

ILLINOIS STATE WATER SURVEY

INSTITUTE OF NATURAL RESOURCE SUSTAINABILITY

Relationship Between Monthly Temperatures and Precipitation During El Niño Events

Jim Angel

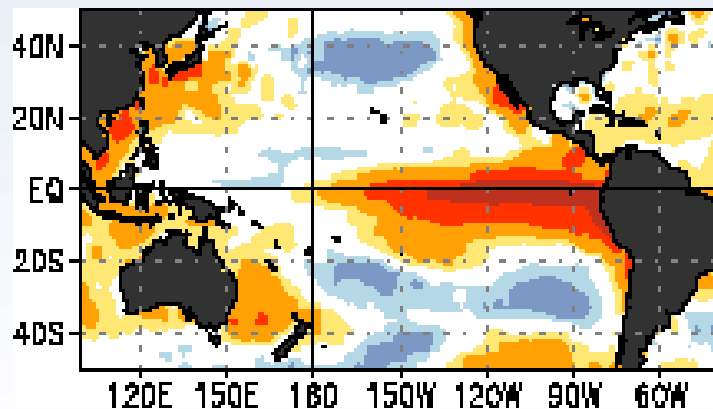
Illinois State Climatology



UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

Introduction

- An El Niño event occurs when abnormally warm waters appears along the surface of the eastern Pacific Ocean along the equator. They can have significant impacts around the world, including the Midwest.



Data and Methods

- El Niño events are defined as years when the Oceanic Niño Index (ONI) is 0.5 or greater in July and sustained through at least December
- Years chosen: 2004, 2002, 1997, 1994, 1991, 1982, 1972, 1965, 1957
- ONI source
http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/ensostuff/ensoyears.shtml
- Map source <http://www.cdc.noaa.gov/data/usclimdivs/>



Disclaimer

- These results are based on a composite of historical El Niño events. However, each event is unique with different starting and ending times as well as different intensities. Future events may not behave precisely in the manner shown here.



Summary

1. Warmer-than-normal months
 - a. September
 - b. December-March
2. Cooler-than-normal months
 - a. August
 - b. April-May



Summary

1. Wetter-than-normal months

- a. August
- b. October
- c. December

2. Drier-than-normal months

- a. July
- b. September

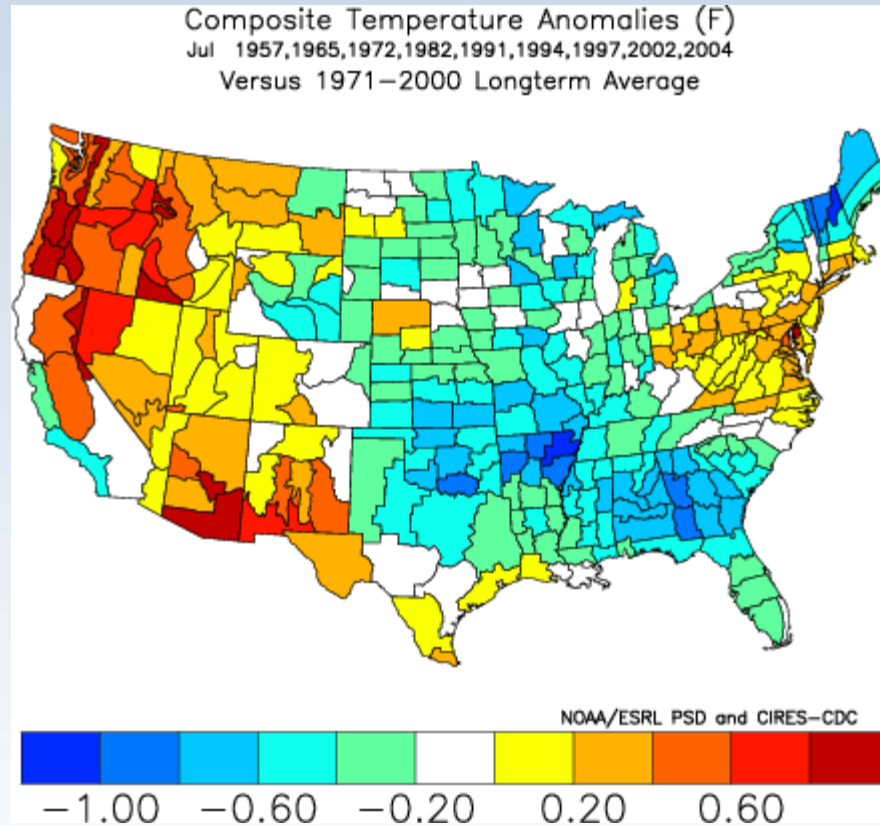
Note: impacts on monthly precipitation were both weaker and less consistent



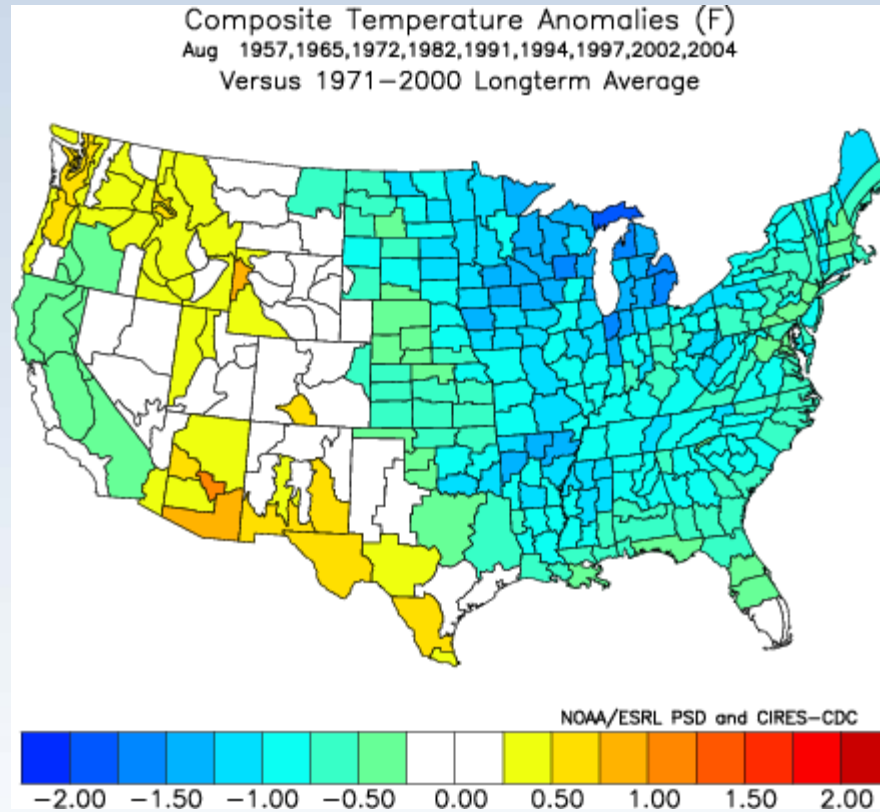
Maps of Monthly Temperature and Precipitation During El Niño Events



