



Seasonal Climate Forecast

October – December 2024

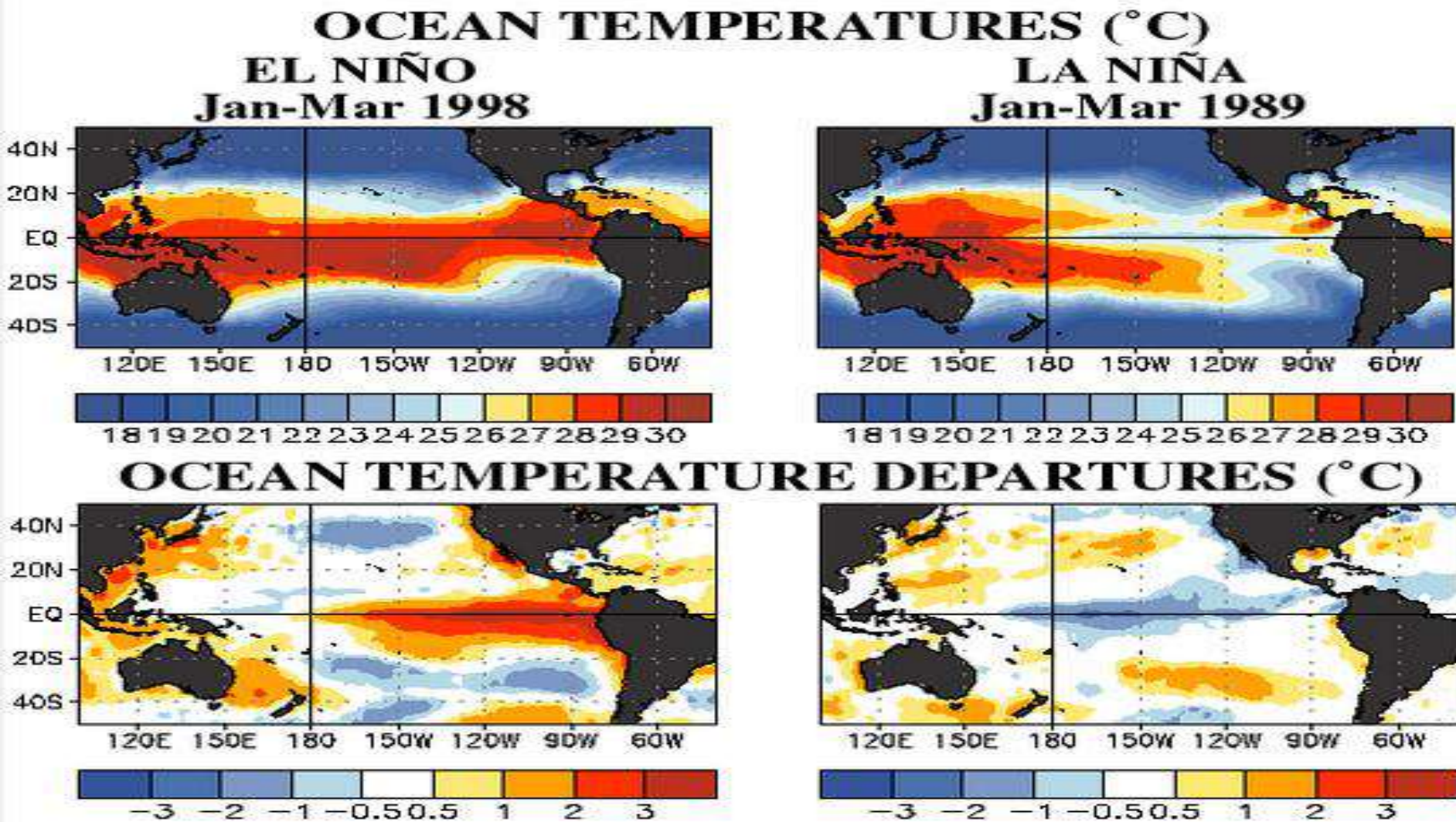
Issued: September 19, 2024

Contact: ODF Lead Meteorologist Pete Parsons
503-945-7448 or peter.gj.parsons@odf.oregon.gov

ODA Team: Diana Walker; Andy Zimmerman; Jenn Ambrose; Taylor Harding
ODF Team: Julie Vondrachek; Kristin Cody

El Niño vs La Niña

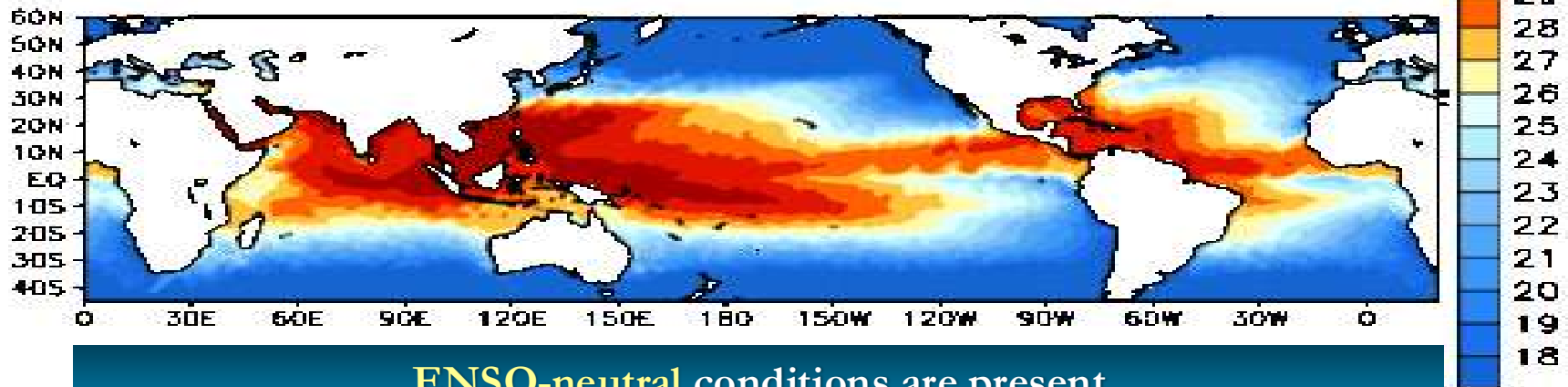
(SST Patterns in the Tropical Pacific Ocean)



Sea Surface Temperatures (SSTs)

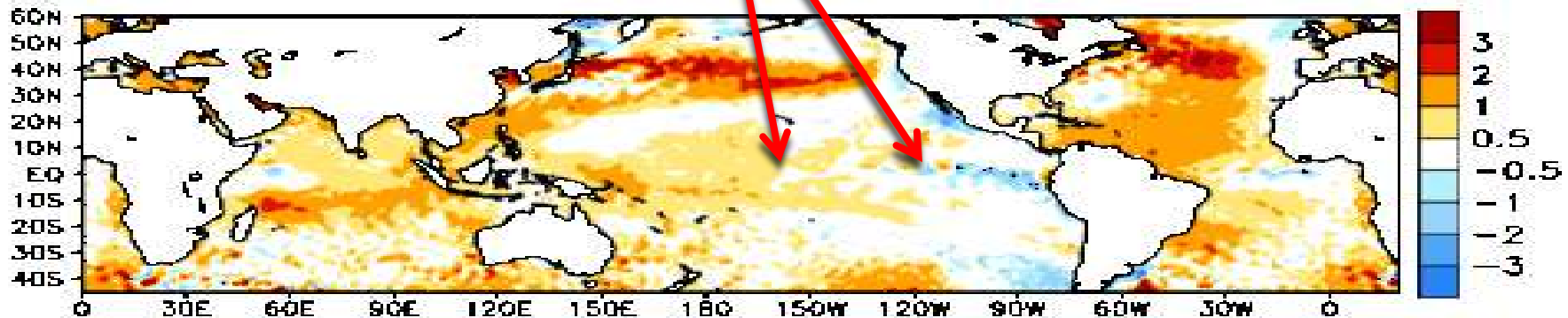
Animated (PowerPoint only) SSTs (top) / Anomalies (bottom)

Week centered on 26 JUN 2024
SST (°C)



ENSO-neutral conditions are present

Anomalies (°C)



El Niño Southern Oscillation (ENSO)

Current Status and Forecast

- The August Southern Oscillation Index (SOI) was $+0.9$, reflecting a strengthening of trade winds across the equatorial Pacific Ocean.
- The June – August Oceanic Niño Index (ONI) fell to $+0.1^{\circ}\text{C}$, which reflected ongoing cooling of central and eastern tropical Pacific Ocean sea surface temperatures (“SSTs”) within the ENSO-neutral range.
- NOAA’s Climate Prediction Center (CPC) expects a transition from ENSO-neutral to La Niña during the September – November period, with La Niña persisting through January-March 2025.

Note: This “analog” forecast does not consider NOAA’s ENSO forecast. It uses only historical and current ENSO conditions to find “analog years” that most-closely match the recent evolution of the ENSO state.

