Seasonal Climate Forecast
June – August 2024

Issued: May 16, 2024

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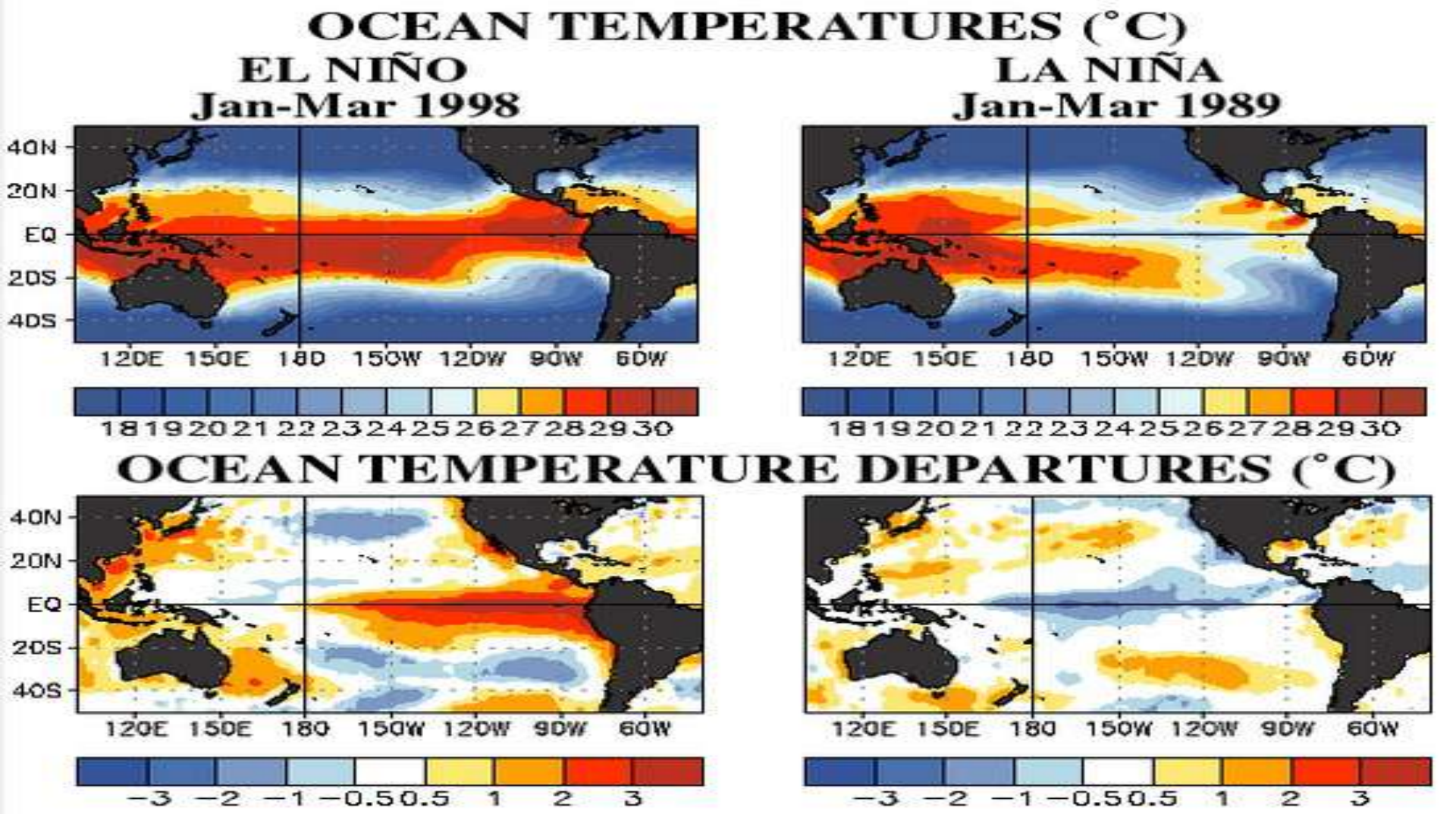
Kevin Klink
Christmas Valley, OR

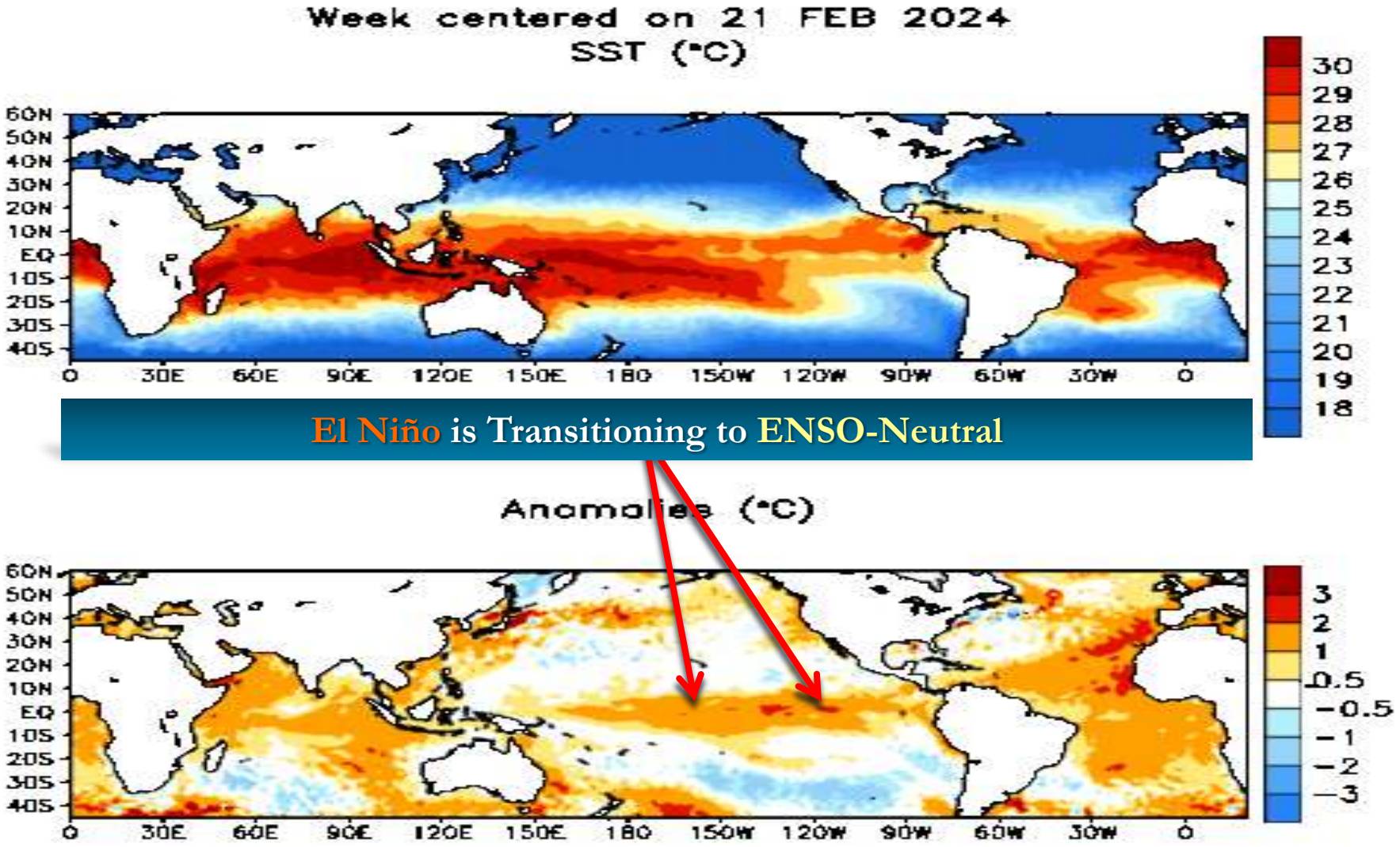
El Niño vs La Niña
(SST Patterns in the Tropical Pacific Ocean)



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

Sea Surface Temperatures (SSTs)

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



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

El Niño Southern Oscillation (ENSO) Current Status and Forecast

- The April Southern Oscillation Index (SOI) of -0.2, reflected near-average trade winds across the tropical Pacific Ocean, corresponding with an ongoing transition to ENSO-neutral conditions.

