

# Regional Climate Perspective

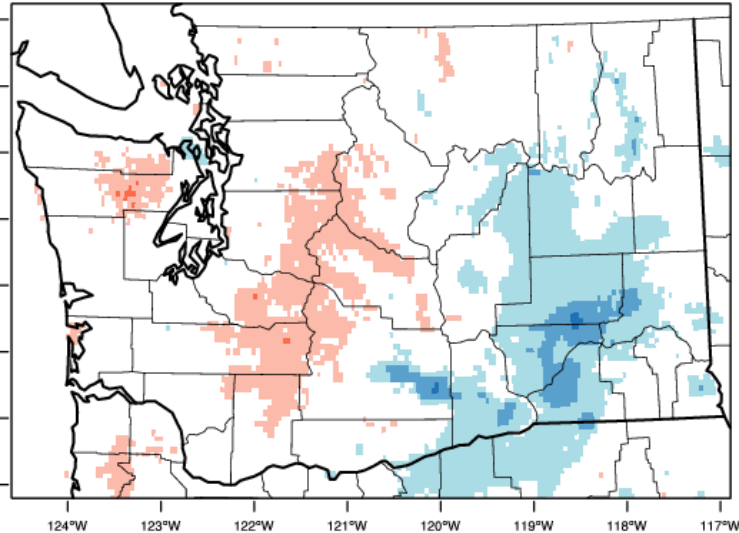
Nick Bond & Karin Bumbaco  
Office of the Washington State Climatologist  
Joint Institute for the Study of Atmosphere and Ocean  
University of Washington  
9 August 2019

# 2019 Water Year

## Temperature

### Washington - Mean Temperature

October-July 2019 Departure from 1981-2010 Normal

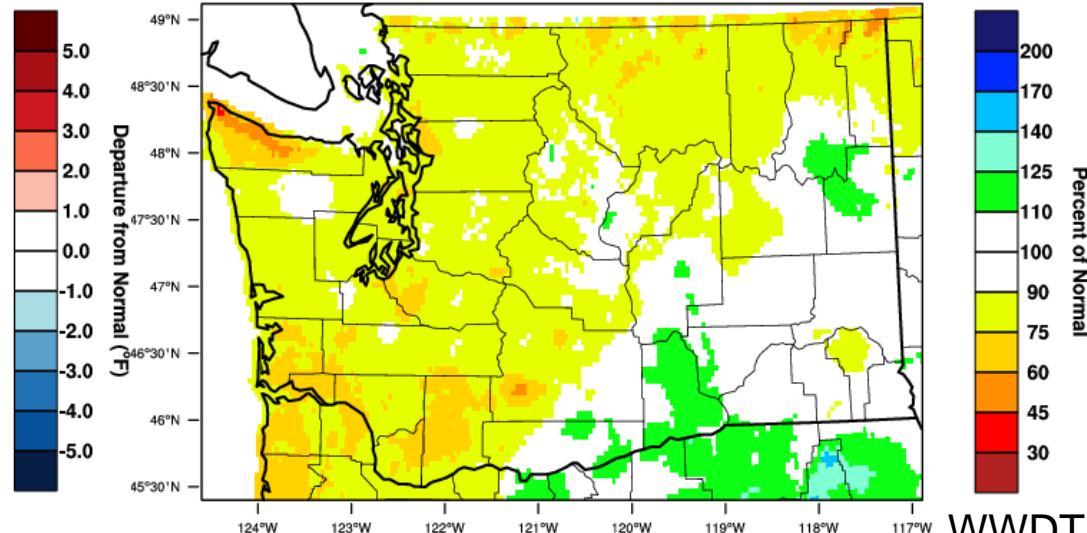


WestWide Drought Tracker, U Idaho/WRCC Data Source: PRISM (Prelim), created 7 AUG 2019

## Precipitation

### Washington - Precipitation

October-July 2019 Percent of 1981-2010 Normal



WestWide Drought Tracker, U Idaho/WRCC Data Source: PRISM (Prelim), created 7 AUG 2019

WWDT

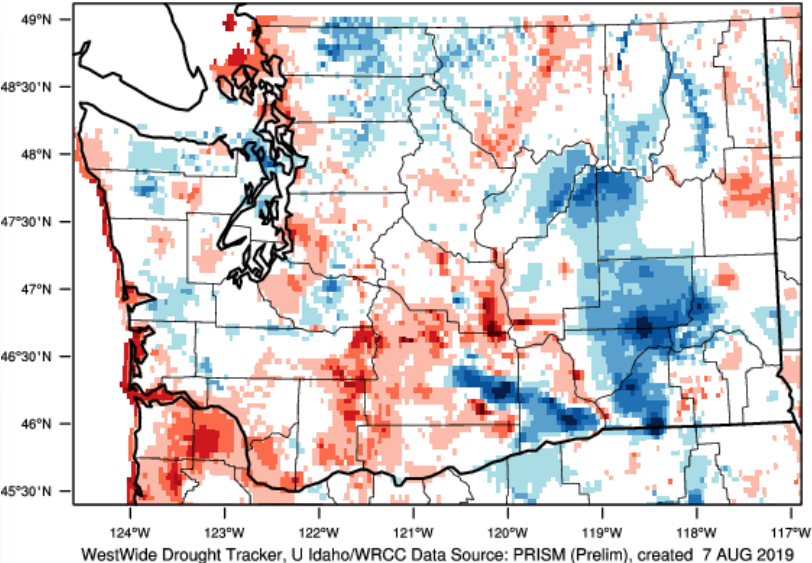
- Average Oct-Jul temperatures statewide near-normal ( $-0.1^{\circ}\text{F}$ ) with regional variability
- Below normal Oct-Jul precipitation averaged statewide ( $-6.77''$  below normal); 16<sup>th</sup> driest water year (since 1895)

# June-July 2019

## Temperature

### Washington - Mean Temperature

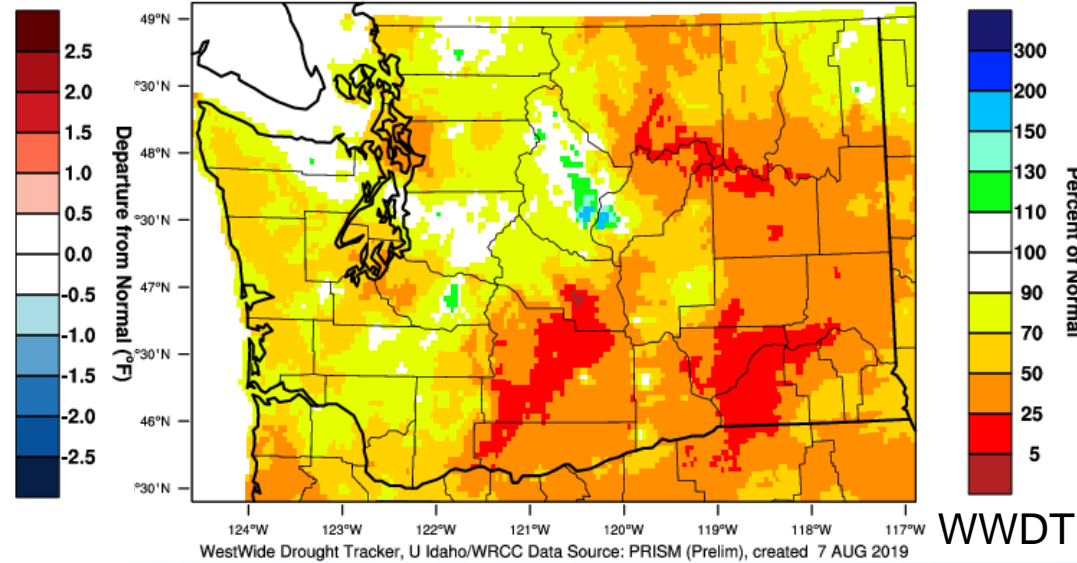
June-July 2019 Departure from 1981-2010 Normal



