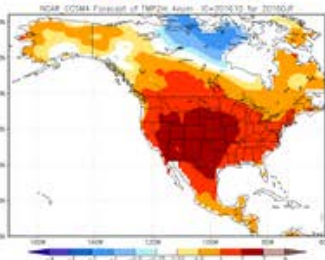
GFDL FLOR



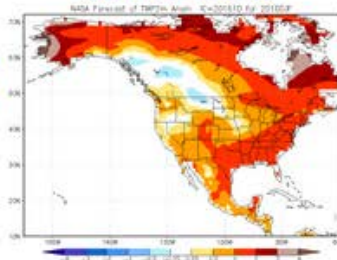
GFDL CM2.1



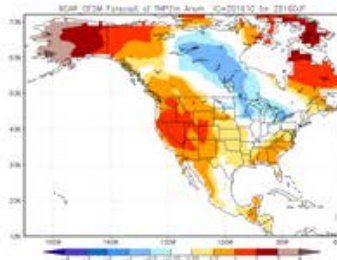
NCAR CCSM4



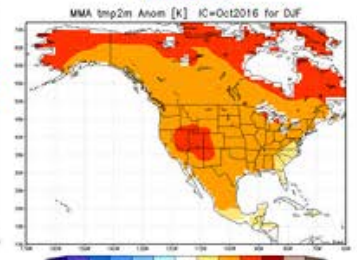
NASA GEOS5



NCAR CESM



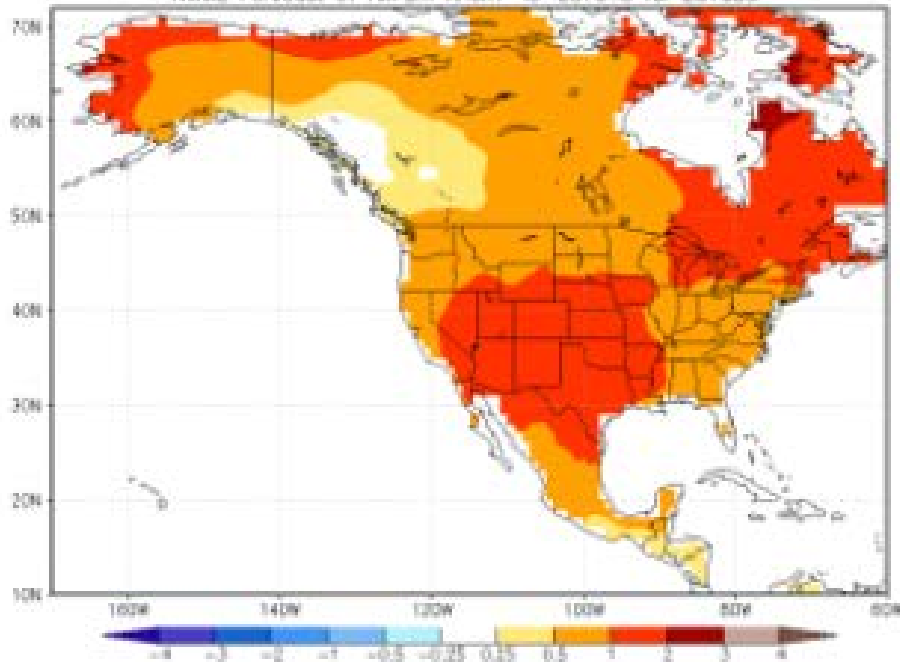
IMME



# National Multi-Model Ensemble

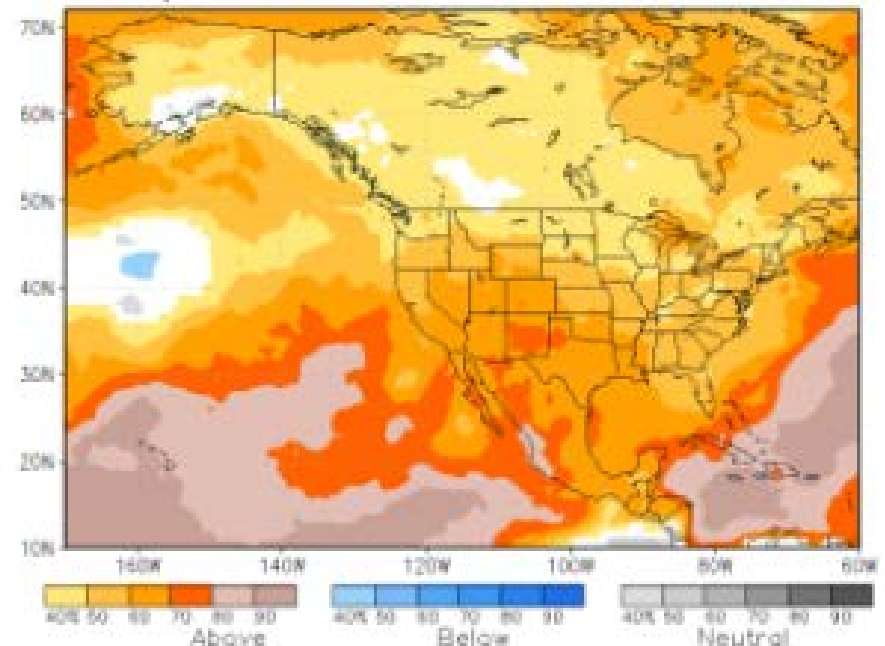
## NMME

NMME Forecast of TMP2m Anom. IC=201610 for 2016DJF



## Prob fcst

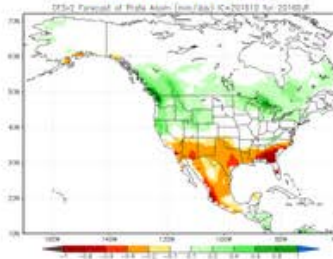
NMME prob fcst TMP2m IC=201610 for lead 2 2016 DJF