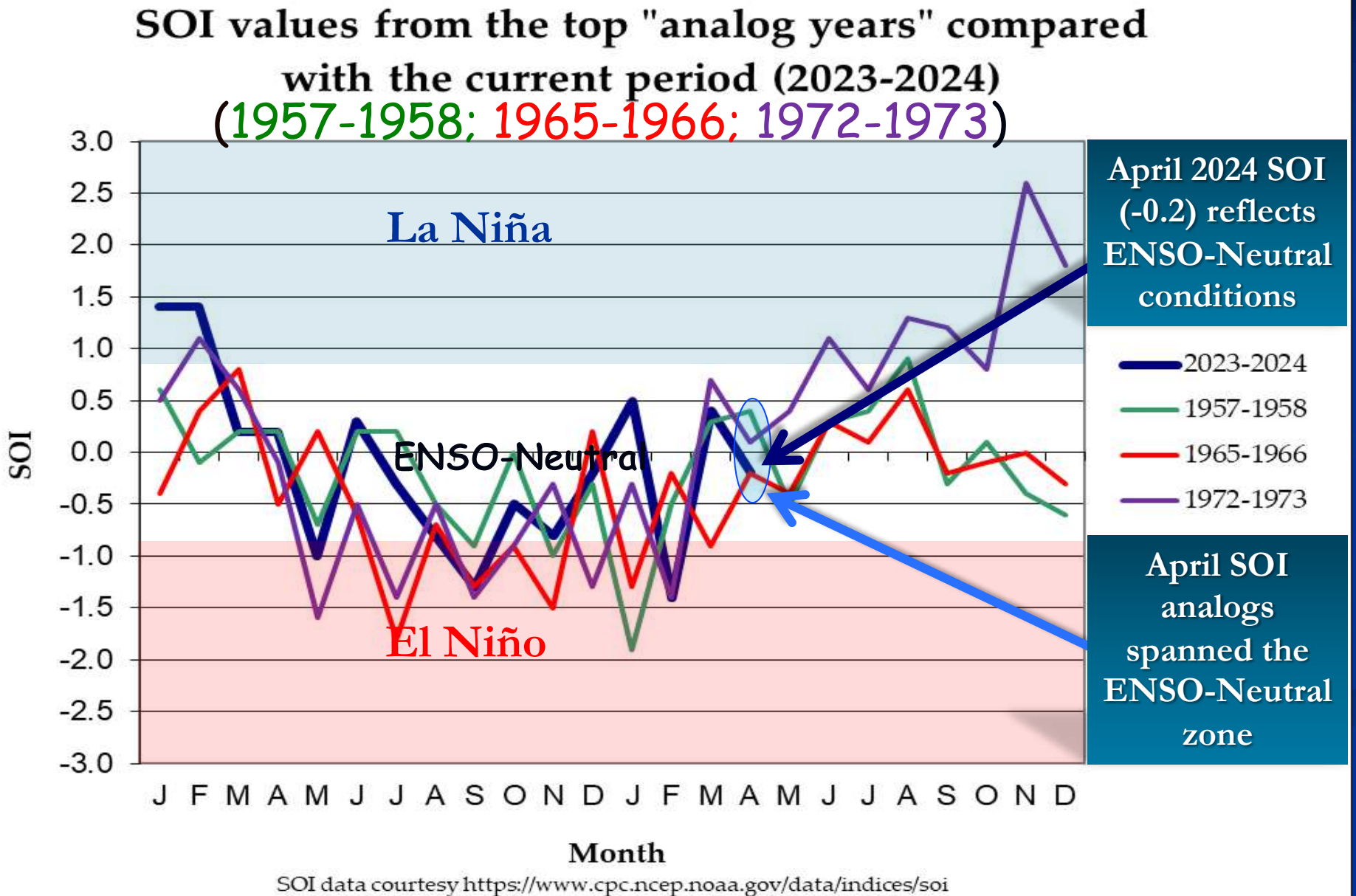
- The February – April Oceanic Niño Index (ONI) fell to +1.1°C, indicating continued cooling of the central and eastern tropical Pacific Ocean sea surface temperatures (SSTs).

- *NOAA's Climate Prediction Center (CPC) expects an imminent transition to ENSO-neutral conditions with La Niña likely developing by the end of summer and continuing through this coming winter.

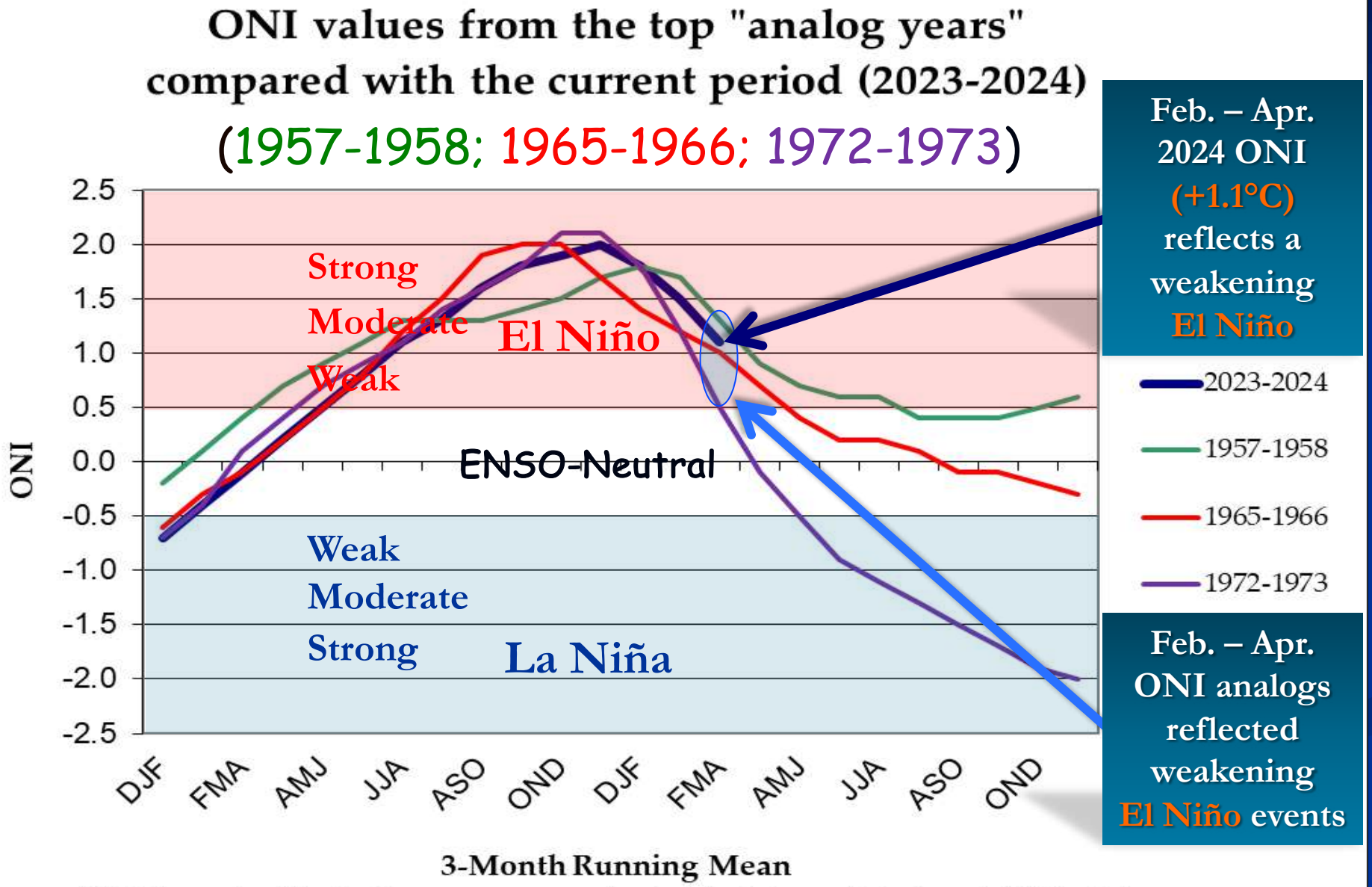
**This forecast does not consider NOAA's ENSO forecast. It uses only historical and current ENSO conditions to find "analog years" that most-closely match the recent evolution of the ENSO state.*

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

Southern Oscillation Index (SOI)



Oceanic Niño Index (ONI)



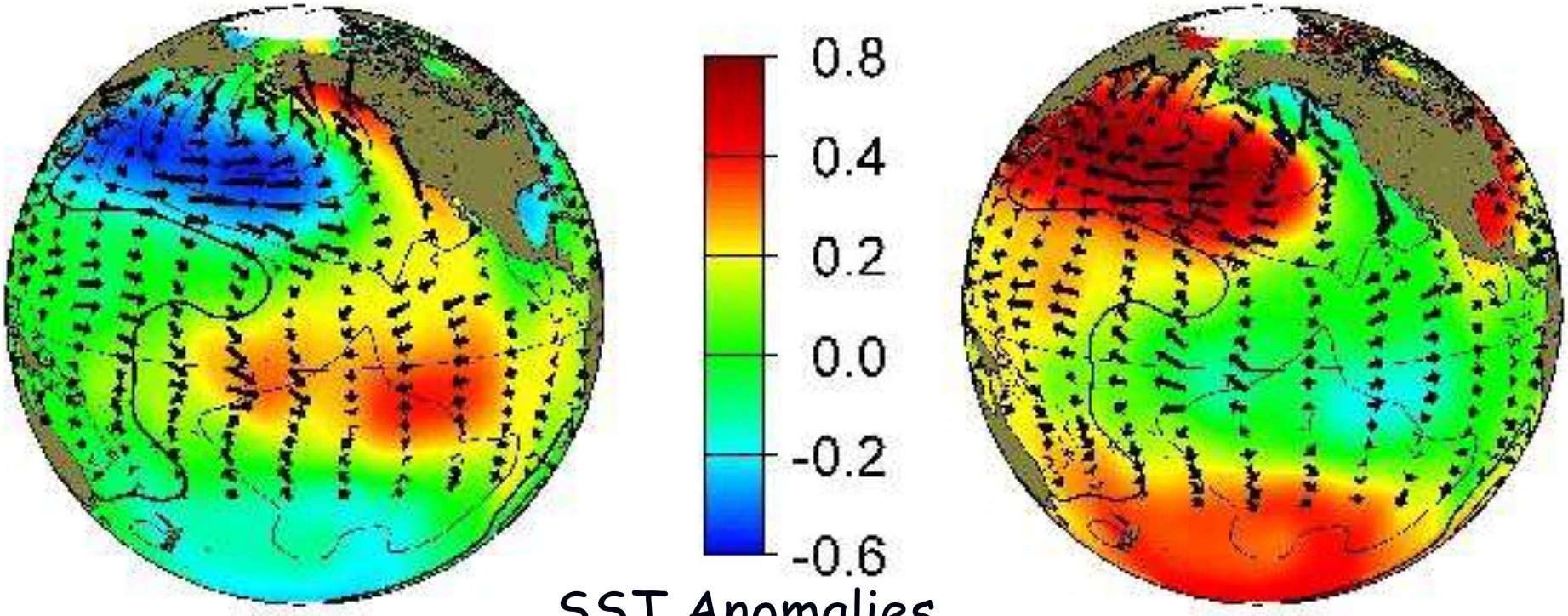
ONI data courtesy https://origin.cpc.ncep.noaa.gov/products/analysis_monitoring/ensostuff/ONI_v5.php

The Pacific Decadal Oscillation (PDO)

(Reflects SST "Phase" in the North Pacific Ocean)

Positive (Warm) "Phase"

