

Seasonal Climate Forecast

Nov. 2020 – Jan. 2021

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El Niño Southern Oscillation (ENSO)

Current Status and Forecast

- The July – September 2020 Oceanic Niño Index (ONI) cooled into the *La Niña* range (-0.6°C).
- The ONI lags real-time sea-surface temperatures (SSTs), which have cooled to well-below *La Niña* thresholds across the tropical Pacific.
- NOAA's Climate Prediction Center (CPC) has issued a *La Niña Advisory* and expects *La Niña* to continue at least through this winter.
- Tropical Pacific SSTs are much colder than they were the past two autumns. *El Niño* conditions developed both of those winters.

IMPORTANT NOTE: Beginning with the October 2017 update, ONI values use ERSSTv5 data (Huang et al. 2017, J. Climate, vol. 30, 8179-8205).

Forecast Highlights

- The analog-years (1959-60; 1970-71; 1995-96) are unchanged from last month. Both 1970-71 & 1995-96 had **La Niña** events, during the fall and winter period, but 1959-60 stayed **ENSO-neutral**.
- Higher-than-normal amplitude in the upper-air patterns is likely, but the placement of the mean ridges and troughs will vary monthly. Expect periods of significant storminess, especially in December and January.
- Look for a transition from relatively-mild conditions, in November, to relatively-cold weather from about Christmas through January.
- **Important note:** Prepare for markedly more volatile weather than we had the past two winters, which were tempered by **El Niño** conditions.

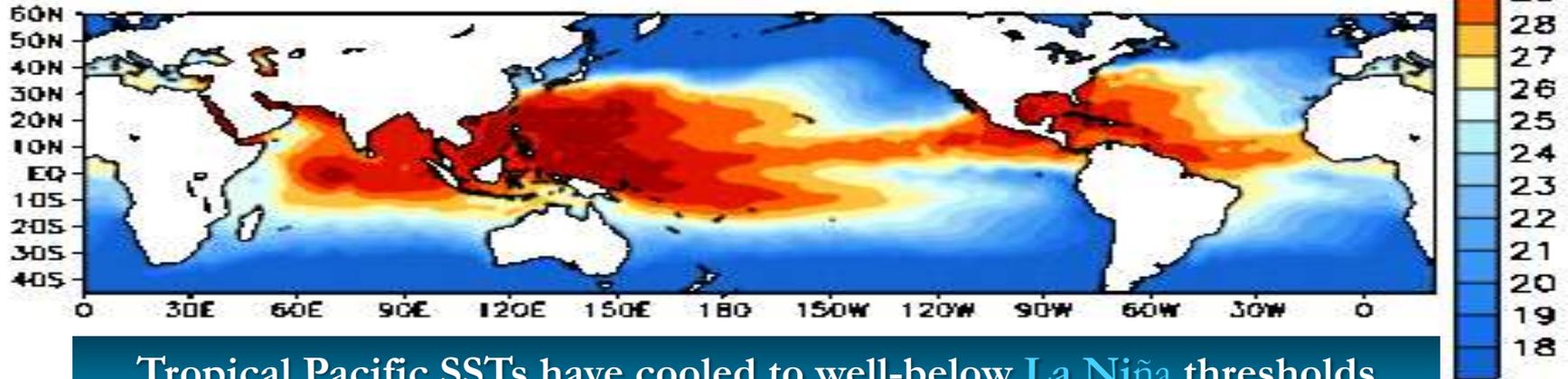
IMPORTANT NOTE: This forecast is based on past and current weather data and is not associated with CPC predictions (see “Forecasting Methods...” at: <https://oda.direct/Weather>) nor the official CPC “Three-Month Outlooks,” which are available here:

https://www.cpc.ncep.noaa.gov/products/predictions/long_range/seasonal.php?lead=1

Pacific Ocean

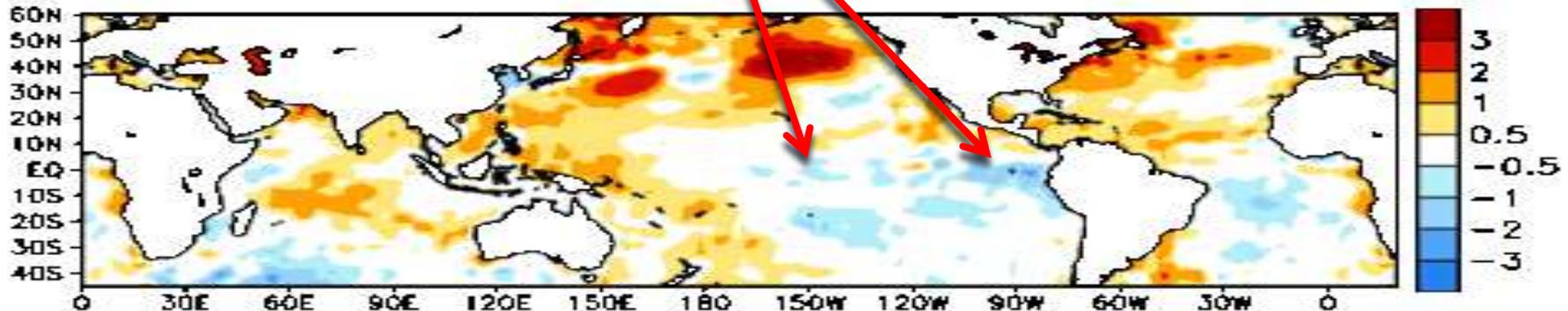
Animated (PowerPoint only) SSTs (top) / Anomalies (bottom)

Week centered on 22 JUL 2020
SST (°C)



Tropical Pacific SSTs have cooled to well-below La Niña thresholds

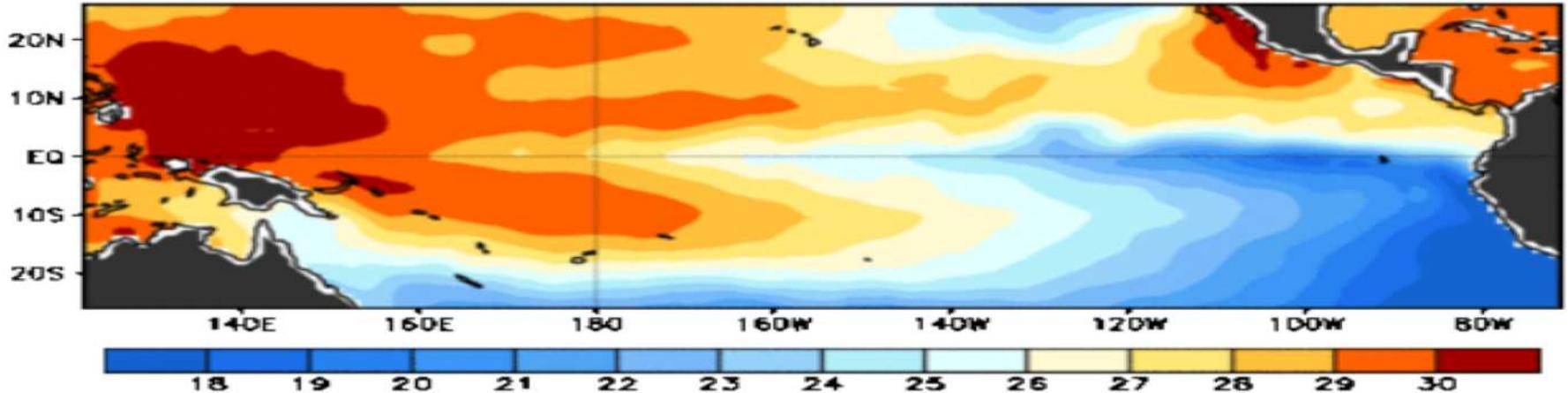
Anomalies (°C)