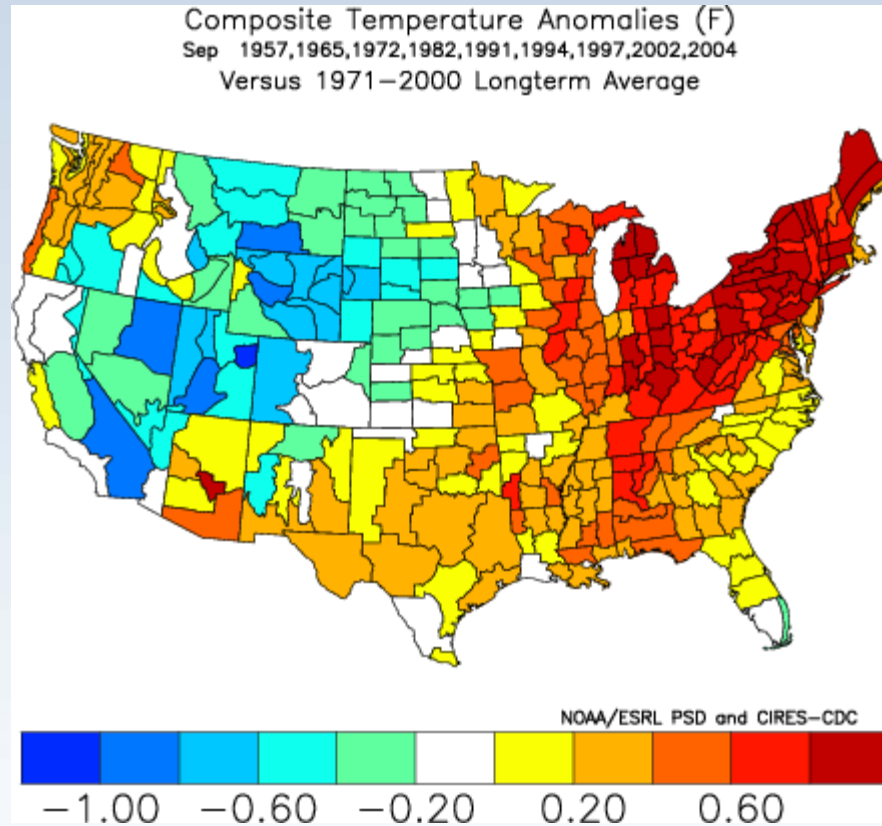
July Temperature Departure



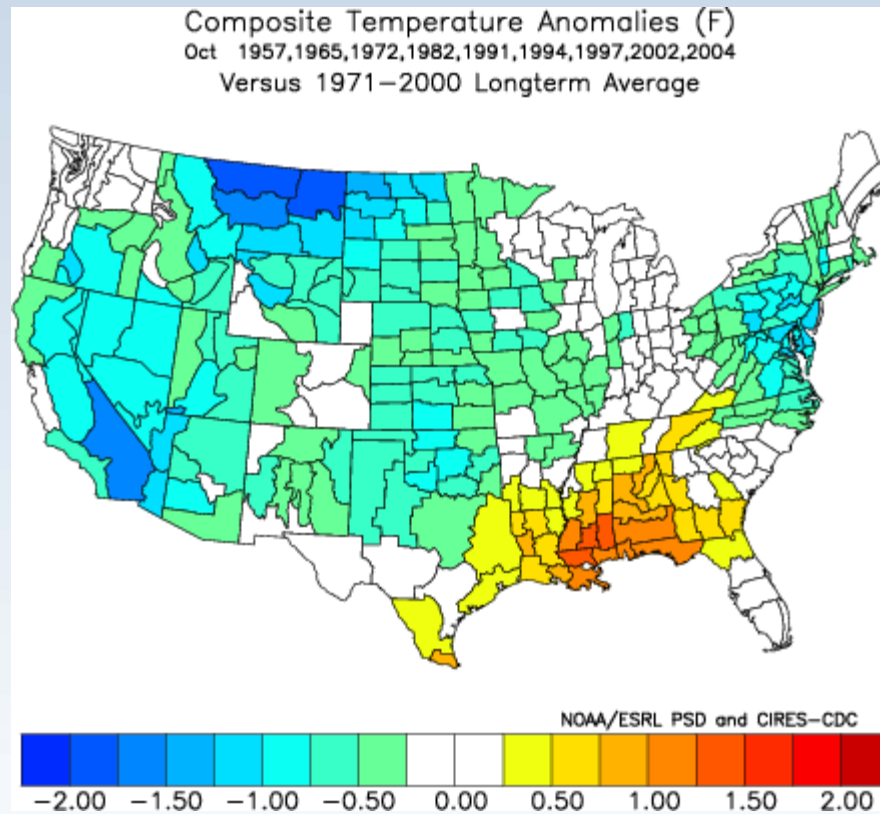
August Temperature Departure



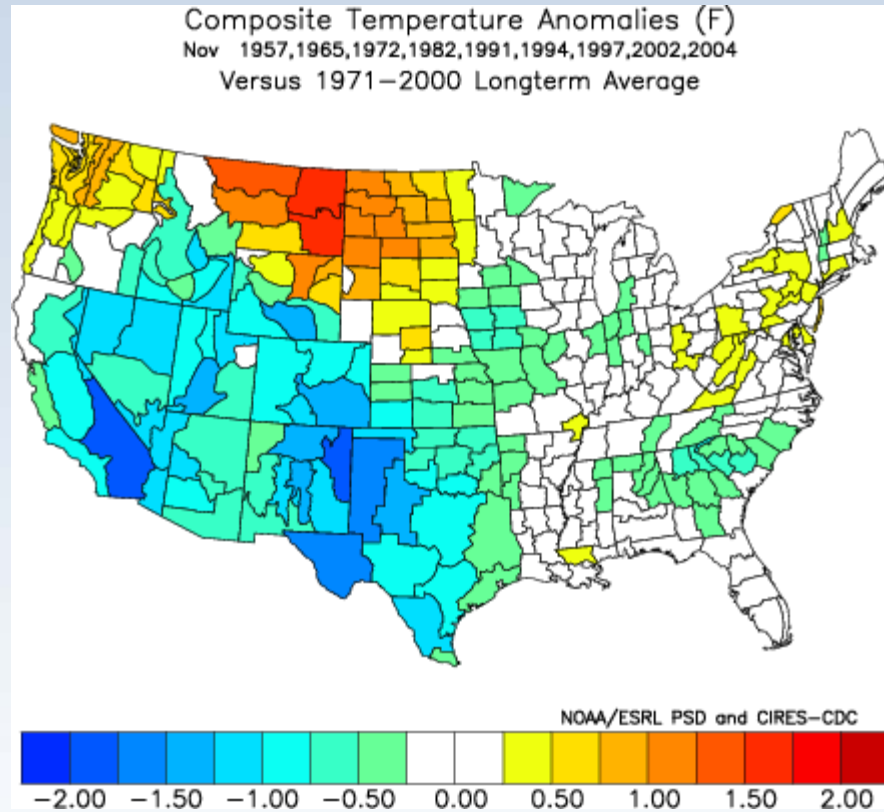
September Temperature Departure