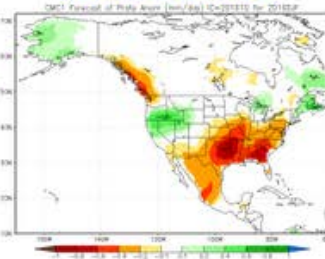
Forecast updated Oct. 8, 2016

# Individual NMME Model Forecasts DJF 2016-17

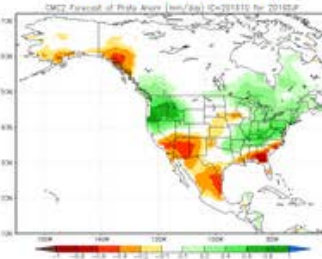
NCEP CFSv2



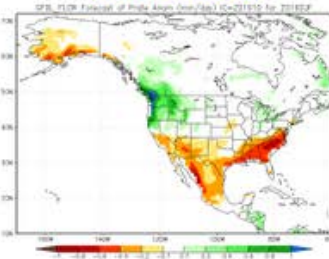
CMC1 CanCM3



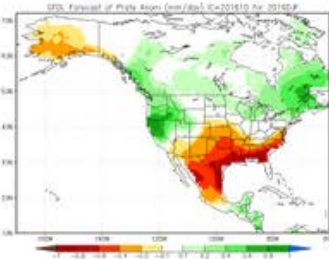
CMC2 CanCM4



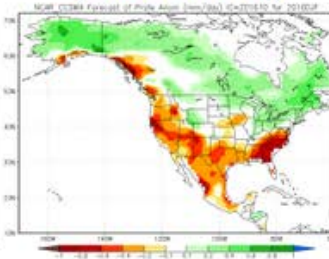
GFDL FLOR



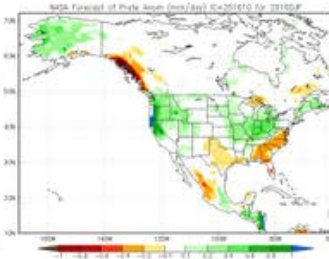
GFDL CM2.1



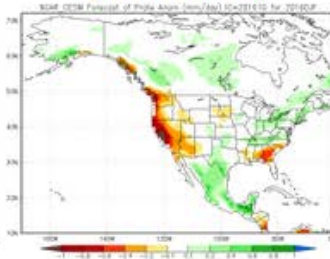
