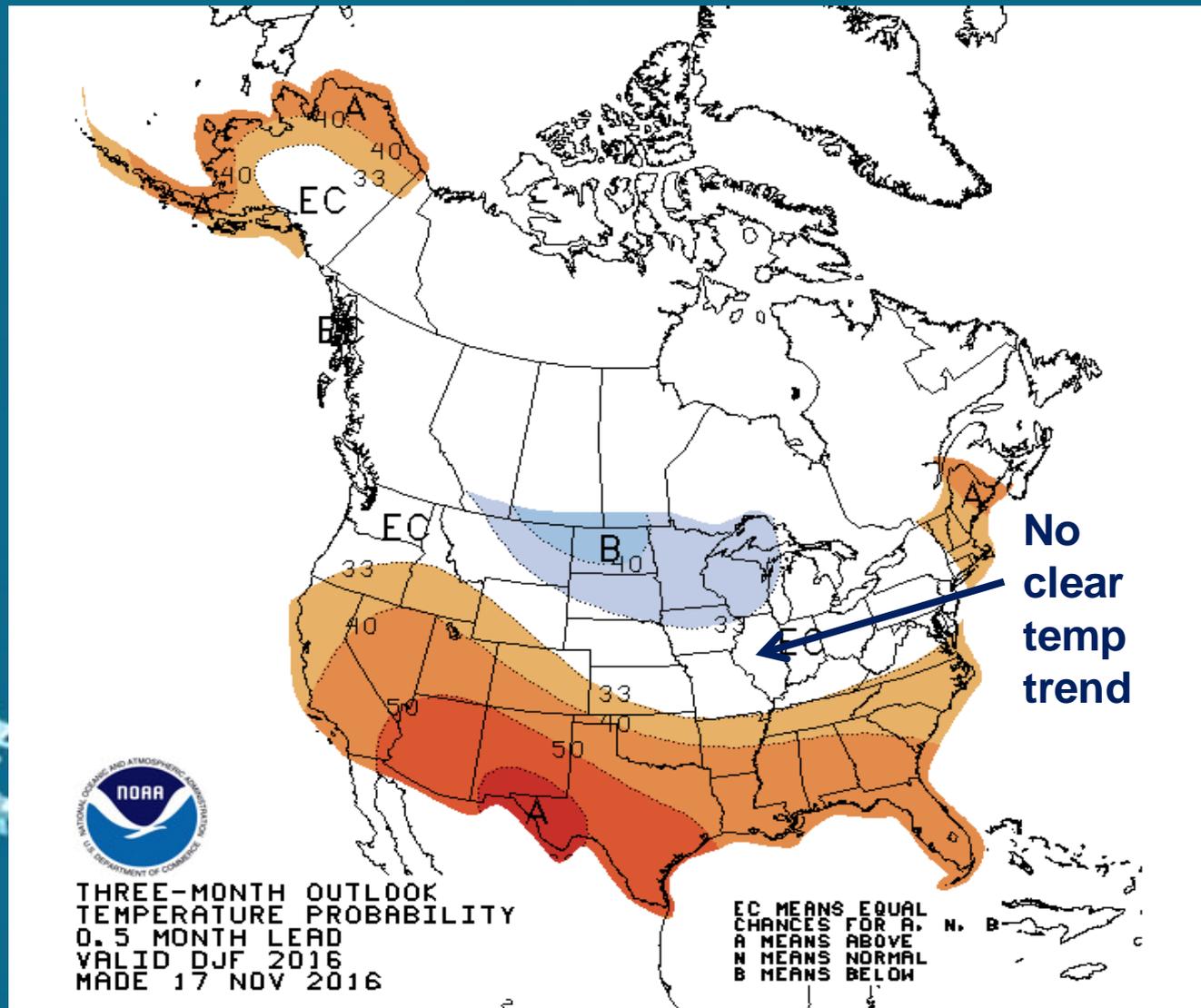




# Winter 2016-17 SWOP Conference Call

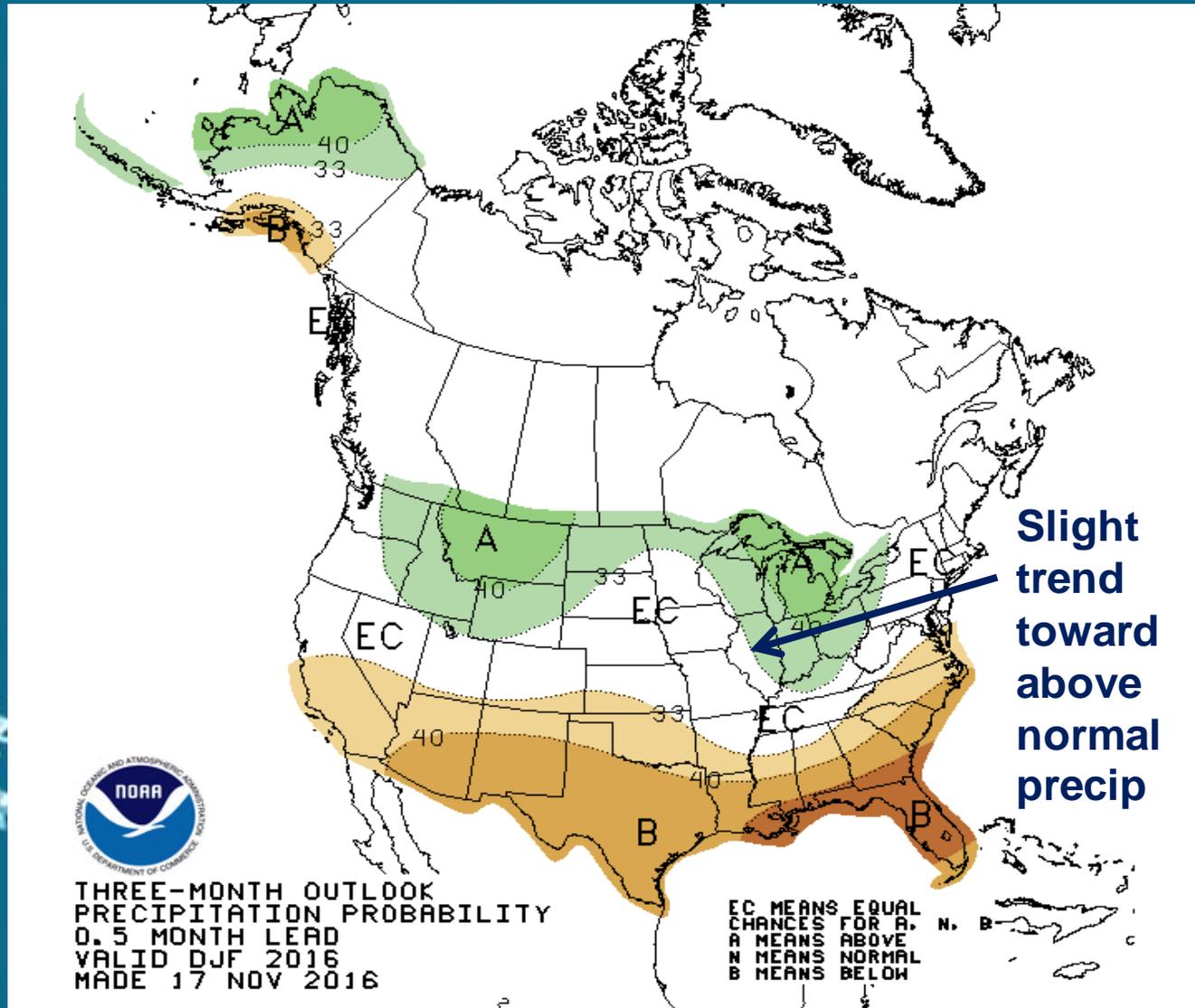
Matt Barnes  
Scott Baker

# Winter 2016-17 Outlook



Updated: November 17

# Winter 2016-17 Outlook



Updated: November 17

# Science Behind the Outlook

- **El Nino Southern Oscillation (ENSO)**

sea surface temperature anomalies in the equatorial Pacific off the coast of Peru/Ecuador