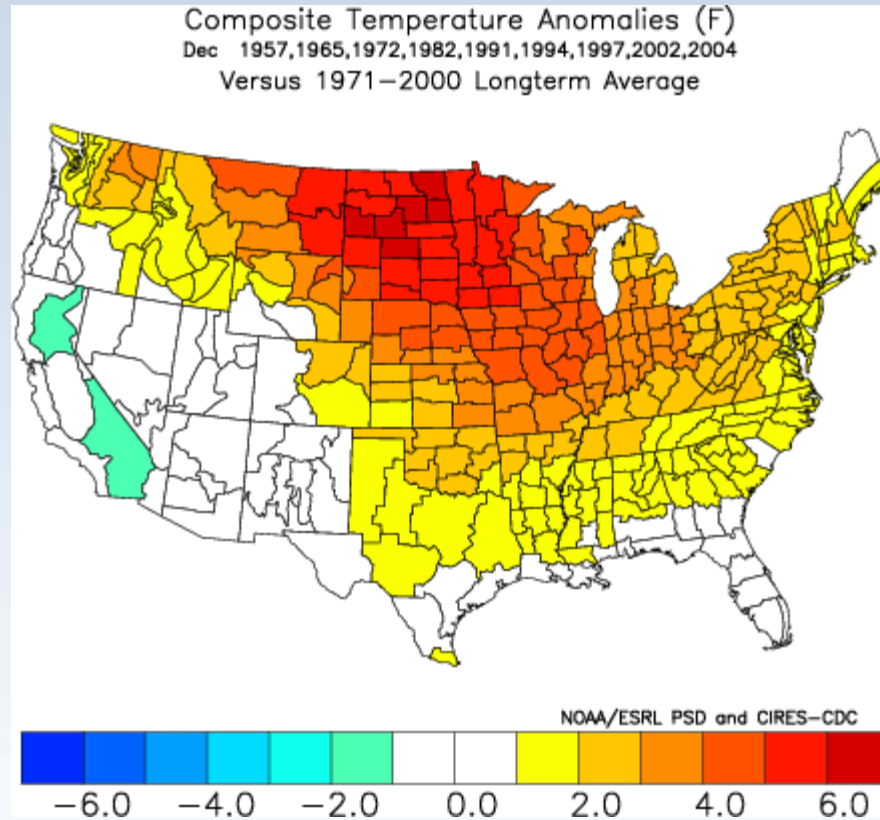
October Temperature Departure



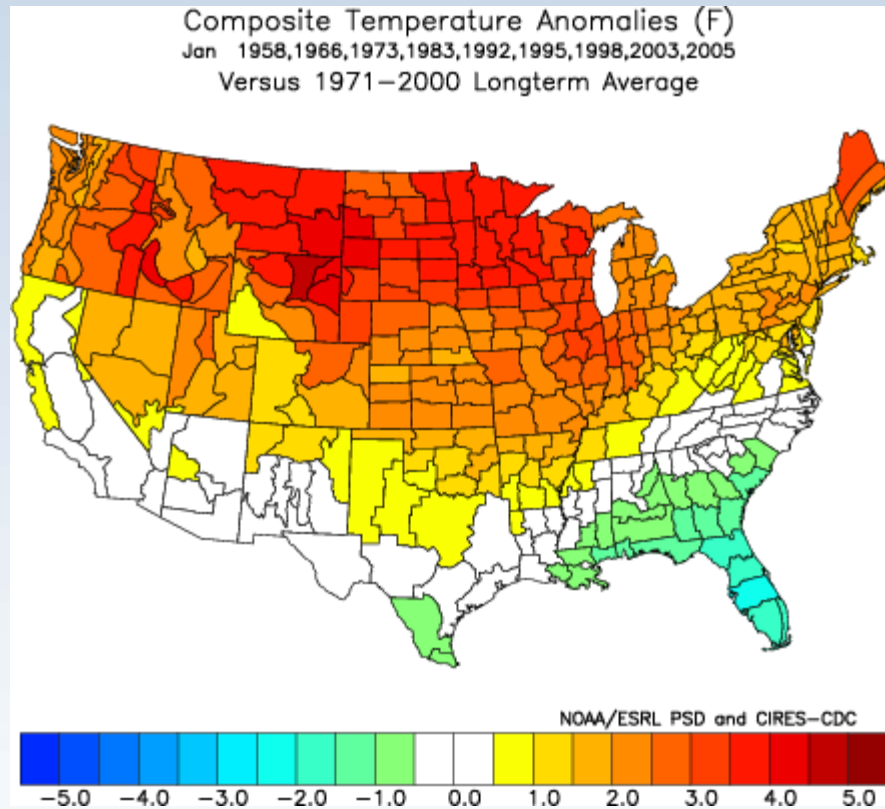
November Temperature Departure



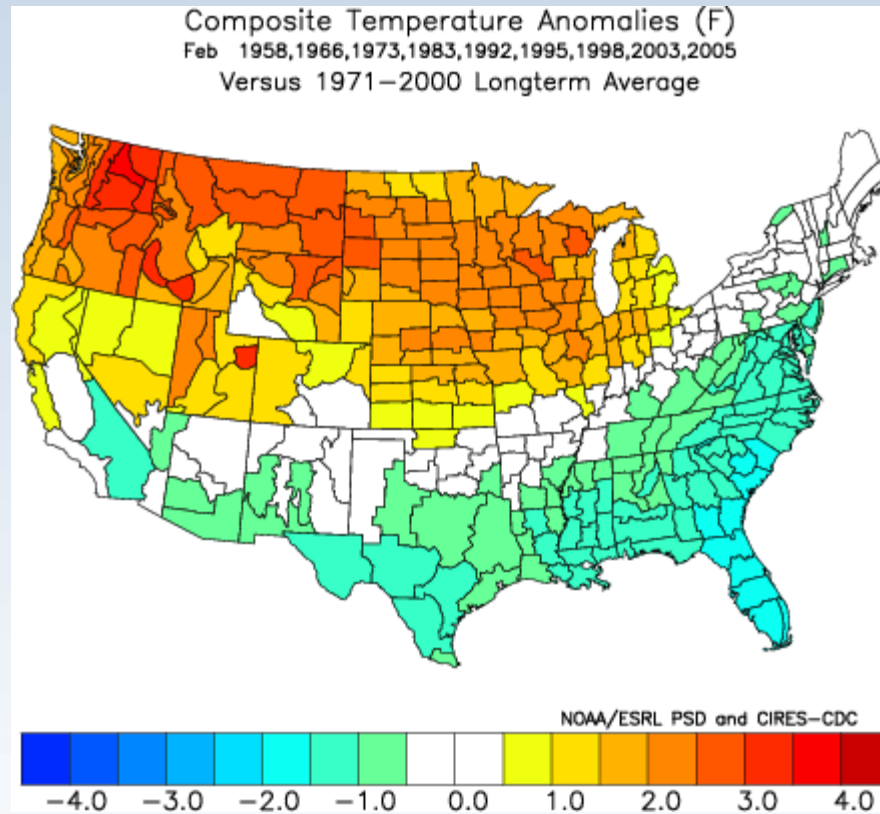
December Temperature Departure



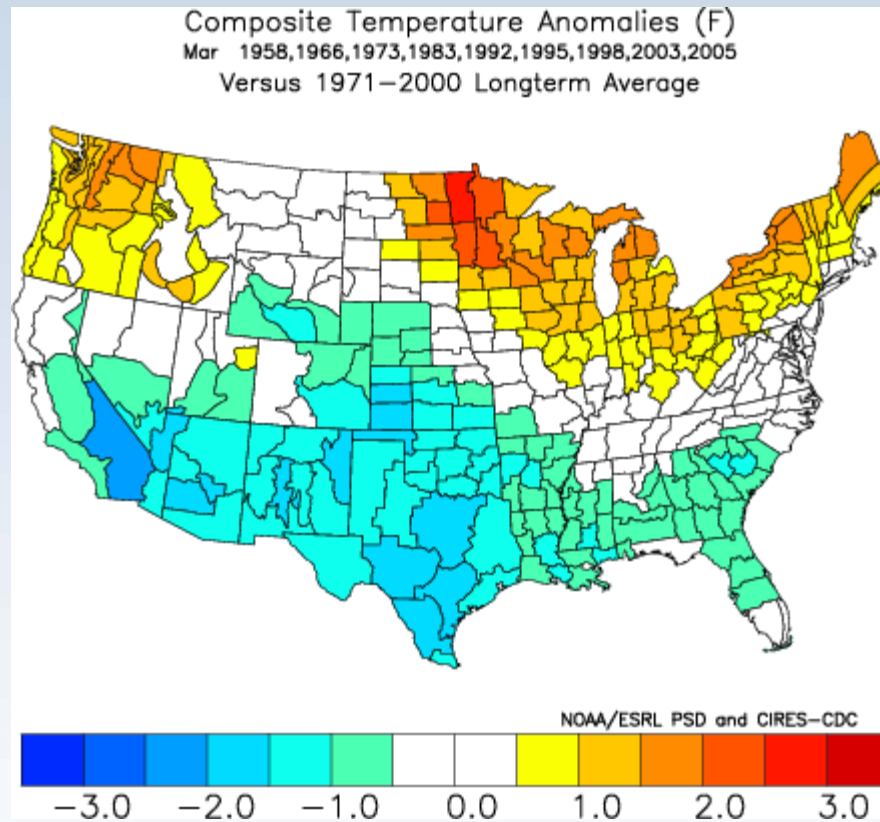