Southern Oscillation Index (SOI)

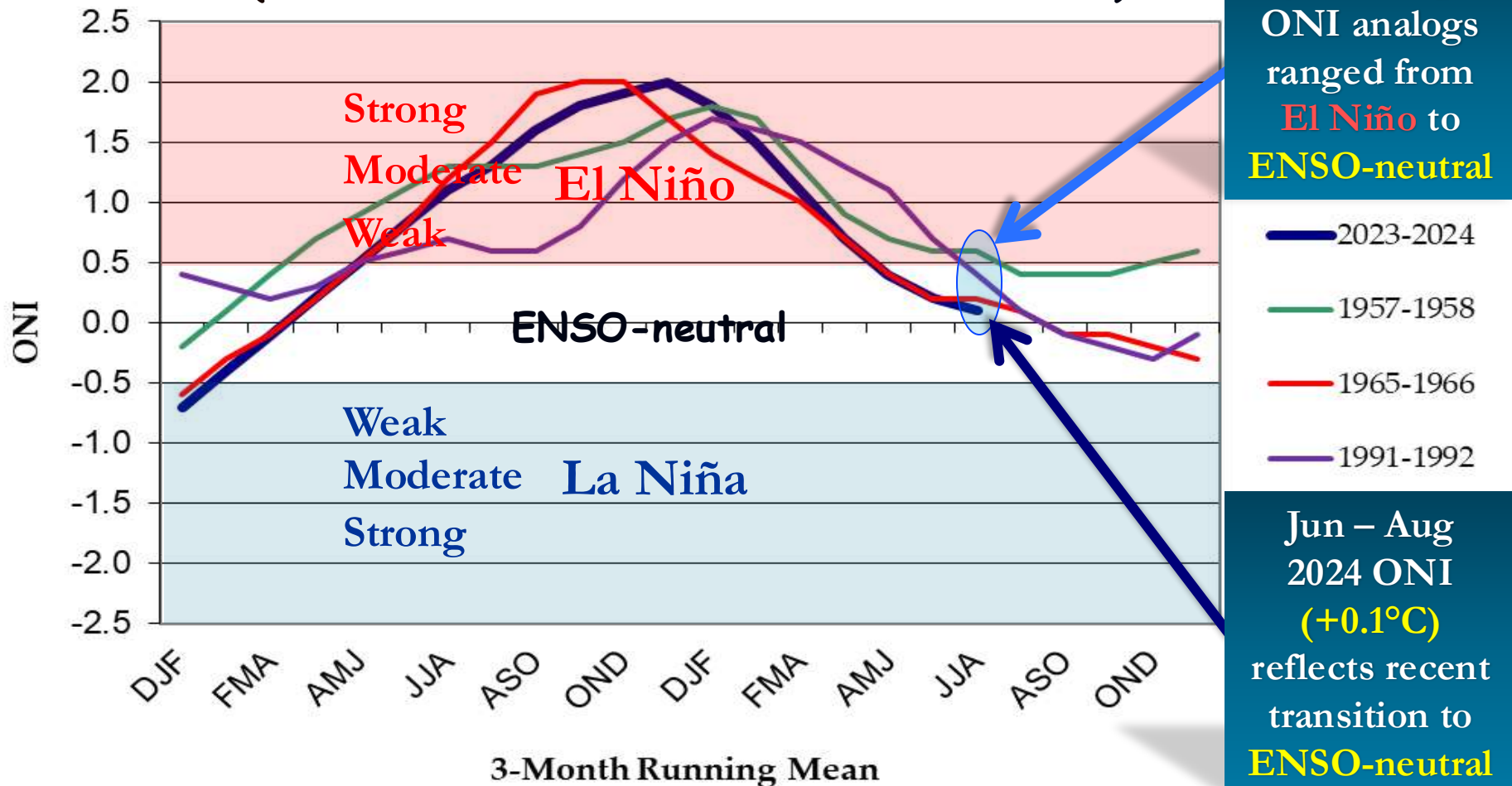
SOI values from the top "analog years" compared
with the current period (2023-2024)
(1957-1958; 1965-1966; 1991-1992)



SOI data courtesy <https://www.cpc.ncep.noaa.gov/data/indices/soi>

Oceanic Niño Index (ONI)

ONI values from the top "analog years"
compared with the current period (2023-2024)
(1957-1958; 1965-1966; 1991-1992)

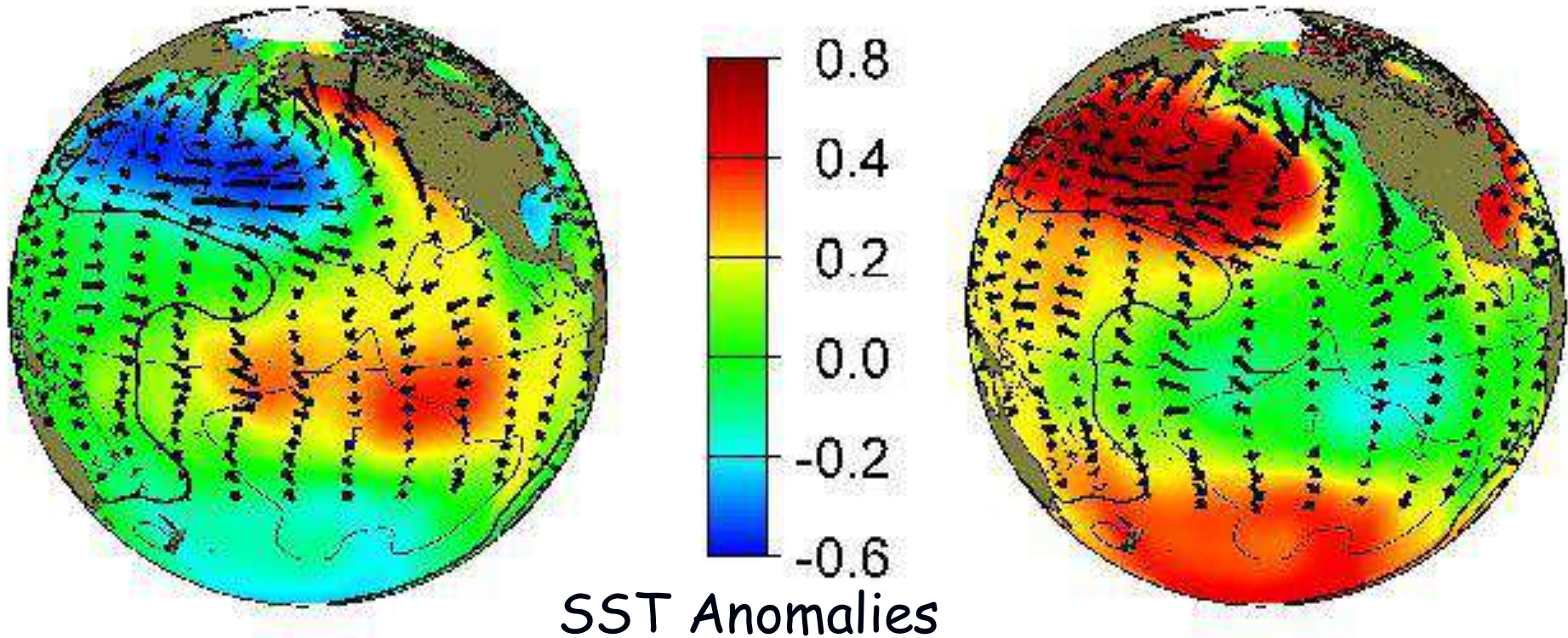


The Pacific Decadal Oscillation (PDO)

(Reflects SST “Phase” in the North Pacific Ocean)

Positive (Warm)
“Phase”

Negative (Cool)
“Phase”



North Pacific Ocean

(Poleward of 20°N Latitude)

