

# Interdecadal Climate Variability over Antarctica and Linkages to the Tropics

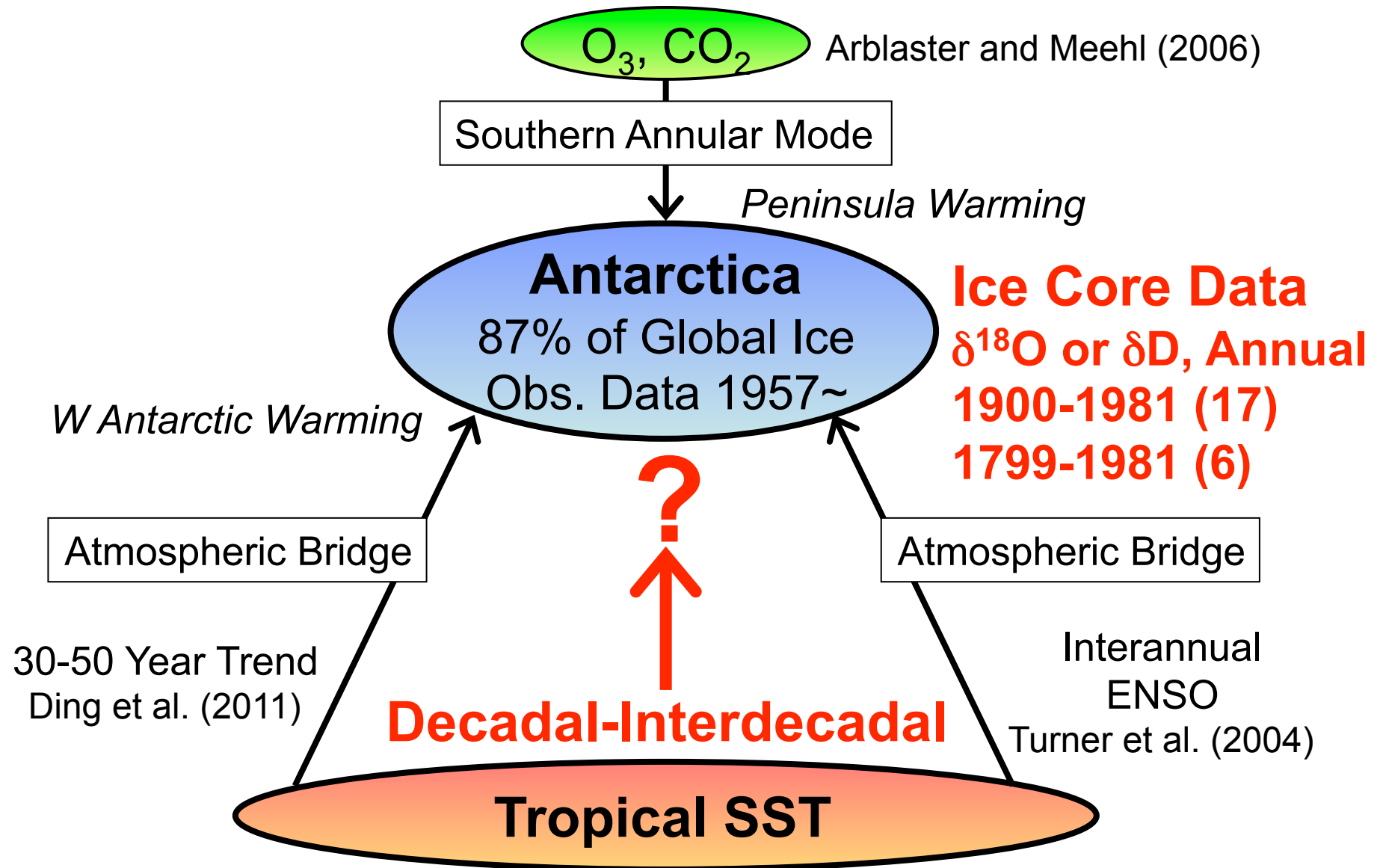
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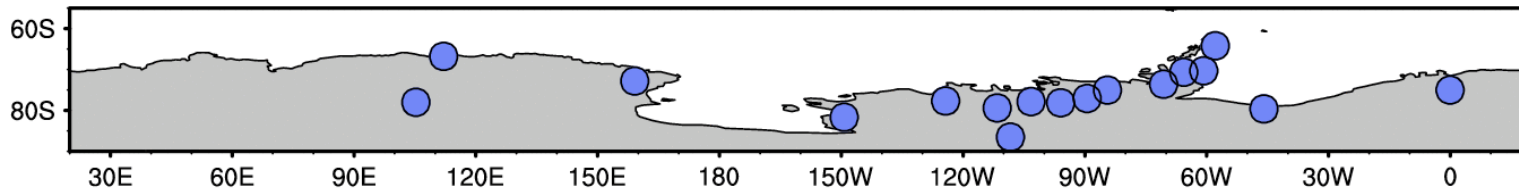


