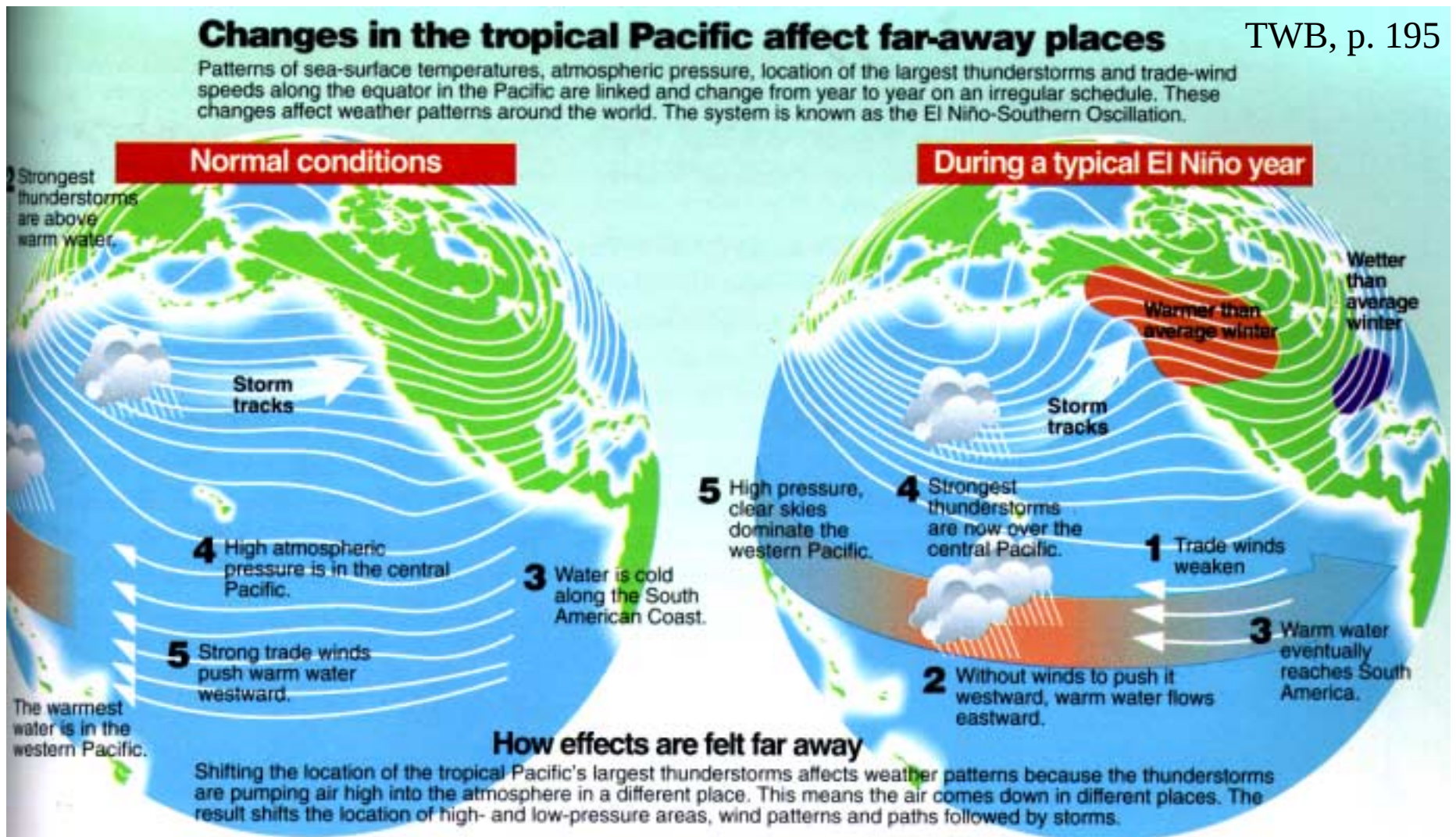


Lecture 16. Year-to-year wintertime variability in midlatitudes

- Every year's weather is different.
- In midlatitudes, wet vs. dry and warm vs. cold years are associated with changes in the jet stream.
- These occur in association with variations in
 1. tropical ocean temperatures (El Nino)
 2. mid-latitude ocean temperatures (e. g. 'Pacific Decadal Oscillation')...but mostly (despite what you sometimes hear in the media)...
 3. the intrinsic 'chaos' of the atmosphere.