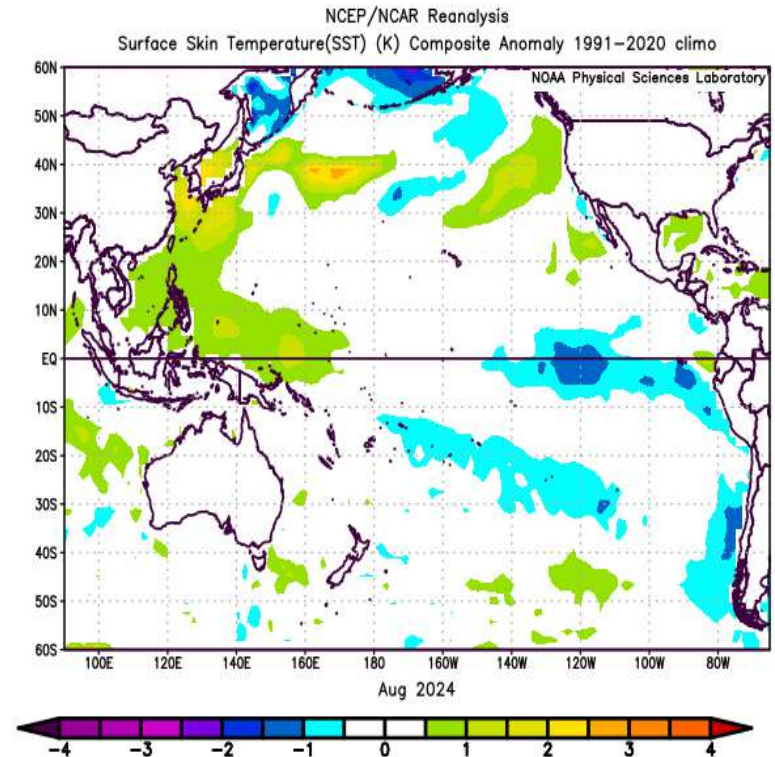
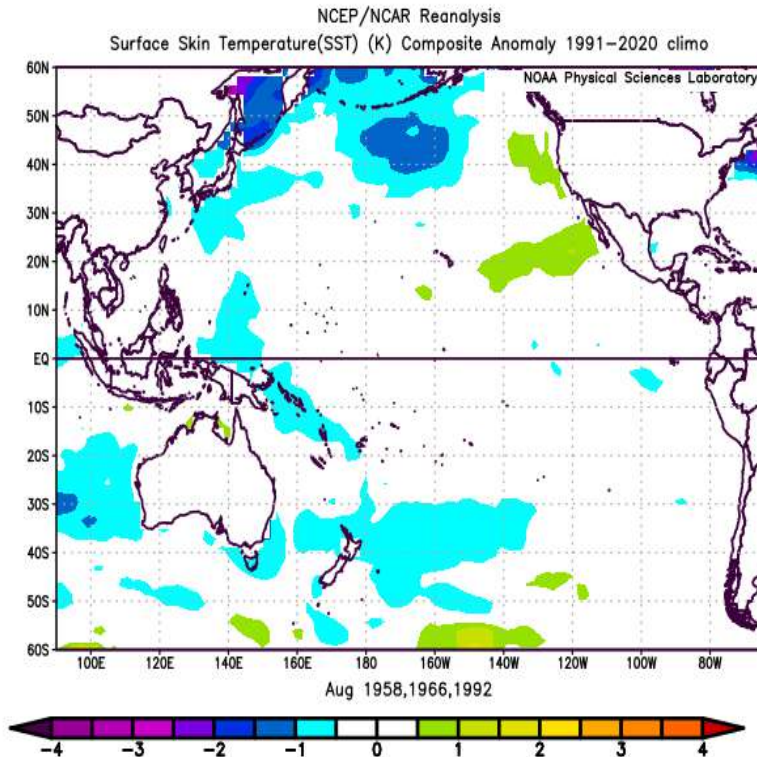
PDO values from the top "analog years" compared
with the current period (2023-2024)
(1957-1958; 1965-1966; 1991-1992)



SST Anomalies Comparison

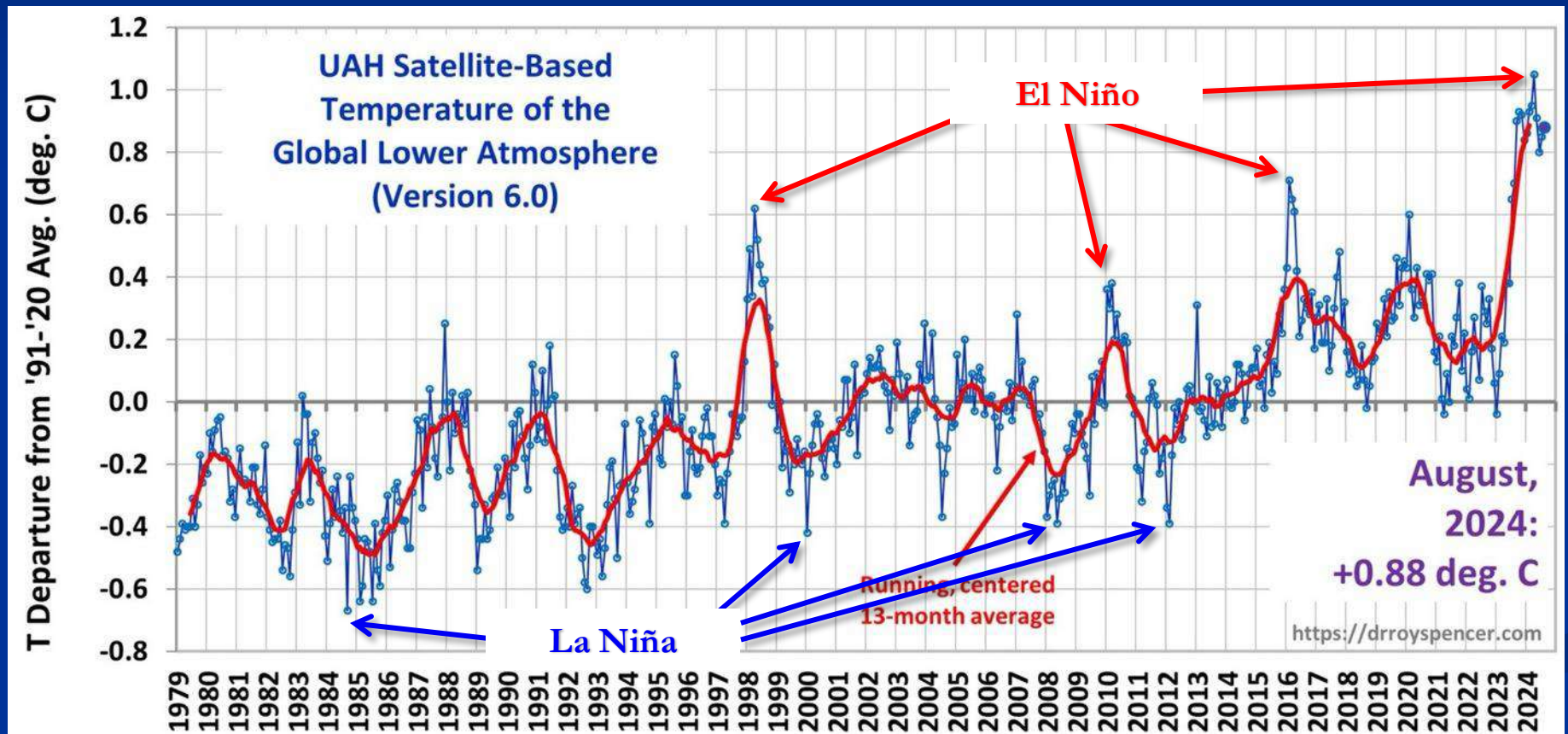
August Analogs

August 2024



- The SST anomalies of both the August analog composite (left) and August 2024 (right) reflected ENSO-neutral conditions.
- August 2024 (right) had more cooling emerging along the eastern equatorial Pacific Ocean than did the analog composite (left).

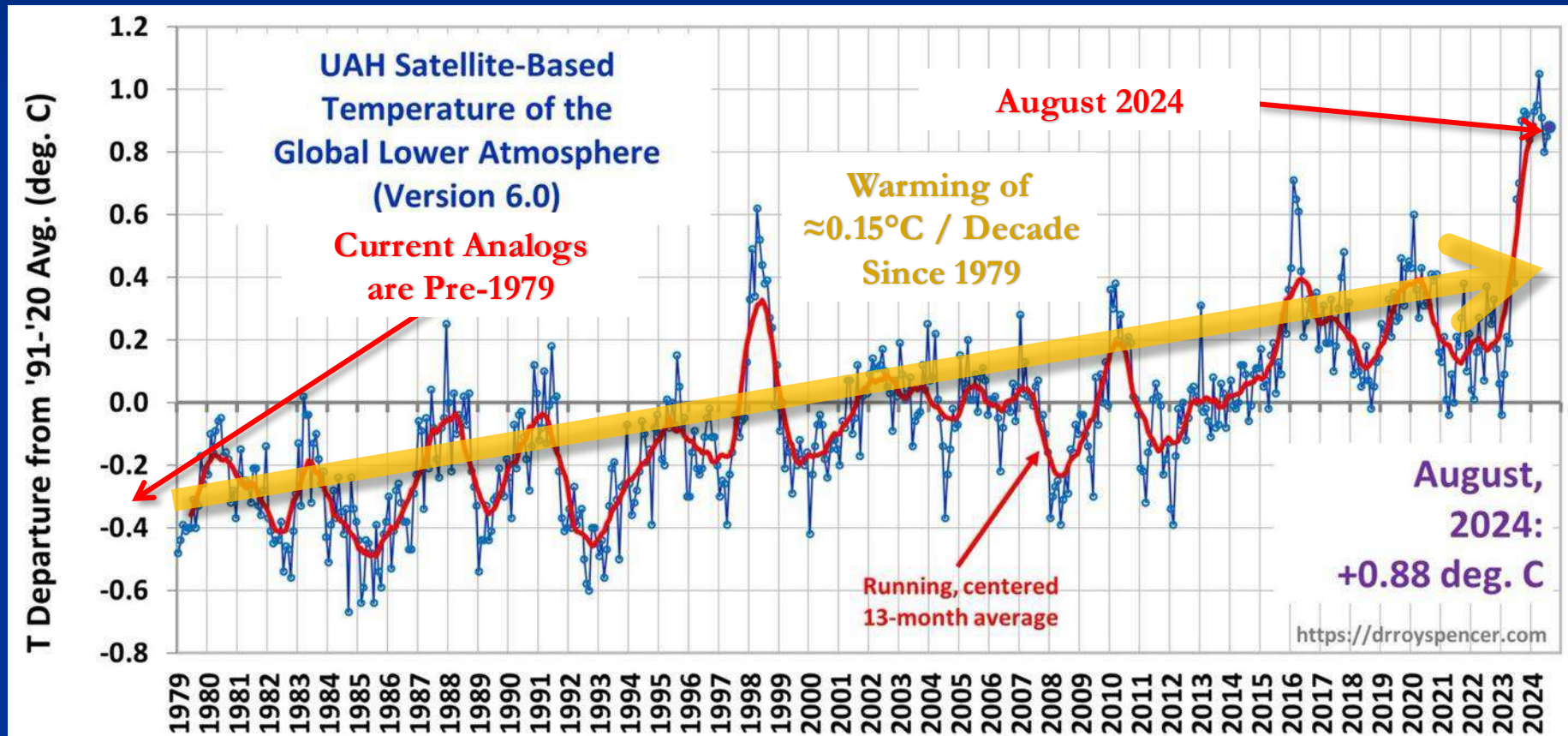
El Niño & La Niña Impact Global Temperatures...