In collaboration with Clara Deser and David Schneider (NCAR)

# Antarctic Climate Variability and Change



# SVD Analysis of Ice Core and Tropical SST (1900-1981)



**Ice Core**

**1799**

6 Records

**1900**

17 Records

**1981**

**Singular Value Decomposition  
(SVD) Analysis**

- 1) Monthly SST → Annual
- 2) Detrend
- 3) Temporal Smoothing (1-2-1)

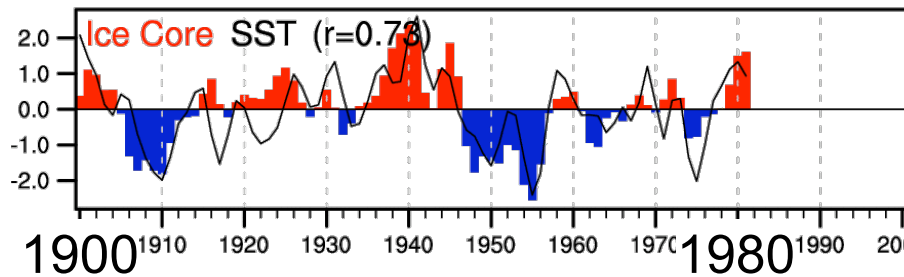
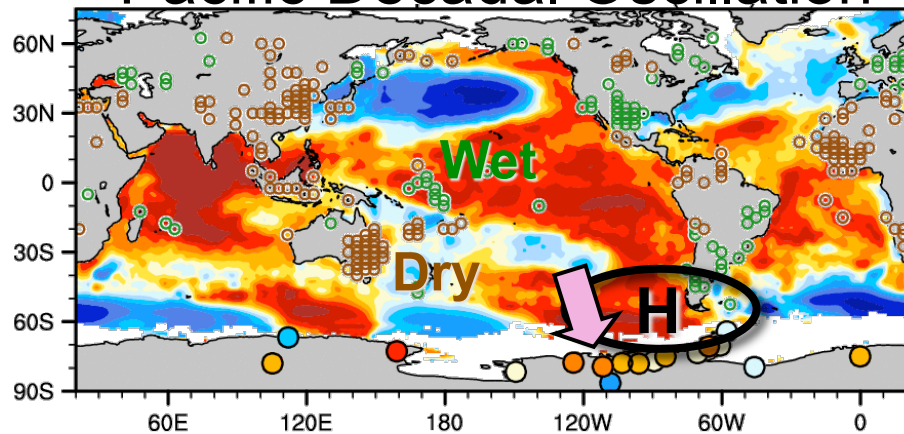
Focus on Time Scales Beyond ENSO