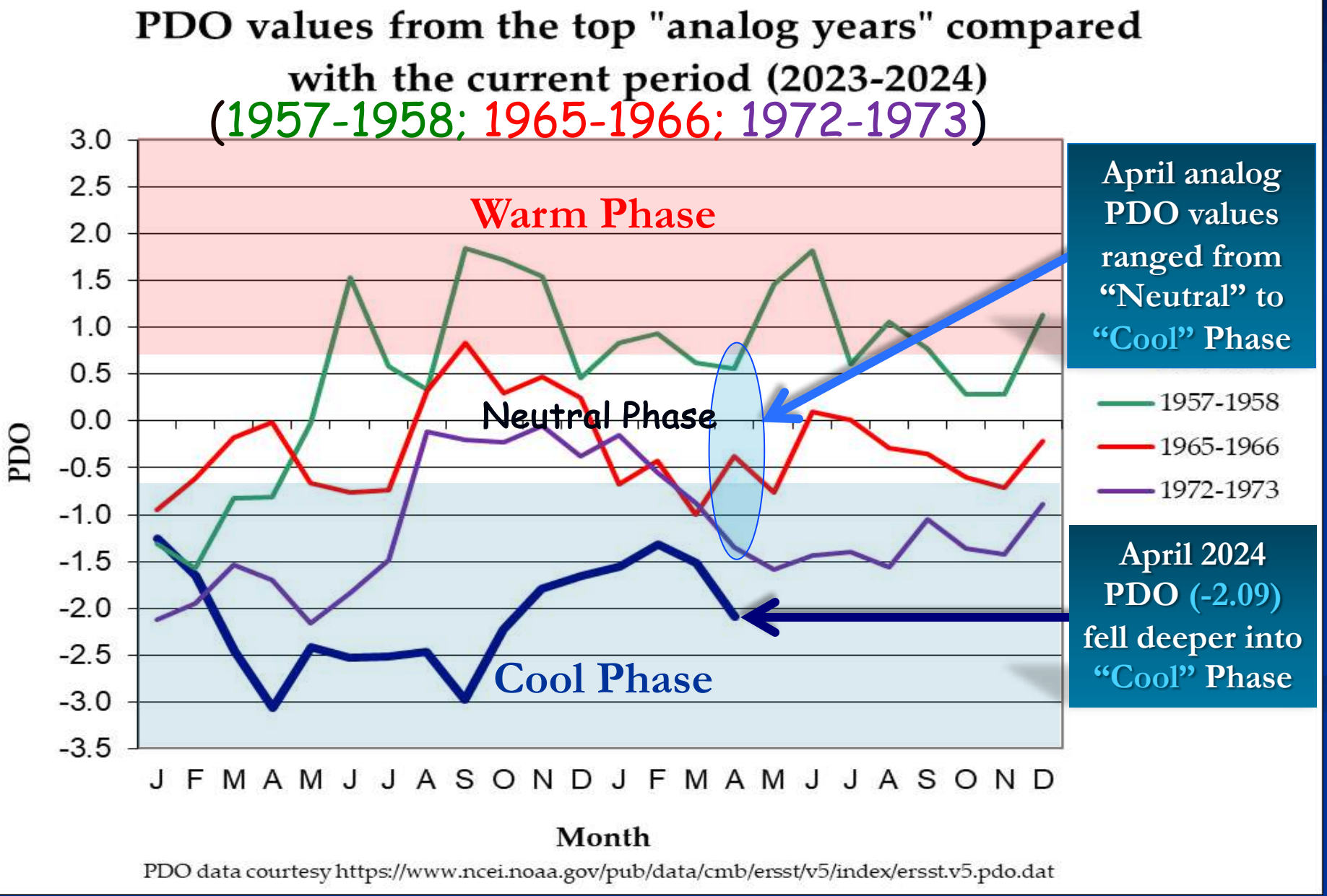
Negative (Cool) "Phase"



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

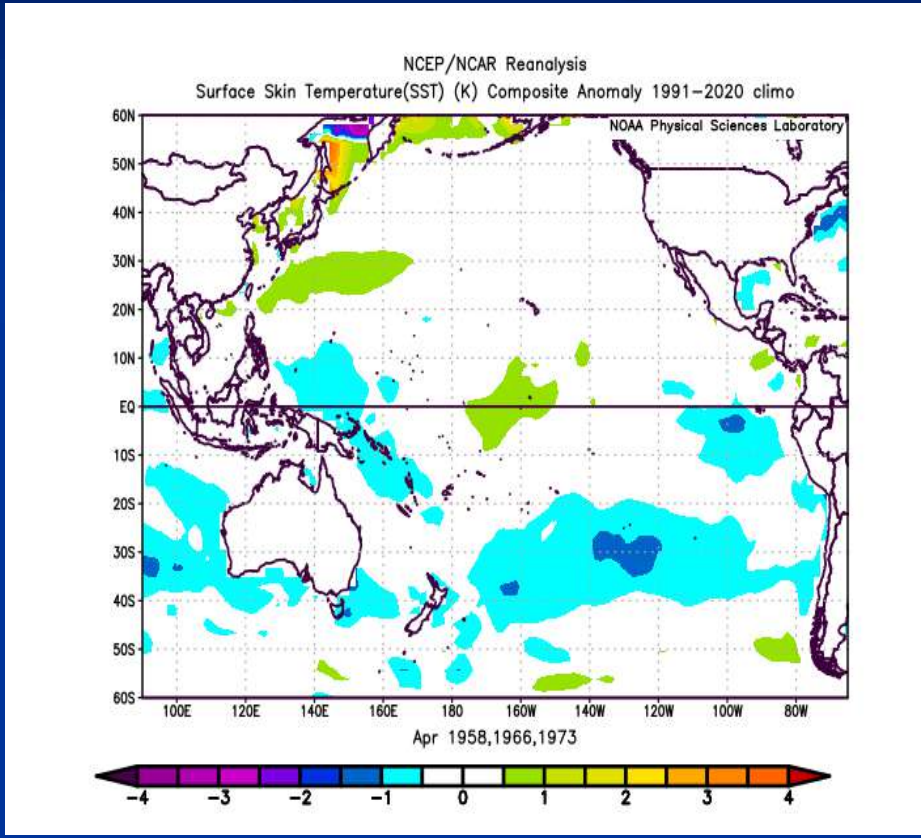
North Pacific Ocean

(Poleward of 20°N Latitude)

