

Weather Analogs/Teleconnections/Synoptic Climatology

Meteorology 3110

Synoptic Climatology

- Analysis of past weather events
- A knowledge of what is “possible” or “improbable” can help you analyze a weather scenario
 - Iowa snow storm in October.
- Analog forecast method
 - Large archive of papers.
 - Mixed success.
 - Can still be helpful.

General Synoptic Climatology

- When does the heaviest precipitation occur at a location?
 - Typically when low pressure passes a location to its south.
 - This is particularly important for snowfall.
 - Heaviest snow typically occurs a few latitude degrees to the left of the low pressure storm track (in the Northern Hemisphere).
- How about severe thunderstorms and tornadoes?
 - Low pressure passing to the north, placing region in the warm sector.

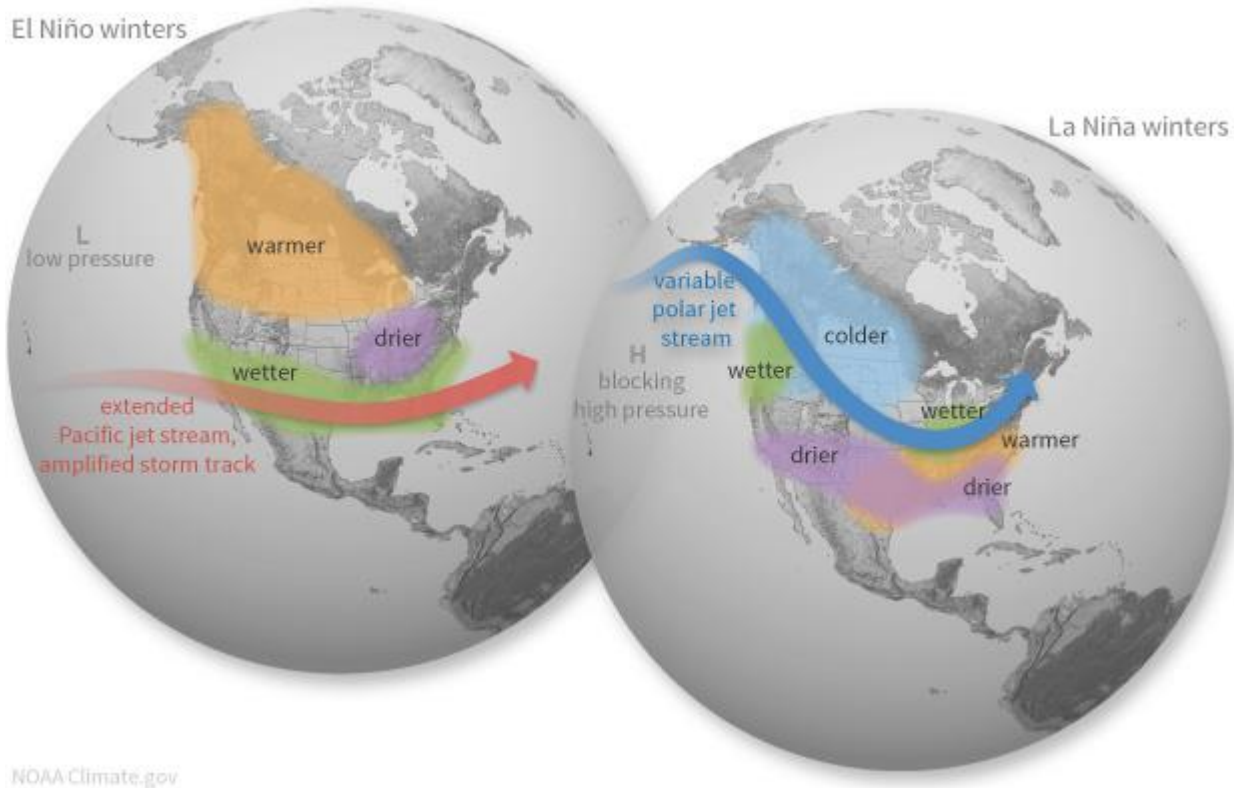
Teleconnections

- What features tend to occur at the same time on a large scale?
 - High 500mb heights in Eastern Pacific typically result in a deep trough over the western United States.
 - Deep trough in Greenland often results in a trough in the southeastern United States.
- What synoptic setup was associated with the event?
 - What if the models forecast a similar synoptic setup?