**Tropical SST**  
(HadISST)

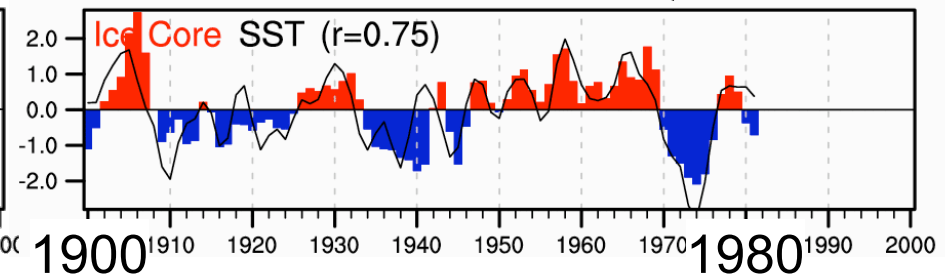
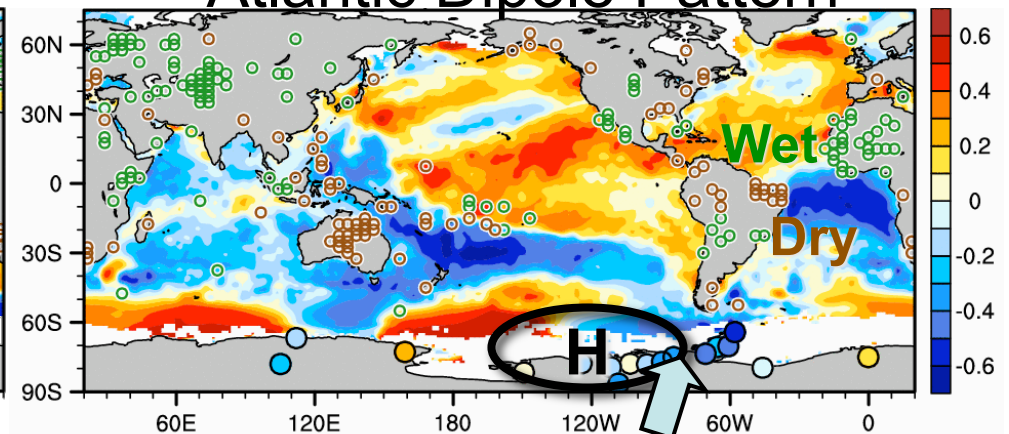
# SVD Analysis of Ice Core and Tropical SST (1900-1981)

Correlation: Ice Core, Sea Surf Temp & Precipitation (Wet/Dry)

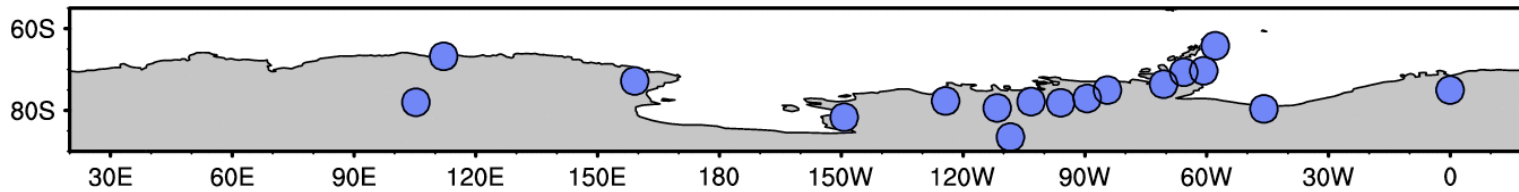
## SVD Mode 1 (50%) Pacific Decadal Oscillation



## SVD Mode 2 (25%) Atlantic Dipole Pattern



# SVD Analysis of Ice Core and Tropical Proxy (1900-1981)

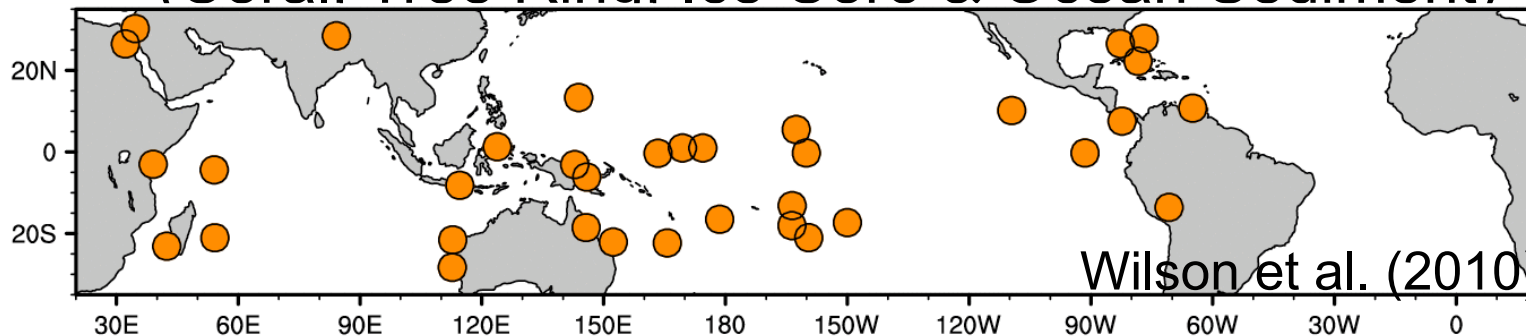


## Ice Core



## Tropical Proxy

(Coral. Tree Ring. Ice Core & Ocean Sediment)