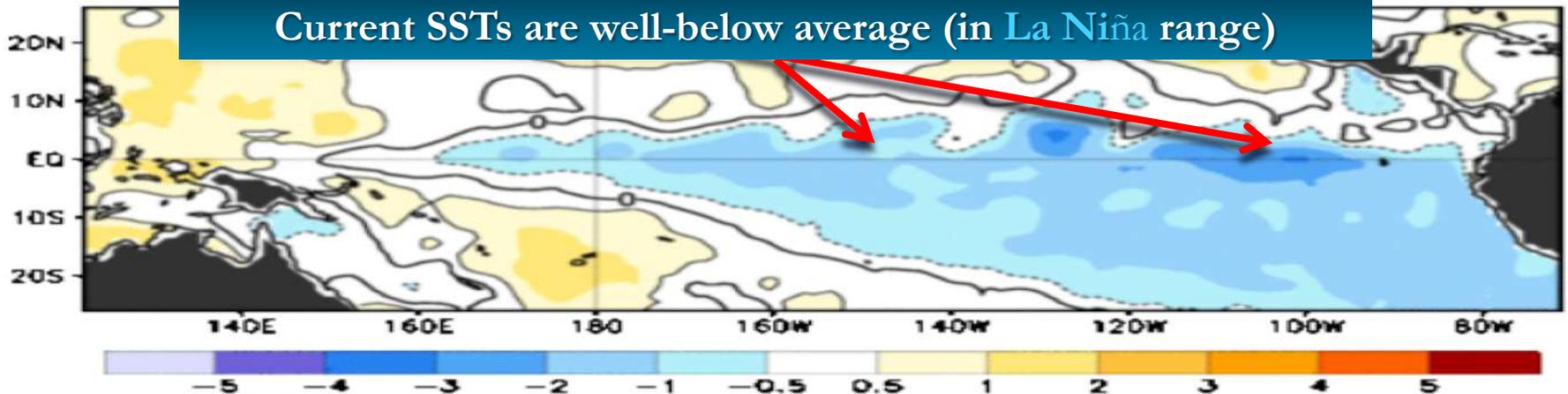
Tropical Pacific Ocean

La Niña Conditions Present

Observed Sea Surface Temperature (°C)



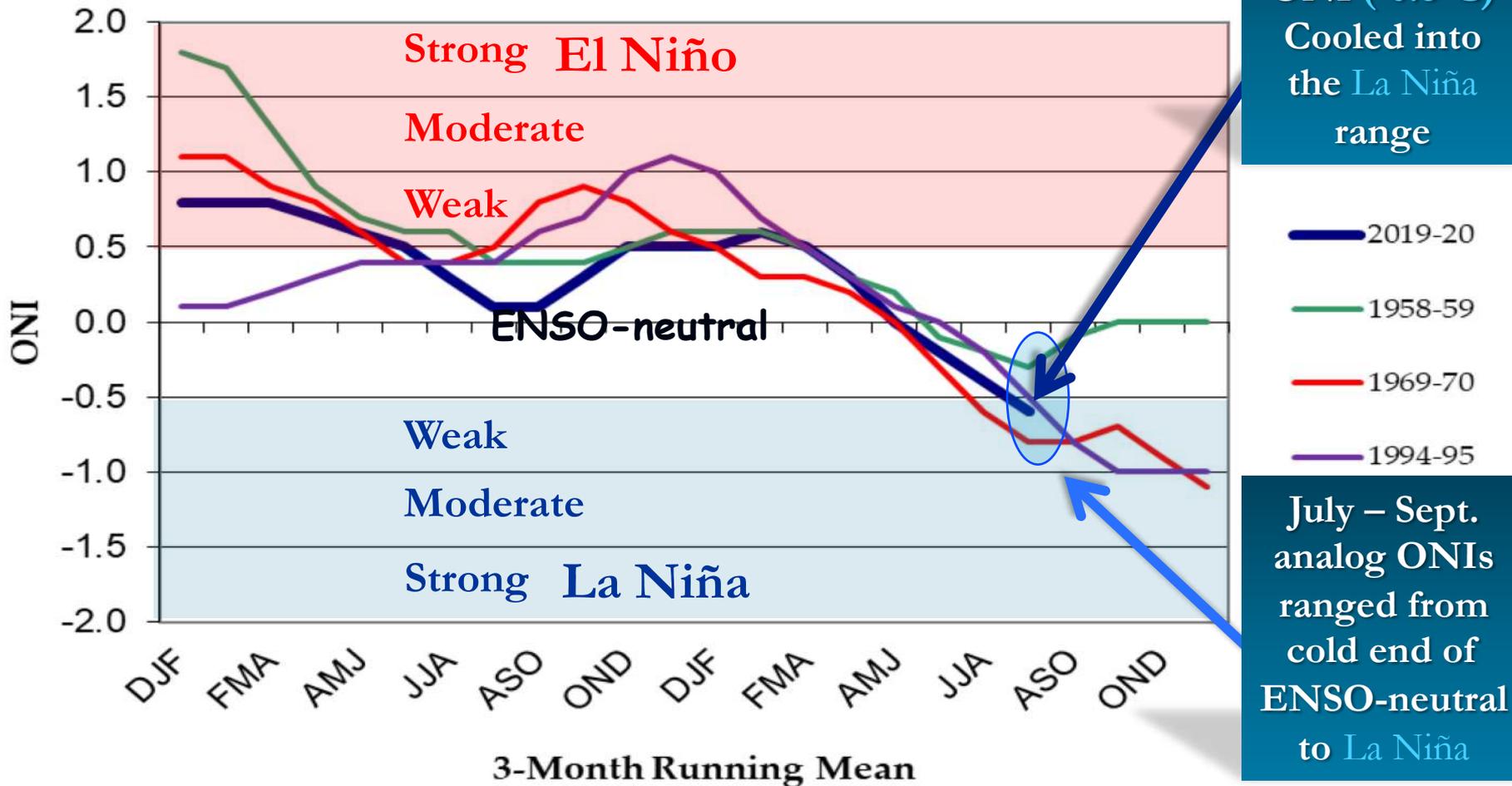
Observed Sea Surface Temperature Anomalies (°C)



