Seasonal Climate Forecast
August – October 2024

Issued: July 18, 2024

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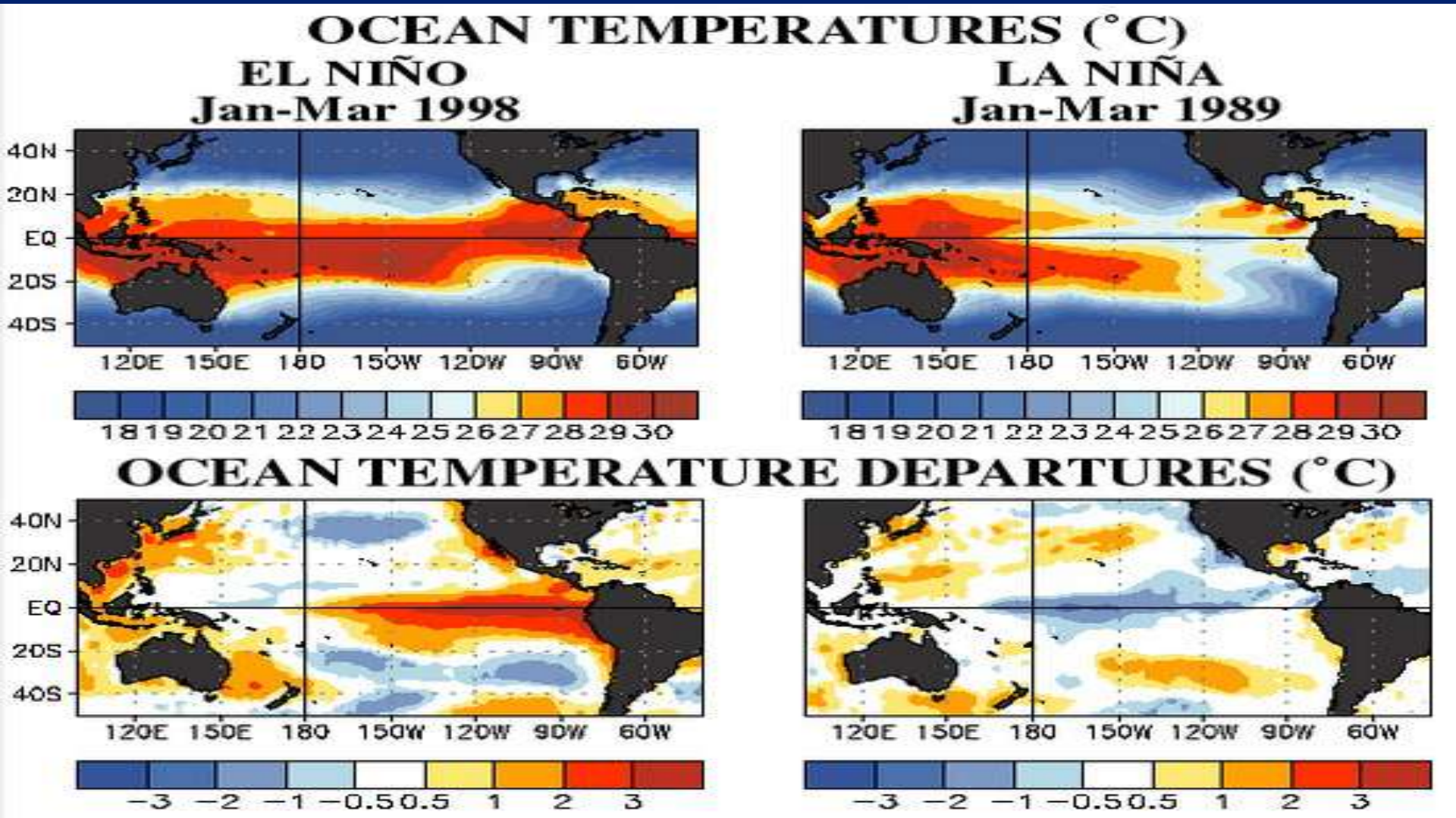
R Gress

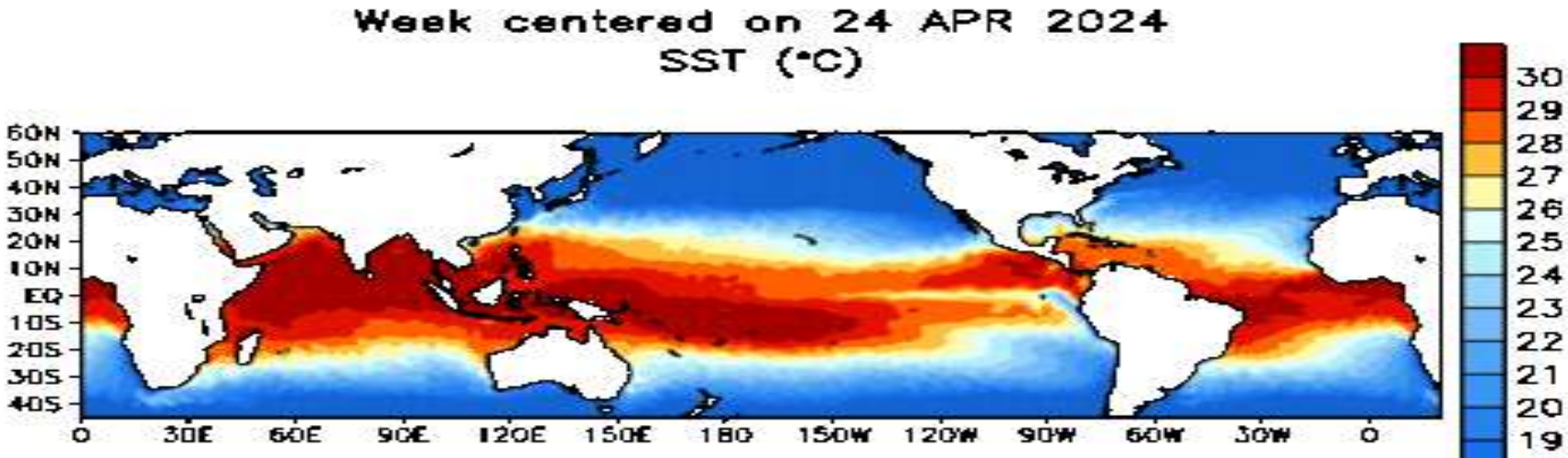
El Niño vs La Niña
(SST Patterns in the Tropical Pacific Ocean)



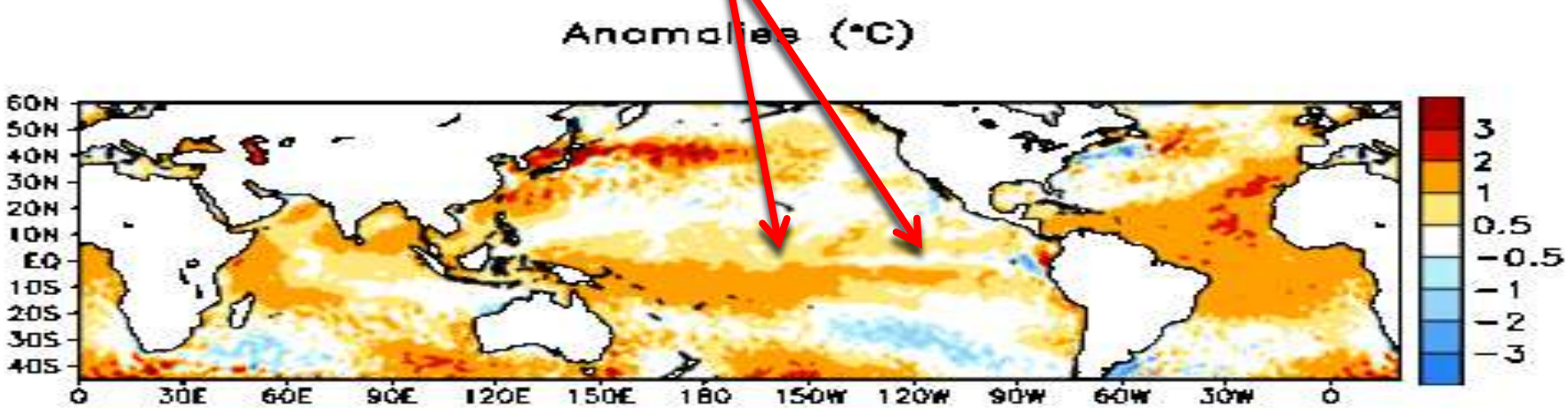
Courtesy: https://www.cpc.ncep.noaa.gov/products/analysis_monitoring/ensocycle/ensocycle.shtml

Sea Surface Temperatures (SSTs)

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



El Niño has transitioned to ENSO-Neutral



Courtesy: https://www.cpc.ncep.noaa.gov/products/analysis_monitoring/enso_update/gsstanim.shtml

El Niño Southern Oscillation (ENSO) Current Status and Forecast

- The June Southern Oscillation Index (SOI) was 0.0, reflecting the recent transition to ENSO-neutral conditions.