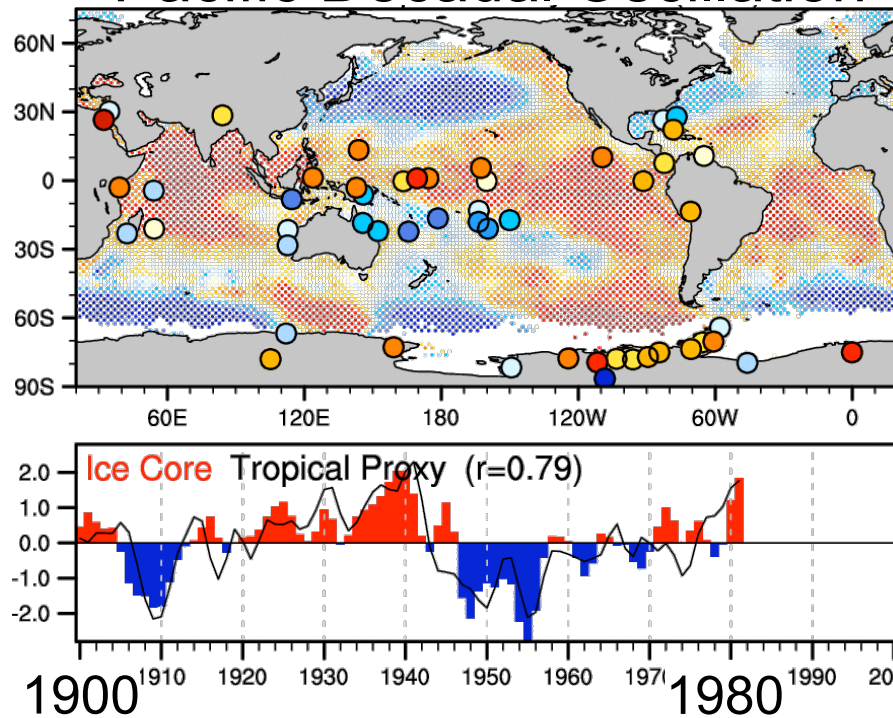


# SVD Analysis of Ice Core and Tropical Proxy (1900-1981)

Correlation: Ice Core, Tropical Proxy & Sea Surface Temperature

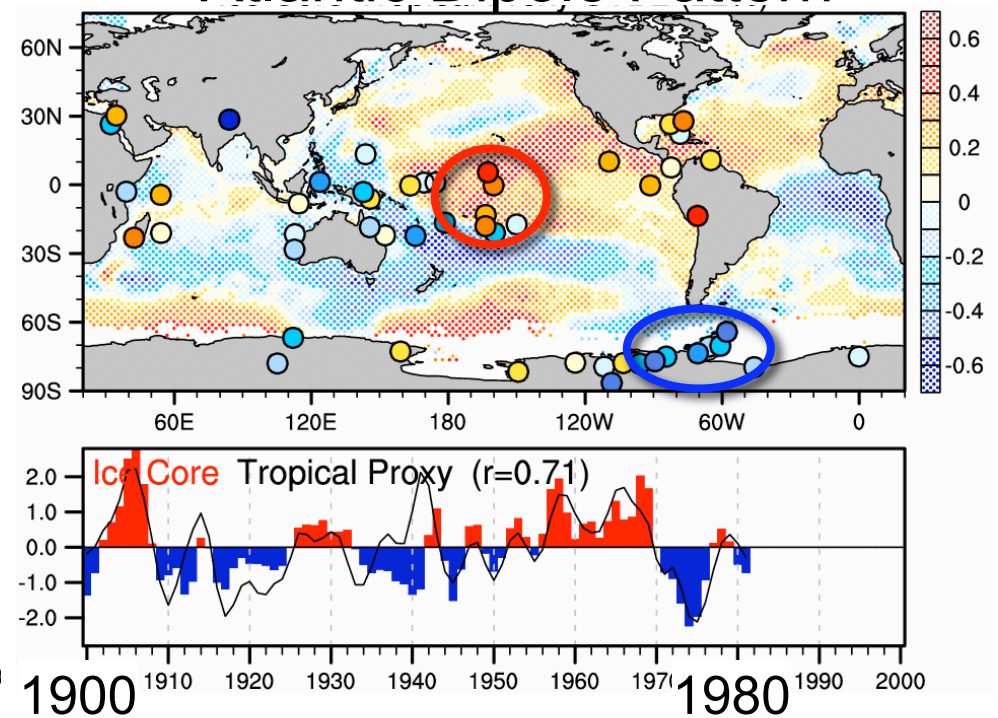
## SVD Mode 1 (30%)