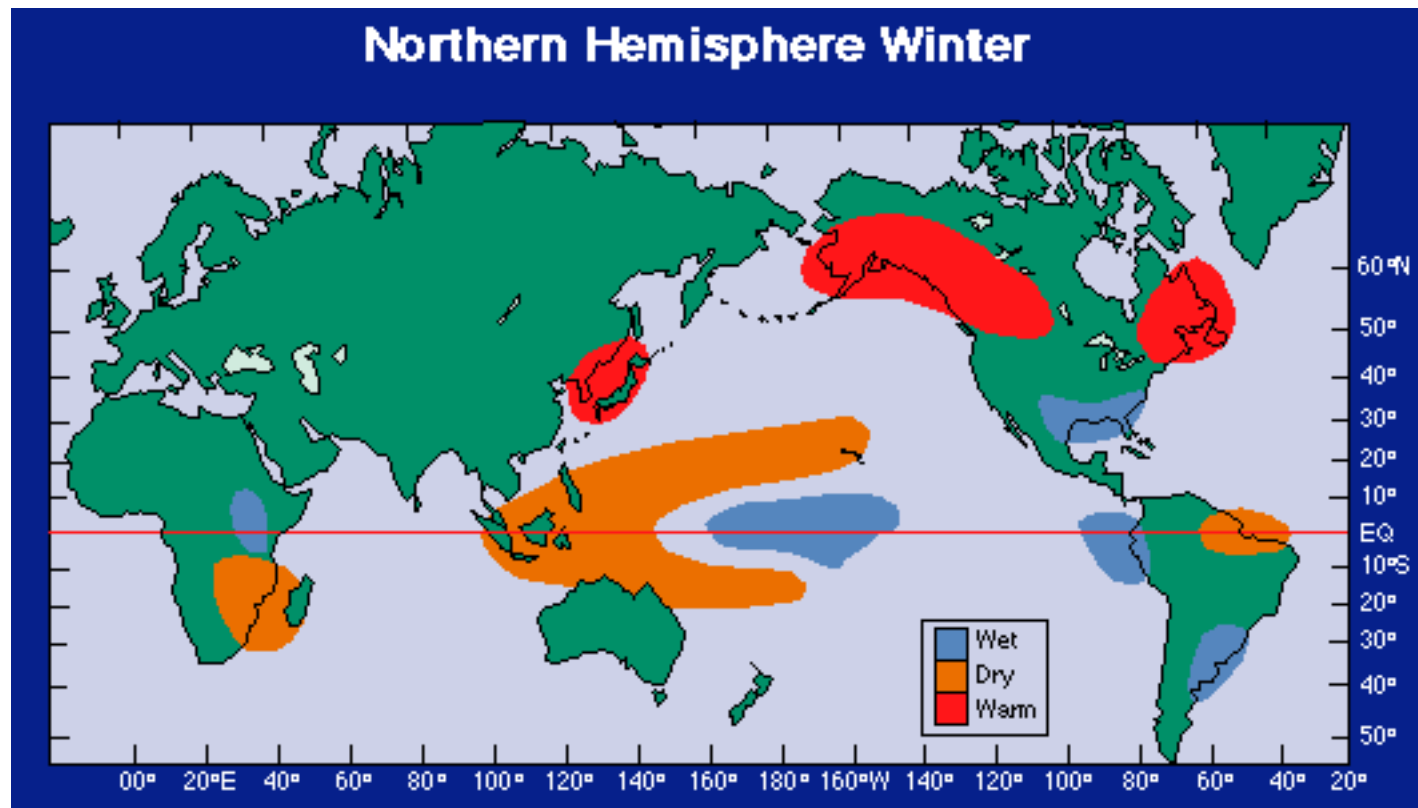
ENSO and changes in our winter weather patterns