**Warmer** than normal water: El Nino phase

**Cooler** than normal water: La Nina phase

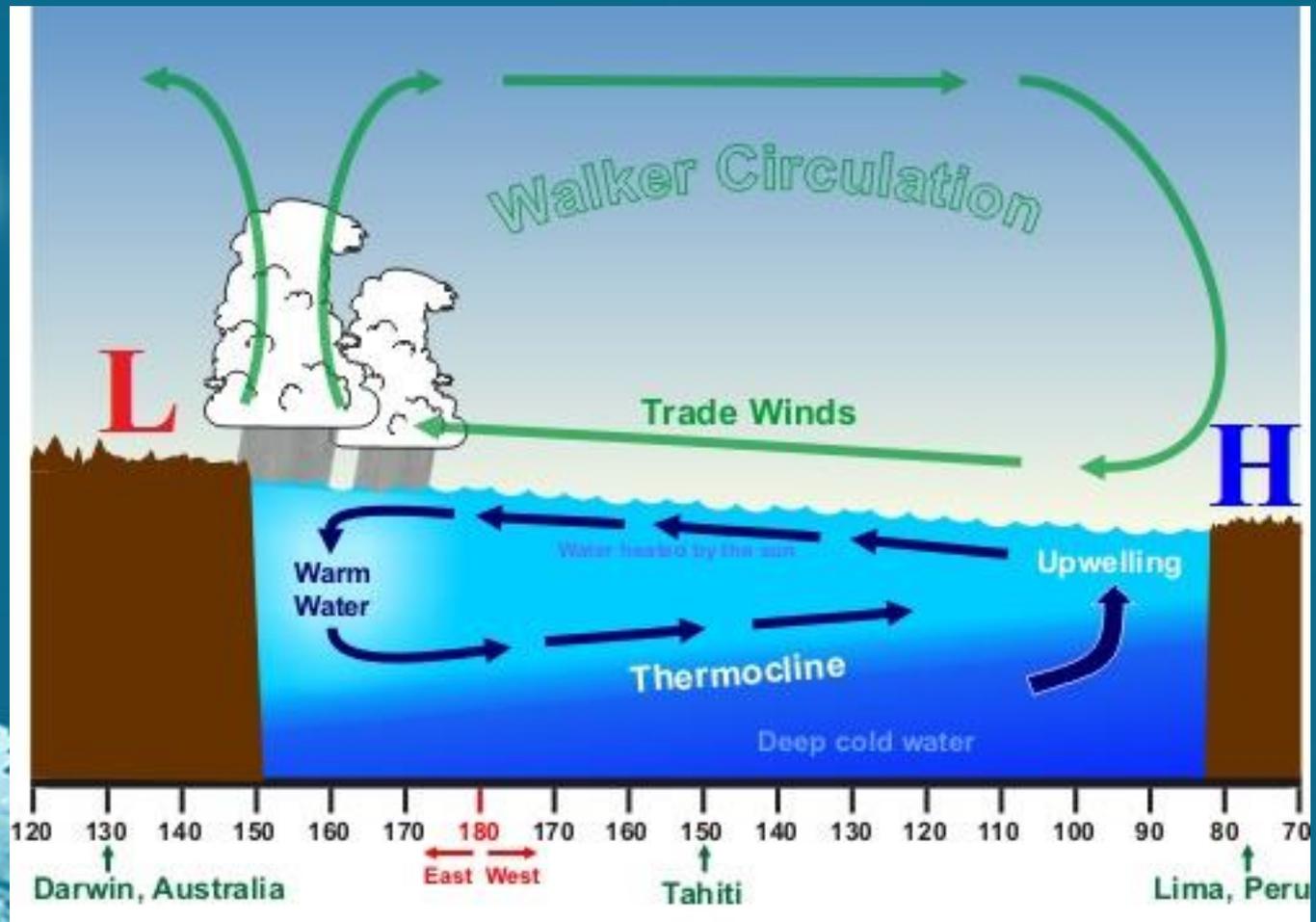
- **Arctic Oscillation**

pressure difference between the Arctic and 45N latitude

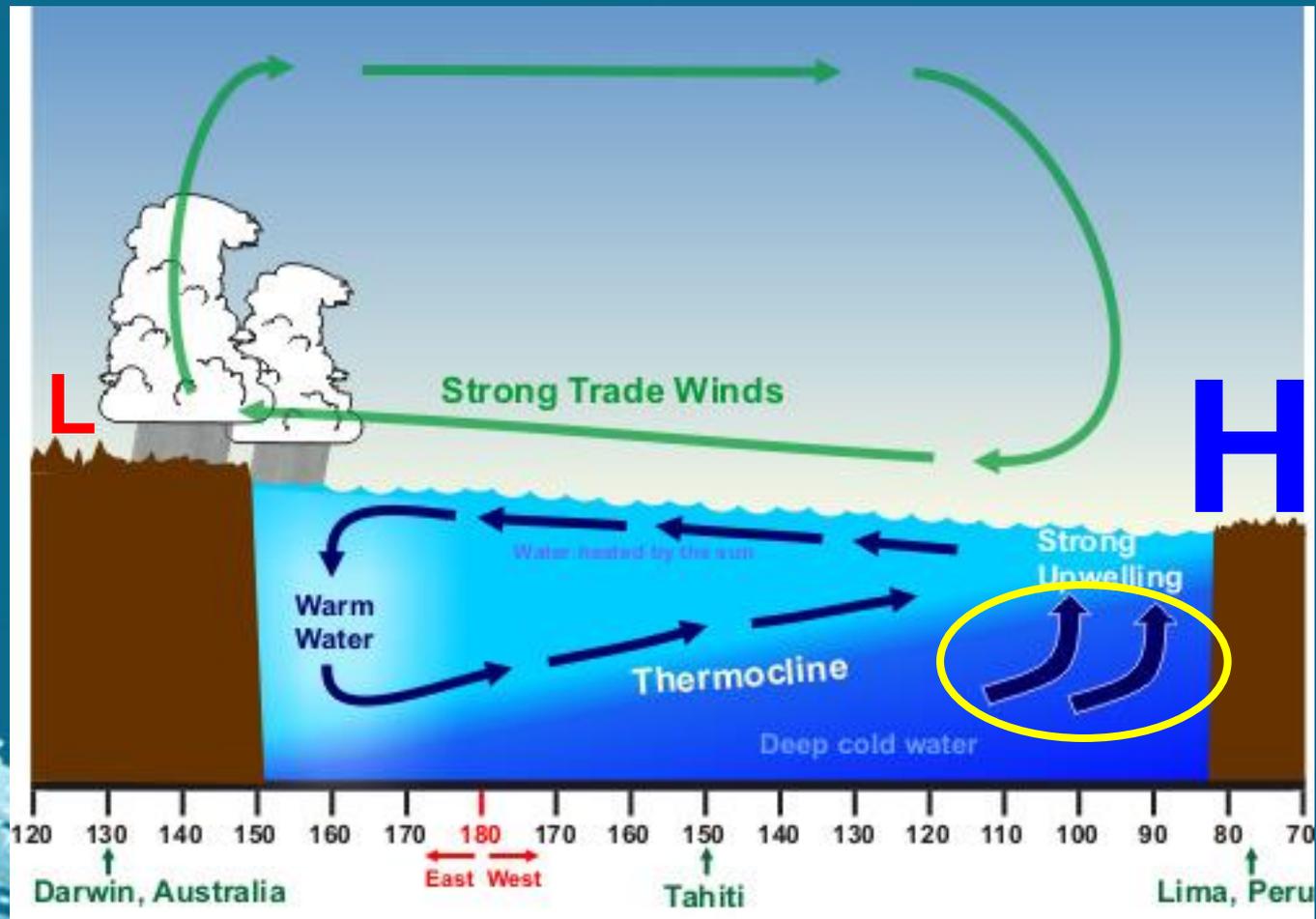
- **North Atlantic Oscillation**

pressure difference across the north Atlantic between Iceland and the Azores