NCAR CCSM4



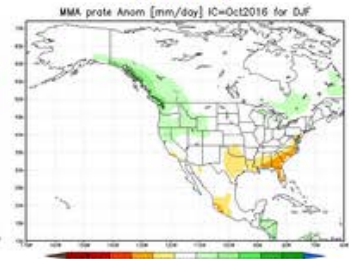
NASA GEOS5



NCAR CESM

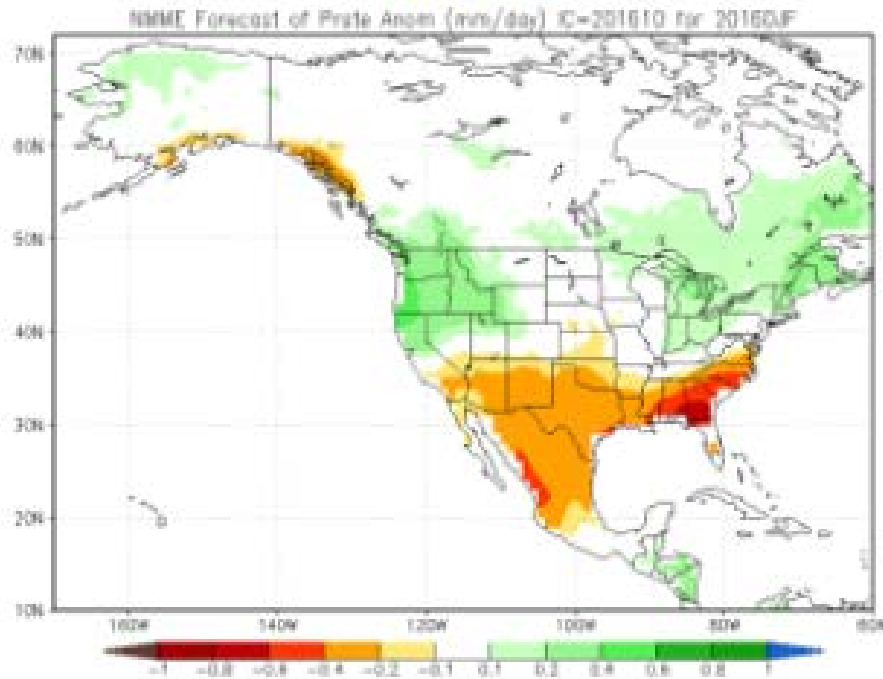


IMME

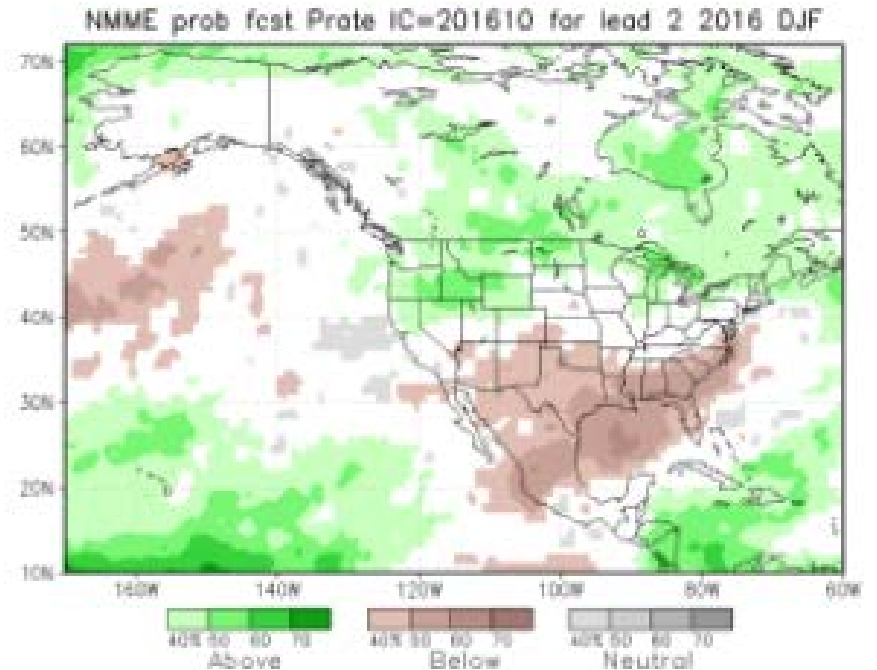