7-day Average Centered on 07 October 2020

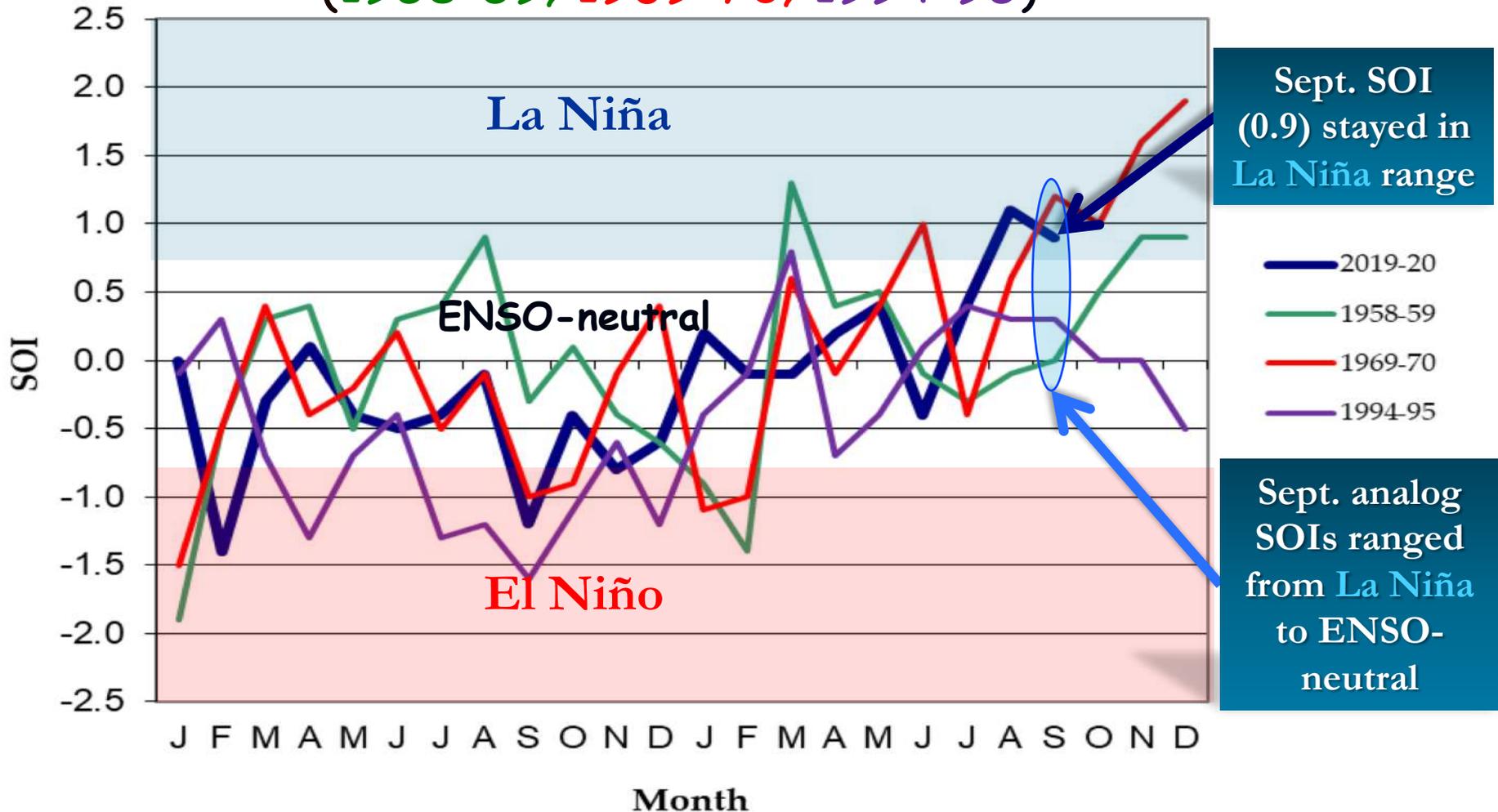
Tropical Pacific Ocean

ONI* values from the top "analog years"
 compared with the current period (2019-20)
 (1958-59; 1969-70; 1994-95)



Tropical Pacific Ocean

SOI* values from the top "analog years" compared with the current period (2019-20)
(1958-59; 1969-70; 1994-95)

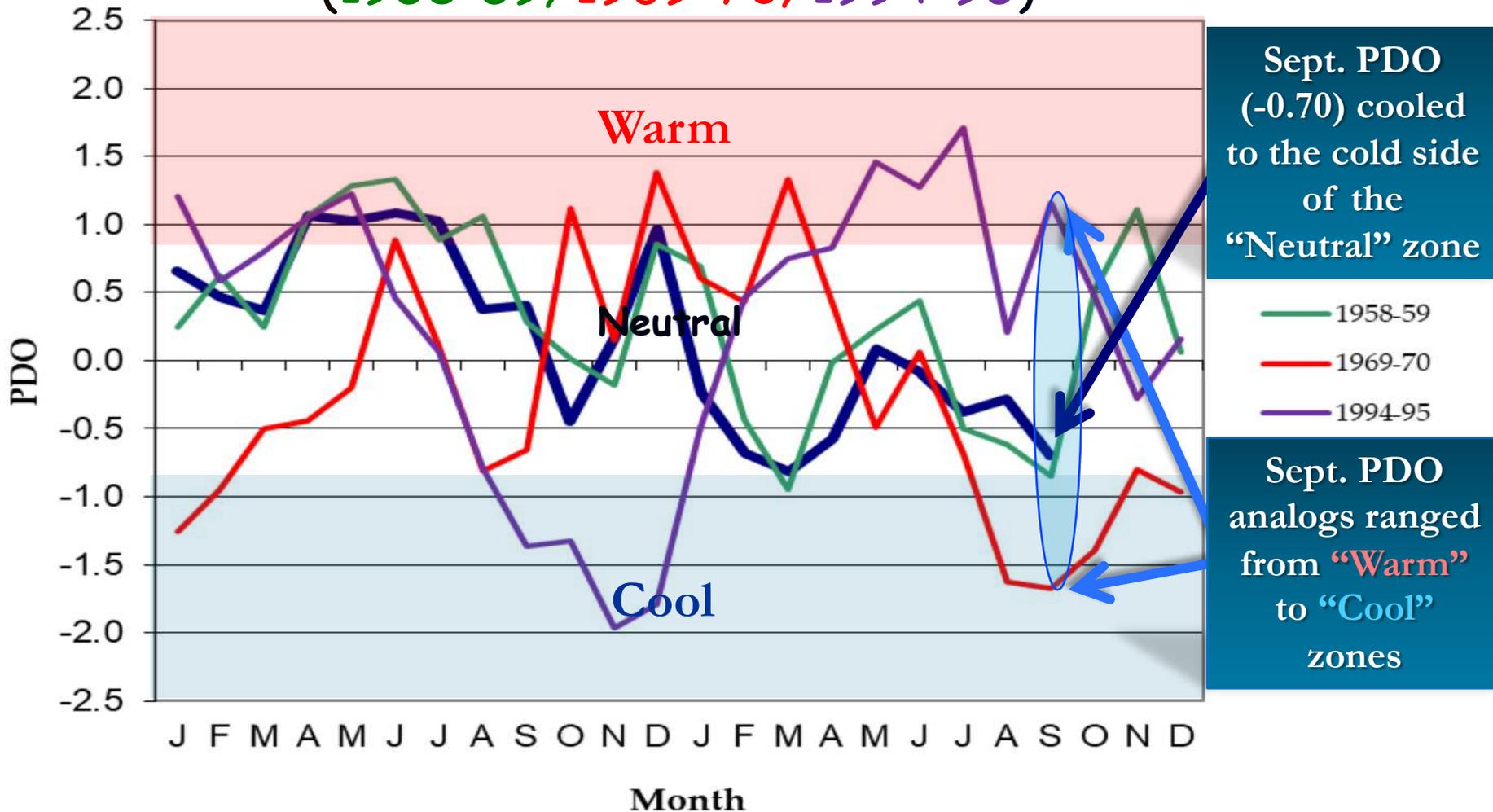


*SOI explanation via "Forecasting Methods..." at <https://oda.direct/Weather>

North Pacific Ocean

(Poleward of 20°N Latitude)

**PDO* values from the top "analog years"
compared with the current period (2019-20)**
(1958-59; 1969-70; 1994-95)

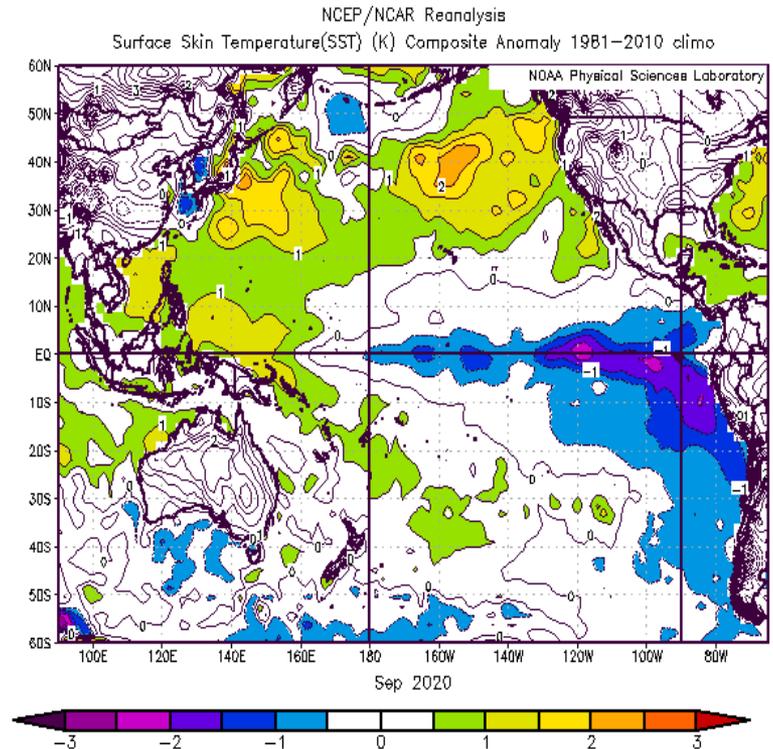
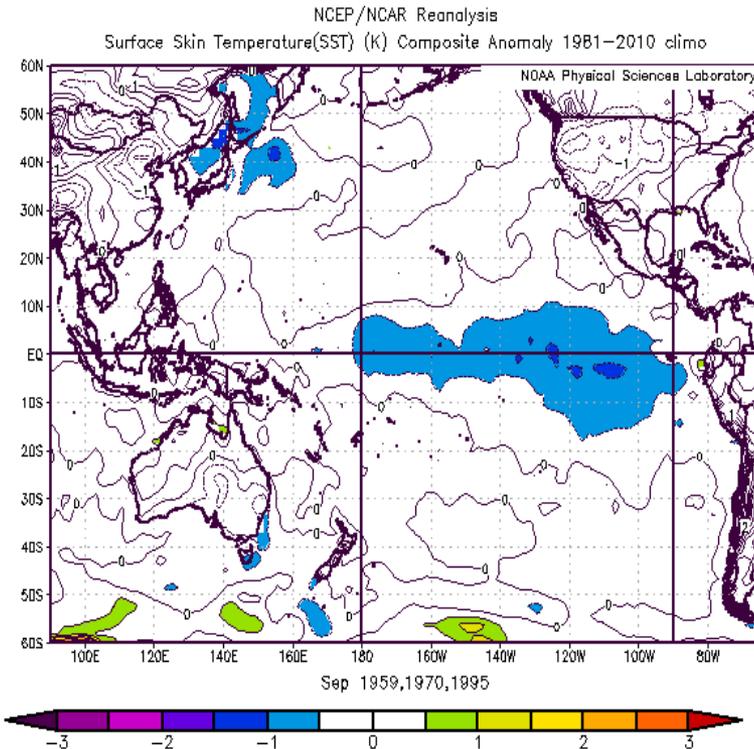


