



Elle Niño

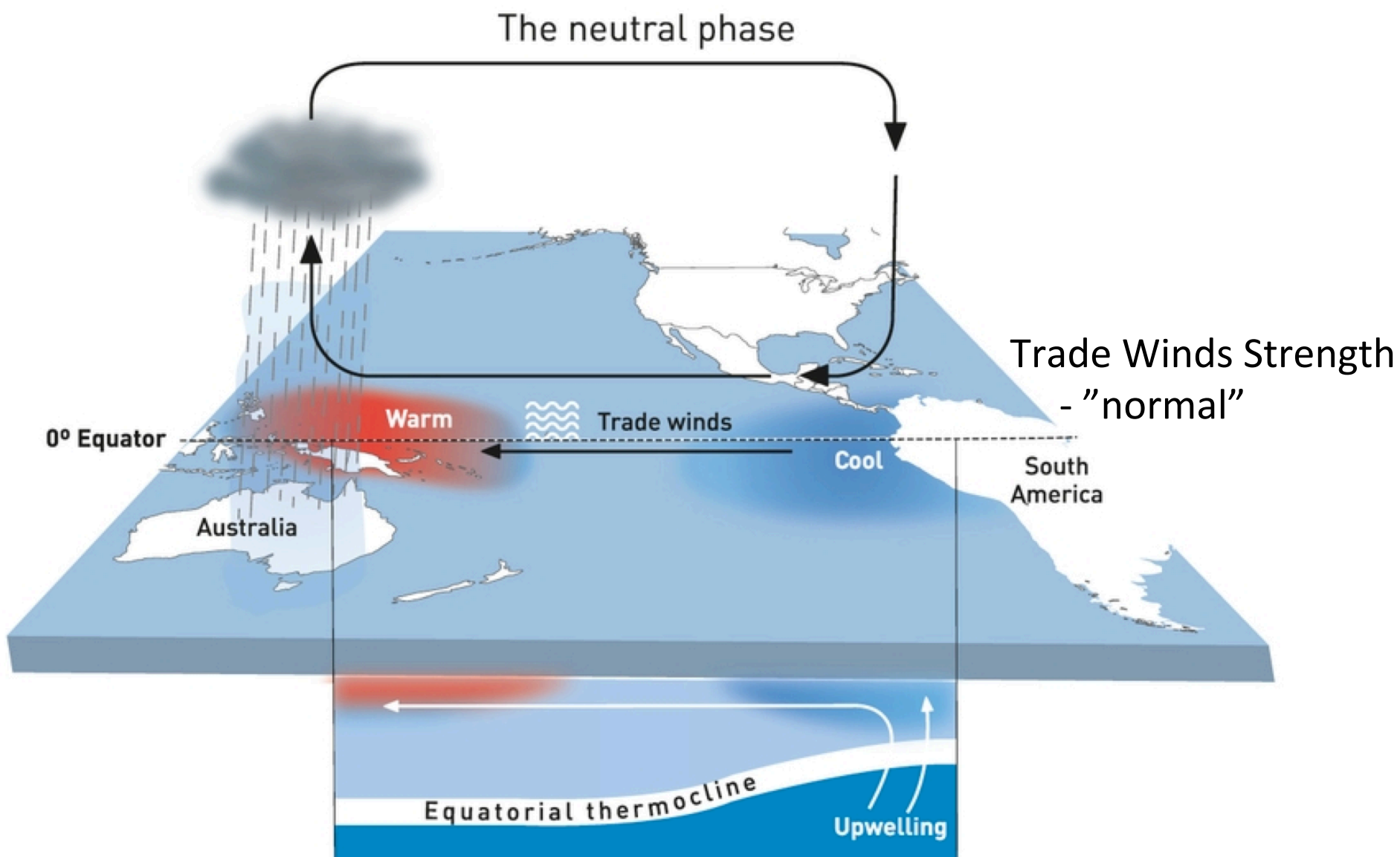


**Elle Niño**  
Musician/Band

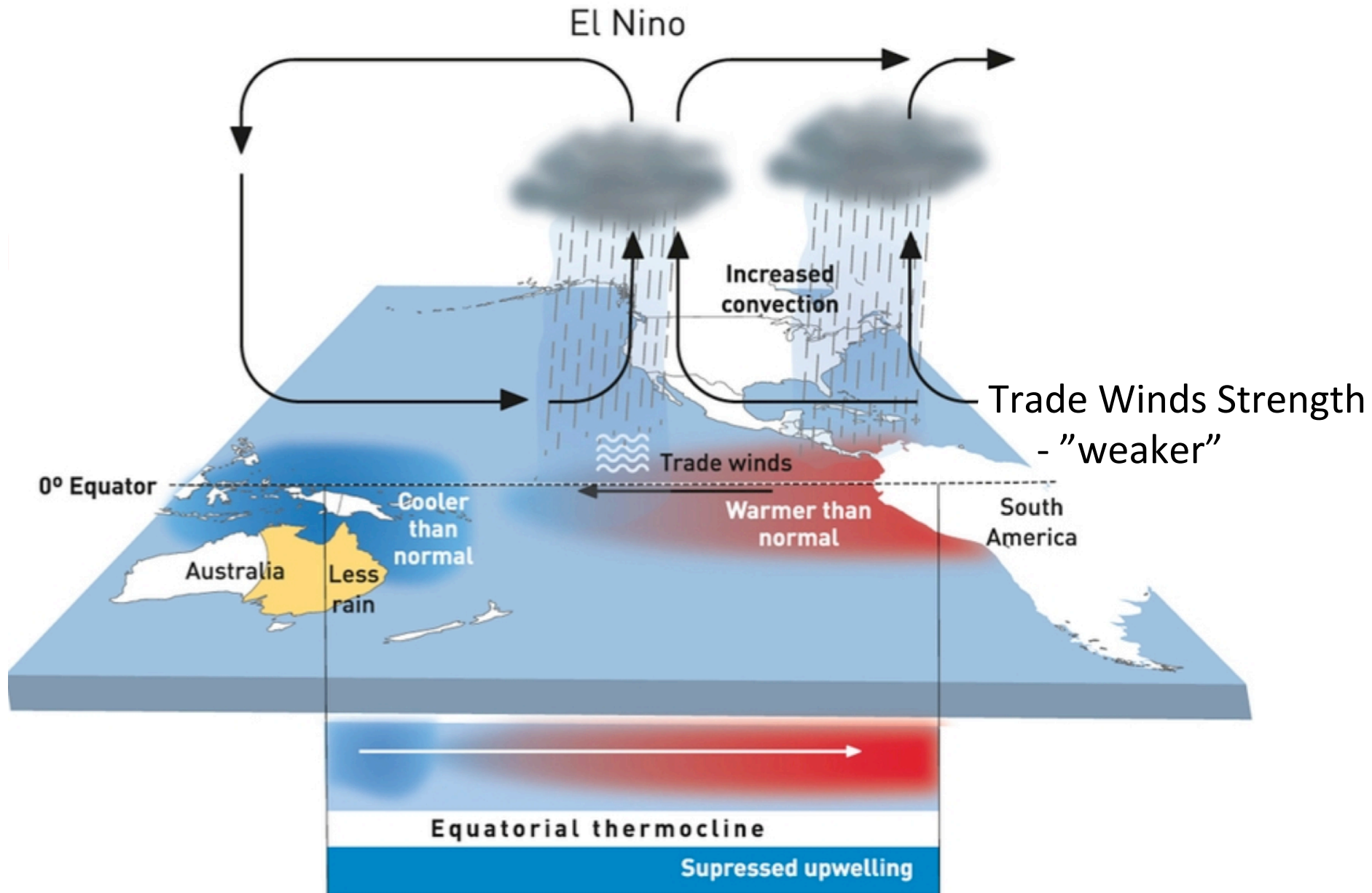
**Timeline**

**About**