### Pacific Decadal Oscillation

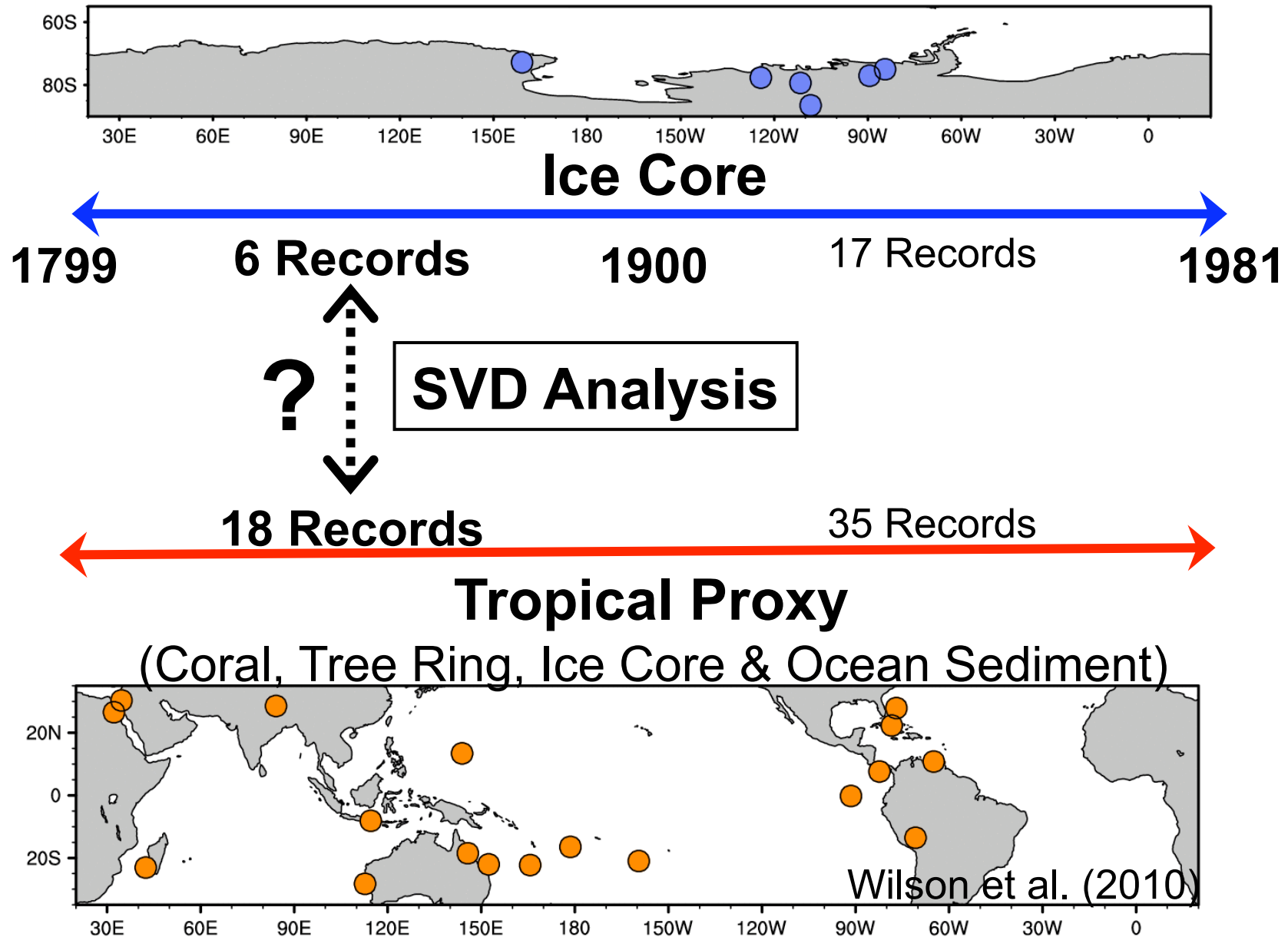


## SVD Mode 2 (22%)

### Atlantic Dipole Pattern



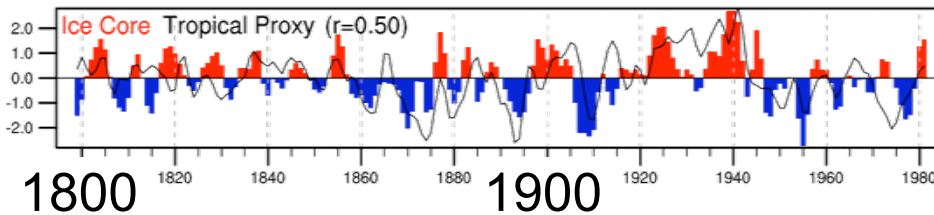
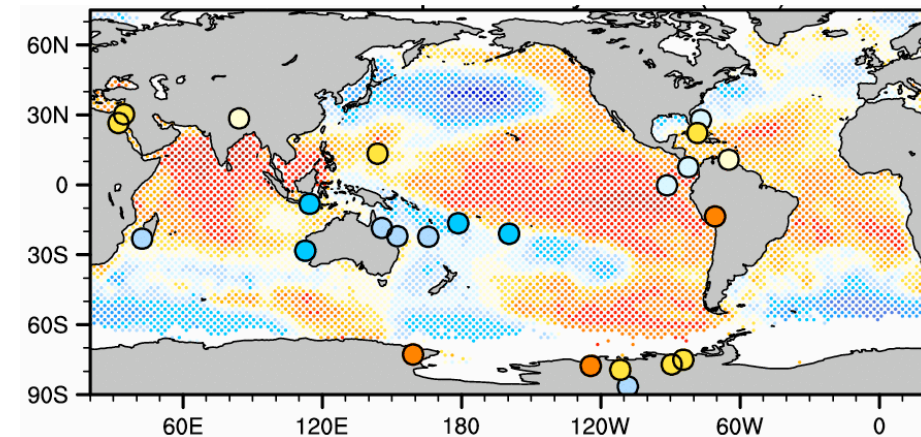
# SVD Analysis of Ice Core and Tropical Proxy (1799-1981)



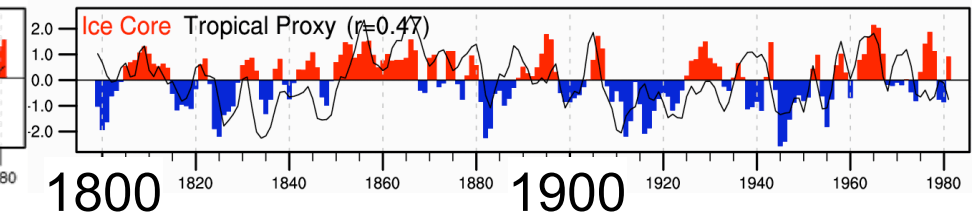
