Office of the Washington State Climatologist

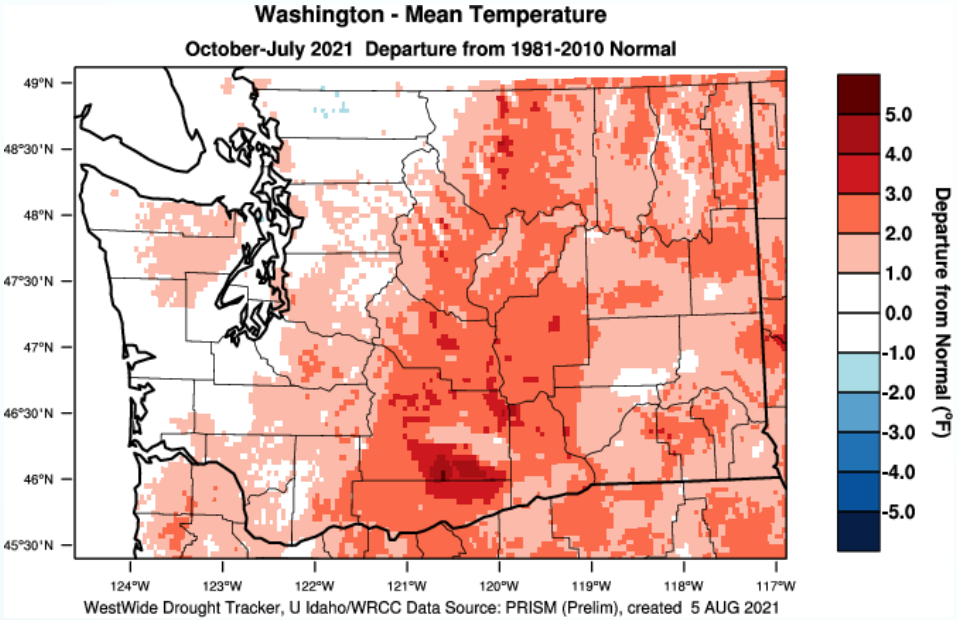
Cooperative Institute for CLIMATE, OCEAN & ECOSYSTEM STUDIES

Current Conditions and Seasonal Outlook

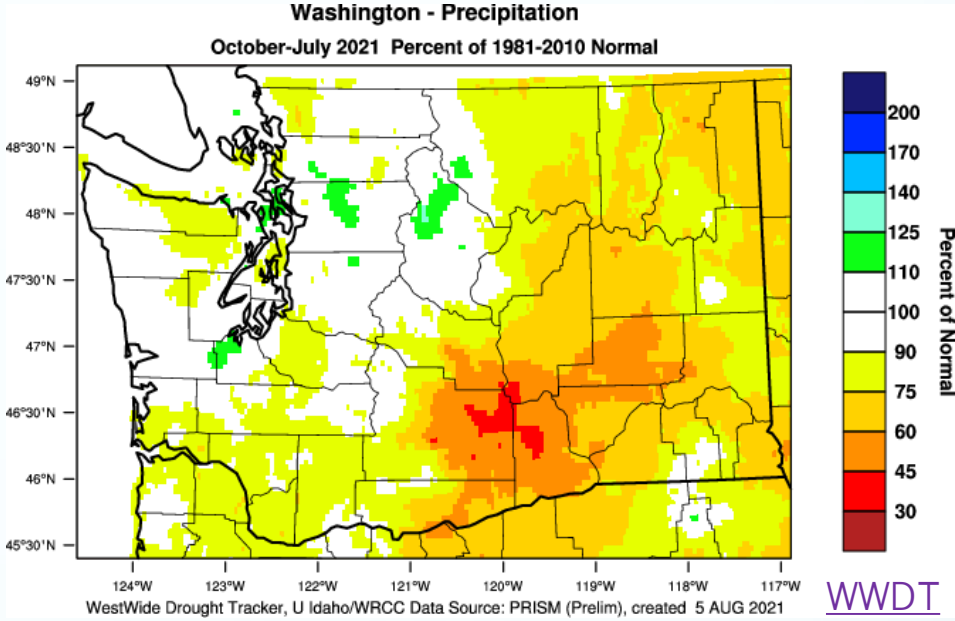
Nick Bond & Karin Bumbaco
Office of the Washington State Climatologist
Cooperative Institute for Climate, Ocean, and Ecosystem Studies
University of Washington
16 August 2021

2021 Water Year

Temperature



Precipitation



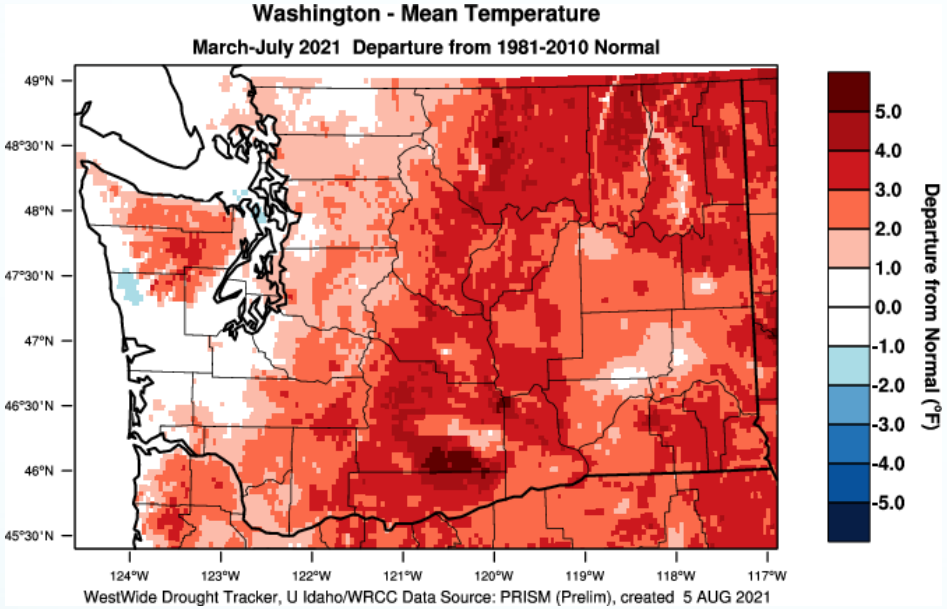
WWDT

- Averaged statewide, WY 2021 warmer than normal (+1.9°F), tying as 7th warmest*
- Averaged statewide, below normal precipitation for WY 2021 (-4.24”)