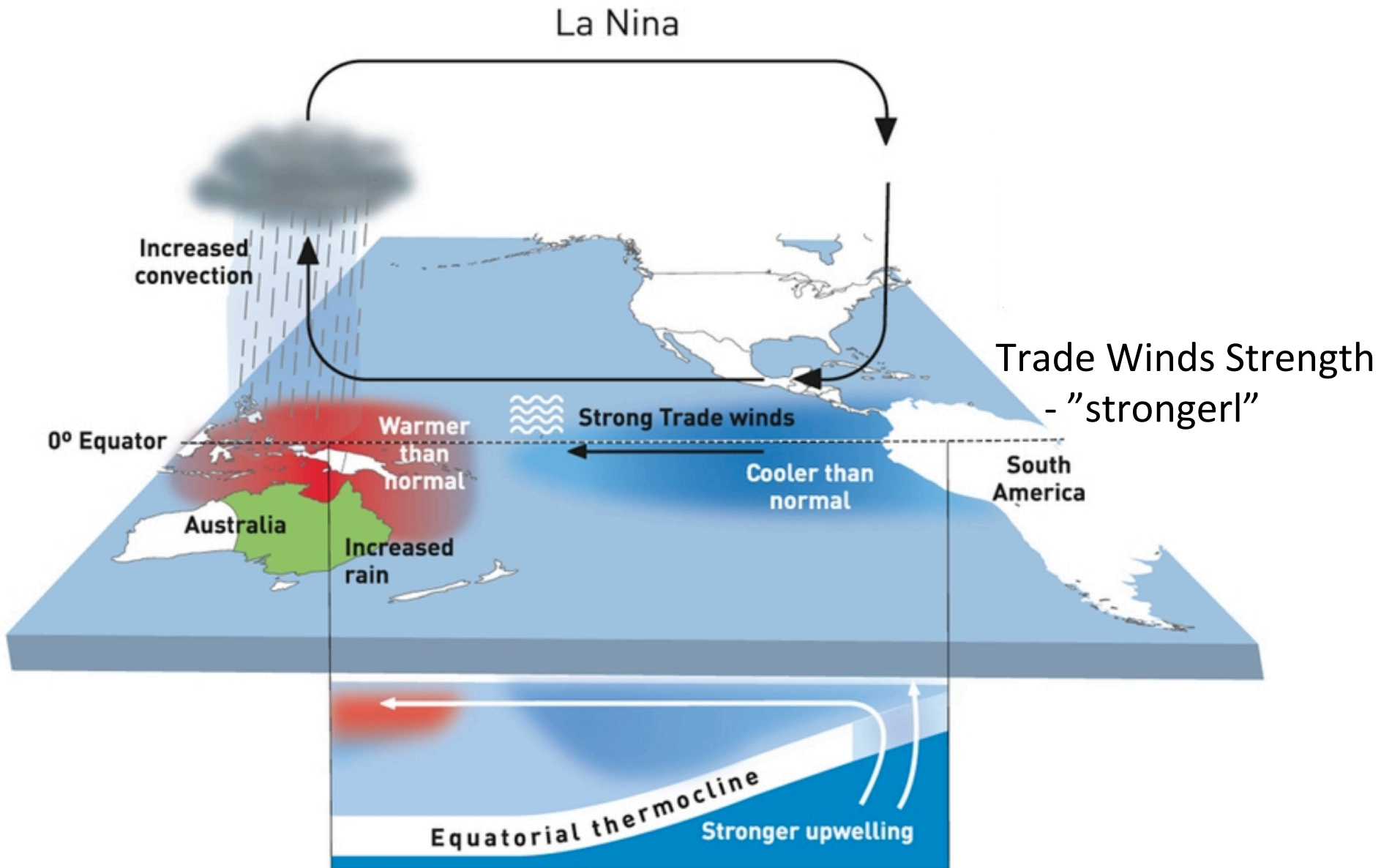
# El Nino Southern Oscillation (ENSO)



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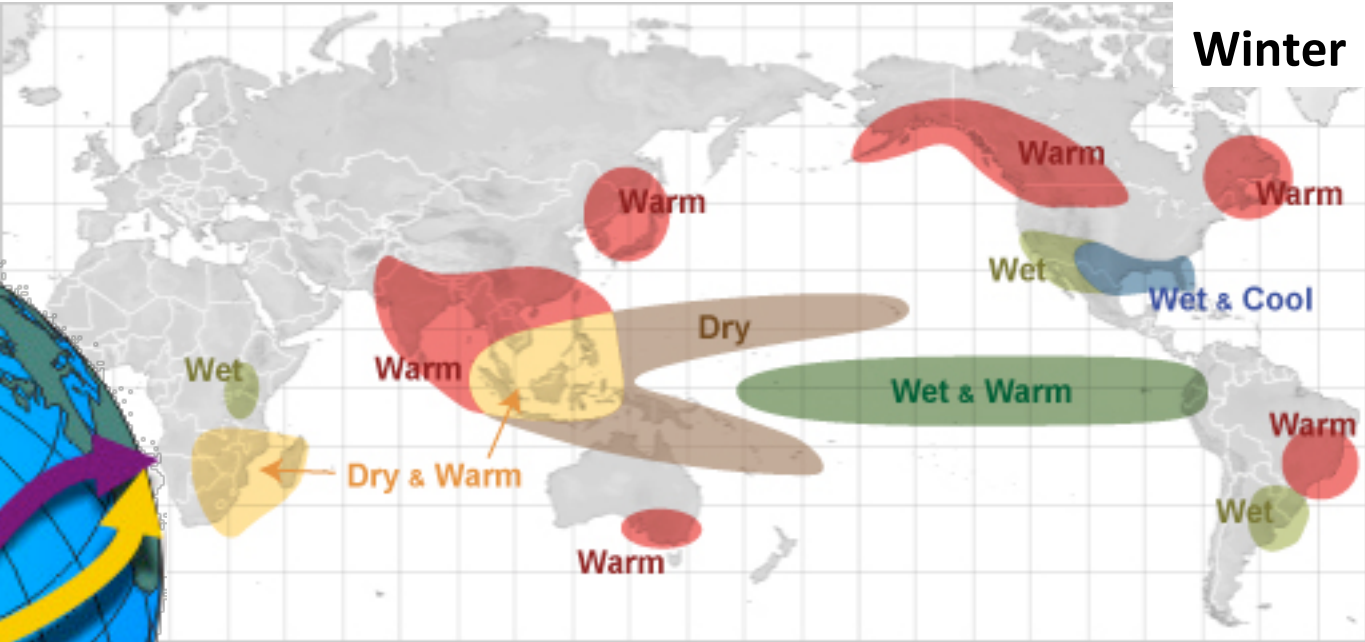




