

# Climate Conditions and Outlook for December 2017 - February 2018

## Northeast Monthly Climate Update

Mike Halpert  
Climate Prediction Center / NCEP/ NOAA  
31 October 2017

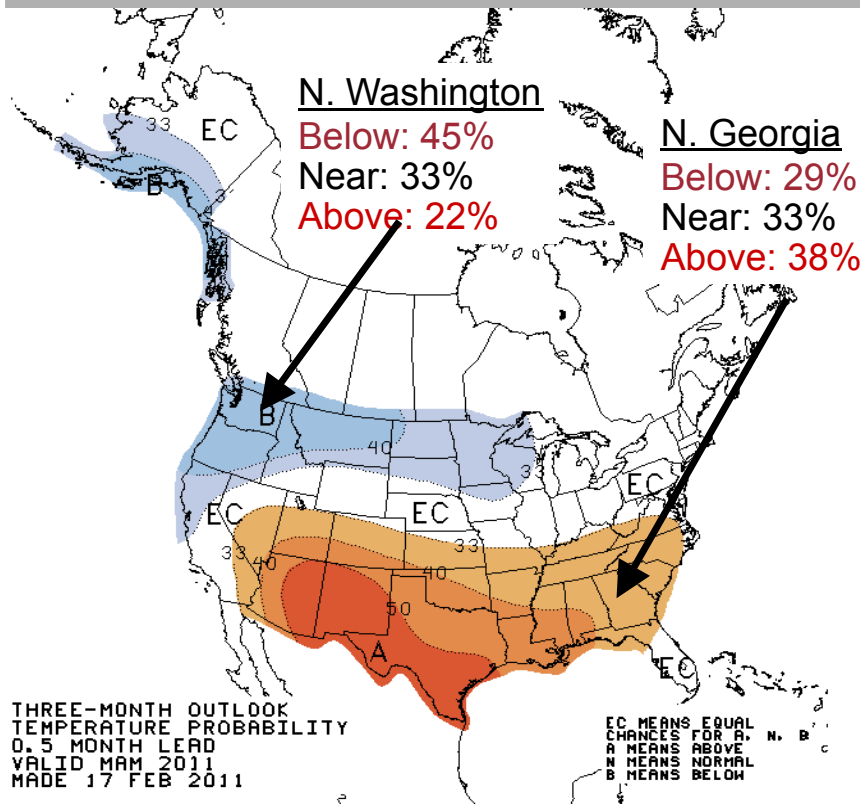


## Outlook Categories and Probabilities

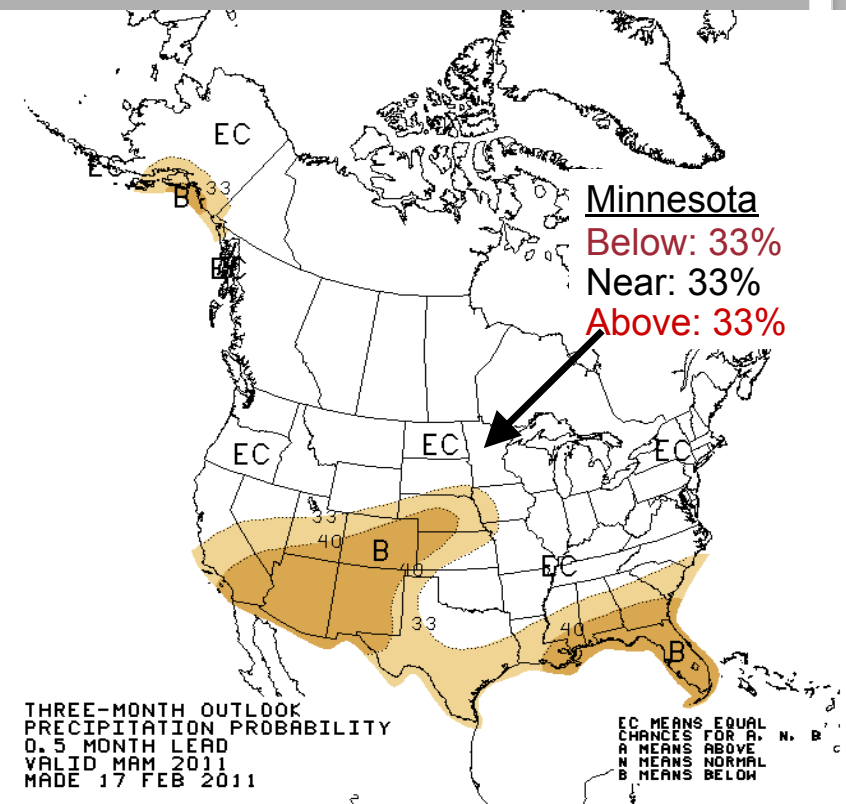
- Seasonal outlooks are prepared for average temperature and total accumulated precipitation category
- Three categories are used (terciles). These are **BELOW-, NEAR- and ABOVE-normal (median)**, for temperature (precipitation).
- Regions where the likelihoods of the three categories are the same (33.33...% each) are designated as “**EC**”, for equal chances.
- In non-EC regions the labels on the contours give the probability of the dominant category.

# U. S. Seasonal Outlooks Interpretation

## Temperature



## Precipitation





# About the Seasonal Outlook

- Each month, near mid-month CPC prepares a set of 13 outlooks for 3-month “seasons” (any set of 3 adjacent months) for lead times ranging from  $\frac{1}{2}$  month,  $1 \frac{1}{2}$  months,  $2 \frac{1}{2}$  months,  $3 \frac{1}{2}$  months, ...,  $12 \frac{1}{2}$  months.

## **Final Winter Outlook: November 16**

- The outlook for each successive/prior lead time overlaps the prior/successive one by 2 months. This overlap makes for a smooth variation from one map to the next.

# Summary

## ENSO Alert System Status: La Niña Watch

ENSO-Neutral conditions are present.\*

Equatorial sea surface temperatures (SSTs) are near-to-below average across the central and eastern Pacific Ocean.

La Niña conditions are favored (~55%-65%) during the Northern Hemisphere fall and winter 2017-18.\*

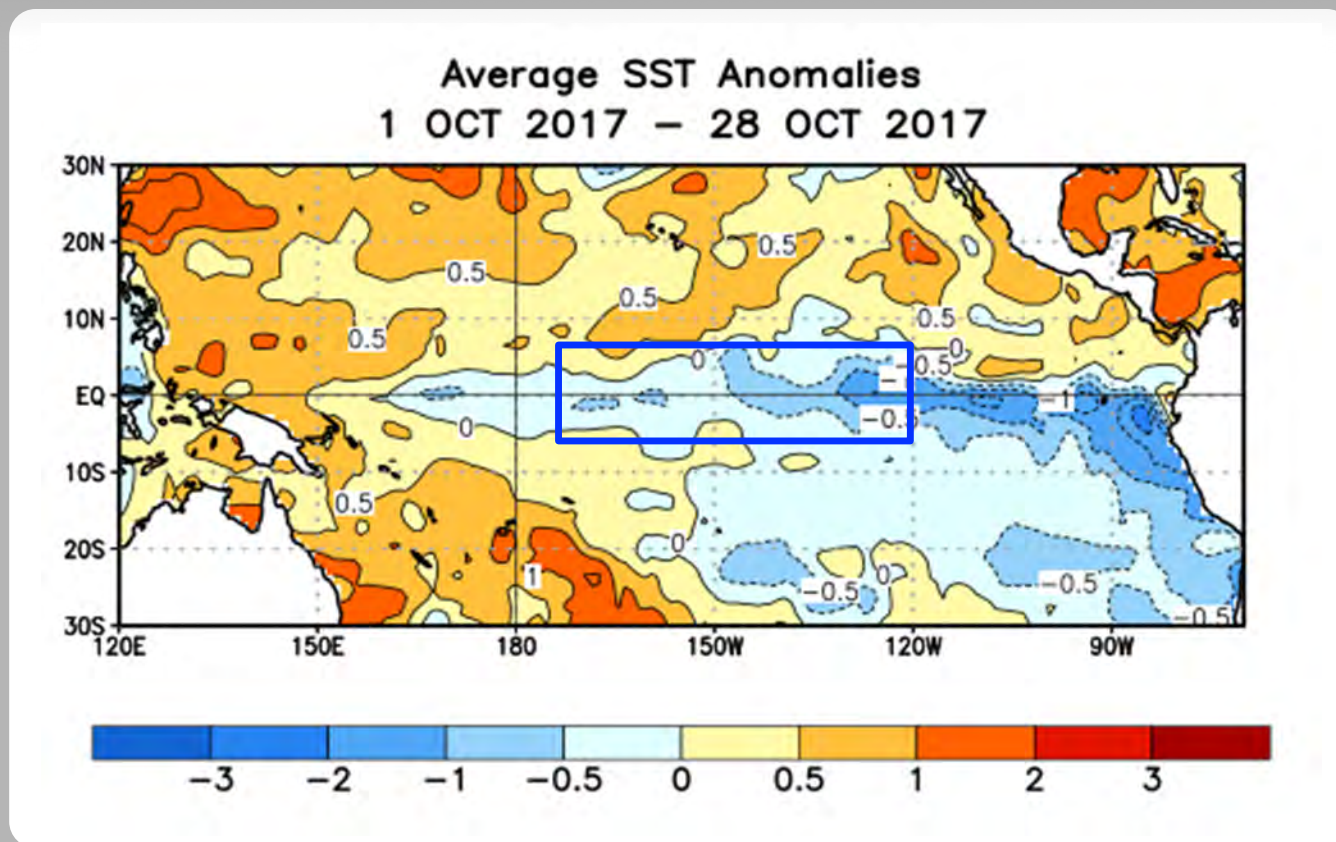
**ENSO Diagnostics Discussion** [http://www.cpc.ncep.noaa.gov/products/analysis\\_monitoring/enso\\_advisory/ensodisc.html](http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/enso_advisory/ensodisc.html)