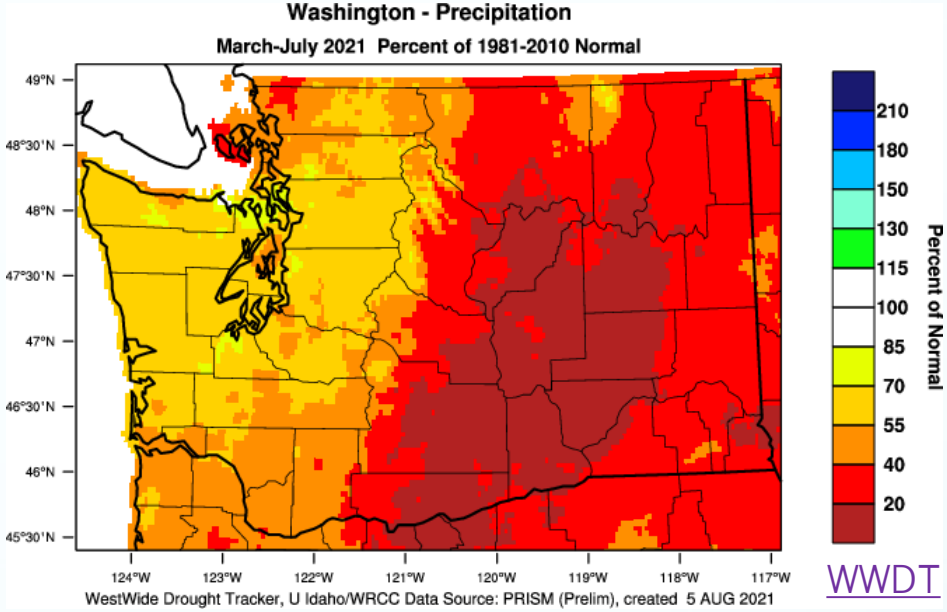
*Records since 1895

March-July 2021

Temperature



Precipitation

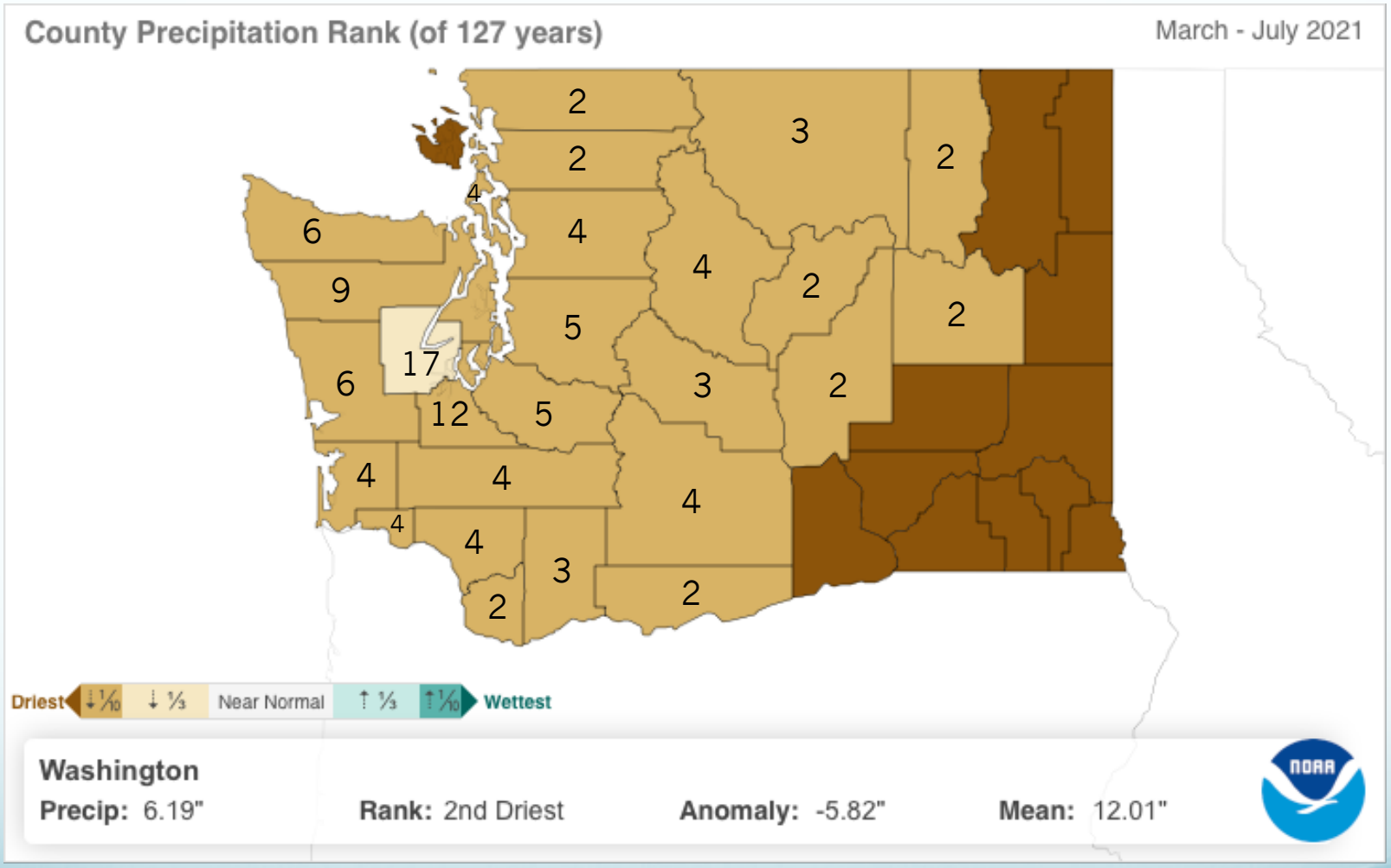


WWDT

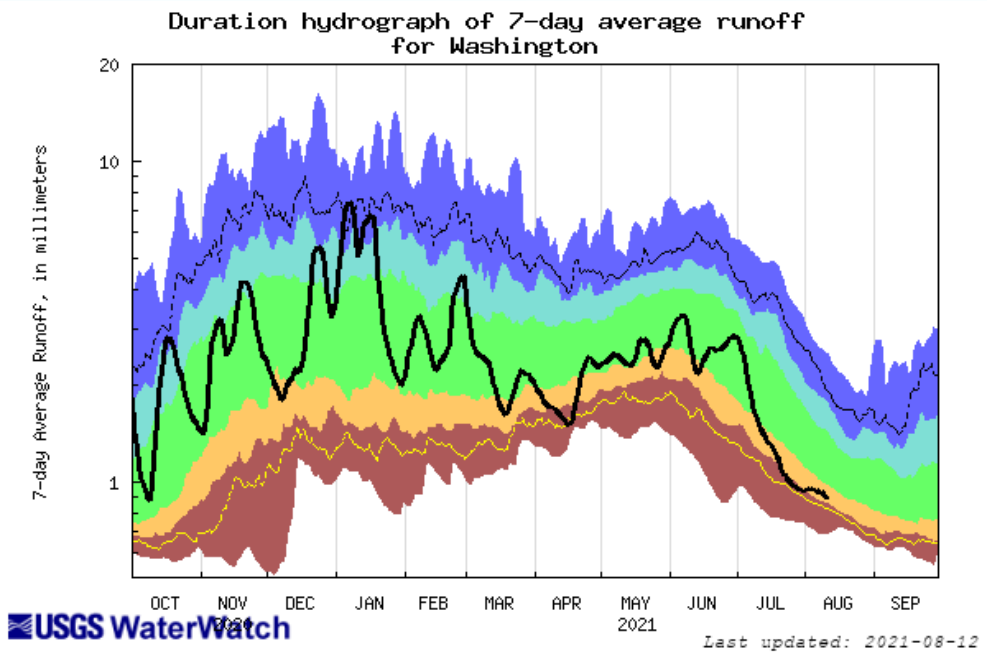
- Averaged statewide, 3rd warmest* March-July on record (+2.8°F)
- Averaged statewide, 2nd driest* March-July on record (-6.83”)

