



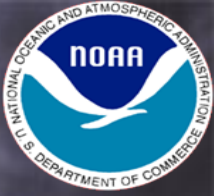
# Winter Outlook 2013-2014 (Dec-Feb)



**National Weather Service  
Peachtree City, GA**



# Outline



- **Climate Prediction Center's Outlook**
- **El Niño or La Niña?**
- **Other Influences**
- **Putting it all together**



# CPC Outlook

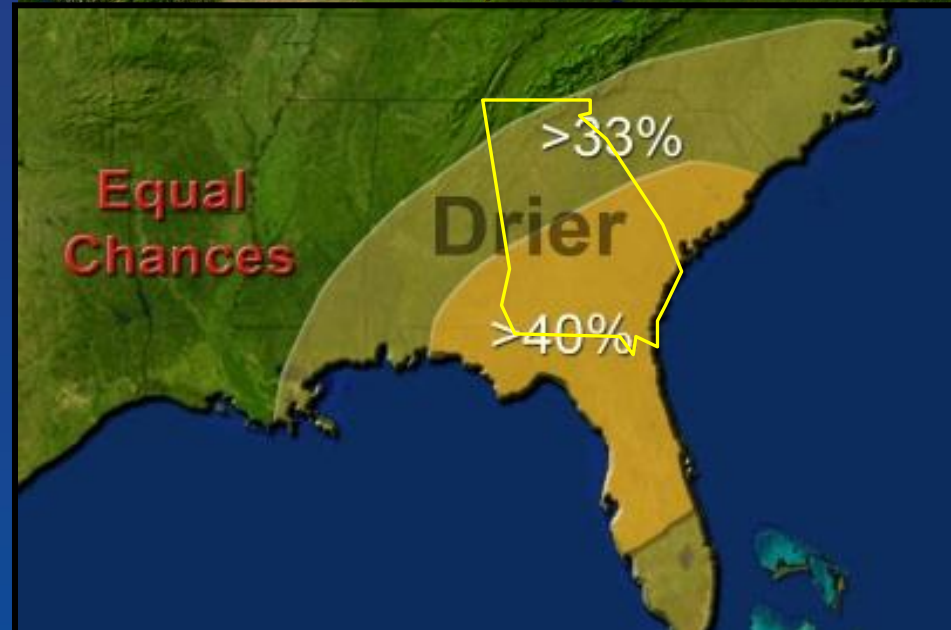


## U.S. Winter Outlook Temperature



Temps: **Equal chance** for above, below, or near normal

## U.S. Winter Outlook Precipitation

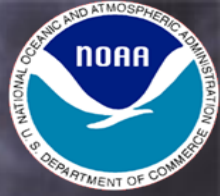


Precip: **33-40% chance** for below normal





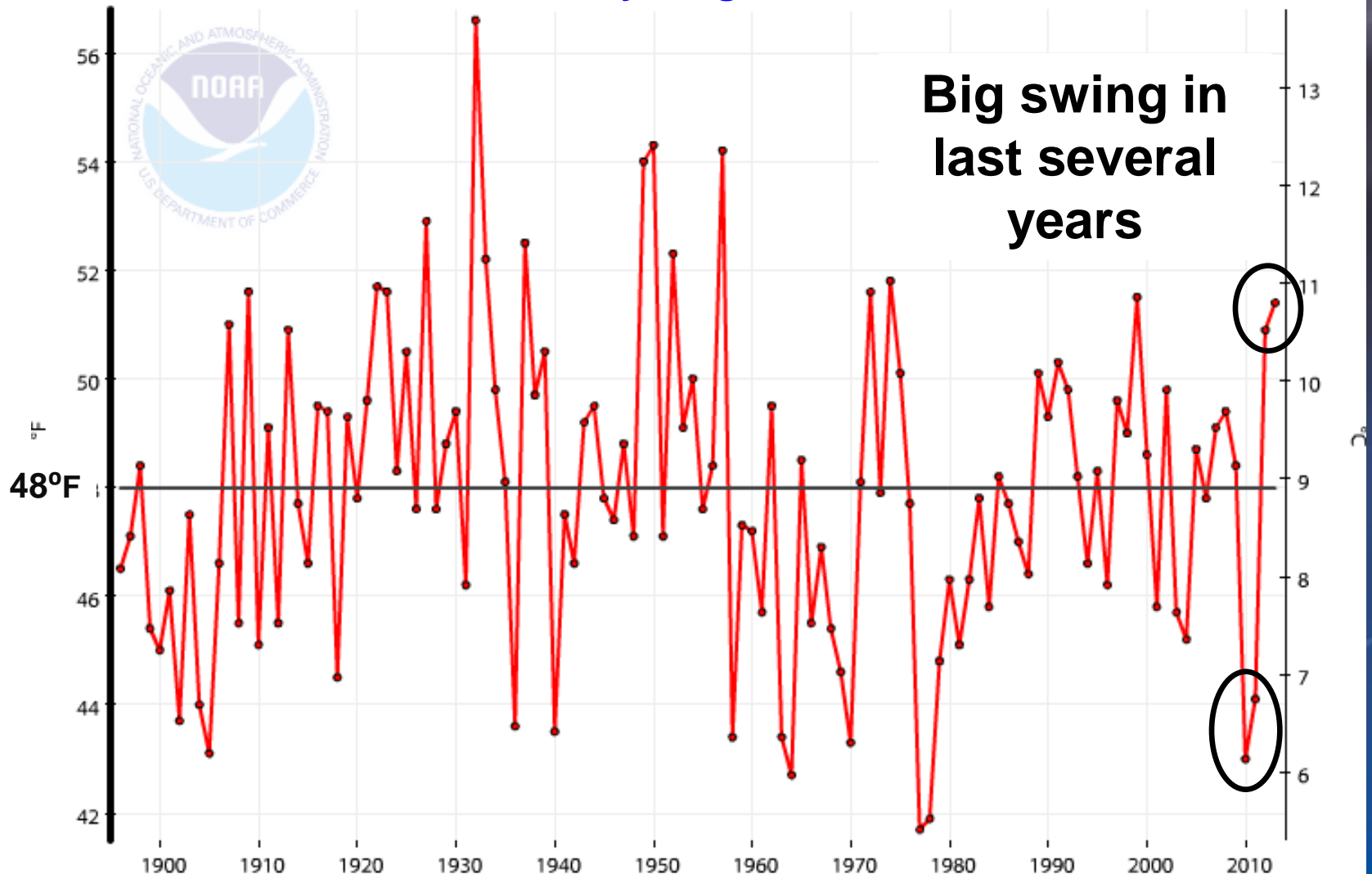
# What is Normal? (Temps)