**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

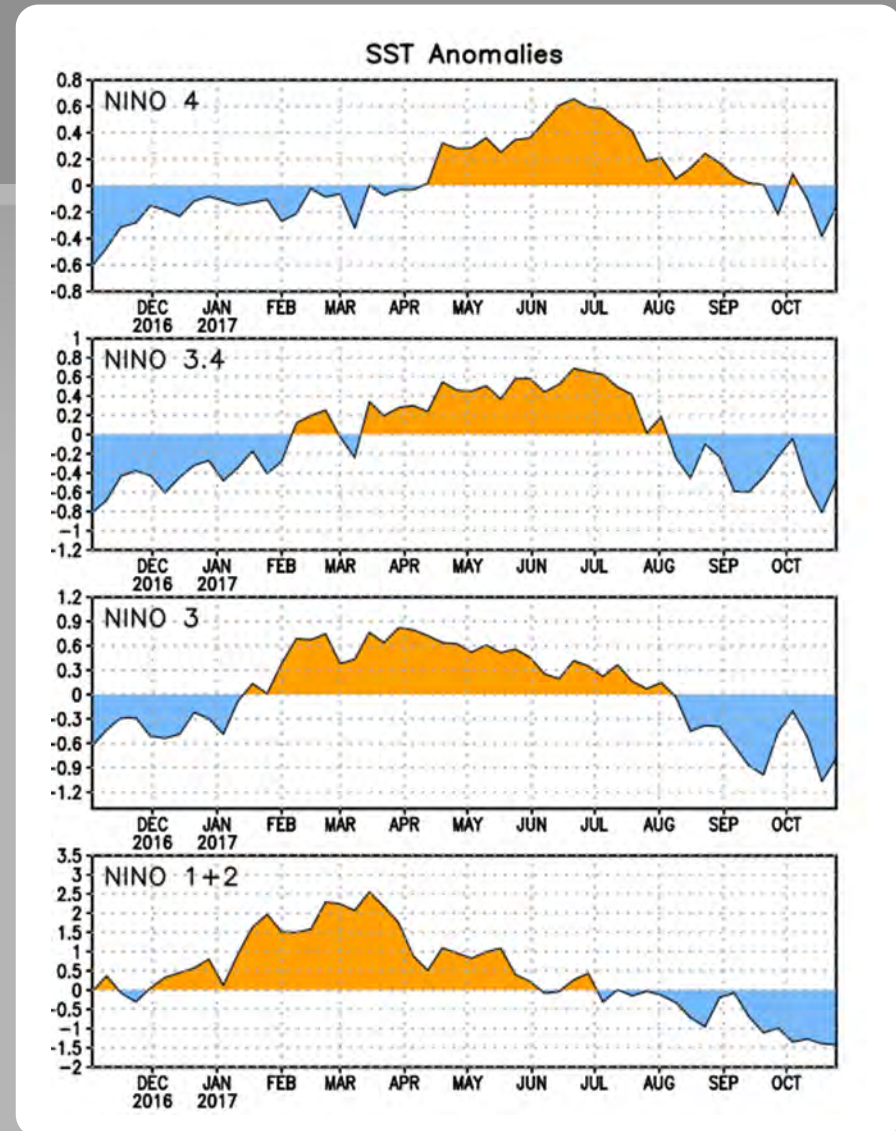
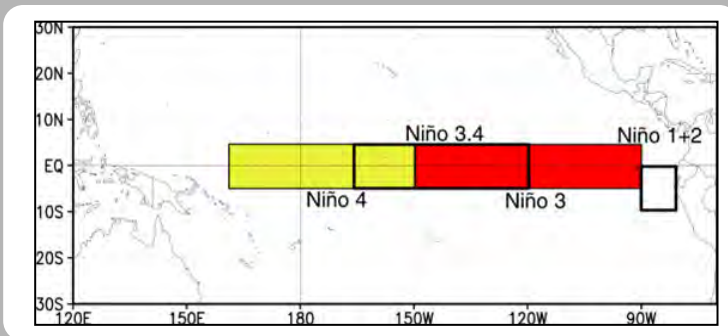
During the last four weeks, equatorial SSTs were below average across the eastern Pacific Ocean, and above average in the far western Pacific.



# Niño Region SST Departures (°C) Recent Evolution

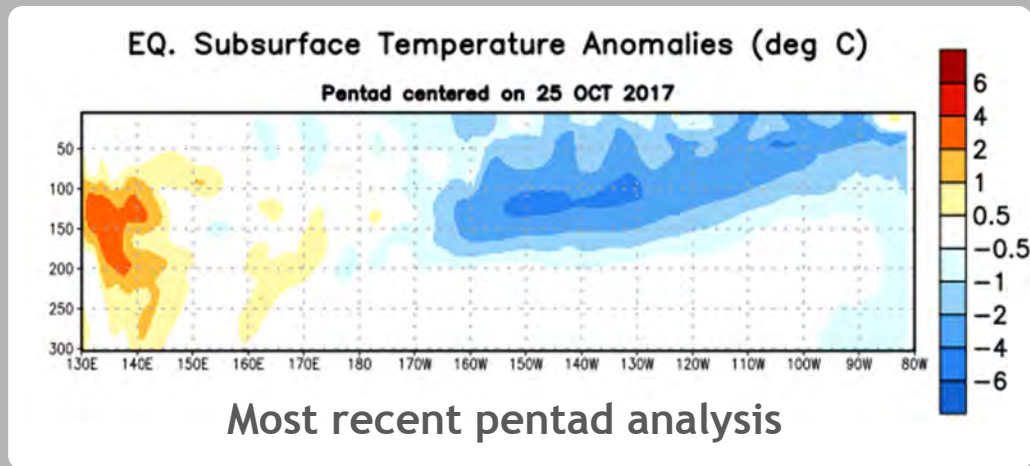
The latest weekly SST departures are:

Niño 4	-0.2°C
Niño 3.4	-0.5°C
Niño 3	-0.8°C
Niño 1+2	-1.4°C

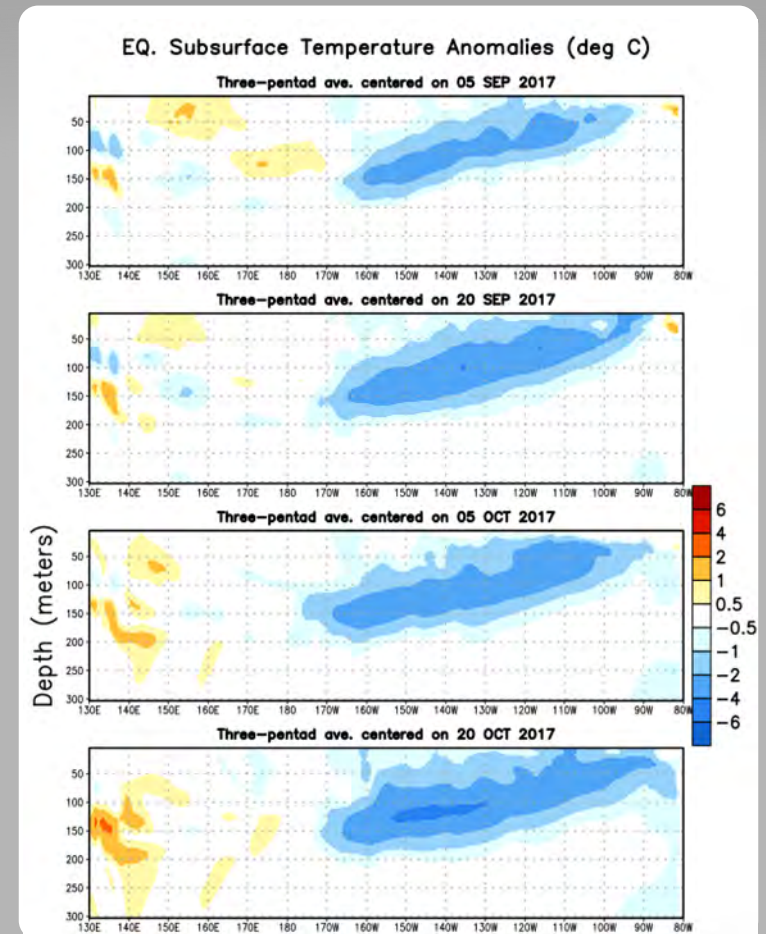


# Sub-Surface Temperature Departures in the Equatorial Pacific

In the last two months, negative subsurface temperature anomalies have expanded across the Pacific Ocean.