Courtesy: <http://www.drroyspencer.com/latest-global-temperatures/>

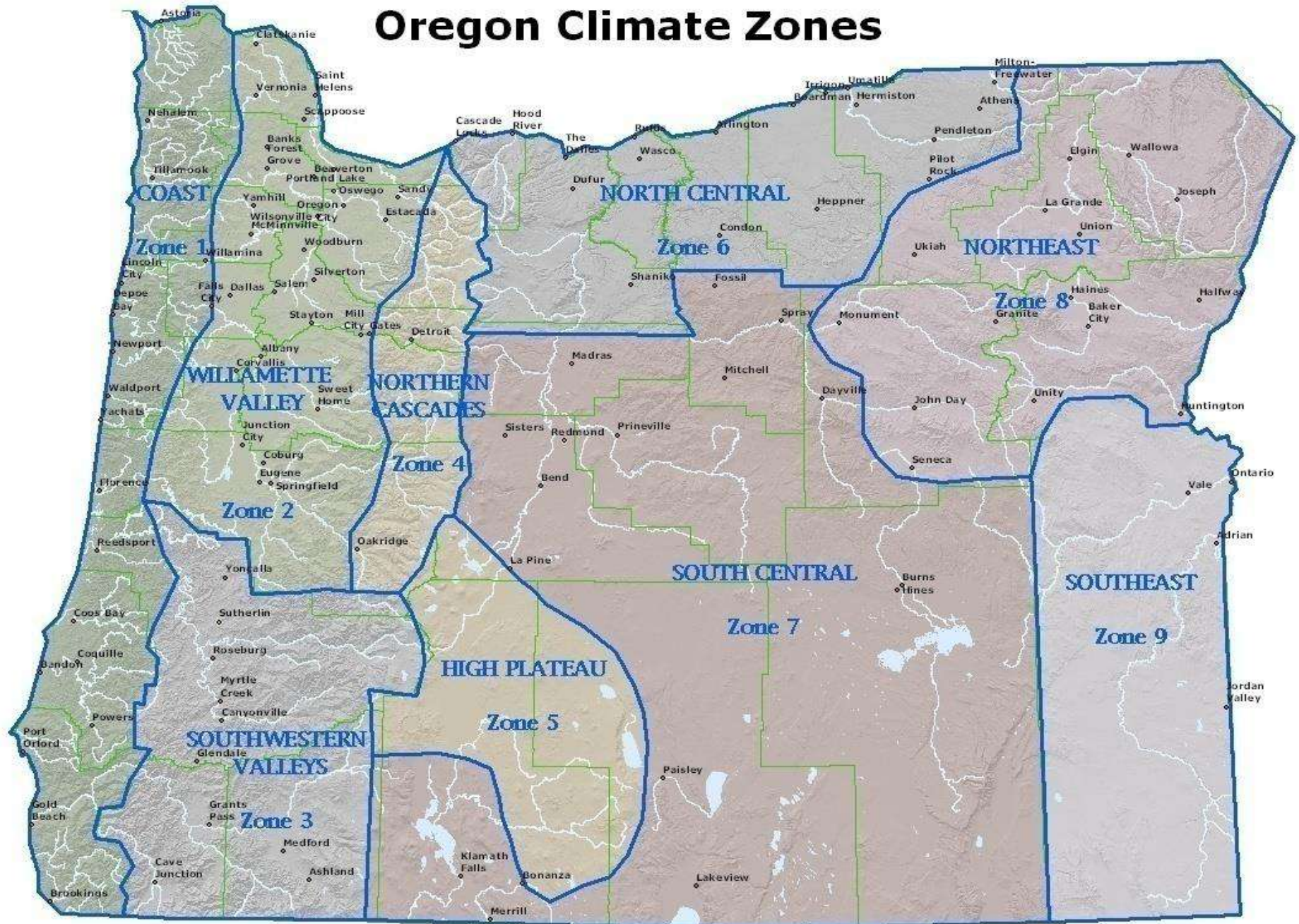
Global Temperature Trends

Increase Error in Analog Forecasts!



Courtesy: <http://www.drroyspencer.com/latest-global-temperatures/>

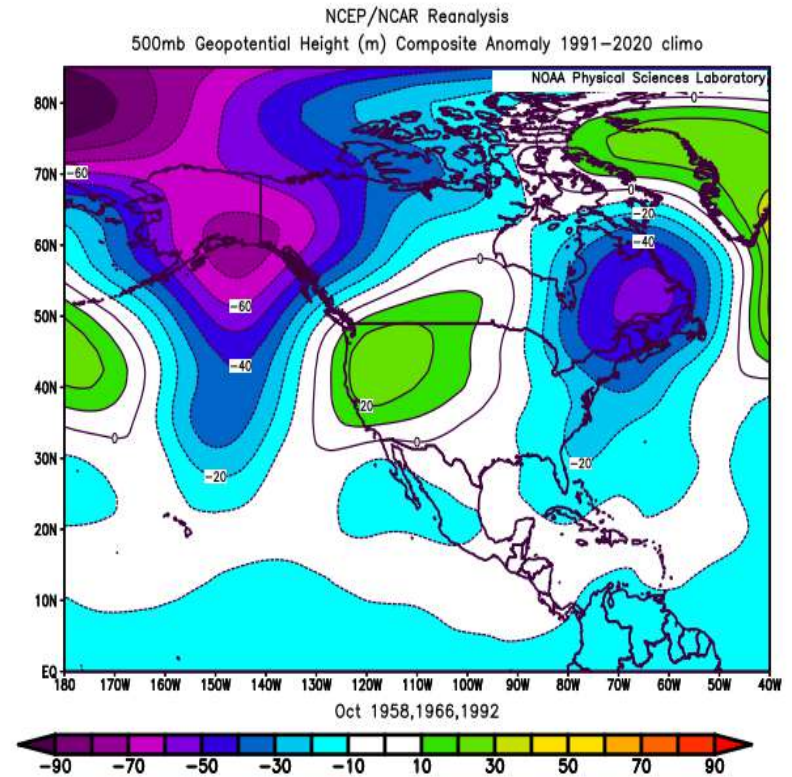
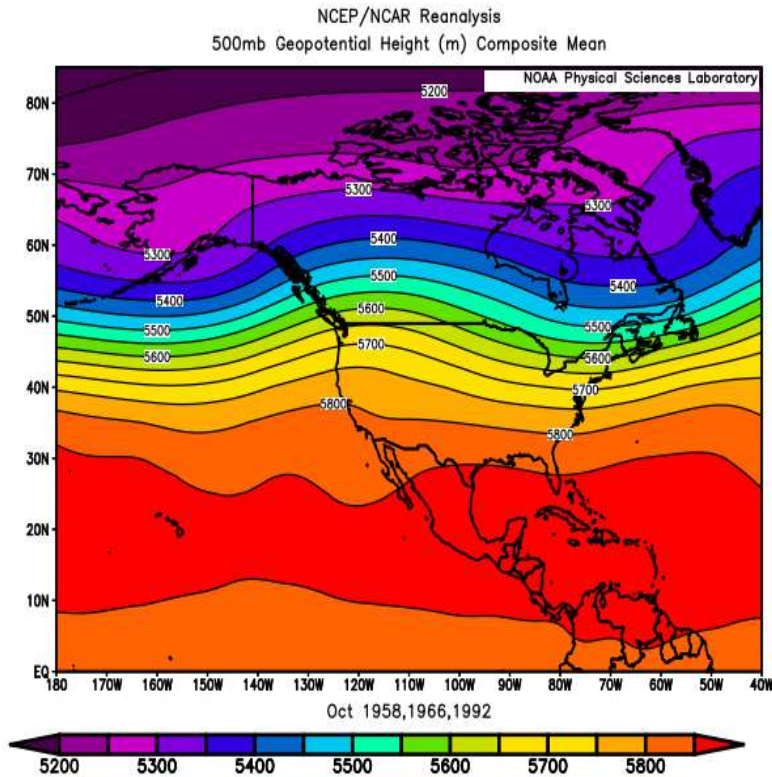
Oregon Climate Zones