January Temperature Departure



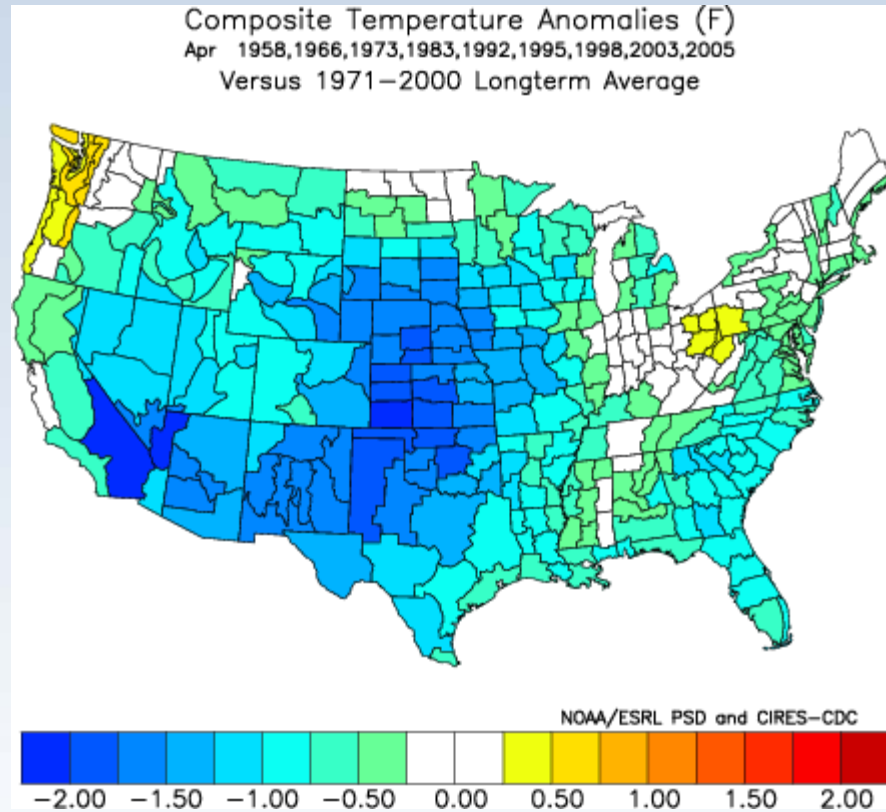
February Temperature Departure



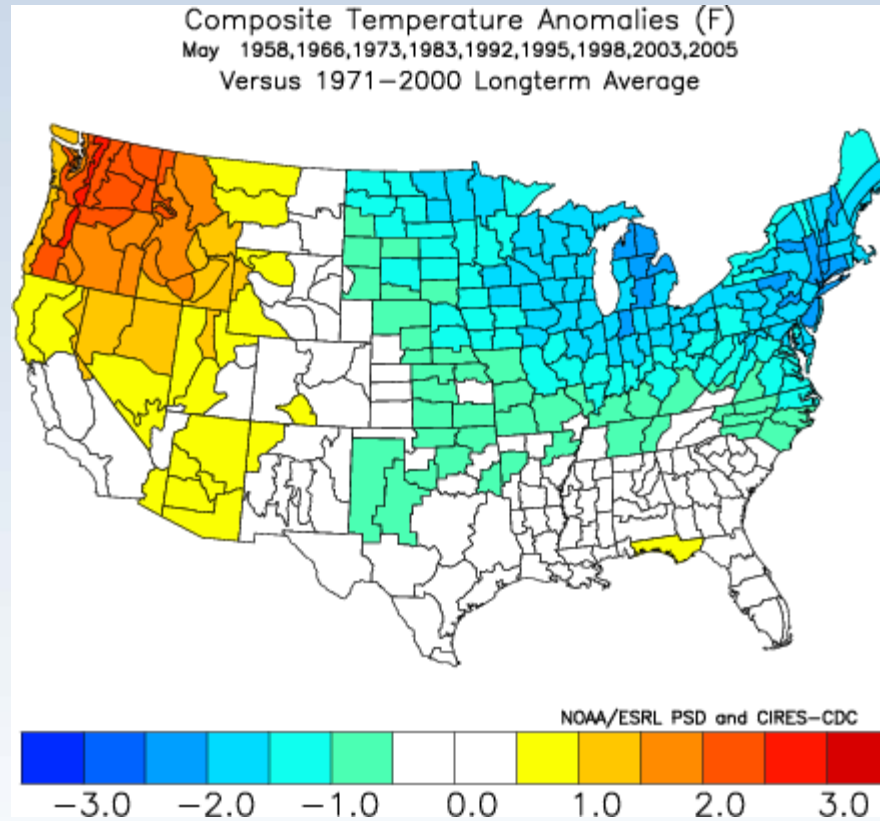
March Temperature Departure



April Temperature Departure