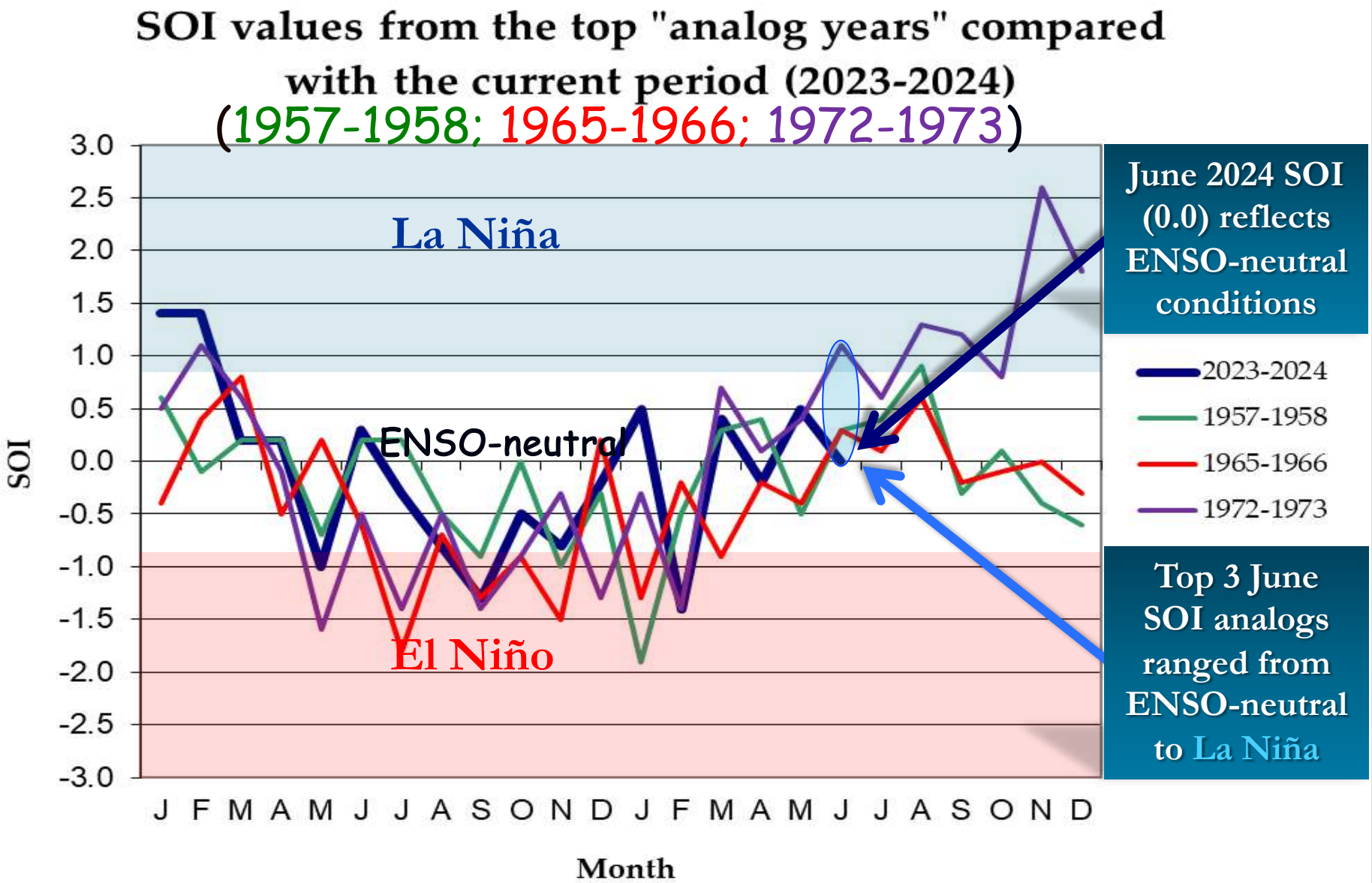
- The April – June Oceanic Niño Index (ONI) fell to +0.4°C, which also reflects cooling of central and eastern tropical Pacific Ocean sea surface temperatures (SSTs) into the ENSO-neutral range.

- NOAA's Climate Prediction Center (CPC) predicts continued cooling of central and eastern tropical Pacific Ocean SSTs and a transition from ENSO-neutral to La Niña during the August – October period.

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.

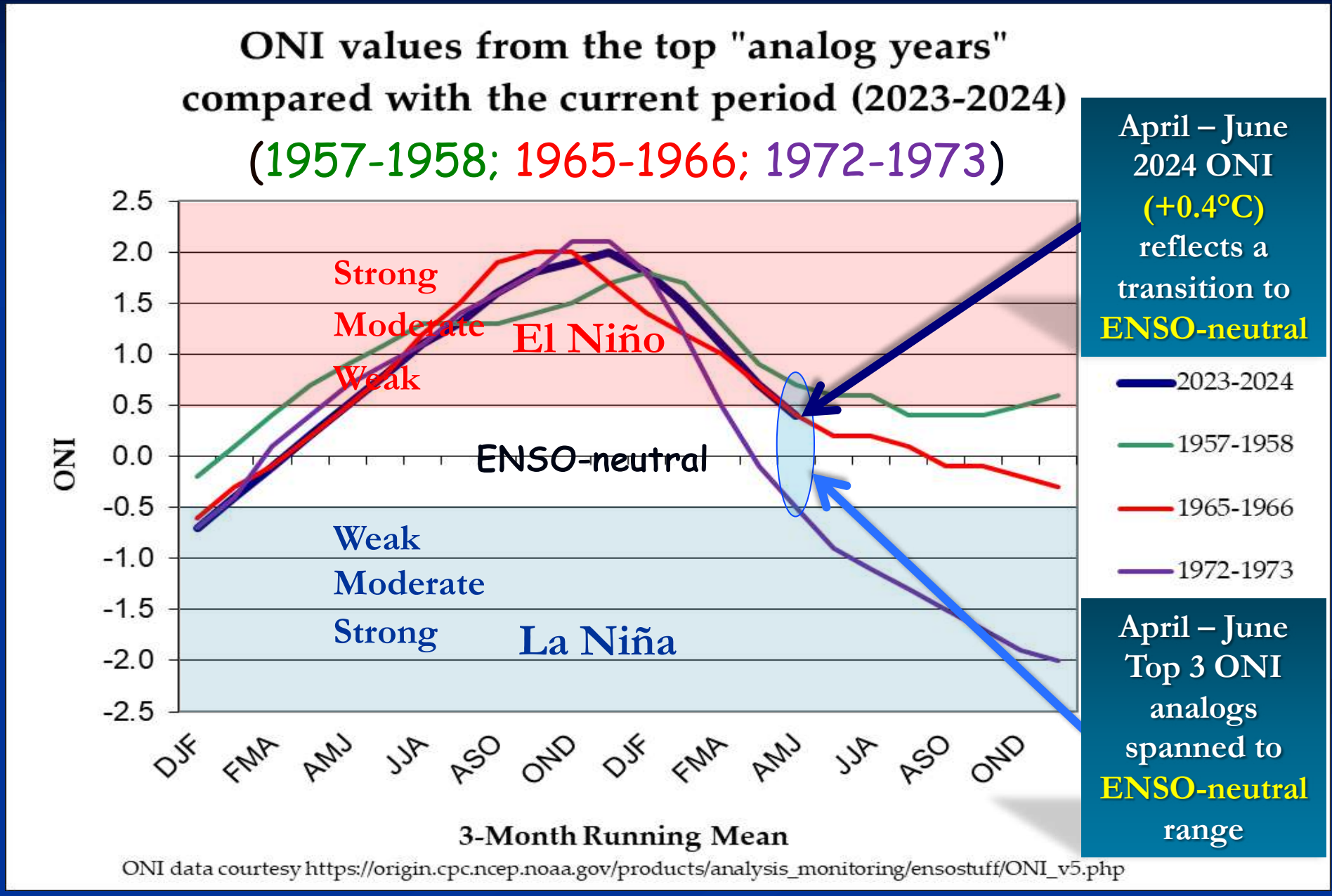
https://www.cpc.ncep.noaa.gov/products/analysis_monitoring/lanina/enso_evolution-status-fcsts-web.pdf

Southern Oscillation Index (SOI)



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

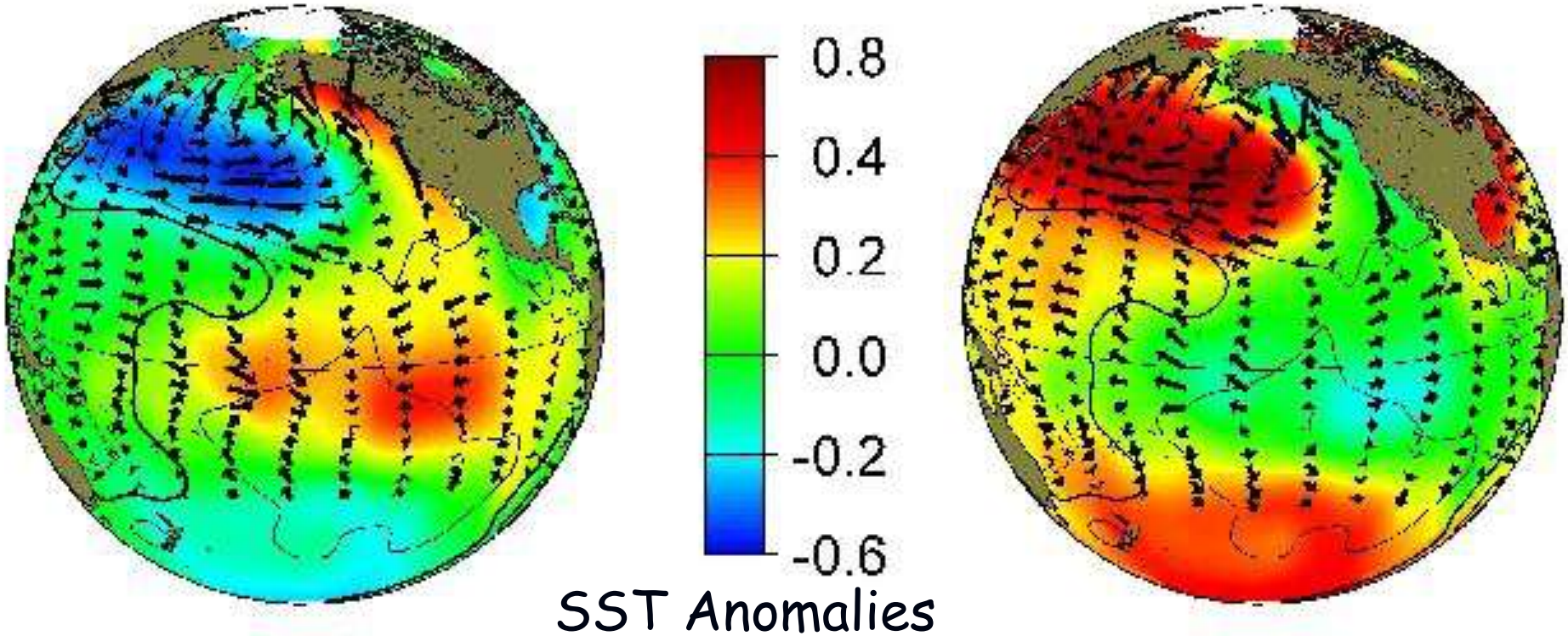
Oceanic Niño Index (ONI)



The Pacific Decadal Oscillation (PDO)
(Reflects SST "Phase" in the North Pacific Ocean)

Positive (Warm) "Phase"

