

Regional Climate Perspective

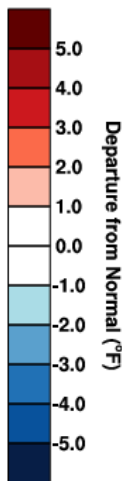
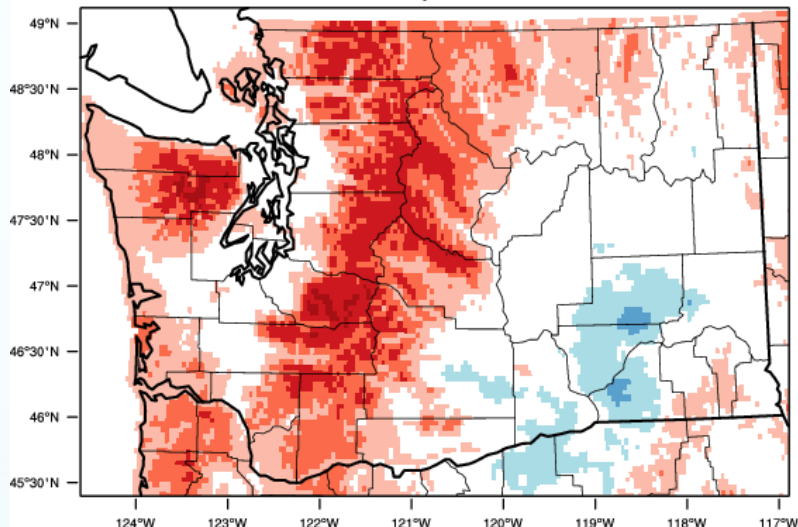
Nick Bond & Karin Bumbaco
Office of the Washington State Climatologist
Joint Institute for the Study of Atmosphere and Ocean
University of Washington
7 December 2018

2019 Water Year

Temperature

Washington - Mean Temperature

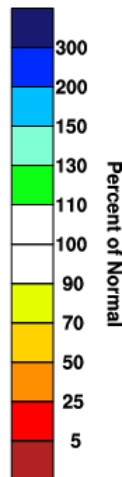
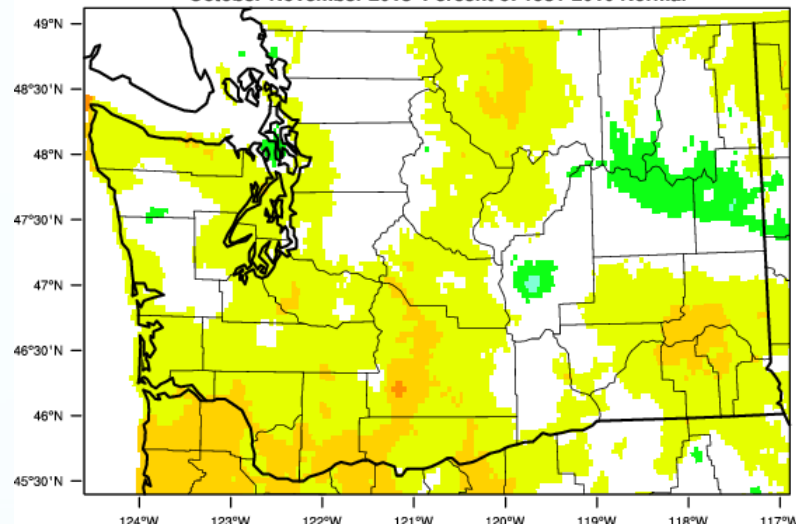
October-November 2018 Departure from 1981-2010 Normal



