Weather Analogs/Teleconnections/Synoptic Climatology

Meteorology 311
Fall 2015
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 a storm 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 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 Nino Teleconnections
El Nino/La Nina Teleconnection

TYPICAL JANUARY-MARCH WEATHER ANOMALIES AND ATMOSPHERIC CIRCULATION DURING MODERATE TO STRONG EL NIÑO & LA NINA

El Niño

La Niña

Climate Prediction Center/NCEP/NWS
La Nina Teleconnections

**COLD EPISODE RELATIONSHIPS  DECEMBER - FEBRUARY**

**COLD EPISODE RELATIONSHIPS  JUNE - AUGUST**

Climate Prediction Center
NOAA