TWB, p. 195

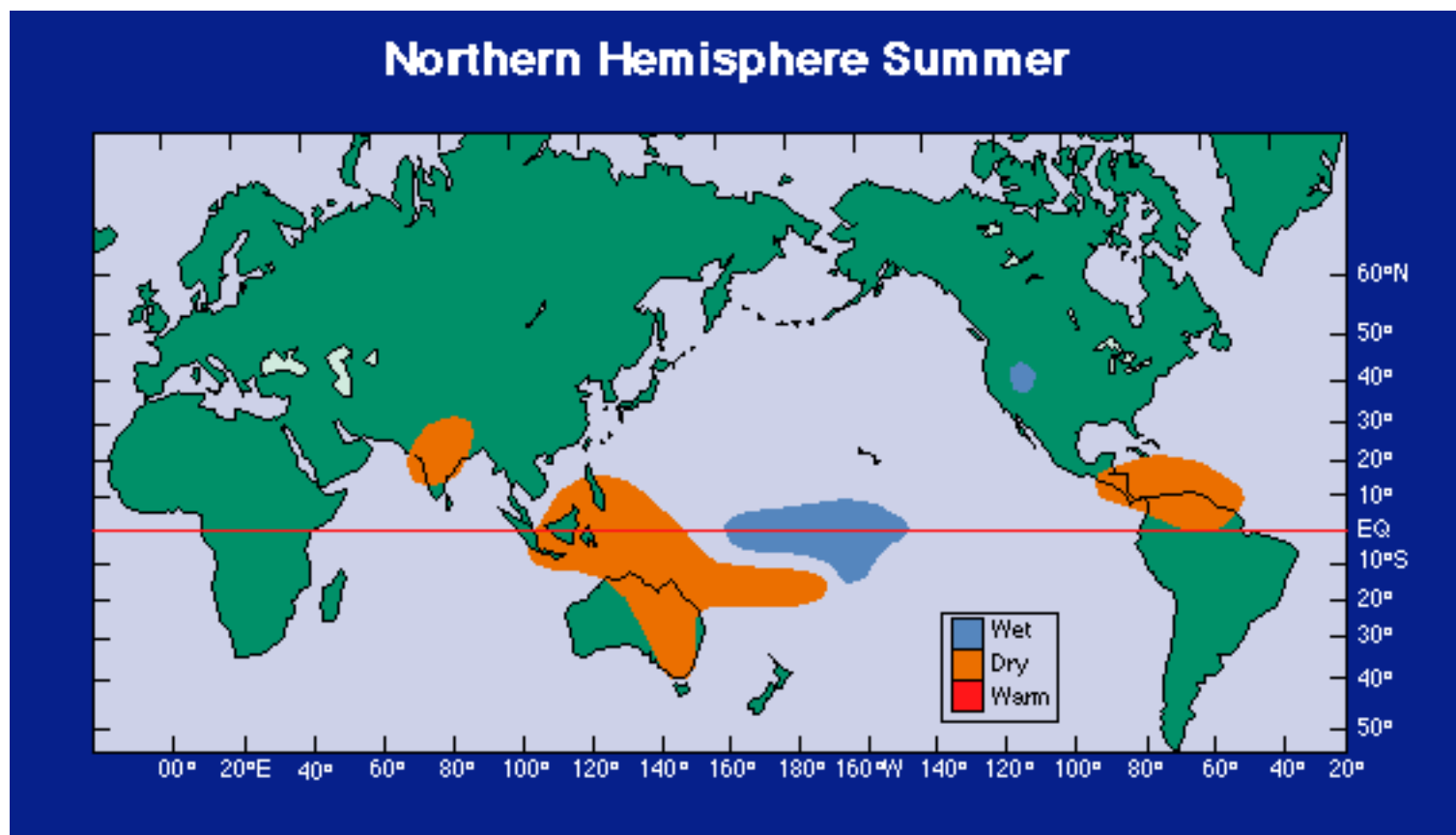


For Seattle, El Niño tends to bring a warm, wet late winter and spring. However, only 25% of our winter-to-winter variability is connected to El Niño.