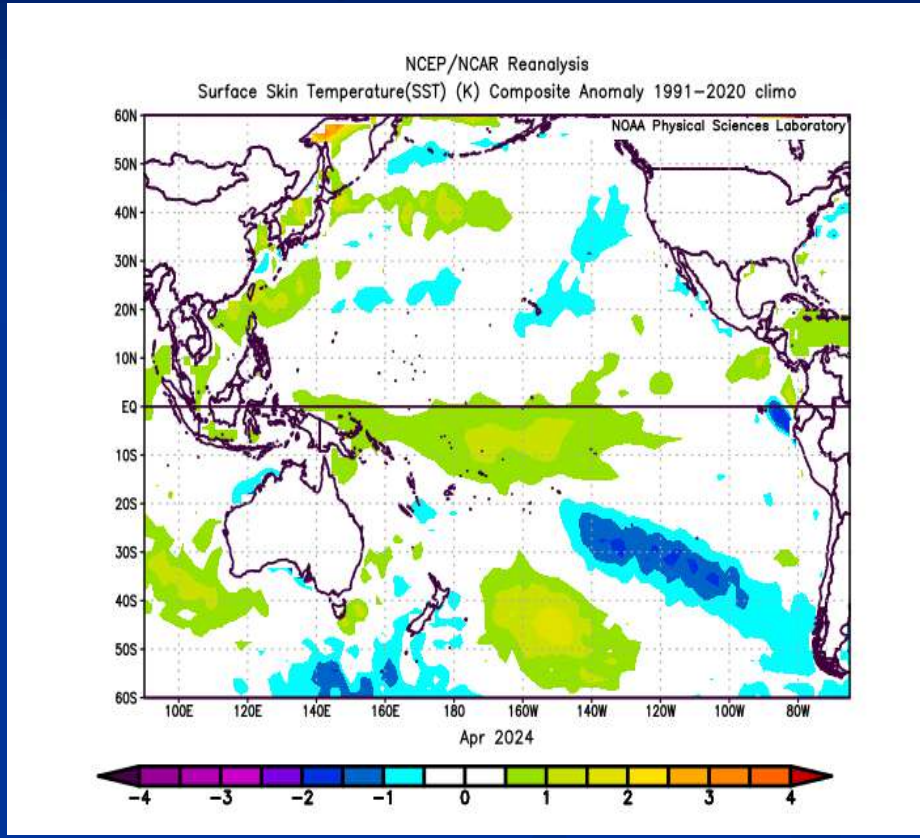


SST Anomalies Comparison

April Analogs

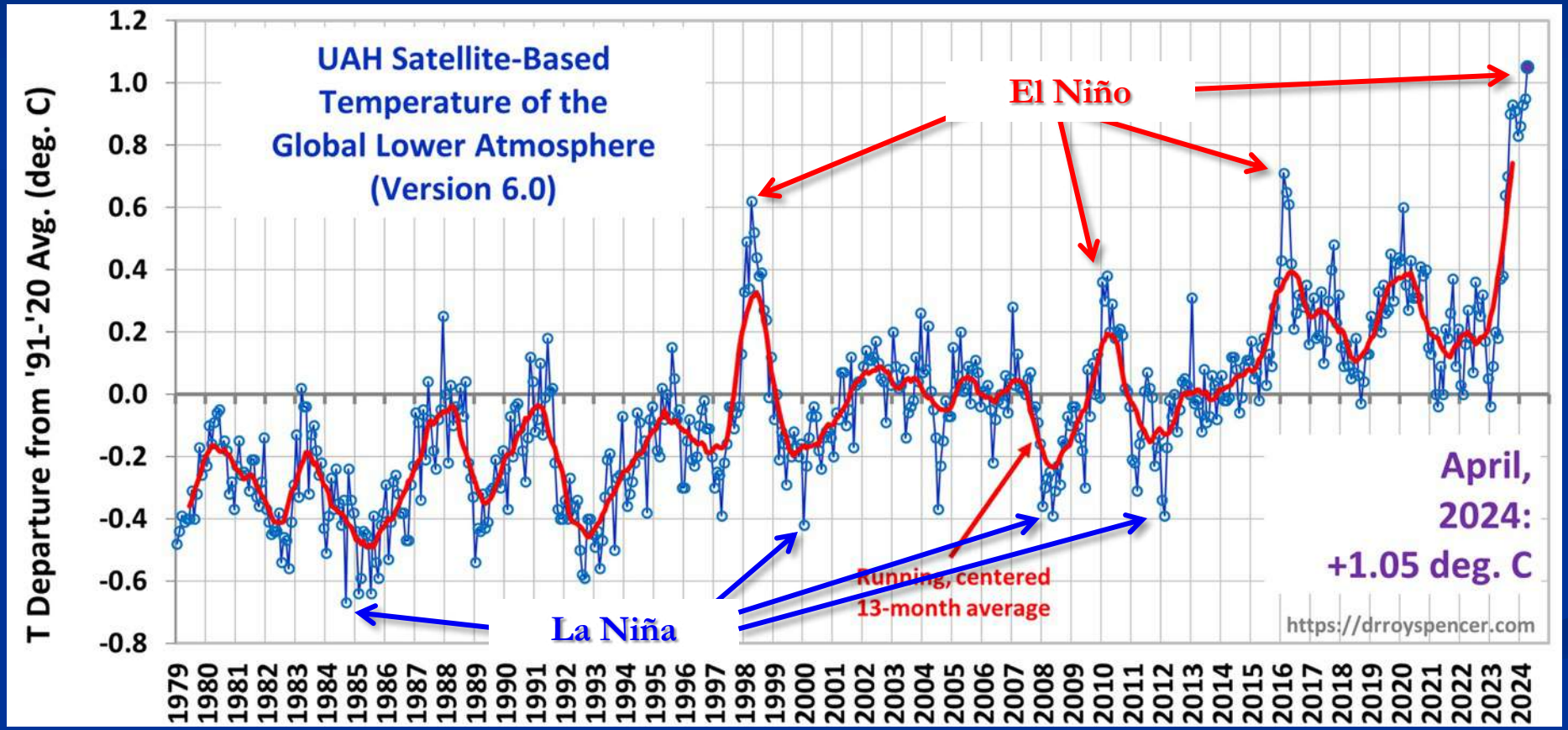


April 2024



- The April analogs (left) reflected a faster transition to ENSO-neutral conditions than we are experiencing (right)...but not a bad match.
- Both charts show weakening of their respective El Niño events in the tropical Pacific Ocean (a key for analog matching).

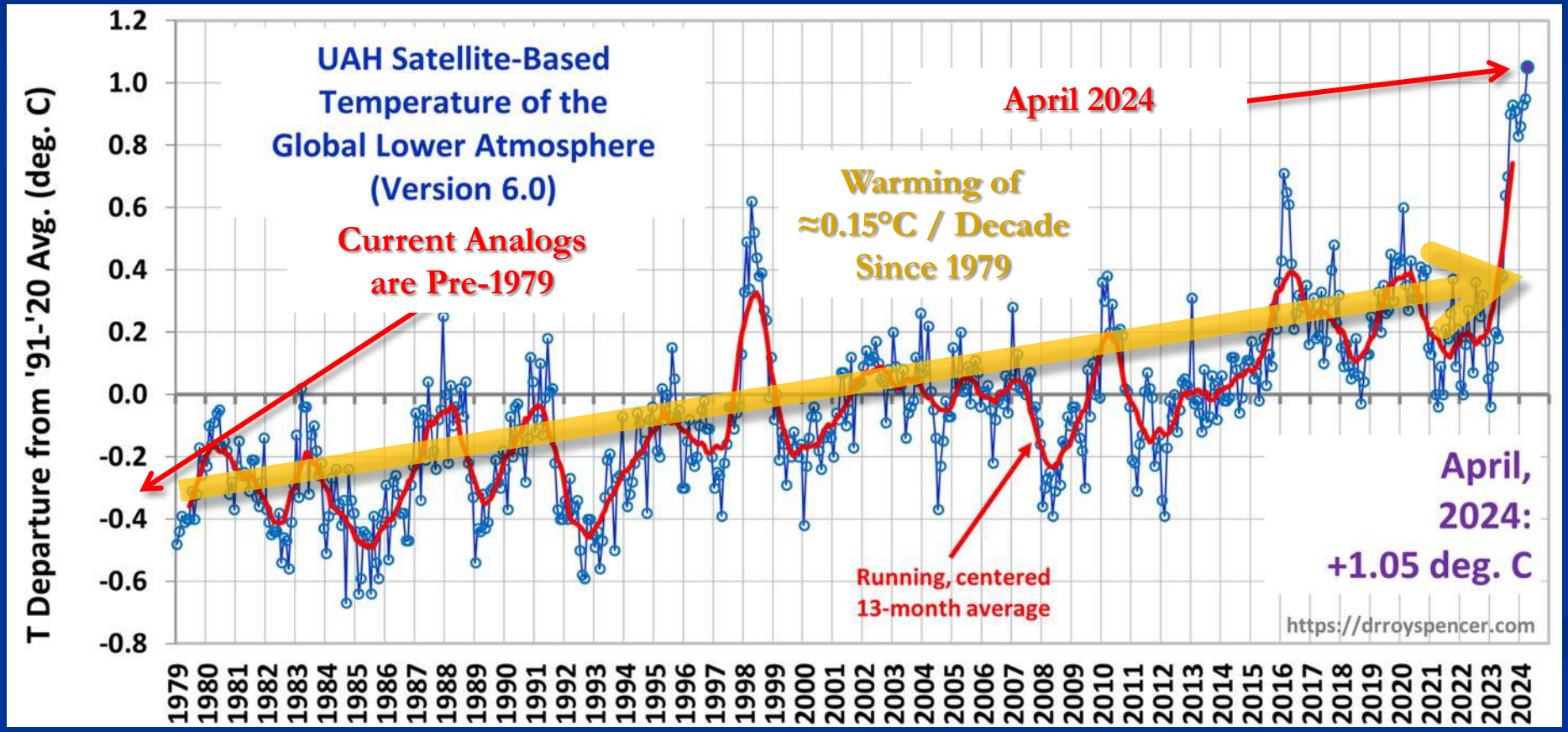
El Niño & La Niña Impact Global Temperatures...



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

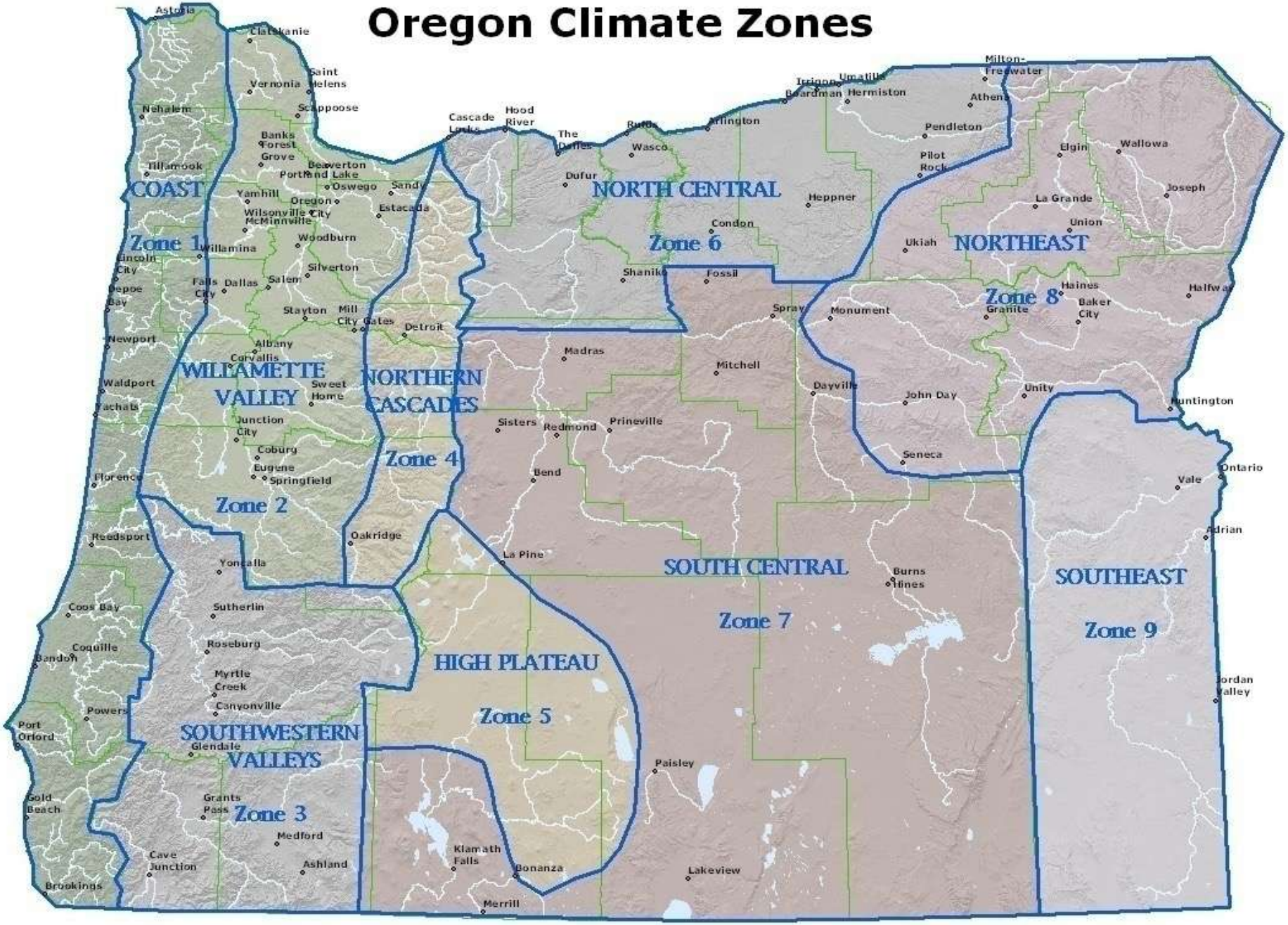
Global Temperature Trends

Increase Error in Analog Forecasts!