*To see PDO explanation, go to <https://oda.direct/Weather> and click on "Forecasting Methods."

SST Anomalies Comparison

Sept. Analog Composite

September 2020

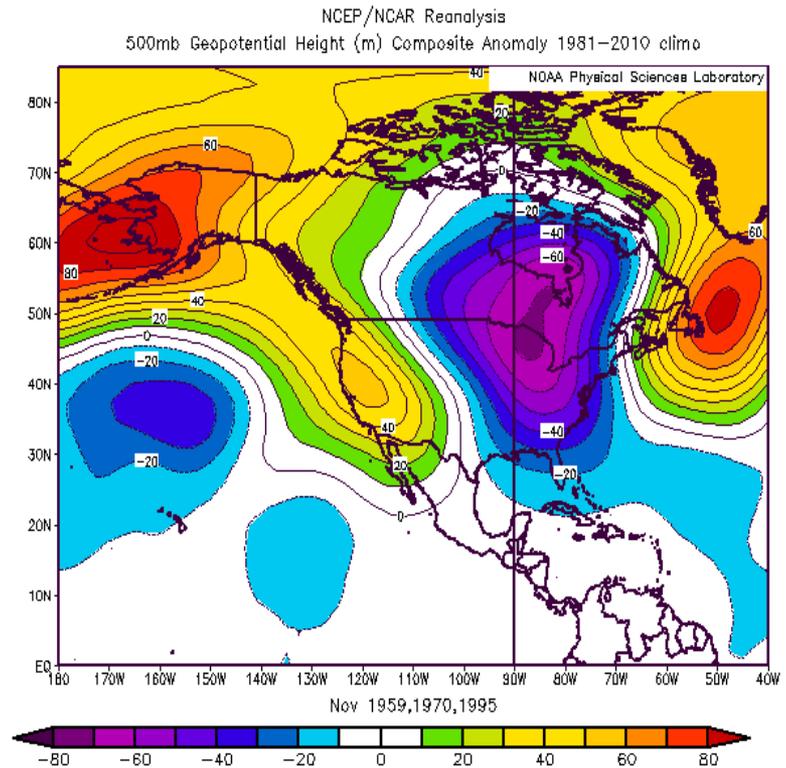
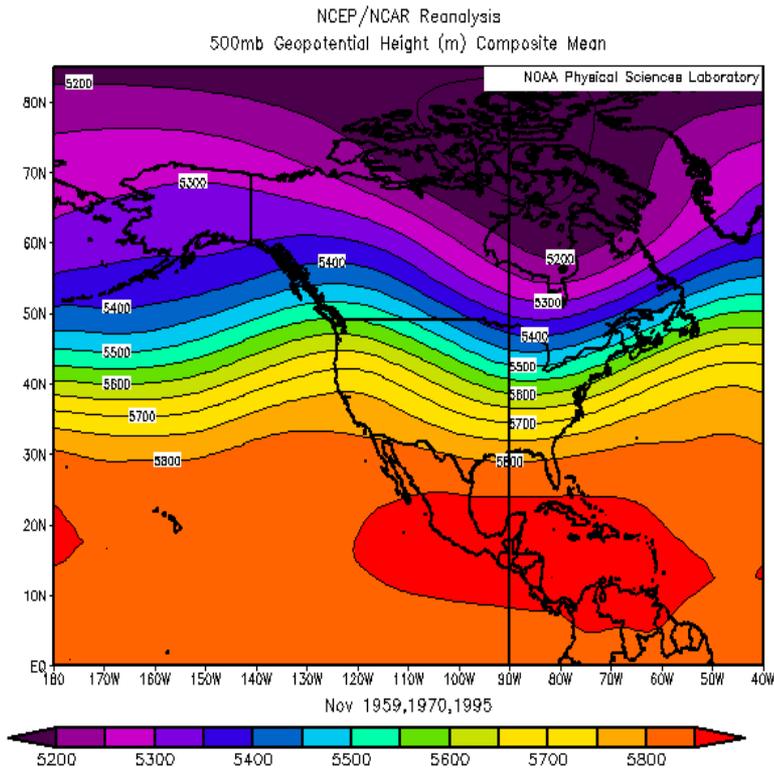


- The SST anomalies from the September analog composite (left) and from September 2020 (right) have similar (cool) patterns. They both show *La Niña* conditions across the tropical Pacific.

November 2020 Forecast

Mean Upper-Air Pattern

Upper-Air Anomalies

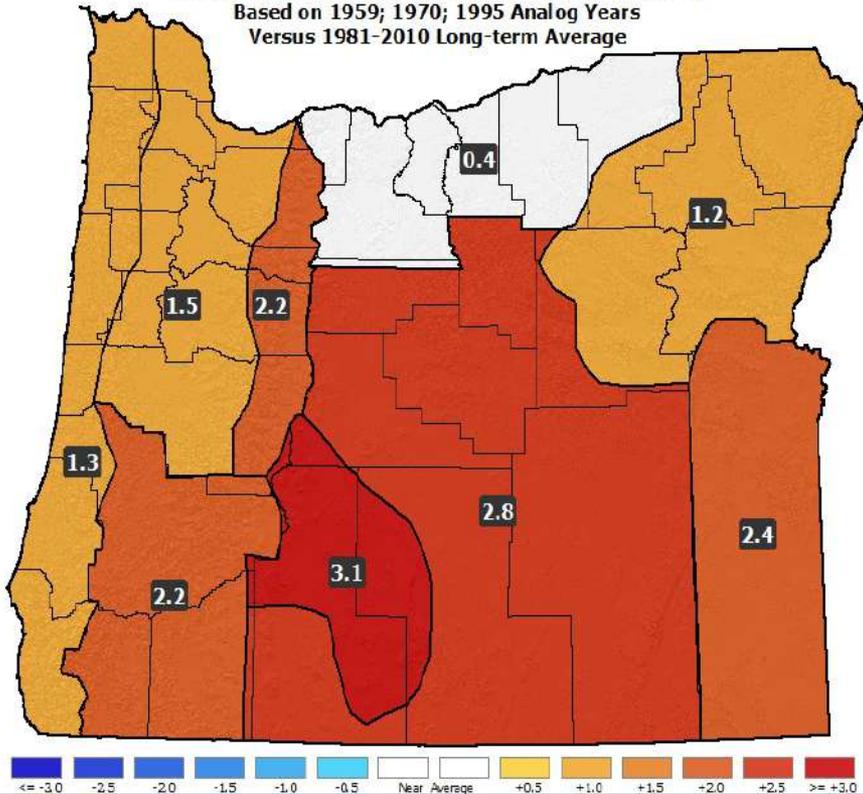


- Analogs show more upper-level ridging than usual over the west coast of the U.S., which favors warmer-than-average conditions.
- However, moderately-high variation among the analog solutions lowers forecast confidence, especially with regards to precipitation.