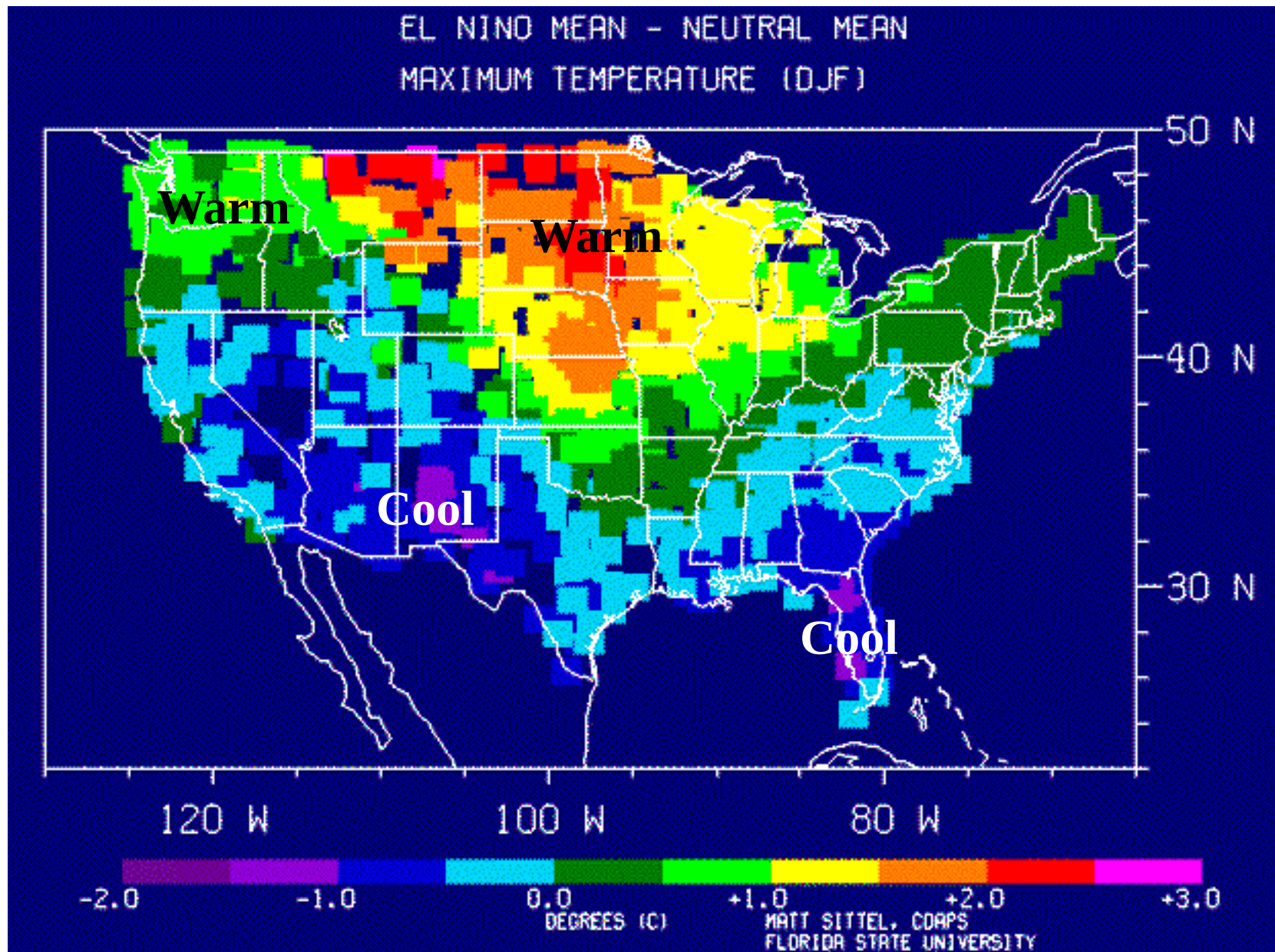
Global impacts of El Nino - strongest in NH winter