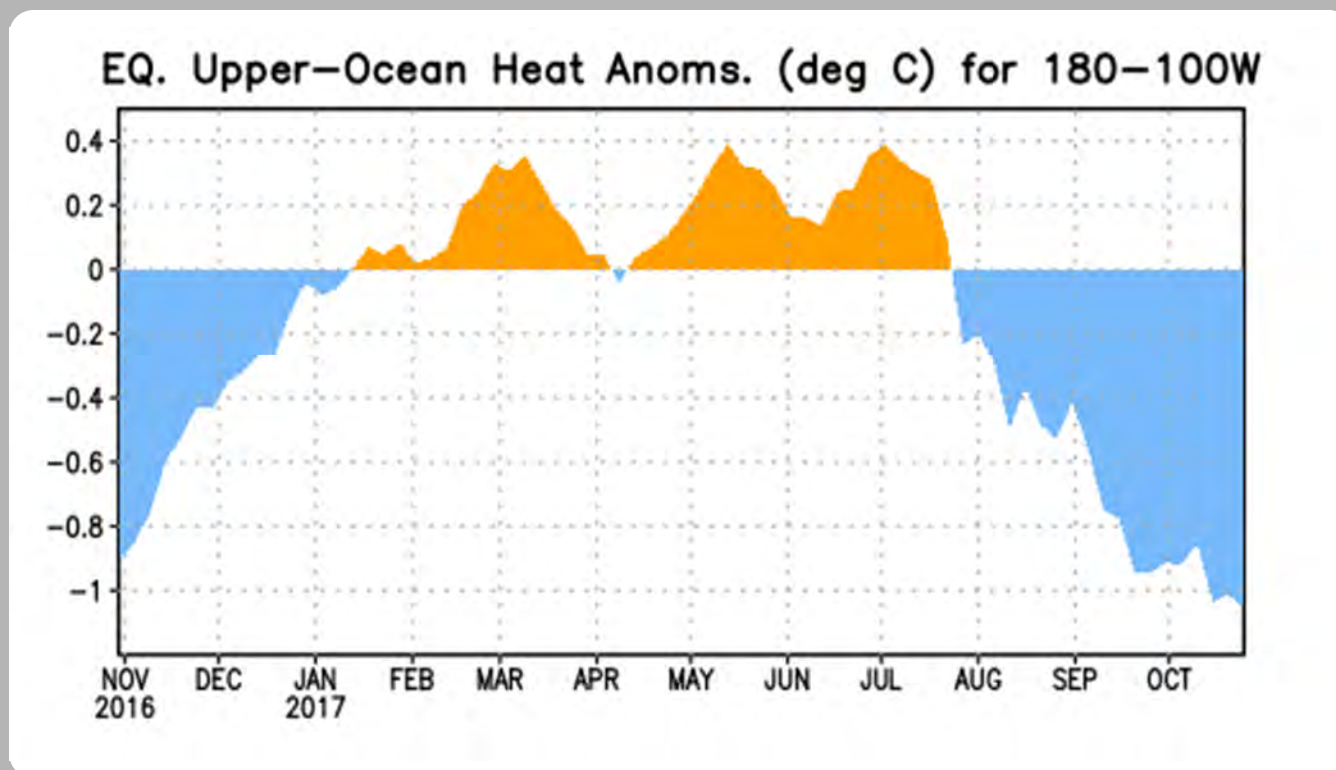
Recently, the strongest negative anomalies are between 170°W-80°W.





## Central and Eastern Pacific Upper-Ocean (0-300 m) Weekly Average Temperature Anomalies

Negative subsurface temperature anomalies were present through December 2016. Positive anomalies were present from mid-January through March 2017 before weakening to near zero. Starting in mid-April and mid-June, positive anomalies strengthened before tapering off again. Since mid-July, anomalies have decreased and are negative.

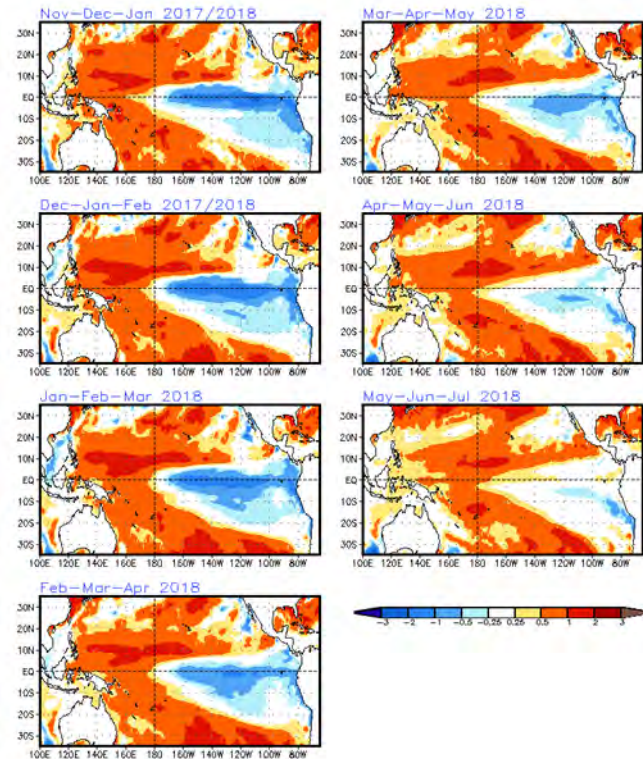
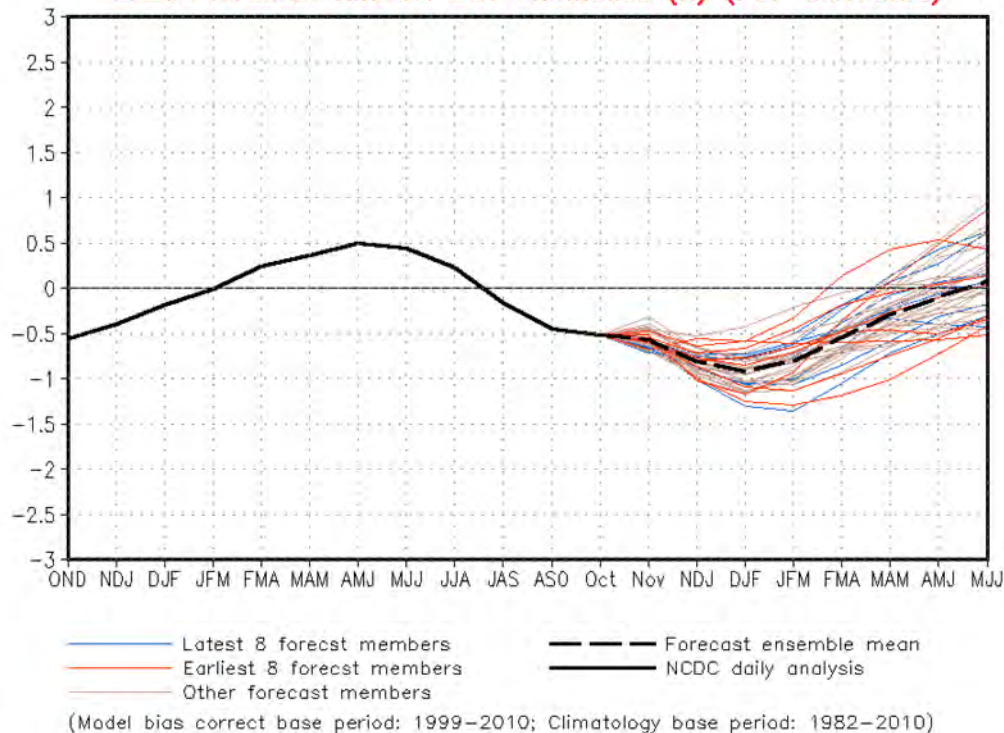


# SST Outlook: NCEP CFS.v2 Forecast (PDF corrected)

Issued: 30 October 2017

The CFS.v2 ensemble mean (black dashed line) favors La Niña during the Northern Hemisphere fall and winter 2017-18.