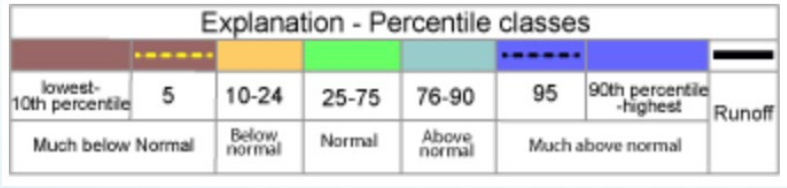
*Records since 1895

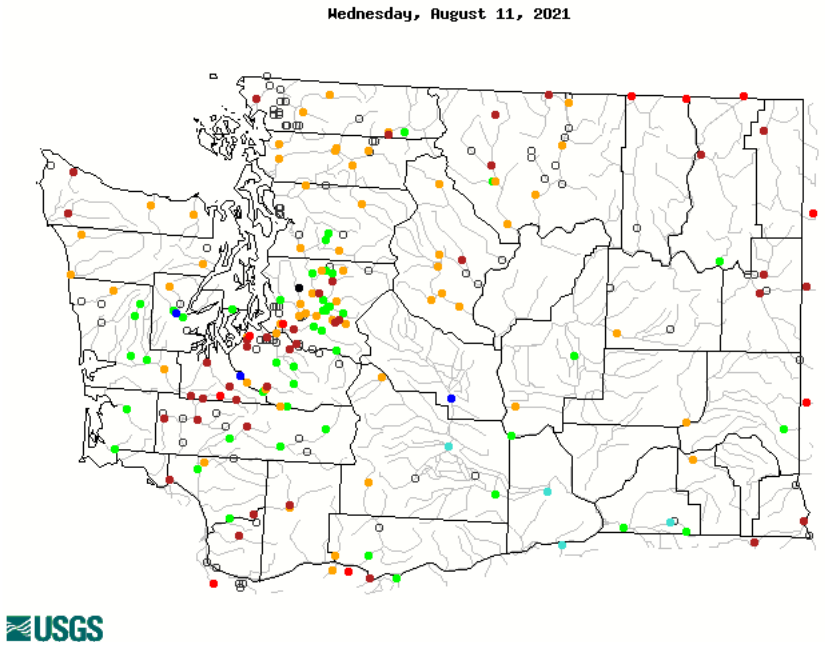
March-July County Precipitation

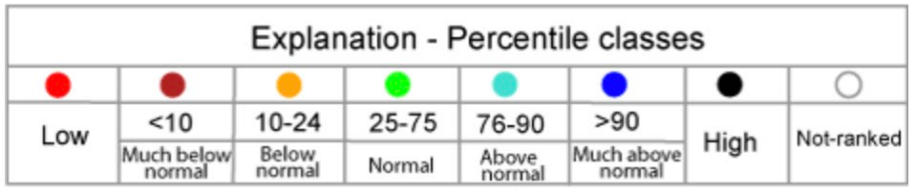


Streamflow



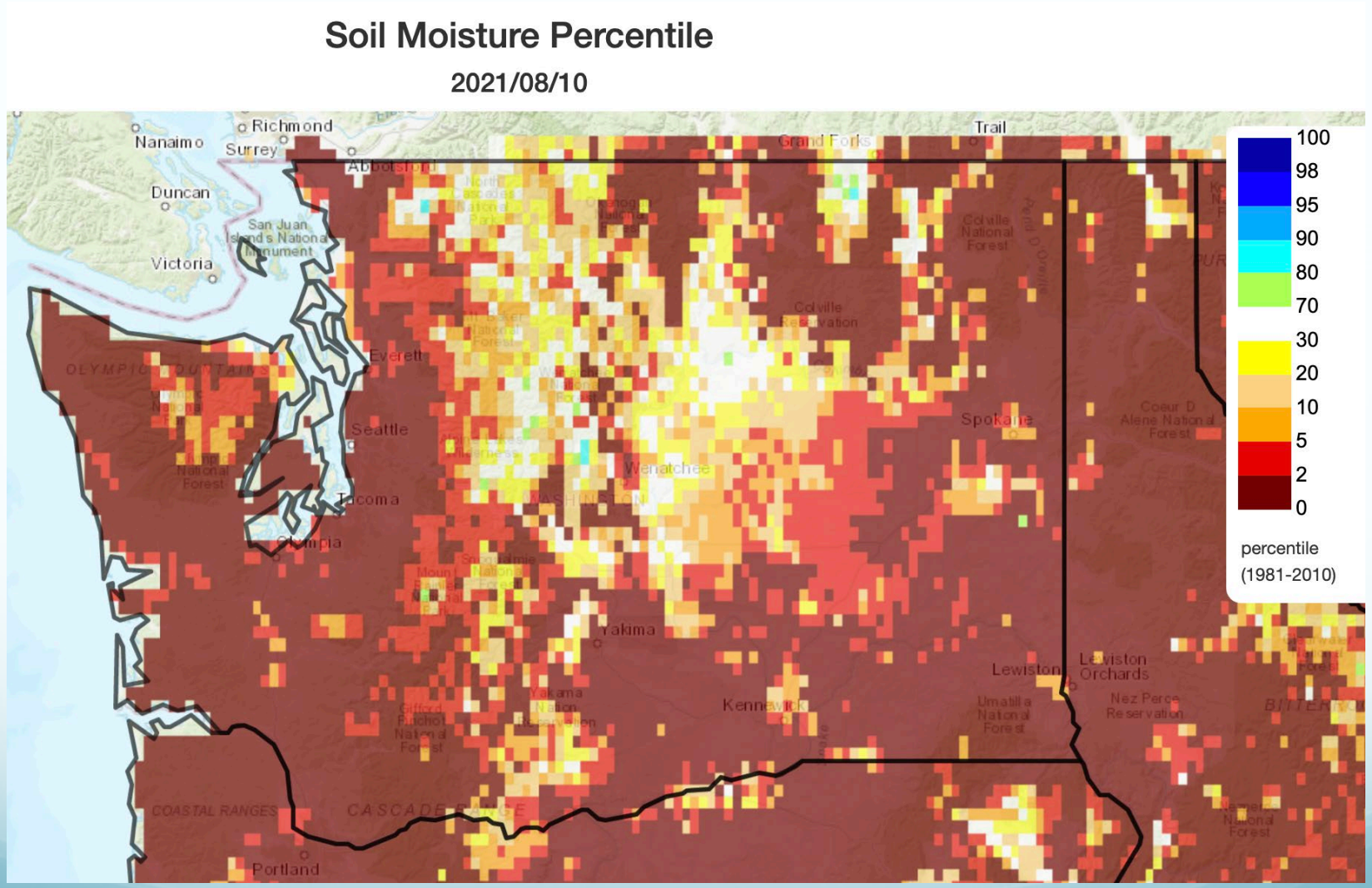






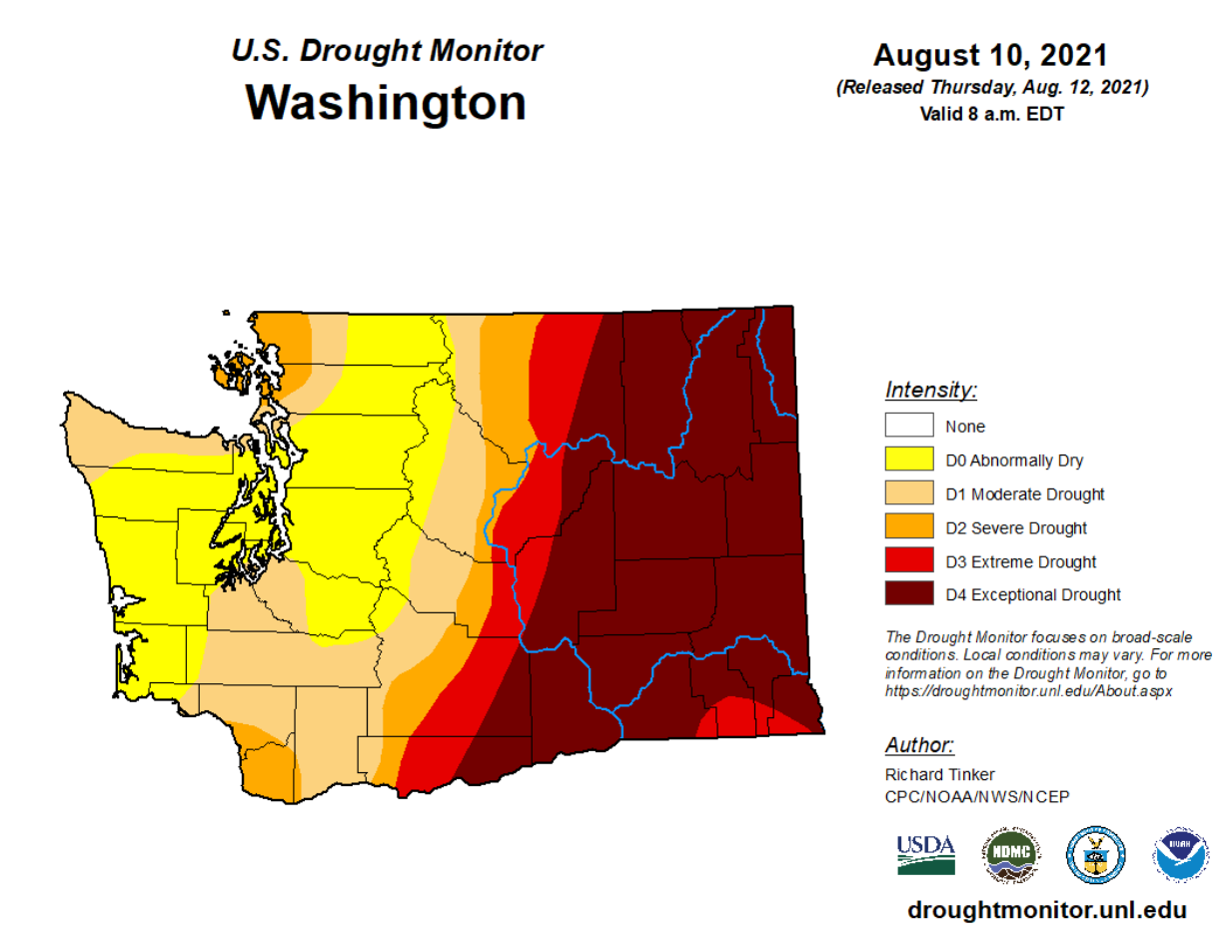
USGS