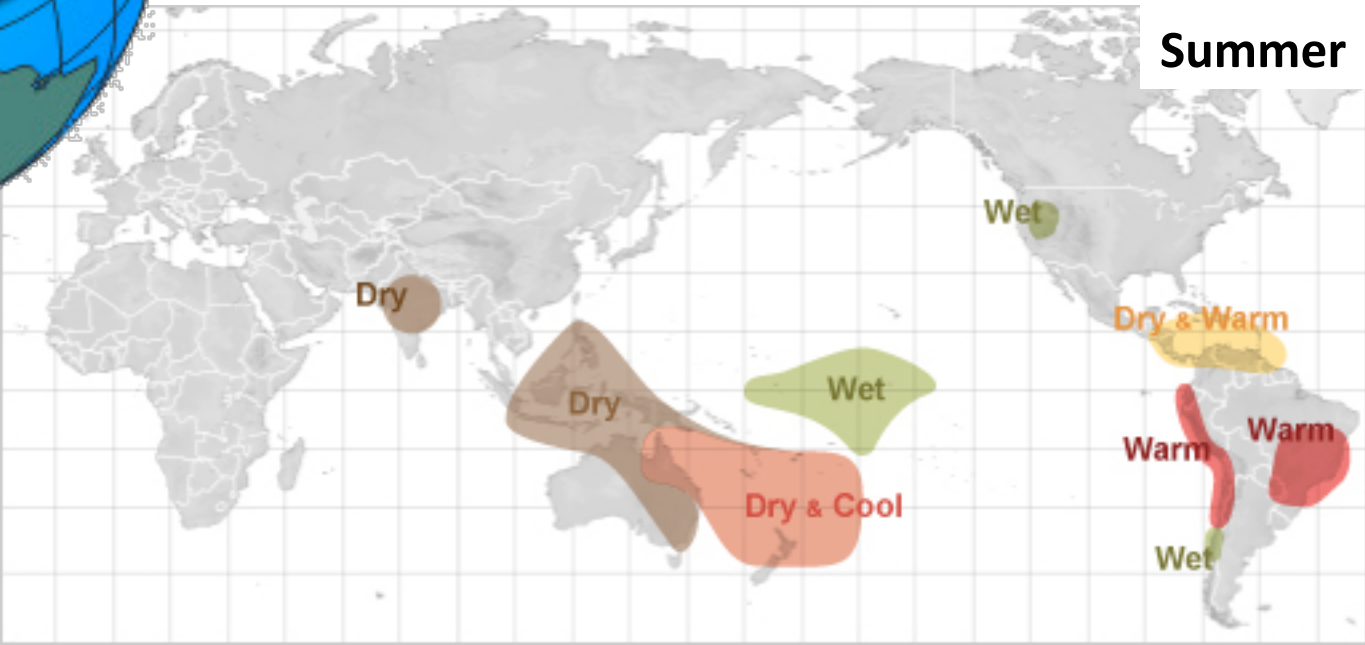
# ENSO Weather Impacts

## El Nino

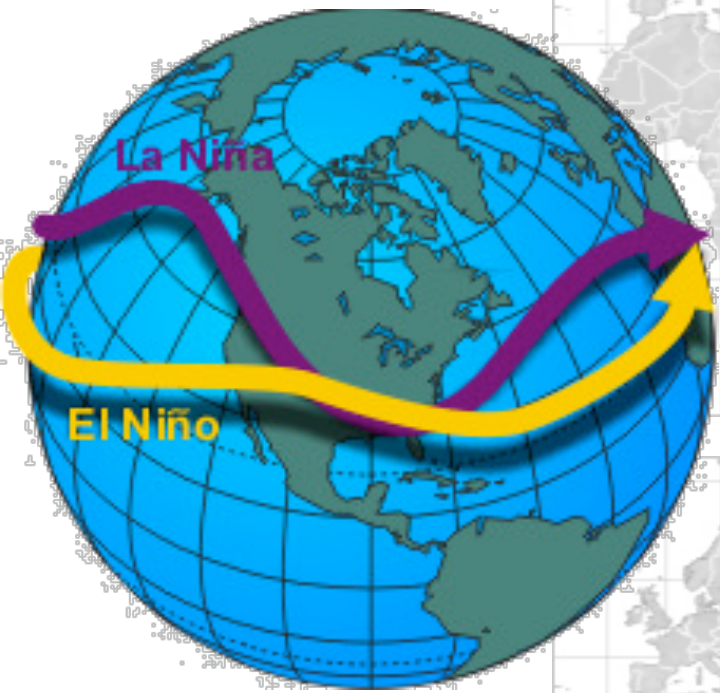
Winter



Summer



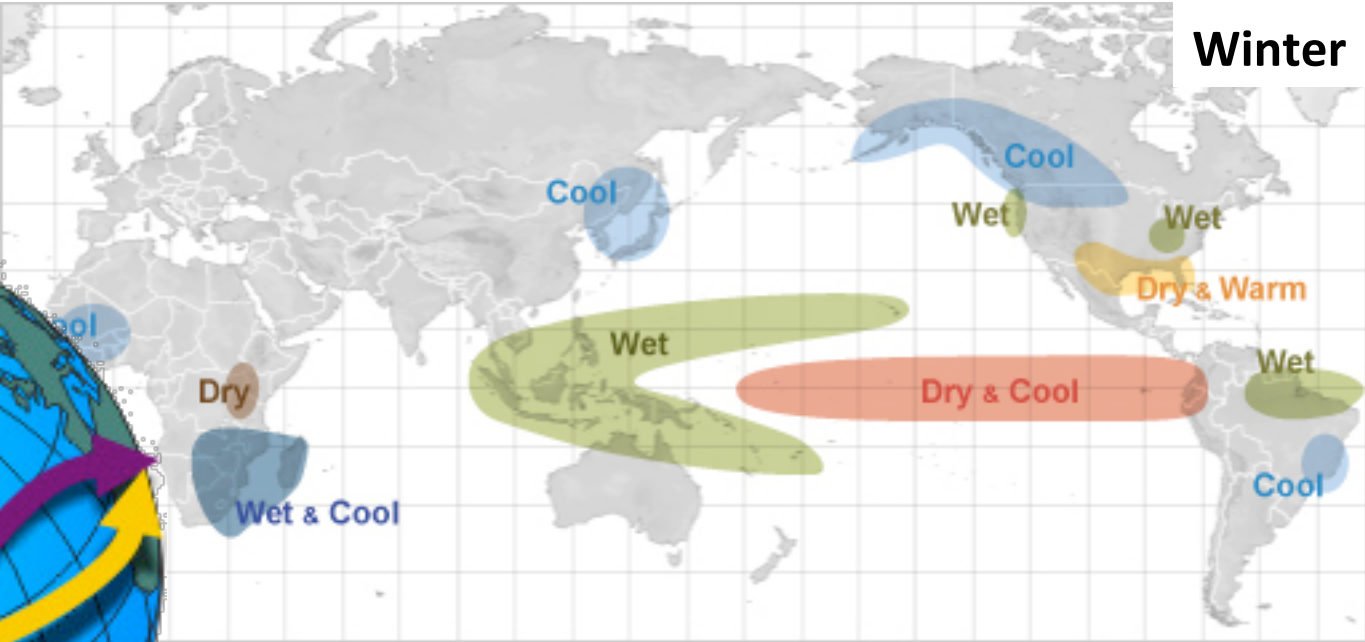
## Jetstream Path



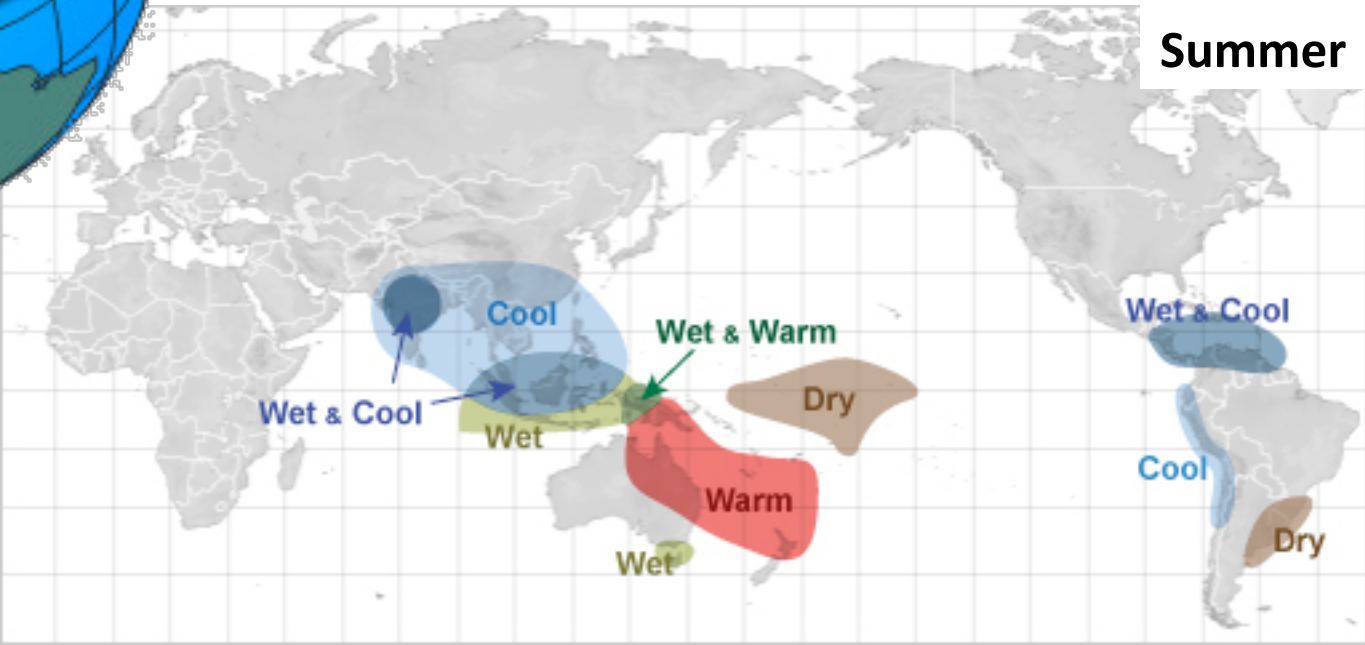