## Precipitation

### Washington - Precipitation

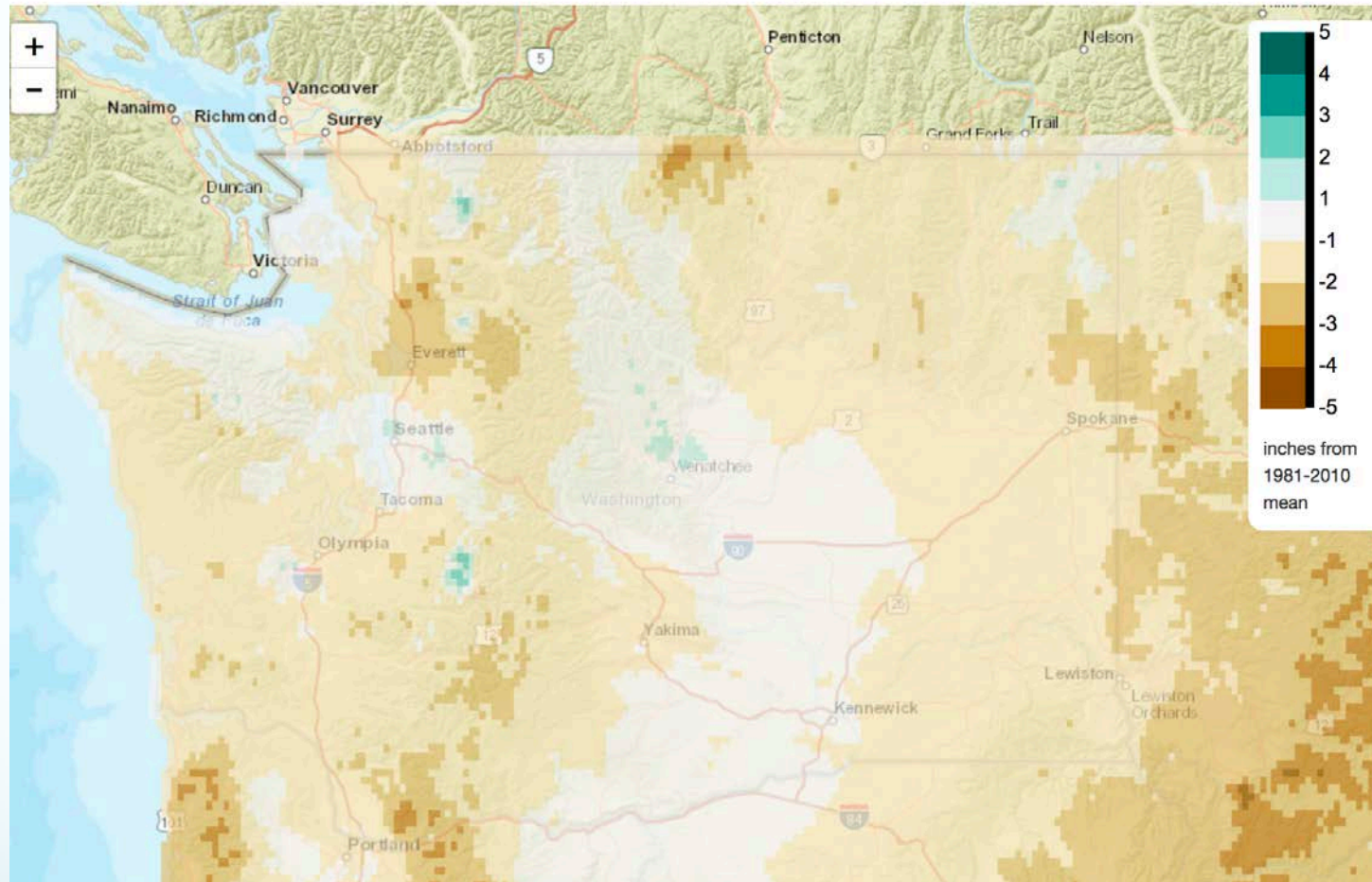
June-July 2019 Percent of 1981-2010 Normal



- Averaged statewide, June temps warmer than normal (+1.4°F); July temps cooler than normal (-0.9°F)
  - Jun/Jul: near-normal temperatures
- Statewide, June on the dry side (-0.95"); July near-normal (-0.05")

## Total Precipitation Anomaly, Last 60 Days

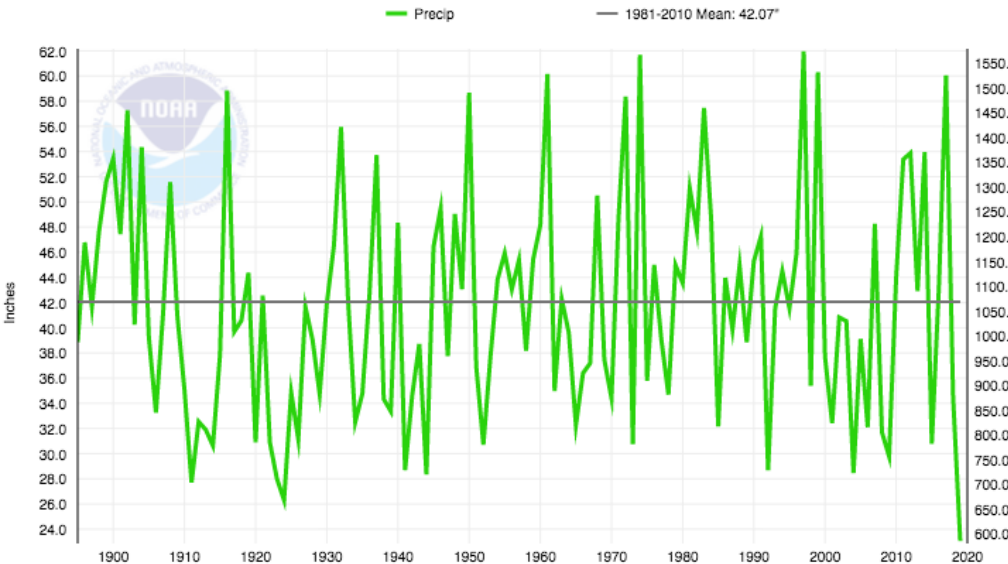
2019/06/08 - 2019/08/06



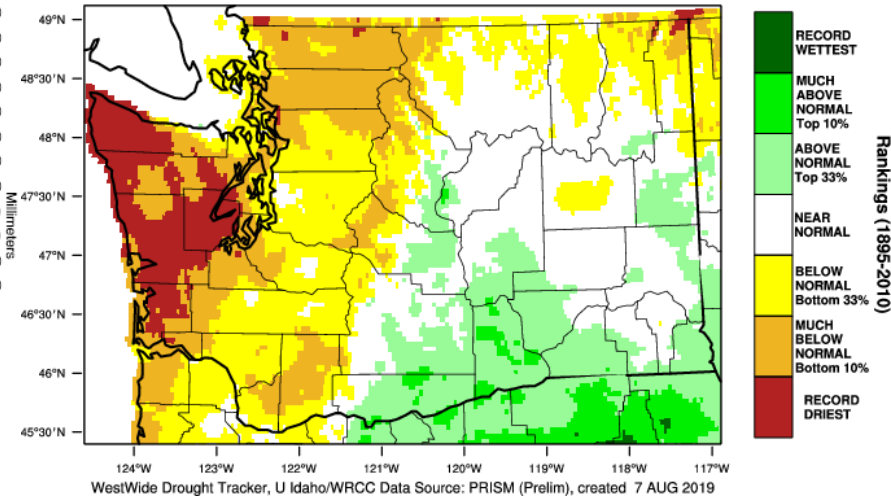
- Actual dry anomaly only between 1 and 2" since it's the dry season