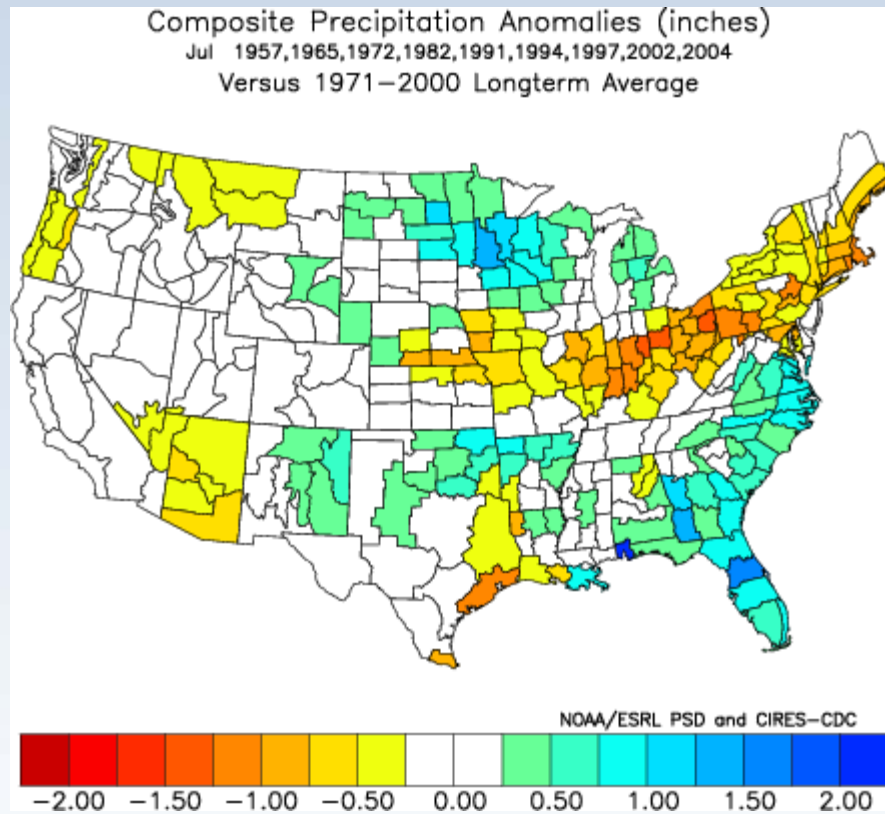
May Temperature Departure



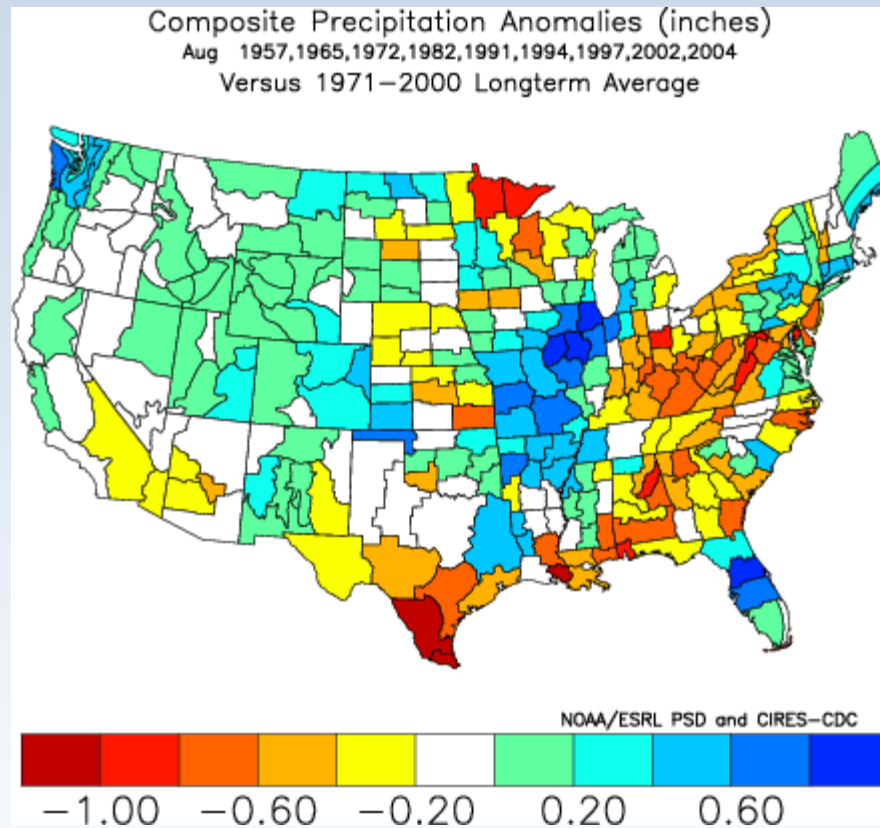
Precipitation



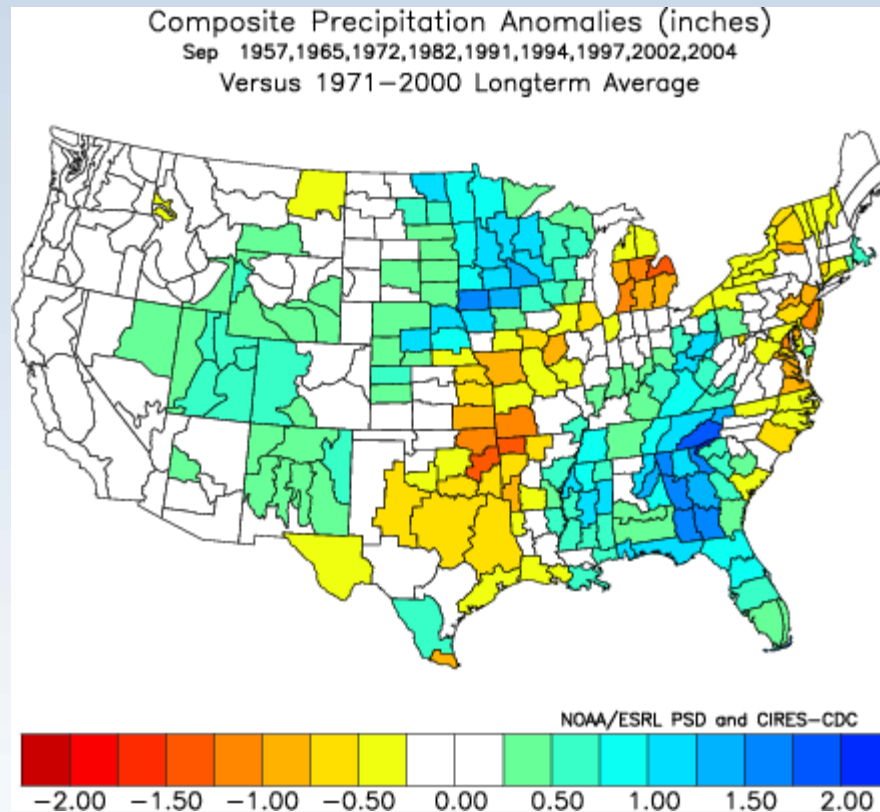
July Precipitation Departure



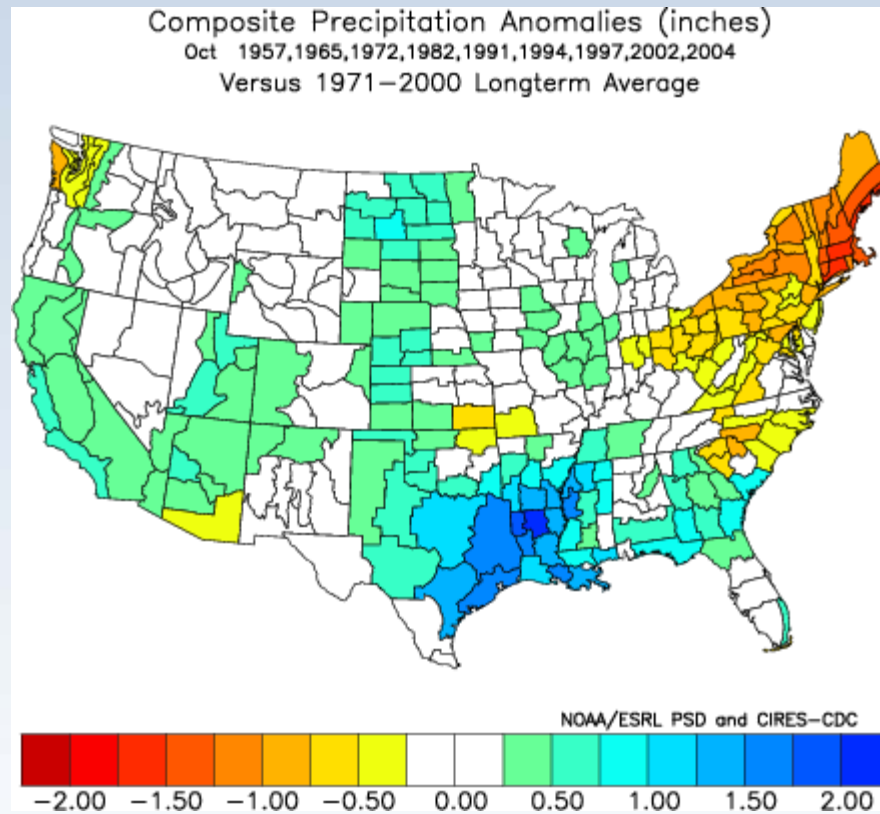