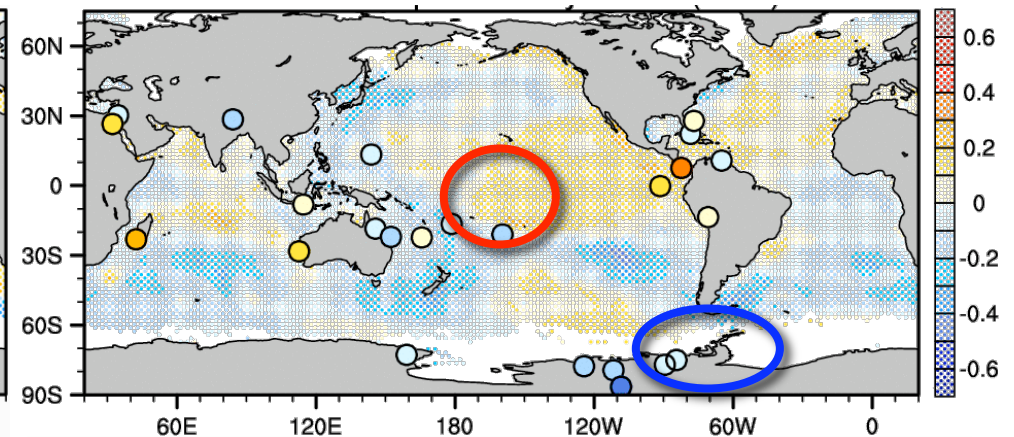
# SVD Analysis of Ice Core and Tropical Proxy (1799-1981)

Correlation: Ice Core, Tropical Proxy & SST (1870-1981)

**SVD Mode 1 (52%)**  
Pacific Decadal Oscillation



**SVD Mode 2 (21%)**  
Atlantic Dipole Pattern??





# Summary