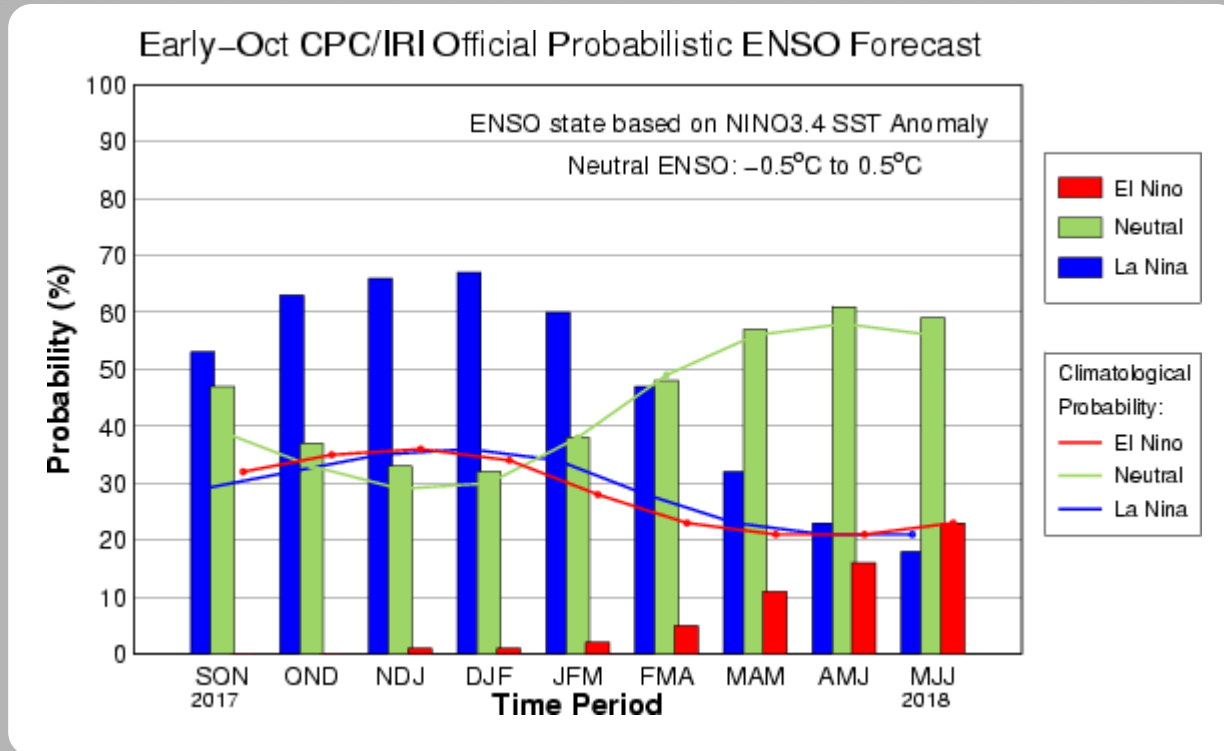
CFSv2 forecast Nino3.4 SST anomalies (K) (PDF corrected)



# CPC/IRI Probabilistic ENSO Outlook

Updated: 12 October 2017

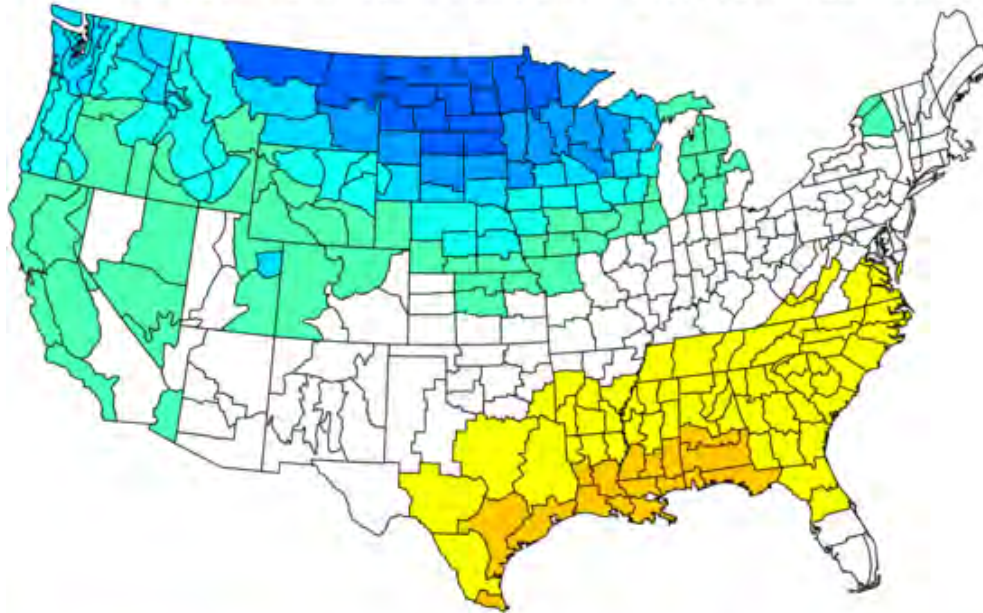
La Niña is favored (~55%-65%) during the Northern Hemisphere fall and winter 2017-18.



# Temperature anomalies during La Niña Episodes 21 Member Composite

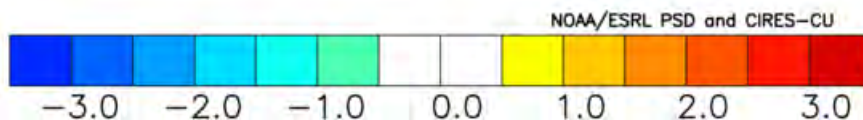
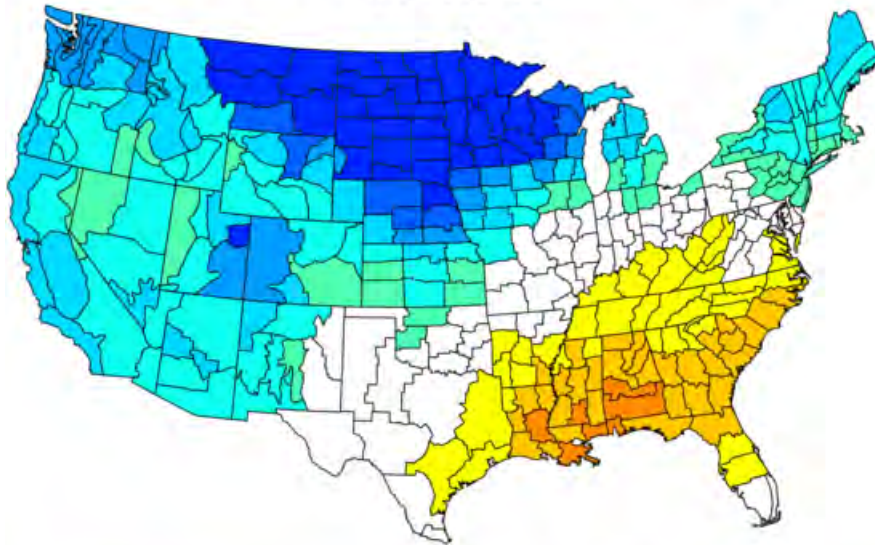
NOAA/NCEI Climate Division Composite Temperature Anomalies (F)  
Versus 1981–2010 Longterm Average

Dec to Feb 1973–74, 1988–89, 1999–00, 1975–76, 2007–08, 1949–50, 1998–99, 1970–71  
2010–11, 1955–56, 1984–85, 1995–96, 2005–06, 2008–09, 2011–12, 1954–55, 1971–72, 2000–01, 1964–



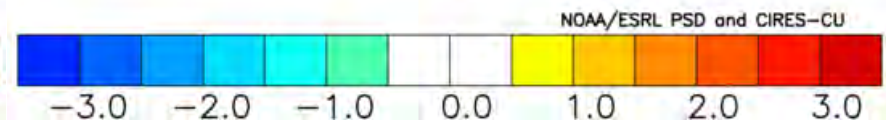
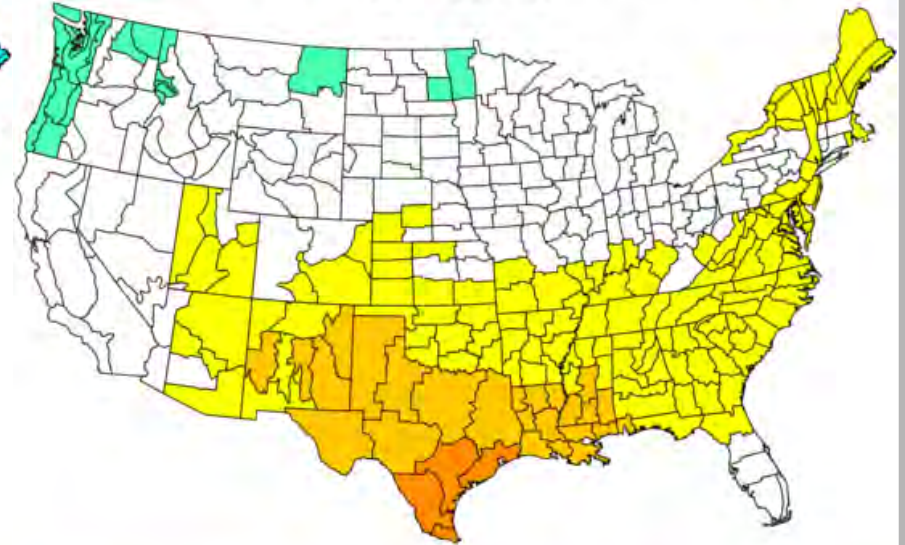
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1975–76,1983–84,