October 2024 Forecast

Mean Upper-Air Pattern

Upper-Air Anomalies

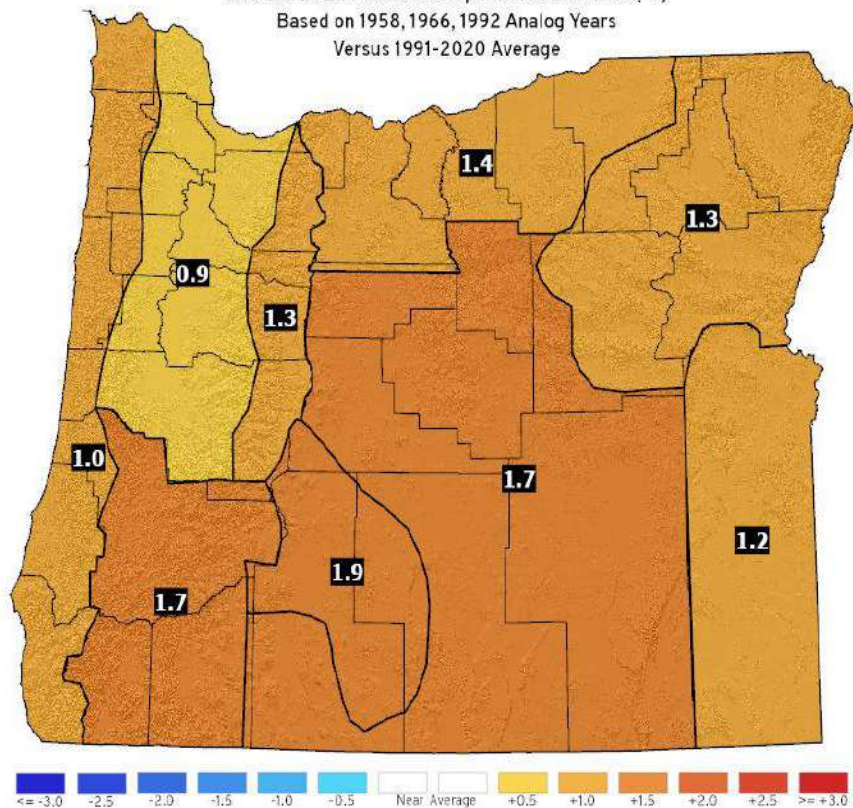


- Analogs had a mean ridge ranging from the west coast (1966) to the Rockies (1958). Their composite places the ridge axis over Idaho.
- Near or above-average upper-air ridging is favored.

October 2024 Forecast

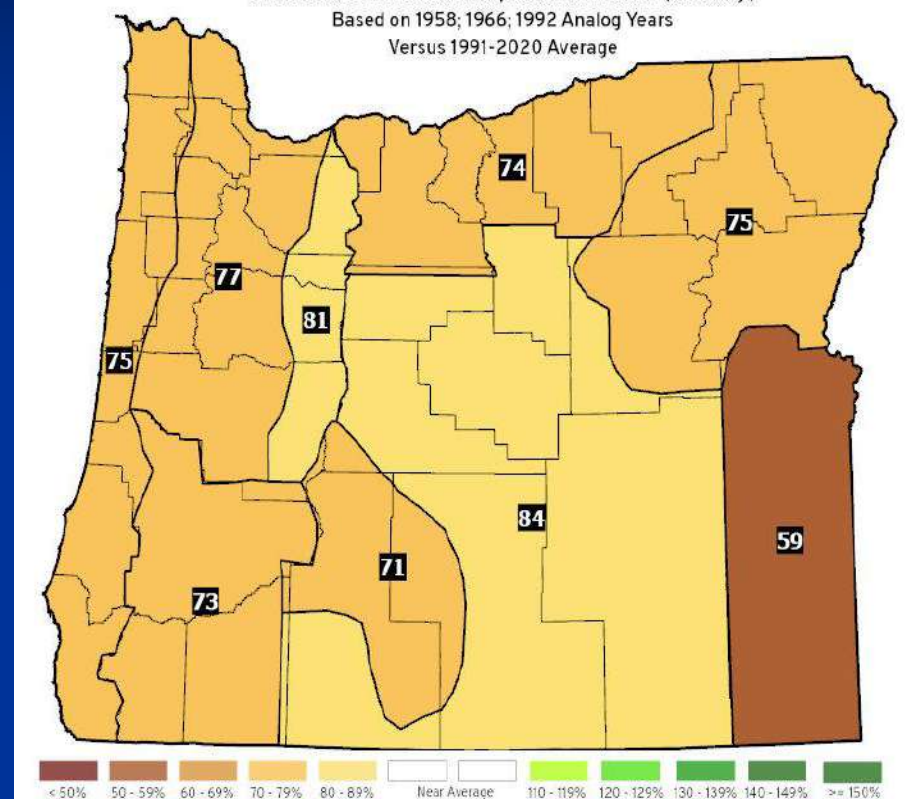
Temperatures

October 2024 Forecast Temperature Anomalies (°F)
Based on 1958, 1966, 1992 Analog Years
Versus 1991-2020 Average



Precipitation

October 2024 Forecast Precipitation Anomalies (% of Avg.)
Based on 1958, 1966, 1992 Analog Years
Versus 1991-2020 Average

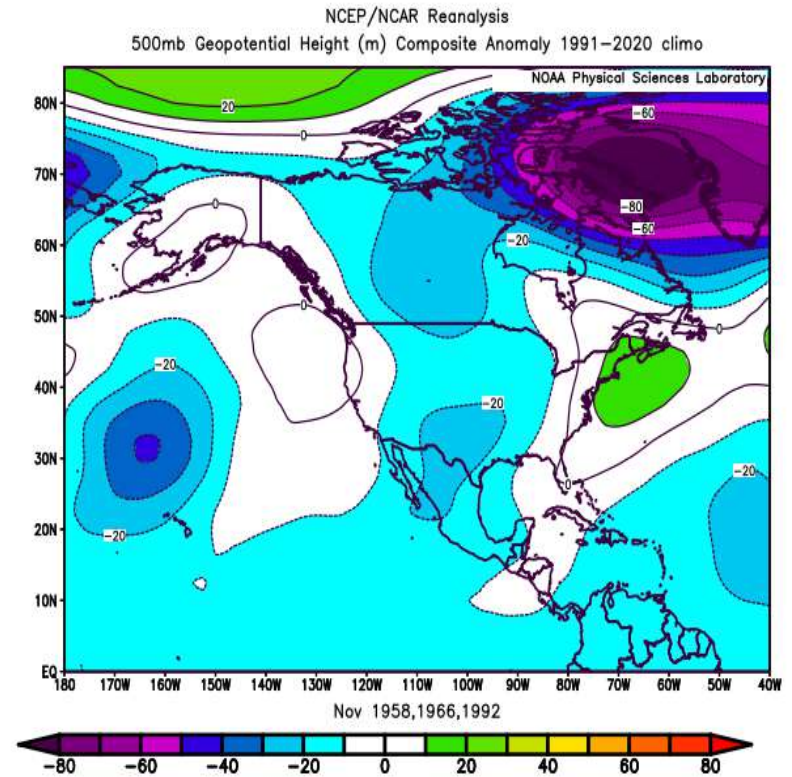
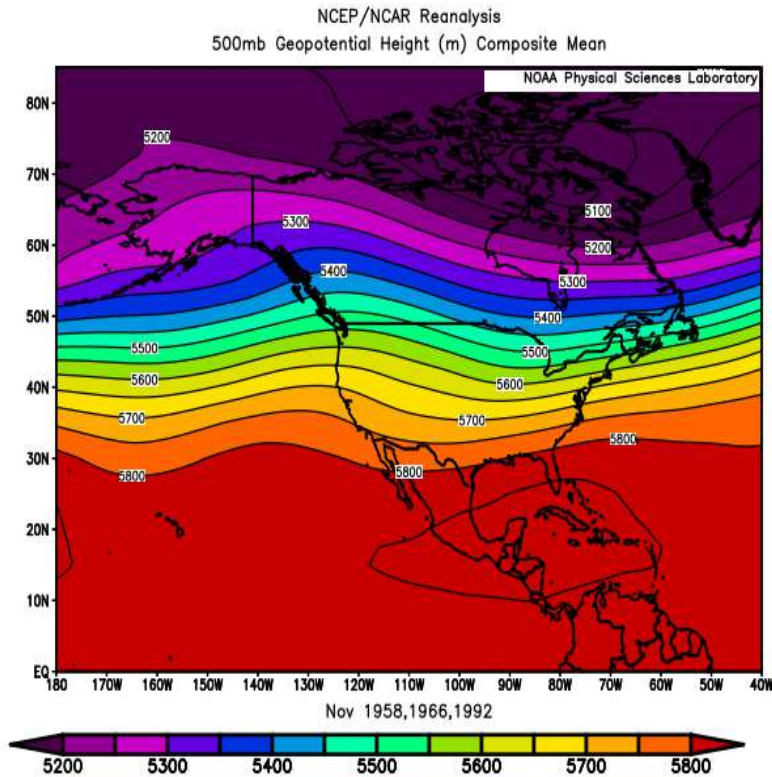


- Near or above-average temperatures. All three analog years had their warmest weather early (typical), but 1992 had warm periods all month.
- Precipitation near or below average.