# National Multi-Model Ensemble

## NMME



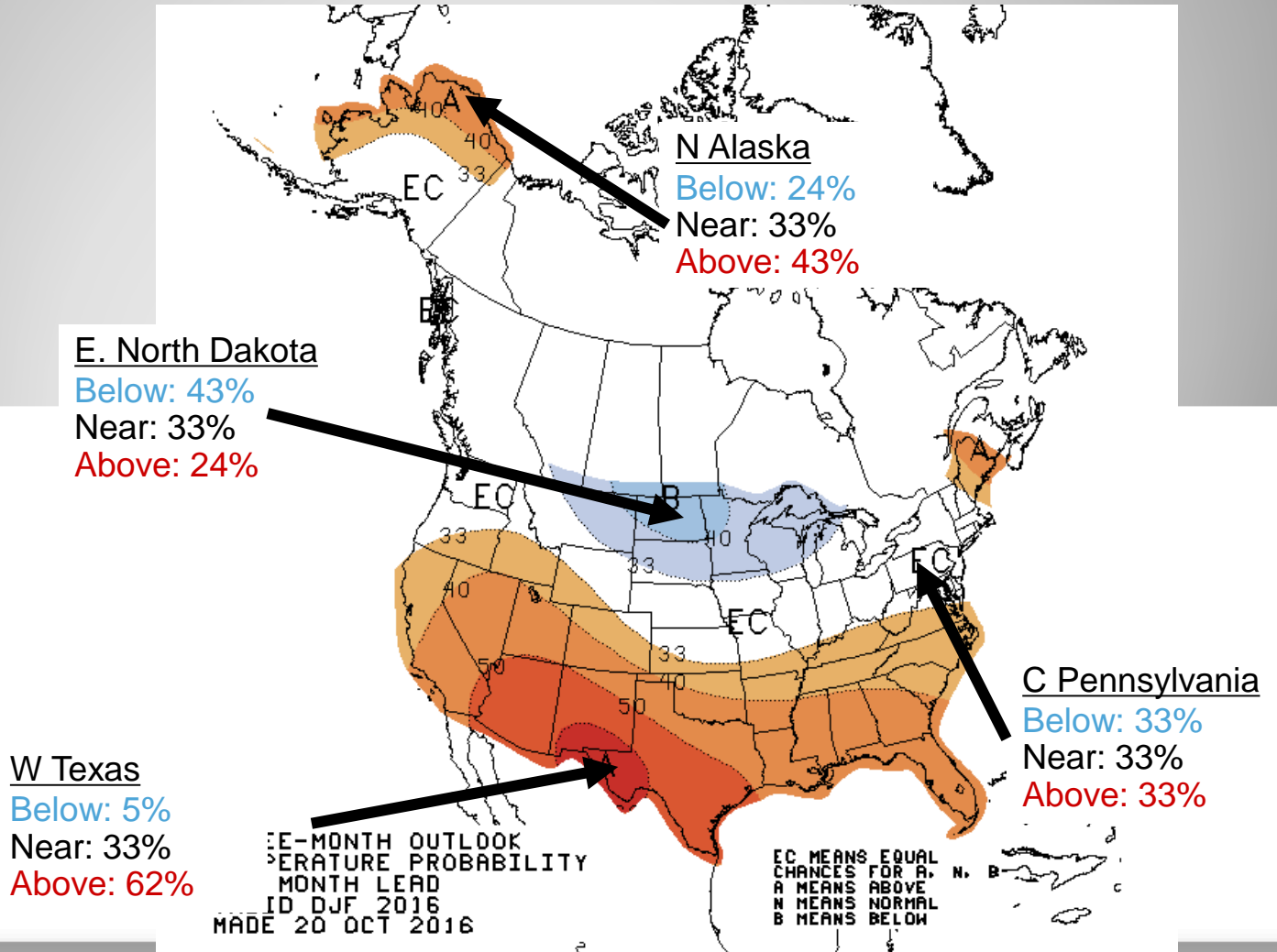
## Prob fcst



Forecast updated Oct. 8, 2016



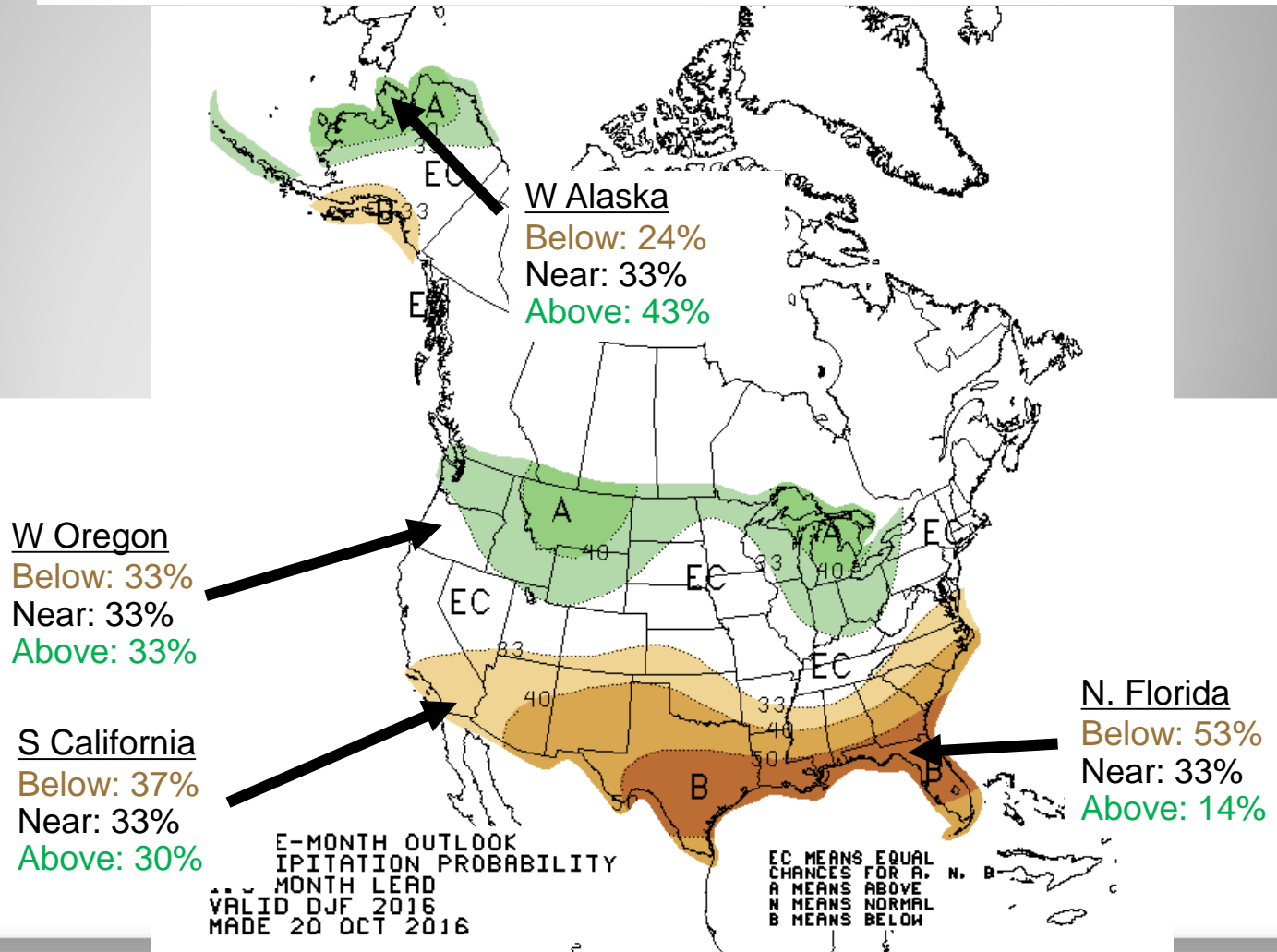
# December 2016 – February 2017 Temperature Outlook