## GA Statewide Temps: Dec-Feb

100-yr Avg: 48°F

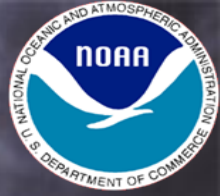
Big swing in  
last several  
years





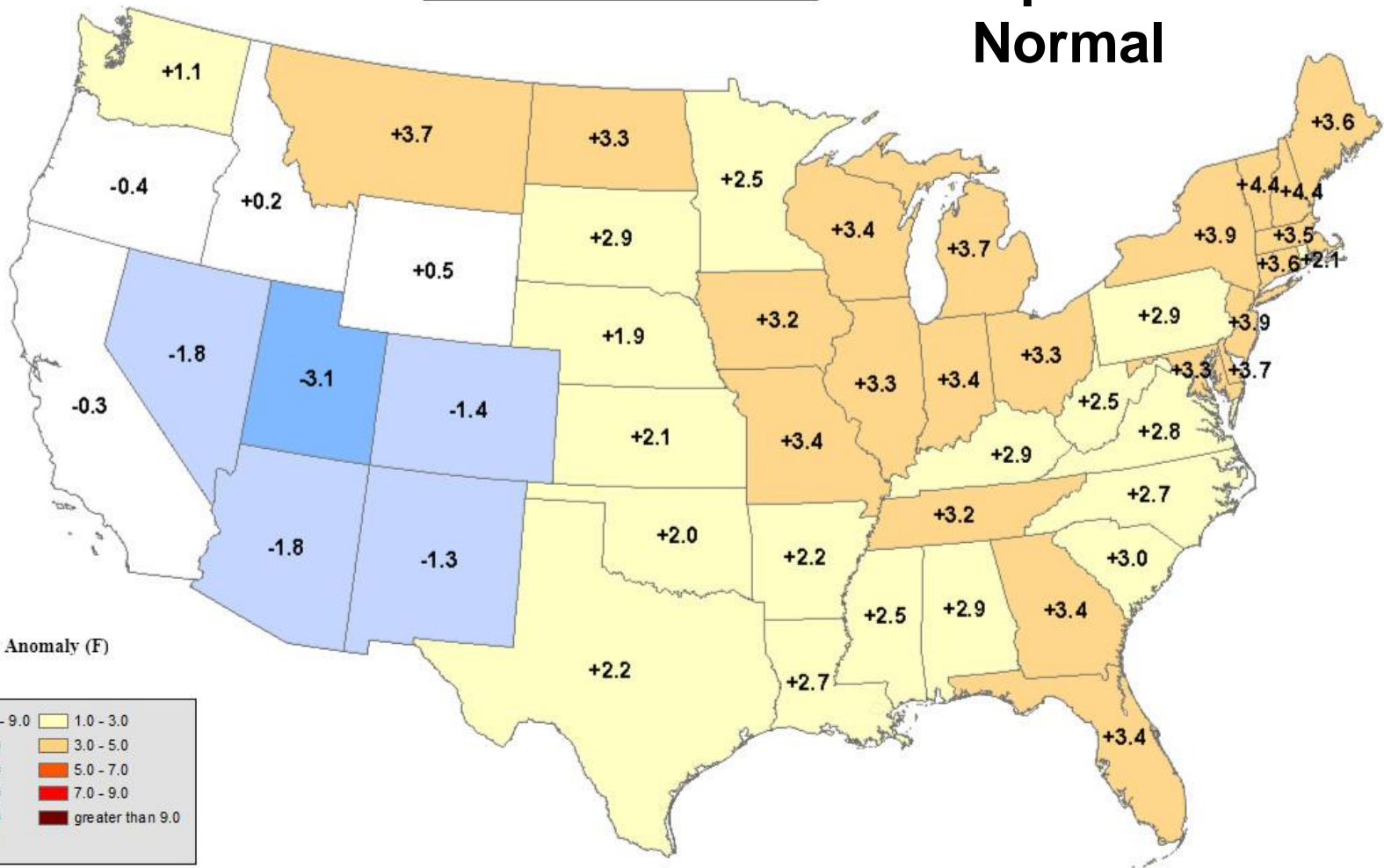


# Last Winter - Temps



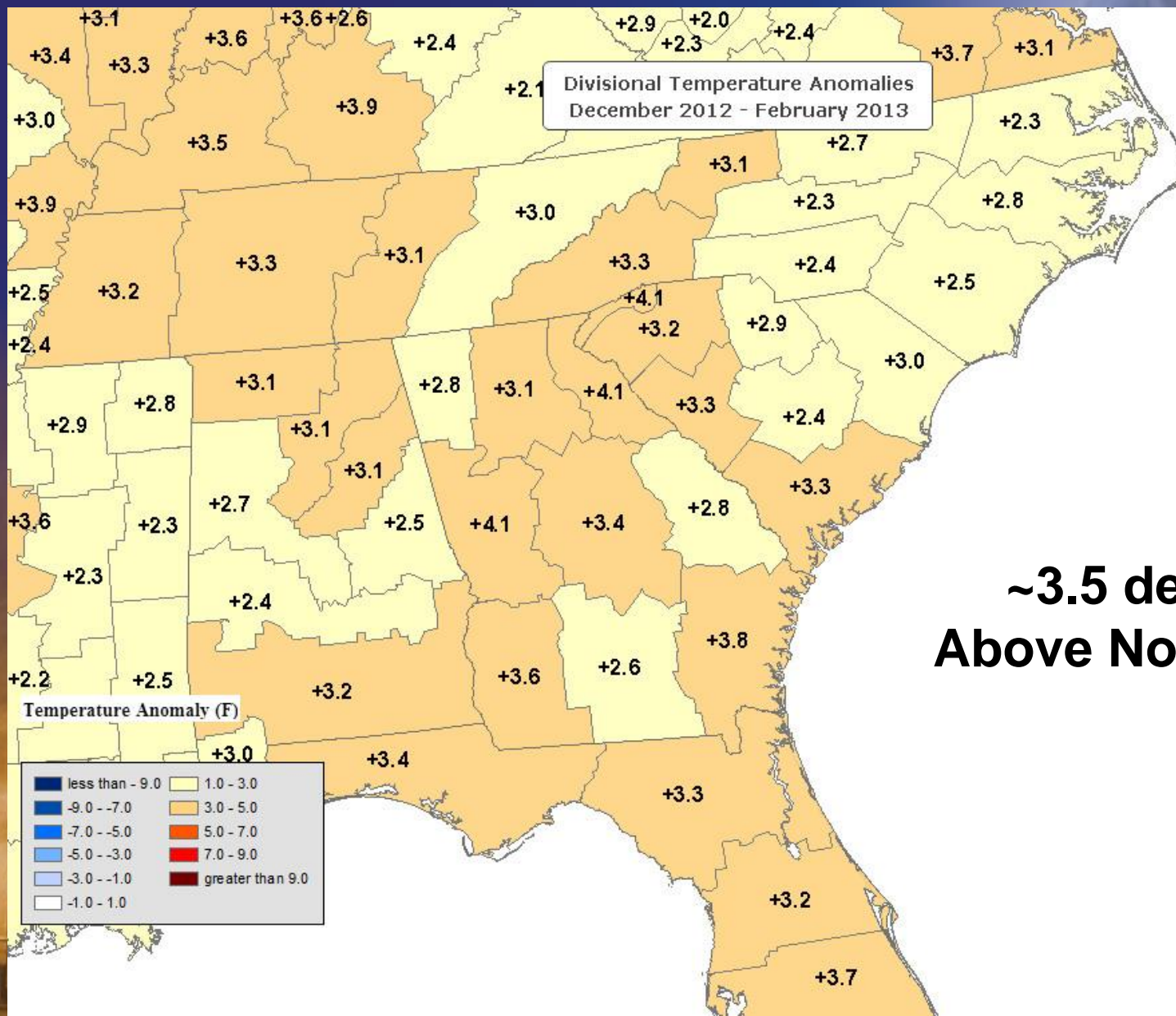
Statewide Temperature Anomalies  
December 2012 - February 2013