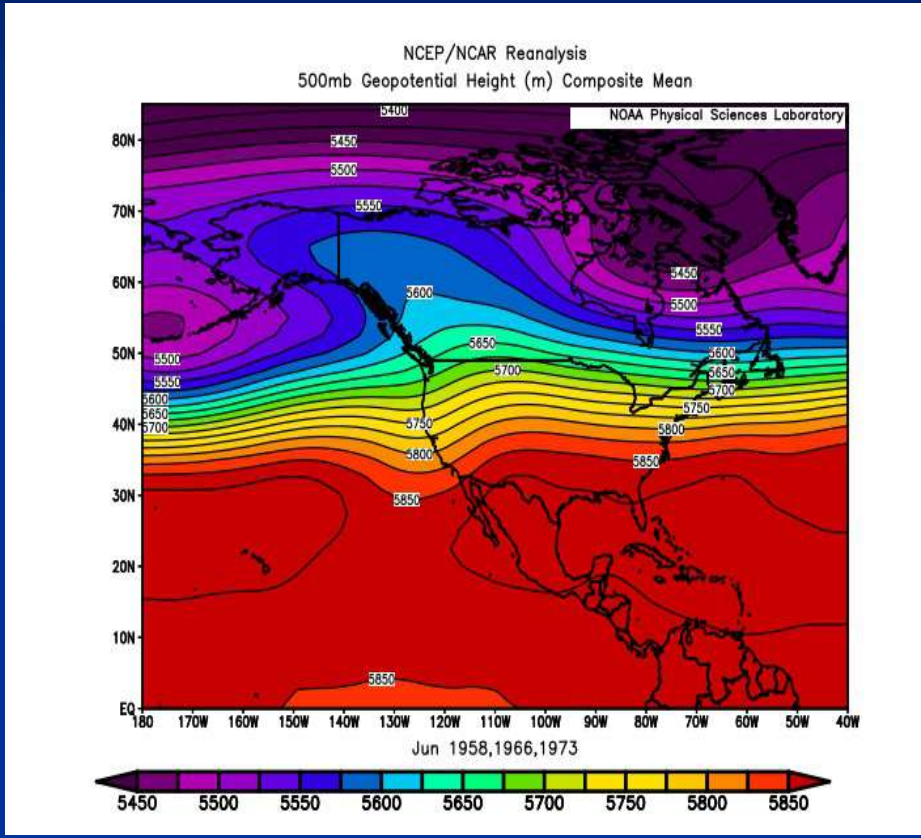
Courtesy: http://www.drroyspencer.com/latest-global-temperatures/

Oregon Climate Zones

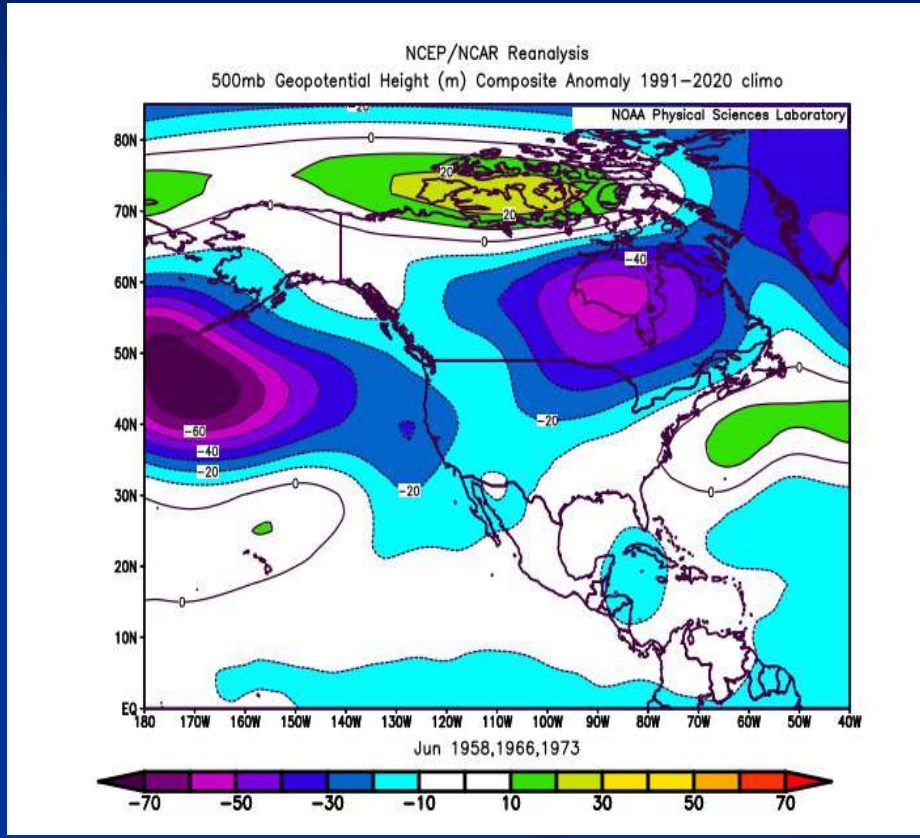


June 2024 Forecast

Mean Upper-Air Pattern



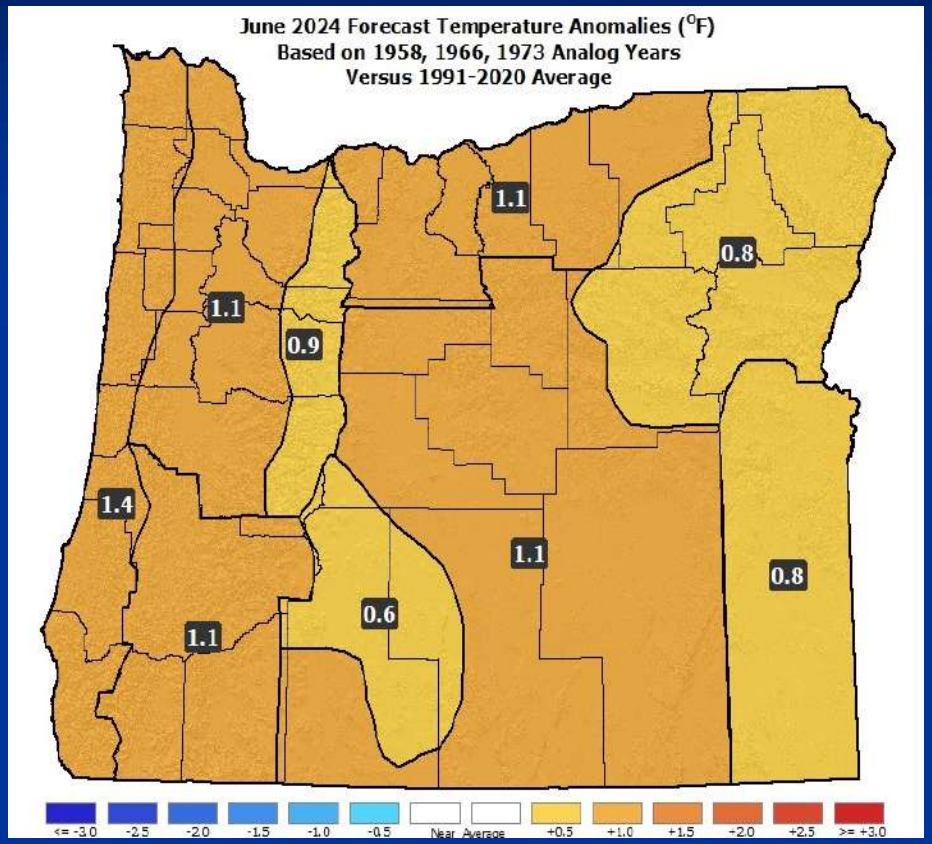
Upper-Air Anomalies



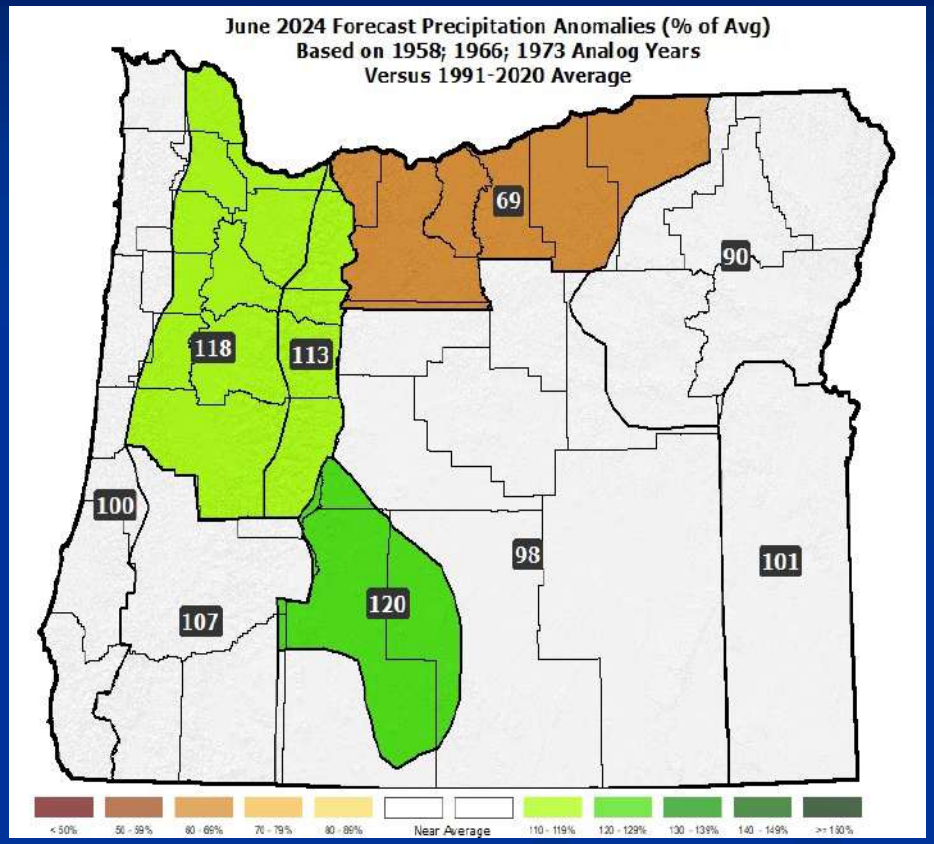
- A "split-flow" jet stream pattern should continue across the Pacific Northwest with enhanced storm activity directed towards California.
- This is a relatively warm pattern, but prolonged extreme temperatures are not featured. Thundershower activity may be enhanced.