Soil Moisture



NW Climate Toolbox

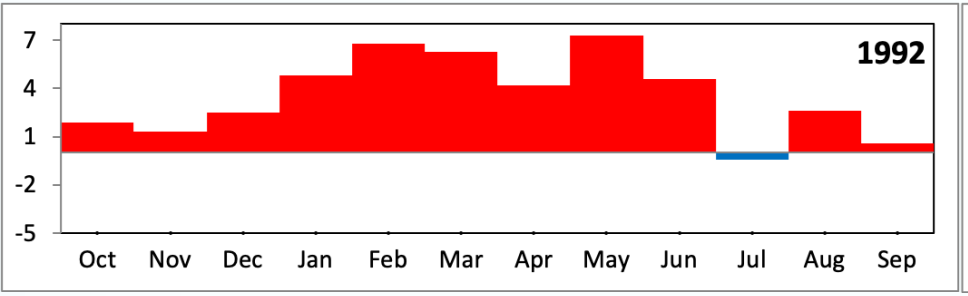
Drought Monitor

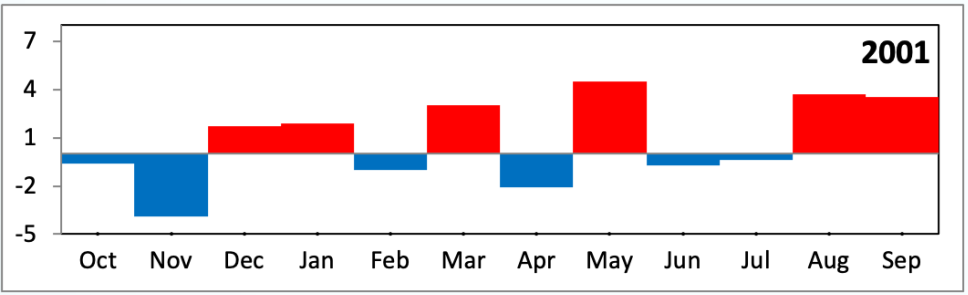


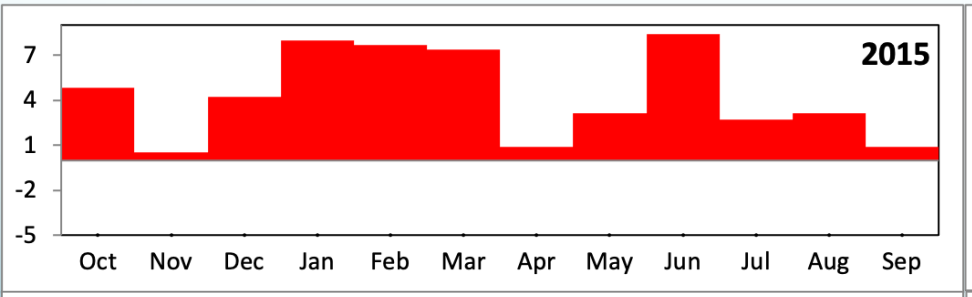
- D3 (3-5th percentile conditions; once every 20-50 years); D4 (0-2nd percentile; once or twice every 100 years)