# ENSO Neutral Conditions

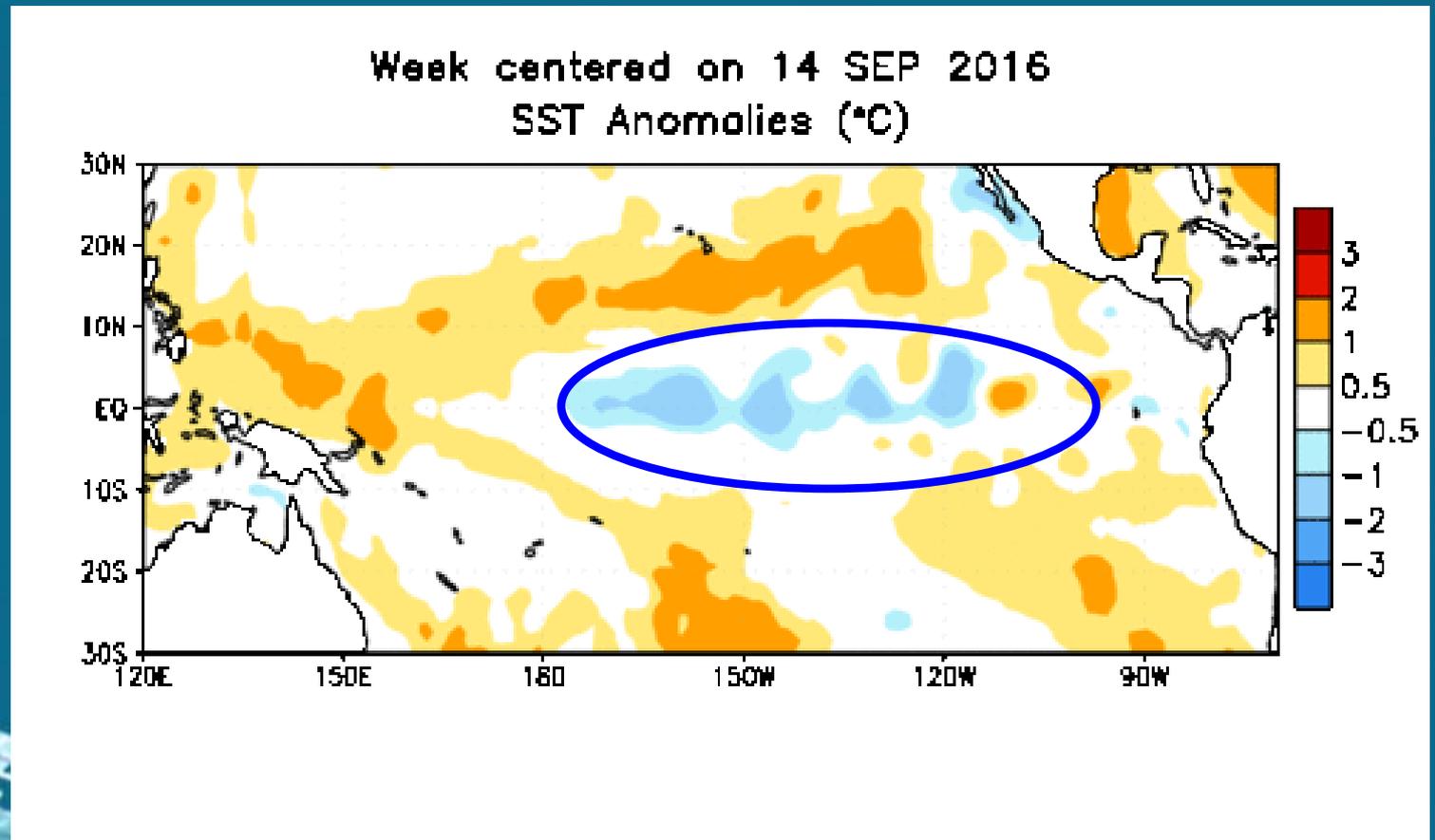


# La Nina Phase



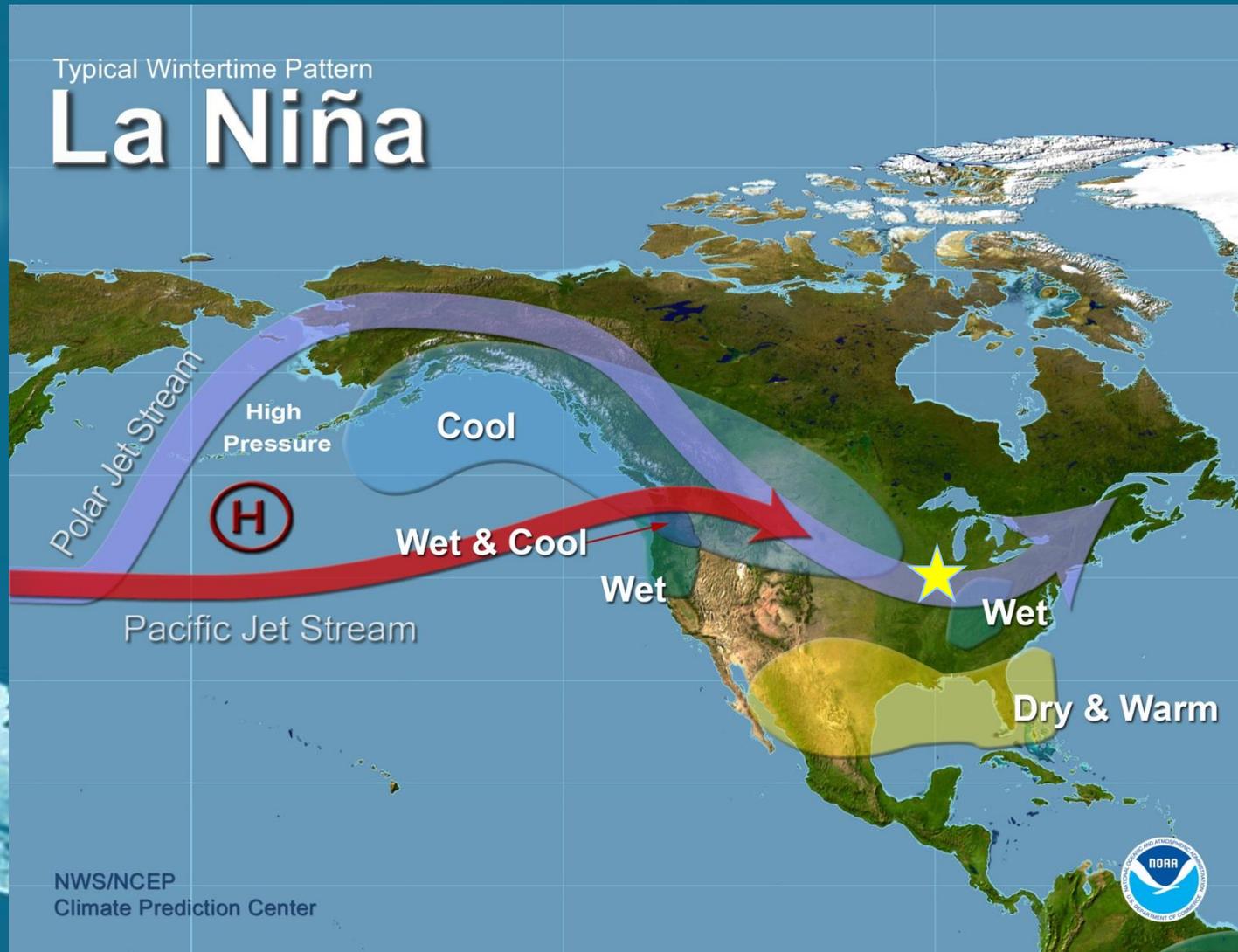
Strong upwelling brings **cold** deep ocean water to the surface

# Current La Nina Conditions



**Blue color** in the Equatorial Pacific shows water temps 1-2 degrees Celsius below normal since mid-August