Compared to  
Normal





# Last Winter - Temps



**~3.5 deg  
Above Normal**

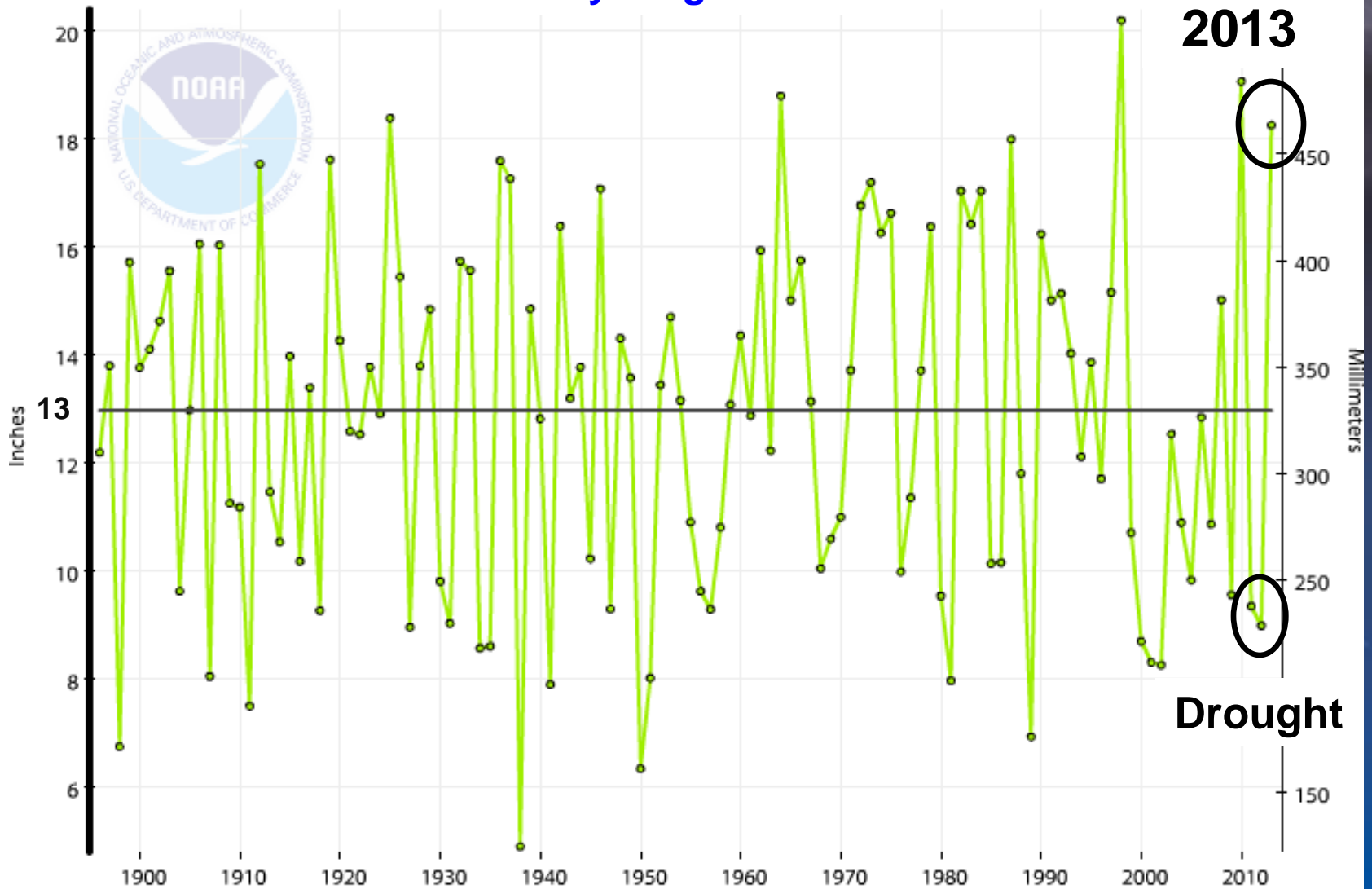




# What is Normal? (Precip)

GA Statewide Precip: Dec-Feb

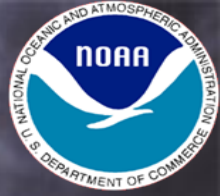
100-yr Avg: 12.97"