November 2020 Forecast

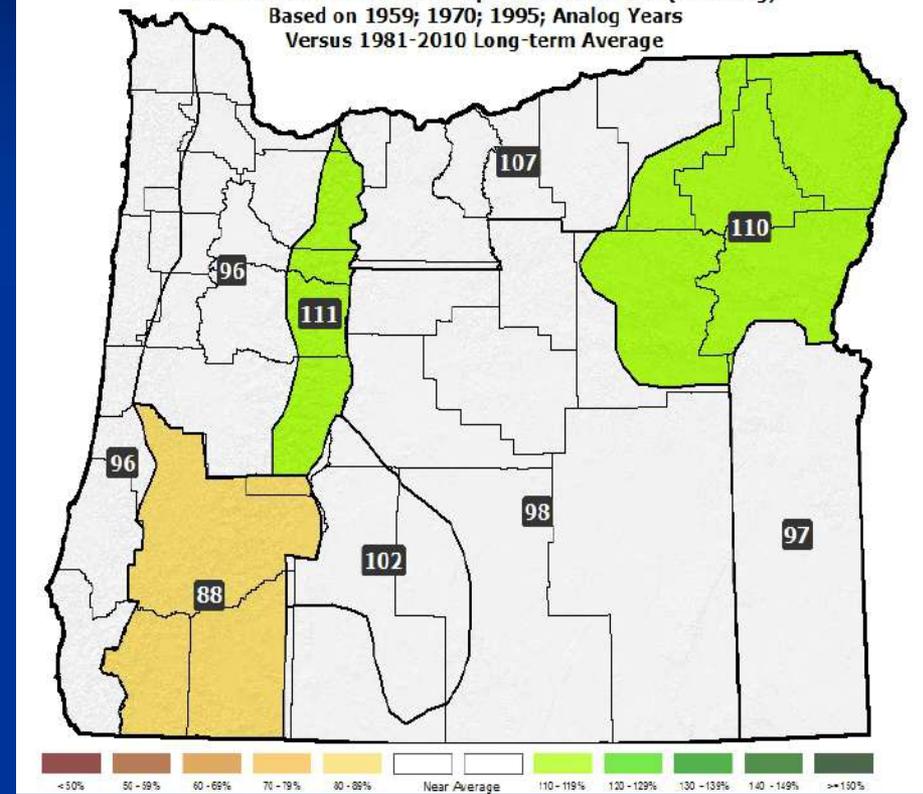
Temperatures

November 2020 Forecast Temperature Anomalies (°F)
Based on 1959; 1970; 1995 Analog Years
Versus 1981-2010 Long-term Average



Precipitation

November 2020 Forecast Precipitation Anomalies (% of Avg)
Based on 1959; 1970; 1995; Analog Years
Versus 1981-2010 Long-term Average

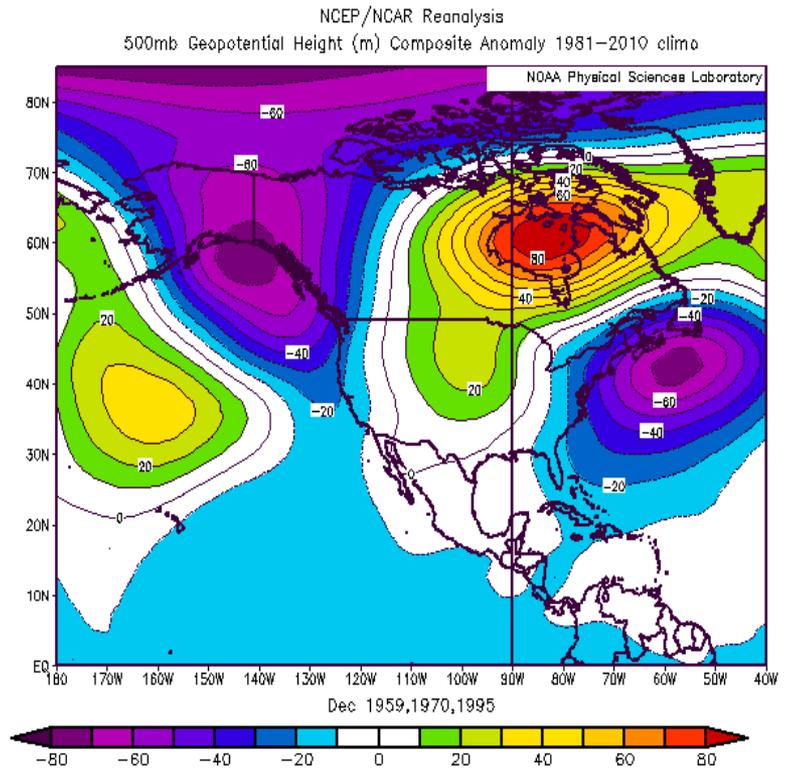
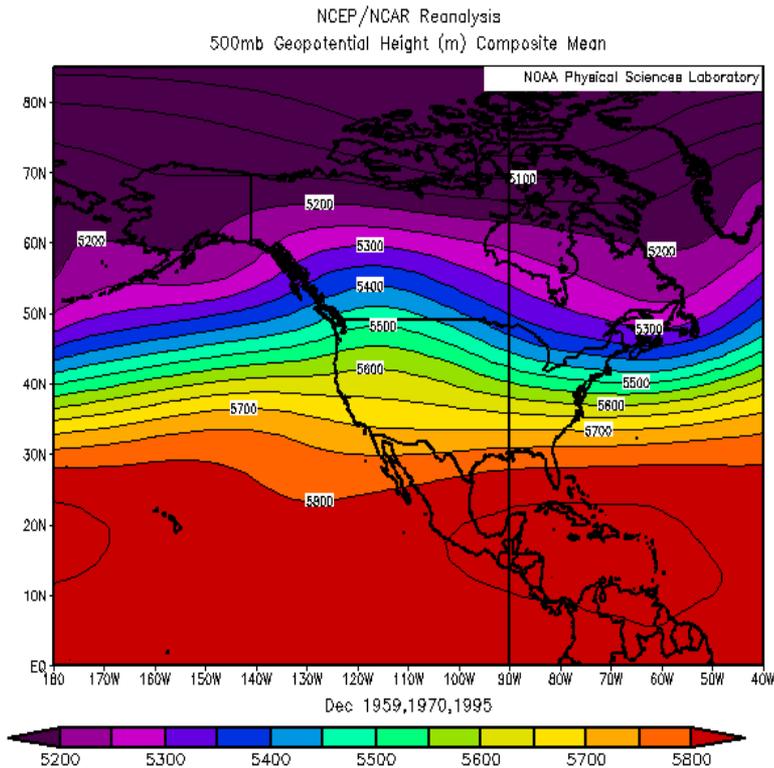


- Above-average temperatures likely, but brief cold snaps are possible.
- Individual analog solutions showed considerable variation in rain & mountain snowfall, with their blend yielding near-average precipitation.

December 2020 Forecast

Mean Upper-Air Pattern

Upper-Air Anomalies

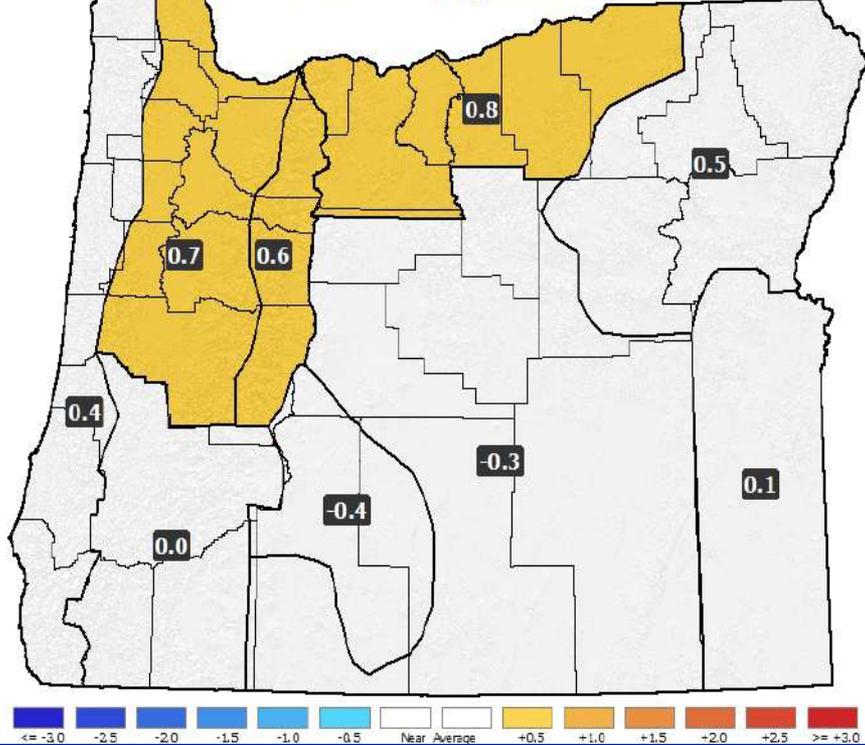


- A weakening of the anomalous ridging along the west coast is indicated, but there is considerable variation among the analogs.
- In general, the above pattern favors increased storminess across Oregon, especially for western zones, but not severe cold outbreaks.