# La Nina Winter Pattern



No Strong Temp/Precip Correlation for Central Illinois

# Better Indicators for Illinois

## Arctic Oscillation (AO) and North Atlantic Oscillation (NAO)

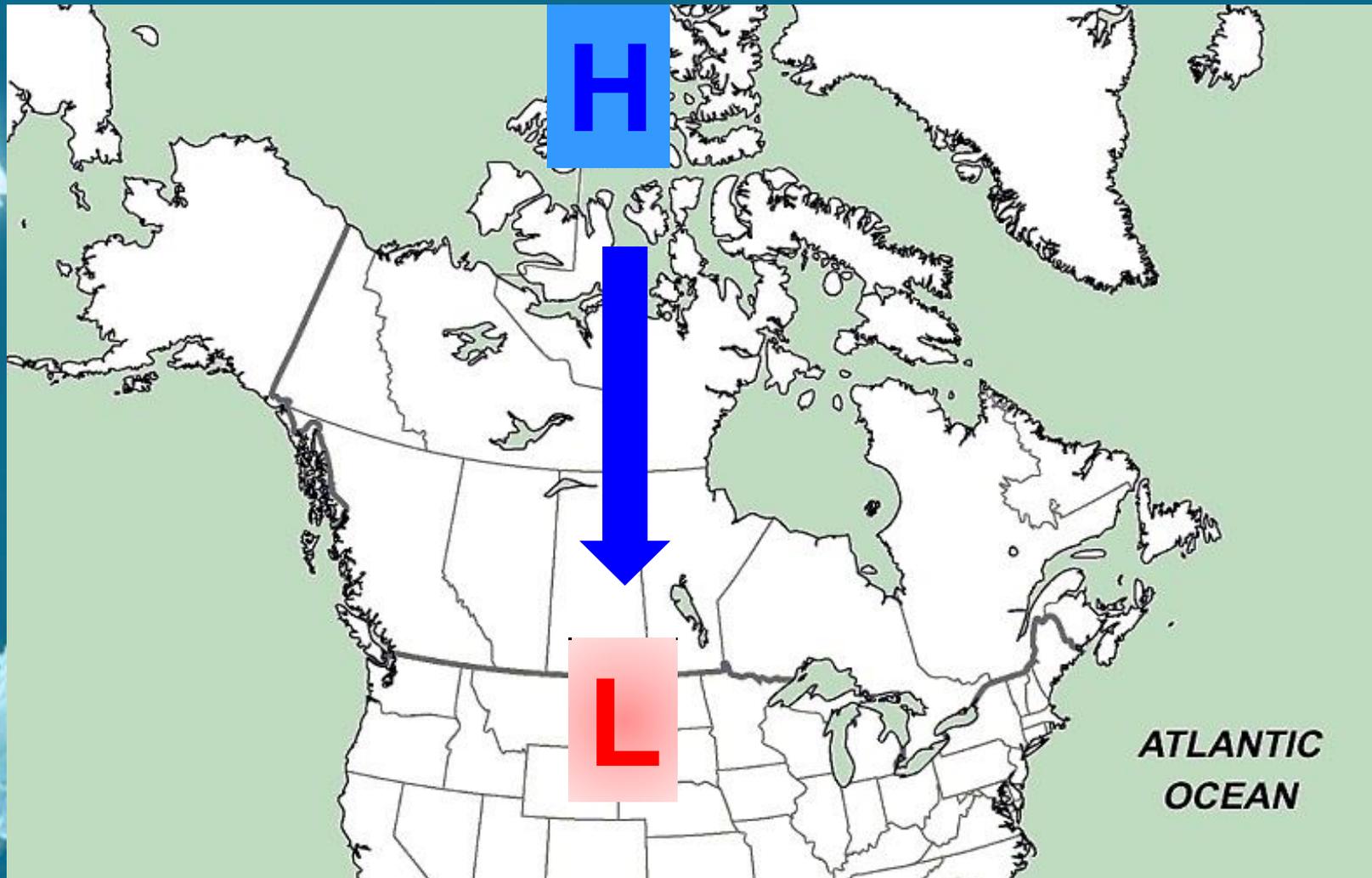
- Good for short-term forecasting, but predictability decreases after 1-2 weeks
- Key factor in the CPC 6-10 day outlooks