August Precipitation Departure



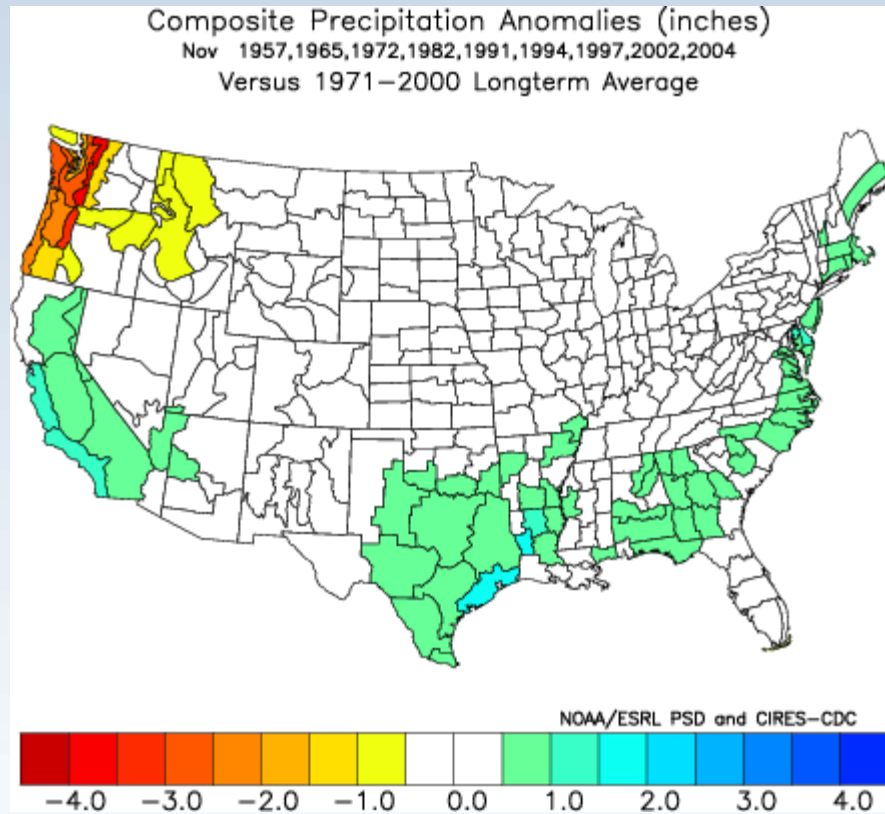
September Precipitation Departure



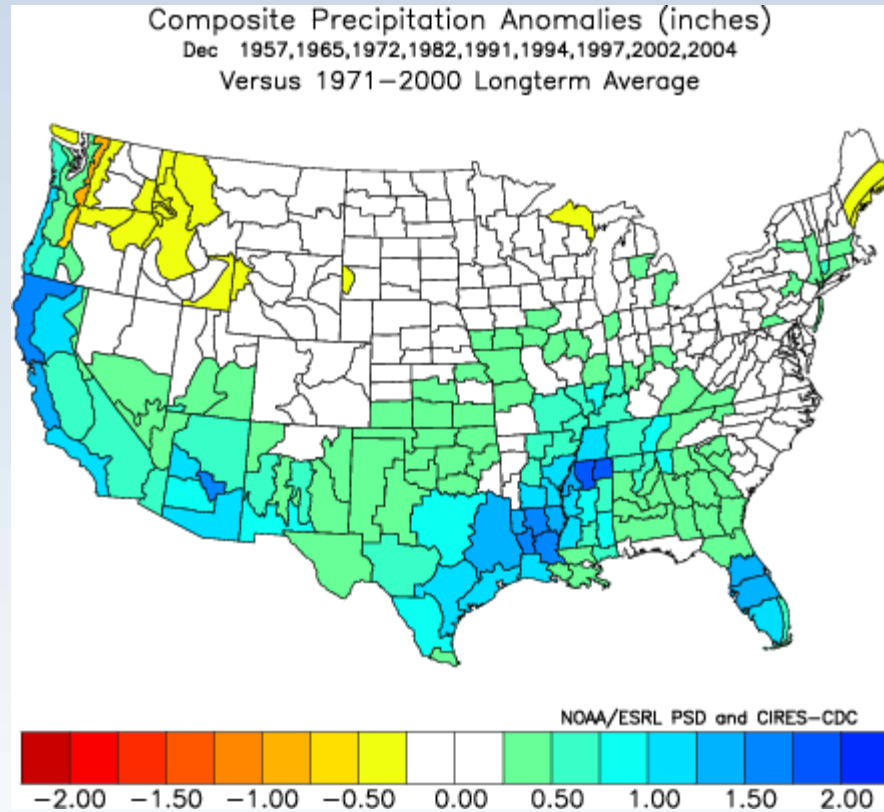
October Precipitation Departure



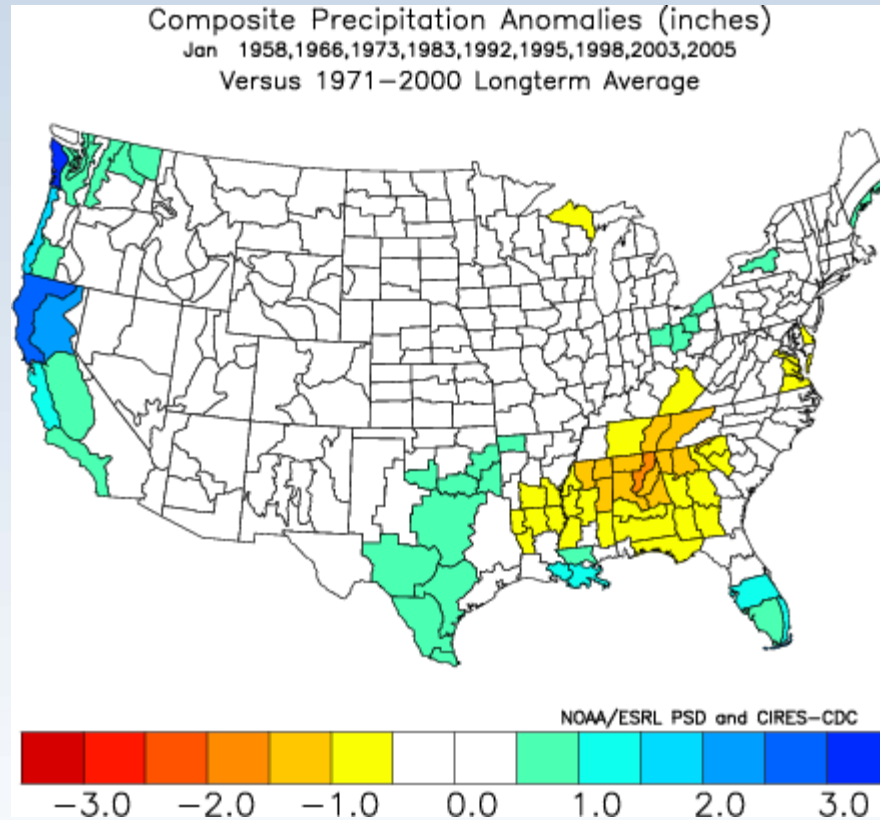