# ENSO Weather Impacts

## La Nina

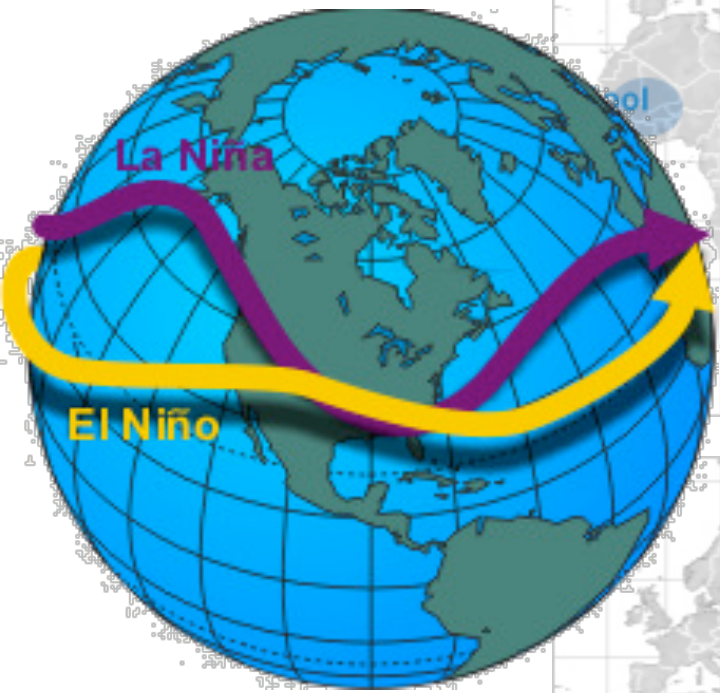
Winter



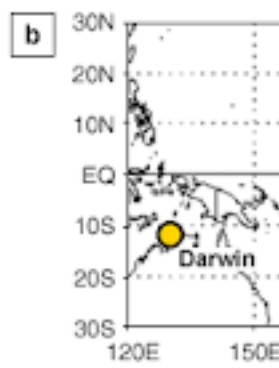
Summer



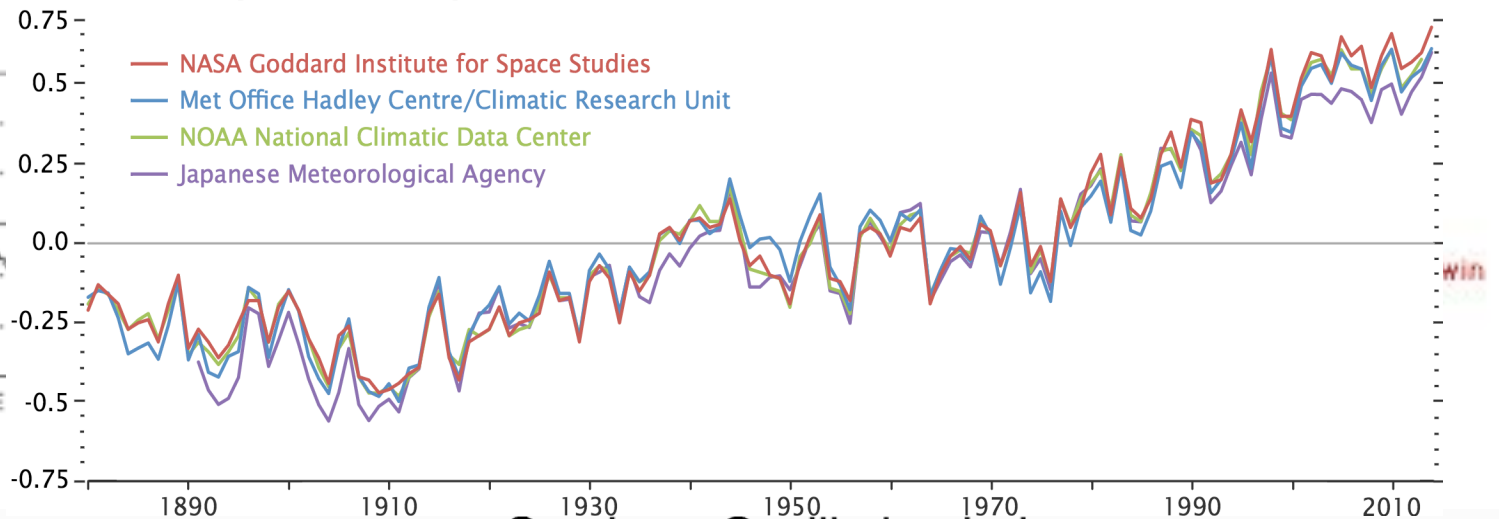
## Jetstream Path



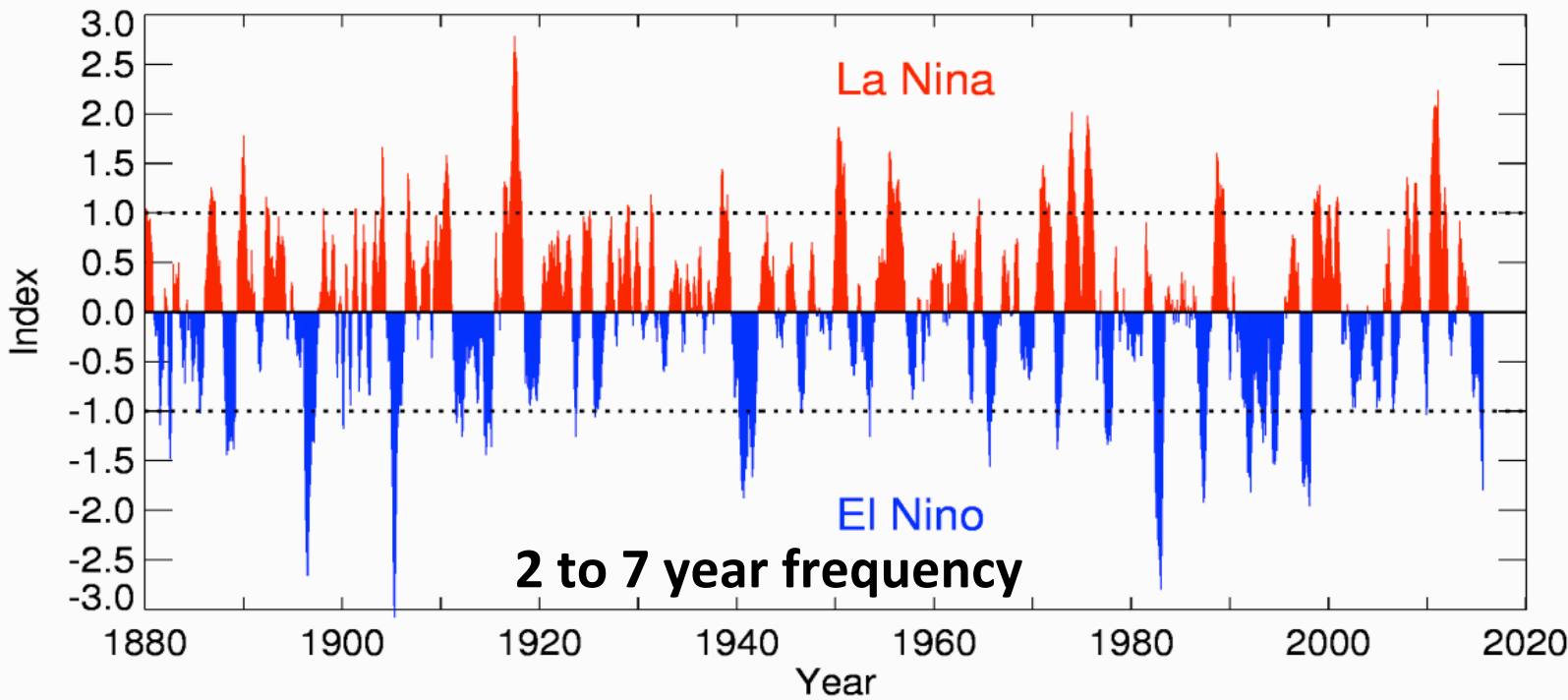
# ENSO Recent History



Annual Temperature Anomaly (°C)