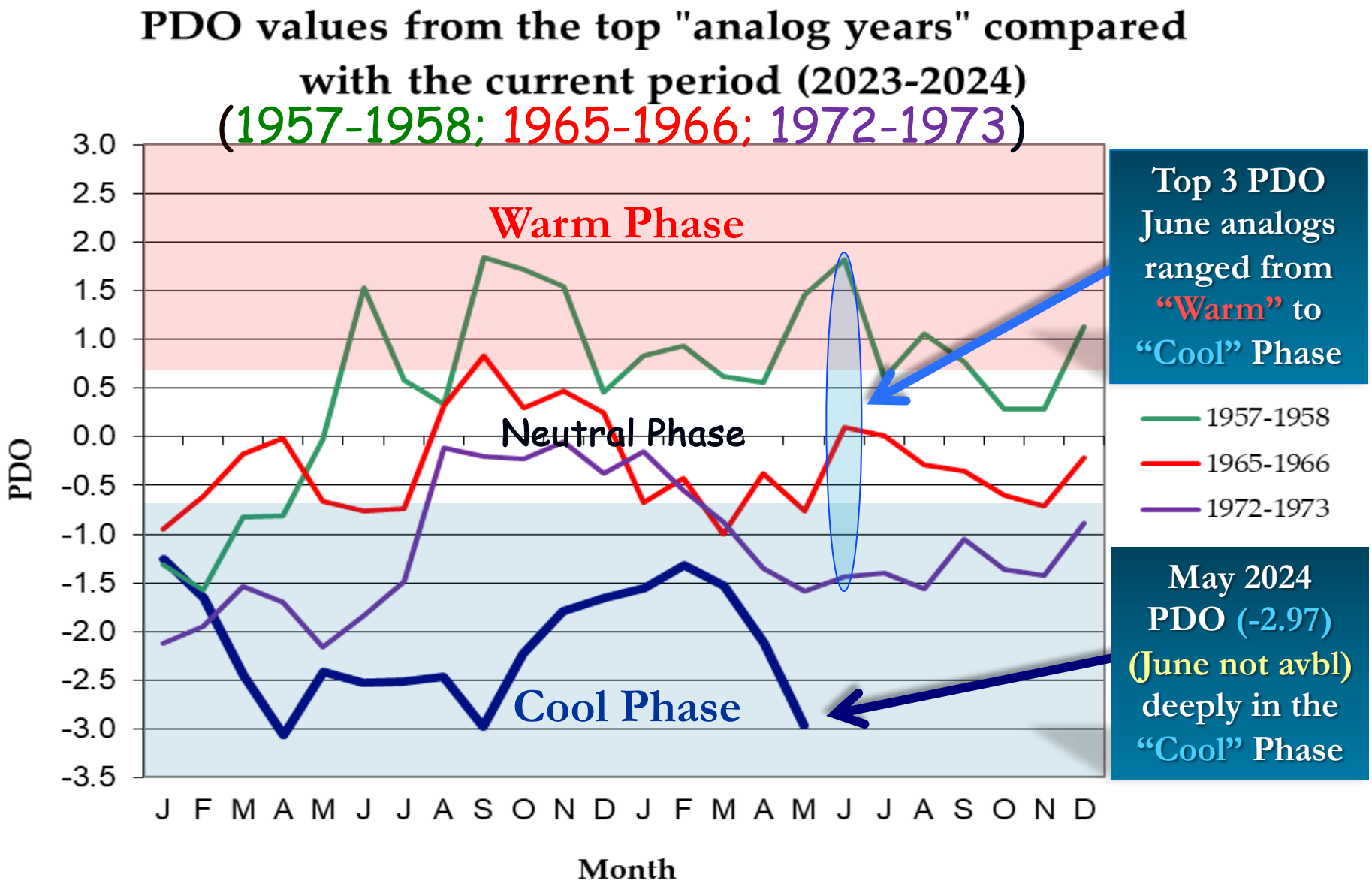
Negative (Cool) "Phase"



Courtesy: http://research.jisao.washington.edu/pdo/img/pdo_warm_cool.jpg

North Pacific Ocean

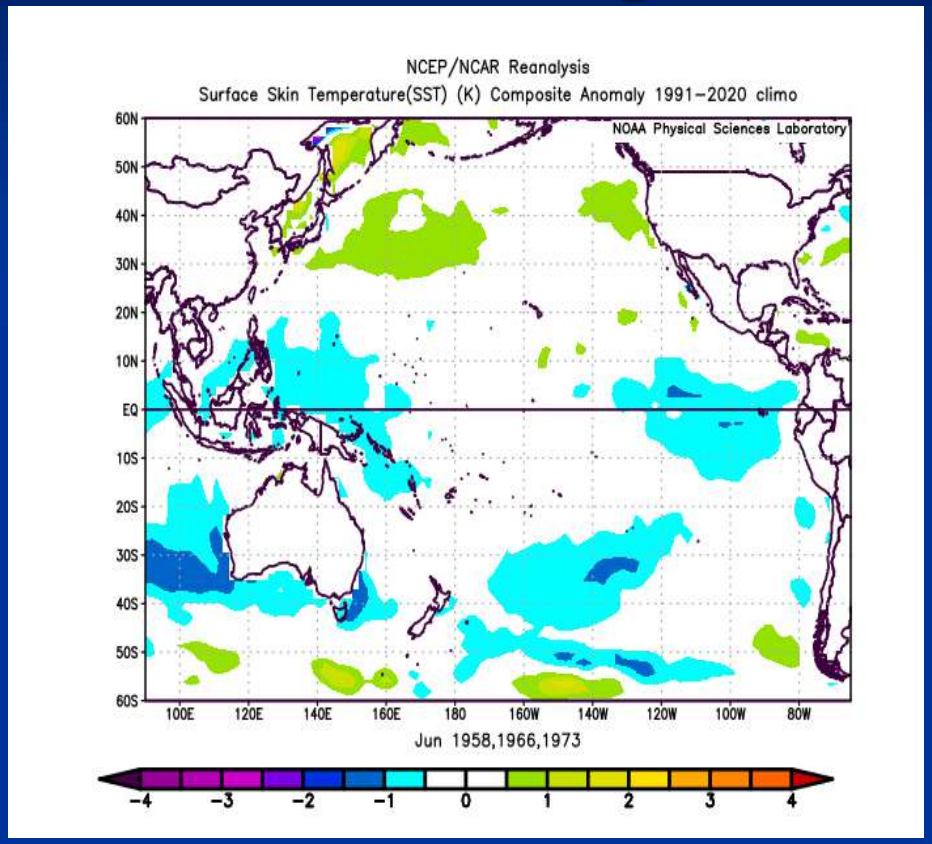
(Poleward of 20°N Latitude)



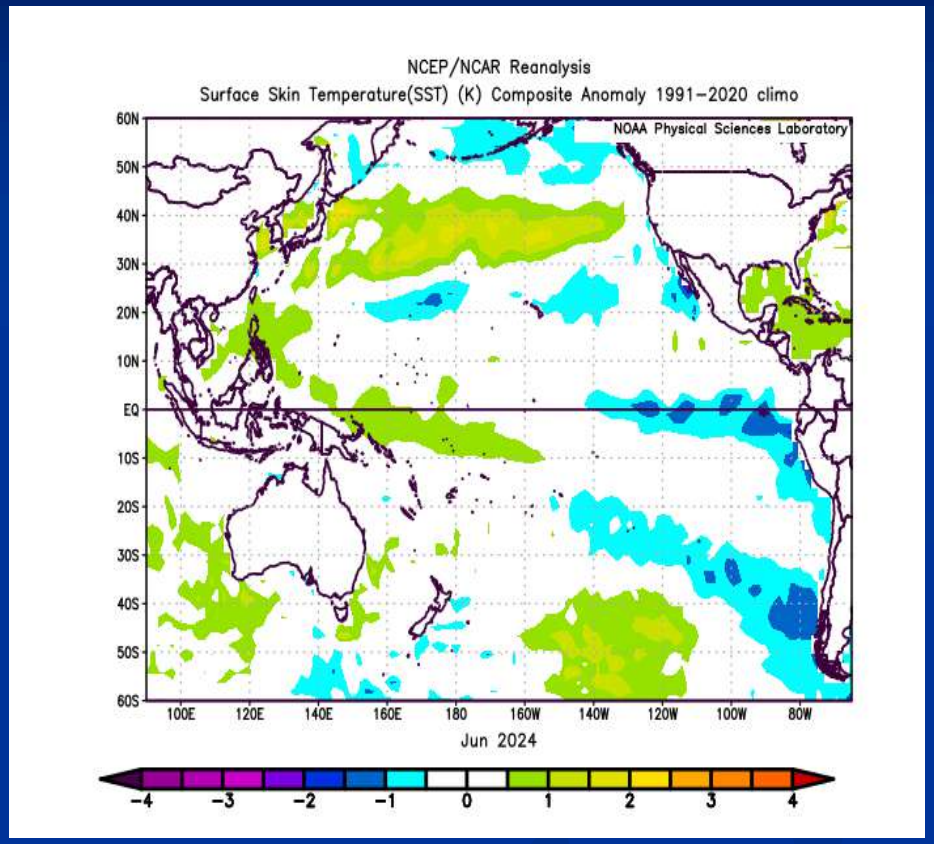
PDO data courtesy https://www.ncei.noaa.gov/monitoring-content/teleconnections/pdo/data/ersst.v5.pdo.dat

SST Anomalies Comparison

June Analogs

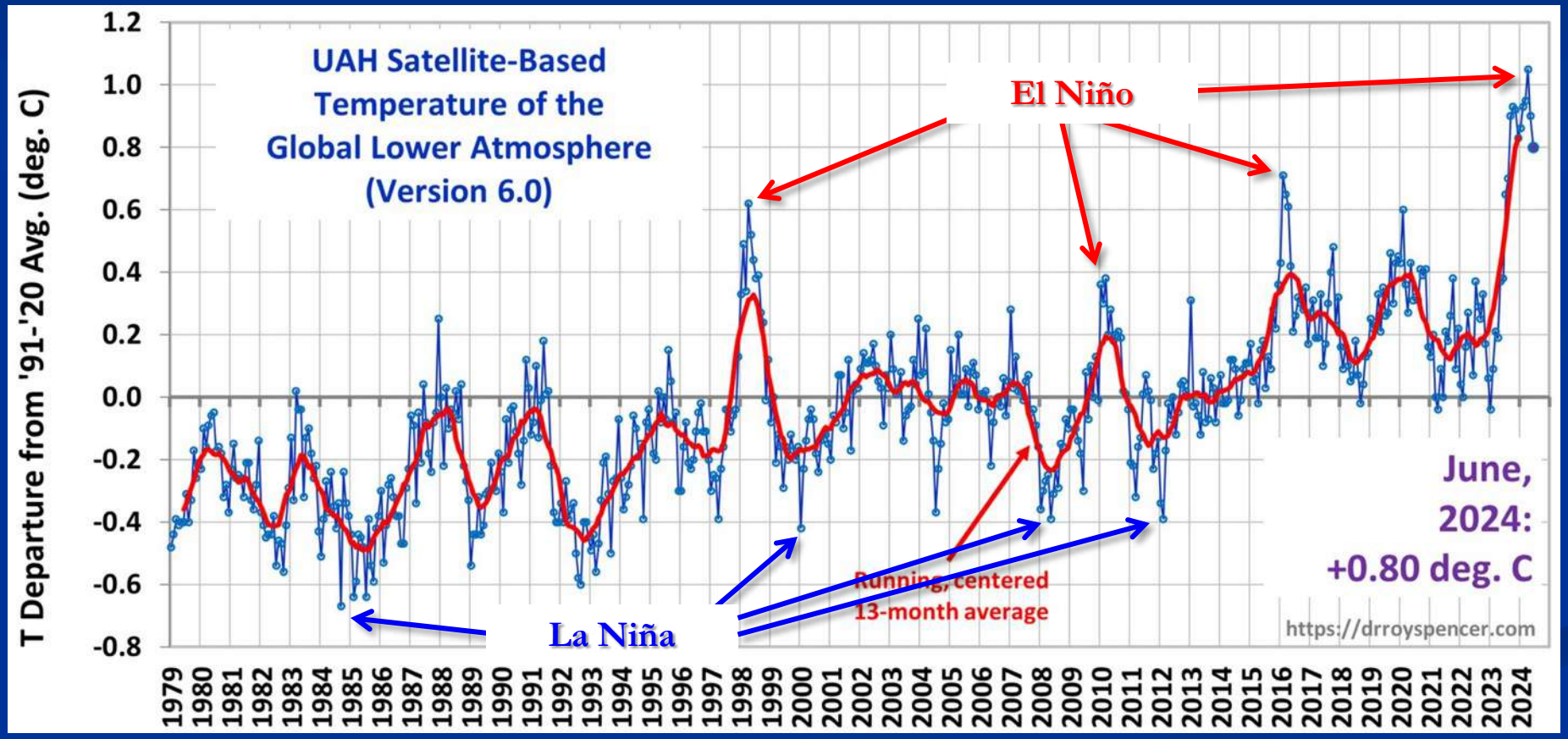


June 2024



- Both the June analog composite (left) and June 2024 (right) reflected ENSO-neutral conditions.
- Both charts also show cooler-than-normal SSTs emerging along the eastern equatorial Pacific Ocean.