November Precipitation Departure



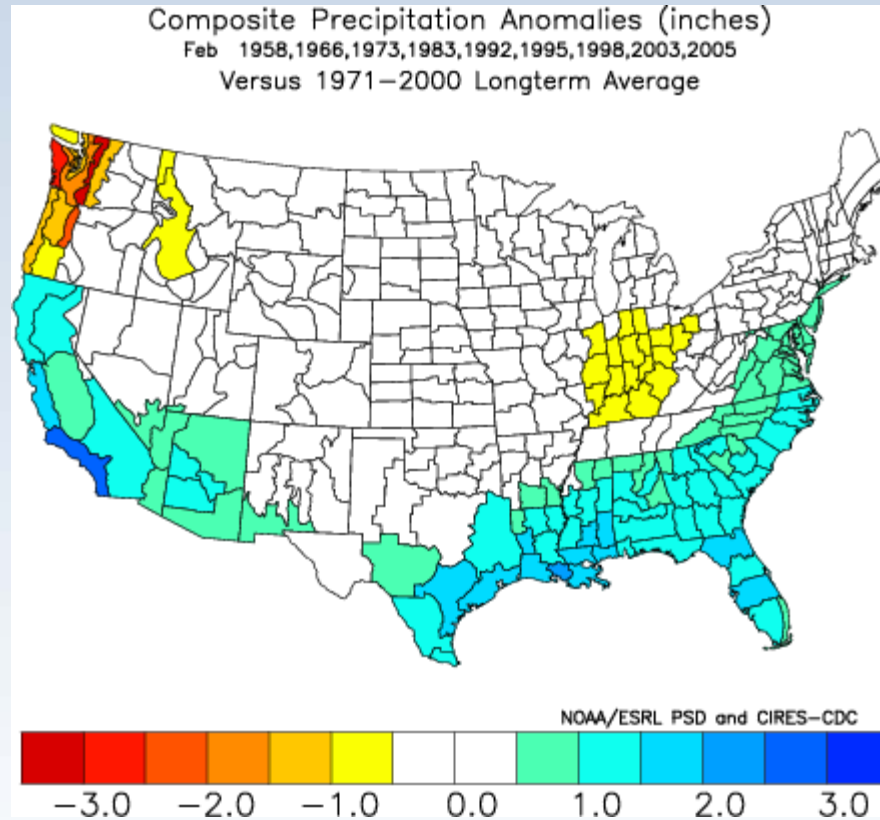
December Precipitation Departure



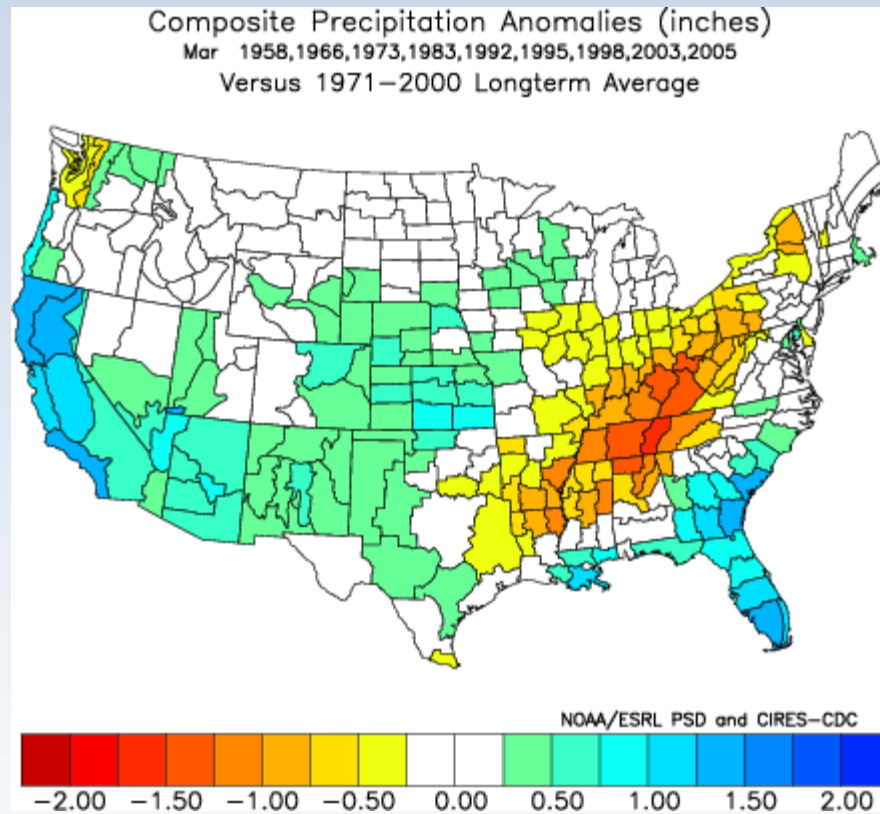
January Precipitation Departure



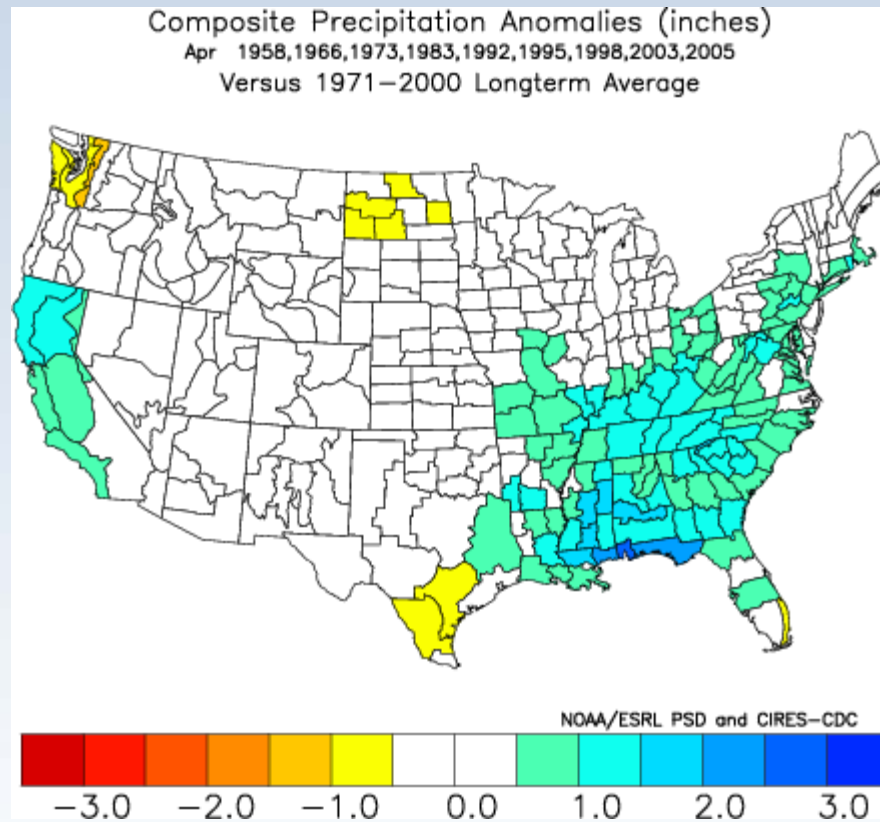