Episodes prior to 1985

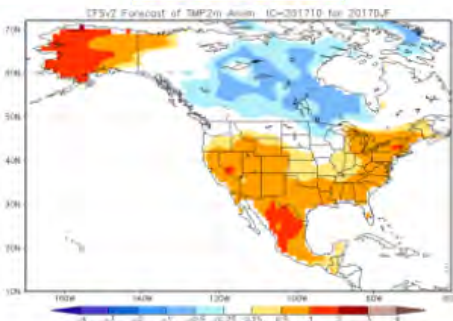
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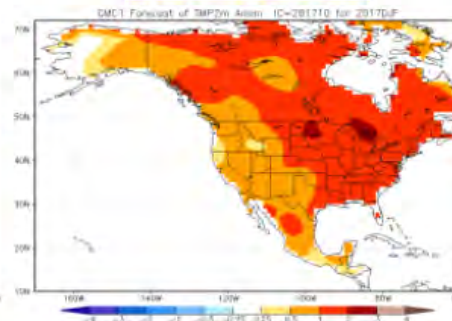
Episodes after 1985

# Individual NMME Model Forecasts DJF

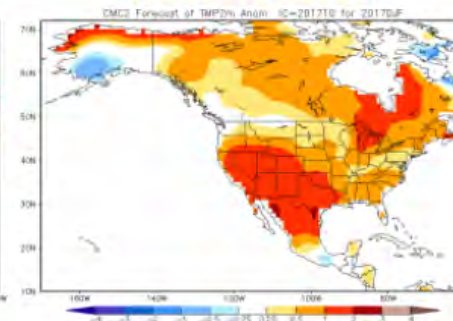
**NCEP CFSv2**



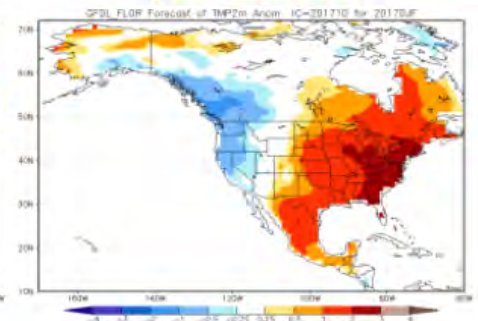
**CMC1 CanCM3**



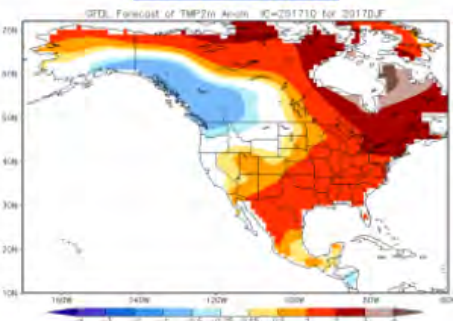
**CMC2 CanCM4**



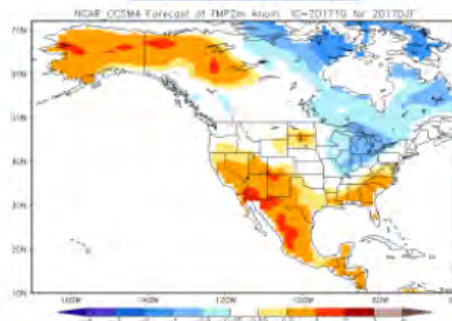
**GFDL FLOR**



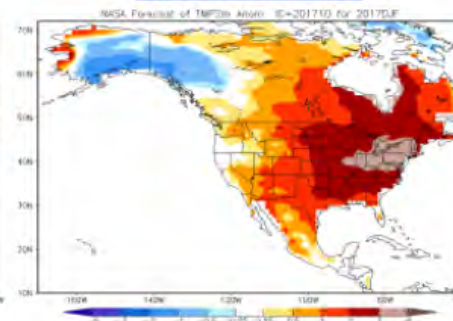
**GFDL CM2.1**



**NCAR CCSM4**



**NASA GEOS5**

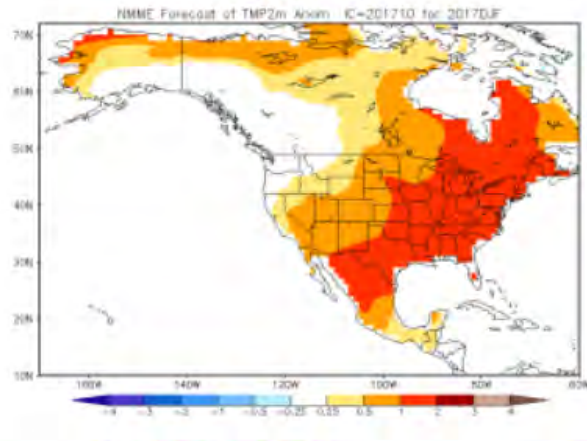


Forecast updated Oct. 8, 2017

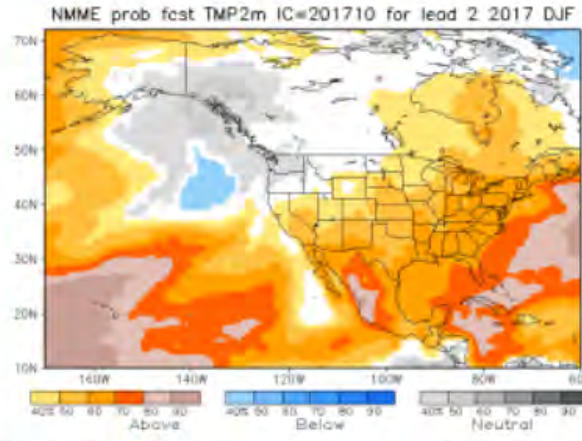


# National Multi-Model Ensemble

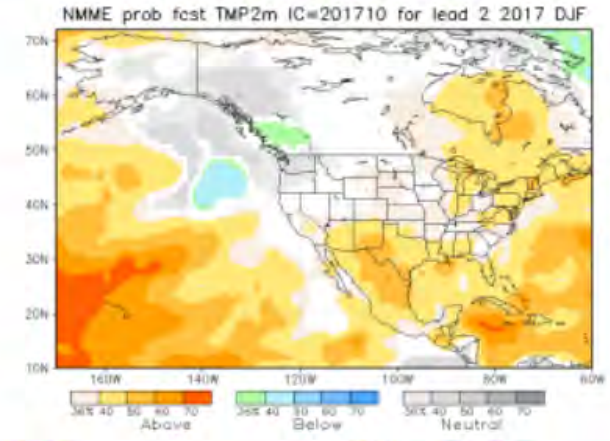
NMME



Prob fcst



PAC calib. prob fcst



Forecast updated Oct. 8, 2017



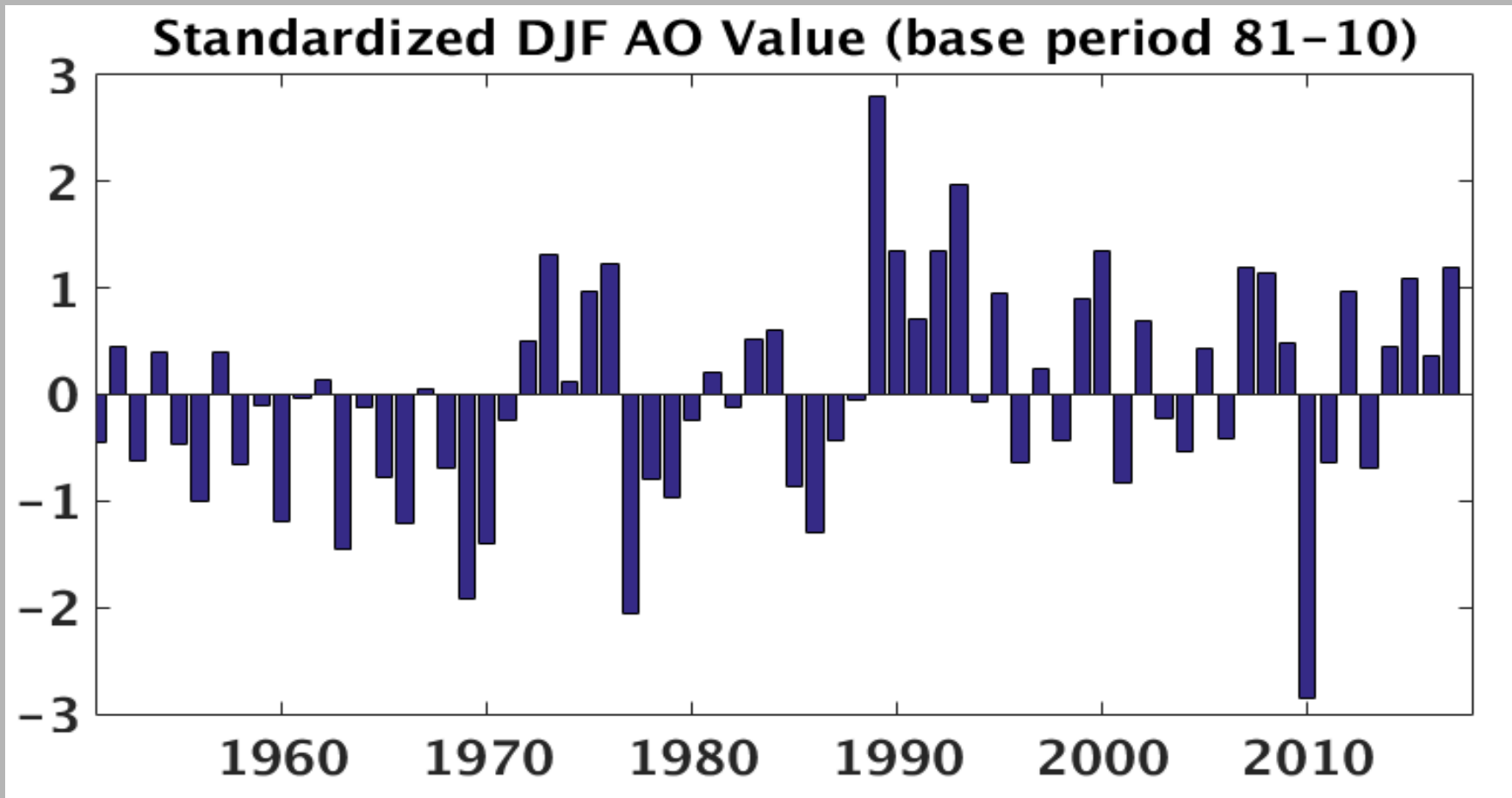
# NORTH ATLANTIC OSCILLATION/ ARCTIC OSCILLATION