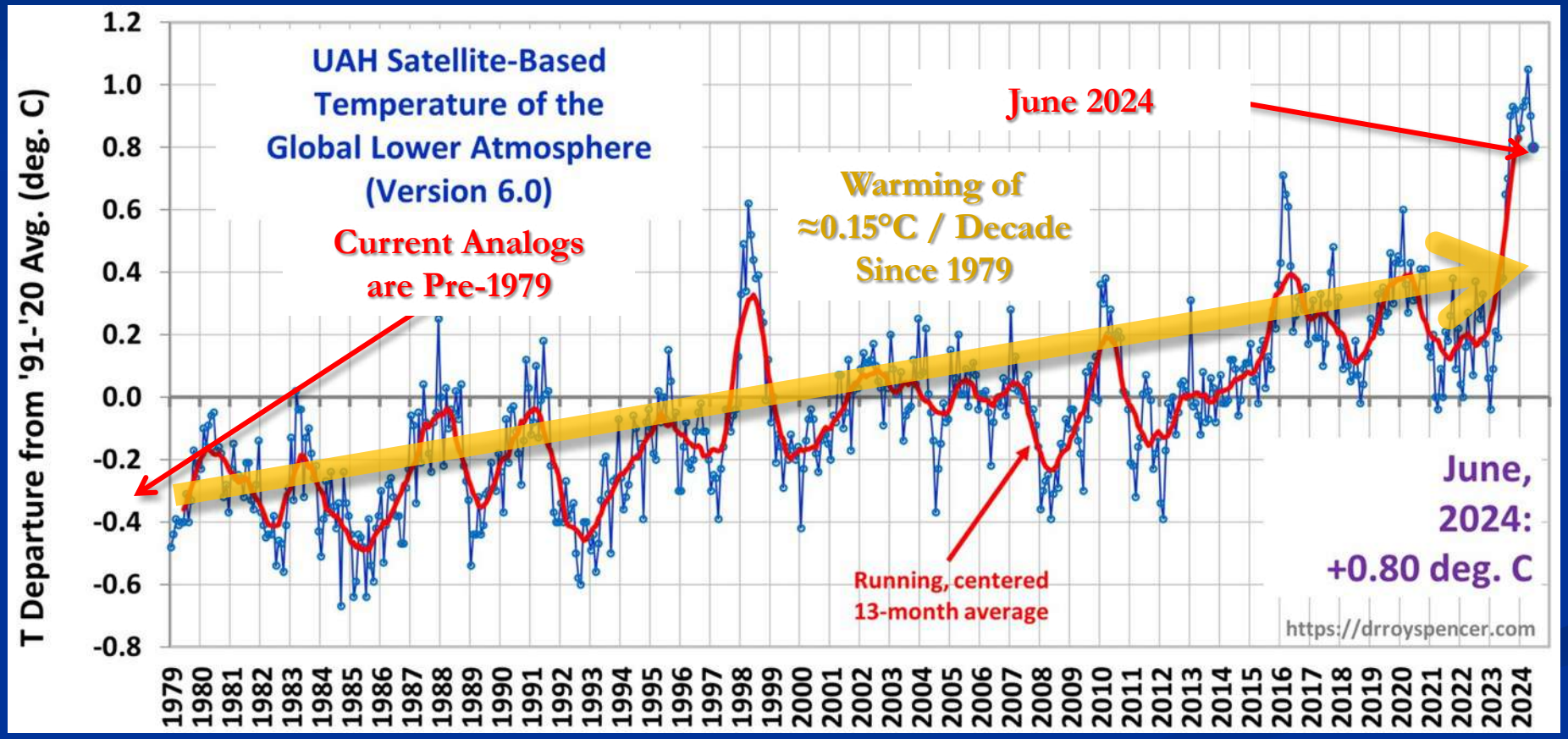
El Niño & La Niña Impact Global Temperatures…



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

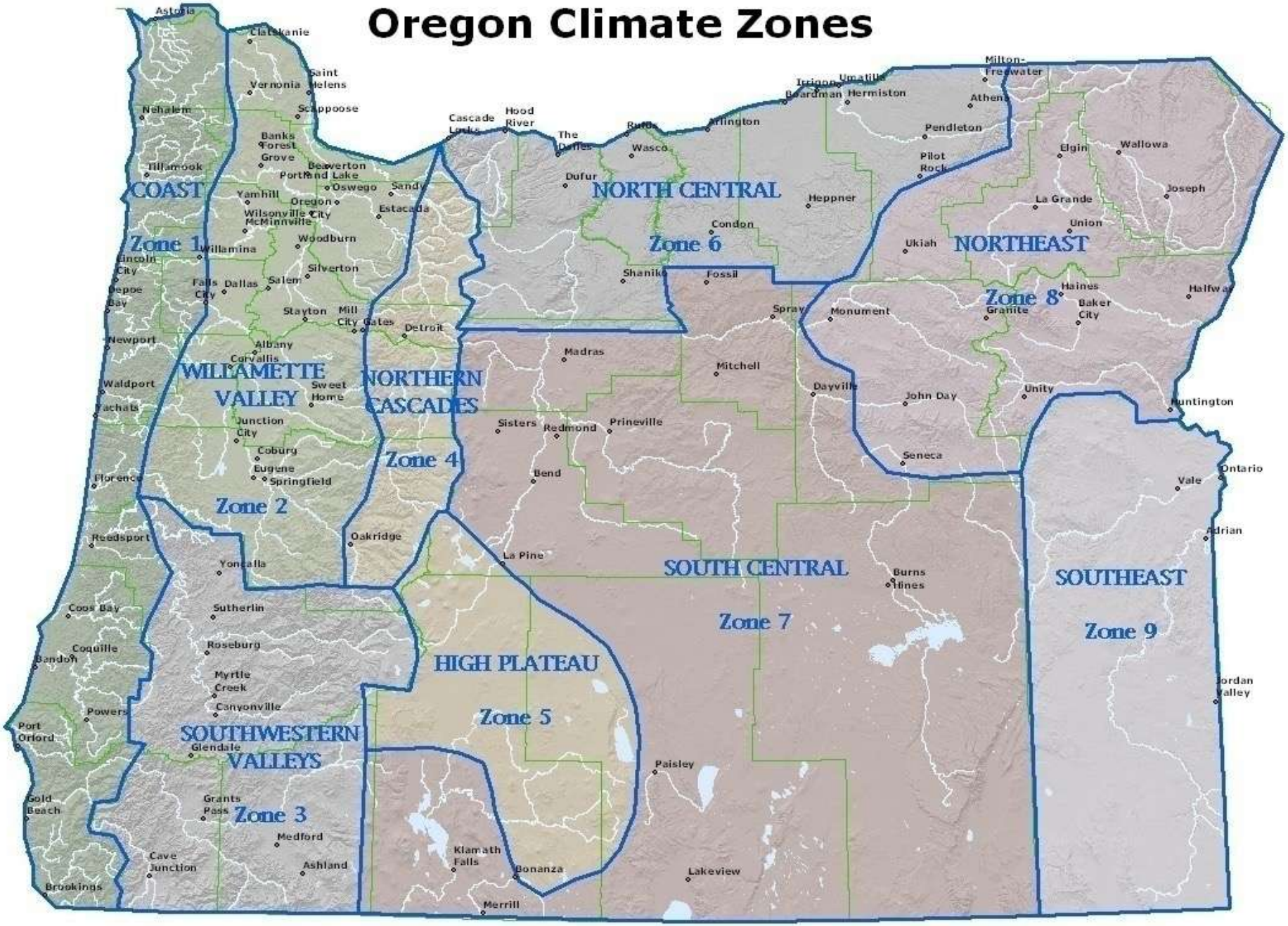
Global Temperature Trends

Increase Error in Analog Forecasts!



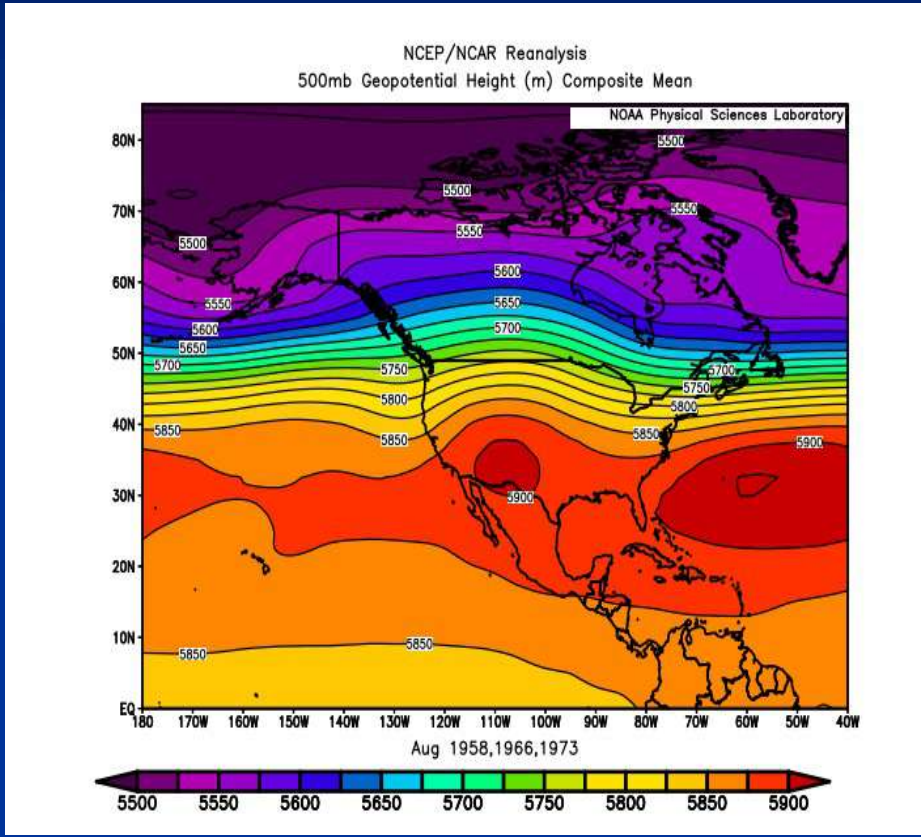
Courtesy: http://www.drroyspencer.com/latest-global-temperatures/