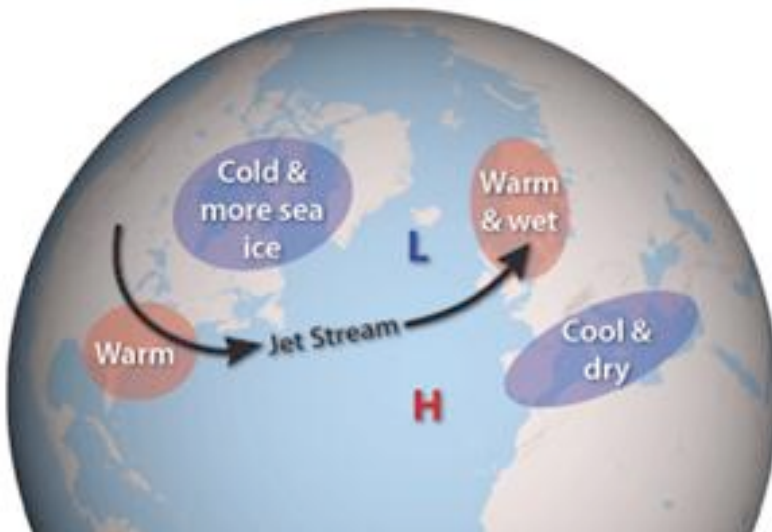
Southern Oscillation Index



# North Atlantic Oscillation (NAO)

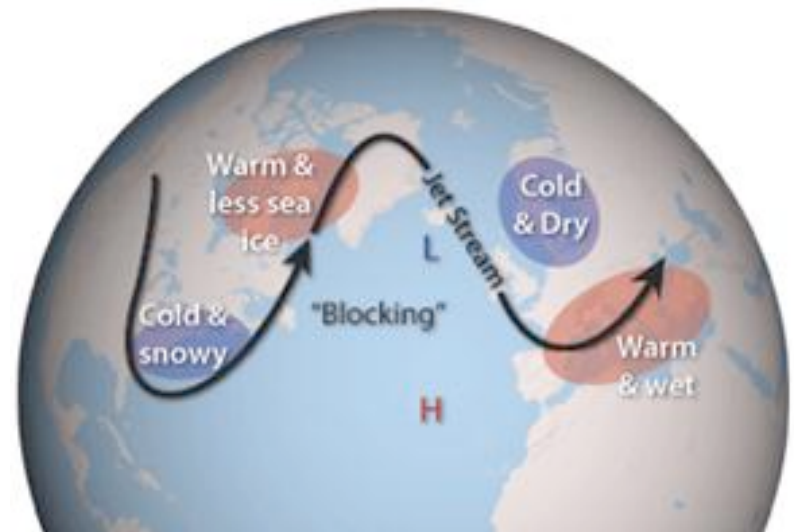
## Positive Mode

Strong pressure systems (H & L) over Atlantic  
- "Guide" Jetstream between systems