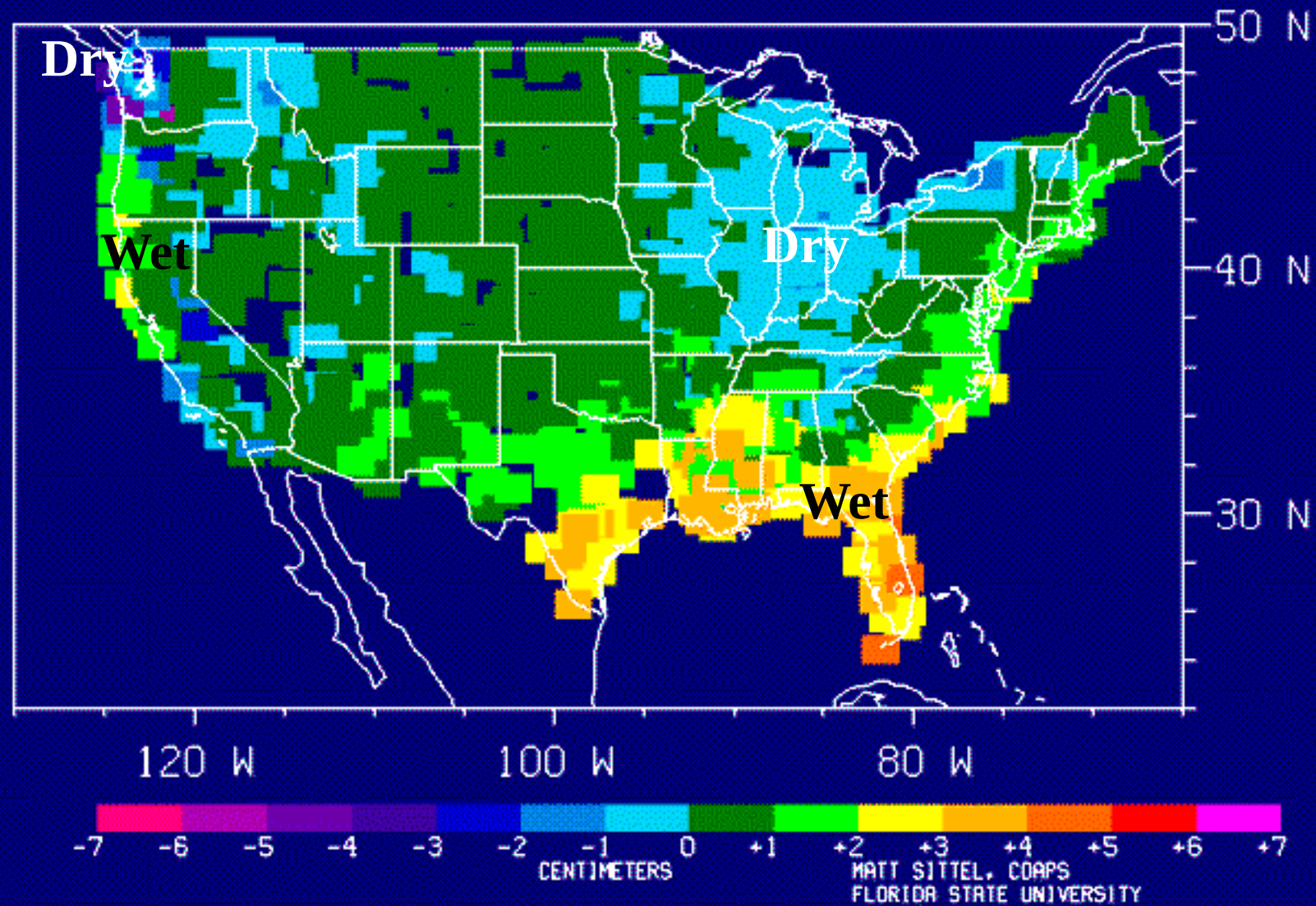
NH summertime effects of El Nino are mainly felt within the tropics