Precipitation

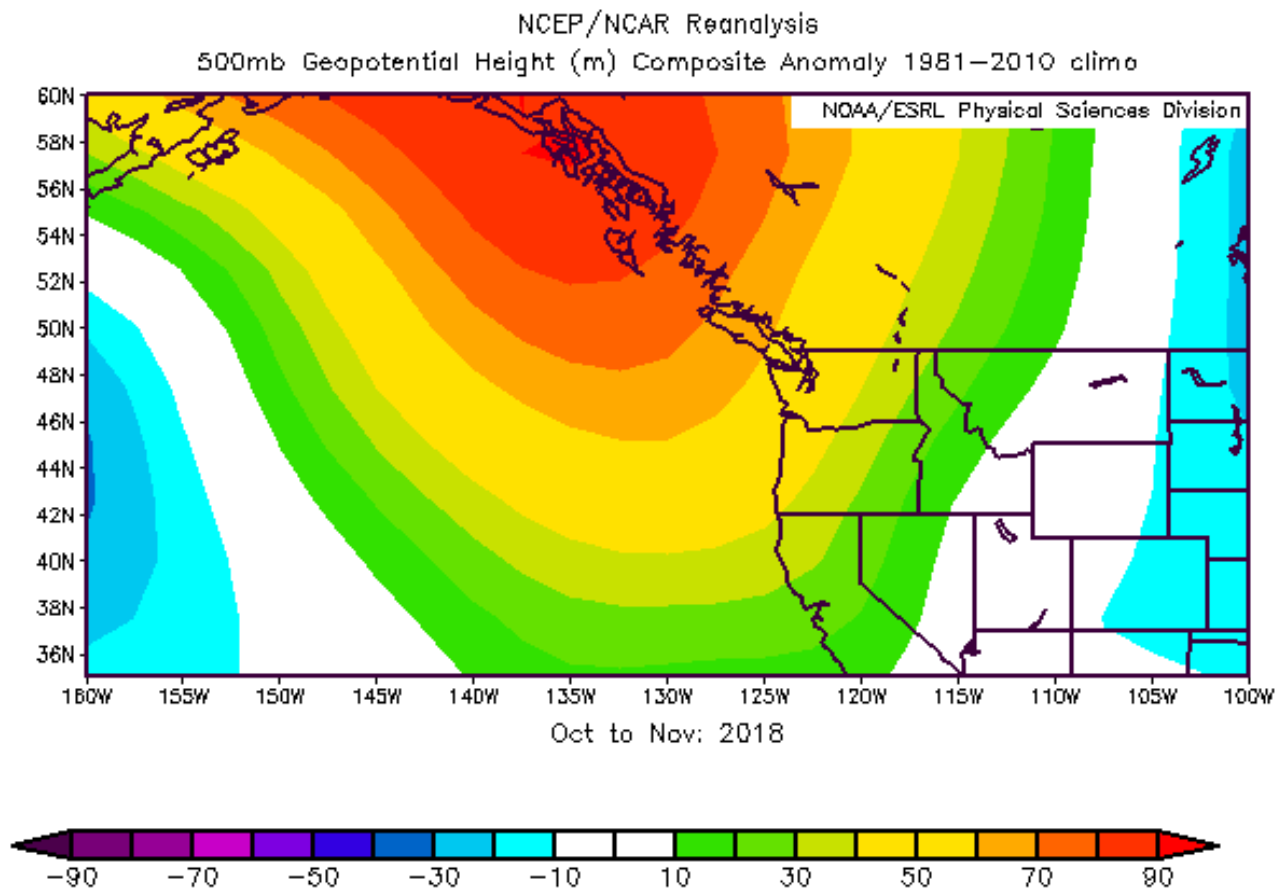
Washington - Precipitation

October-November 2018 Percent of 1981-2010 Normal

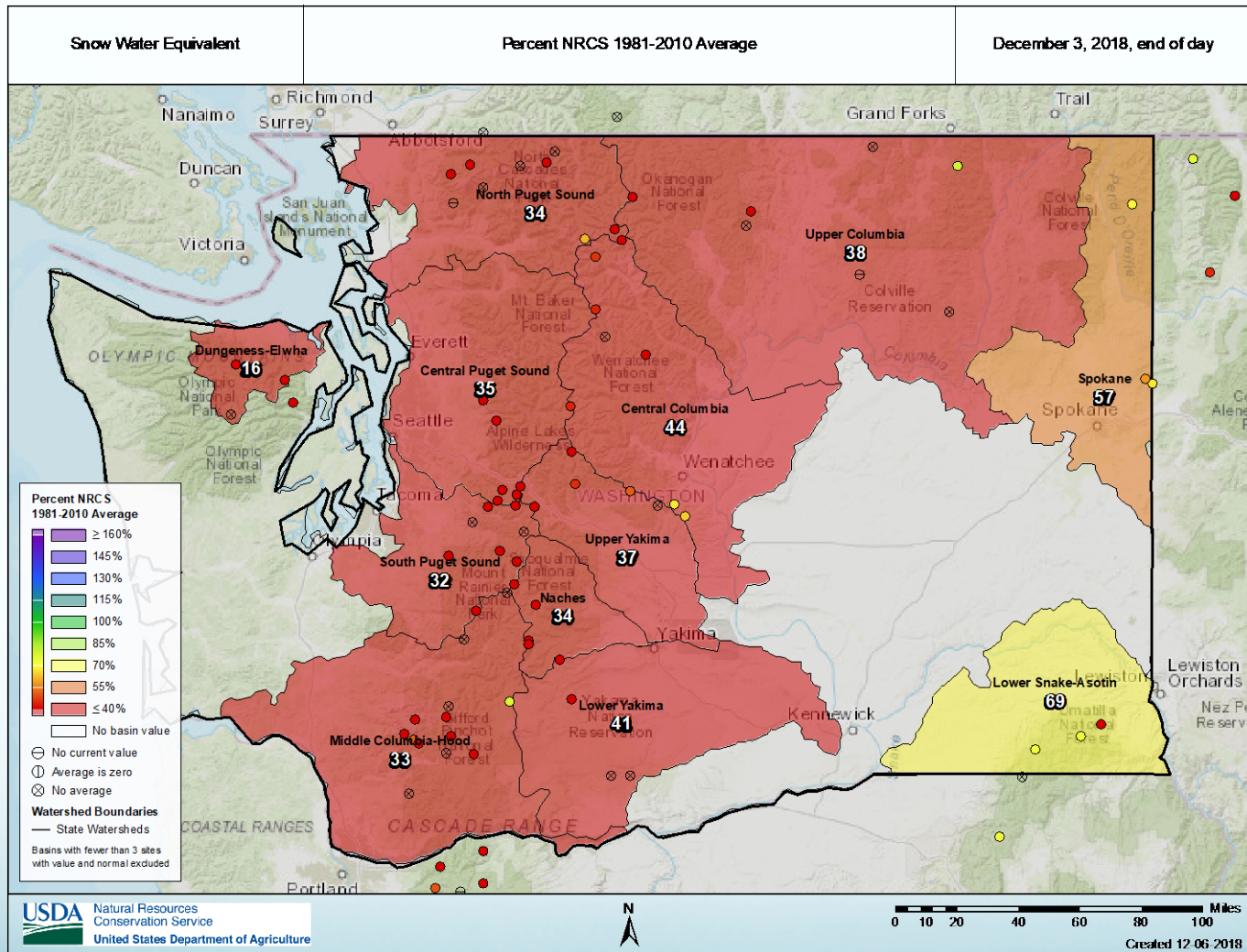


- Temperatures near-normal to above normal for a majority of the state
 - Oct-Nov temperatures in mountains in top 10% historically
- Precipitation near-normal to below normal
 - Not a record in terms of historical rankings

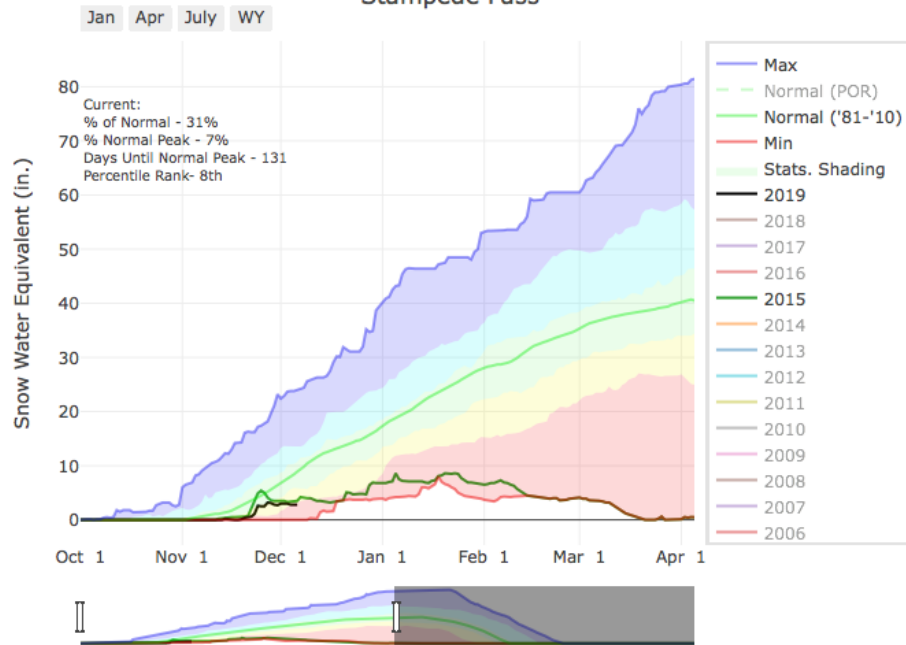
October-November 2018 500 mb Geopotential Height Anomalies