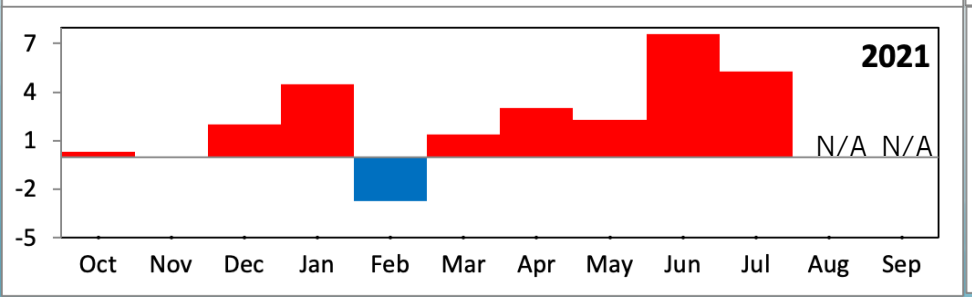
Historical Droughts

Statewide Temperature Anomalies

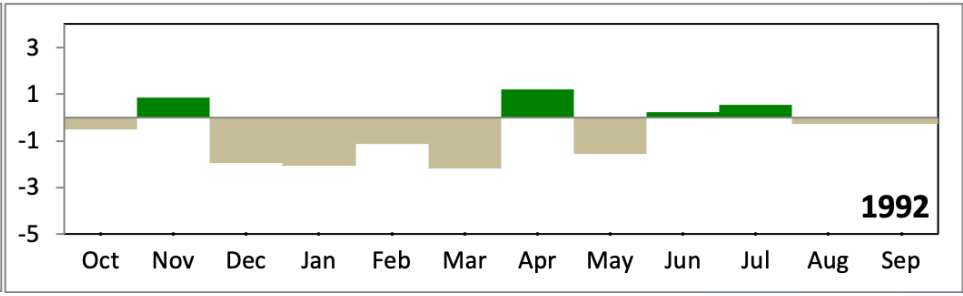


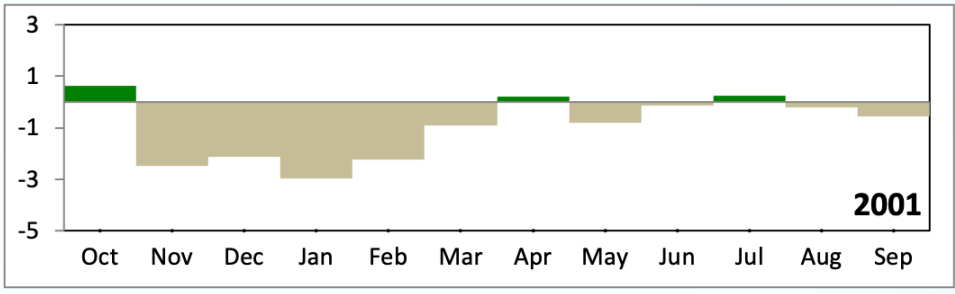


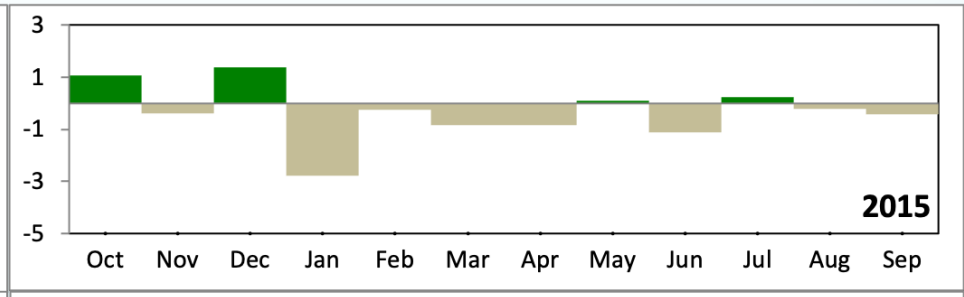


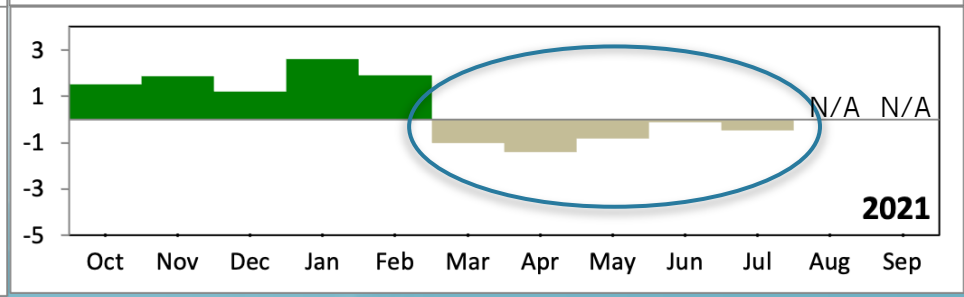


Statewide Precipitation Anomalies

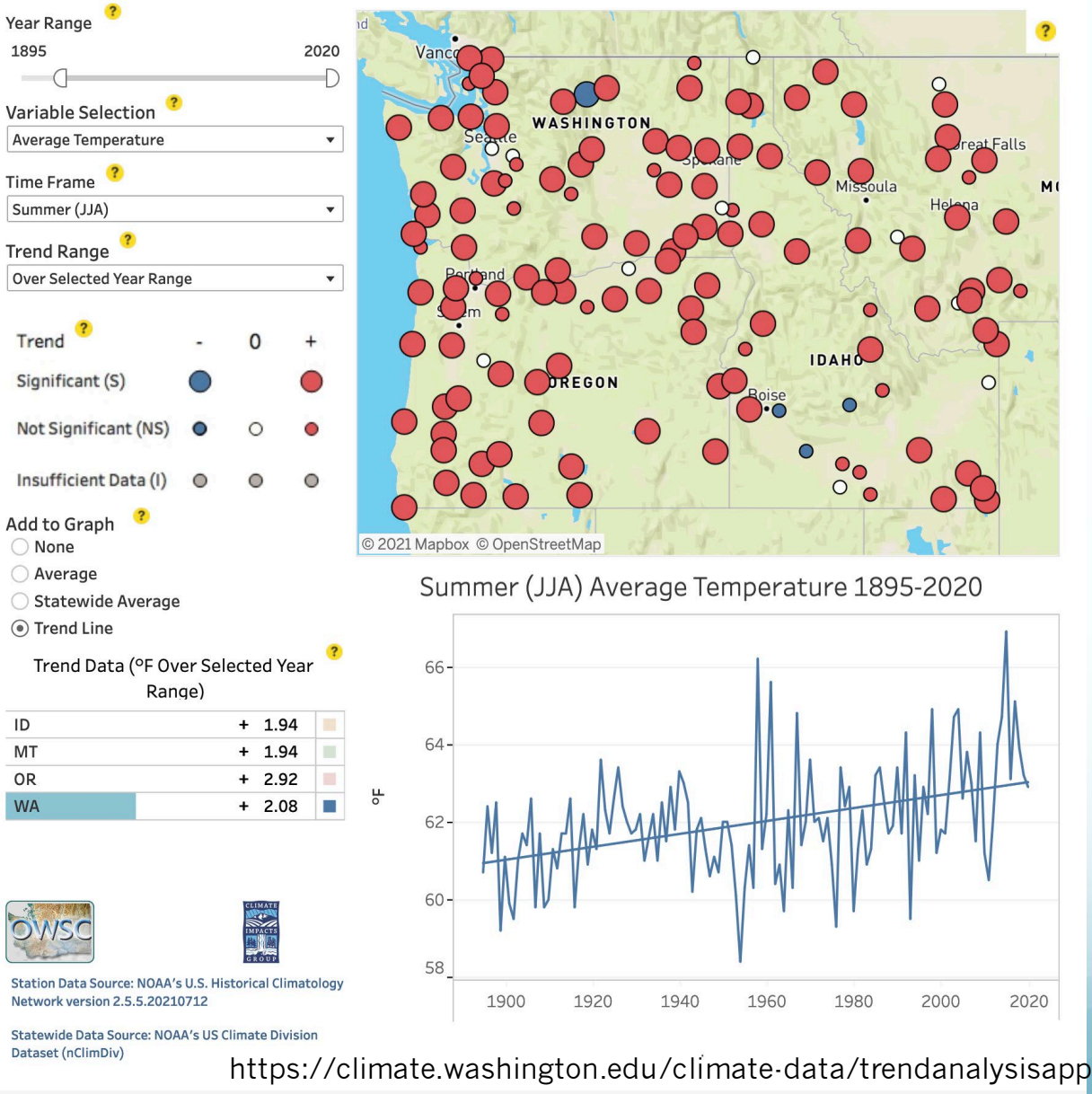






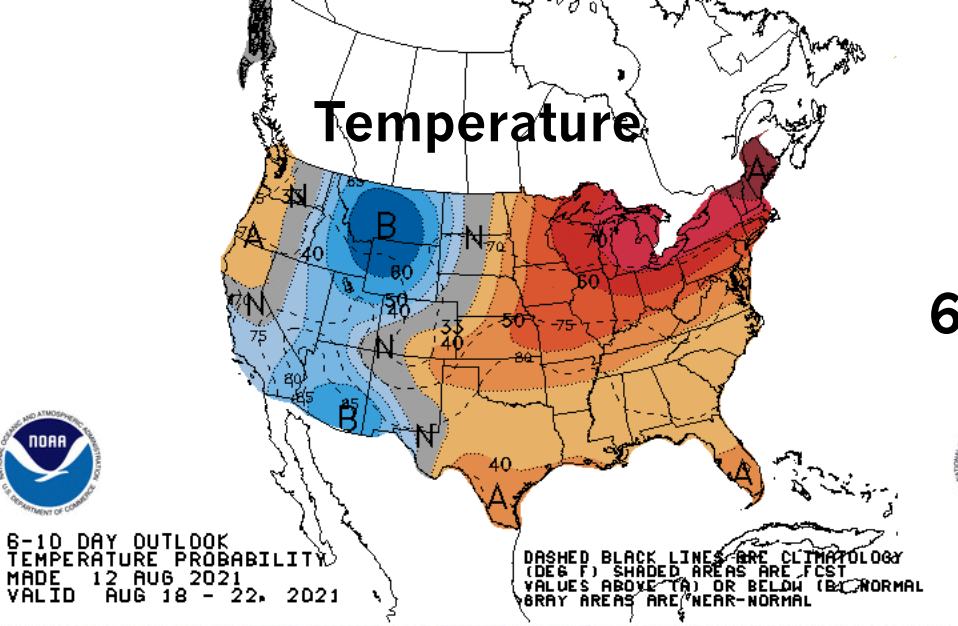


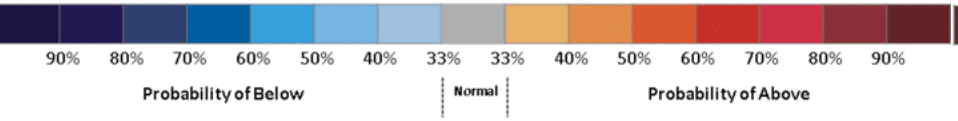
Summer Temperature Trends

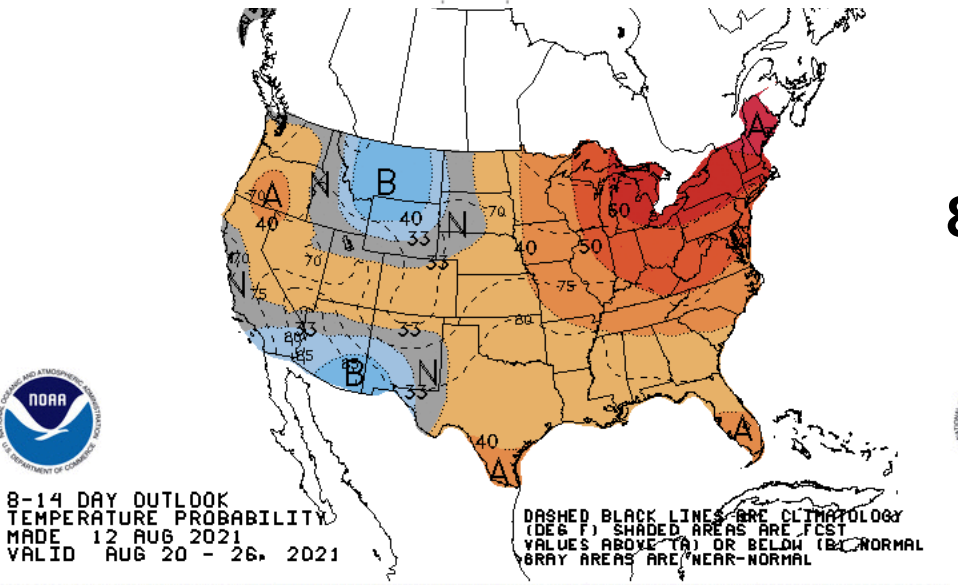


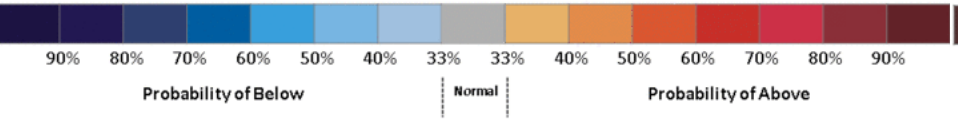
https://climate.washington.edu/climate-data/trendanalysisapp/