- 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)





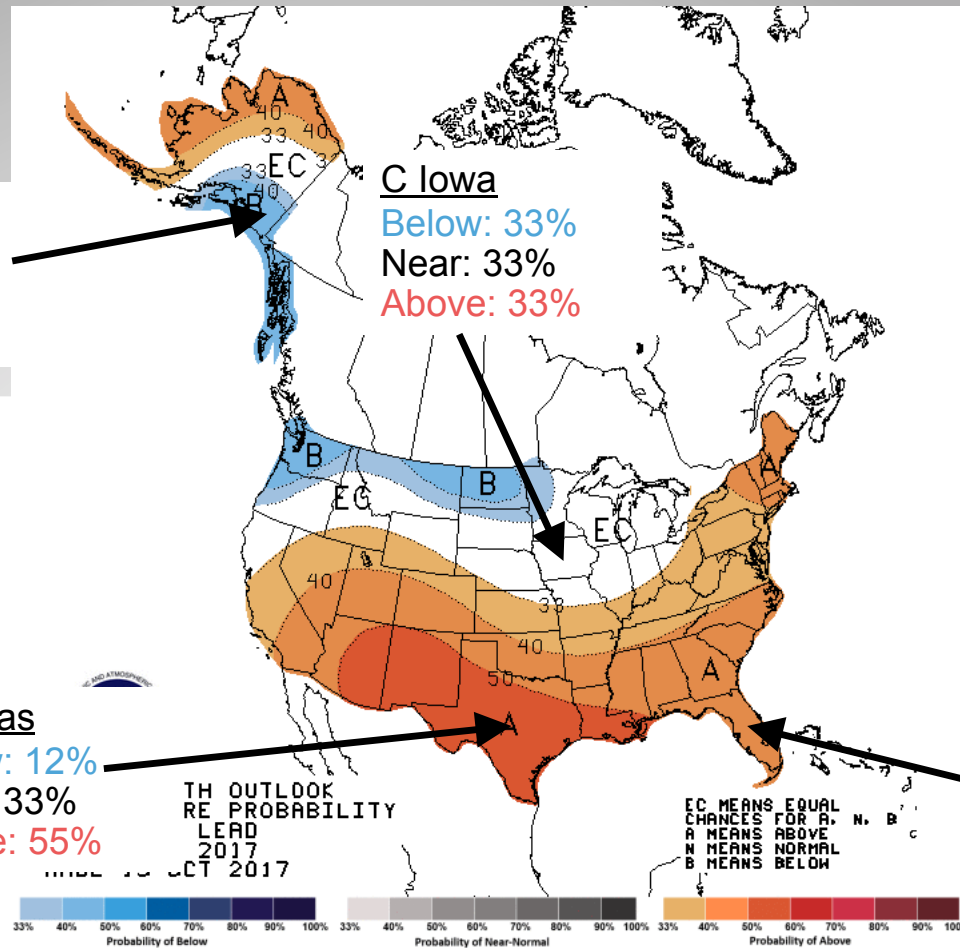
# December 2017 – February 2018 Temperature Outlook

S. Alaska  
Below: 42%  
Near: 33%  
Above: 25%

C Iowa  
Below: 33%  
Near: 33%  
Above: 33%

C Texas  
Below: 12%  
Near: 33%  
Above: 55%

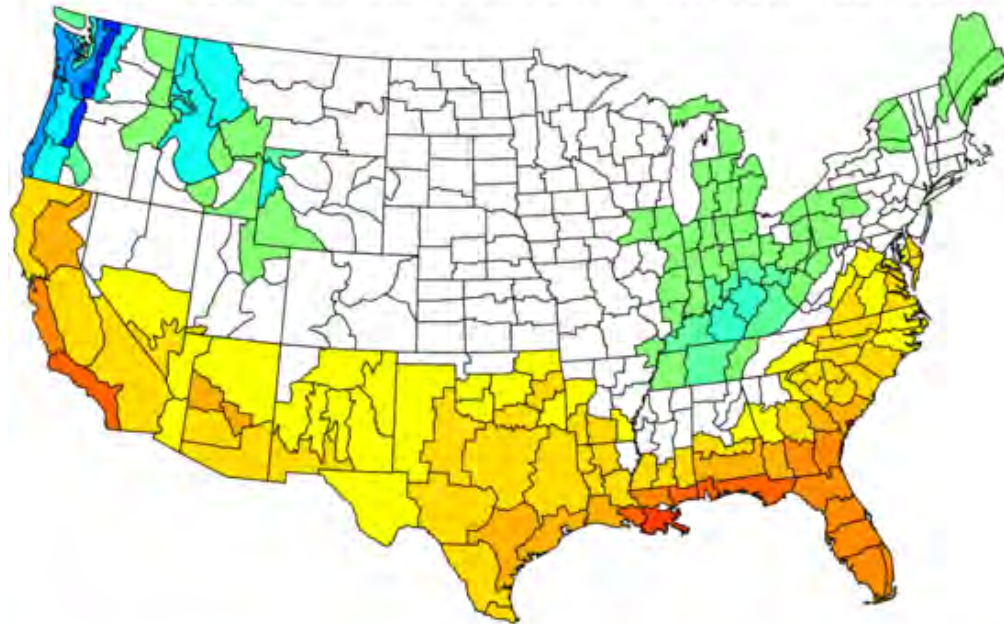
C. Florida  
Below: 22%  
Near: 33%  
Above: 45%



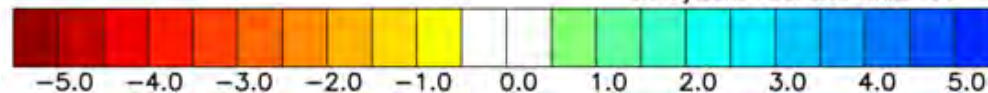
# Precipitation anomalies during La Niña Episodes 21 Member Composite

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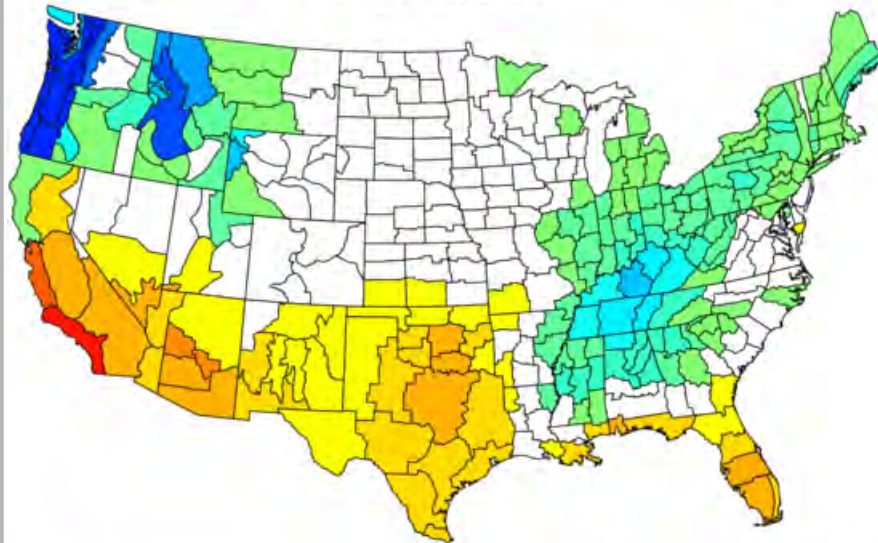