December 2020 Forecast

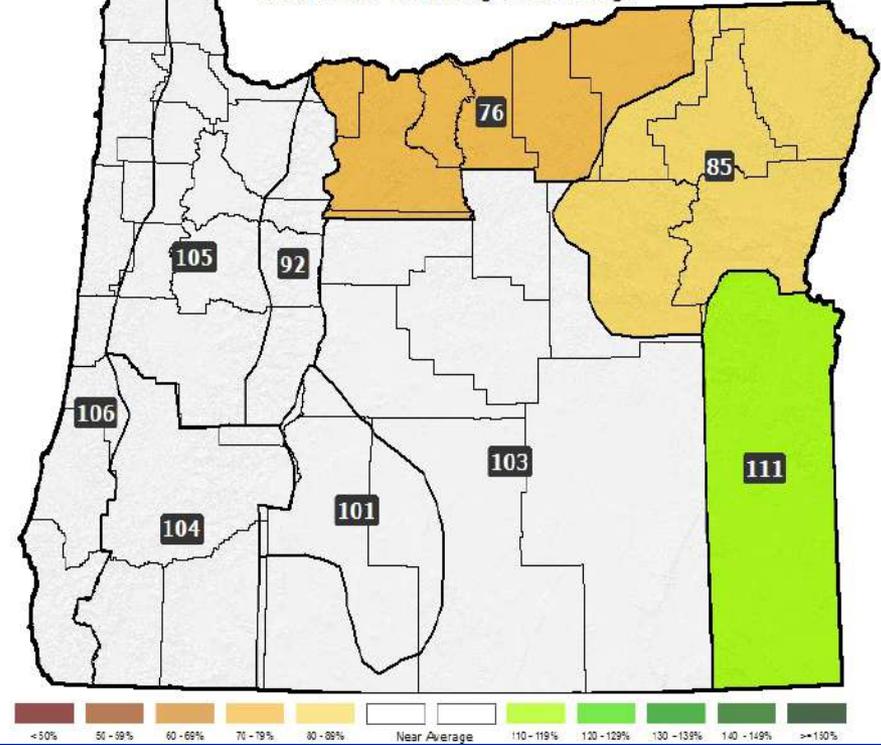
Temperatures

December 2020 Forecast Temperature Anomalies (°F)
Based on 1959; 1970; 1995 Analog Years
Versus 1981-2010 Long-term Average



Precipitation

December 2020 Forecast Precipitation Anomalies (% of Avg)
Based on 1959; 1970; 1995; Analog Years
Versus 1981-2010 Long-term Average

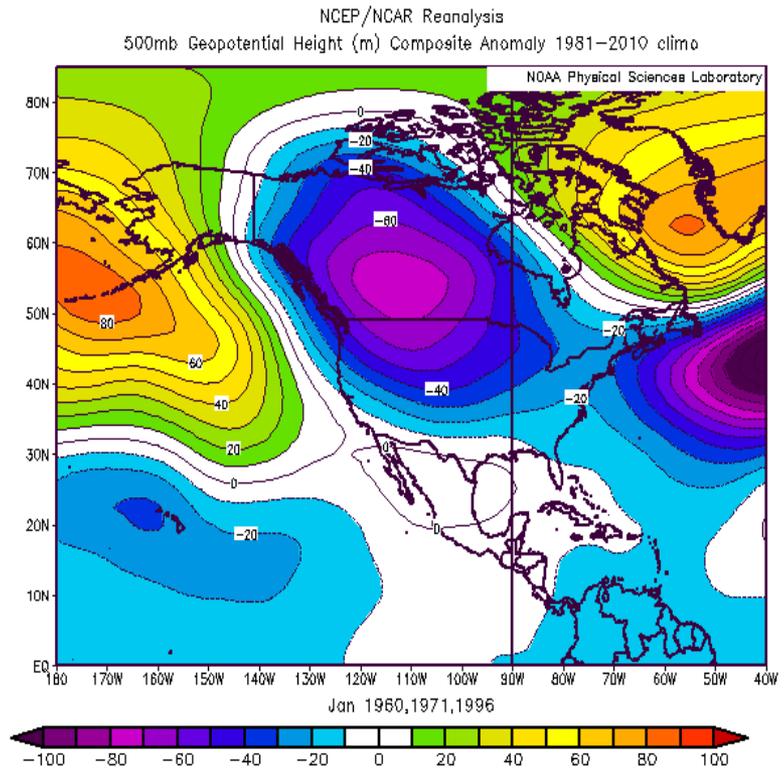
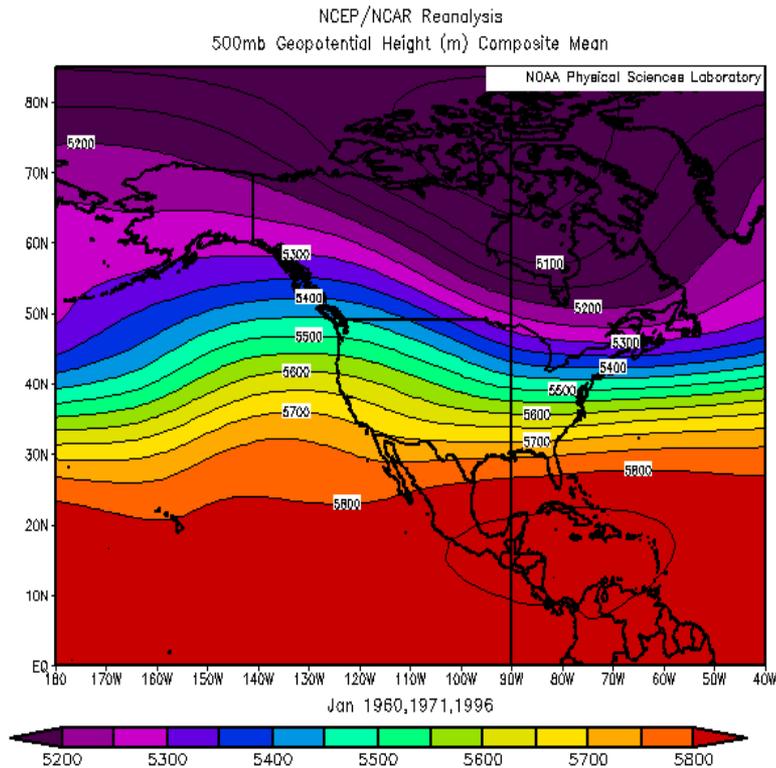


- Analogs have high variability but generally show near or above-average temperatures (severe cold snaps are not indicated).
- Near or above-average precipitation. Elevated chances for high-wind events, especially along the coast and across the western zones.