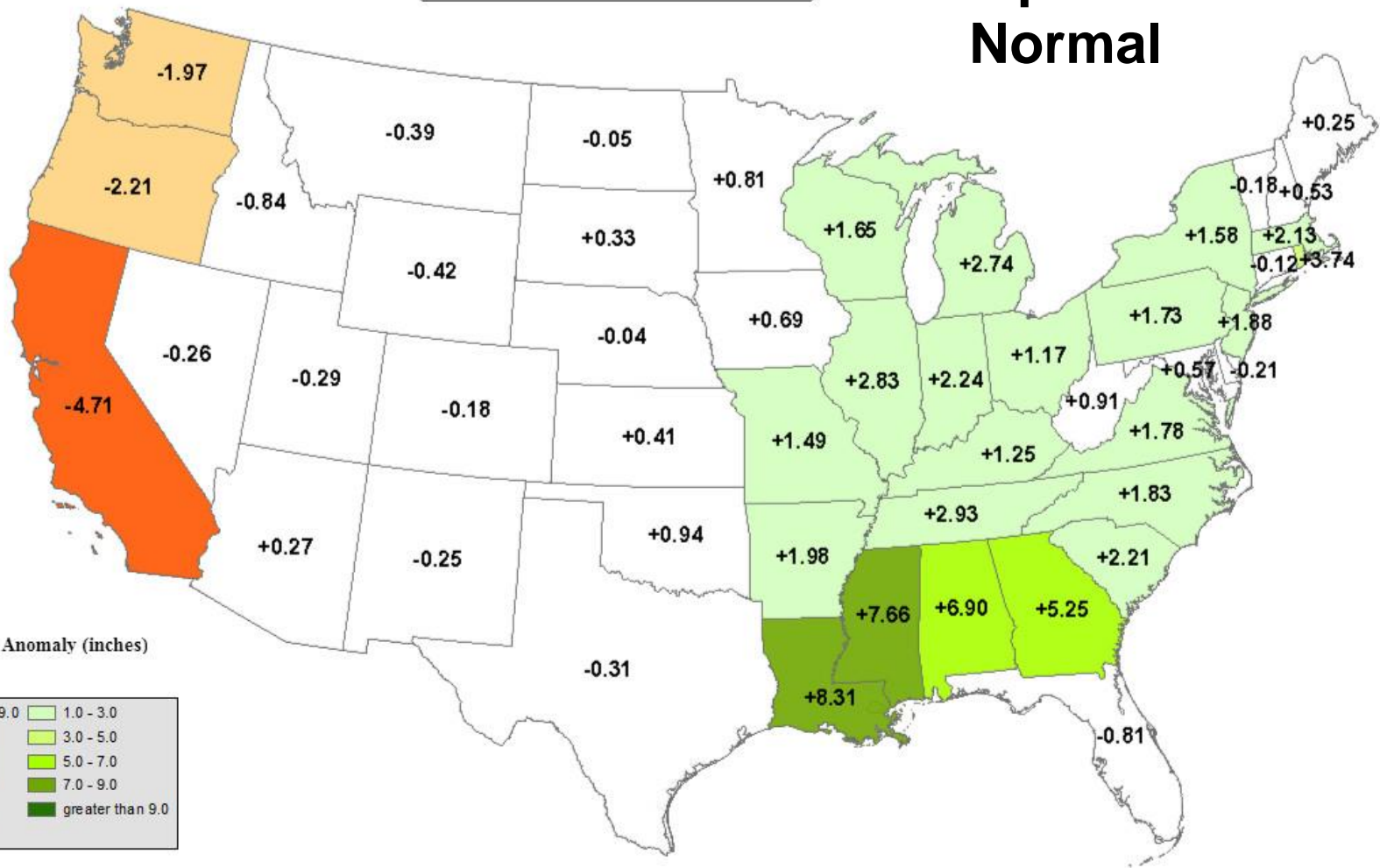


# Last Winter - Precip



Statewide Precipitation Anomalies  
December 2012 - February 2013

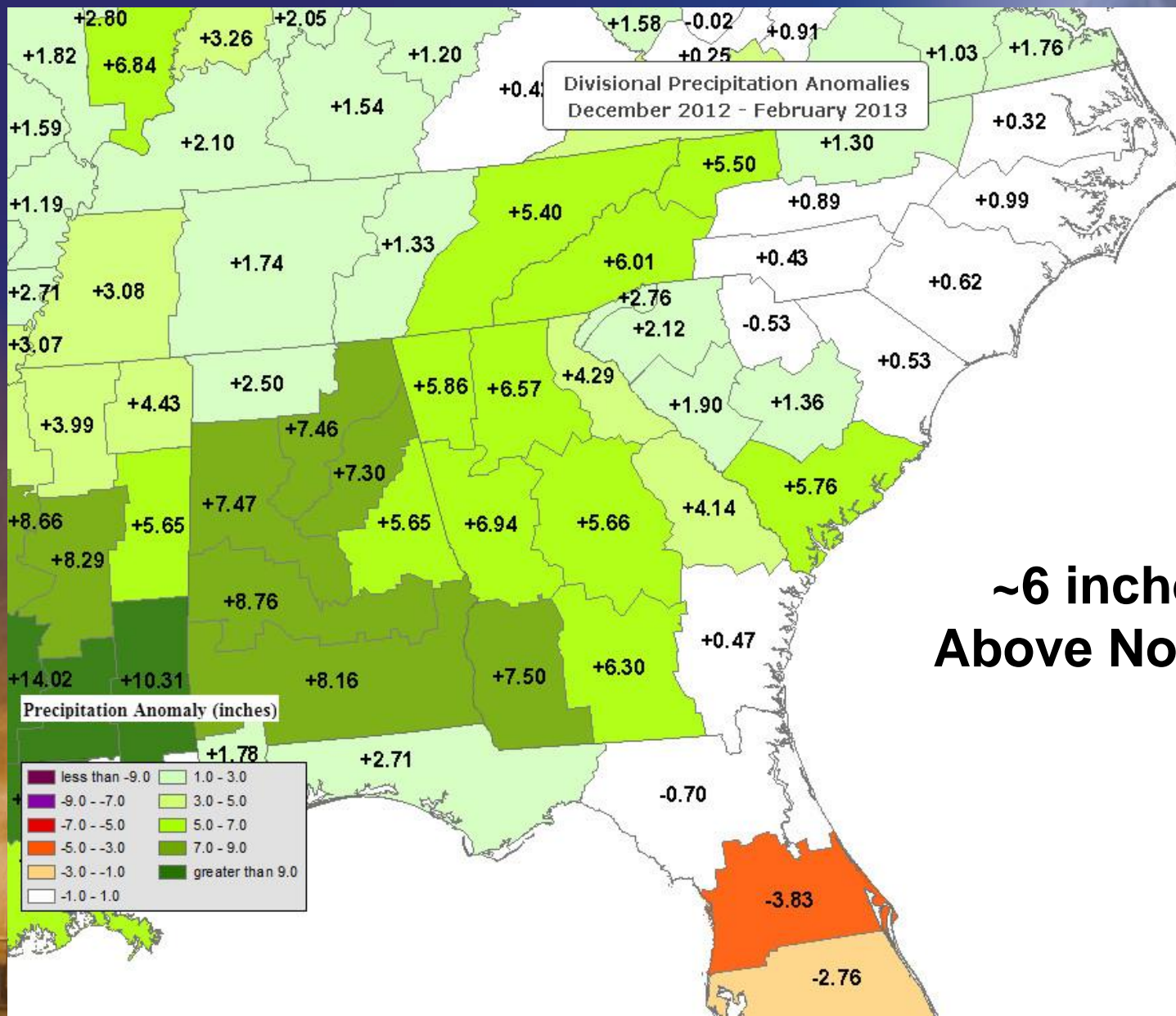
Compared to  
Normal







# Last Winter - Precip

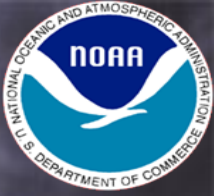


**~6 inches  
Above Normal**

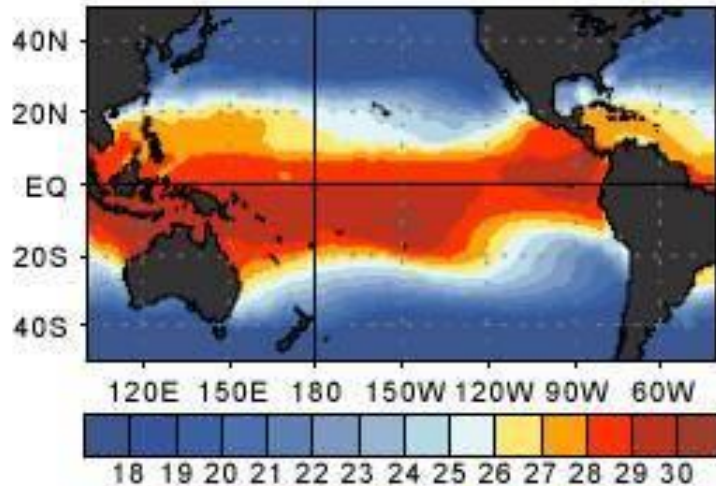




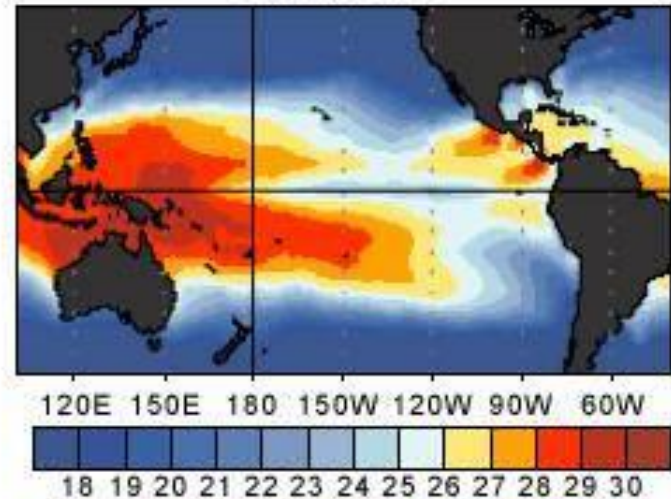
# El Niño or La Niña?



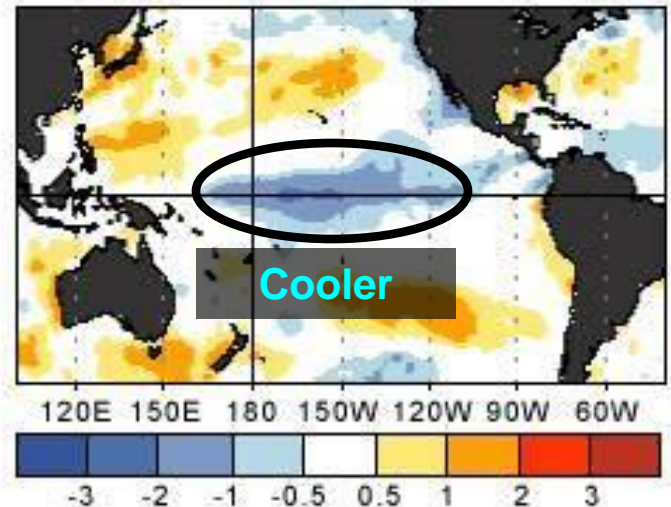
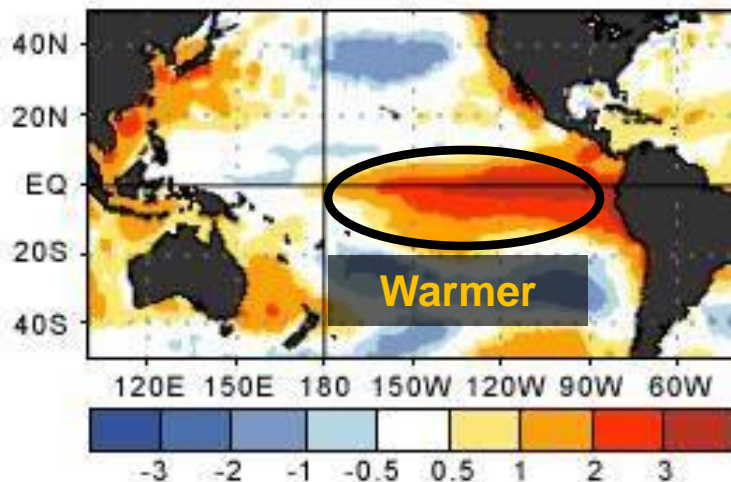
El Niño Conditions  
Jan-Mar 1998