November 2024 Forecast

Mean Upper-Air Pattern

Upper-Air Anomalies

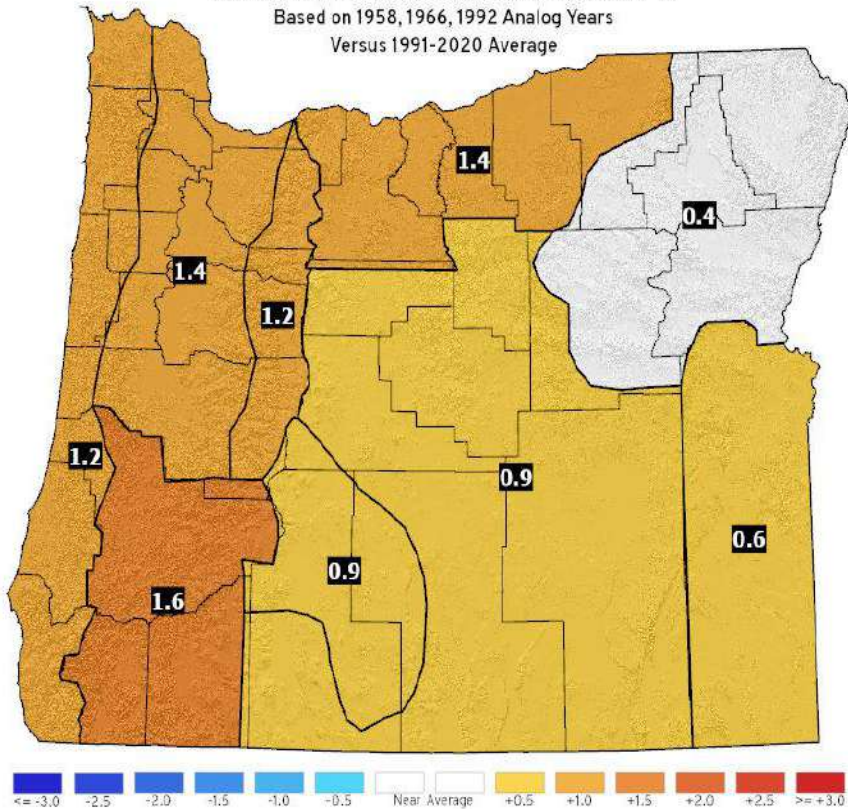


- Weak mean ridging centered along the Pacific NW Coast (typical).
- Prevailing westerly flow aloft should finally transition Oregon out of the “dry season.” Analogs had snow levels dropping to the Cascade passes by mid-month.

November 2024 Forecast

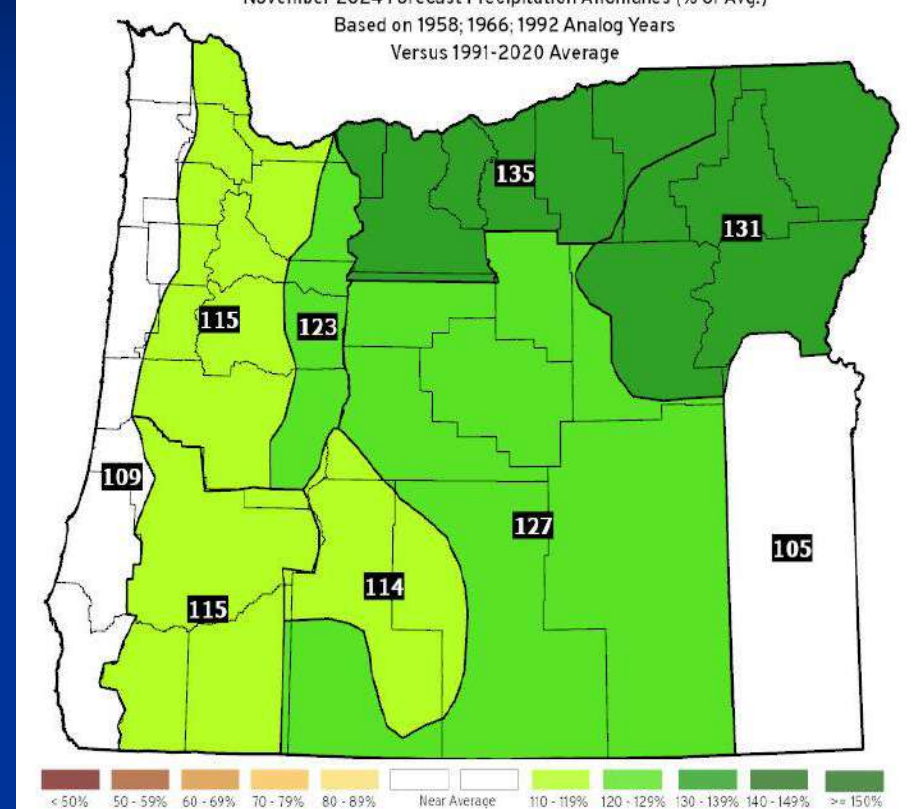
Temperatures

November 2024 Forecast Temperature Anomalies ($^{\circ}\text{F}$)
Based on 1958, 1966, 1992 Analog Years
Versus 1991-2020 Average



Precipitation

November 2024 Forecast Precipitation Anomalies (% of Avg.)
Based on 1958, 1966, 1992 Analog Years
Versus 1991-2020 Average

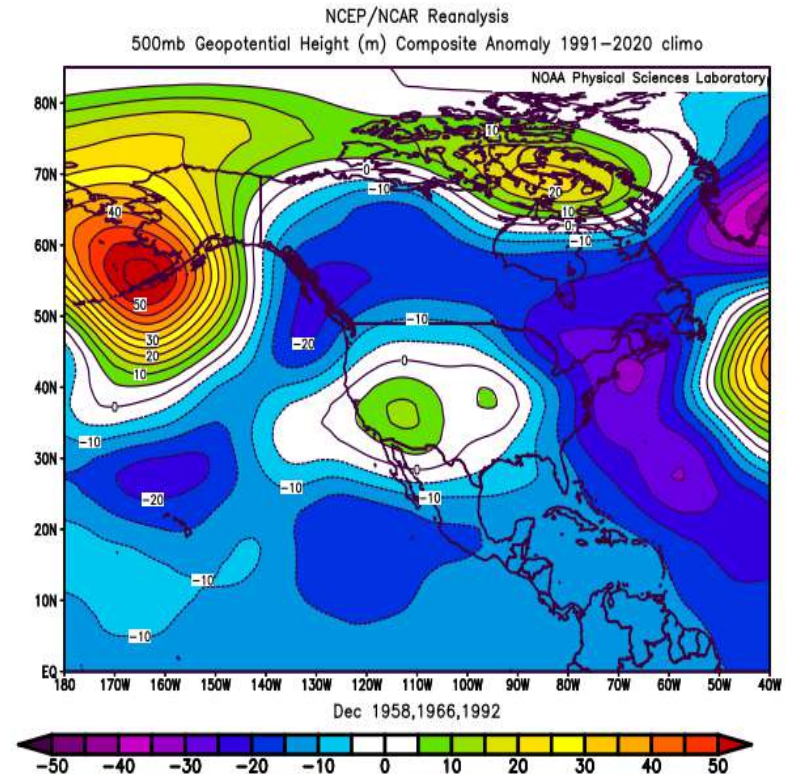
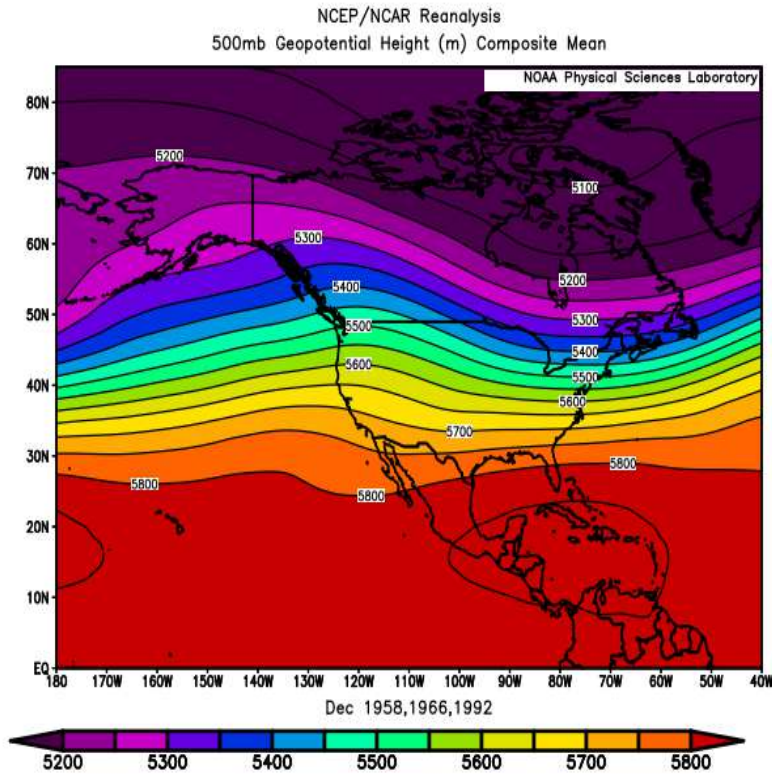


- Near to above-average temperatures. 1958 had a cold snap at mid-month with mountain snow and frost/flurries in the valleys.
- Precipitation likely most days, with a welcome transition to near or above average rainfall. Mountain snow beginning by mid-month.