US wintertime effects of El Nino



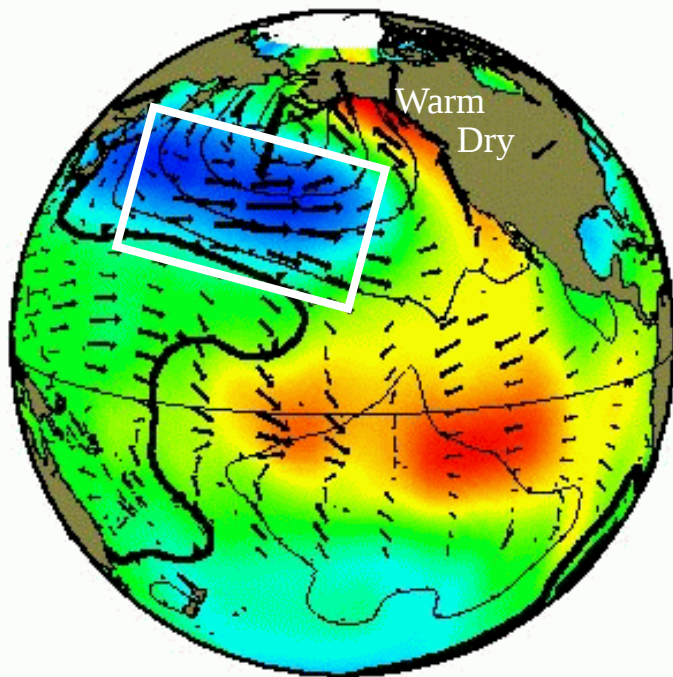
EL NINO MEAN - NEUTRAL MEAN
PRECIPITATION (DJF)



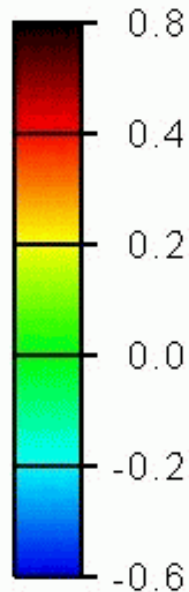
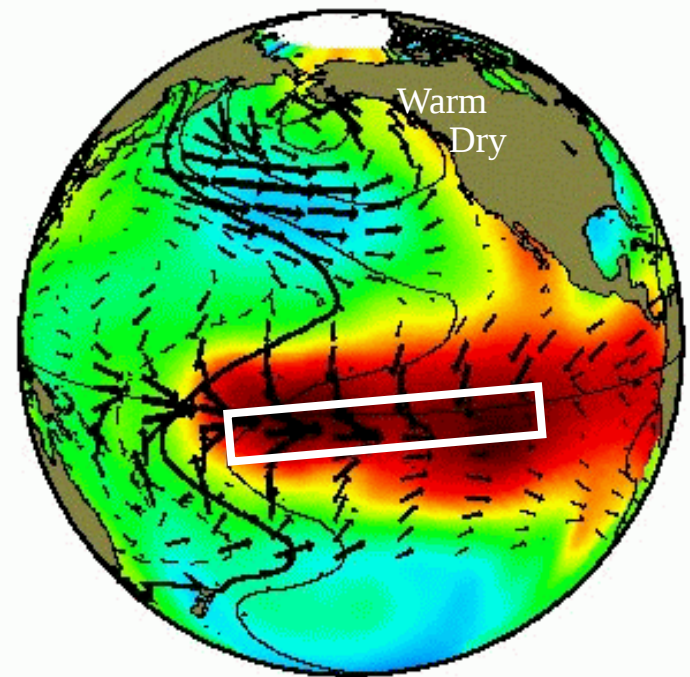
Pacific Decadal Oscillation (PDO)

- An irregular variation in N Pacific ocean temperatures and storm track on timescales of decades, affecting Pacific NW climate, salmon migration, etc.

Pacific Decadal Oscillation



El Nino Southern Oscillation



monthly values for the PDO index: January 1900–August 2004