La Niña Conditions  
Jan-Mar 1989



Ocean Temperature Departures (°C)

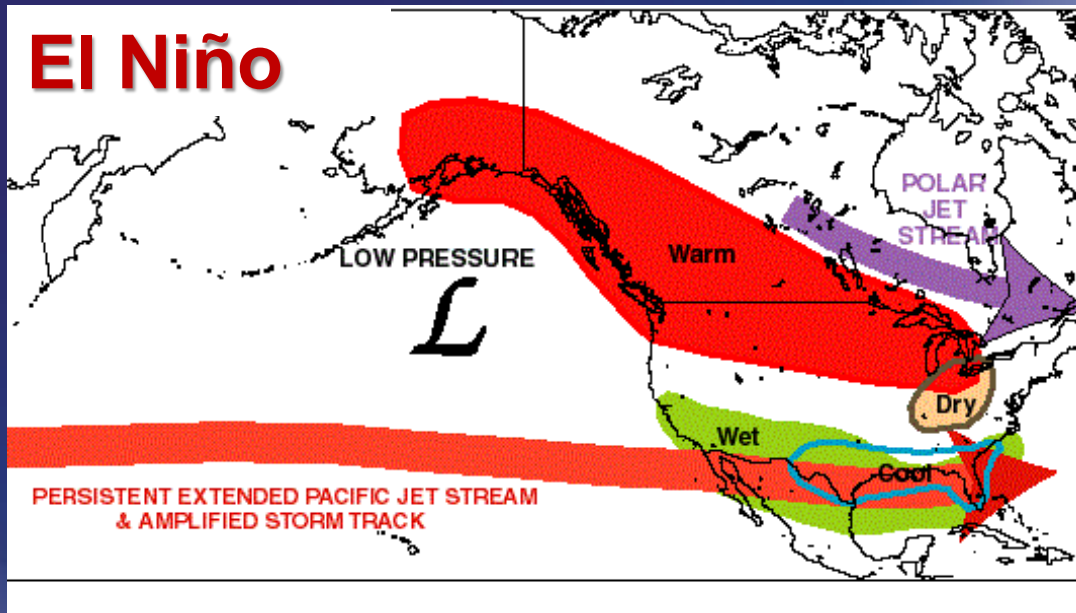


NOAA/NCEP/CPC

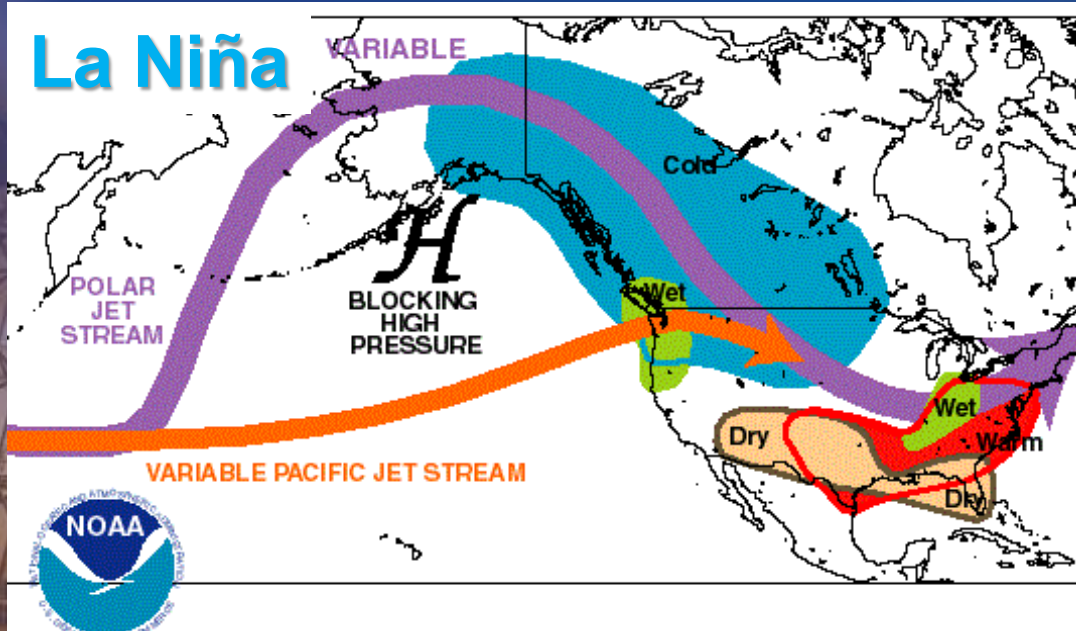




# El Niño or La Niña?



South GA:  
**Cool & Wet**



North GA:  
**Warm**

South GA:  
**Warm & Dry**





# El Niño or La Niña?

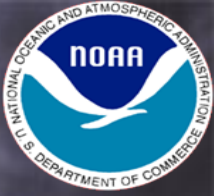


**Neither!**

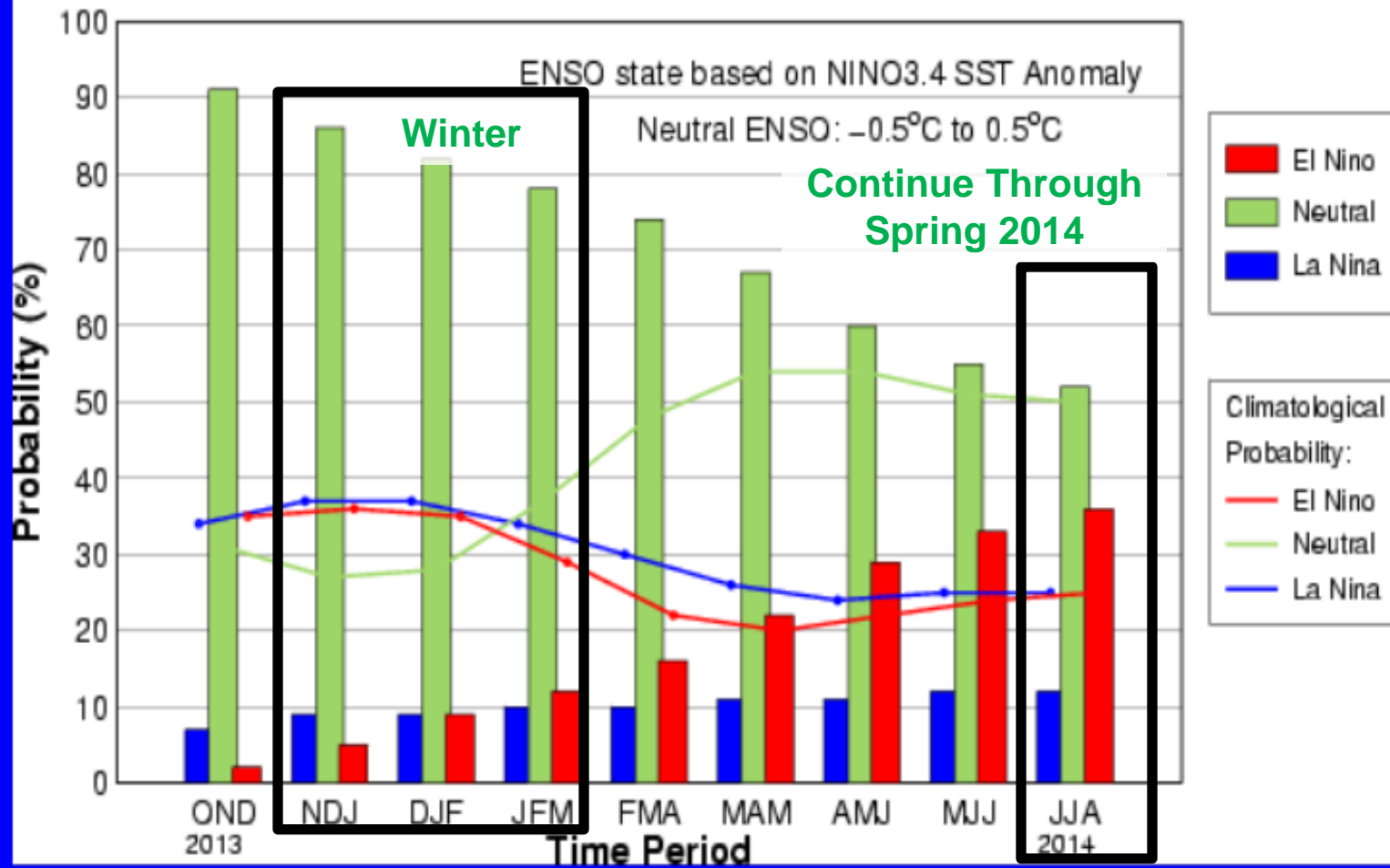
**Current Neutral  
Conditions Forecast to  
Continue**