Dec 3 SWE

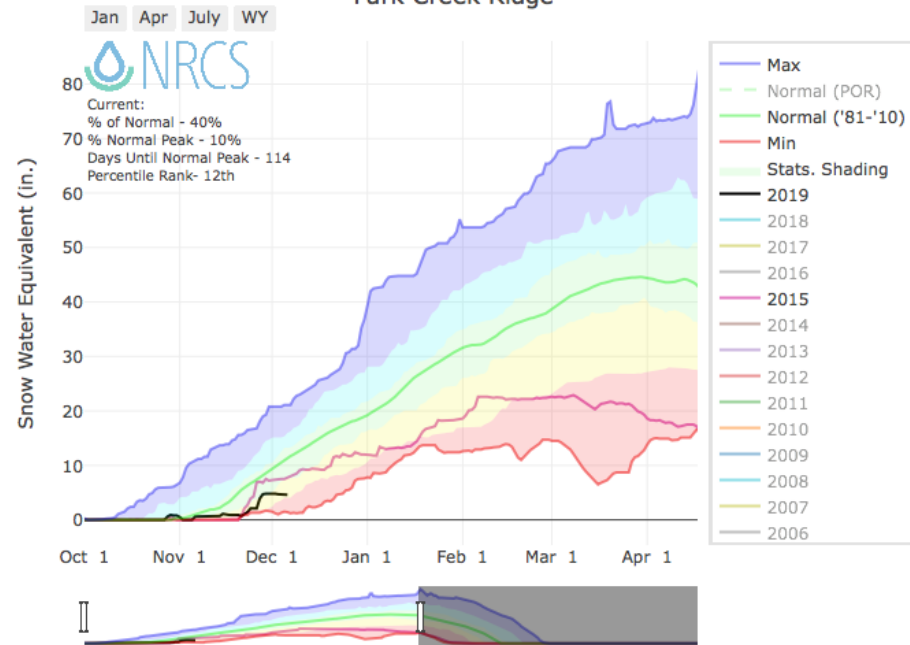


Snow Water Equivalent at Stampede Pass



8th percentile

Snow Water Equivalent at Park Creek Ridge

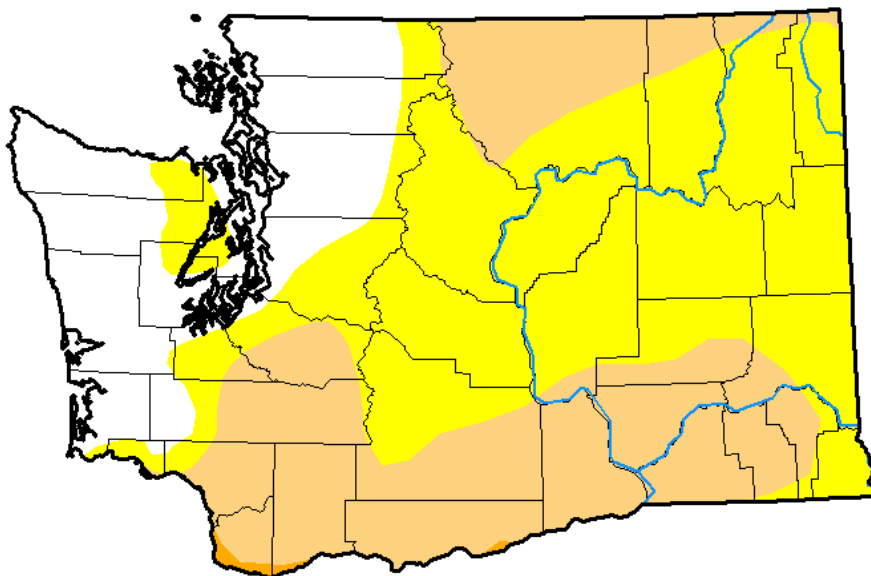


12th percentile

US Drought Monitor

U.S. Drought Monitor Washington

December 4, 2018
(Released Thursday, Dec. 6, 2018)
Valid 7 a.m. EST



Intensity:

- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

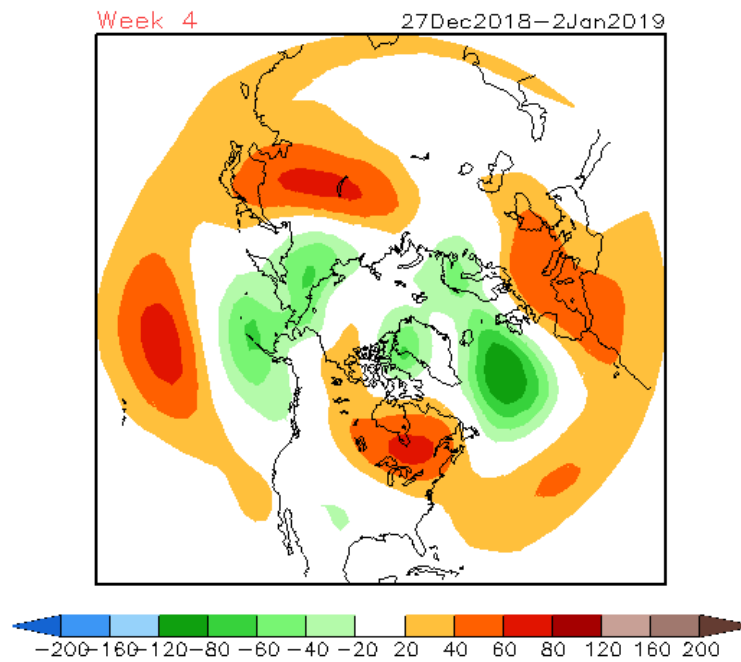
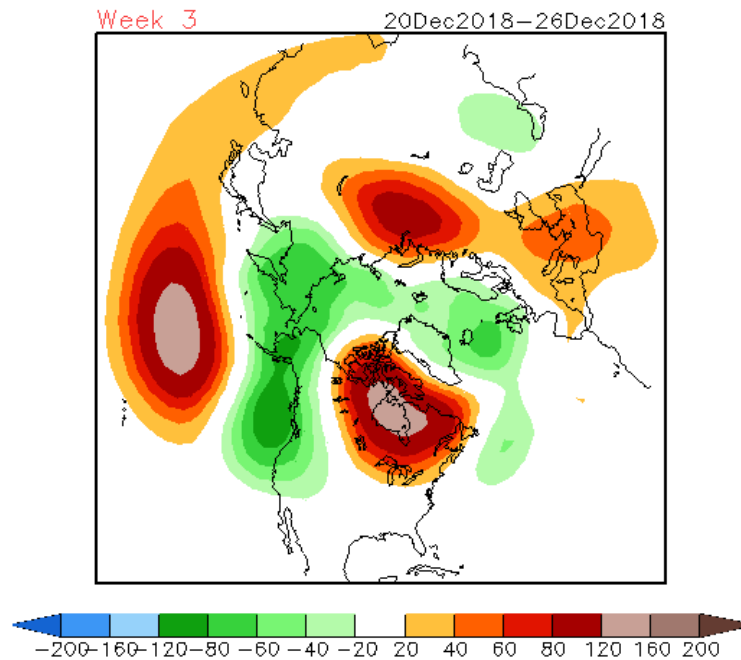
The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

Author:

Deborah Bathke
National Drought Mitigation Center



<http://droughtmonitor.unl.edu/>



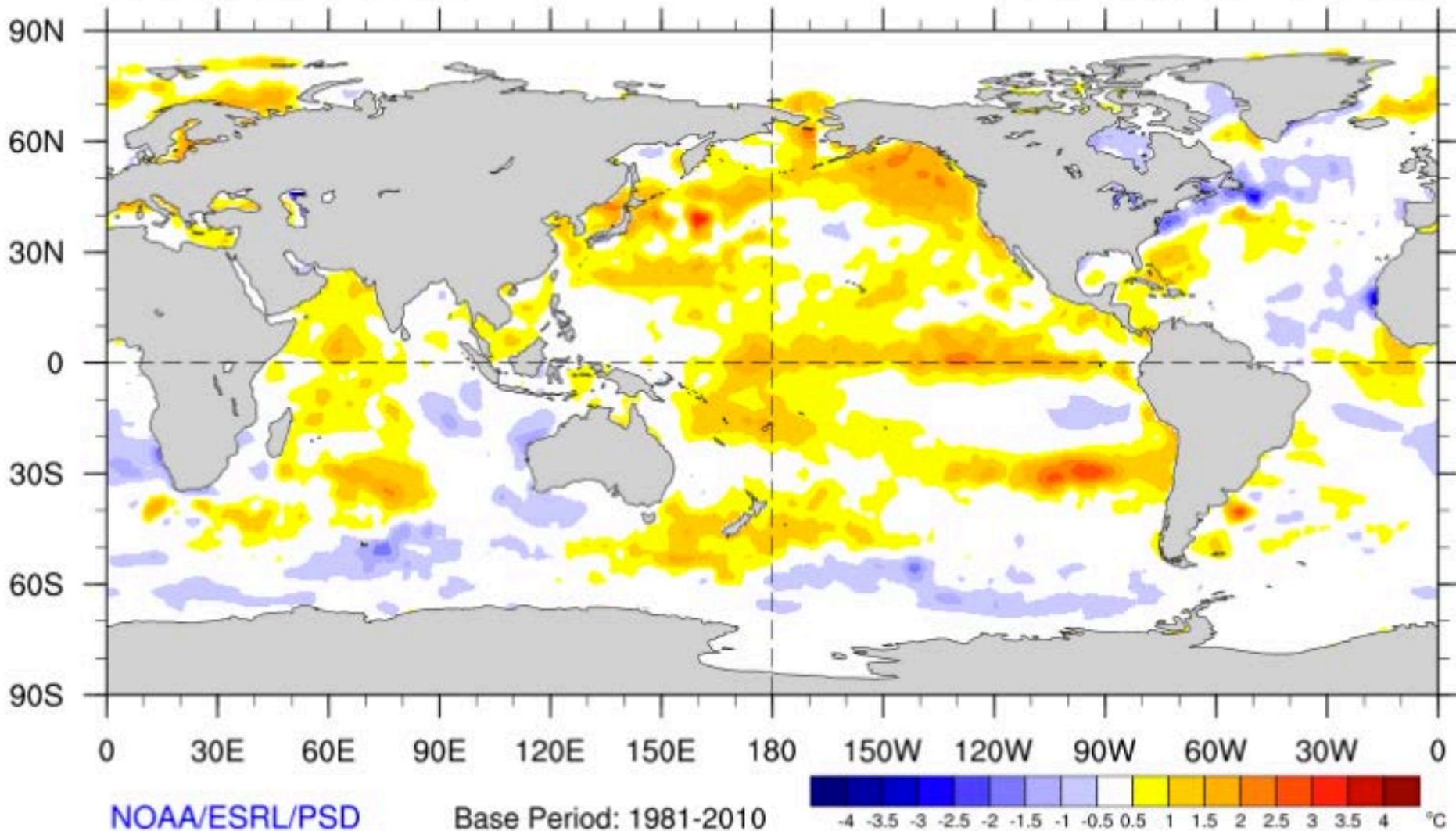
Latest Set of Week 3-4
Forecasts from CFSv2

Anomalously low
500 hPa Z off the coast
of the Pac NW early
and the Aleutians late:
Mostly warmer
than normal for WA
state, wet for the entire
US west coast