# Last 6 months

Washington, Climate Division 1, Precipitation, February-July



Washington - Precipitation  
February-July 2019 Percentile

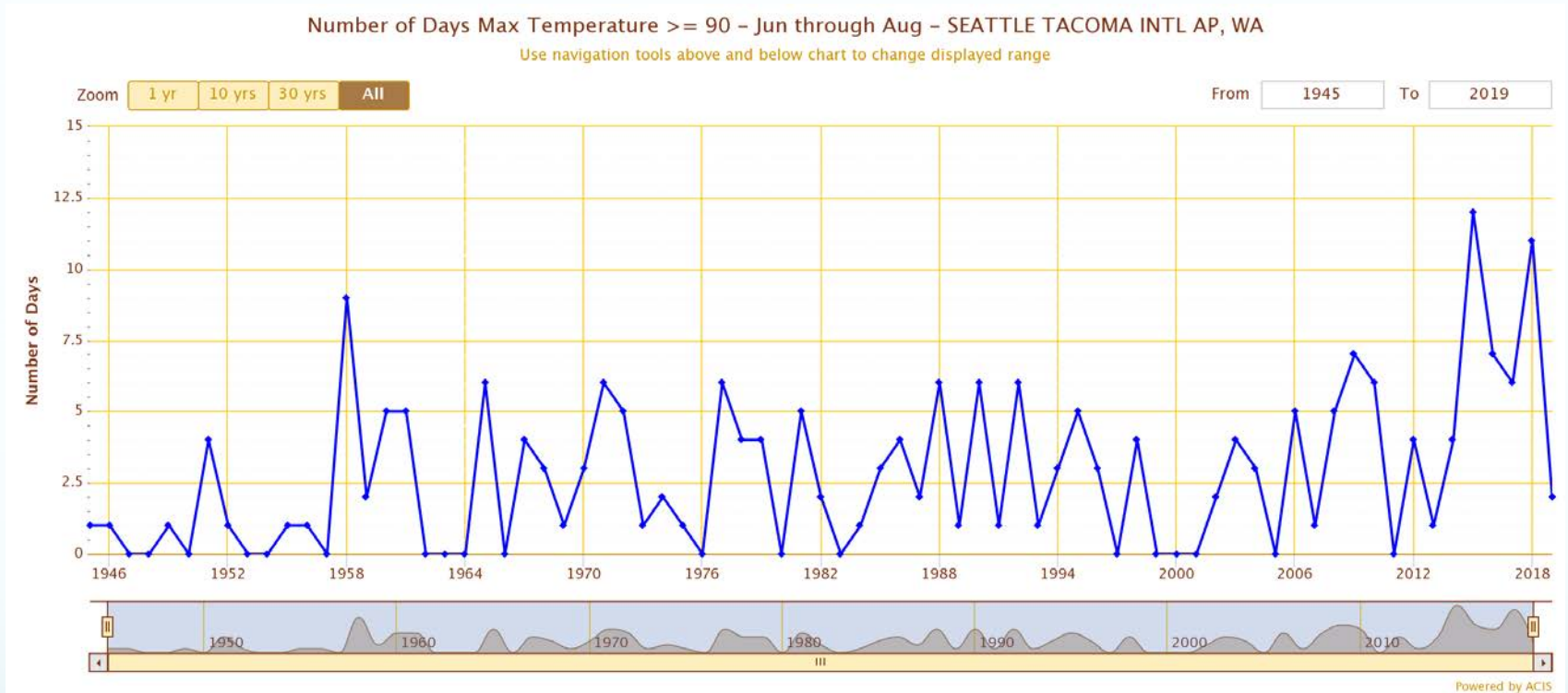


- Driest February through July (-19.00"; 55% of normal) on record for Climate Division #1 (the coast) since 1895