January 2021 Forecast

Mean Upper-Air Pattern

Upper-Air Anomalies

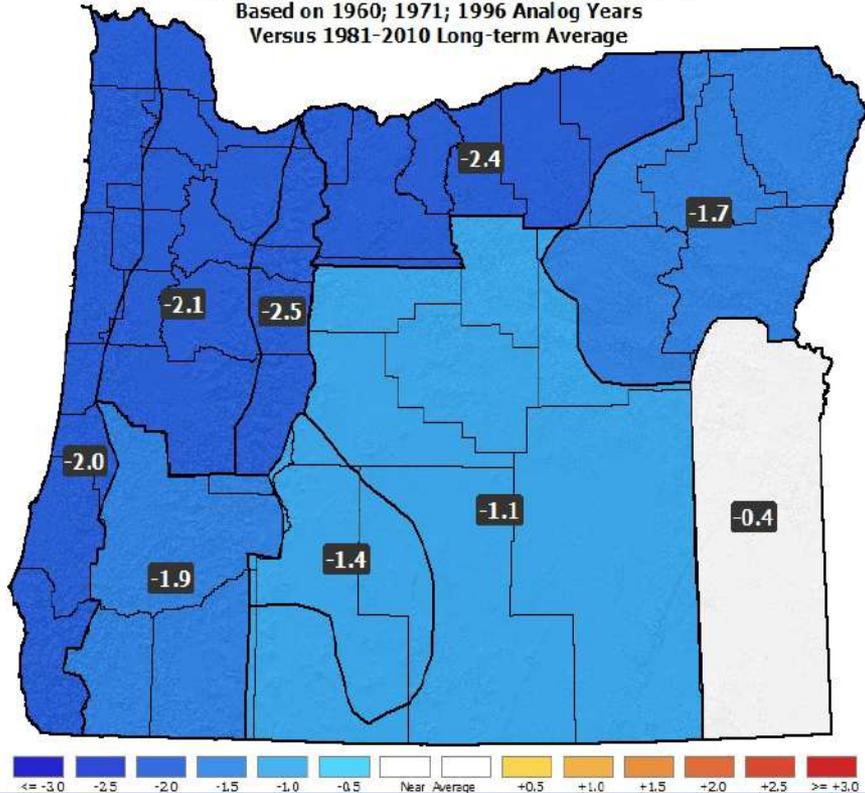


- All of the analog years had negative temperature anomalies over western Canada and more jet stream energy than usual over Oregon.
- An enhanced jet stream and below-average snow levels should lead to above-average mountain snow & a heightened chance of windstorms.

January 2021 Forecast

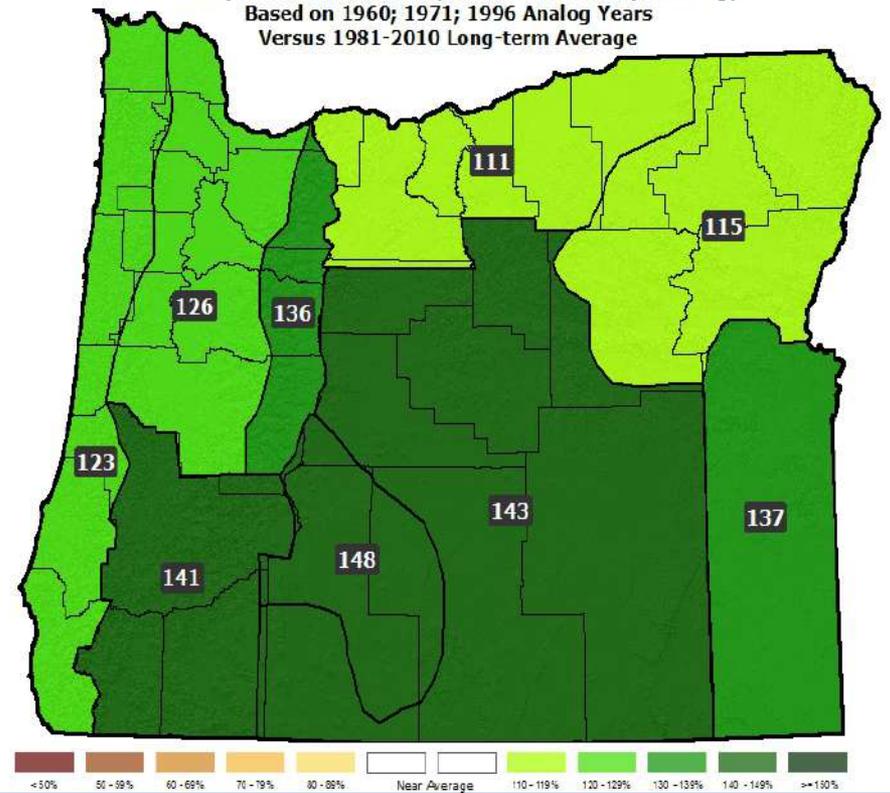
Temperatures

January 2021 Forecast Temperature Anomalies (°F)
Based on 1960; 1971; 1996 Analog Years
Versus 1981-2010 Long-term Average



Precipitation

January 2021 Forecast Precipitation Anomalies (% of Avg)
Based on 1960; 1971; 1996 Analog Years
Versus 1981-2010 Long-term Average

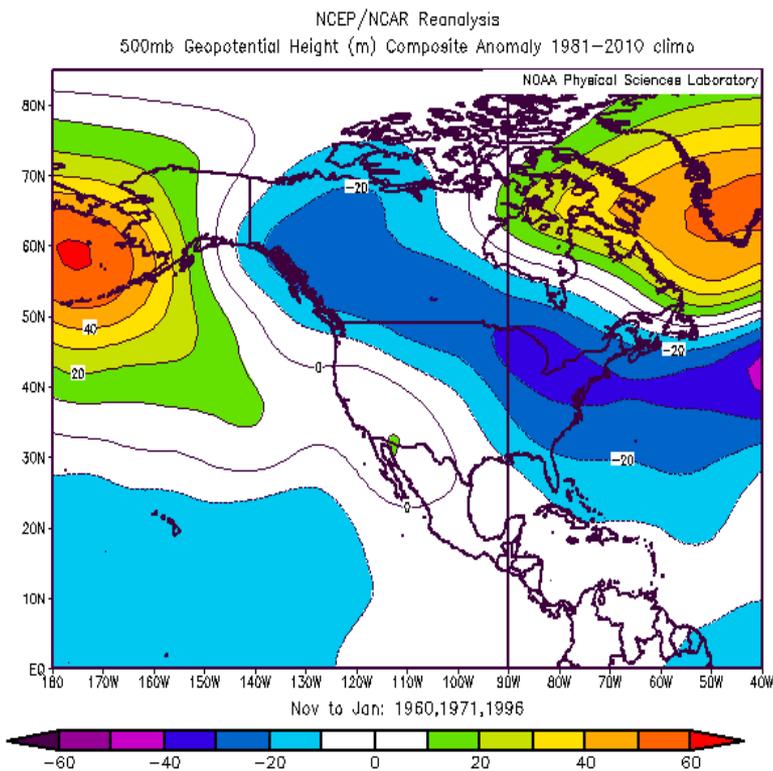
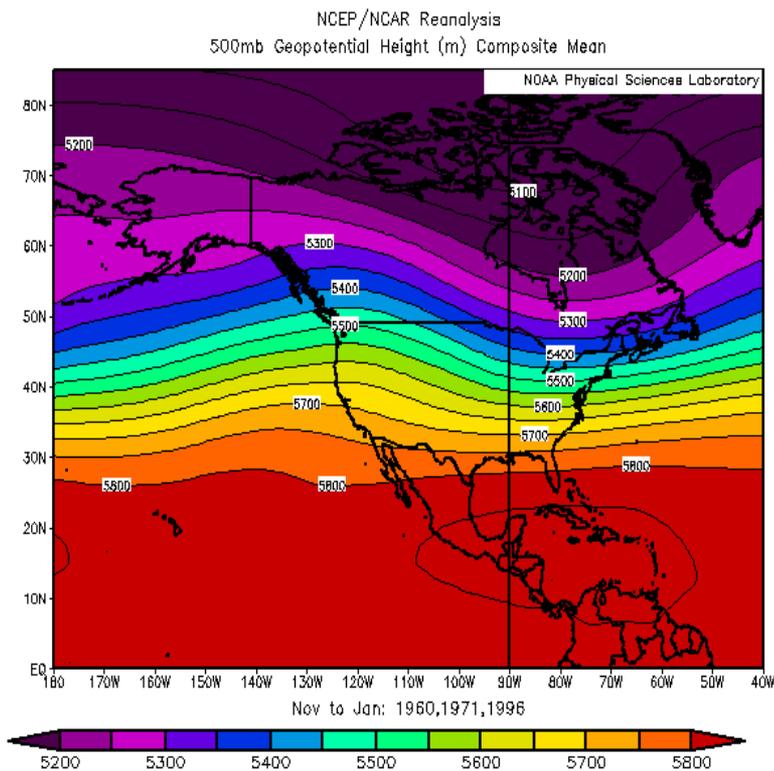


- Above-average precipitation and near or above-average mountain snow. Increased chances for windstorms, especially along the coast.
- Temperature forecast is less certain, with possible transitions between stormy and cold periods. Western valley snow event(s) likely.