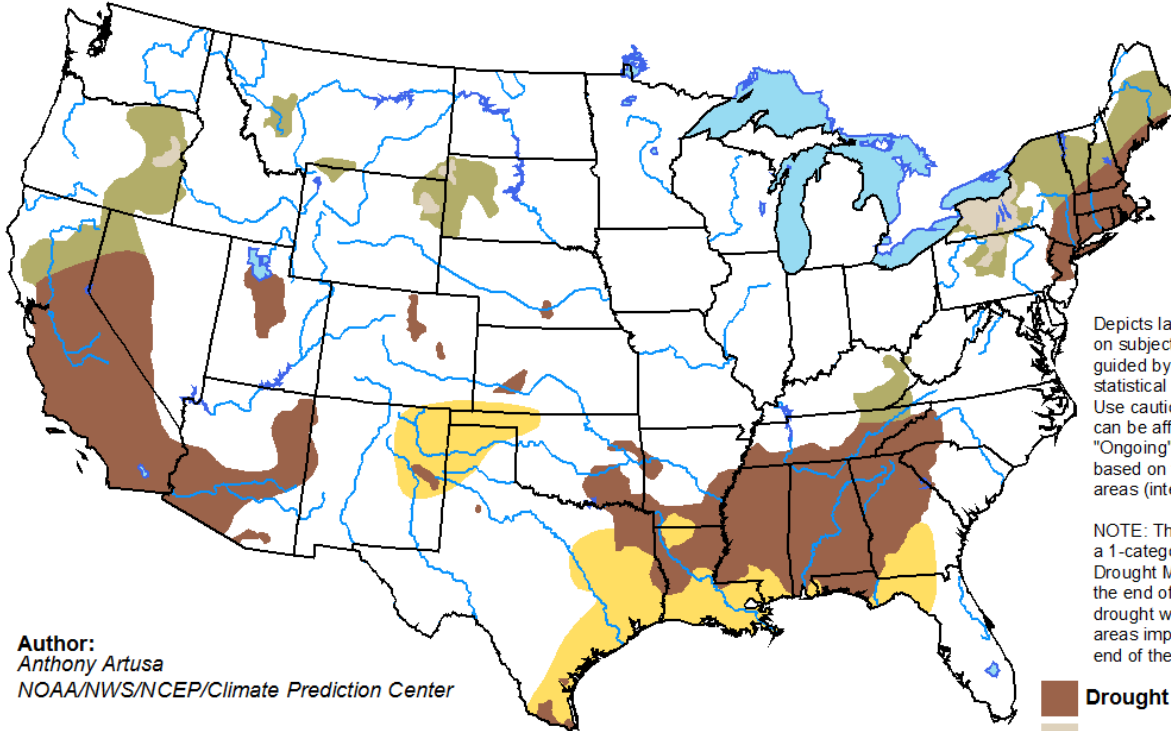


# December 2016 – February 2017 Precipitation Outlook





# Seasonal Drought Outlook Valid for Oct 20 – Jan 31 2017

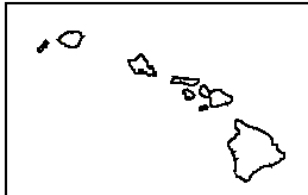
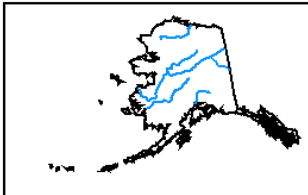


Depicts large-scale trends based on subjectively derived probabilities guided by short- and long-range statistical and dynamical forecasts. Use caution for applications that can be affected by short lived events. "Ongoing" drought areas are based on the U.S. Drought Monitor areas (intensities of D1 to D4).

NOTE: The tan 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).

Author:  
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NOAA/NWS/NCEP/Climate Prediction Center

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



<http://go.usa.gov/3eZ73>

# Summary

- The La Niña Watch has been reissued with La Niña conditions now favored to develop during the remainder of the Northern Hemisphere fall (~70%) and slightly favored for winter 2016-17 (~55%).
- Upgrading to La Niña Advisory quite possible next week.
- Temperature and Precipitation Outlooks are consistent with typical La Niña impacts.
- La Niña favors above normal snow in the northern Rockies and Ohio Valley / Great Lakes and less snow in mid-Atlantic.