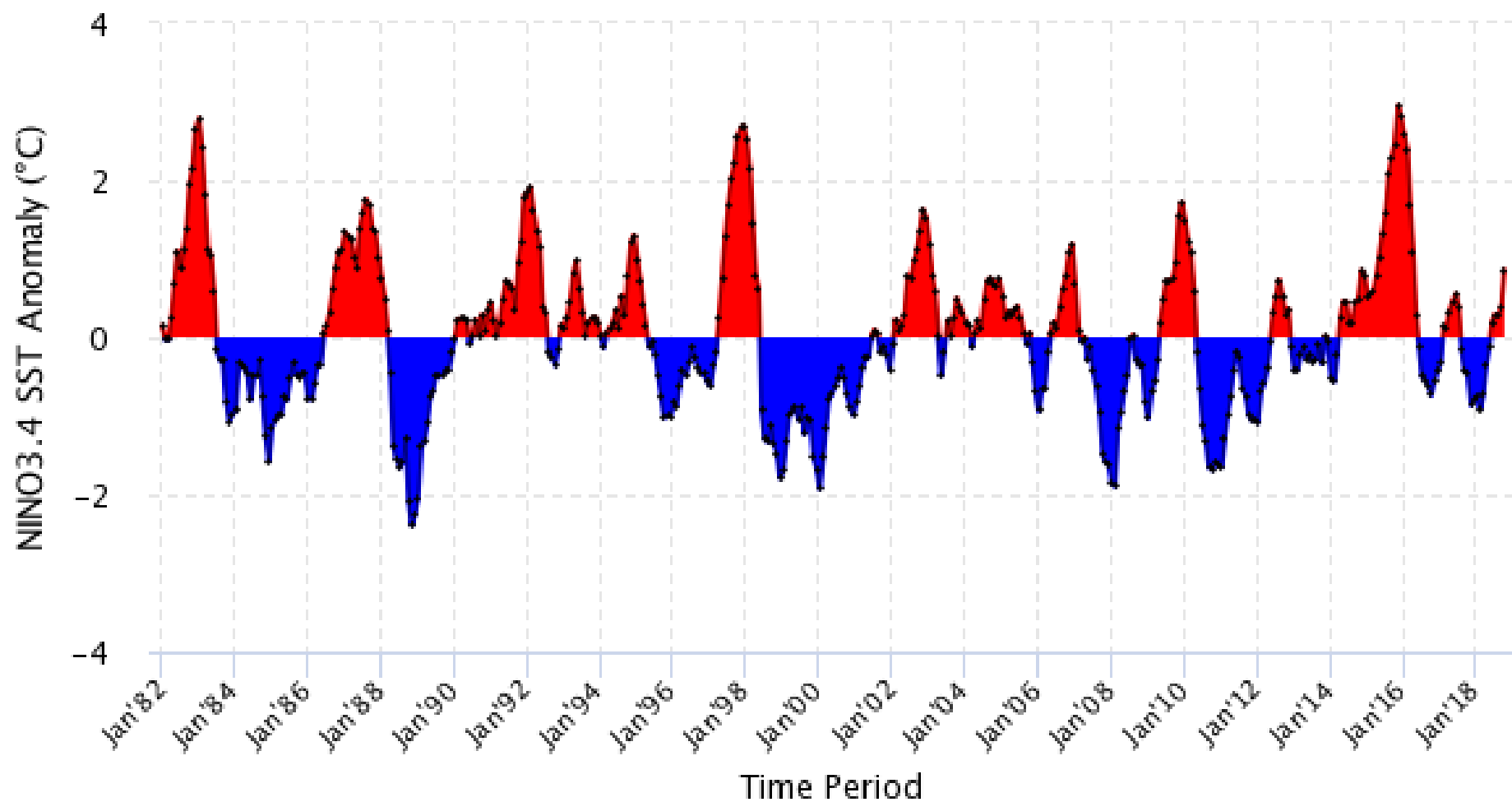
Recent North Pacific SST Anomalies

Weekly SST Anomaly

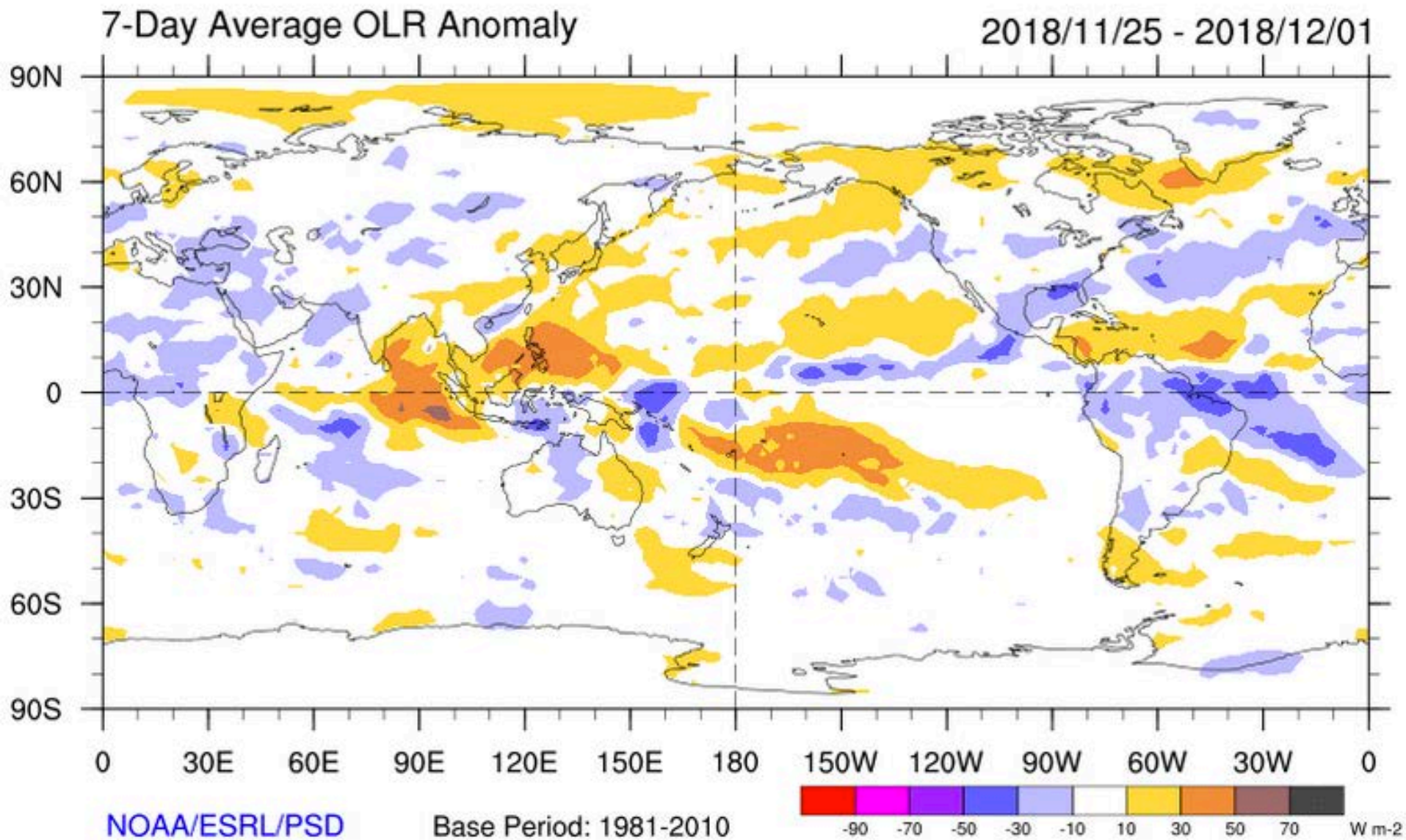
2018/11/25 - 2018/12/01



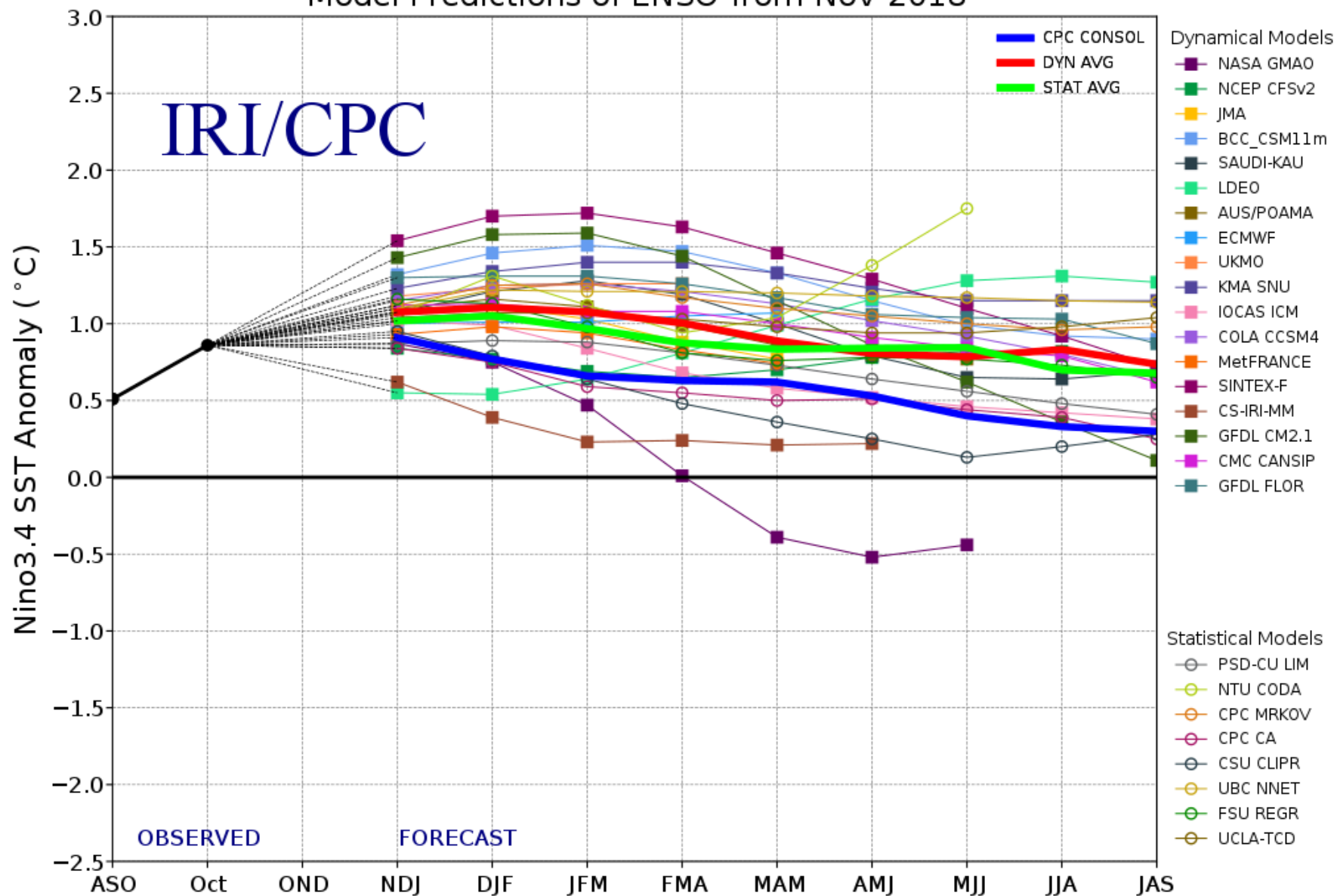
Historical Nin3.4 Sea Surface Temperature Anomaly