# Neutral Conditions



Early-Nov CPC/IRI Consensus Probabilistic ENSO Forecast





# Neutral Conditions



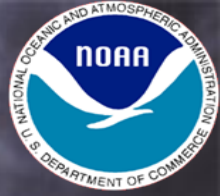
What does this mean?





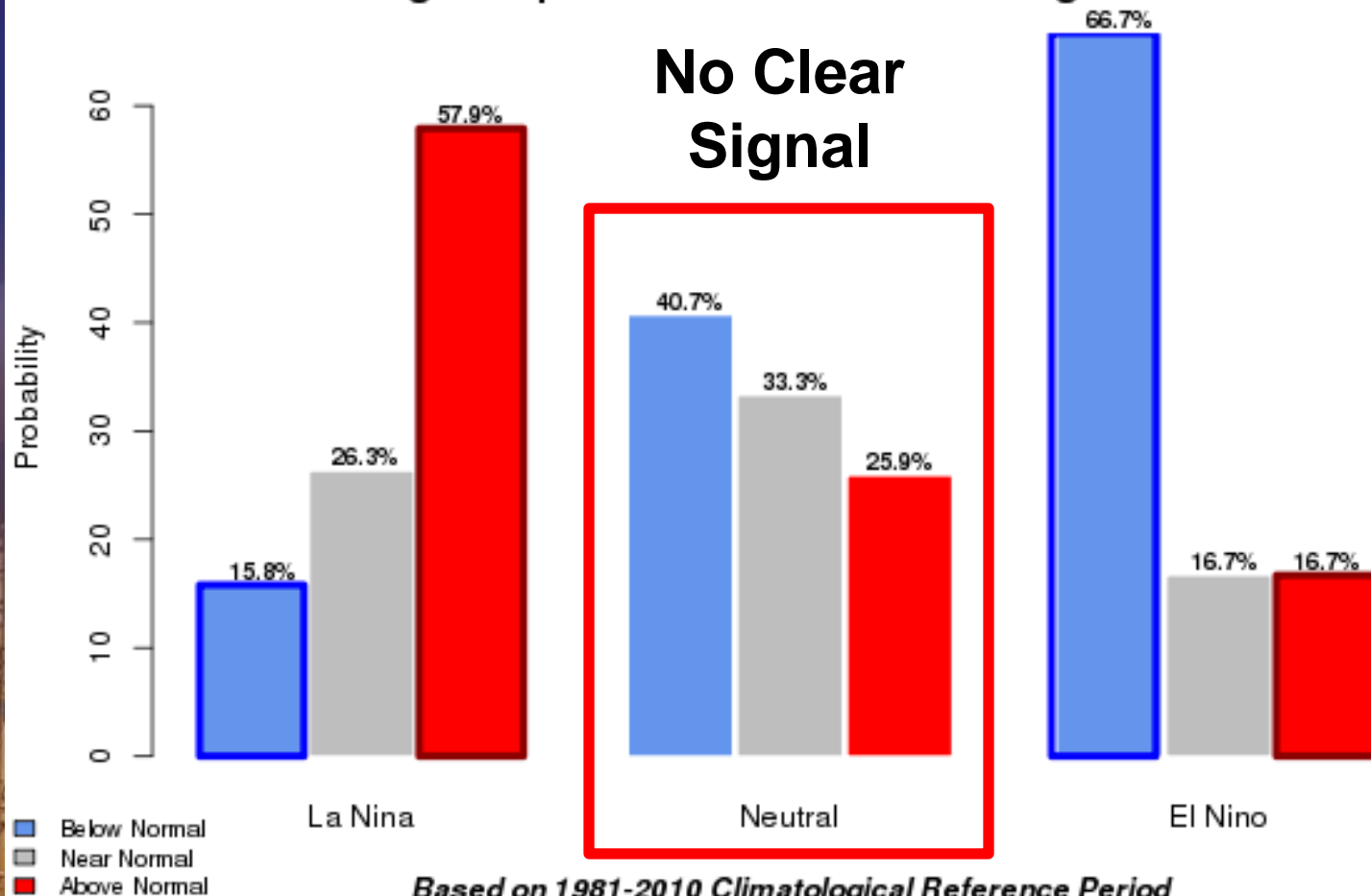


# Neutral Conditions: Temps



## North & Central GA

ENSO Probability Distribution [1950-2013] of January-February-March  
Average Temperature for CPC Forecast Regions ID #56



Based on 1981-2010 Climatological Reference Period  
Bold borders indicate 90% statistical significance