December 2024 Forecast

Mean Upper-Air Pattern

Upper-Air Anomalies

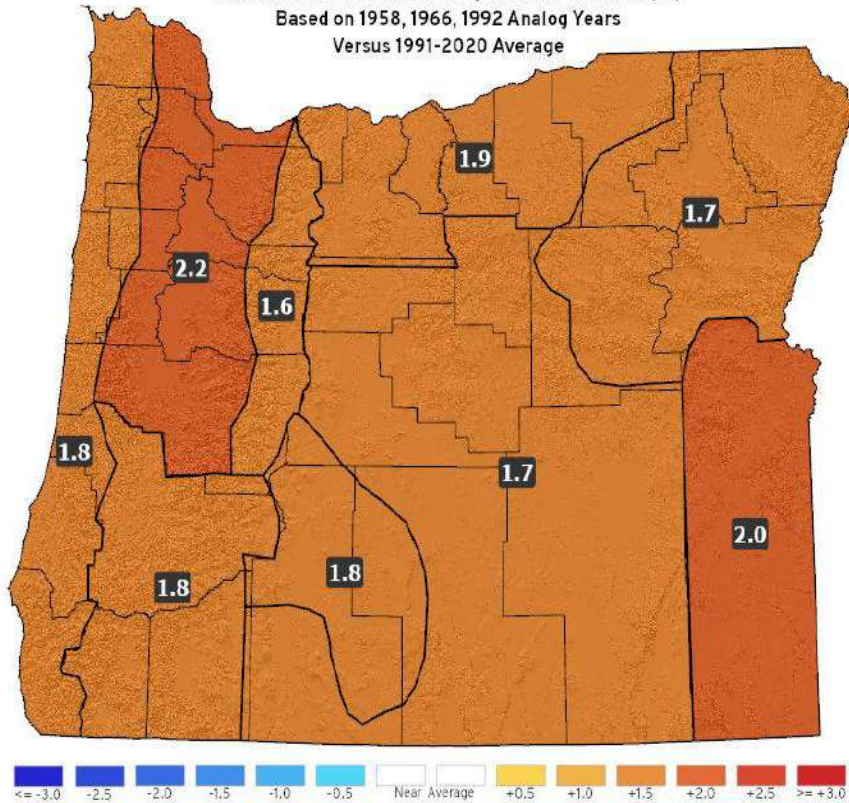


- Analogs diverge by December. 1958 reverted to El Niño with strong ridging over Oregon. 1966 and 1992 went into cold ENSO-neutral.
- The pattern above is a blend of quite differing individual solutions ranging from anomalous ridging (1958) to anomalous troughing (1992).

December 2024 Forecast

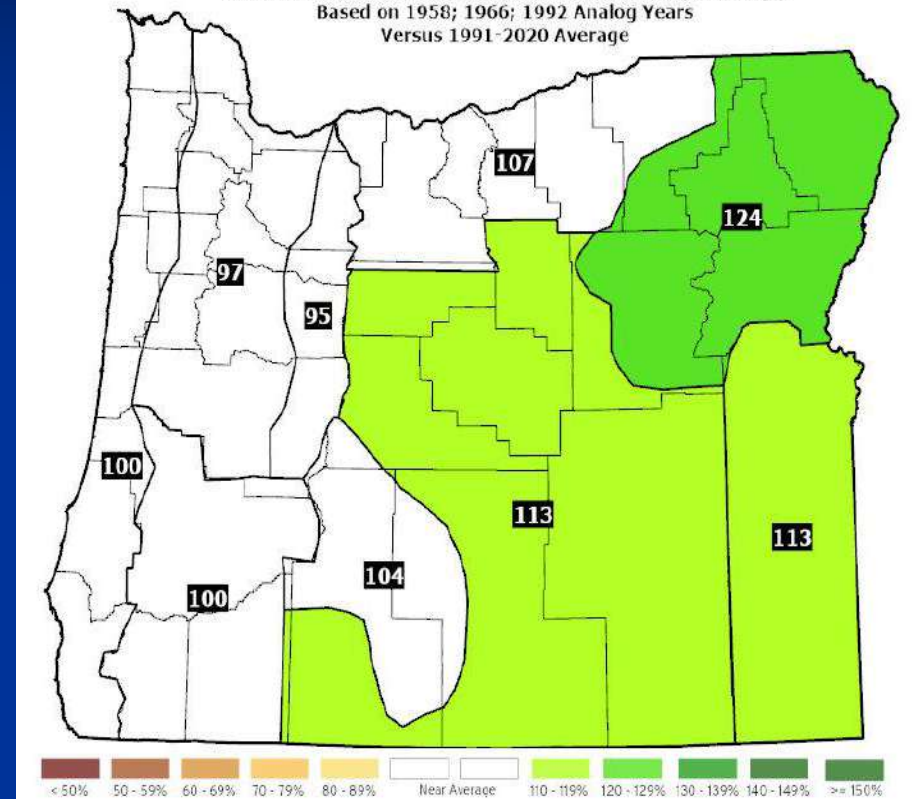
Temperatures

December 2024 Forecast Temperature Anomalies (°F)
Based on 1958, 1966, 1992 Analog Years
Versus 1991-2020 Average



Precipitation

December 2024 Forecast Precipitation Anomalies (% of Avg.)
Based on 1958, 1966, 1992 Analog Years
Versus 1991-2020 Average

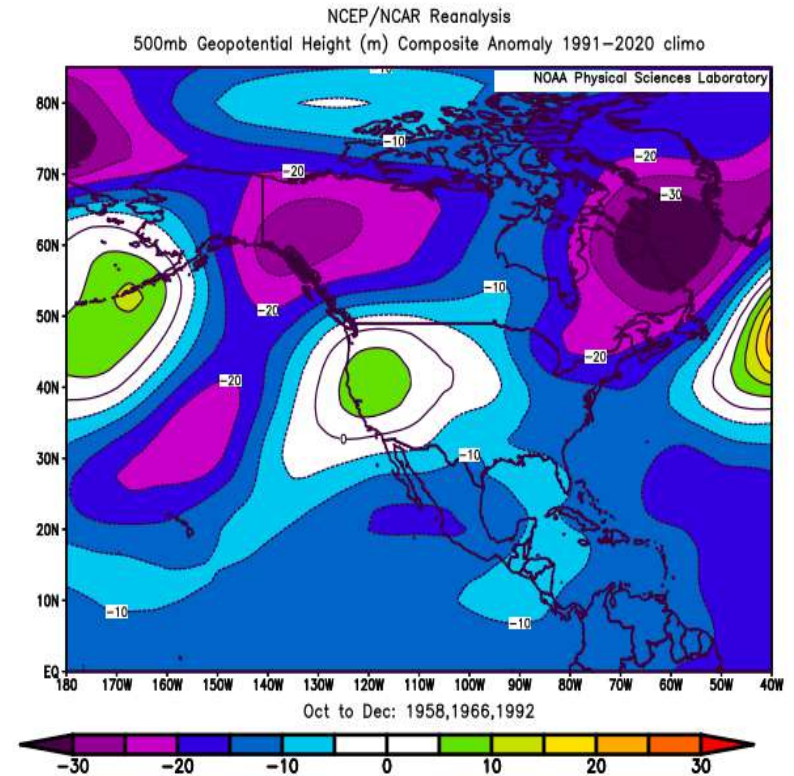
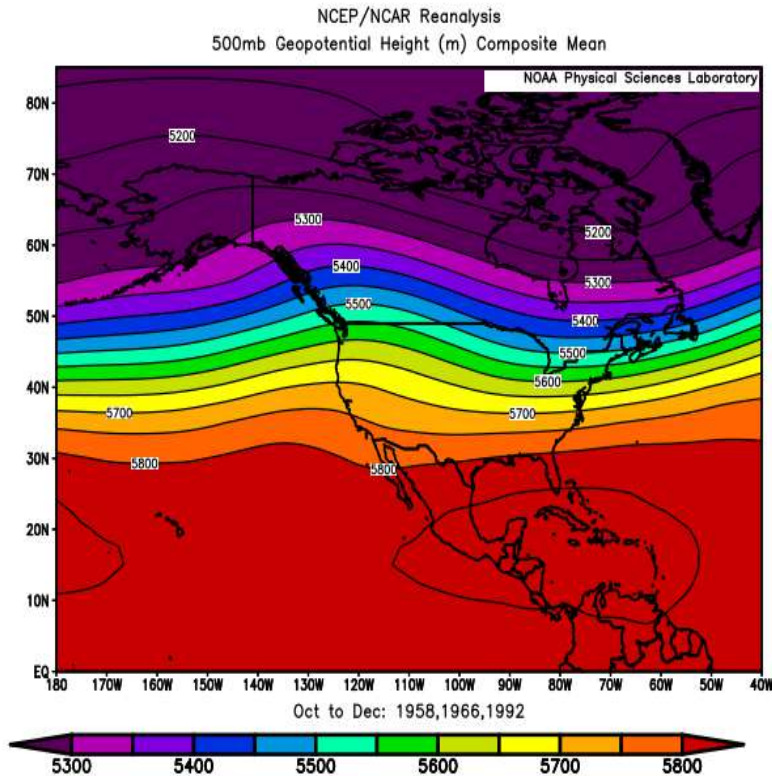