June 2024 Forecast

Temperatures



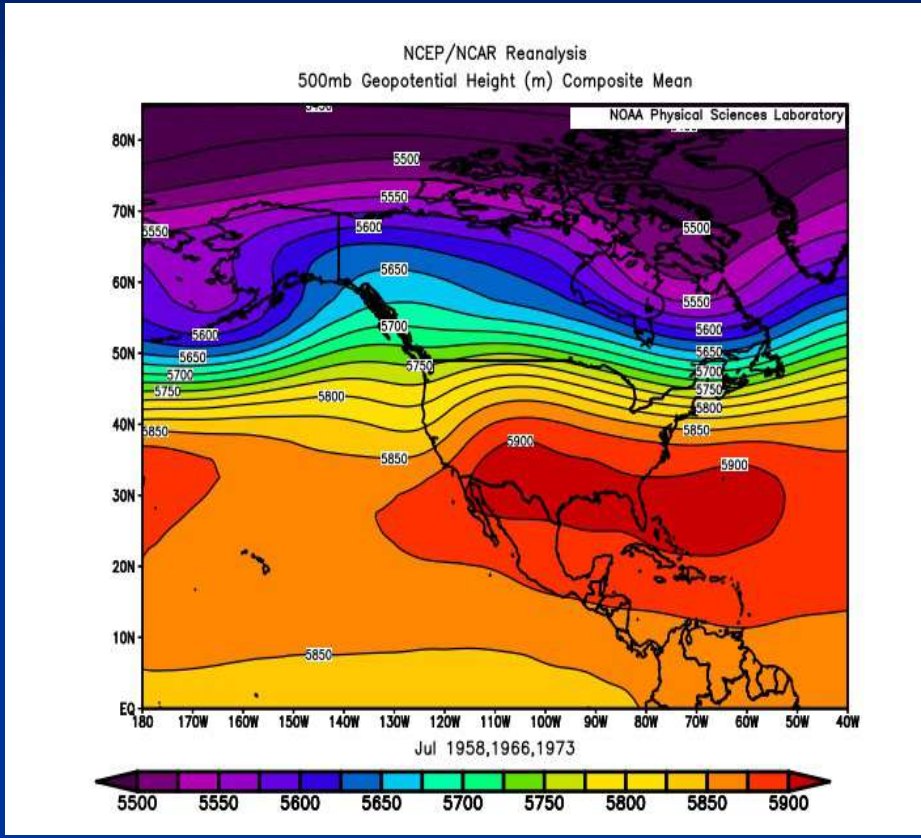
Precipitation



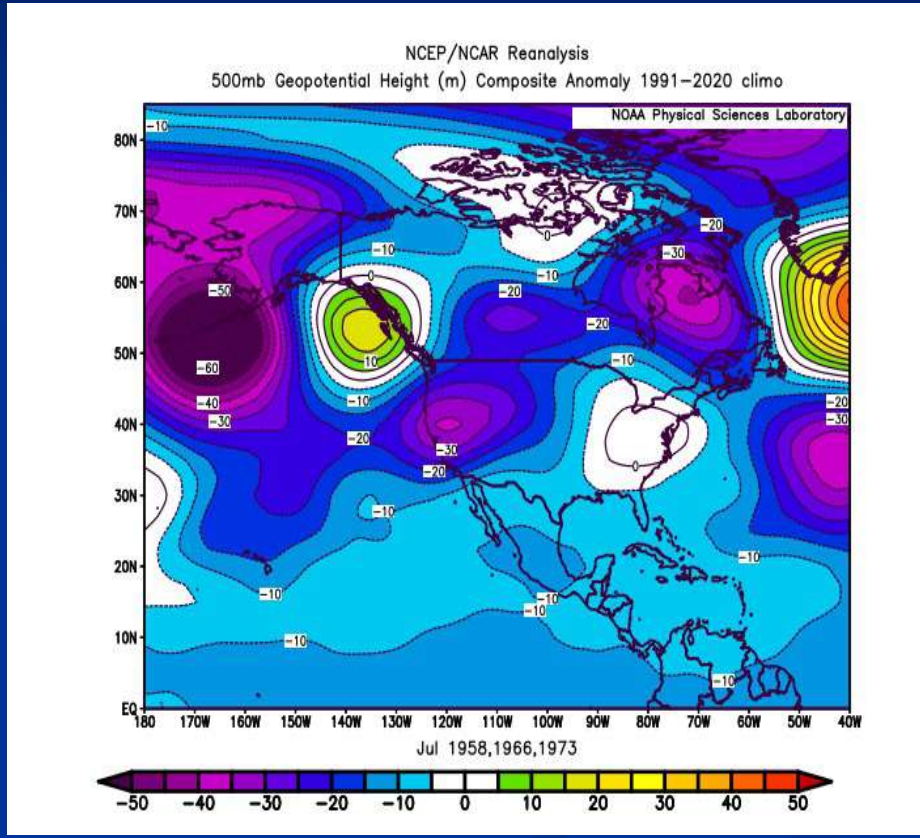
- Above-average temperatures with some "warm" spells (over 90°F in the interior) likely from mid-month on...
- Expect ample days with precipitation and a threat of thunderstorms.

July 2024 Forecast

Mean Upper-Air Pattern



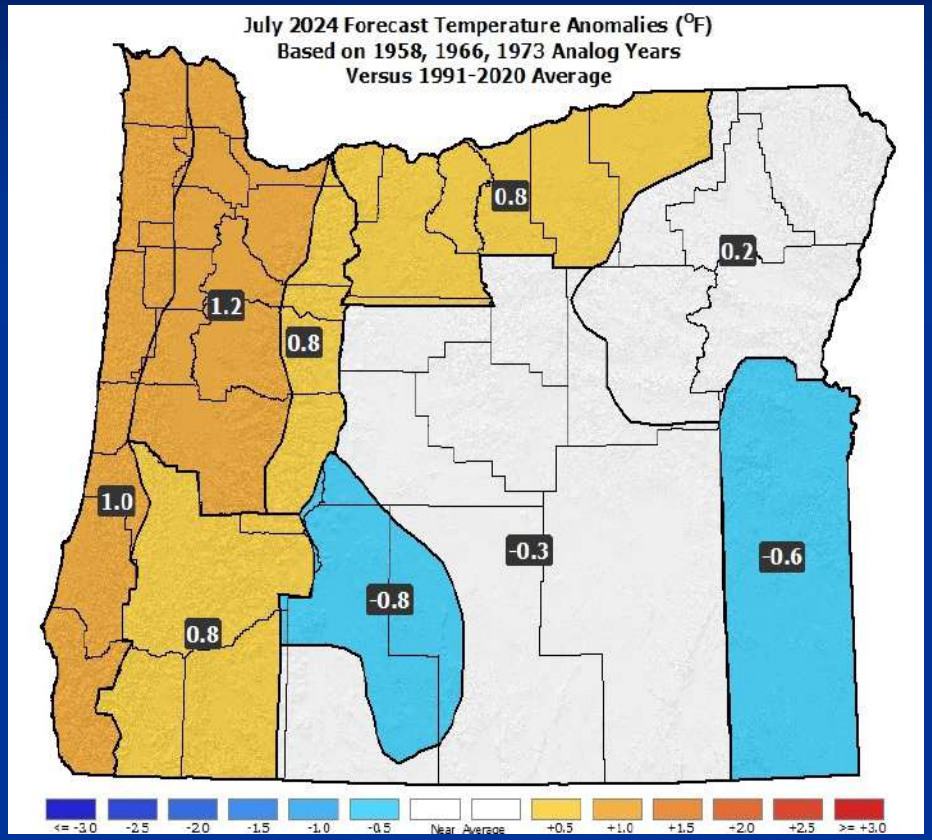
Upper-Air Anomalies



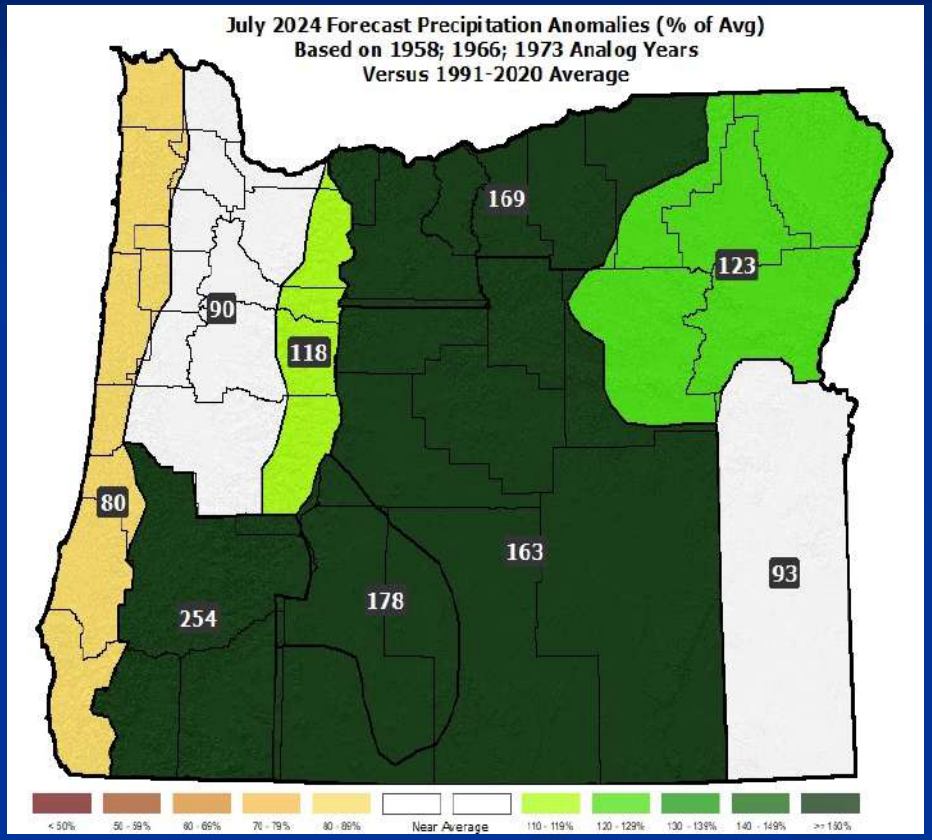
- The analog composite shows anomalous ridging centered along the B.C. Coast with some downstream troughing over the Pac NW.
- A "split-flow" pattern should persist along the west coast of North America despite a likely transition to ENSO-neutral conditions.