Oregon Climate Zones

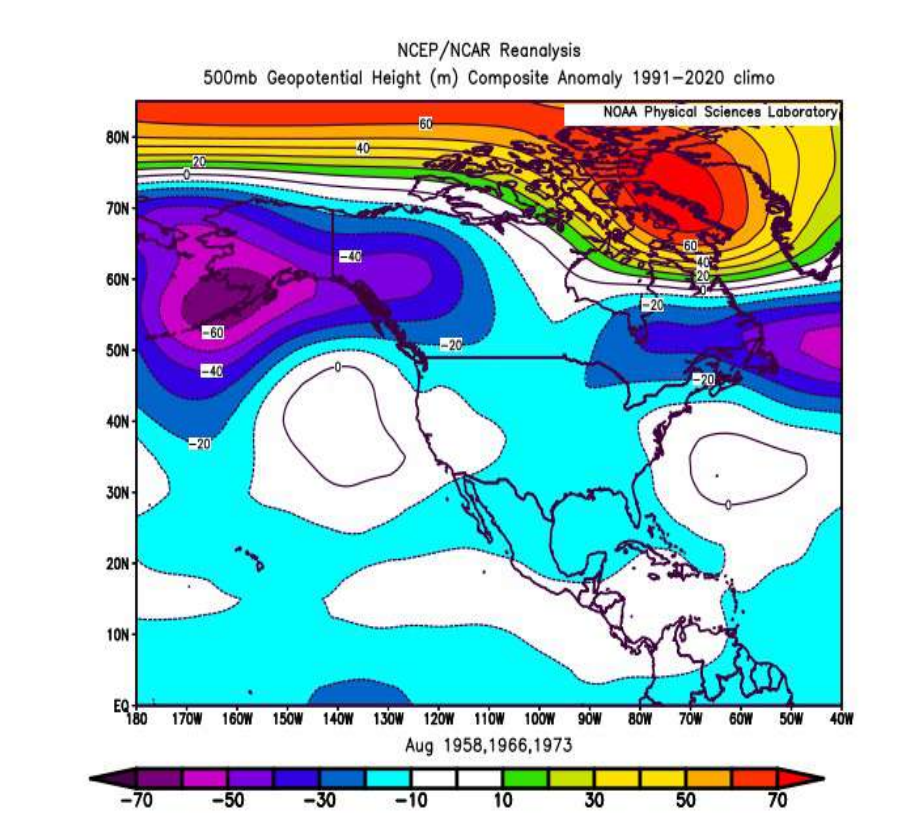


August 2024 Forecast

Mean Upper-Air Pattern



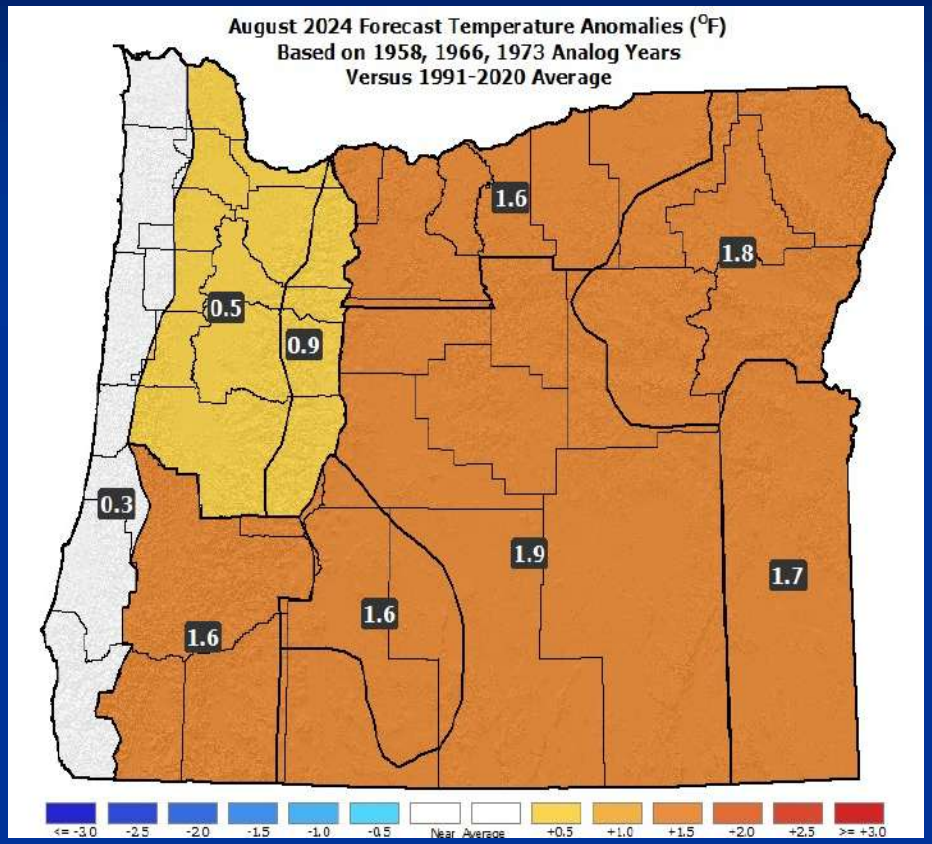
Upper-Air Anomalies



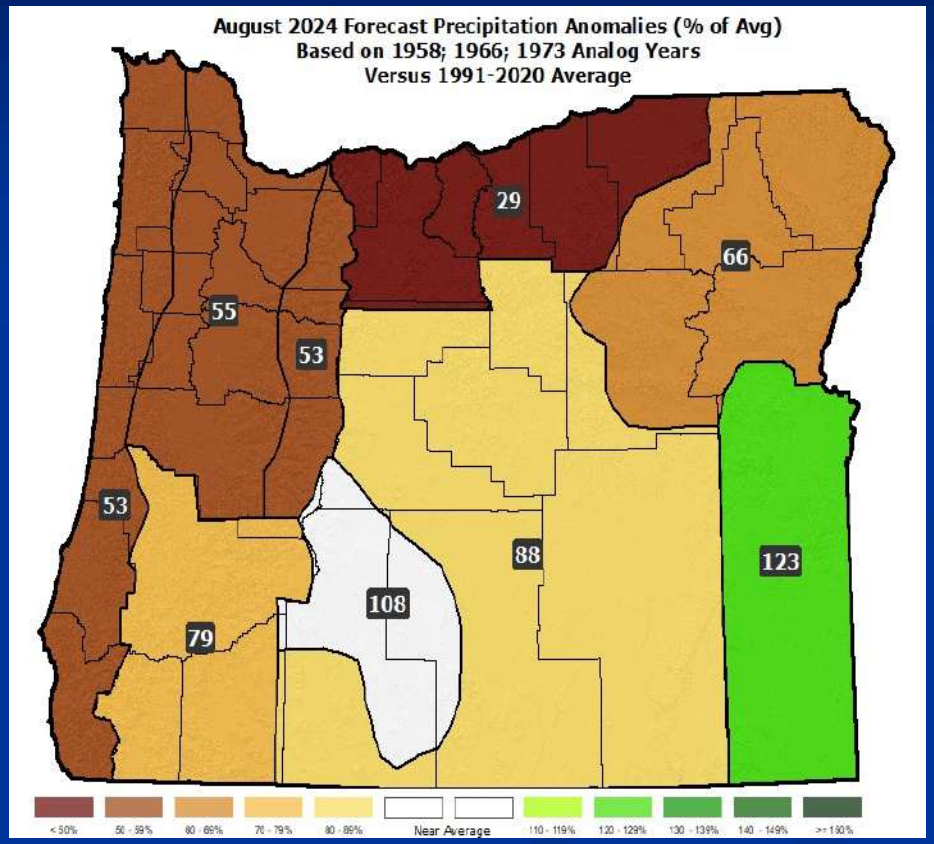
- All 3 of the top analogs have a prevailing SW flow aloft over Oregon, with 1958 & 1966 having stronger ridging compared to 1973.
- This upper-air pattern favors modestly above-normal temperatures but also opens the door for thunderstorm activity.

