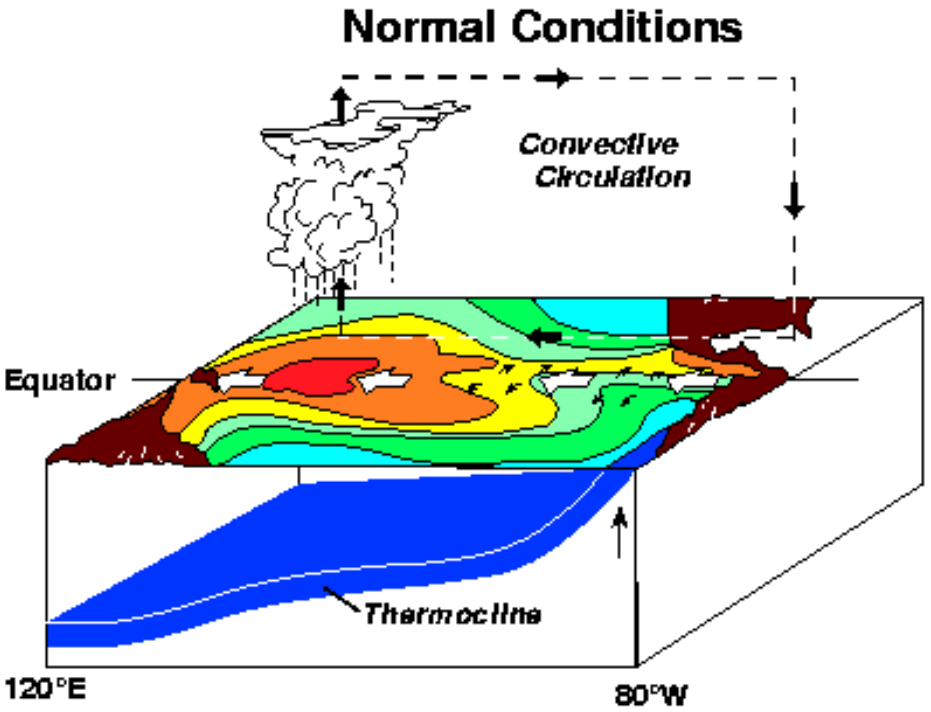
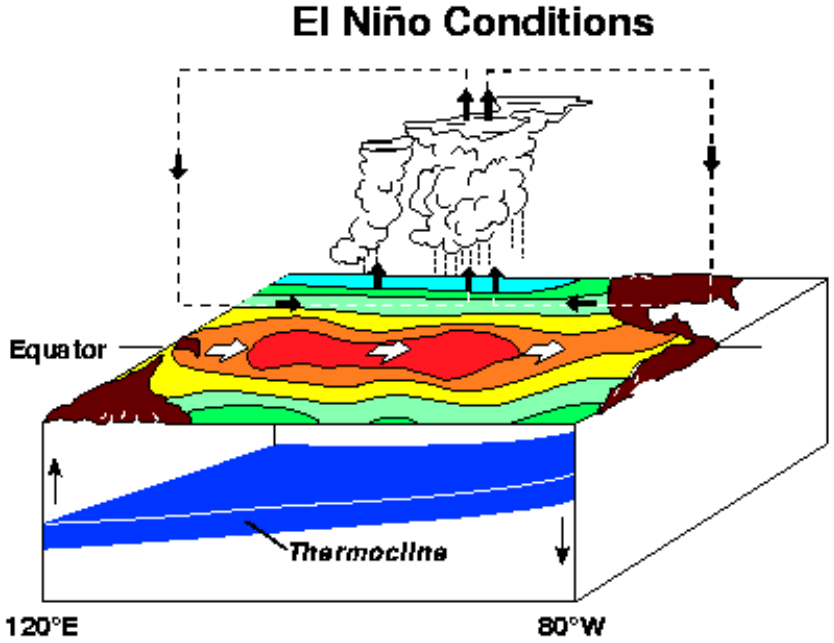
El Niño/La Niña

- A sort-of periodic oscillation in the sea surface temperature in the Pacific Ocean along the equator
- Normal pattern:
  - western equatorial Pacific Ocean warm
  - eastern equatorial Pacific Ocean cool