July 2024 Forecast

Temperatures



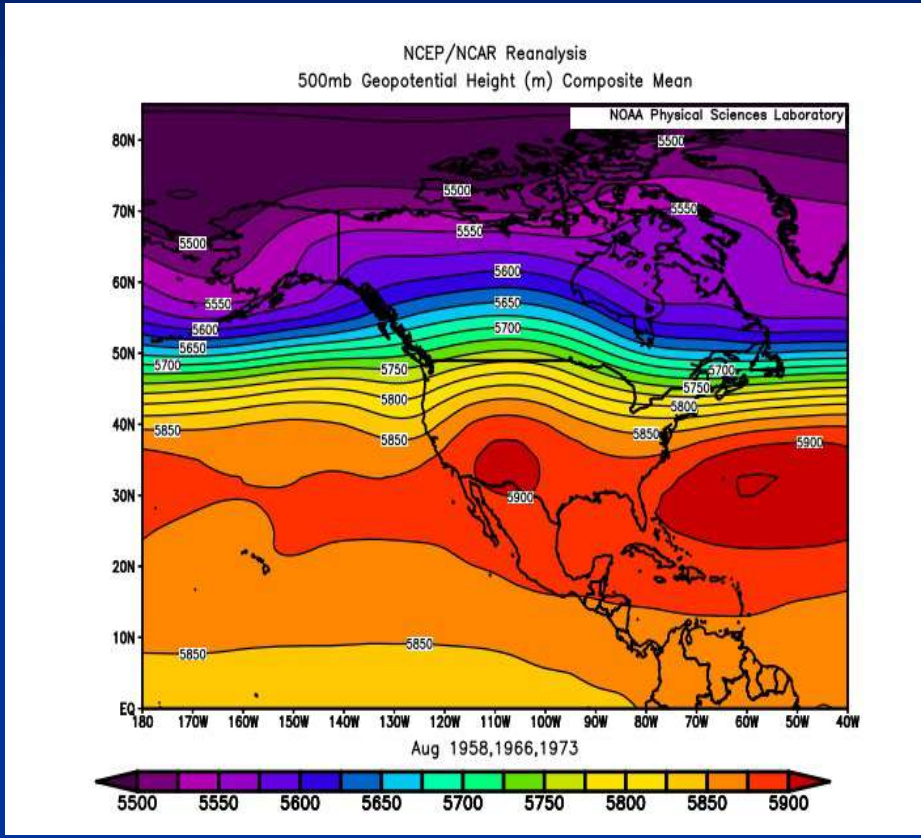
Precipitation



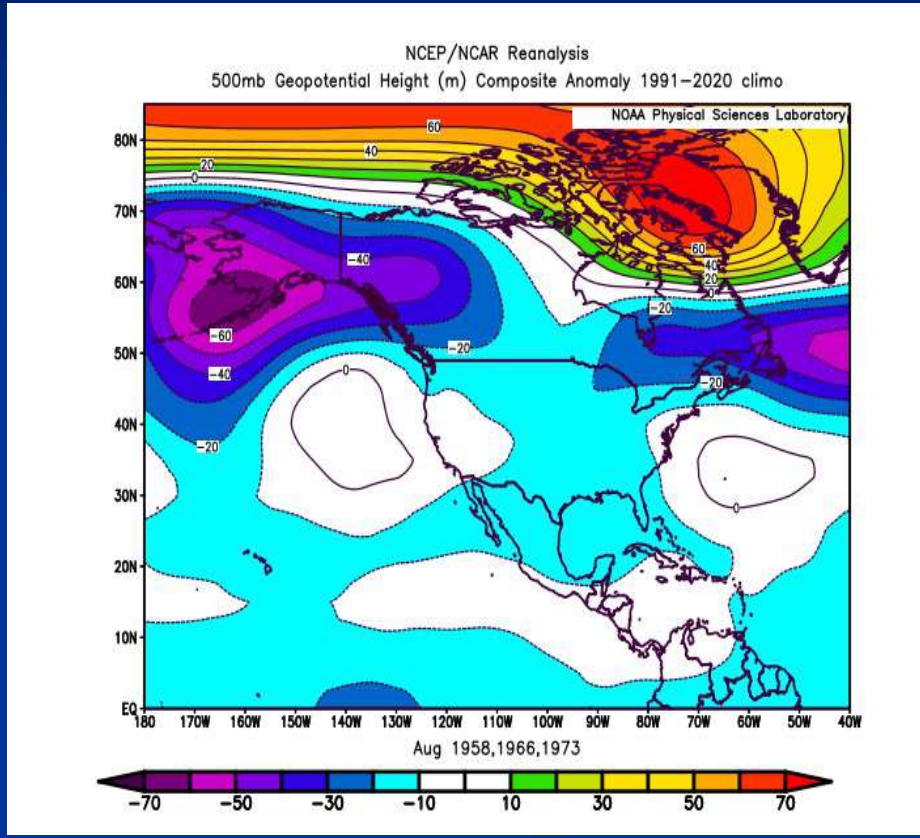
- Analog years straddled either side of average temperatures with 1966 being the coolest and 1958 the warmest.
- A wet 1966 skews the precipitation to near or above normal, despite both 1958 & 1973 being drier than average (lowers forecast confidence).