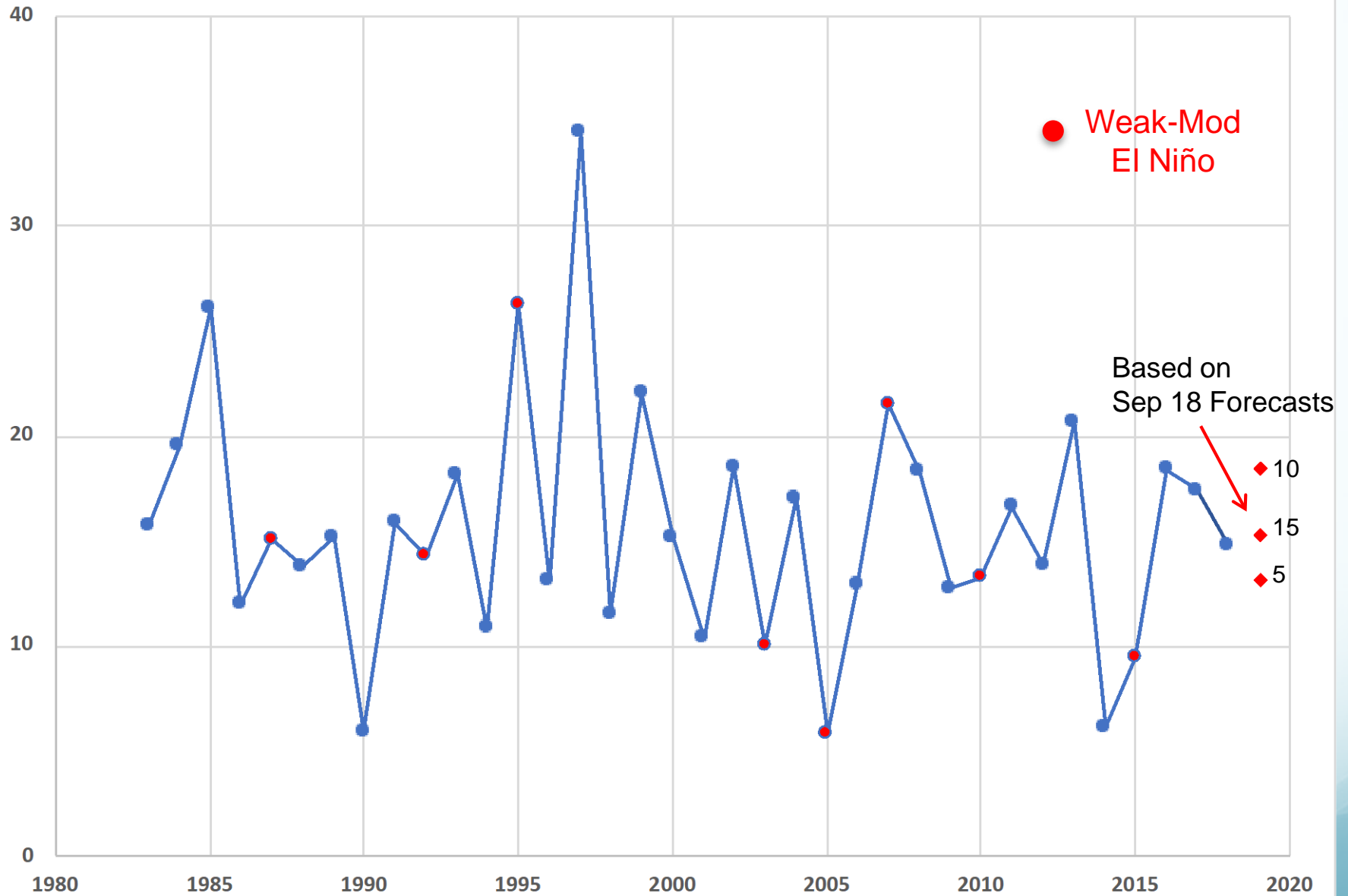
Recent Outgoing Longwave Radiation (Deep Convection) Anomalies