Popular Teleconnections

- ENSO: El Nino Southern Oscillation
 - Responsible for El Nino and La Nina
- NAO: North Atlantic Oscillation
- PDO: Pacific Decadal Oscillation
- MJO: Madden-Julian Oscillation

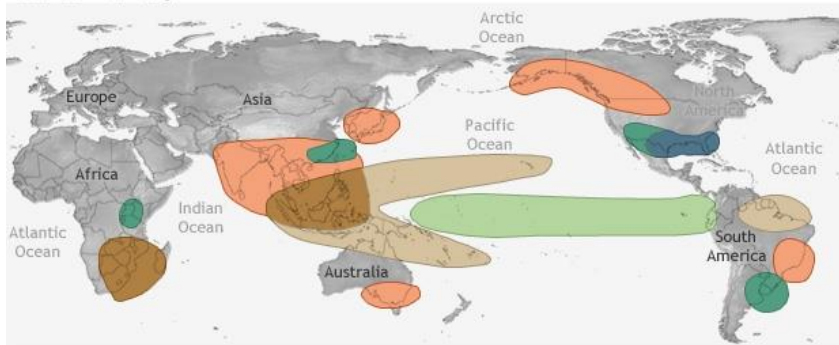
El Niño/La Niña Teleconnections



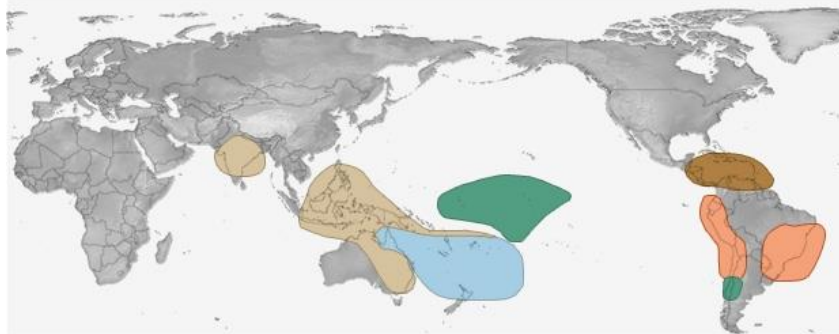
El Nino/La Nina Teleconnection

EL NIÑO CLIMATE IMPACTS

December-February



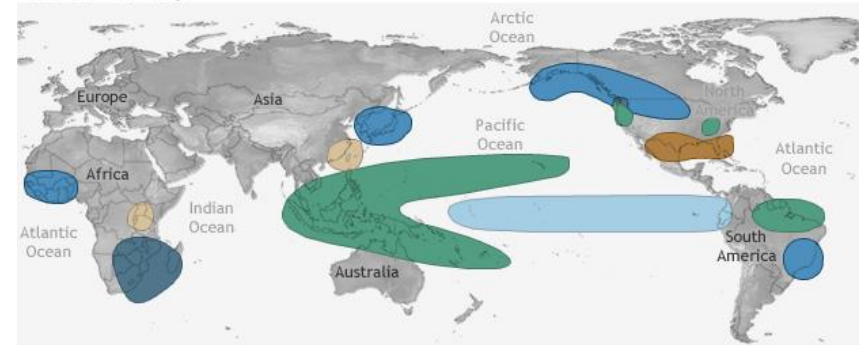
June-August



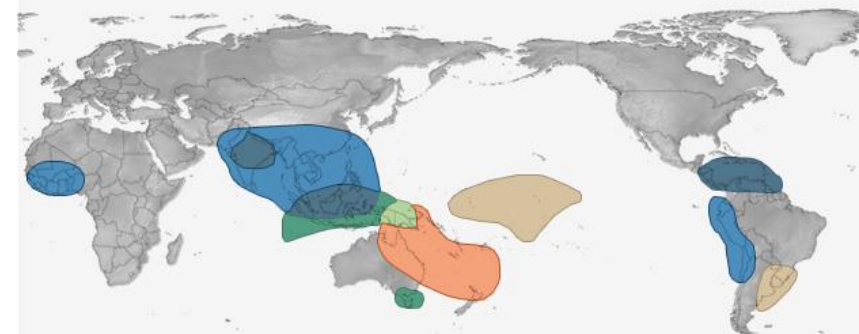
NOAA Climate.gov

LA NIÑA CLIMATE IMPACTS

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June-August



NOAA Climate.gov

ENSO Outlook

Model Predictions of ENSO from Sep 2023