# Arctic Oscillation

Mean pressure difference between the Arctic and 45N latitude

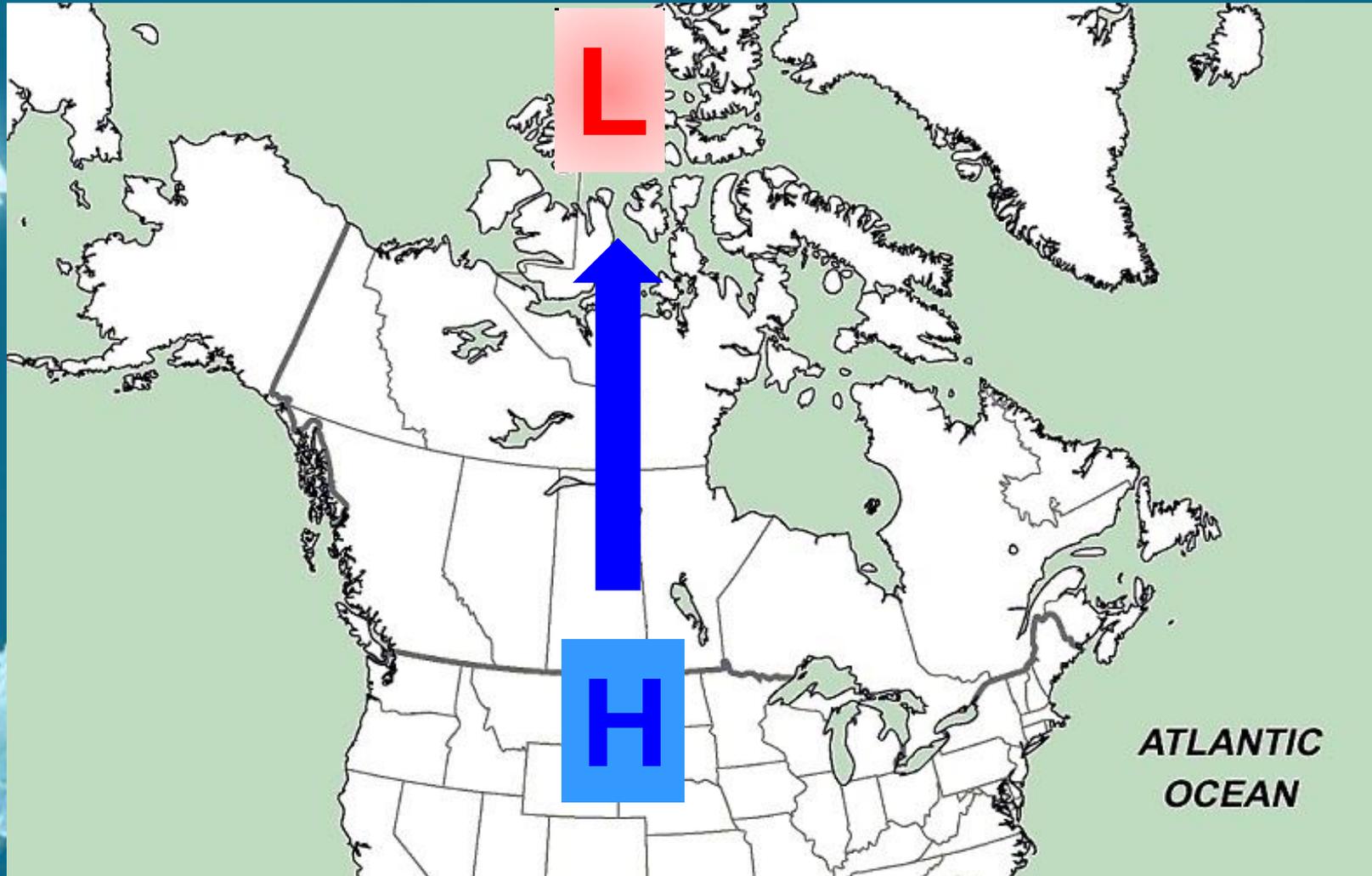
- Negative phase: Higher pressure in the Arctic
- Positive phase: Lower pressure in the Arctic