Model Predictions of ENSO from Nov 2018

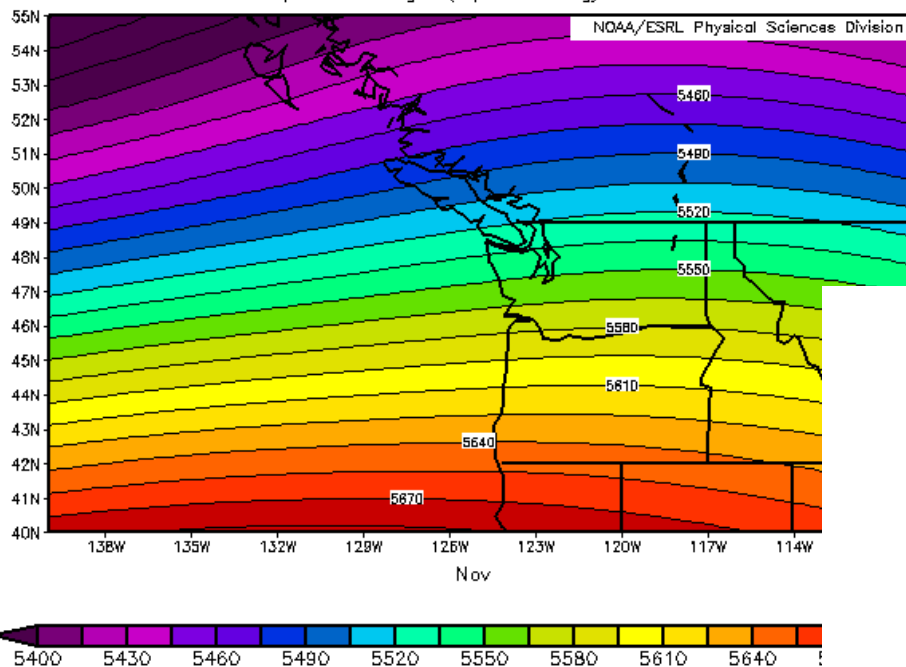


Composite 1 January Snow Water Equivalent



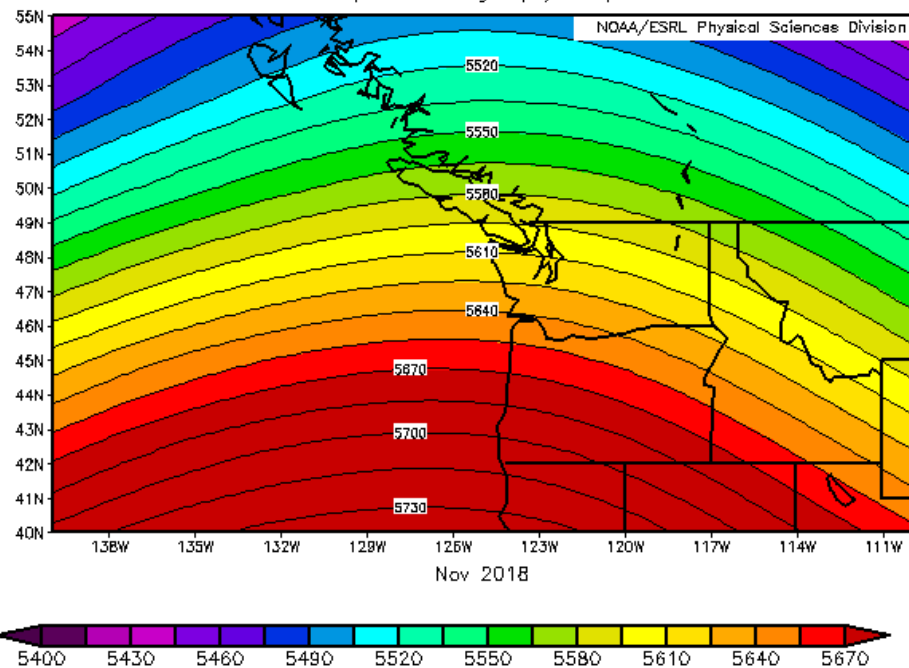
Climatological Mean

NCEP/NCAR Reanalysis
500mb Geopotential Height (m) Climatology 1981–2010 climo

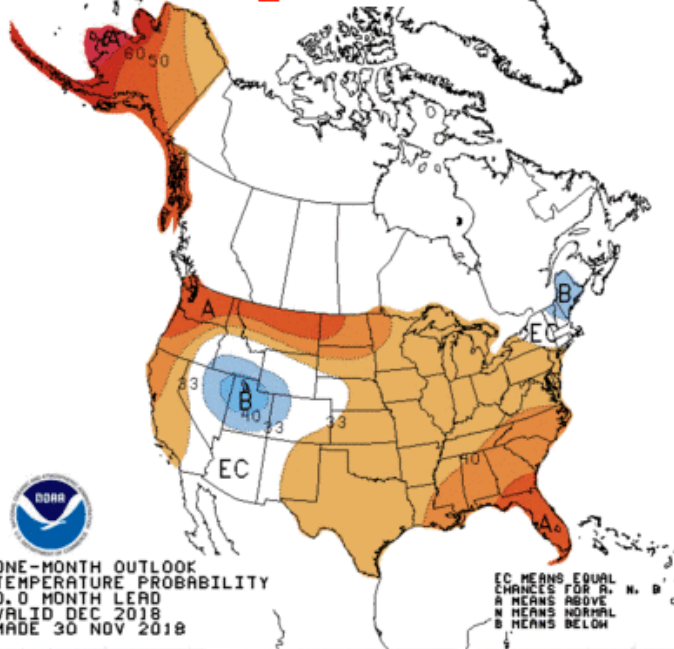


November 2018

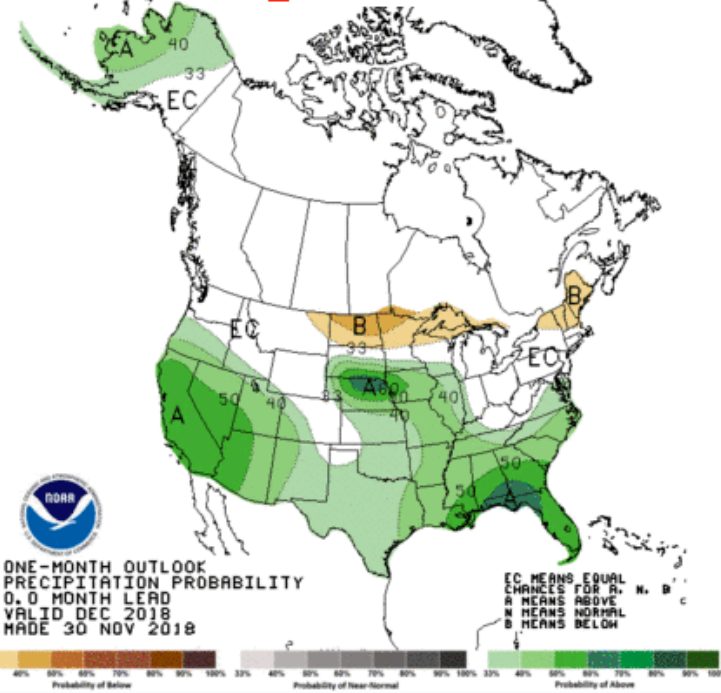
NCEP/NCAR Reanalysis
500mb Geopotential Height (m) Composite Mean



Dec_2018

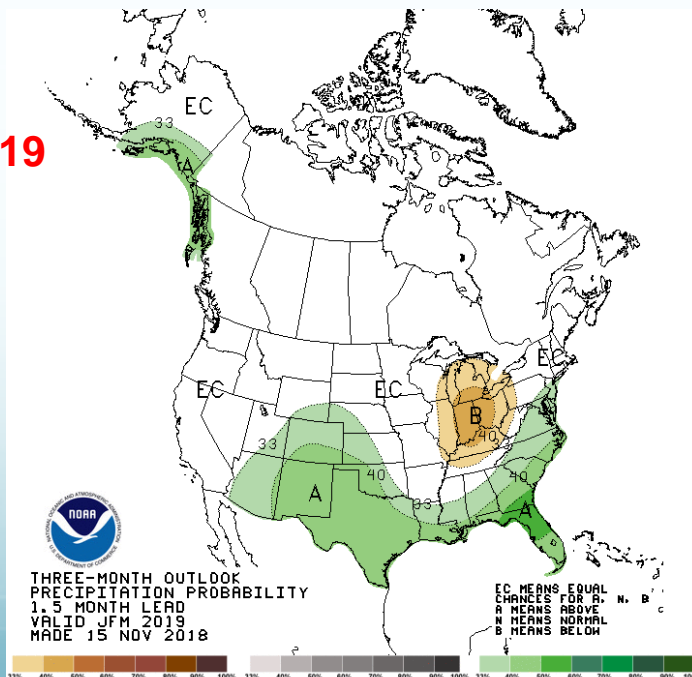
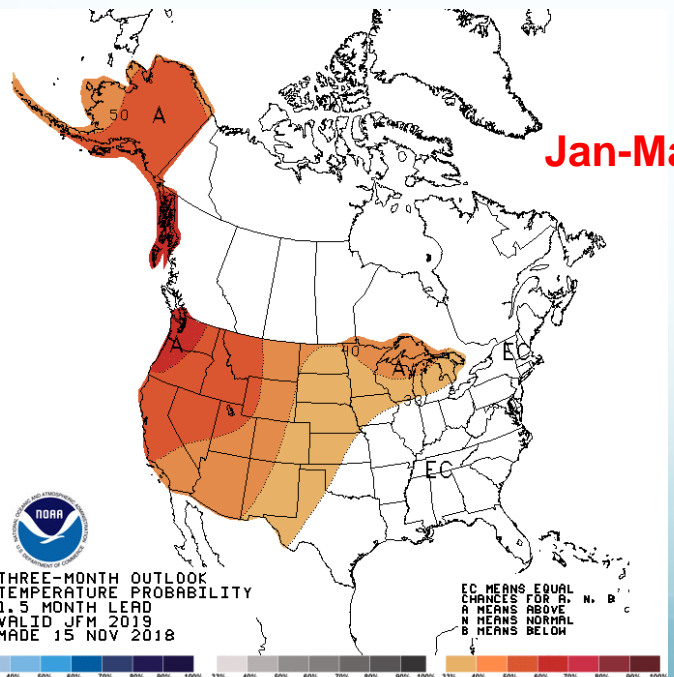