# Number of 90°F Days

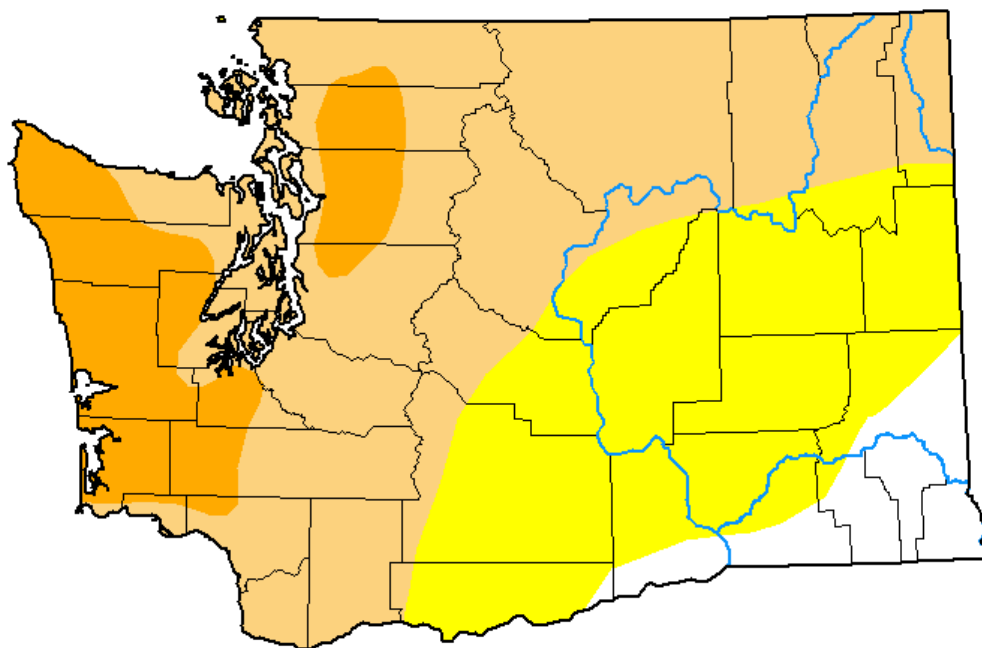


- 2 days 90°F or above at SeaTac AP so far this summer

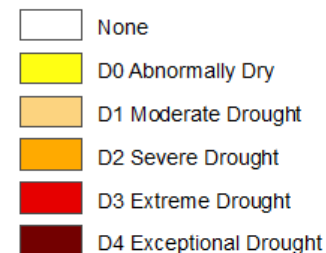
# US Drought Monitor

## U.S. Drought Monitor Washington

**August 6, 2019**  
(Released Thursday, Aug. 8, 2019)  
Valid 8 a.m. EDT



### Intensity:



*The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.*

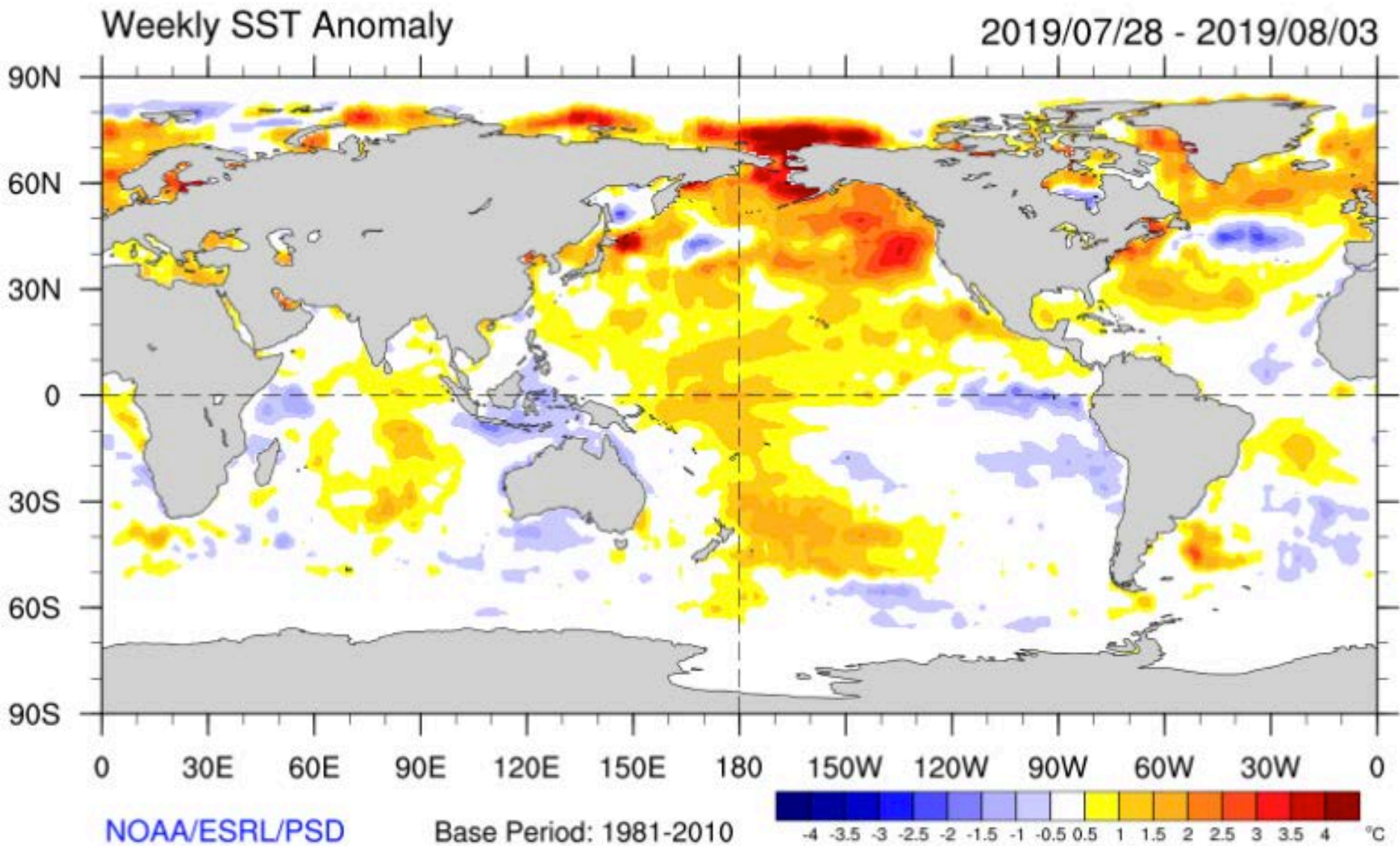
### Author:

Richard Tinker  
CPC/NOAA/NWS/NCEP



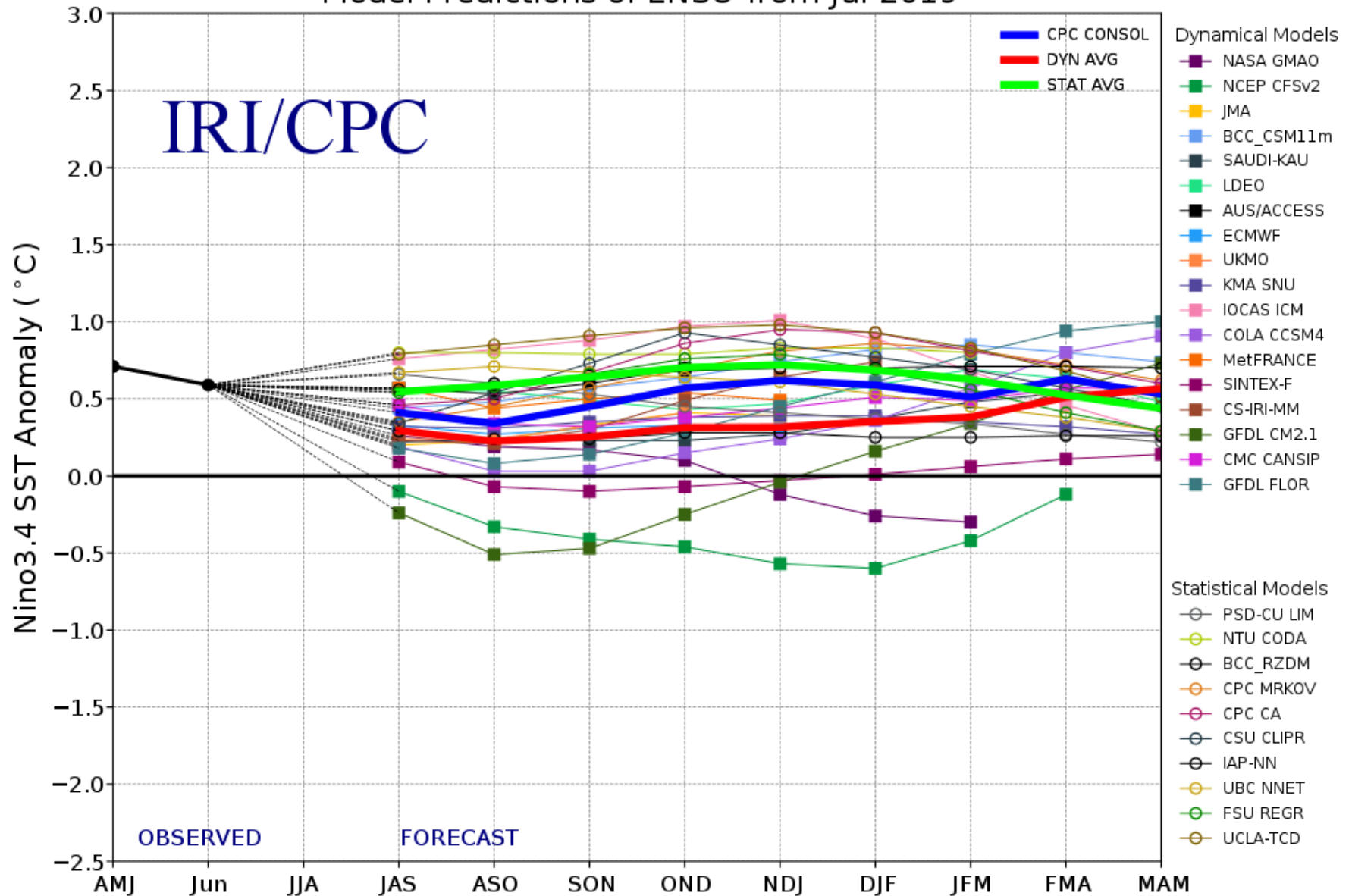
[droughtmonitor.unl.edu](http://droughtmonitor.unl.edu)