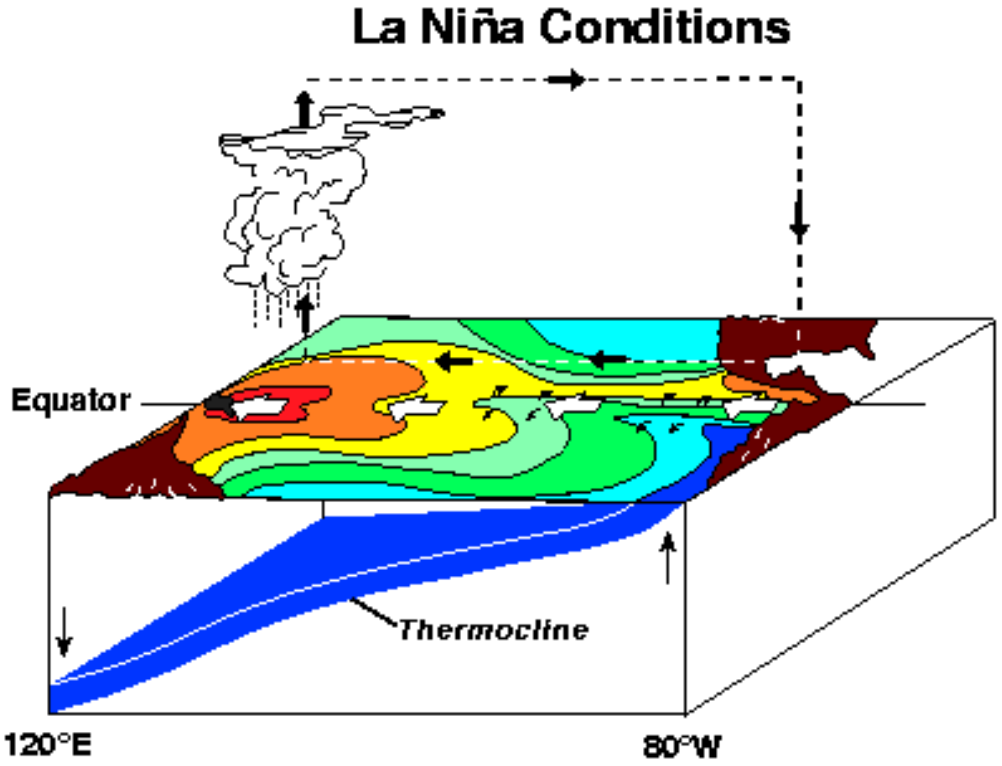
El Niño/La Niña (cont'd)

- El Niño pattern:
  - western equatorial Pacific cooler than usual
  - eastern equatorial Pacific warmer than usual
  - so temperature difference between them reduced



El Niño/La Niña (cont'd)

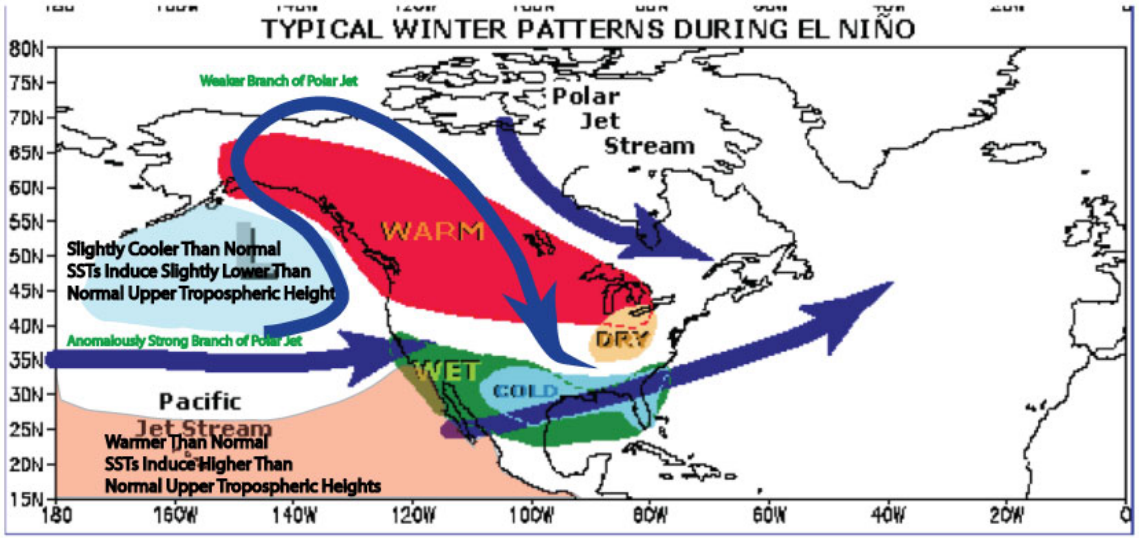
- La Niña pattern:
  - opposite of El Niño