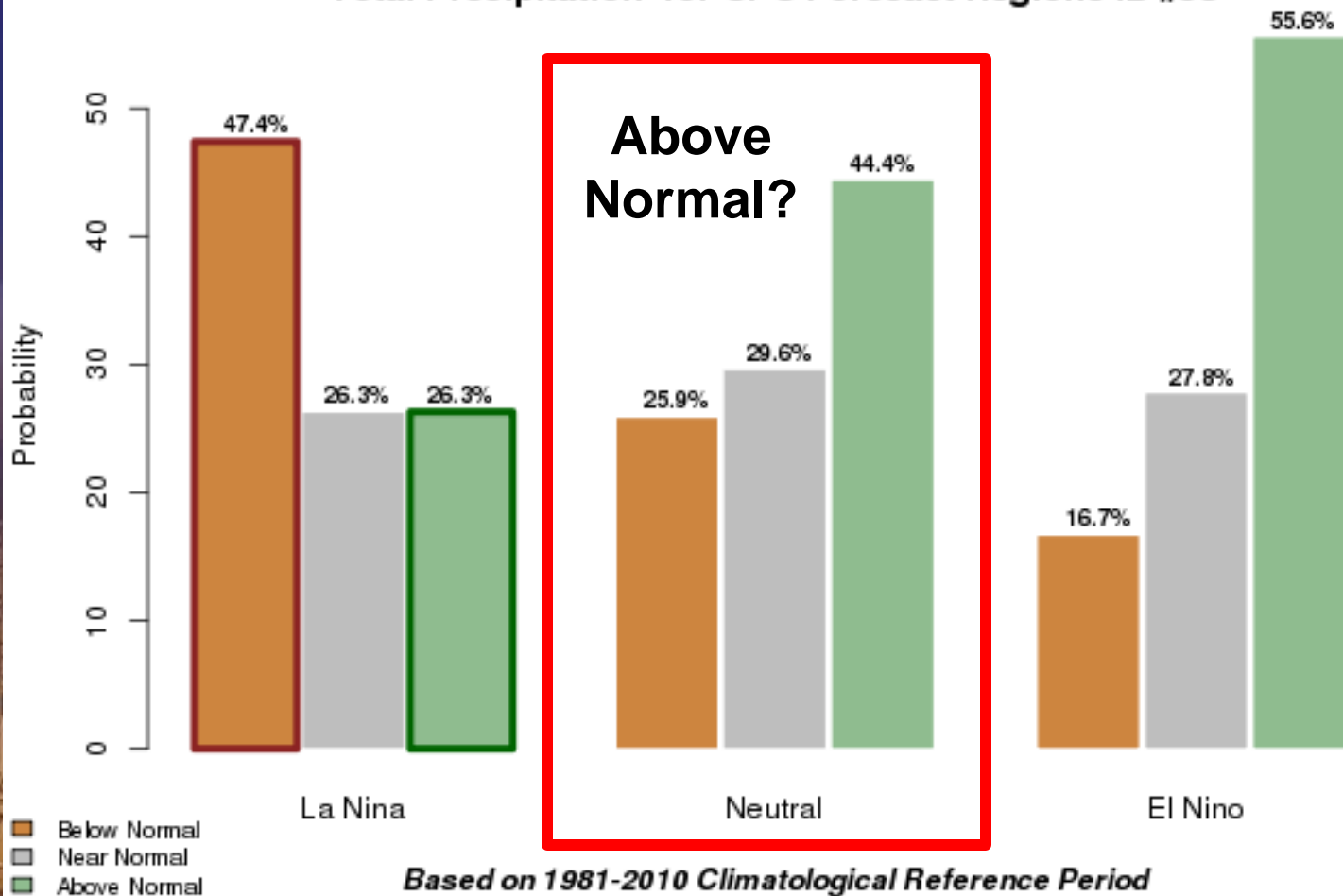


# Neutral Conditions: Precip



## North & Central GA

ENSO Probability Distribution [1950-2013] of January-February-March  
Total Precipitation for CPC Forecast Regions ID #56



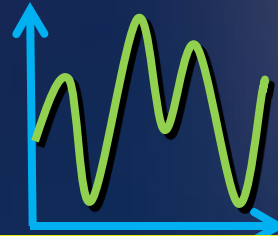
Based on 1981-2010 Climatological Reference Period  
Bold borders indicate 90% statistical significance



# Neutral Conditions



- Likely to have more climate variability

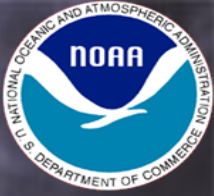


- More uncertainty in long term trends



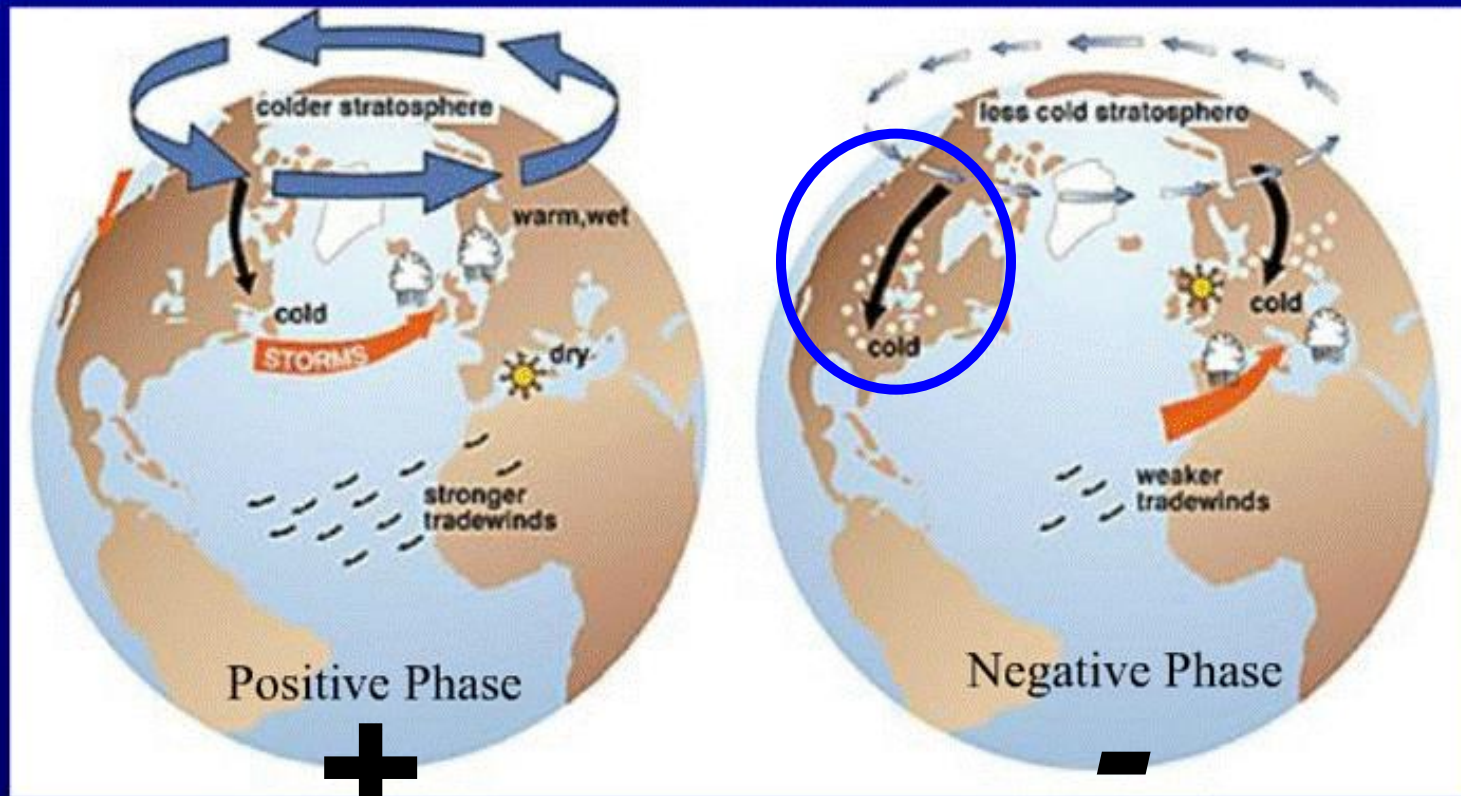
- Dependent on other shorter-lived patterns...





# Other Influences

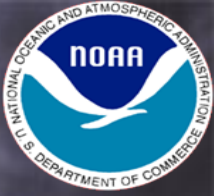
## Arctic Oscillation (AO)