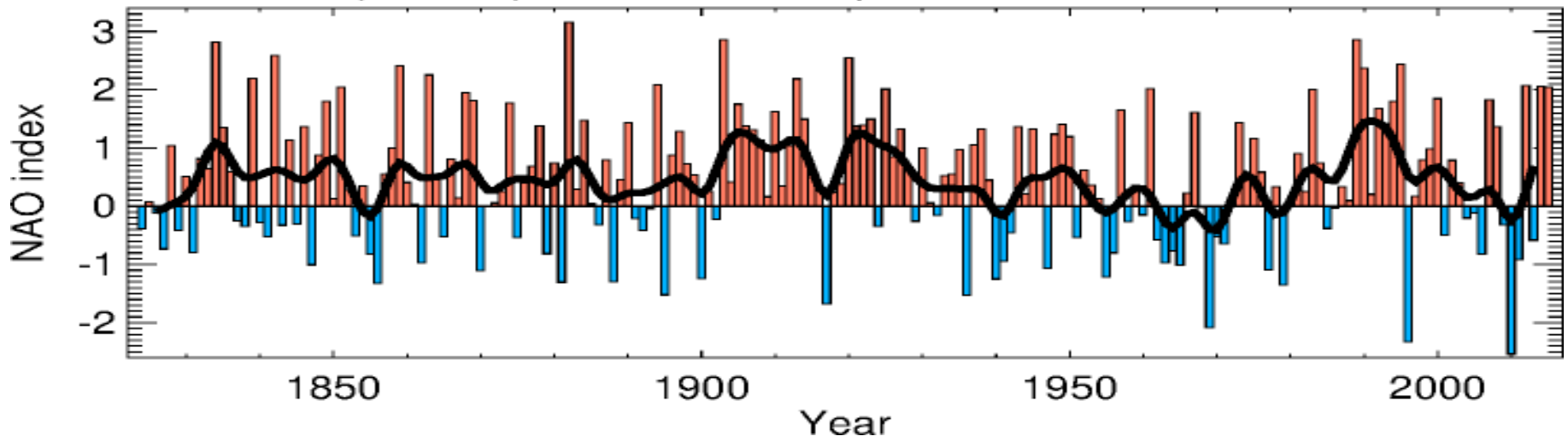


## Negative Mode

Weak pressure systems (H & L) over Atlantic  
- Allow Jetstream to meander



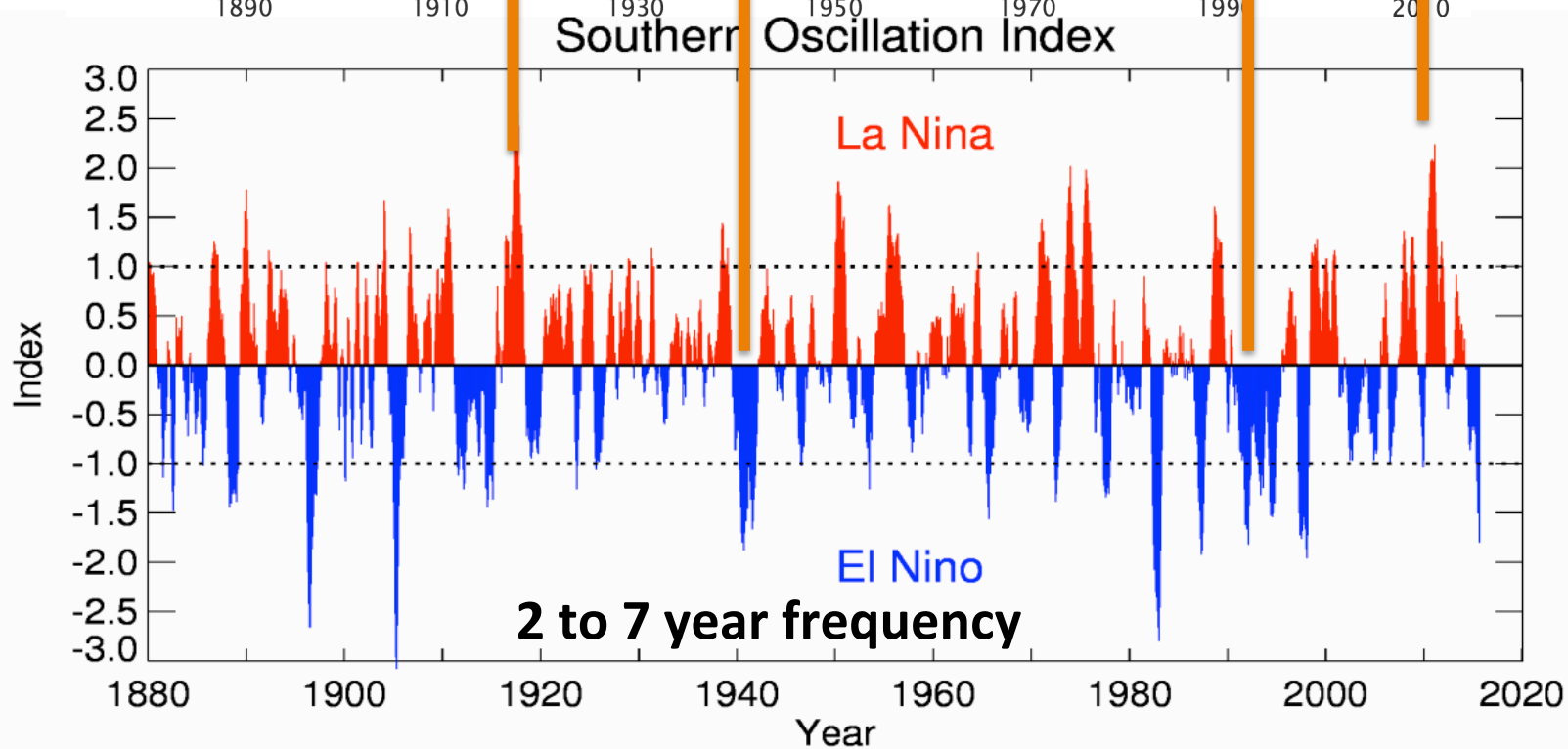
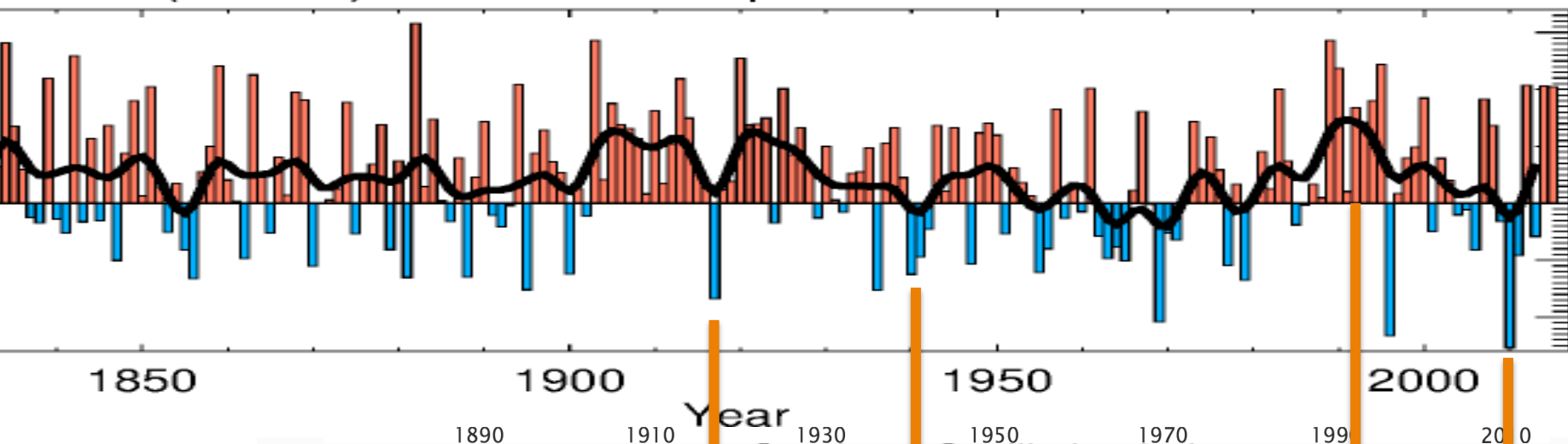
Winter (DJFM) NAO index updated to winter 2014/2015





# ENSO NAO Comparison

Winter (DJFM) NAO index updated to winter 2014/2015





Why on earth is it called el nino? What does El Nino mean?

I still don't understand what La Niña is or how that works.

How long of a period of time El Nino affects the weather?

Is this a normal climate change that happens or is this rare?

When were the first affects of El Nino felt?

Does El Nino and La Nina cause the temperature to oscillate in an unstable way?

I still don't understand the rising of the cool water and how this has to do with el nino.

How much is the temperature difference between the east and west side of the ocean?

How much does it have to be to cause a significant variation in weather?

Why el nino always related to Indonesia??

Given the above, does climate change have the ability to dramatically change the currents and normal winds of Earth?

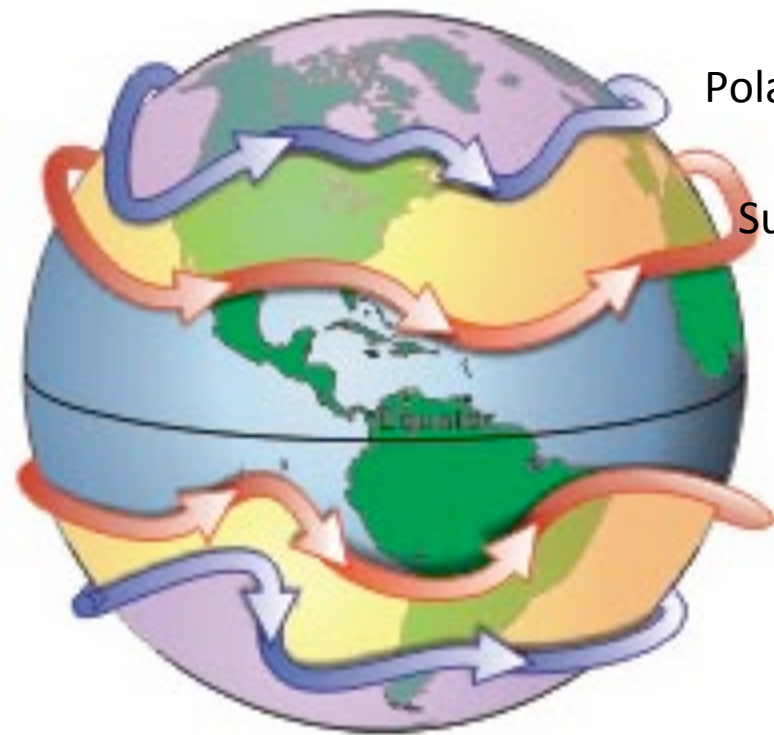
"Jet Streams" and what they refer to.

The jet stream and how it affects weather.

I don't understand why there are wetter than normal conditions in the middle of the country but drier than normal conditions surrounding it.