# Arctic Oscillation (AO)



Negative phase: **cold air** comes southward

# Arctic Oscillation (AO)



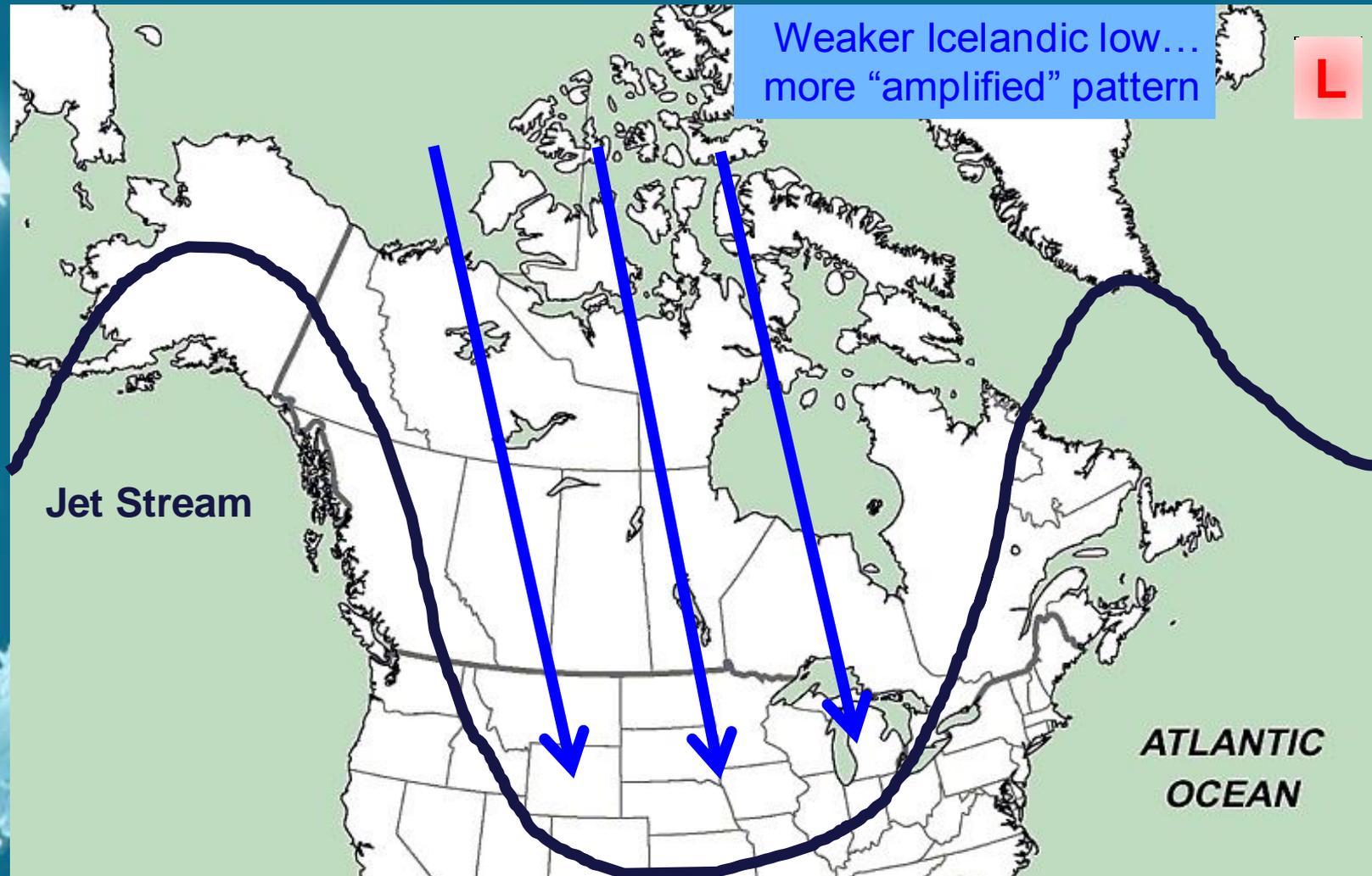
Positive phase: cold air suppressed northward

# North Atlantic Oscillation

Mean pressure difference across the North Atlantic Ocean between Iceland and the Azores

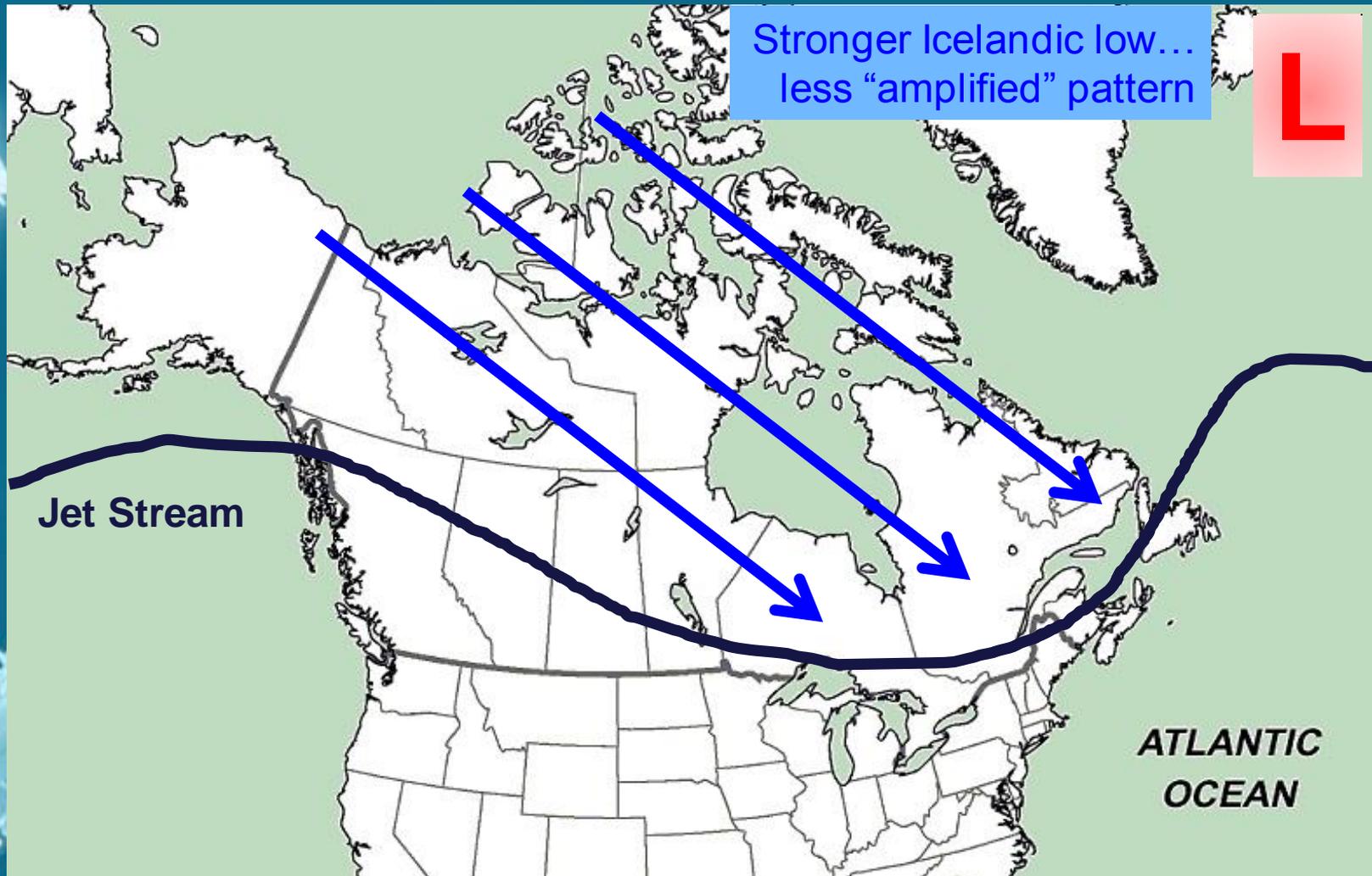
- Negative phase: Weaker Icelandic low and weaker Azores high
- Positive phase: Stronger Icelandic low and stronger Azores high