Temperature

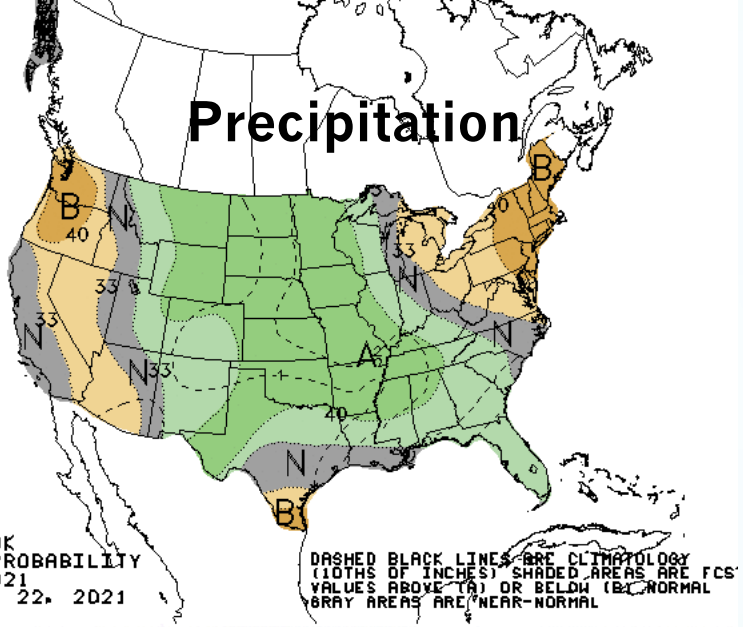


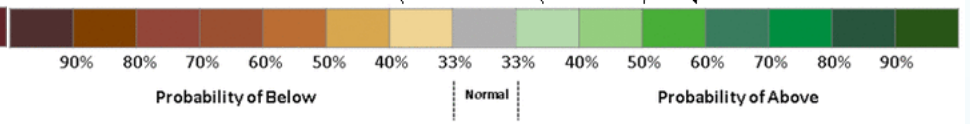


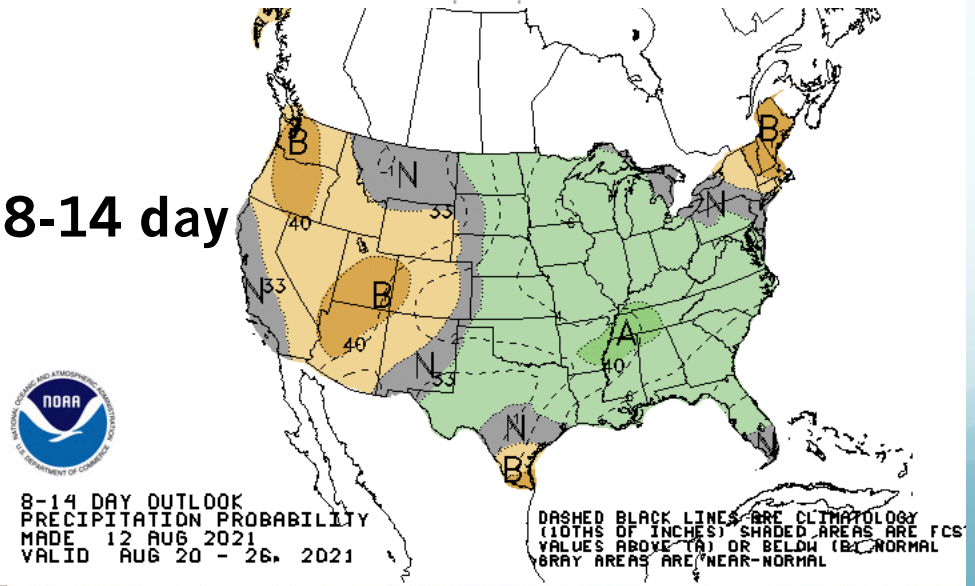


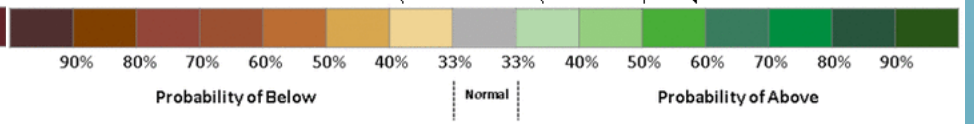


Precipitation





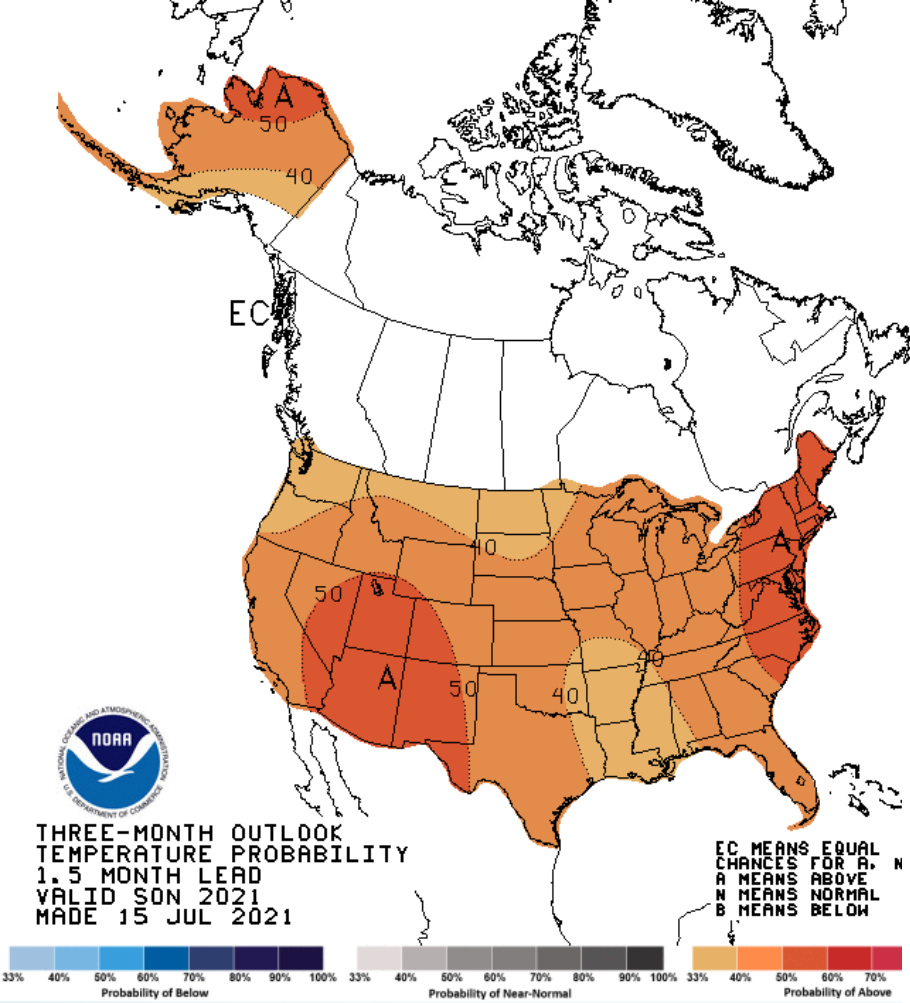


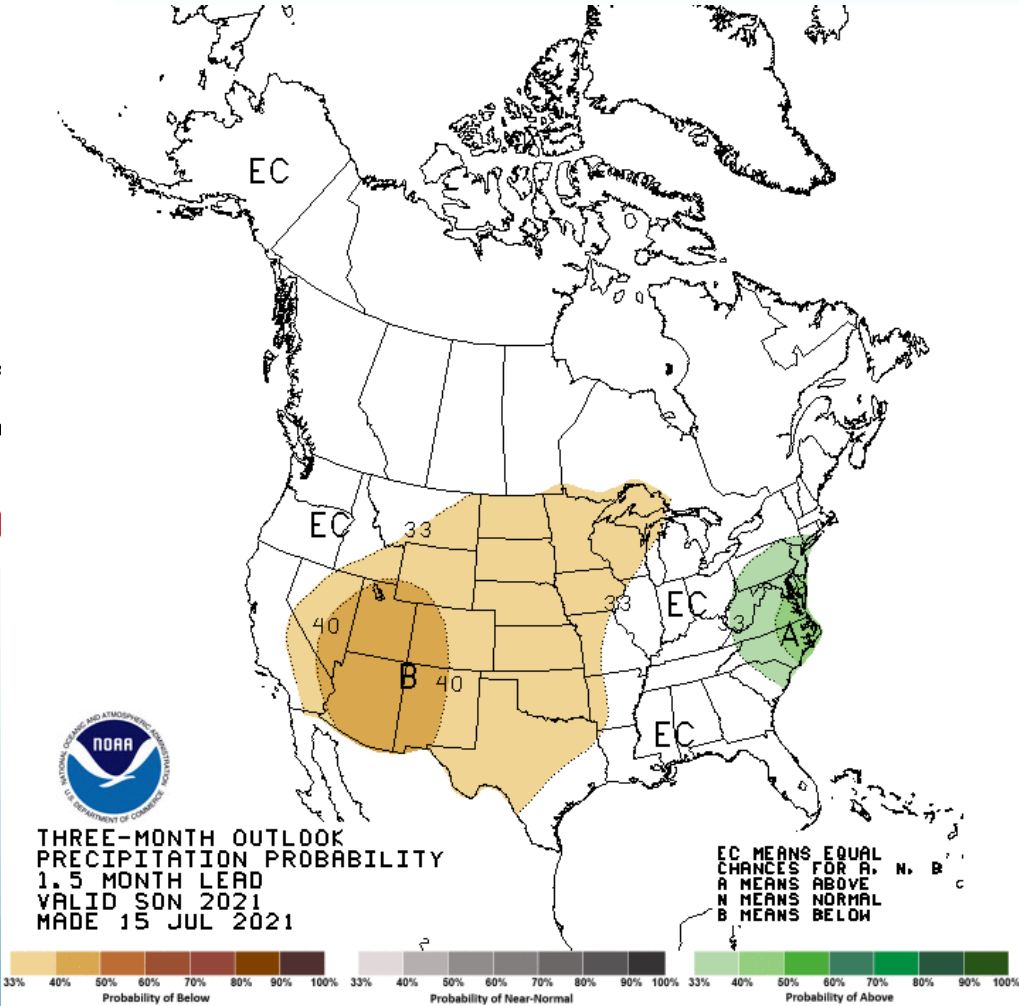


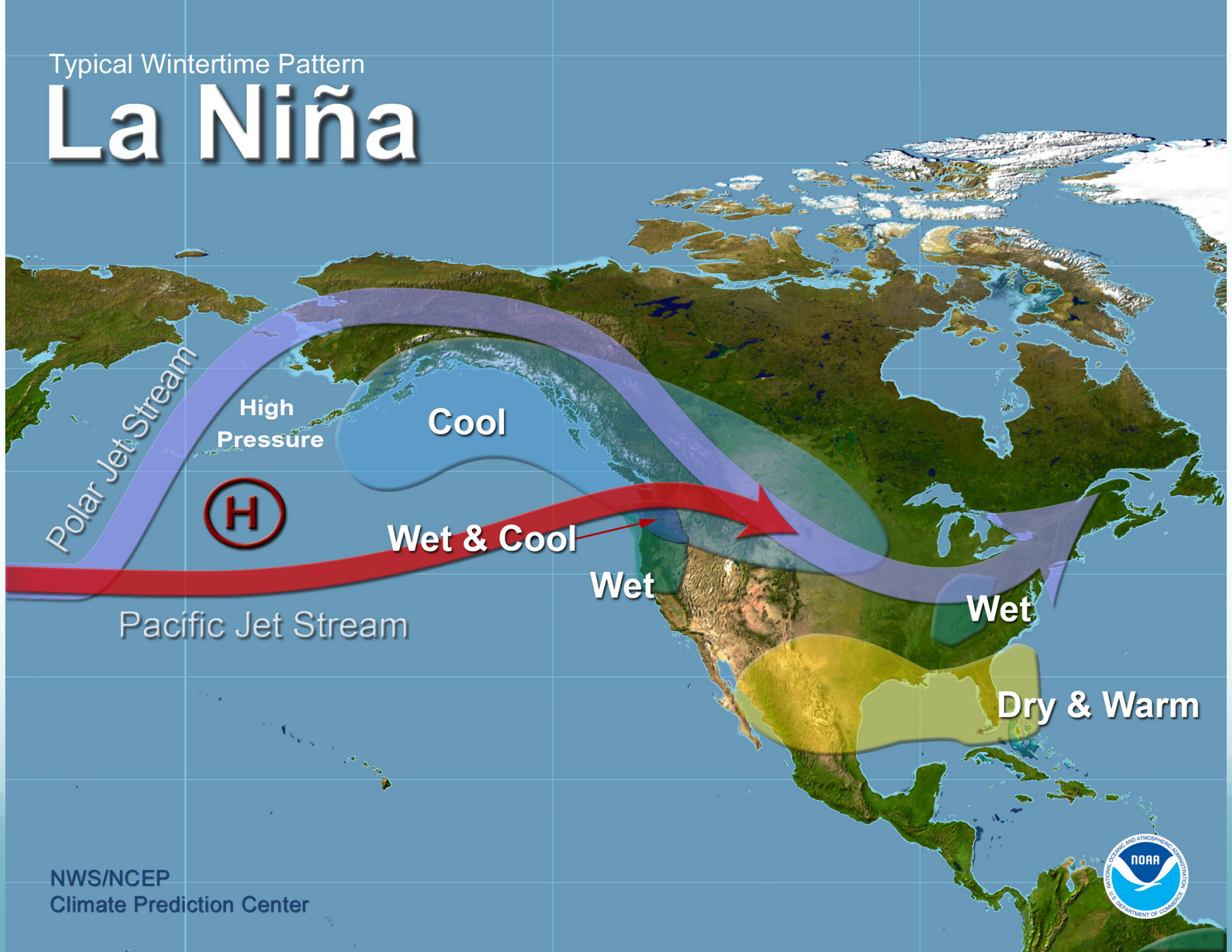
6-10 day

8-14 day

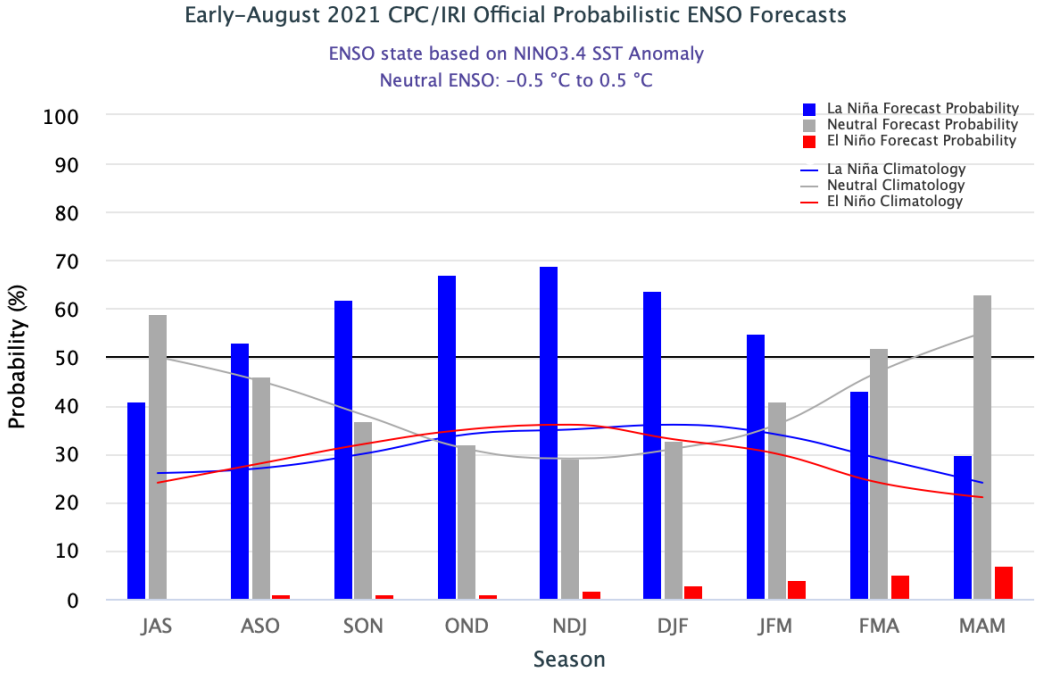
NOAA/CPC Forecasts for Sep-Nov 2021

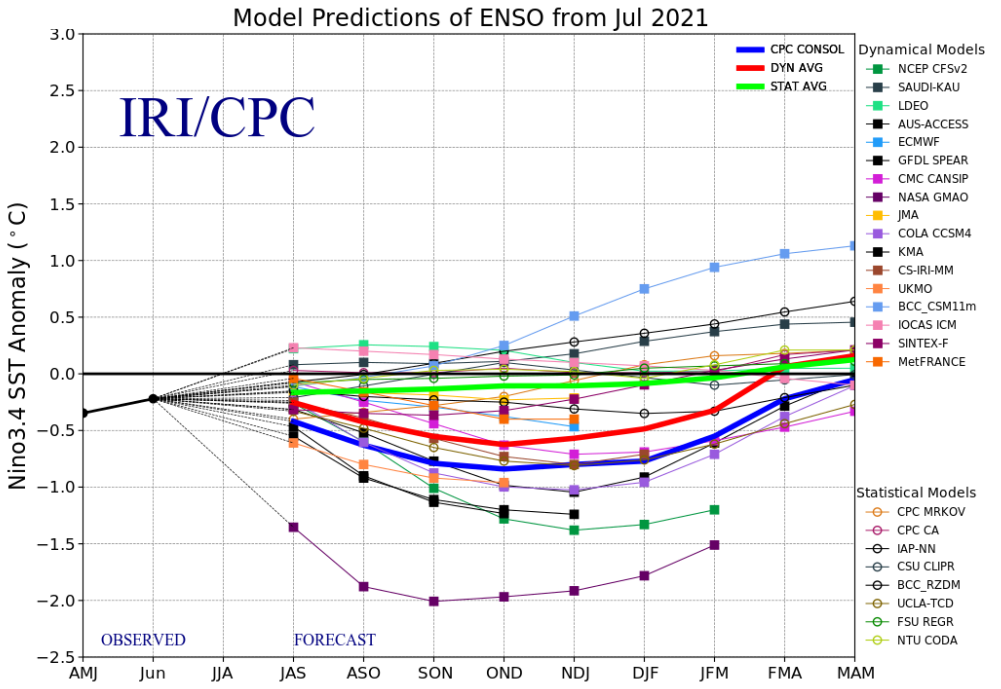


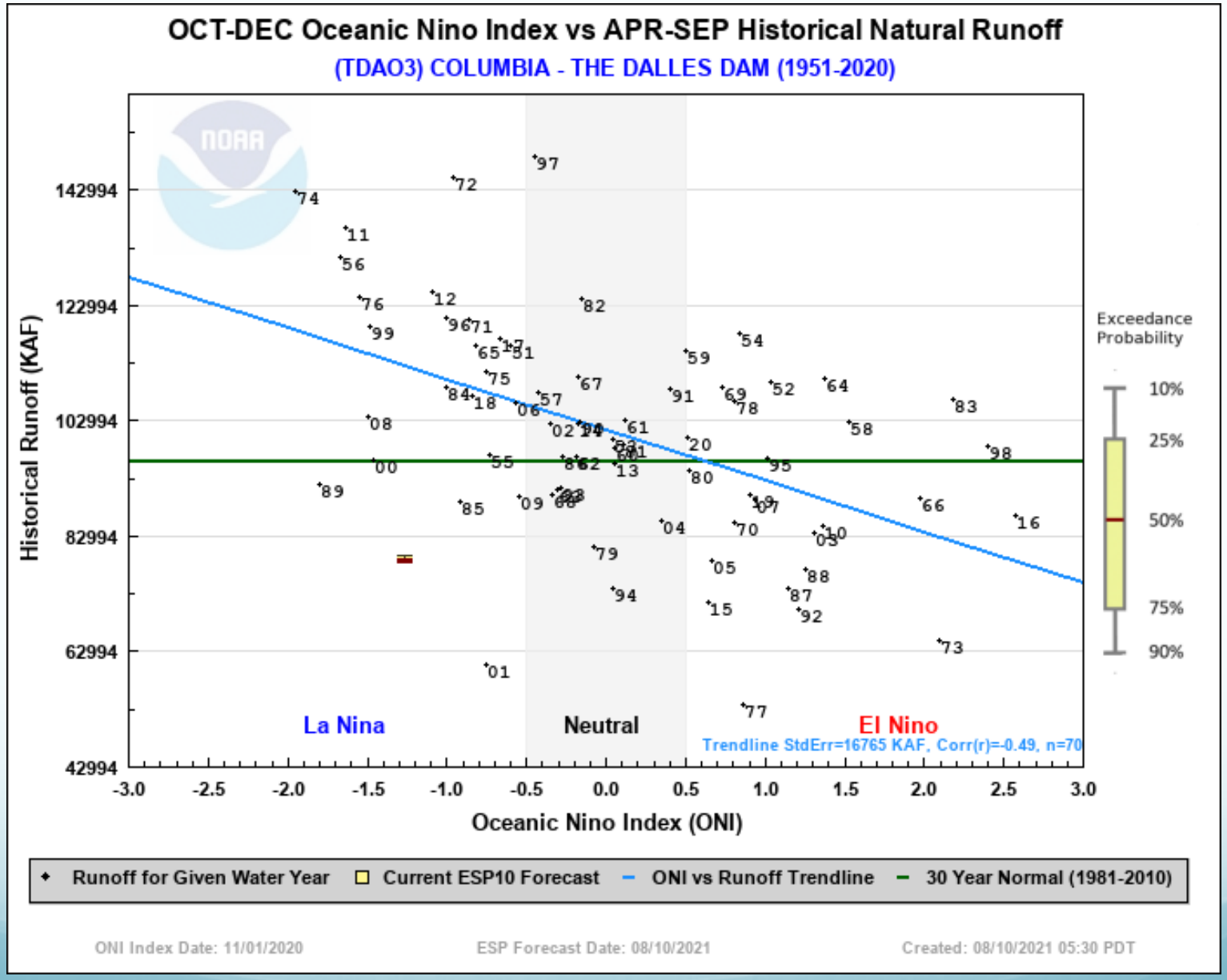



Typical Wintertime Pattern
La Niña
Polar Jet Stream
High Pressure
H
Cool
Wet & Cool
Wet
Wet
Dry & Warm
Pacific Jet Stream
NWS/NCEP
Climate Prediction Center
NOAA

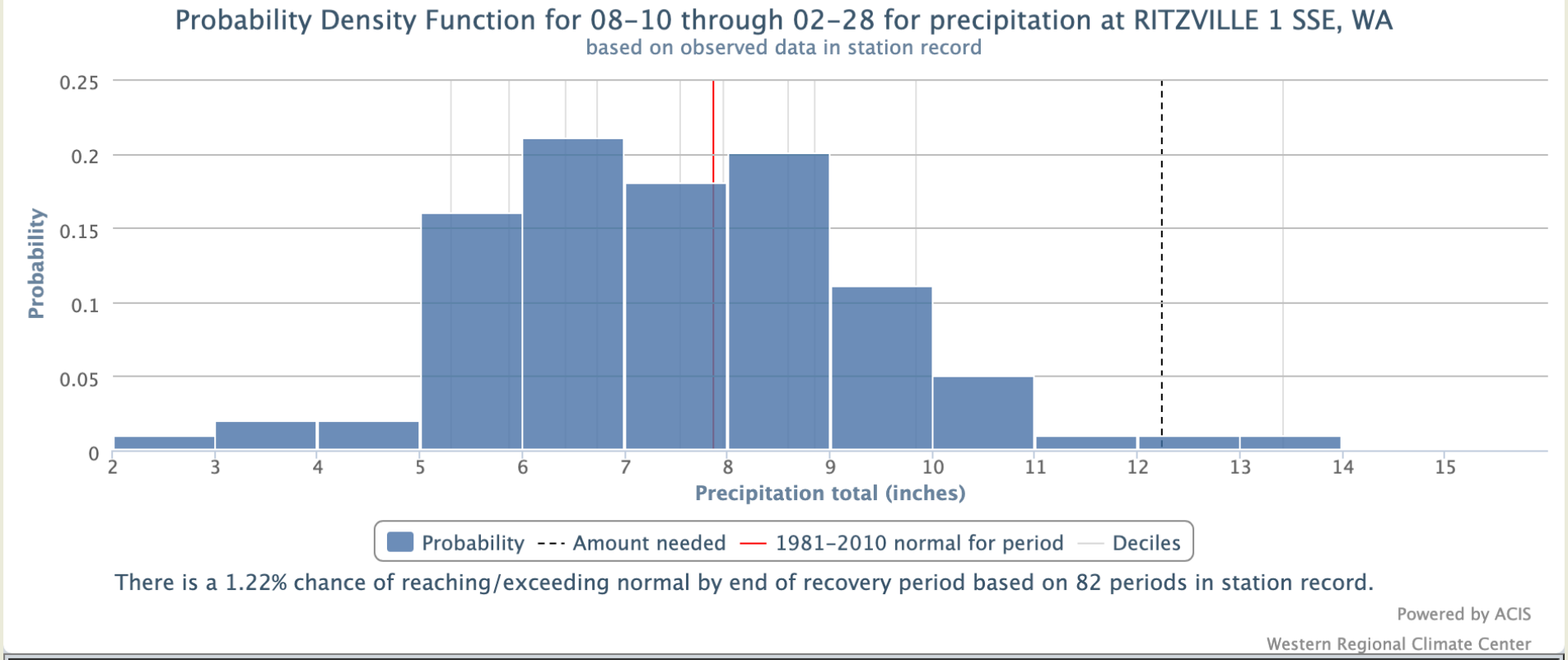
ENSO Predictions






OCT-DEC Oceanic Nino Index vs APR-SEP Historical Natural Runoff