Nov. 2020 – Jan. 2021 Forecast

Mean Upper-Air Pattern

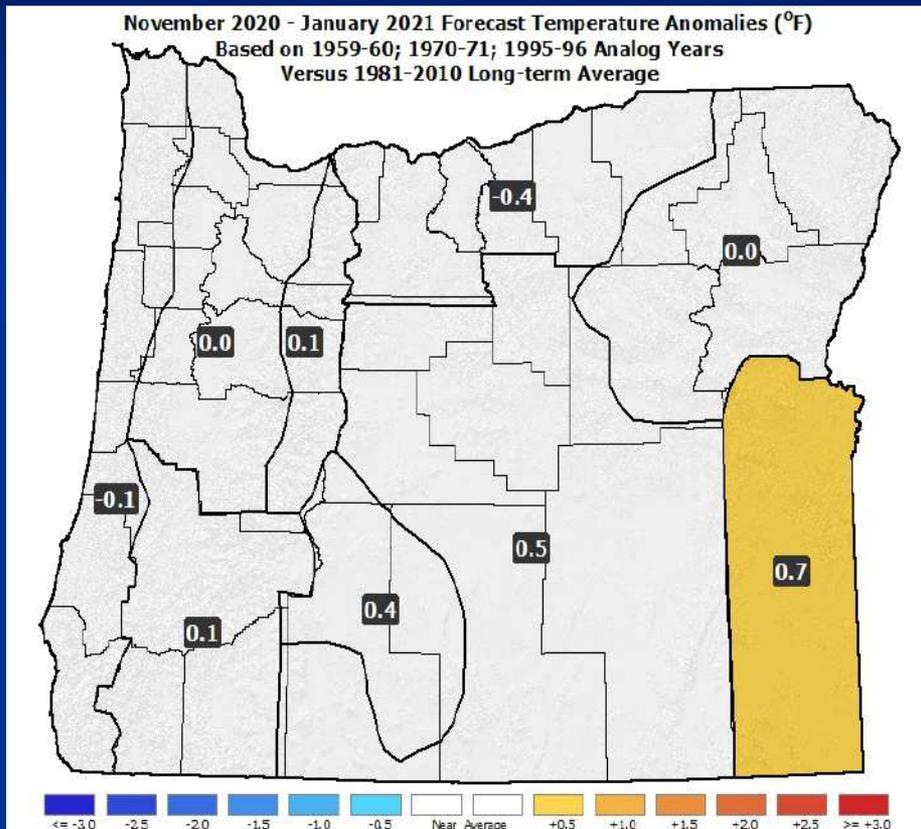
Upper-Air Anomalies



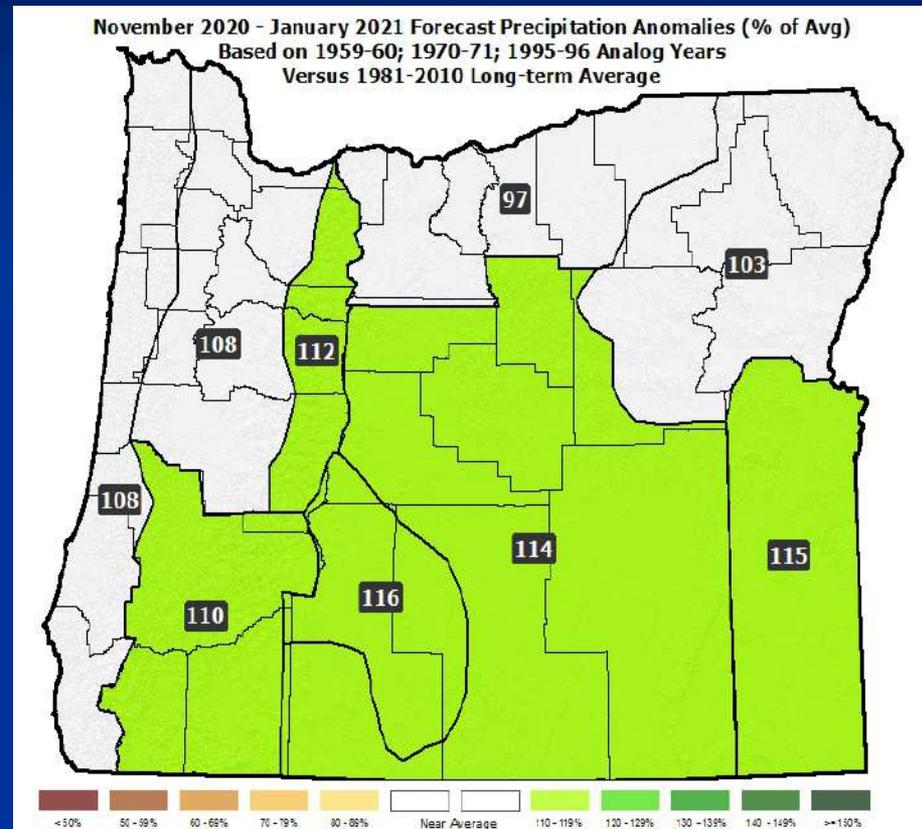
- Enhanced polar jet stream with anomalous ridging over Oregon in November and anomalous troughing in late-December & January.
- Analogs favor increasingly-volatile weather, as we progress through the 3-month period, ranging from rainy & windy to Arctic cold and snow.

Nov. 2020 – Jan. 2021 Forecast

Temperatures



Precipitation



- Relatively-mild conditions early; progressively colder/stormier late.
- Elevated chances for heavy rain, strong winds, above-average mountain snow, and cold-air outbreaks with valley snow, especially in January.

Forecast Resources

- CPC Official US Three-Month Forecasts (Graphics):

https://www.cpc.ncep.noaa.gov/products/predictions/long_range/seasonal.php?lead=01

- CPC US 30-Day & 90-Day Forecasts (Discussions):

https://www.cpc.ncep.noaa.gov/products/predictions/long_range/fxus07.html

- CPC Weekly & Monthly ENSO Discussions:

https://www.cpc.ncep.noaa.gov/products/analysis_monitoring/enso_advisory

- Australian Government Climate Model Summary:

<http://www.bom.gov.au/climate/model-summary/#region=NINO34&tabs=Overview>

- Australian Government ENSO Wrap-Up:

<http://www.bom.gov.au/climate/enso>

- IRI ENSO Quick Look:

<https://iri.columbia.edu/our-expertise/climate/forecasts/enso/current/>

- ODA Seasonal Climate Forecast Home:

<http://www.oregon.gov/ODA/programs/NaturalResources/Pages/Weather.aspx>

Water Supply Information

- NDMC U.S. Drought Monitor:

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

- NIDIS North American Drought Portal:

<https://www.drought.gov/nadm/content/percent-average-precipitation>

- NRCS Snow Water Equivalent Oregon Map:

https://www.wcc.nrcs.usda.gov/ftpref/data/water/wcs/gis/maps/or_swepctnormal_update.pdf

- NRCS Snow Water Equivalent Products:

<https://www.wcc.nrcs.usda.gov/snow/snotel-wereports.html>

- NRCS Weekly Water and Climate Update:

<https://www.wcc.nrcs.usda.gov/cgi-bin/water/drought/wdr.pl>

- NRCS Western Snowpack Data & Water Supply Forecast:

<https://www.wcc.nrcs.usda.gov/cgi-bin/westsnowsummary.pl>

- WRCC WestWideDroughtTracker:

<https://www.wrcc.dri.edu/wwdt/>

Updated Monthly

(Around the 20th)

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