August 2024 Forecast

Temperatures



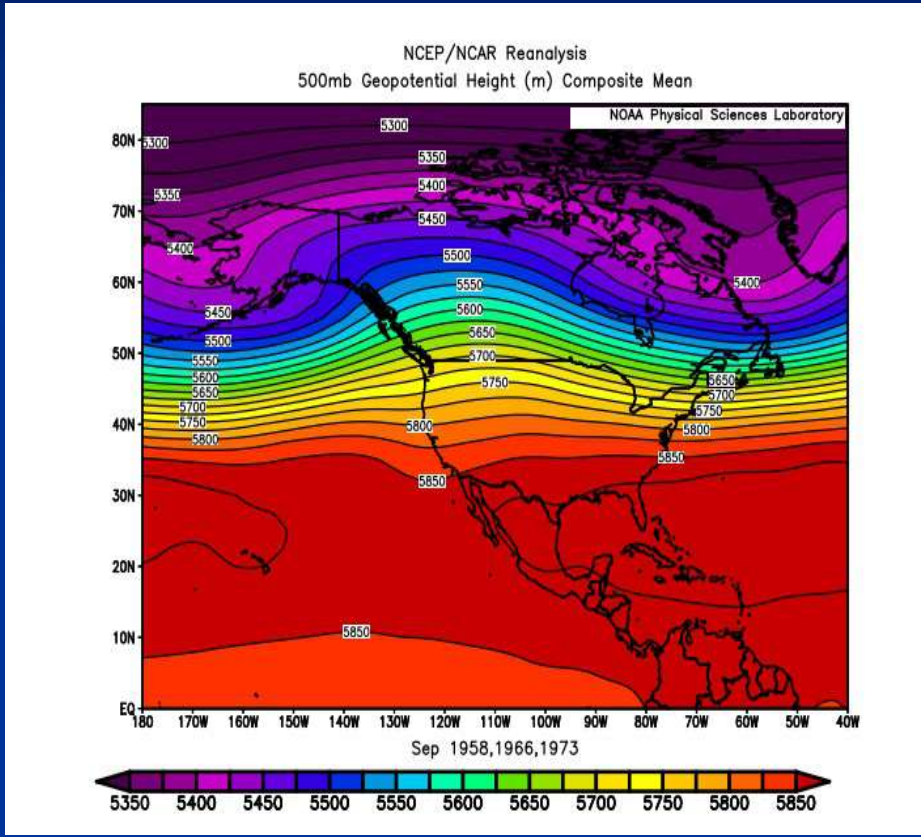
Precipitation



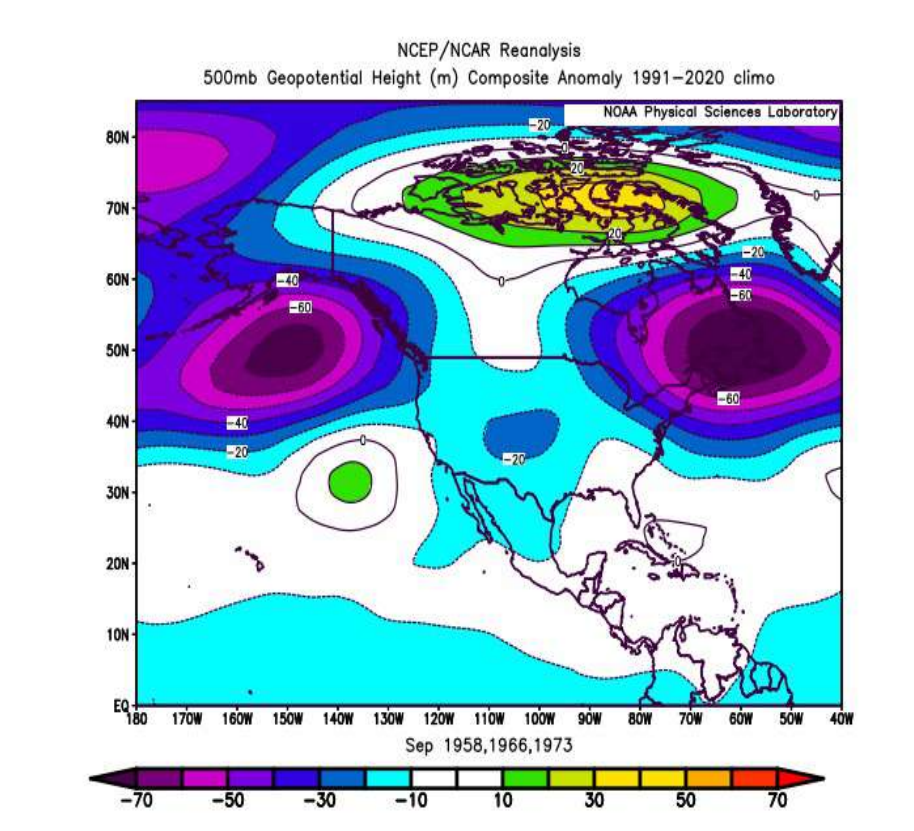
- A very warm 1958 is tempered by progressively cooler 1966 & 1973 analogs. Modestly warmer-than-average conditions are favored.
- Analogs had below-average rainfall, except for spotty downpours with thunderstorms. 1958 & 1966 had considerable thunderstorm activity.

September 2024 Forecast

Mean Upper-Air Pattern



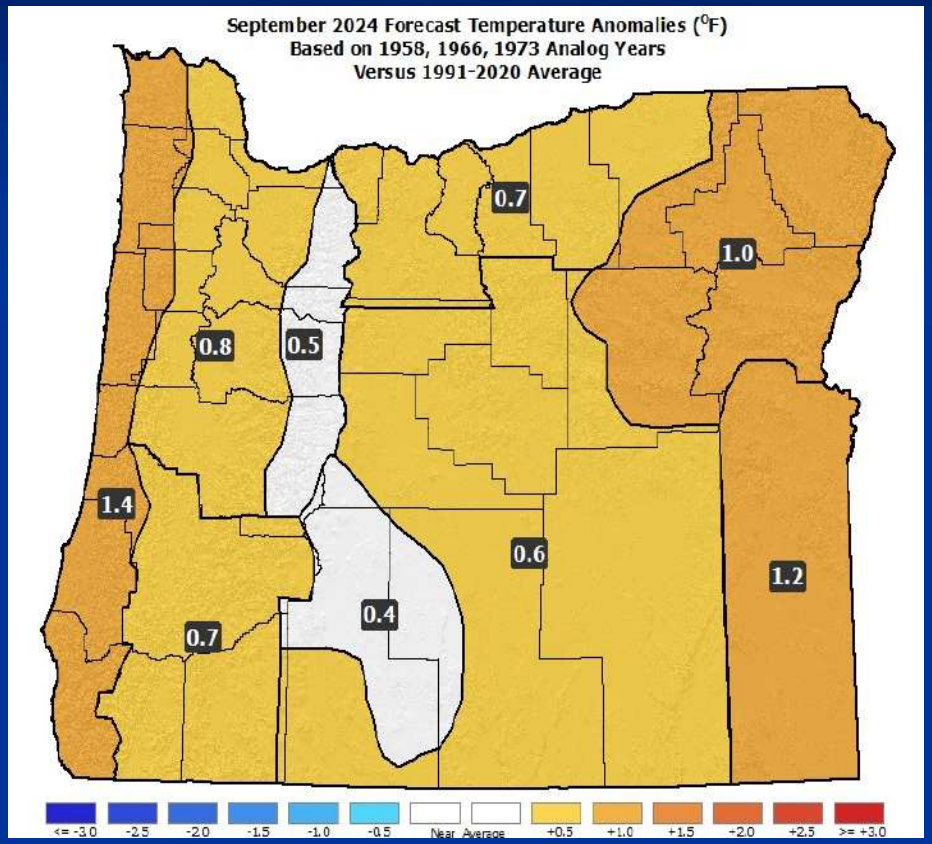
Upper-Air Anomalies



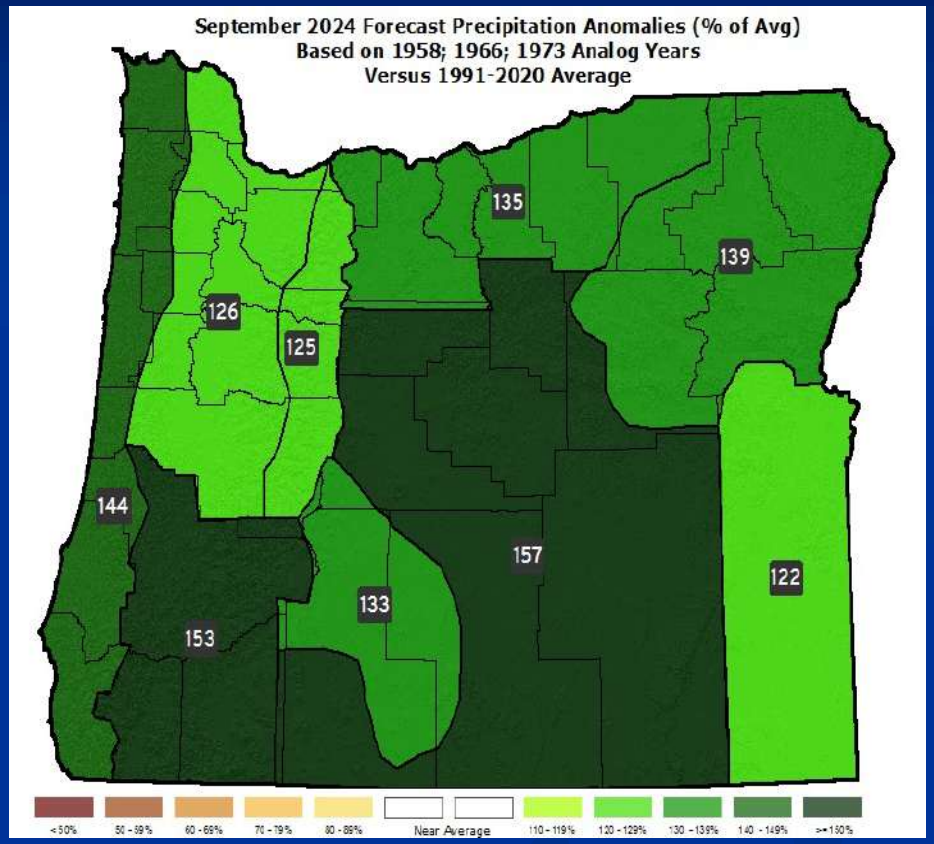
- Individual analog solutions increase in their diversification, which lowers forecast confidence.
- Expect some residual "split-flow" to the jet stream pattern, which emerged over the Pacific NW last winter.