February Precipitation Departure



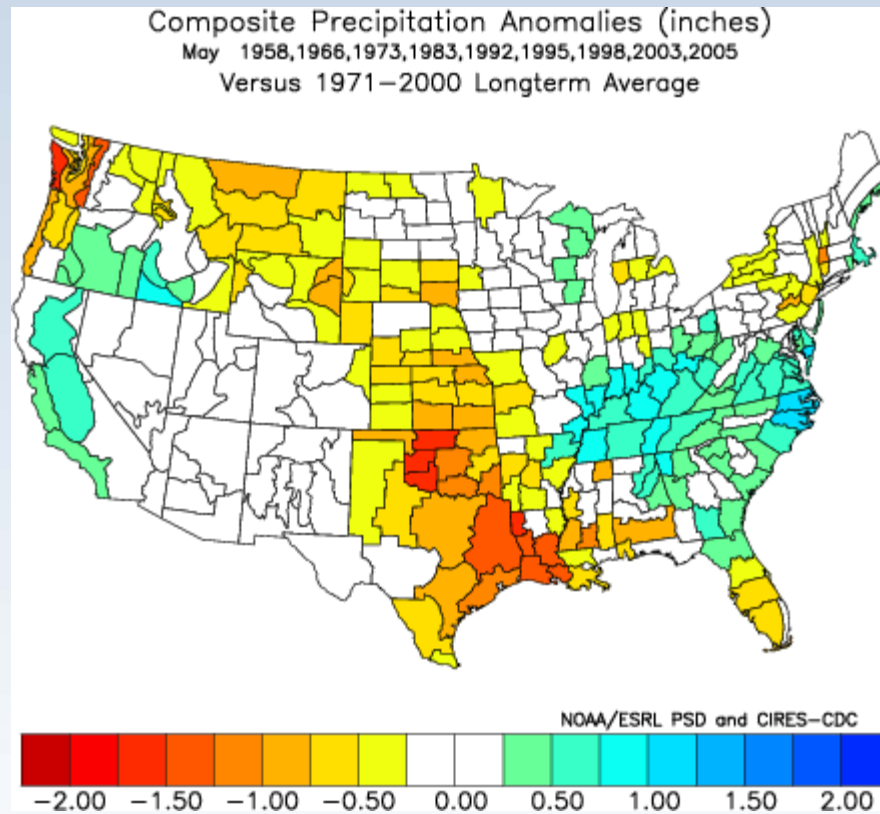
March Precipitation Departure



April Precipitation Departure



May Precipitation Departure



Contact Information

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