

# 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.

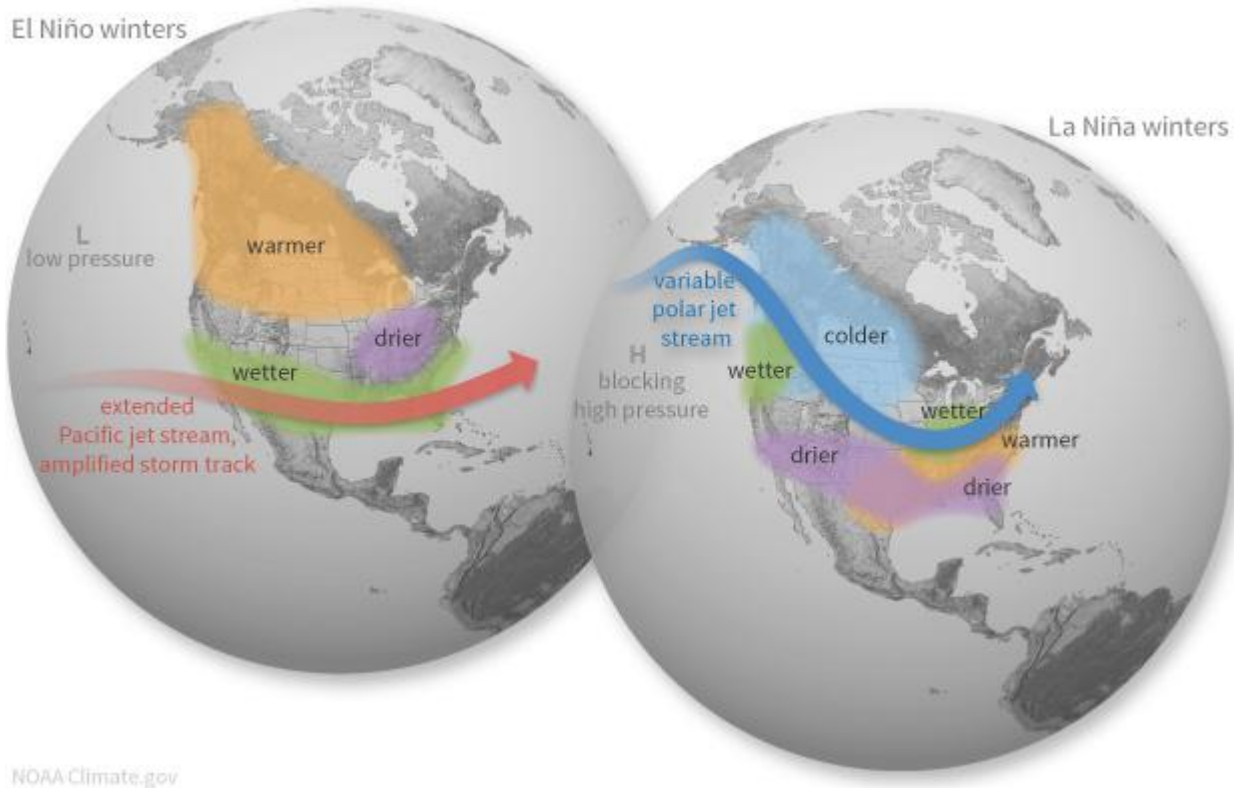
# Teleconnections

- 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

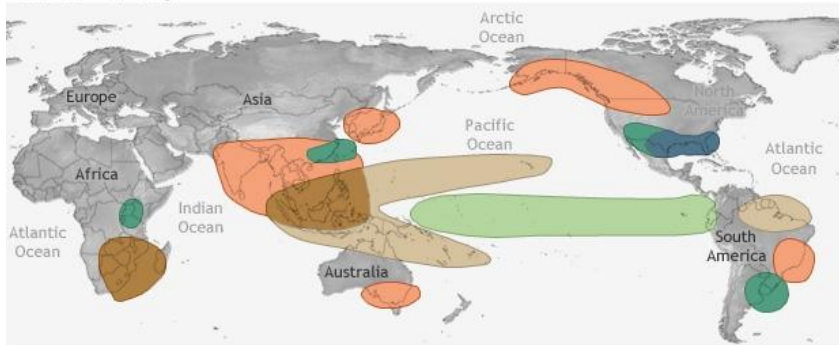
# El Niño/La Niña Teleconnections



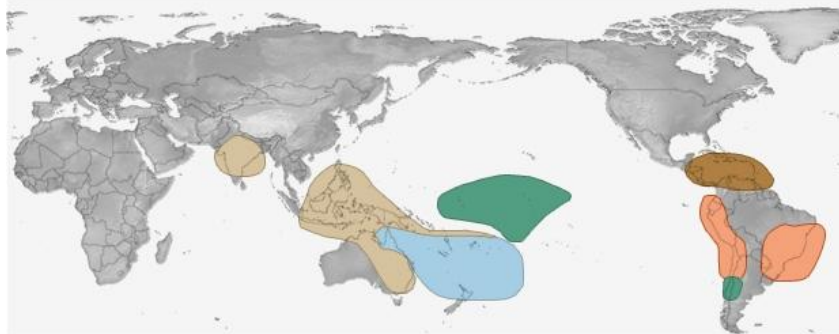
# El Nino/La Nina Teleconnection

## EL NIÑO CLIMATE IMPACTS

December-February



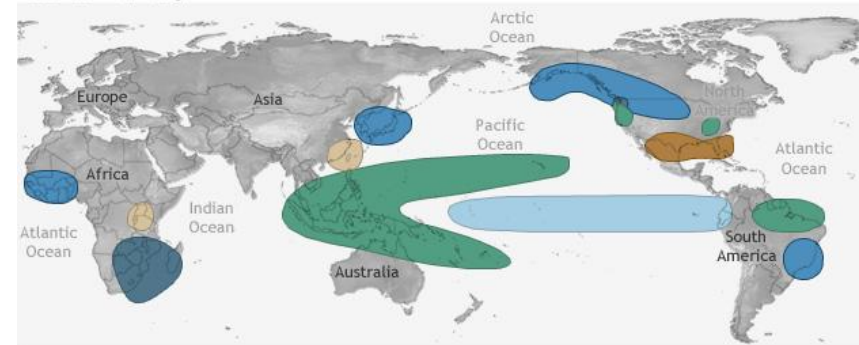