(TDAO3) COLUMBIA - THE DALLES DAM (1951-2020)
Historical Runoff (KAF)
142994
122994
102994
82994
62994
42994
-3.0
-2.5
-2.0
-1.5
-1.0
-0.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
Oceanic Nino Index (ONI)
La Nina
Neutral
El Nino
Trendline StdErr=16765 KAF, Corr(r)=-0.49, n=70
Exceedance Probability
10%
25%
50%
75%
90%
Runoff for Given Water Year
Current ESP10 Forecast
ONI vs Runoff Trendline
30 Year Normal (1981-2010)
ONI Index Date: 11/01/2020
ESP Forecast Date: 08/10/2021
Created: 08/10/2021 05:30 PDT

Chance of Enough Precipitation to Bring the Annual Total to Normal: Ritzville, WA



Analysis for: RITZVILLE 1 SSE, WA ? How to interpret graph	
Precipitation accumulated from 2021-03-01 to 2021-08-09: **0.51 in. (0 missing days)**	There is a deficit of 4.37 in. for this period. Normal for this period is 4.88 in.
Amount needed to reach/exceed normal by 2022-02-28: **12.24 in.**	Likelihood of recovery between 2021-08-10 and 2022-02-28: **1.22%**
82 of 122 records used based on station record 1899-03-01 to 2021-08-09	

Summary

- Many droughts in the Pacific NW can be attributed to paltry snowpack associated with warm and/or dry winters.
- The drought of 2021 is primarily associated with the warm and dry weather that prevailed in WA during the spring (March through June).
- Over the last 50 years, our summers have become warmer (and drier).
- La Niña conditions in the tropical Pacific may help produce a decent mountain snowpack in the winter of 2021-22, but it is unlikely there will be enough precipitation to eliminate deficits in eastern WA.