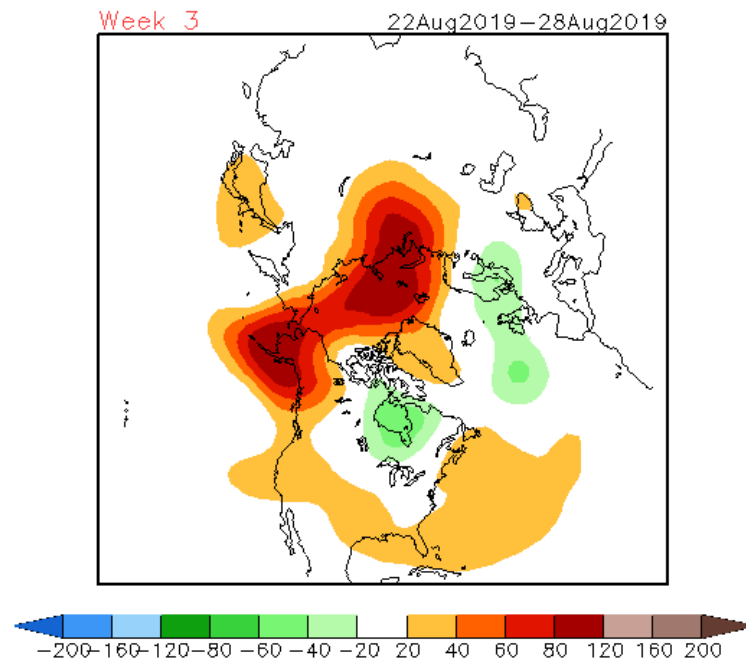
# Recent SST Anomalies





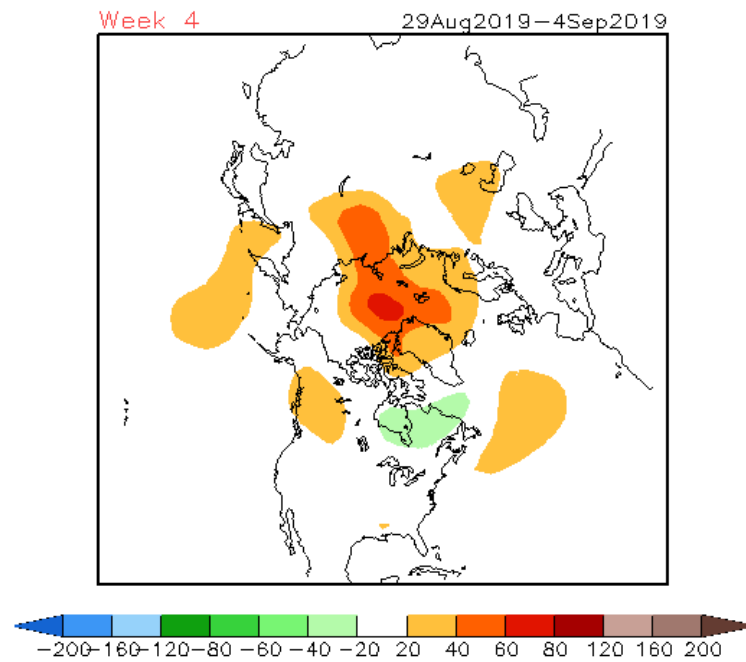
# Model Predictions of ENSO from Jul 2019



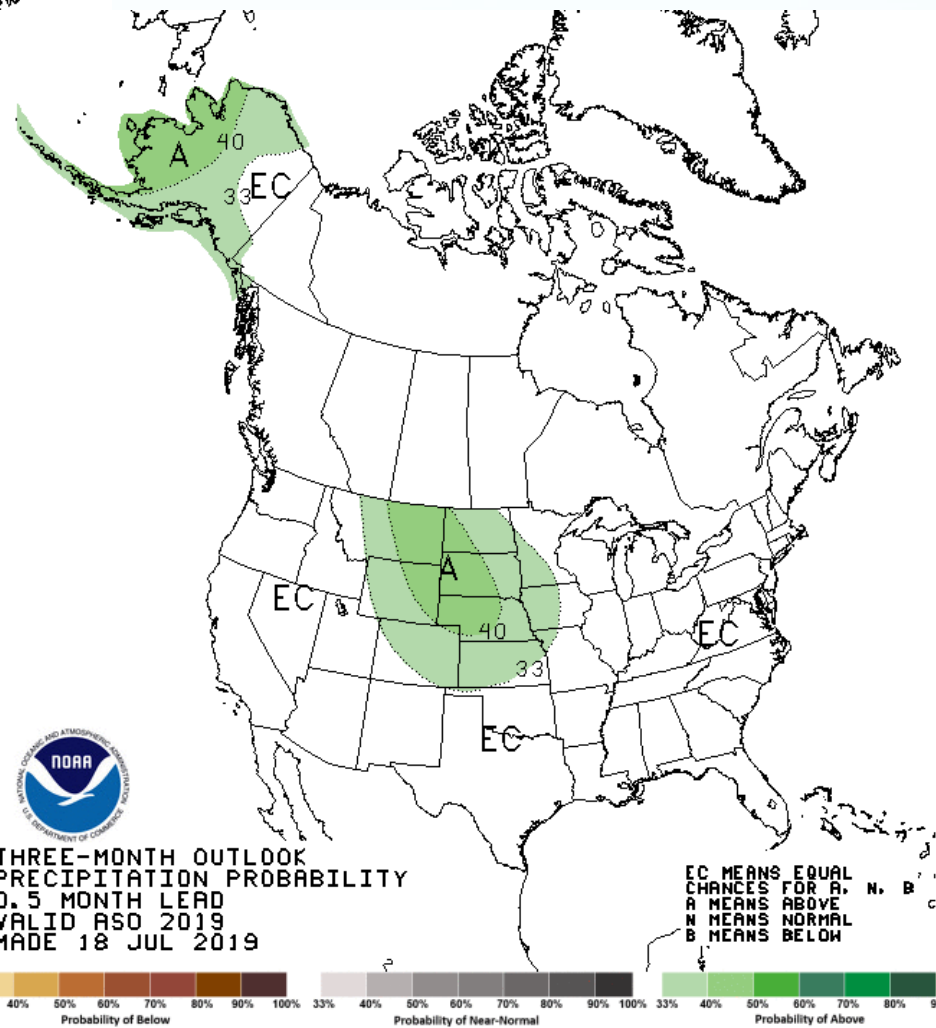
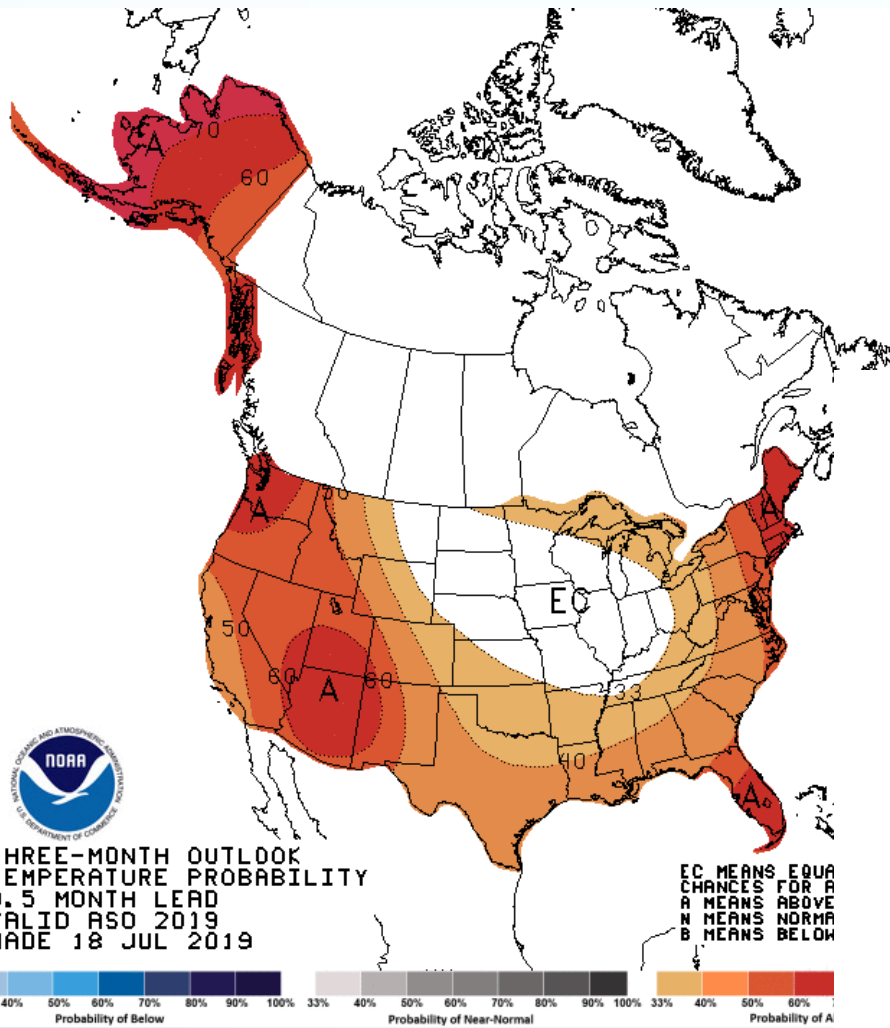