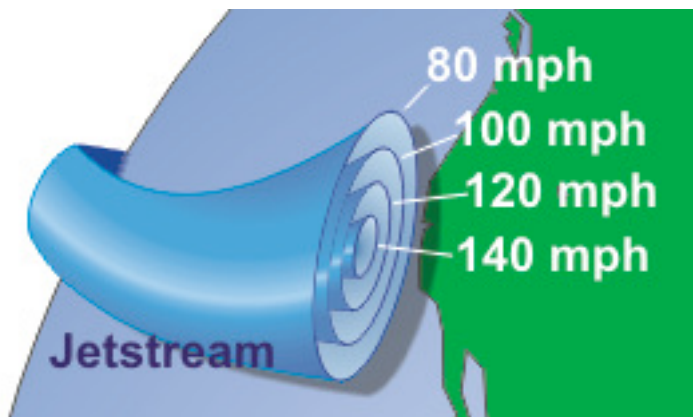
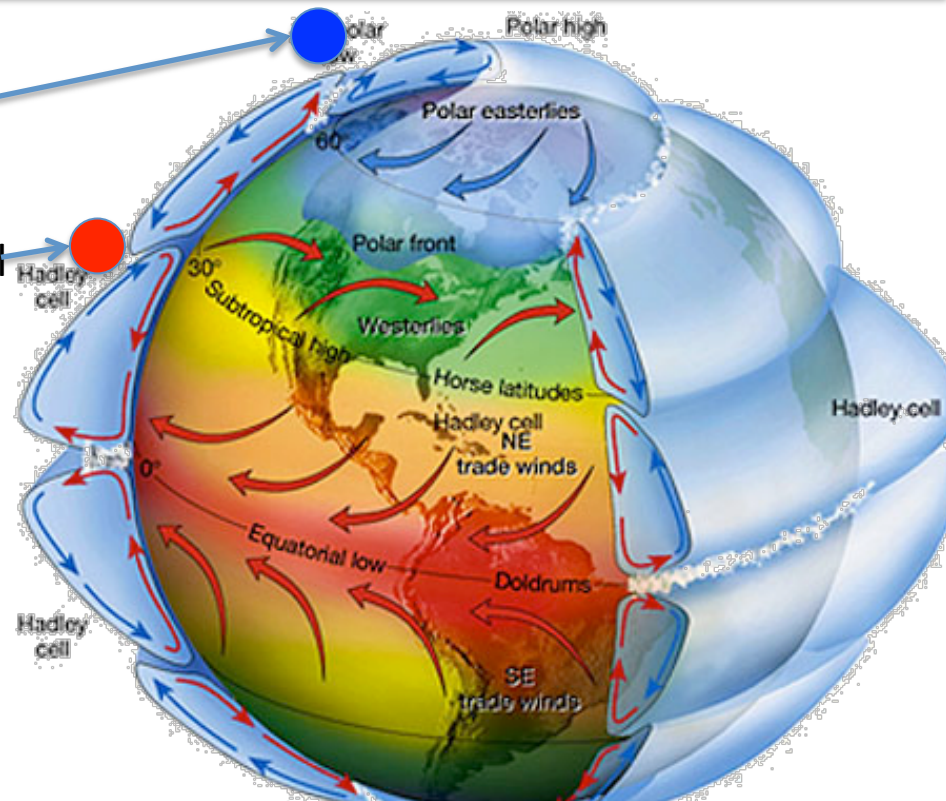
Why do trade winds move toward the East rather than the West?

# Jet Streams

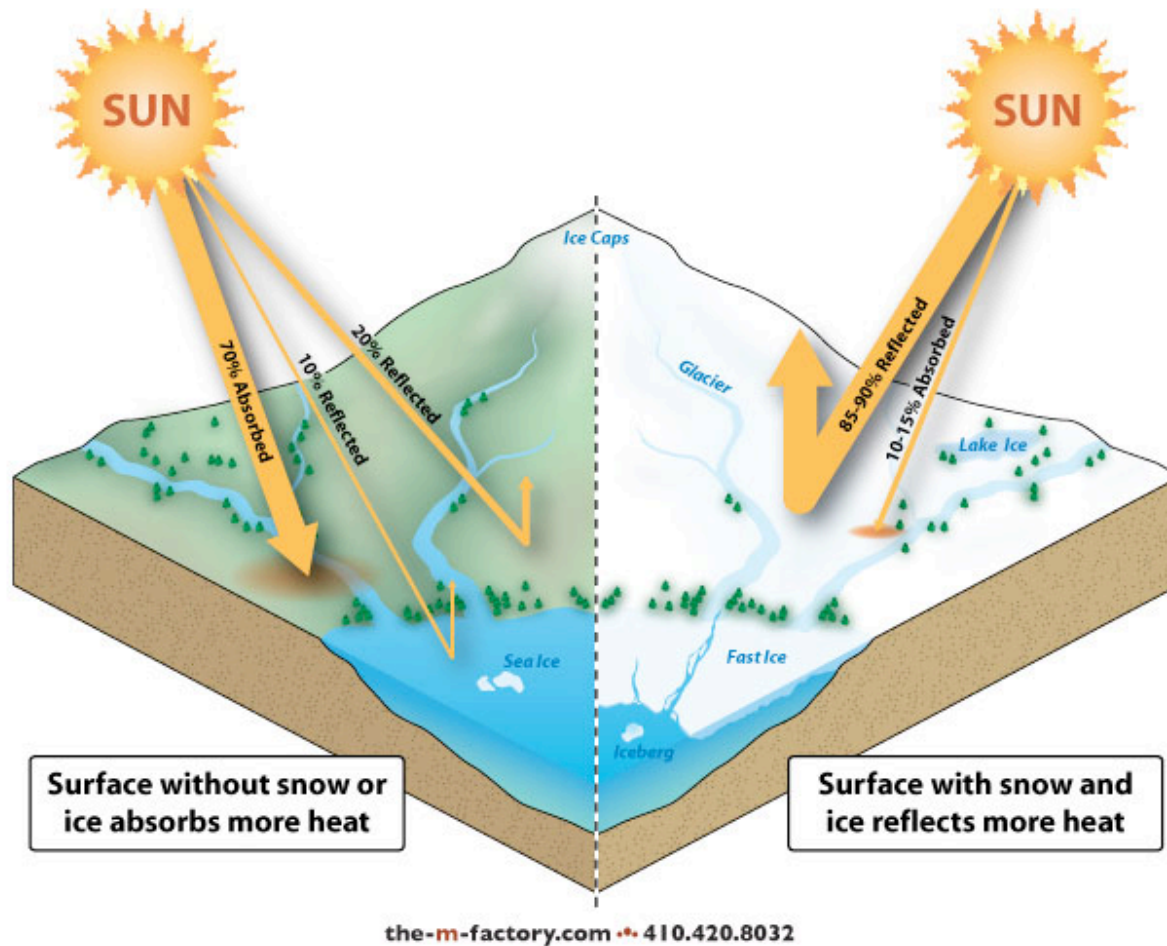


Polar

Sub-Tropical



# Climate Change Factors - Albedo Effects



- Increased ice and snow cover will lead to cooling
- Reduced ice and snow cover will lead to warming