Figures courtesy of J. Wallace, University of Washington



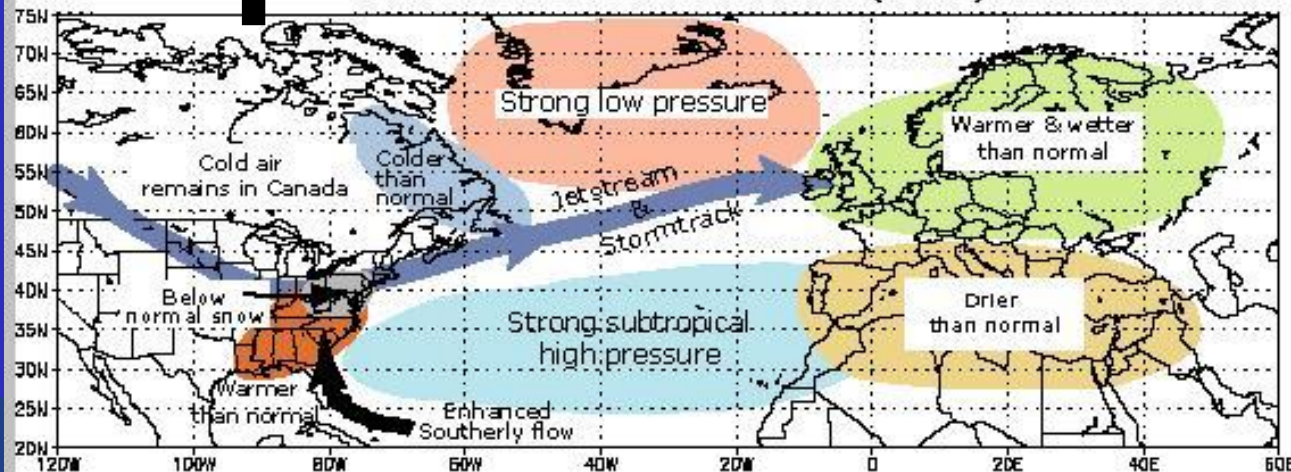
# Other Influences



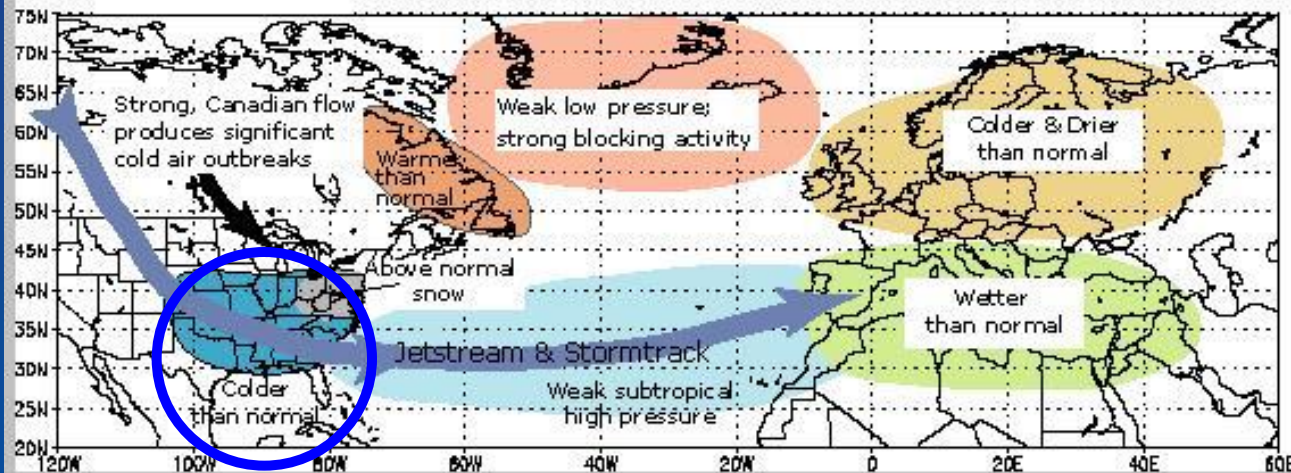
## North Atlantic Oscillation (NAO)

+

Positive Phase of the Wintertime North Atlantic Oscillation (NAO)



■ Negative Phase of the Wintertime North Atlantic Oscillation (NAO)







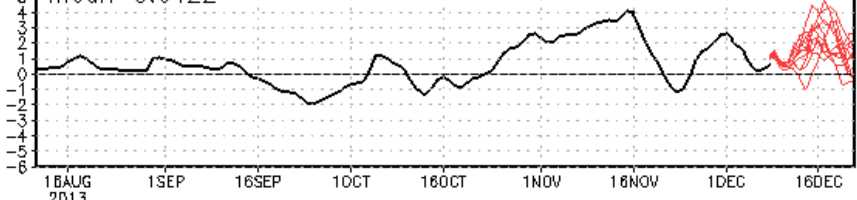
# 2-Week Predictability



## AO: Observed & ENSM forecasts

1000mb Z (Obs: 11Aug2013 – 08Dec2013) AO index

mean=0.6422

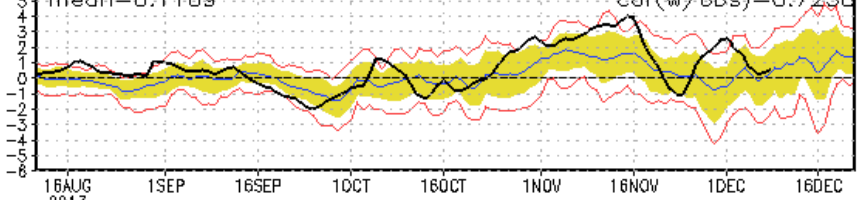


1000mb Z (14day Forecast)

mean=0.1169

AO index

cor(w/obs)=0.7258

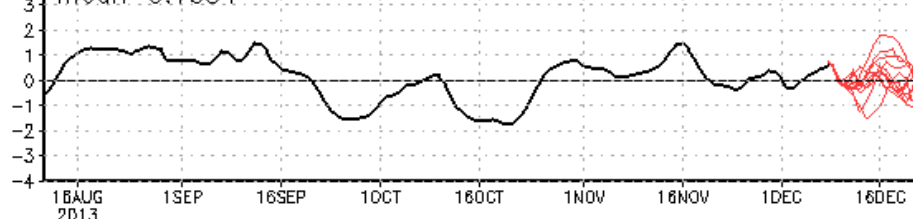


**+ AO staying +**

## NAO: Observed & ENSM forecasts

500mb Z (Obs: 11Aug2013 – 08Dec2013) NAO index

mean=0.1354

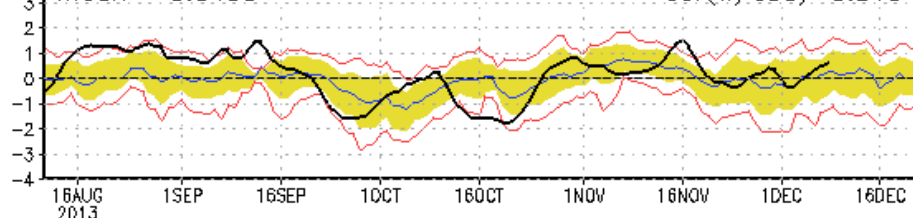


500mb Z (14day Forecast)

mean=-0.0493

NAO index

cor(w/obs)=0.5104



**+ NAO to either**






# Other Influences



## Other research in tracking upper level disturbances

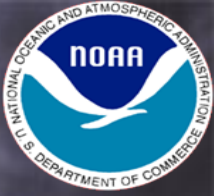
(NWS Slidell, LA Hovmoller Report)

Verified well with:

- Cold snap in mid-Nov.
- Thanksgiving system (early GA snow, then raced NE) 
- Cold snap midweek (couple days off)



# Other Influences



## Latest Forecast

(NWS Slidell, LA Hovmoller Report)

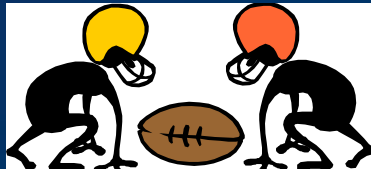
- **Christmas and New Year's** – no significant weather



- **Mid-Late Jan.** – Another cold snap and possible wintry precip in South


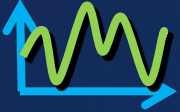


- **Super Bowl Sunday** – potential for “strong winter implications” near NY





# Summary

- Possibly **drier** than normal (CPC outlook)
- Neutral Pacific conditions continue (like last yr)
- Greater uncertainty with forecast 
- More variation possible (dependent on AO, NAO, etc.) 
- Other research suggests
  - **Wetter** than normal (opposite of CPC, but true last yr also)
  - **Wintry precip** in mid-late Jan. 