- Analogs ranged from well-above-average temperatures (1958) to below average (1992). Their blend (shown above) is modestly above-average.
- Precipitation also varied significantly. A dry 1958 was countered by progressively wetter 1966 & 1992. The blend (above) was near average.

October – December 2024 Forecast

Mean Upper-Air Pattern

Upper-Air Anomalies

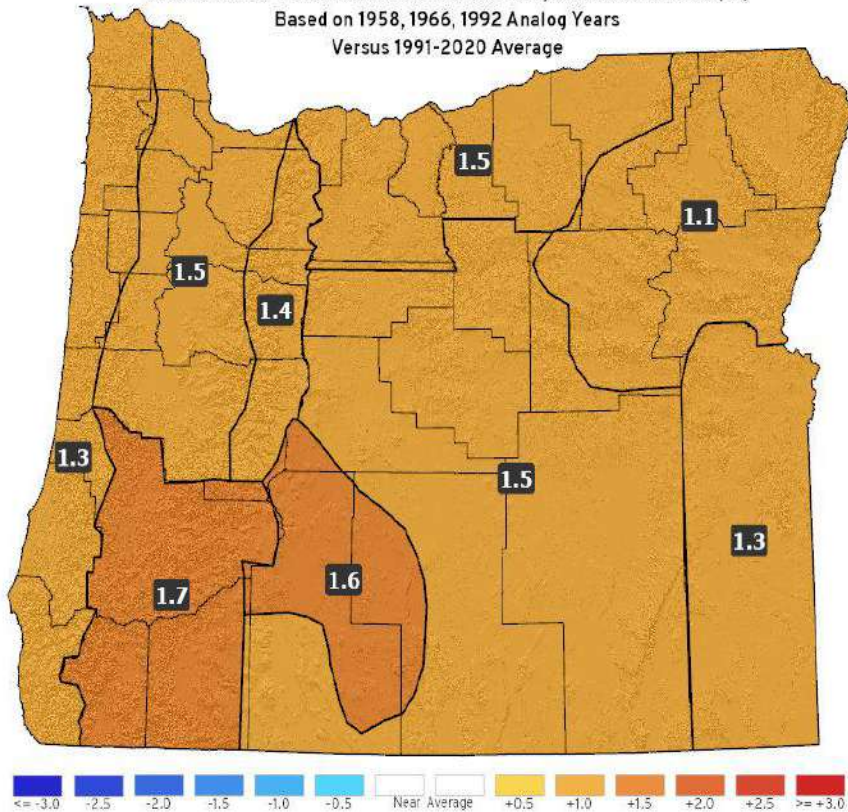


- Analogs have huge variation and will need updating this autumn, based on the evolution of the ENSO signal (**El Niño**; neutral; **La Niña**).
- **El Niño** emerged late in 1958 along with strong anomalous ridging over Oregon. In contrast, 1966 & 1992 had anomalous troughing...

October – December 2024 Forecast

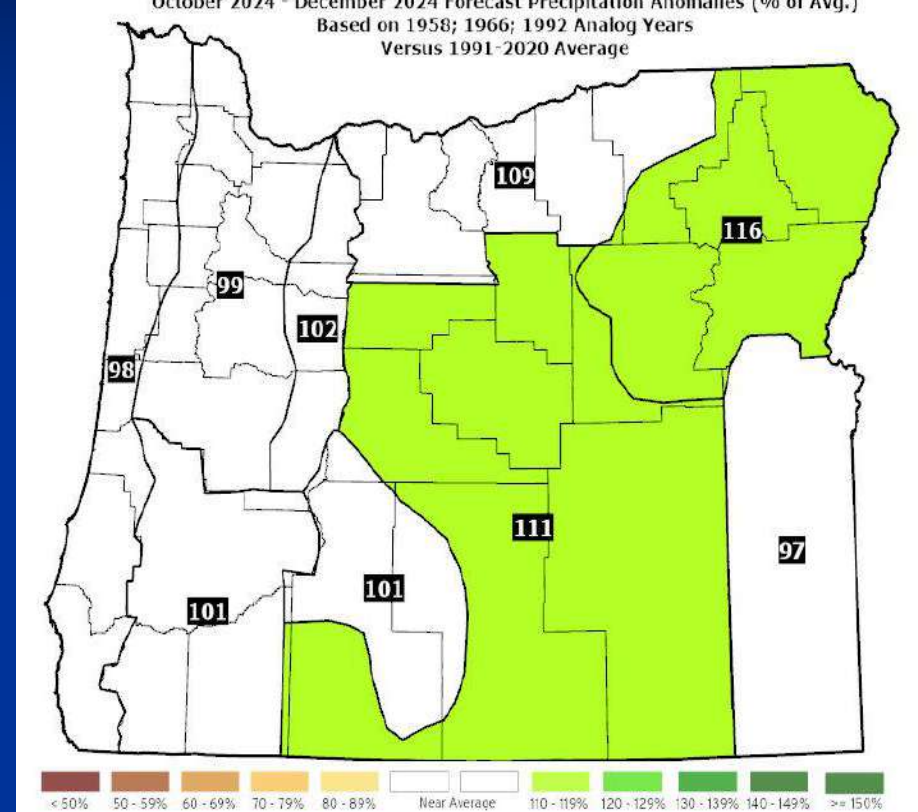
Temperatures

October 2024 - December 2024 Forecast Temperature Anomalies (°F)
Based on 1958, 1966, 1992 Analog Years
Versus 1991-2020 Average



Precipitation

October 2024 - December 2024 Forecast Precipitation Anomalies (% of Avg.)
Based on 1958; 1966; 1992 Analog Years
Versus 1991-2020 Average



- Above-average temperatures are likely through November, but December may turn colder, depending on the evolution of ENSO.
- Drier-than-average conditions in October with a marked transition to relatively wet weather in November, which may extend into December.

Forecast Highlights

- This forecast is based on weather that occurred during the (1958; 1966; 1992) analog years (analog years are unchanged from last month).
- ENSO-neutral conditions are present. 1958 transitioned to **El Niño** during the October-December period, while 1966 and 1992 transitioned into **cold ENSO-neutral**. That creates a divergence of solutions later in the forecast period, so significant updates are likely this fall.
- Expect relatively warm/dry weather in October with a marked transition to damp, but continued mild, conditions in November.
- 1958 had a significant windstorm in early November, with all analog years getting snow down to the Cascade passes by mid-November. The December forecast has low confidence and will be updated this fall.

Disclaimer: This forecast is not associated with NOAA's CPC (see "Forecasting Methods..." at: <https://oda.direct/Weather>) nor the official CPC "Three-Month Outlooks," which are available at: https://www.cpc.ncep.noaa.gov/products/predictions/long_range/seasonal.php?lead=1

Forecast Resources

- ODA Seasonal Climate Forecast Home:

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

- 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/>

Water Supply / Fire-Potential Outlook

- CPC U.S. Seasonal Drought Outlook:

https://www.cpc.ncep.noaa.gov/products/expert_assessment/season_drought.png

- NRCS Snow Water Equivalent Oregon Map:

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

- NRCS/USDA Snow Water Equivalent Products:

<https://www.nrcs.usda.gov/wps/portal/wcc/home/snowClimateMonitoring/snowpack/>

- NDMC U.S. Drought Monitor:

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

- NIDIS North American Drought Portal:

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

- WRCC WestWideDroughtTracker:

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

- NWCC Northwest Interagency Coordination Center (video)

<https://gacc.nifc.gov/nwcc/predict/outlook.aspx>



Updated Monthly

Your Feedback is Welcome!

Sign-up for Email Notification of Updates at:
<https://oda.fyi/SubscribeSCF>

Contact: Pete Parsons, ODF Lead Meteorologist
at 503-945-7448 or peter.gj.parsons@odf.oregon.gov

Photo: Pete Parsons