June-August



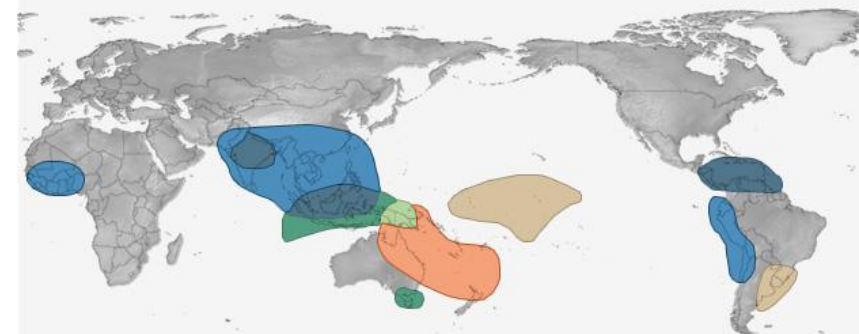
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## LA NIÑA CLIMATE IMPACTS

December-February



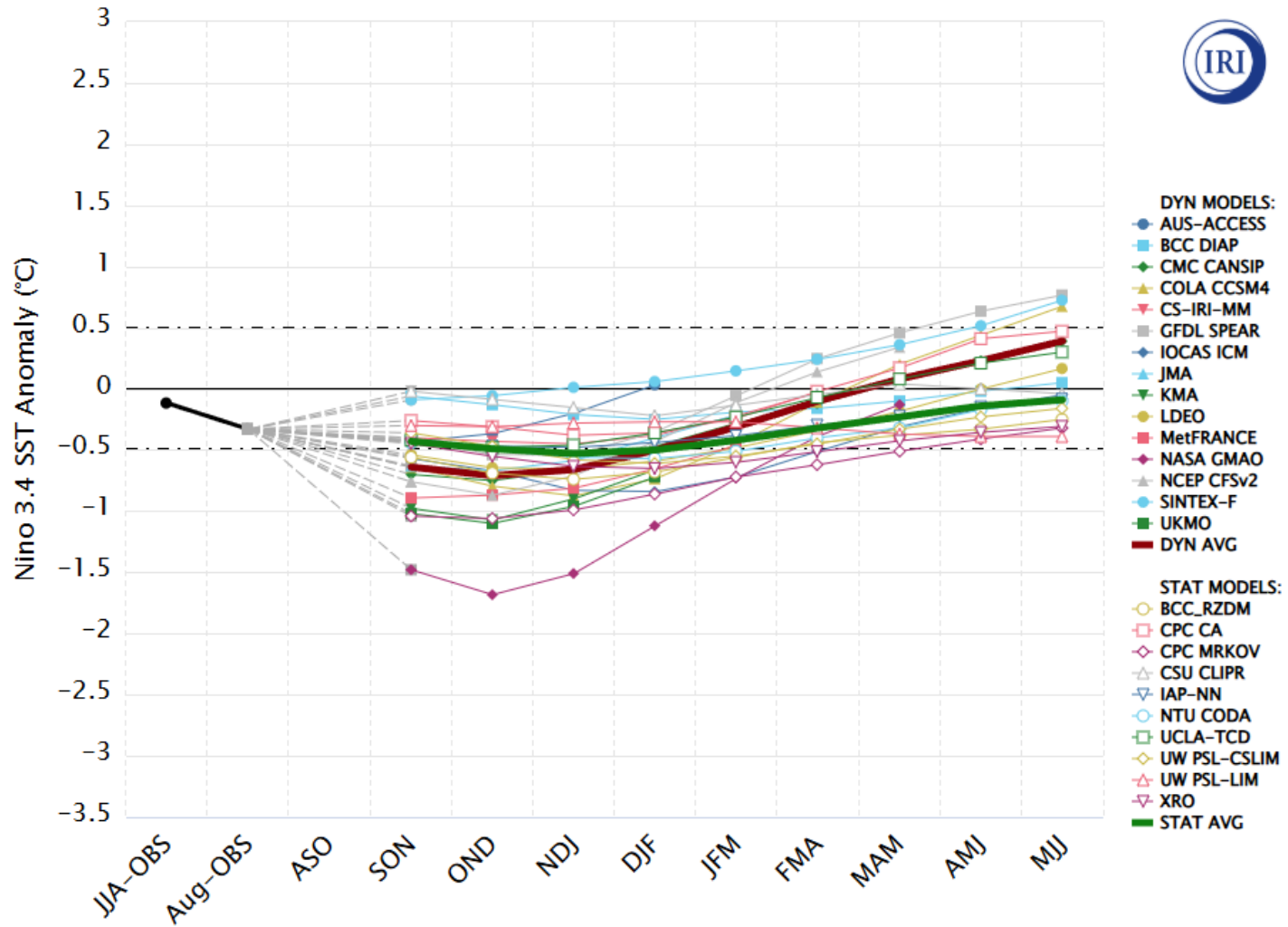
June-August



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# ENSO Outlook

Model Predictions of ENSO from Sep 2025





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Model Predictions of ENSO from Sep 2023