Latest Set of Week 3-4  
Forecasts from CFSv2

Anomalous high 500 hPa Z  
over AK and central Arctic  
early and modest anomalies  
late: For WA state mostly  
warmer than normal, and  
perhaps a bit on the dry side

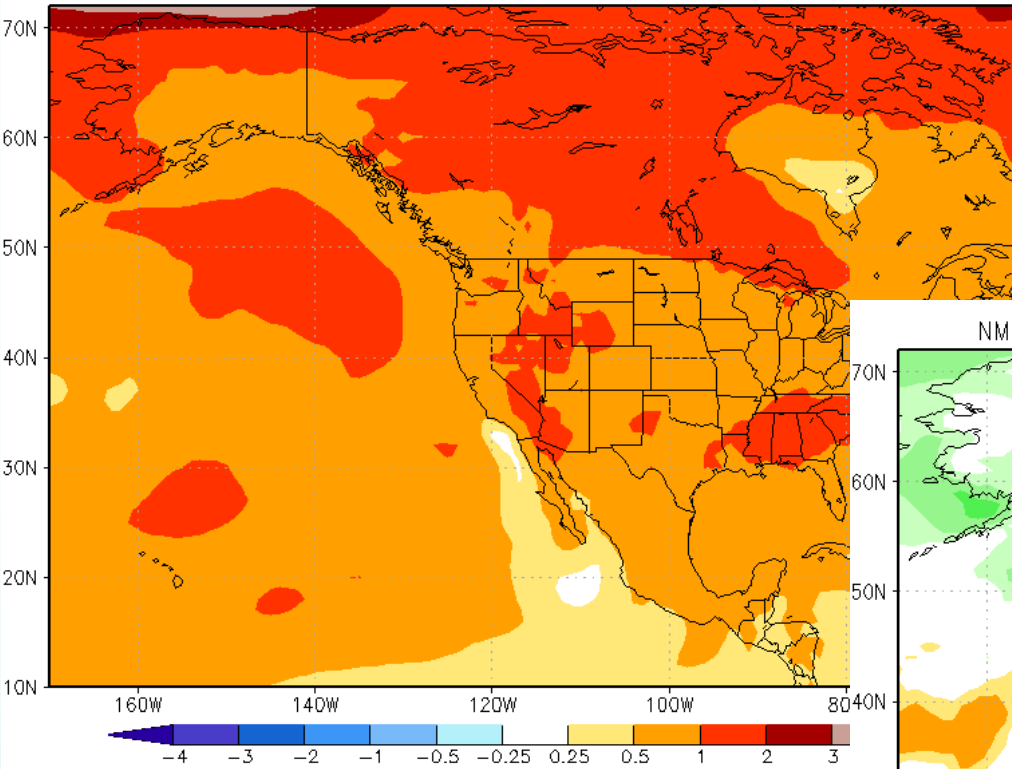


# NOAA/CPC Forecasts for Aug-Oct

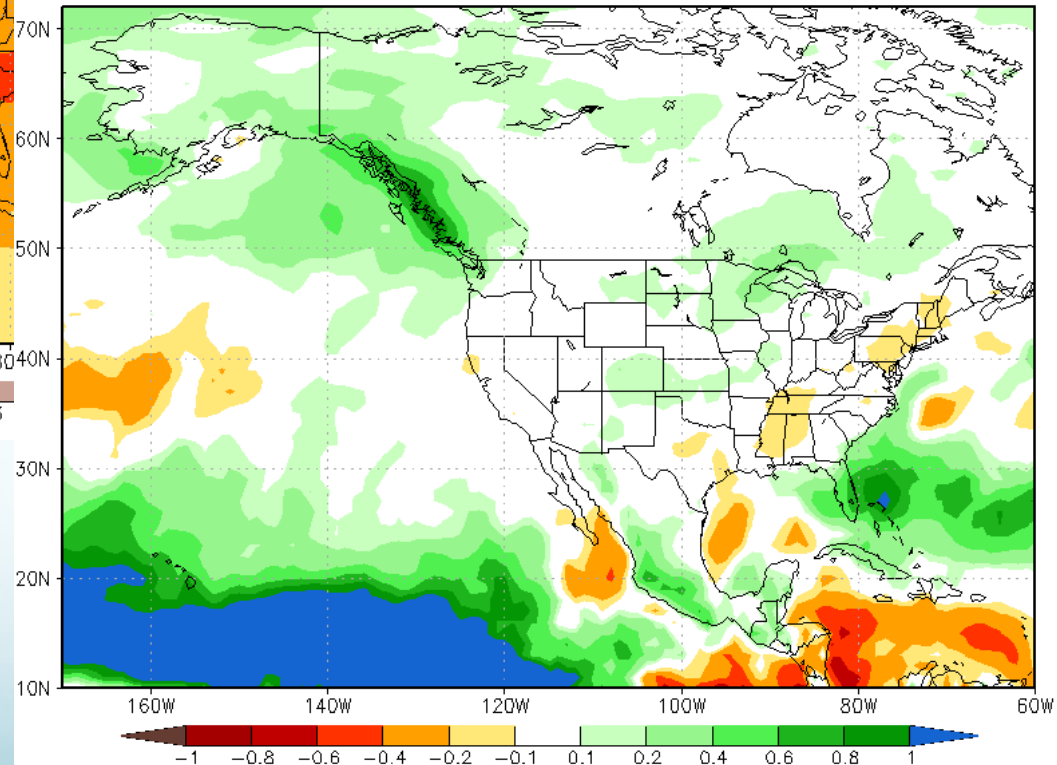


# Climate Model Projections for SON

NMME Forecast of TMP2m Anom IC=201908 for Lead 1 2019SON



NMME Forecast of Prec. rate Anom IC=201908 for Lead 1 2019SON





# Climate Model Projections for SON 2019 from European Modeling Centers

C3S multi-system seasonal forecast

Mean 2m temperature anomaly

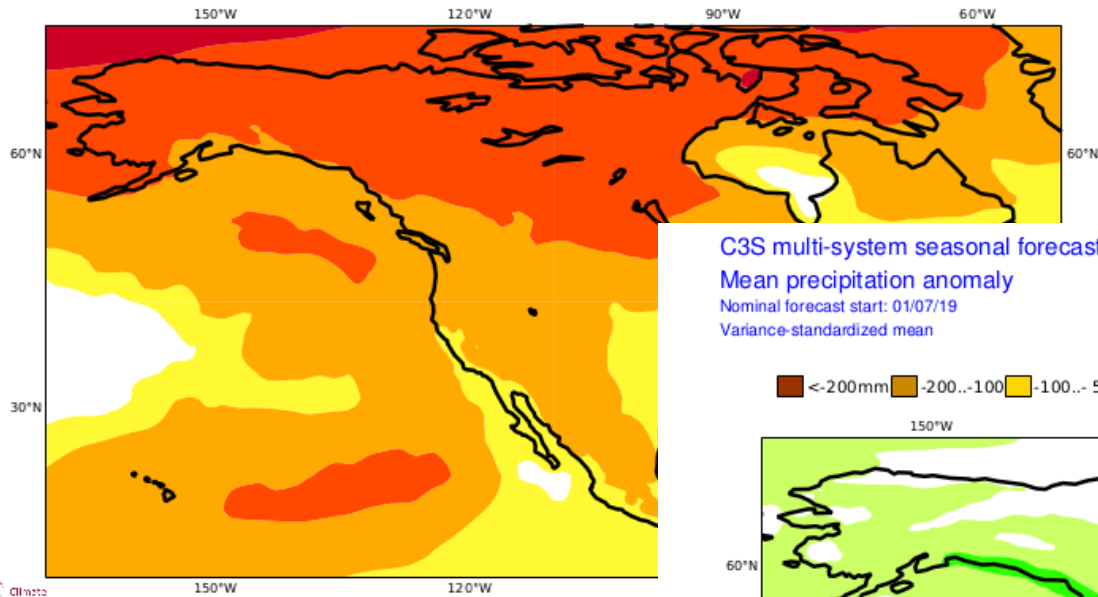
Nominal forecast start: 01/07/19

Variance-standardized mean