September 2024 Forecast

Temperatures



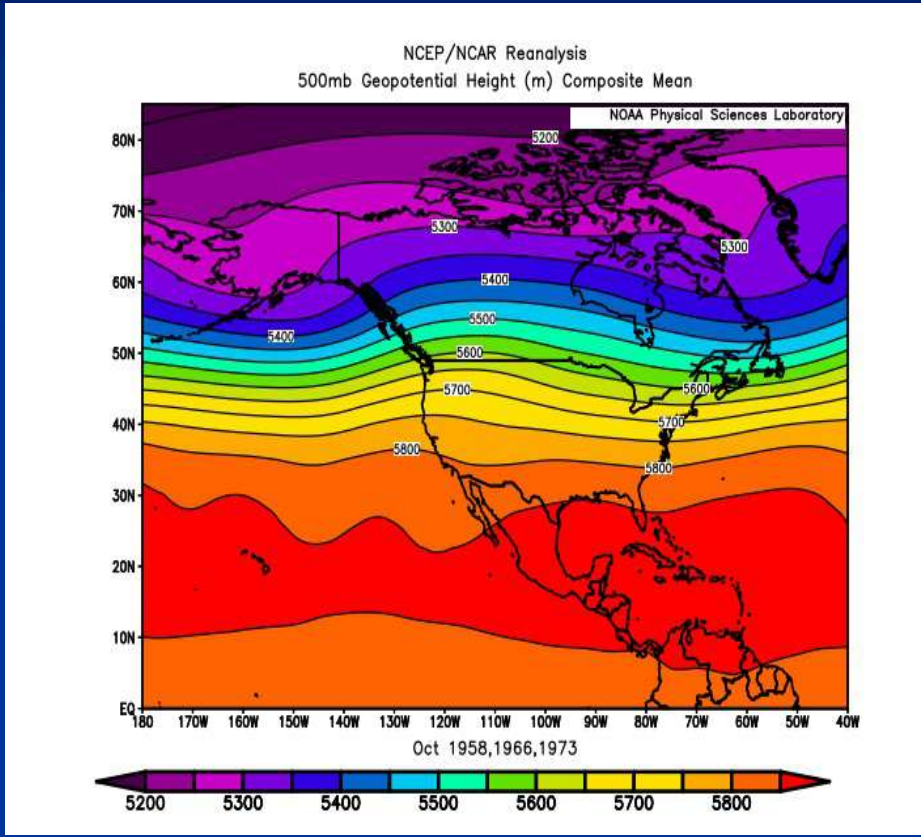
Precipitation



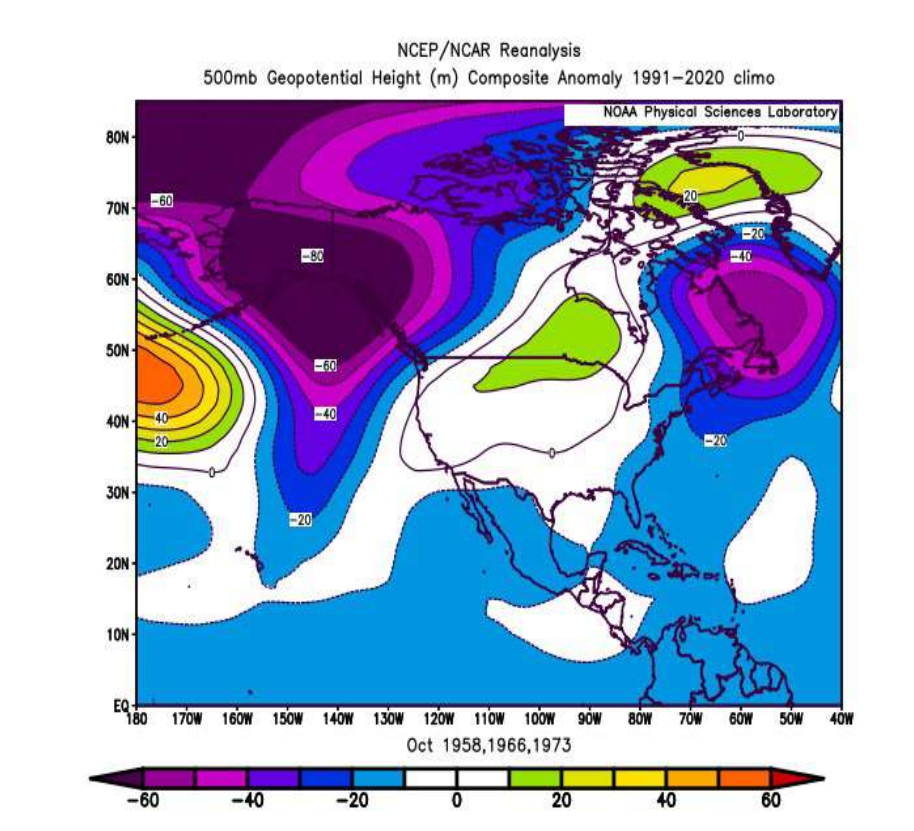
- Modestly above-average temperatures with a few days of "very warm" weather likely around the first week.
- Transition from relatively dry conditions to more-damp weather likely in the second half of the month with near or above-average rainfall.

October 2024 Forecast

Mean Upper-Air Pattern



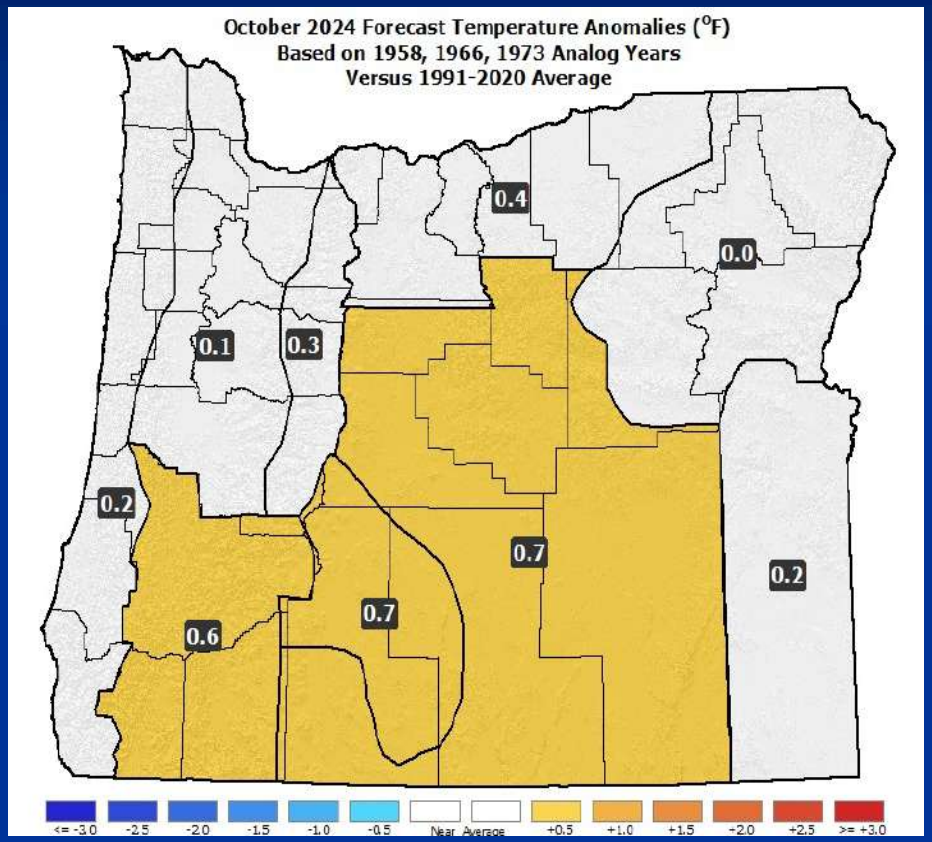
Upper-Air Anomalies



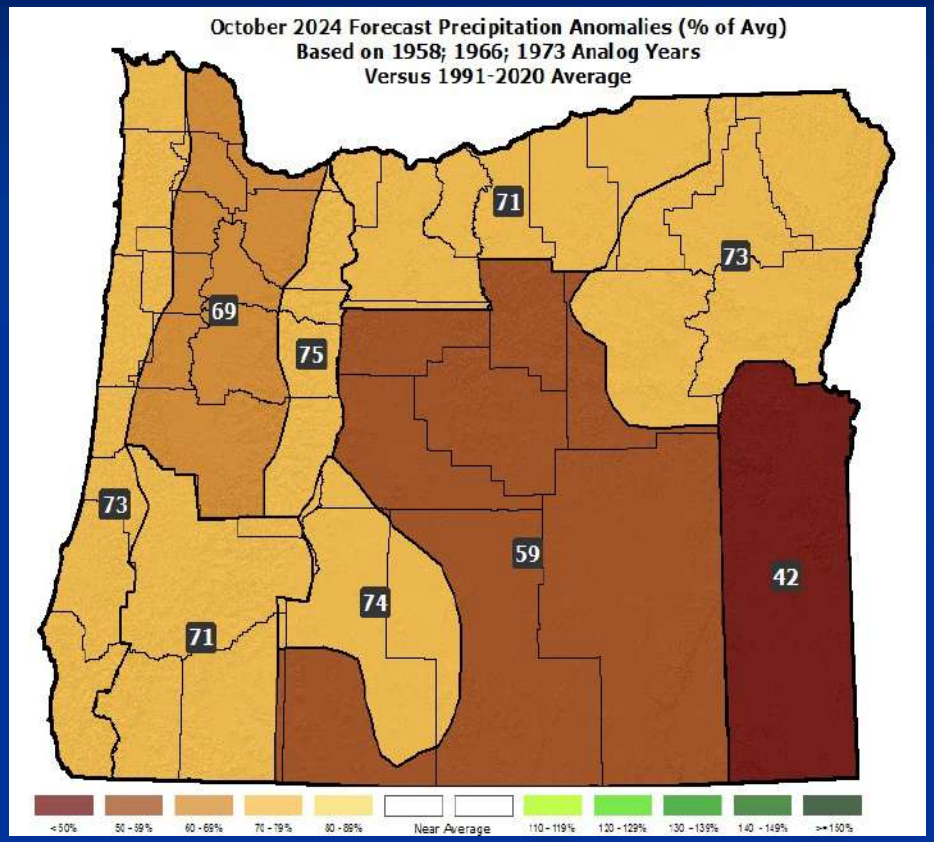
- The analogs have diverse upper-air patterns with their composite showing anomalous ridging centered just east of Oregon.
- October of 1958 & 1966 had significant anomalous ridging over Oregon, but 1973 had significant anomalous troughing over Oregon.