# North Atlantic Oscillation (NAO)

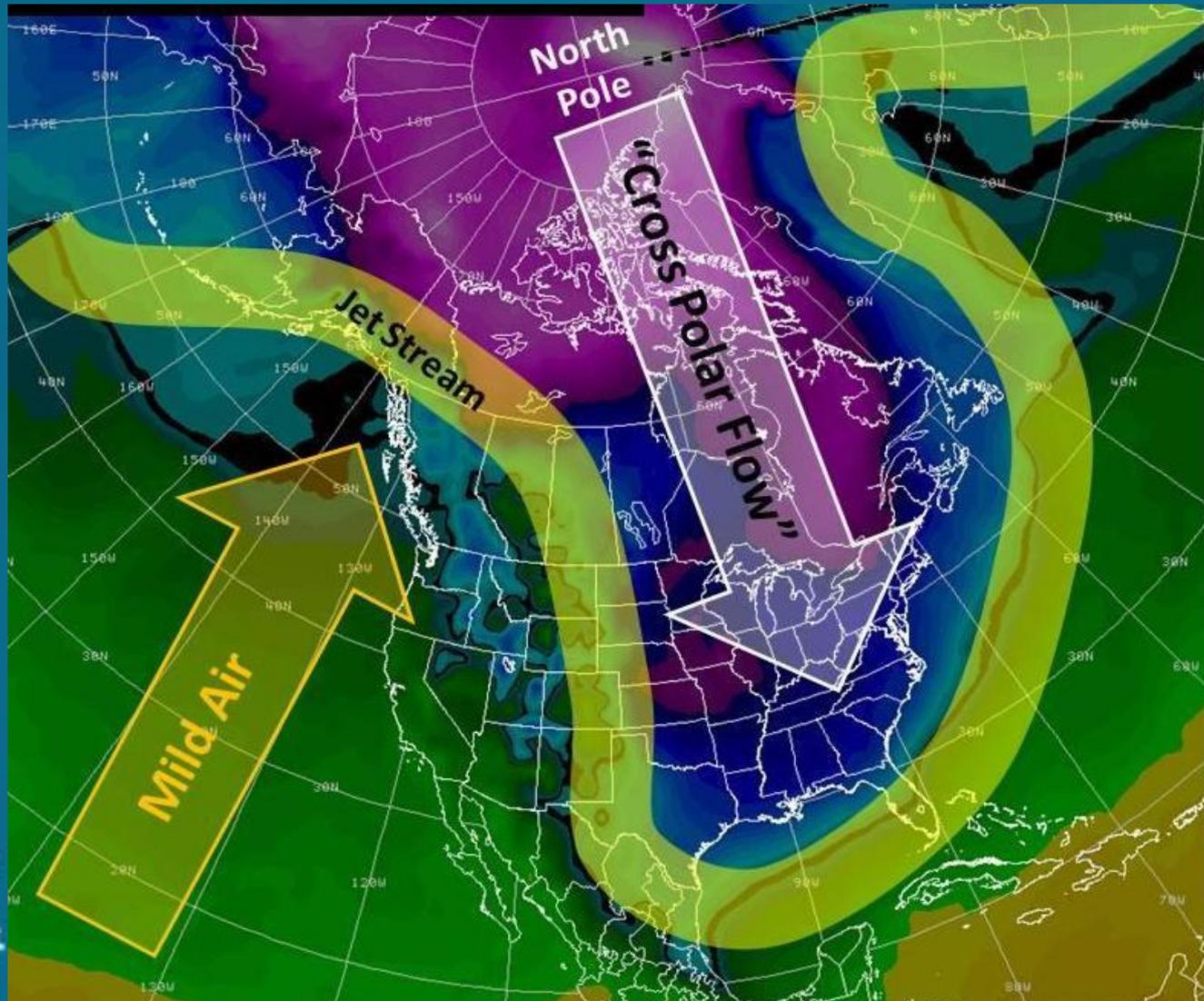


Negative phase: **cold air** drops due south into U.S.