El Niño/La Niña (cont'd)

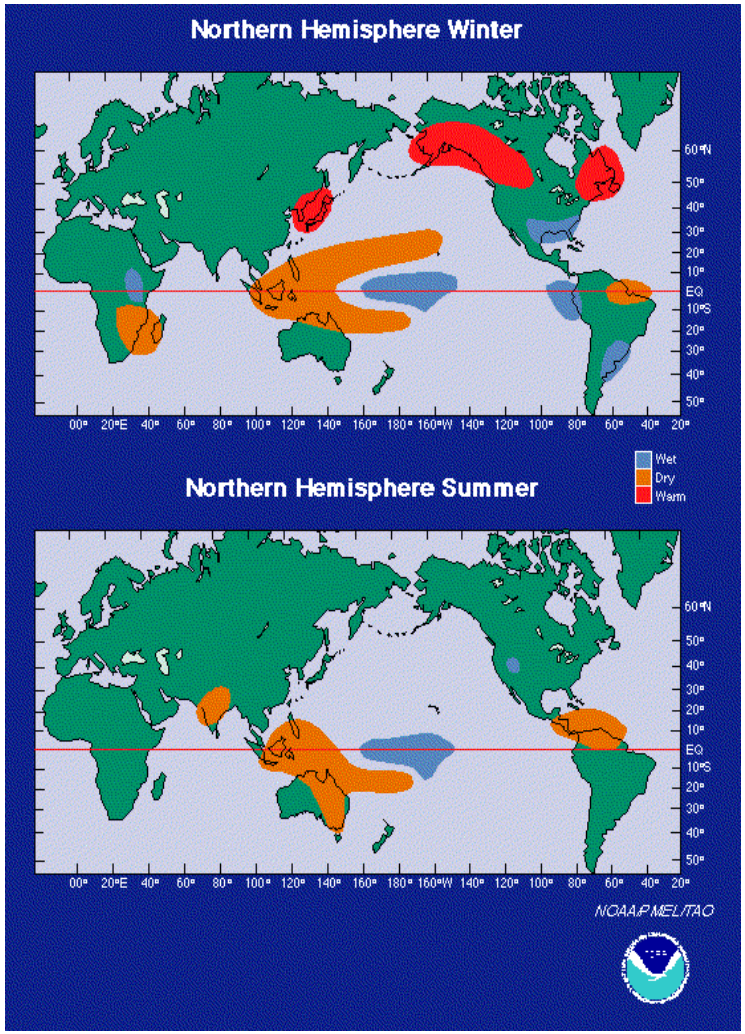
- Get oscillation between El Niño/La Niña maybe 1-2 times per decade
- A La Niña event took place last winter (2010-2011), though it's largely gone now
    - Yesterday's sea-surface temperature pattern in the equatorial Pacific (http://www.pmel.noaa.gov/tao/jsdisplay/)
- Warmer eastern equatorial Pacific in an El Niño warms the atmosphere there
    - Raises pressure aloft there
    - Increases pressure gradient north of there
    - Creates southern branch of jet stream in lower midlatitudes
    - Midlatitude cyclones along jet stream travel farther south than usual
    - Southern and sometimes central California wetter than usual
    - Pacific Northwest drier than usual
    - Other consequences (often more significant) elsewhere in the globe

Typical Jet Stream Patterns (and Hence Storm Track) during El Niño Events



Global Impacts of El Niño

Rainfall and temperature anomalies associated with El Niño events (on the average)
In winter and in summer



La Niña

- La Nina events tend to have a weaker but roughly opposite effect on West Coast weather