October 2024 Forecast

Temperatures



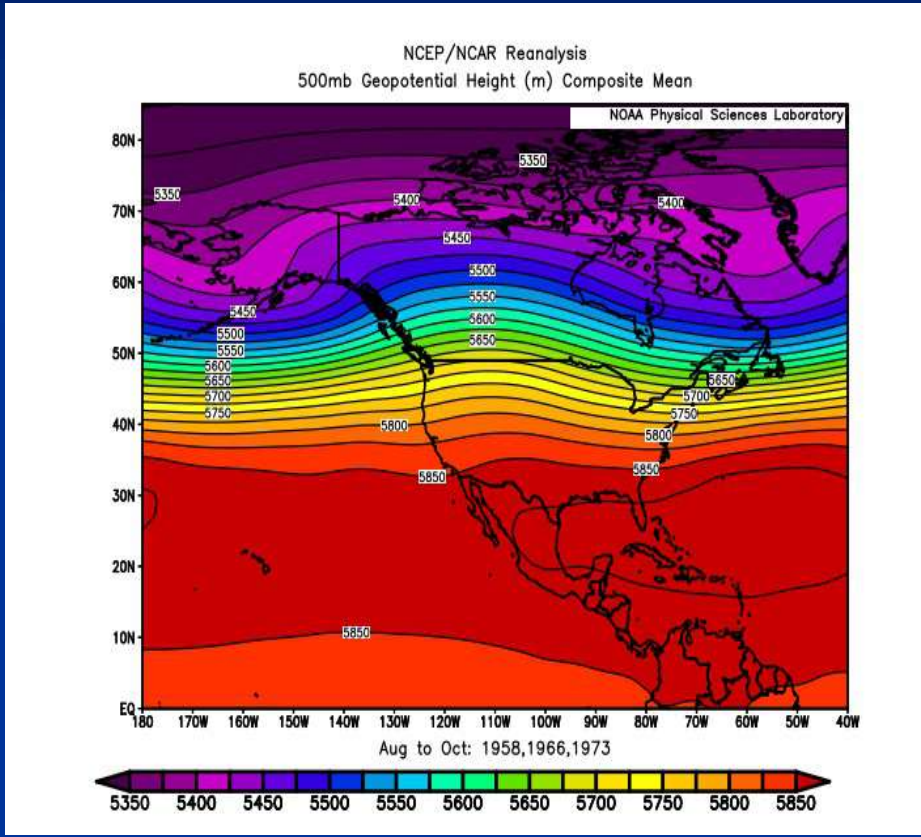
Precipitation



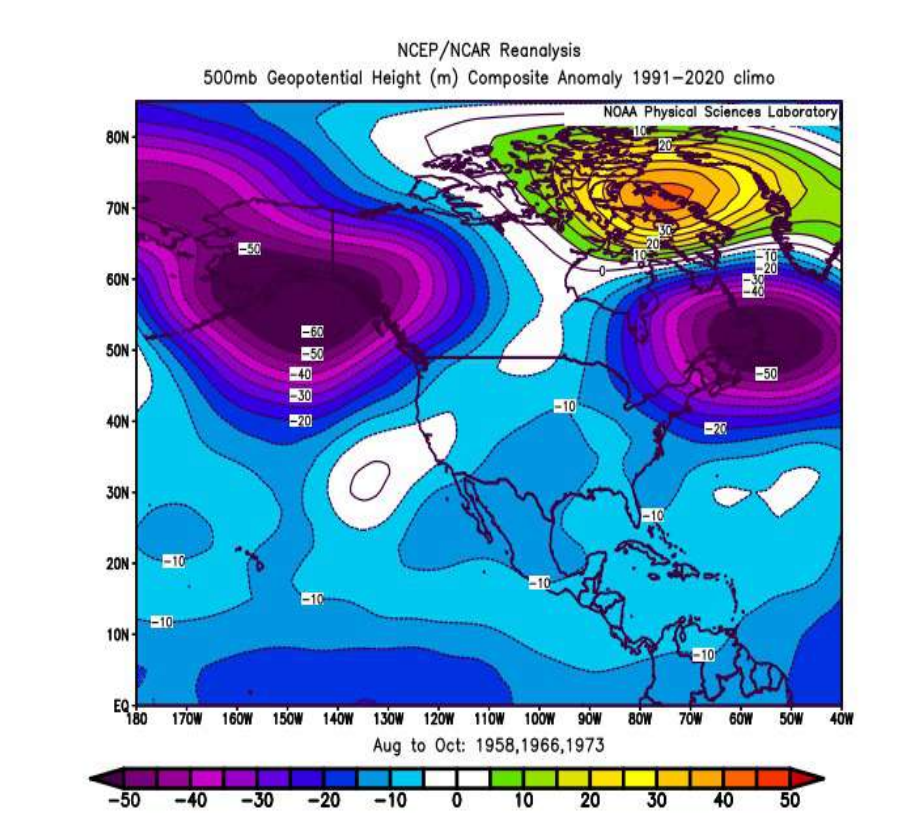
- Temperatures varied greatly among the top analog years. 1958 was quite warm; 1966 was slightly warm; 1973 was cooler than average.
- Precipitation also was quite varied, ranging from a drier-than-average 1958 to a slightly wet 1973. Odds favor relatively warm & dry weather.

August – October 2024 Forecast

Mean Upper-Air Pattern



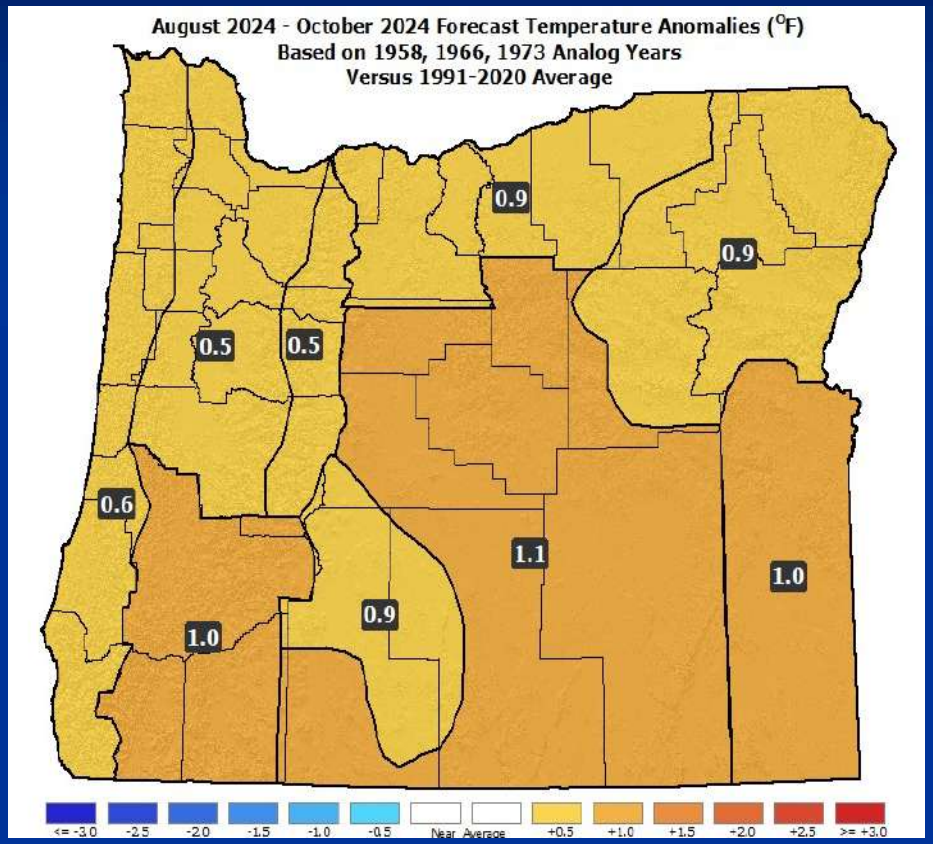
Upper-Air Anomalies



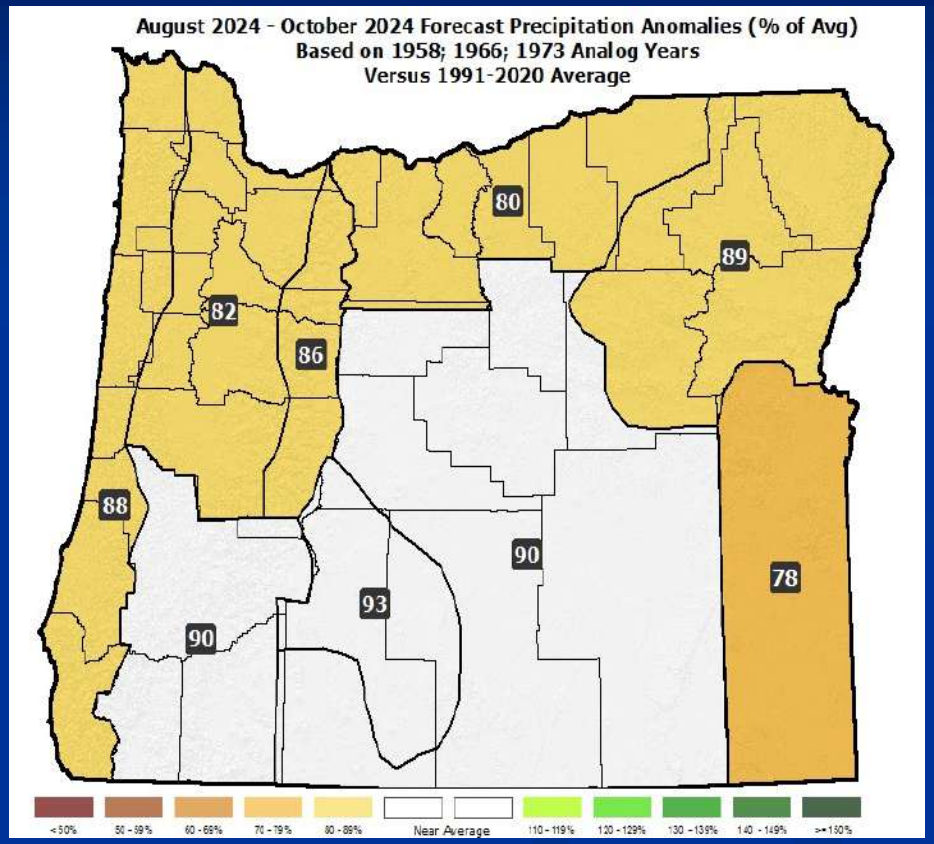
- Analogs show various strength of a mean ridge centered over the Rockies. 1958 & 1966 have more ridging over Oregon than 1973.
- Diversity of the top analogs lowers forecast confidence, but they indicate that our recent "split-flow" pattern will be consolidating.

August – October 2024 Forecast

Temperatures



Precipitation



- With a possible transition from ENSO-neutral to La Niña during this period, there is a large variation in the analogs.
- The analog blend favors relatively warm/dry conditions. However, 1973 made a quick transition to La Niña & cooler/wetter weather.

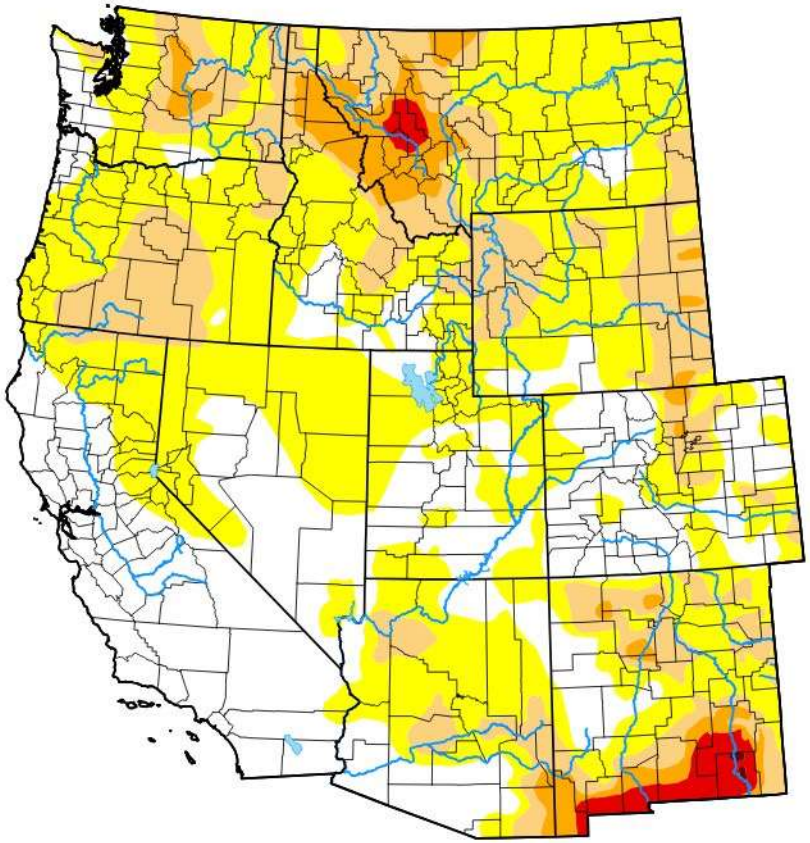
Forecast Highlights

- This forecast is based on weather that occurred during the (1958; 1966; 1973) analog years (no changes to the analogs from last month).
- A transition to ENSO-neutral conditions is resulting in a weakening of the prevailing "split-flow" jet stream pattern that developed last winter.
- Expect relatively warm weather with the threat of hot/warm periods extending through at least early September and possibly early October.
- Increased threat of t-storms, possibly with spotty heavy precipitation. 1958 had the most t-storms with fewer t-storms in 1966 & 1973.
- Analogs all had a transition to cooler/damp weather around mid-September, but 1958 & 1966 brought back warm periods in October.

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

Moderate Drought Conditions Return

(Sections of Oregon)



Map released: Thurs. July 18, 2024

Data valid: July 16, 2024 at 8 a.m. EDT

Intensity

- None
- D0 (Abnormally Dry)
- D1 (Moderate Drought)
- D2 (Severe Drought)
- D3 (Extreme Drought)
- D4 (Exceptional Drought)
- No Data

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Brian Fuchs, National Drought Mitigation Center

Pacific Islands and Virgin Islands Author(s):

Lindsay Johnson, National Drought Mitigation Center

Courtesy: National Drought Mitigation Center (NDMC)

U.S. Drought Monitor

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

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