NOAA/ESRL PSD and CIRES-CU



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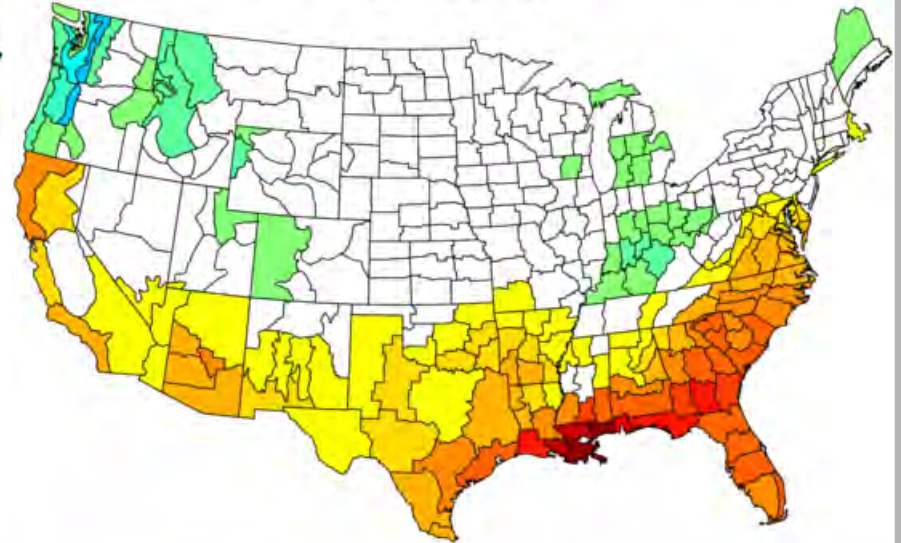


NOAA/ESRL PSD and CIRES-CU

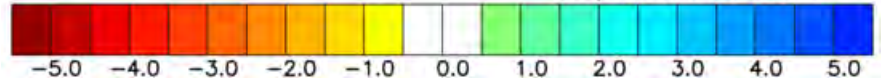


Episodes prior to 1985

NOAA/NCEI Climate Division Composite Precipitation Anomalies (in)  
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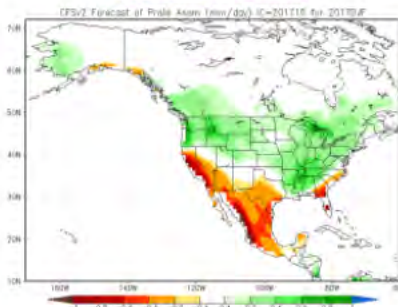
NOAA/ESRL PSD and CIRES-CU