Dec_2018



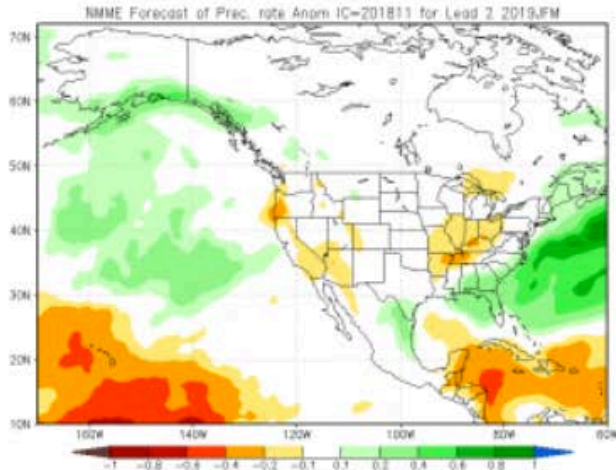
NOAA/CPC Forecasts

Jan-Mar 2019

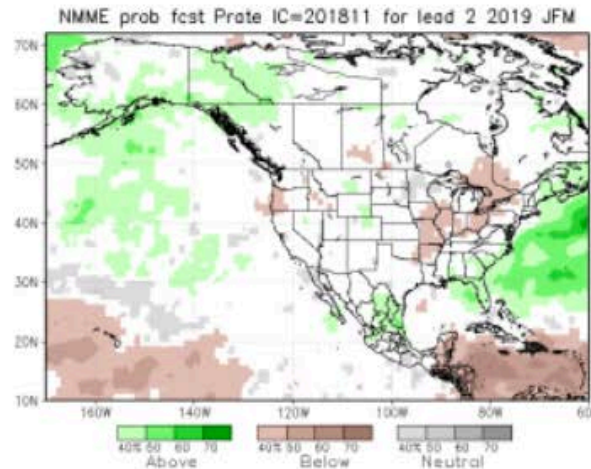


Climate Model Projections for JFM 2019 Precipitation

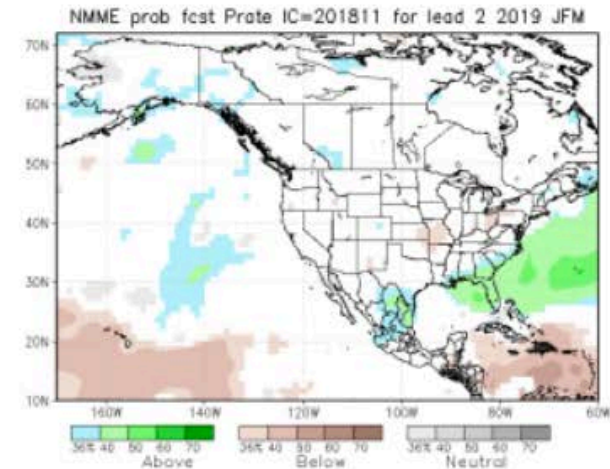
NMME



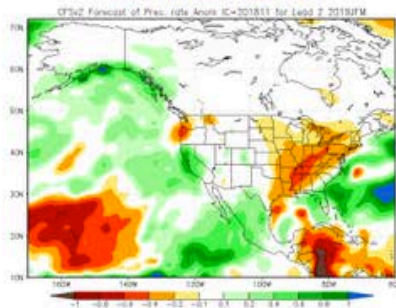
Prob fcst



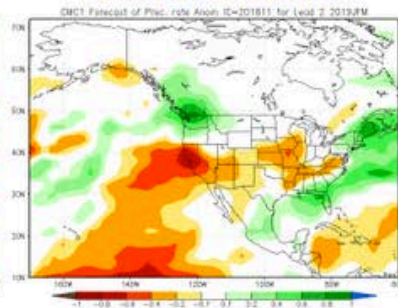
PAC calib. prob fcst



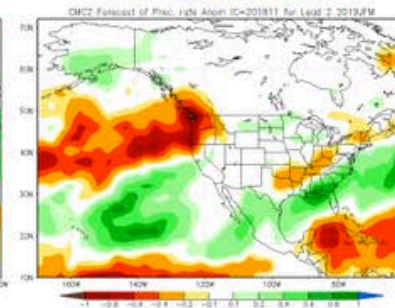
NCEP CFSv2



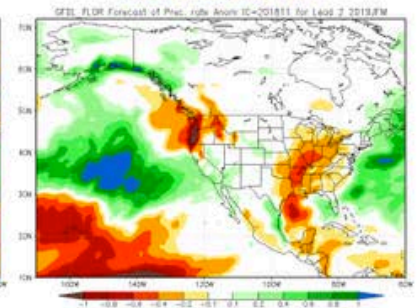
CMC1 CanCM3



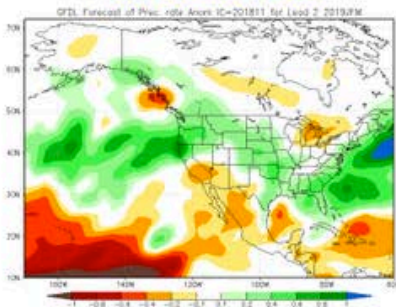
CMC2 CanCM4



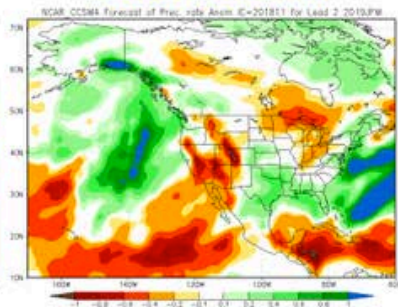
GFDL FLOR



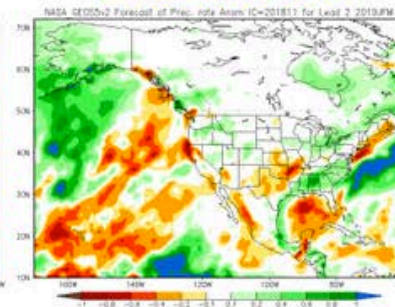
GFDL CM2.1



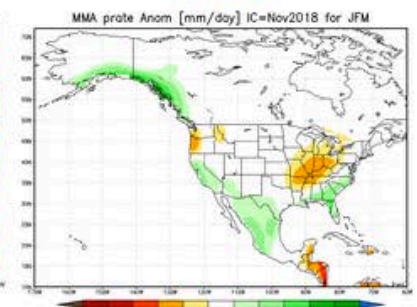
NCAR CCSM4



NASA GEOS5v2



IMME



Final Remarks

- 2019 water year has started on the warm and dry side
- The snowpack is meager – lower than 2015 at this point in the season – but it is too soon to panic
- The remainder of the calendar year is apt to include plenty of precipitation, but also temperatures on the warm side
- El Niño of weak (maybe moderate) intensity is almost certain; anomalous warmth quite likely in early 2019
- The 2018-19 water year to date: What happens when you don't tip the climatologists