# North Atlantic Oscillation (NAO)

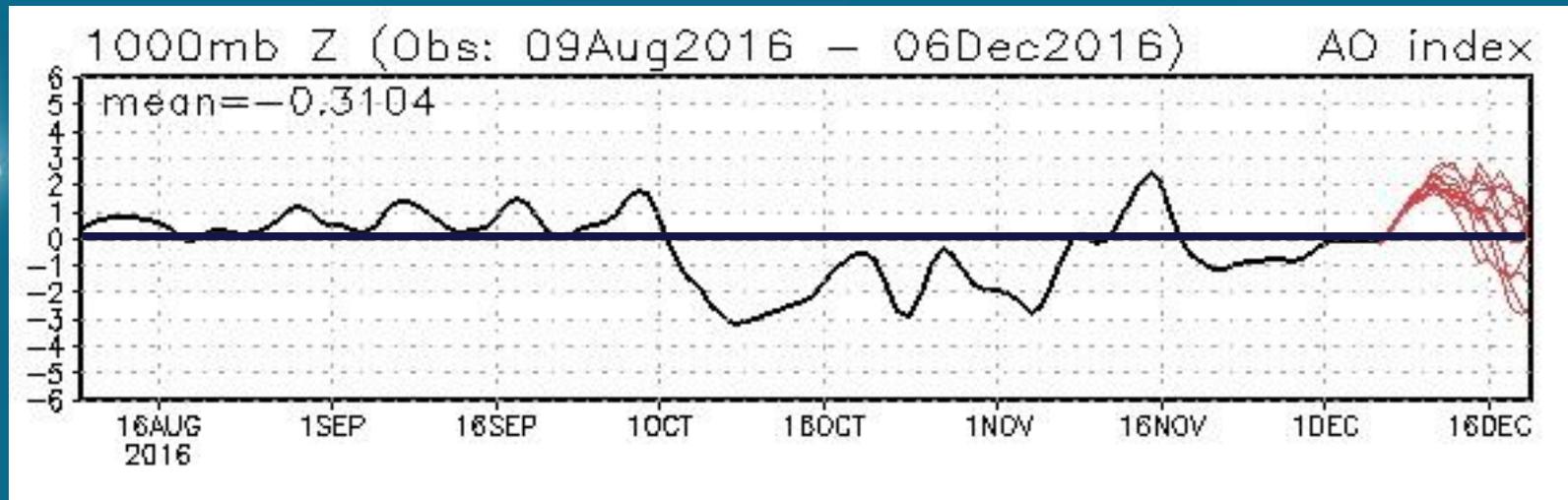


Positive phase: **cold air** drops into SE Canada



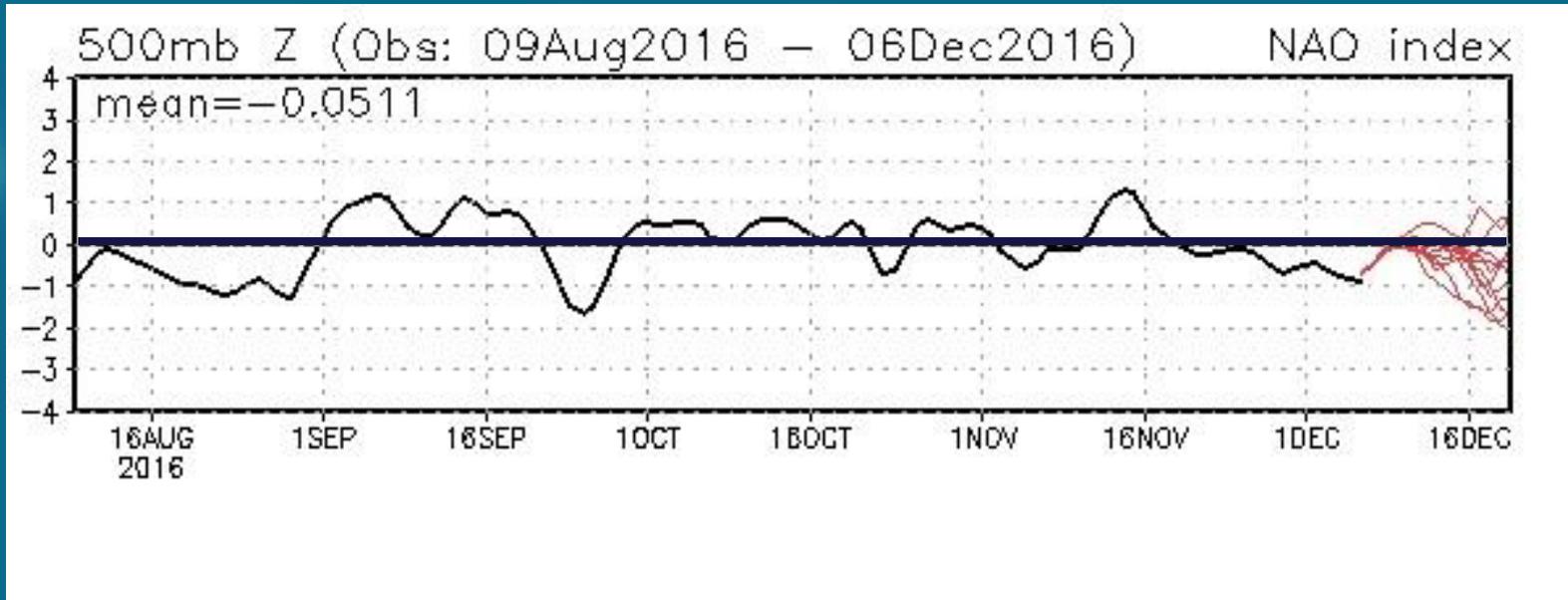
Negative AO and NAO can lead to cross-polar flow from Siberia... **Cold Outbreak** for Illinois

# What Phases are We In Now?



**Arctic Oscillation (AO) is currently neutral and is forecast to become positive**

# What Phases are We In Now?



**North Atlantic Oscillation (NAO) is currently negative and is forecast to remain negative**

# What Can We Expect?

- Below normal temperatures for the next couple of weeks
- Bouts of cold/snow from early January through February
- **NOTE:** La Nina pattern with negative AO and NAO could lead to an Arctic outbreak as far south as central Florida at some point this winter

# Average December-February Snowfall

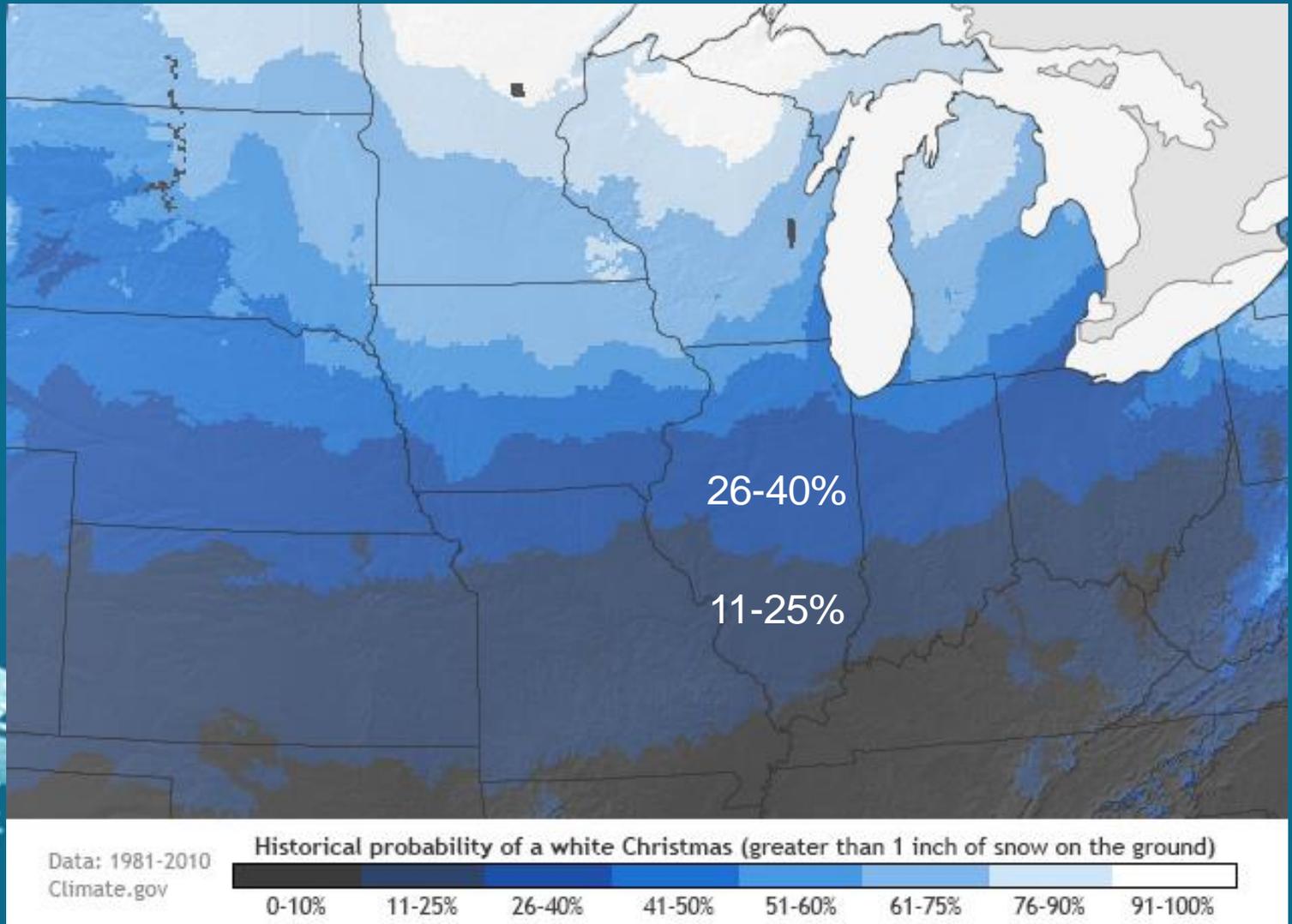


**Peoria: 20.2"**

**Springfield: 17.5"**

**Effingham: 13.0"**

# Chances of a White Christmas



# Questions?



Chuck Schaffer  
JP Irvin Park  
Bloomington, IL  
1 PM 12/21/05