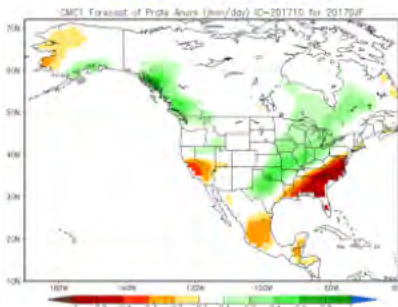
Episodes after 1985

# Individual NMME Model Forecasts DJF 2017

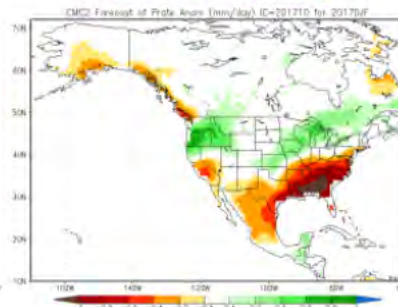
**NCEP CFSv2**



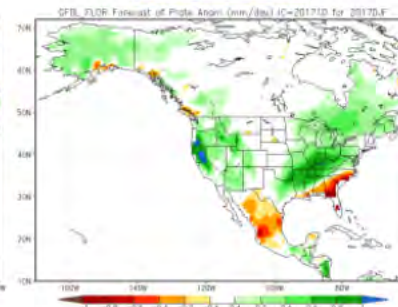
**CMC1 CanCM3**



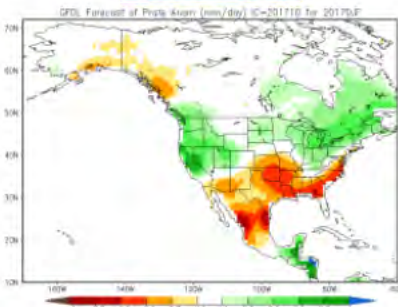
**CMC2 CanCM4**



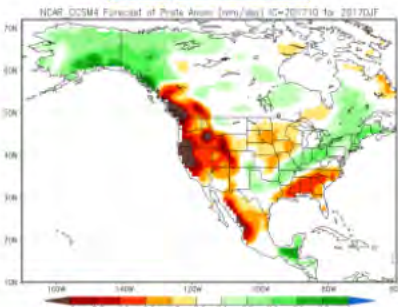
**GFDL FLOR**



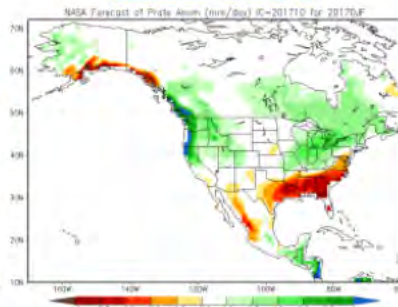
**GFDL CM2.1**



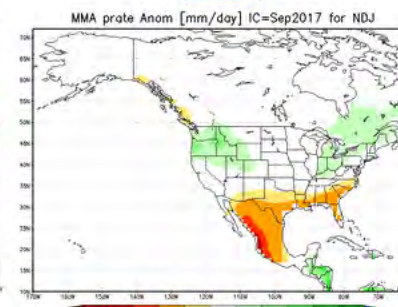
**NCAR CCSM4**



**NASA GEOS5**

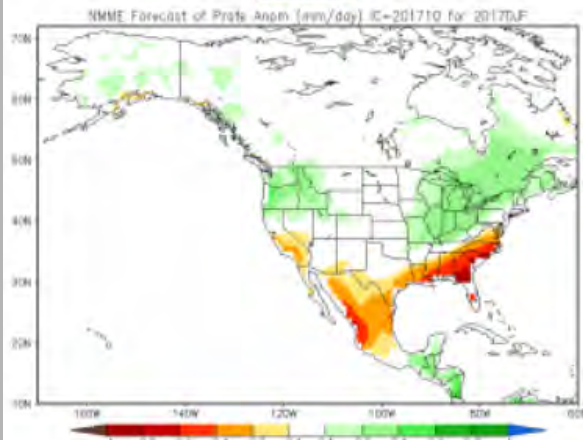


**IMME**

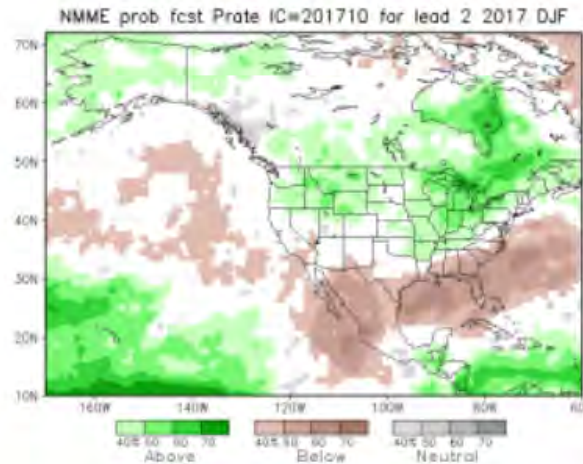


# North American Multi-Model Ensemble

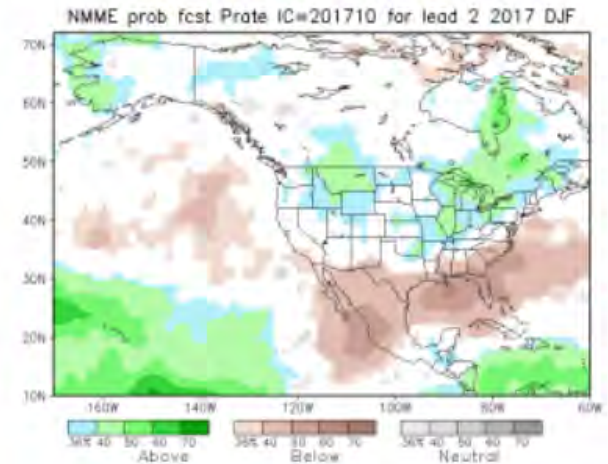
NMME



Prob fcst



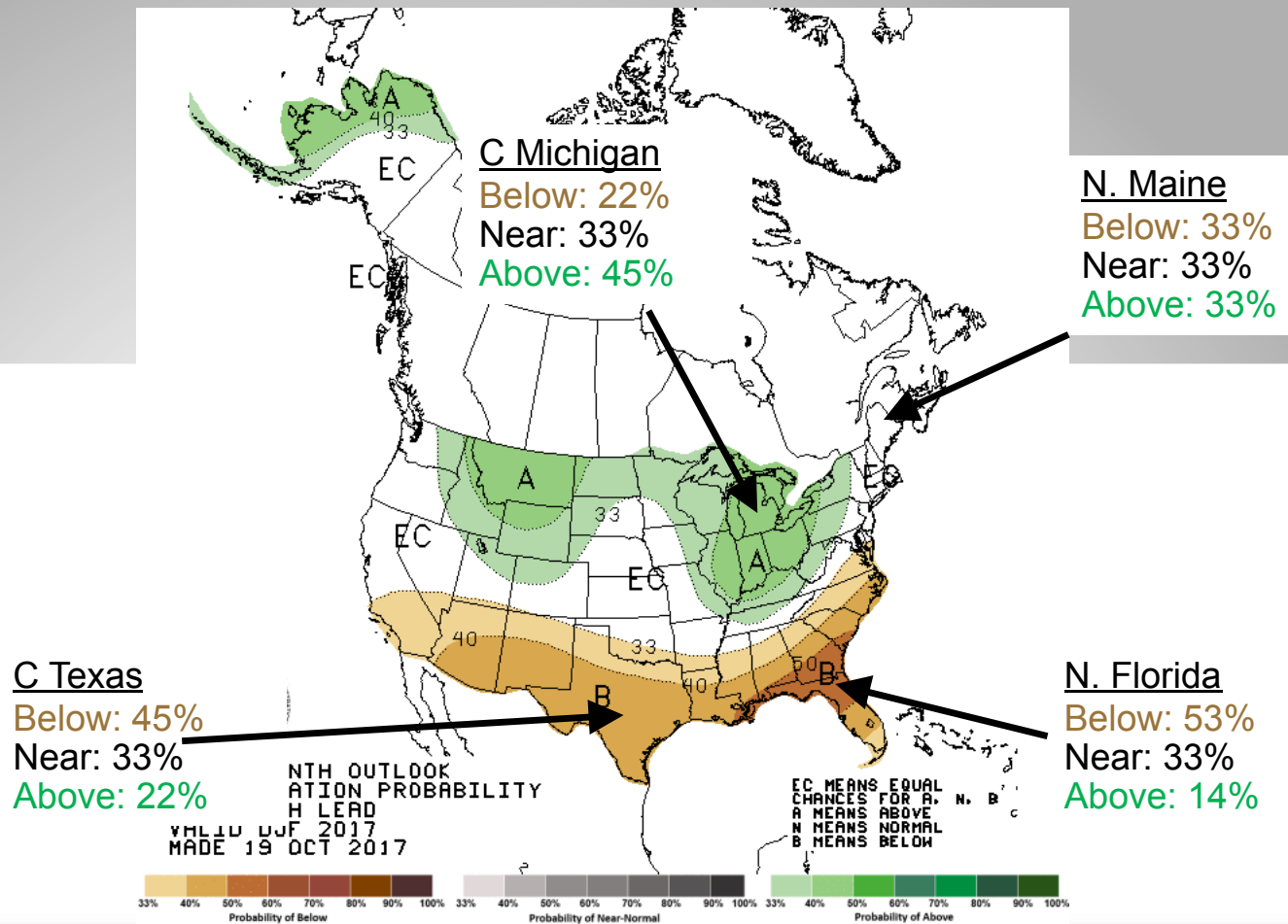
PAC calib. prob fcst



Forecast updated Oct. 8, 2017



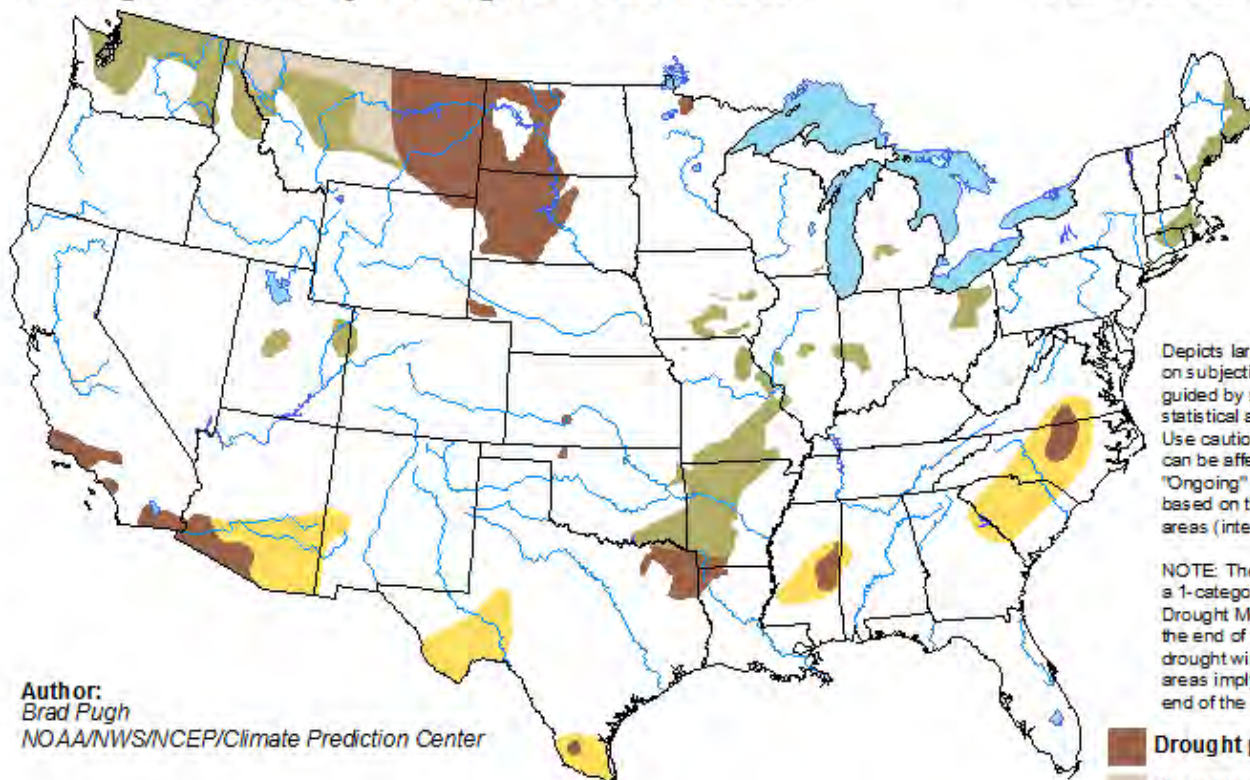
# December 2017 – February 2018 Precipitation Outlook



# U.S. Seasonal Drought Outlook

## Drought Tendency During the Valid Period





Valid for October 19 - January 31, 2018  
Released October 19, 2017

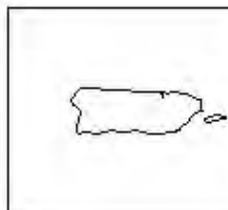


Author:  
Brad Pugh  
NOAA/NWS/NCEP/Climate Prediction Center

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).

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



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



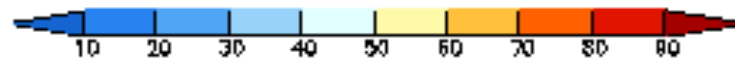
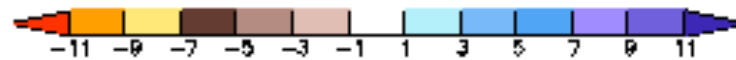
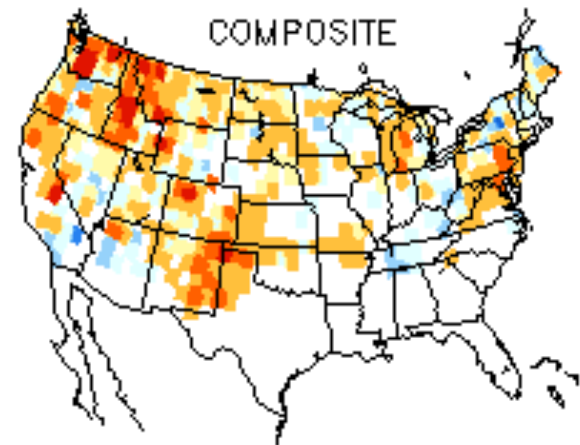
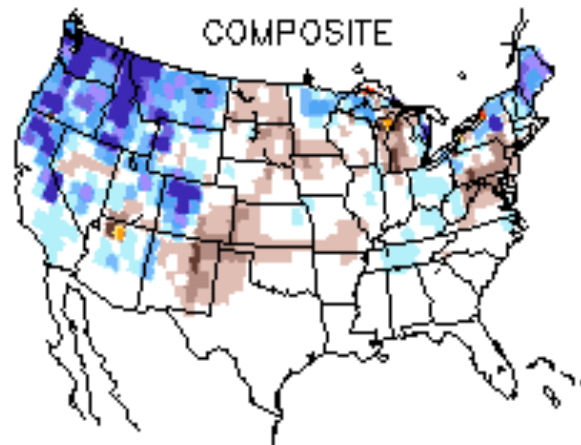
DJF LA NINA SNOW ANOMALIES (IN)  
AND FREQUENCY OF OCCURRENCE (%)

ANOMALIES

FREQUENCY

COMPOSITE

COMPOSITE



JFM LA NINA SNOW ANOMALIES (IN)  
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ANOMALIES

FREQUENCY

COMPOSITE

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