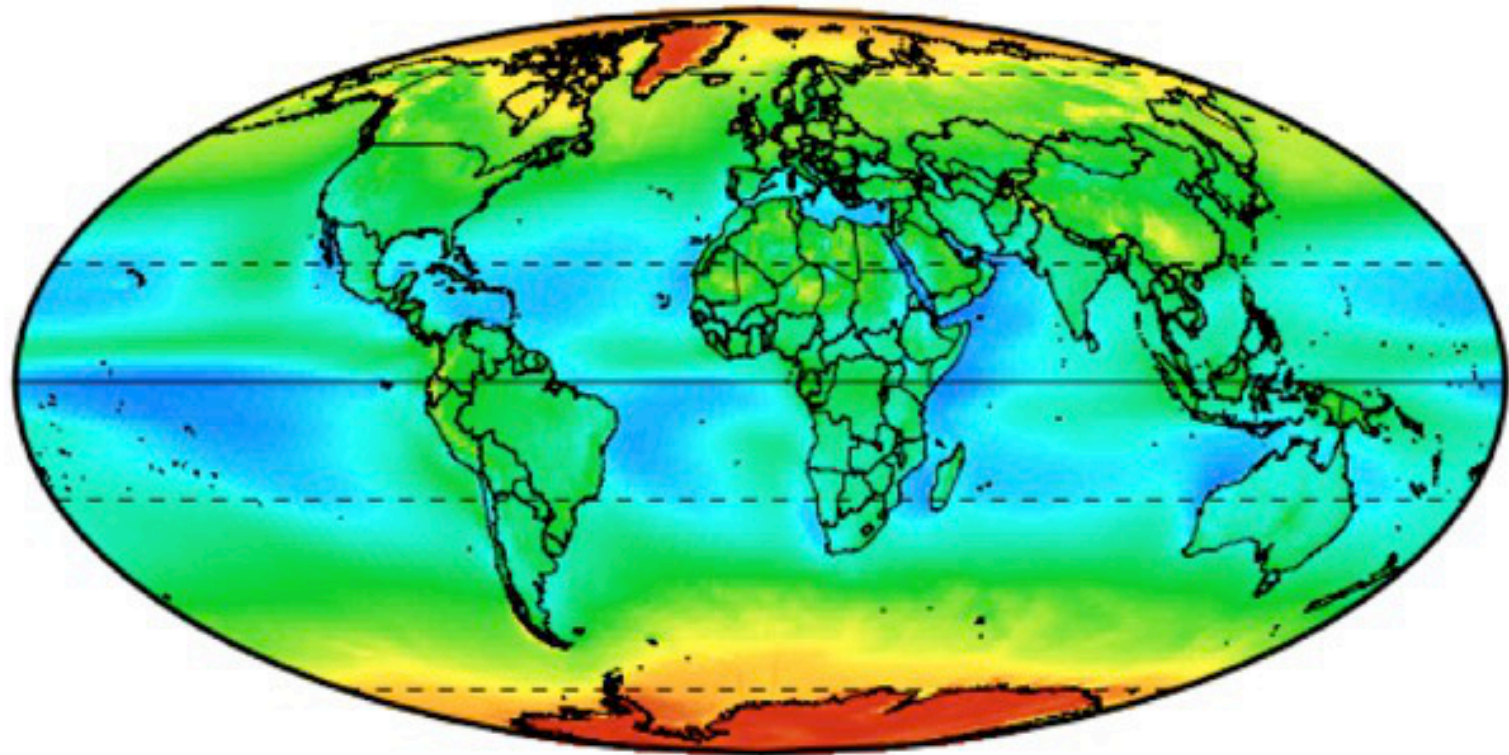


# Albedo & Causal Chains

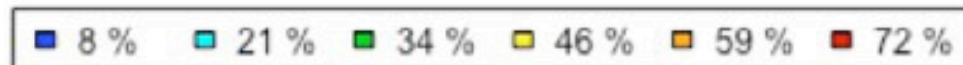
What if Climate Cools? What Happens to Albedo?

Case 1: Start with Glaciers

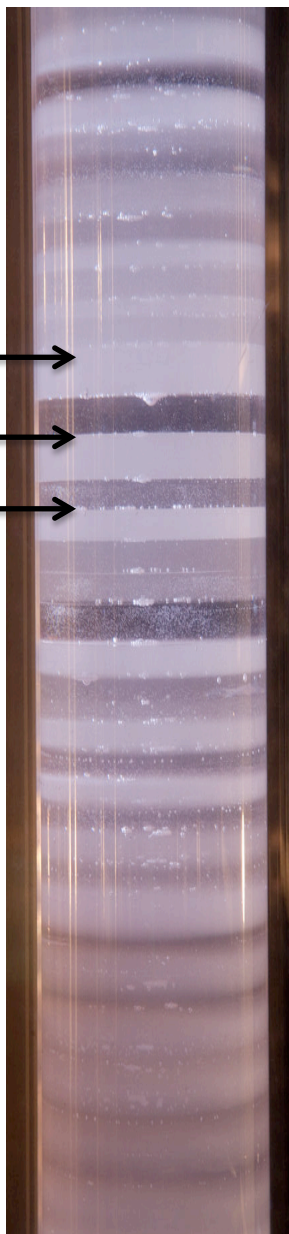
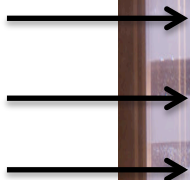
Case 2: Start with Vegetation



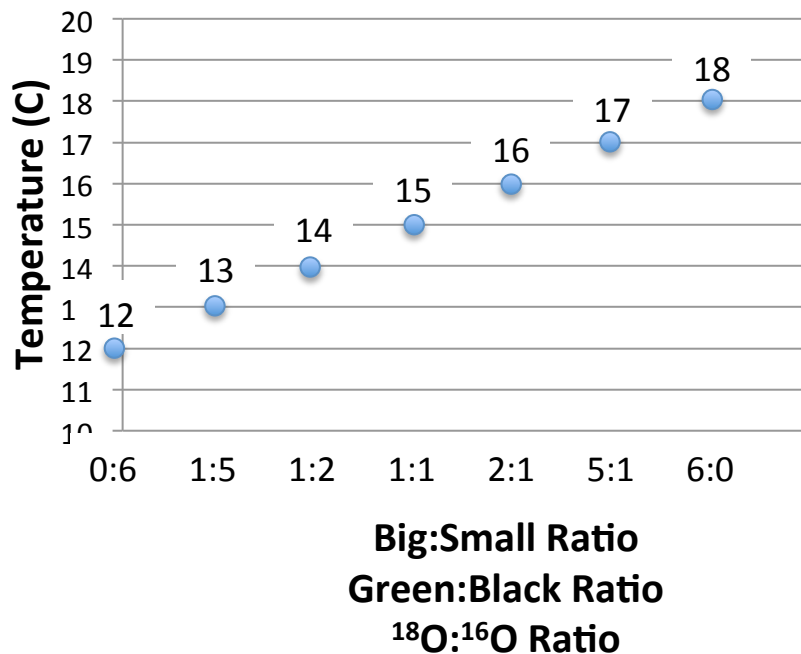
Average Annual Albedo (Reflectivity)



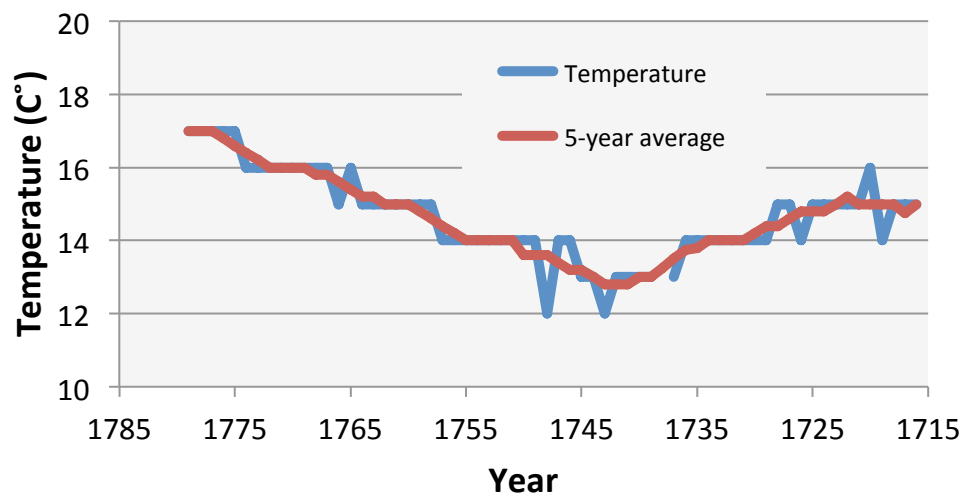
Annual  
Rings



### Calibration Curve



### Oxygen Isotope Temperature



A

B

C

D

E

F

G

H



# Greenhouse Effect - Trends

## Greenhouse Gases (GHG)

Water Vapor ( $\text{H}_2\text{O}$ )  
Carbon Dioxide ( $\text{CO}_2$ )  
Nitrous Oxide ( $\text{N}_2\text{O}$ )  
Methane ( $\text{CH}_4$ )  
Ozone ( $\text{O}_3$ )