ECMWF/Met Office/Météo-France/CMCC/DWD

SON 2019

■ <-2.0°C ■ -2.0...-1.0 ■ -1.0...-0.5 ■ -0.5...-0.2 ■ -0.2...0.2 ■ 0.2...0.5 ■ 0.5...1.0 ■ 1.0...2.0 ■ > 2.0°C



C3S multi-system seasonal forecast

Mean precipitation anomaly

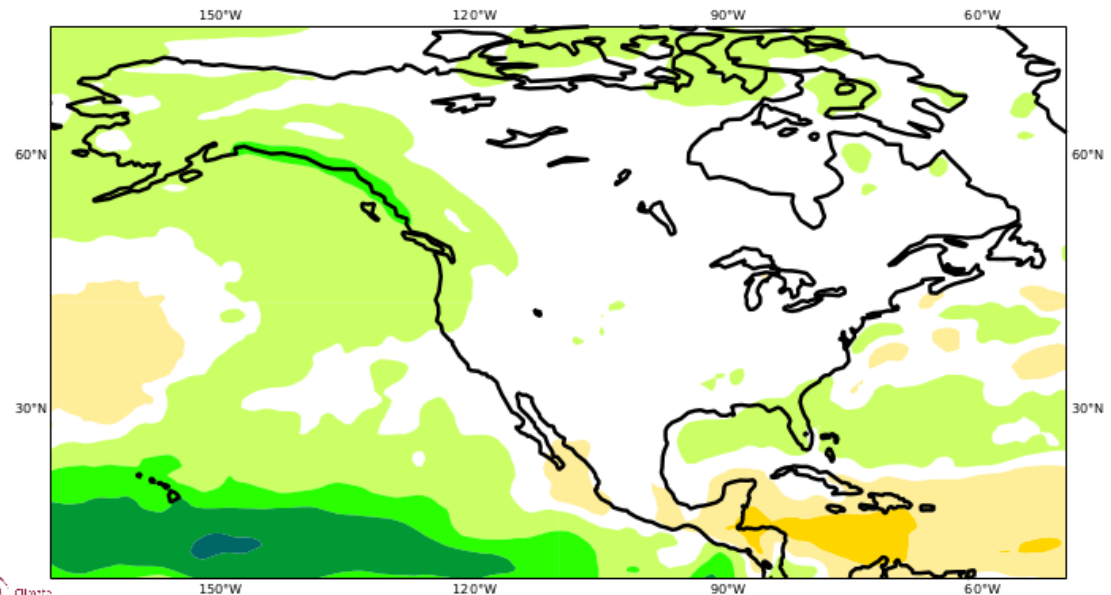
Nominal forecast start: 01/07/19

Variance-standardized mean

ECMWF/Met Office/Météo-France/CMCC/DWD

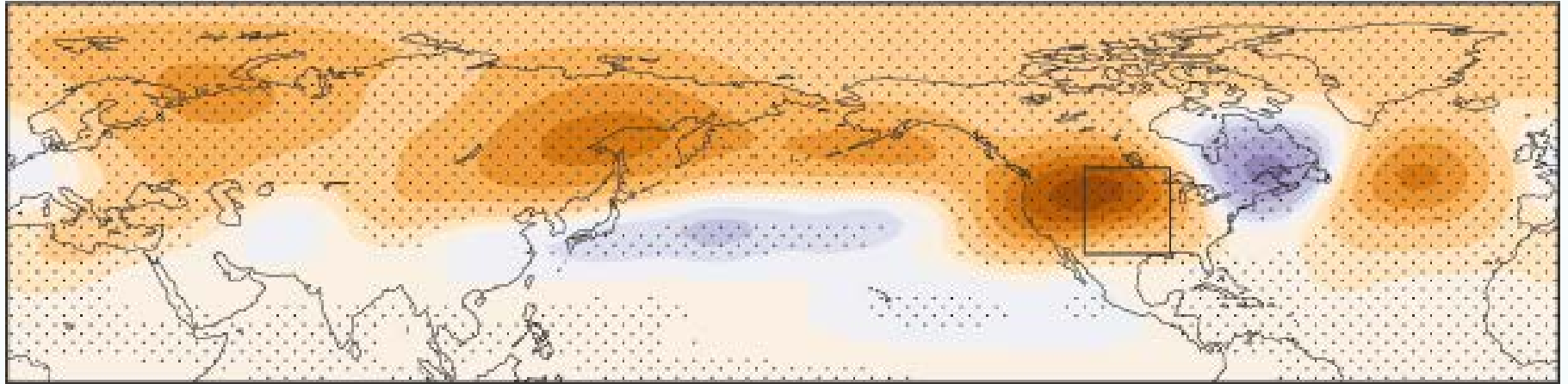
SON 2019

■ <-200mm ■ -200...-100 ■ -100...-50 ■ -50...-10 ■ -10...10 ■ 10...50 ■ 50...100 ■ 100...200 ■ > 200mm

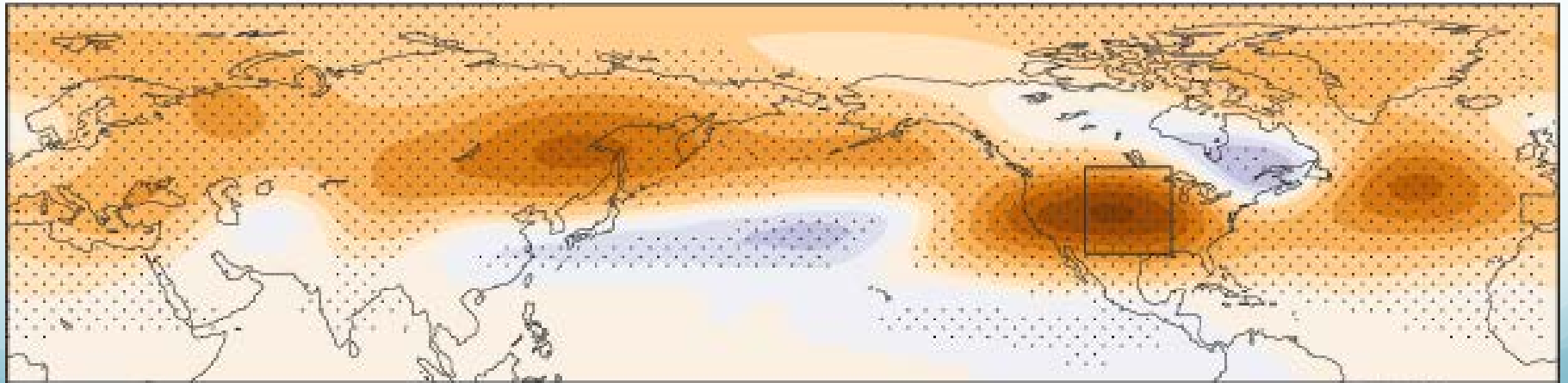


# Impacts of Soil Moisture in the Central US on Atmospheric Circulation

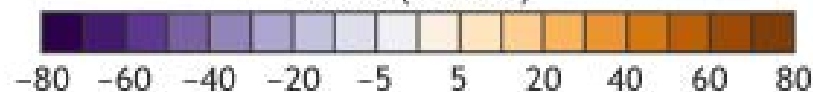
Modeled 200mb geopotential height anomalies during May–Aug  
with soil moisture removed



with increased near-surface heating

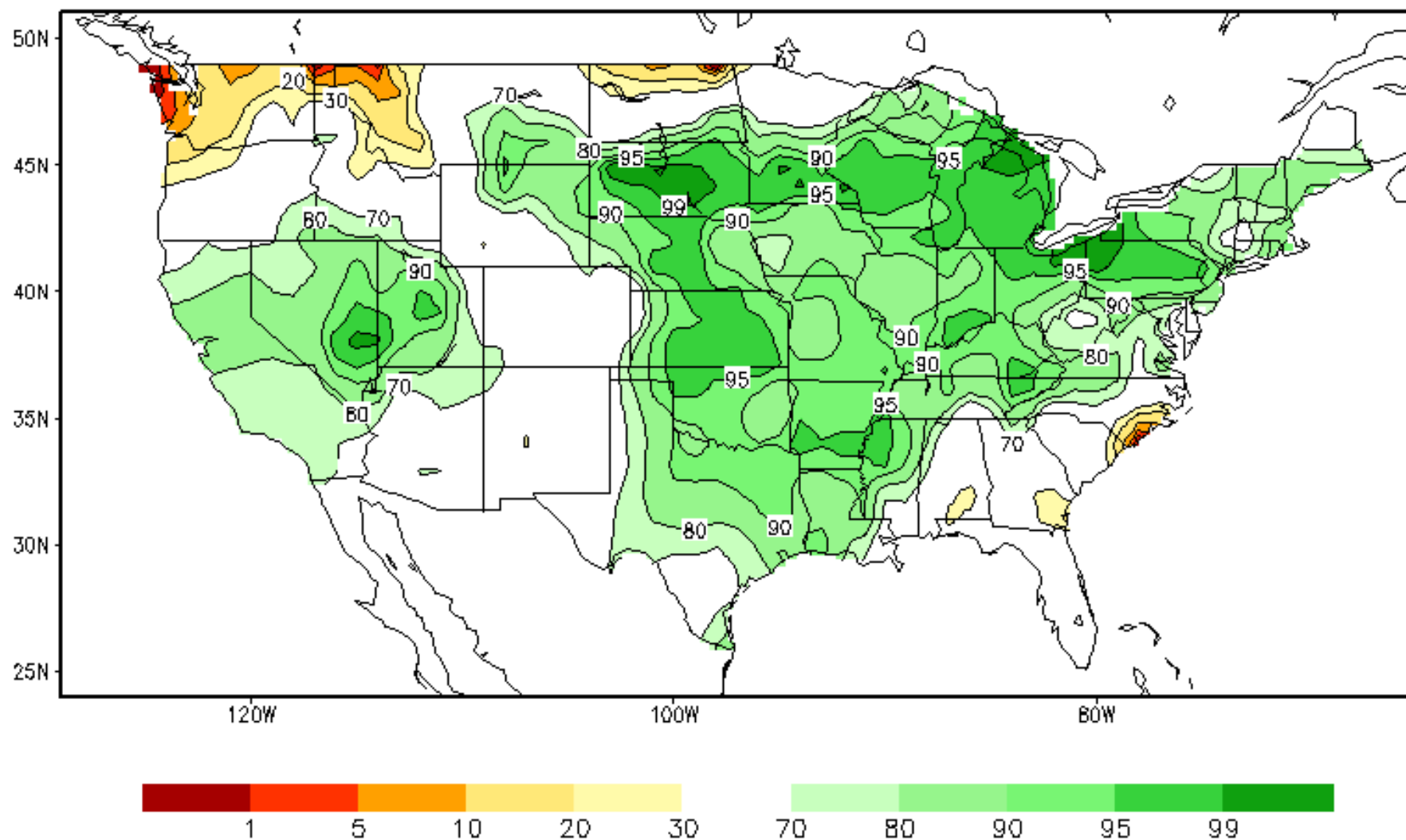


Z200 (meters)

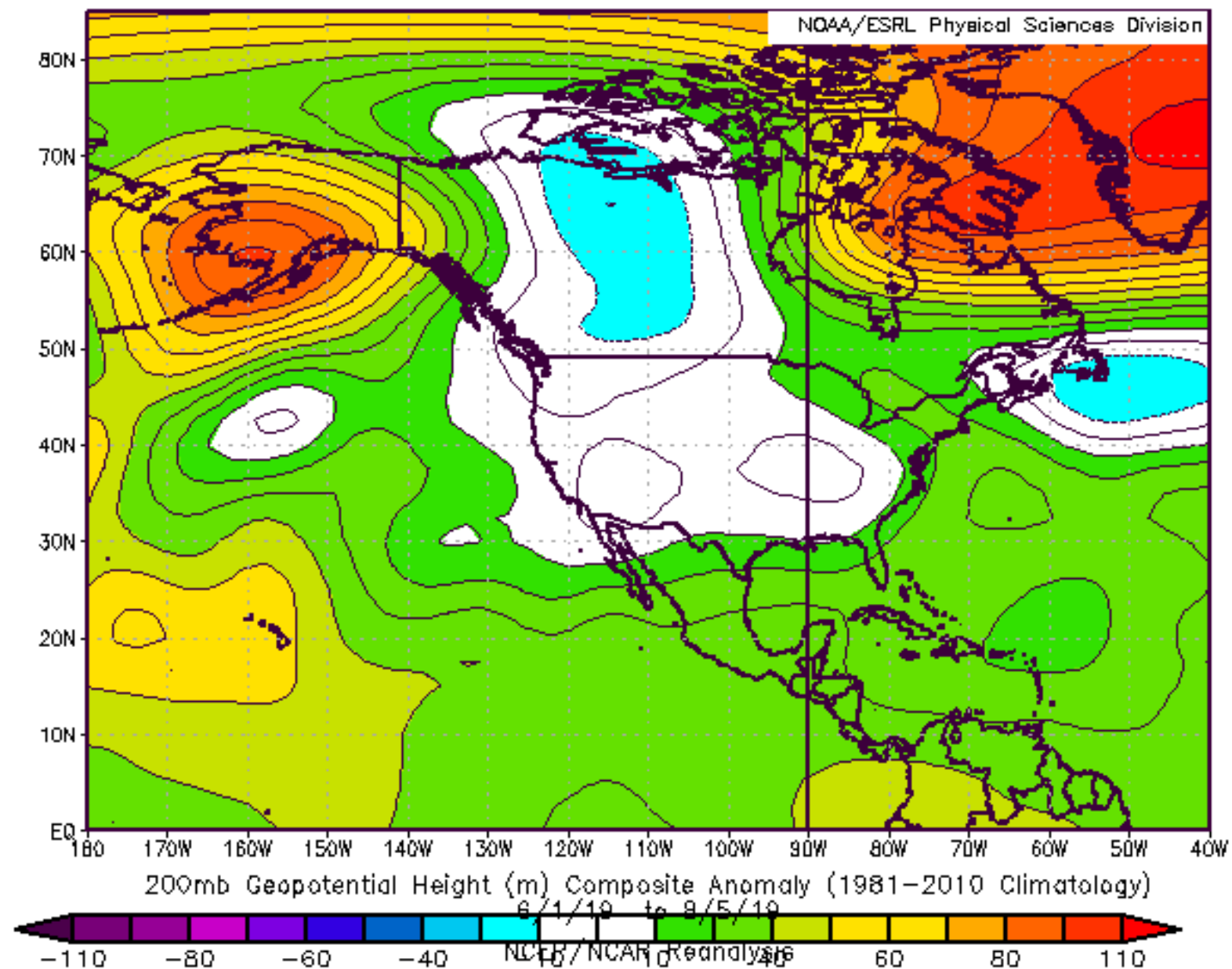


NOAA Climate.gov  
Data: NCAR CAM5

# Calculated Soil Moisture Ranking Percentile JUL, 2019



## Anomalous 200 hPa Geopotential Height – 1 June to 5 August 2019





# Final Remarks

- Our sunsets have been lousy this summer (perhaps thanks to the late spring flooding in the US Midwest).
- Summer is not over, but time is running out for a major heat wave.
- El Niño is officially over; ENSO not liable to be a significant player in the climate system during the upcoming fall and winter.
- Expecting temperatures on the warm side due to multi-year trends and climate model output; no clear signal with respect to precipitation.