August 2024 Forecast

Mean Upper-Air Pattern



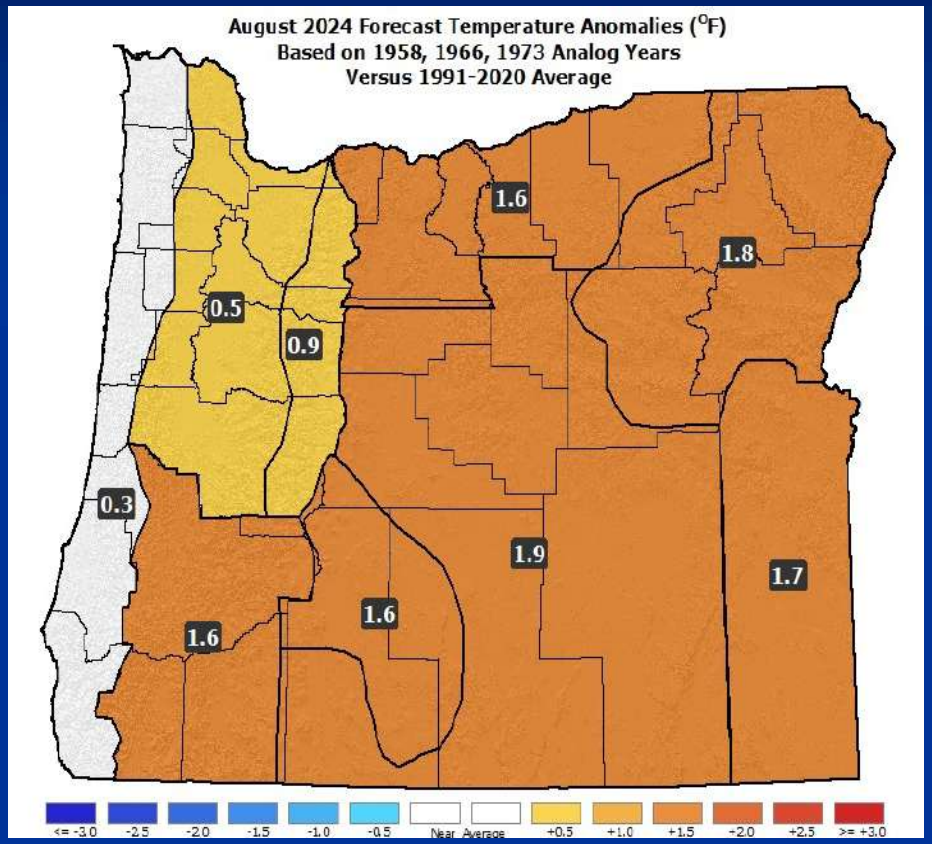
Upper-Air Anomalies



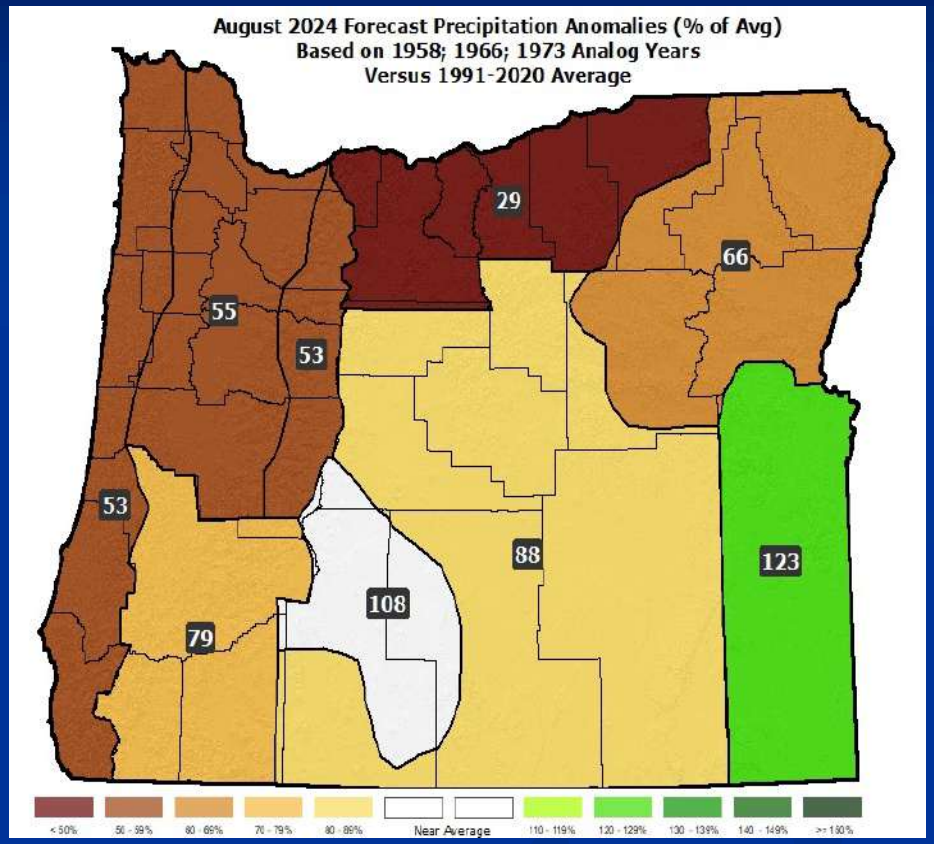
- All 3 of the top analogs have a prevailing SW flow aloft over Oregon, with 1958 & 1966 having stronger ridging compared to 1973.
- This upper-air pattern favors above-normal temperatures and opens the door for enhanced thunderstorm activity.

August 2024 Forecast

Temperatures



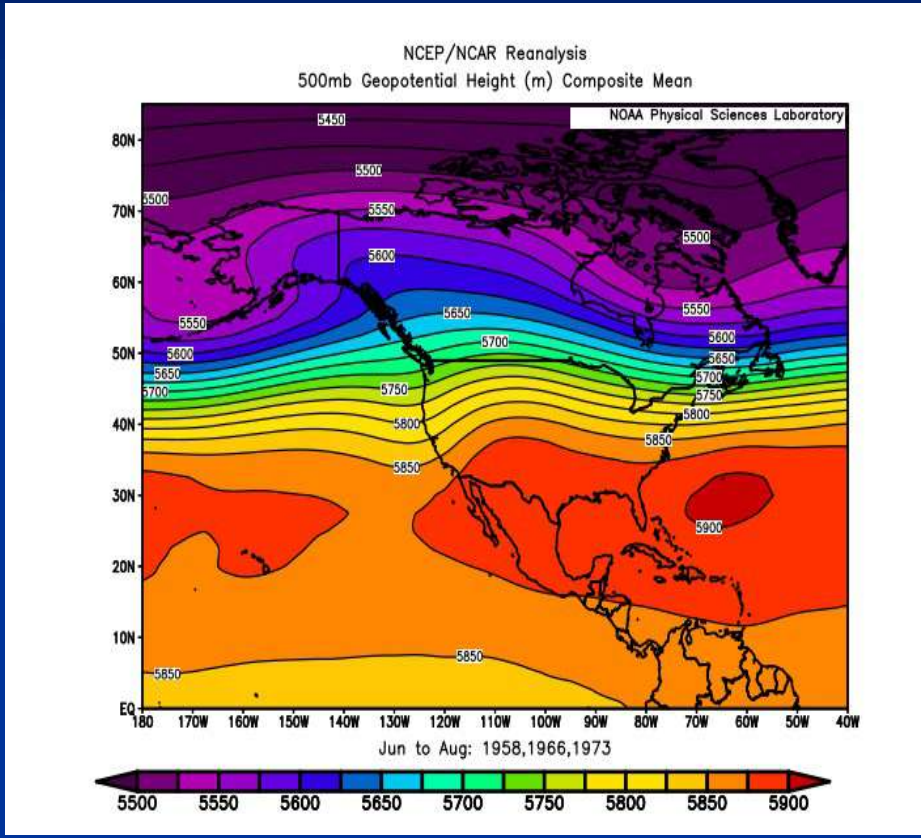
Precipitation



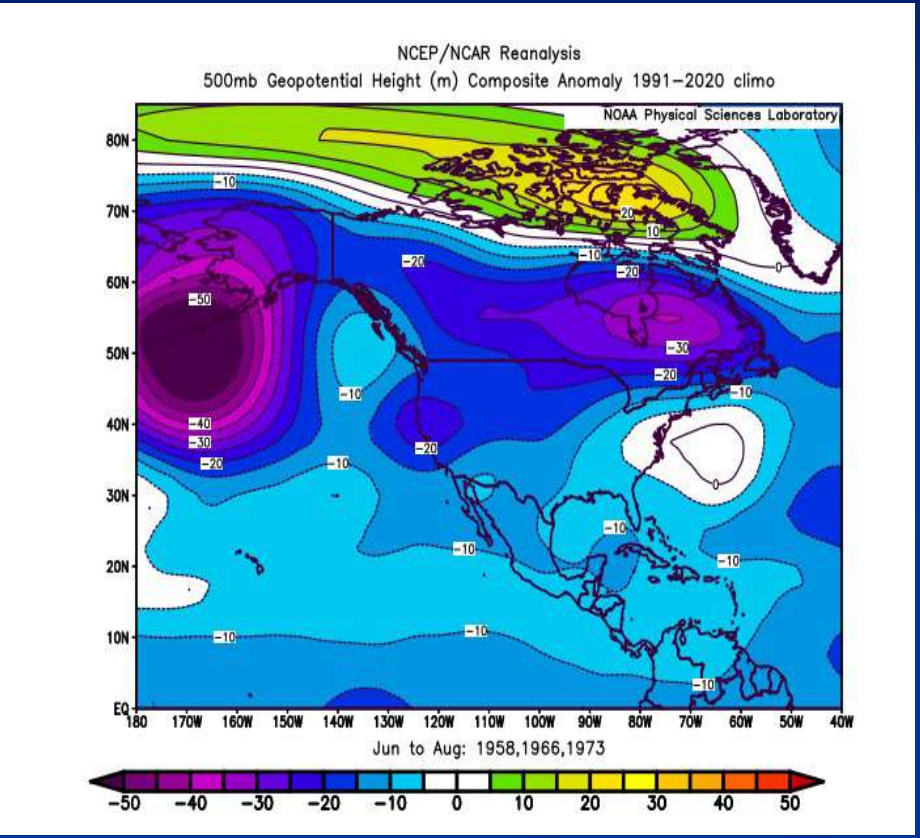
- A very warm 1958 is tempered by progressively cooler 1966 & 1973 analogs. Warmer overall conditions are favored.
- Analogs had below-average rainfall, except for spotty downpours with thunderstorms. 1958 & 1966 had considerable thunderstorm activity.

June – August 2024 Forecast

Mean Upper-Air Pattern



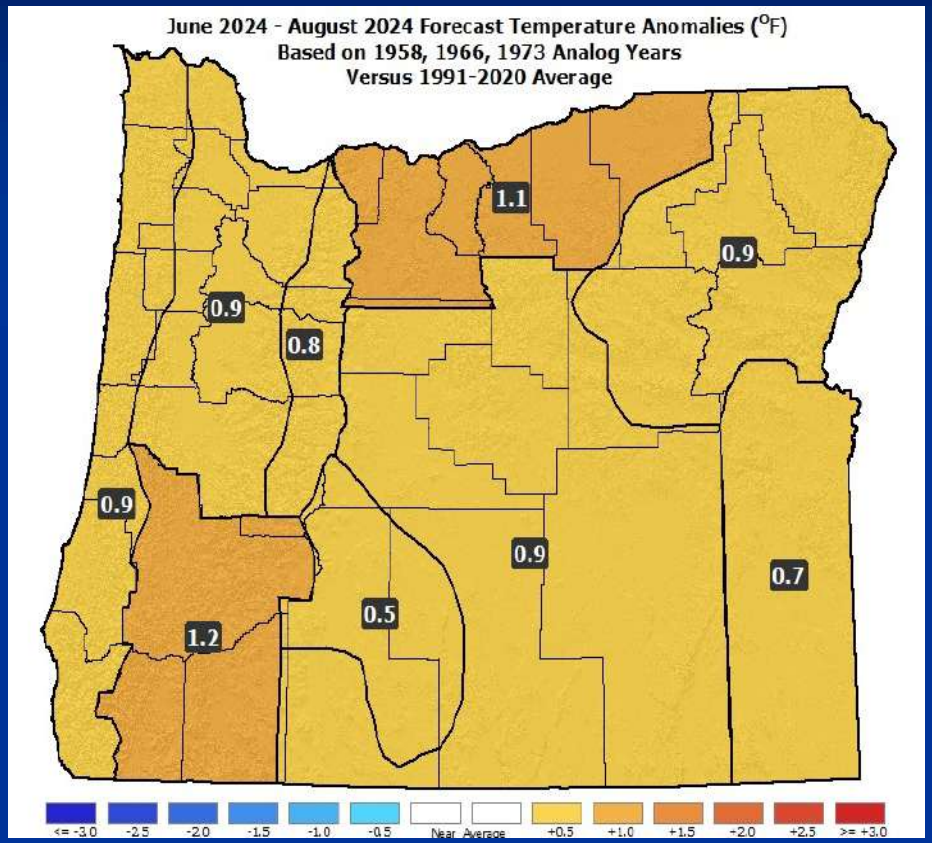
Upper-Air Anomalies



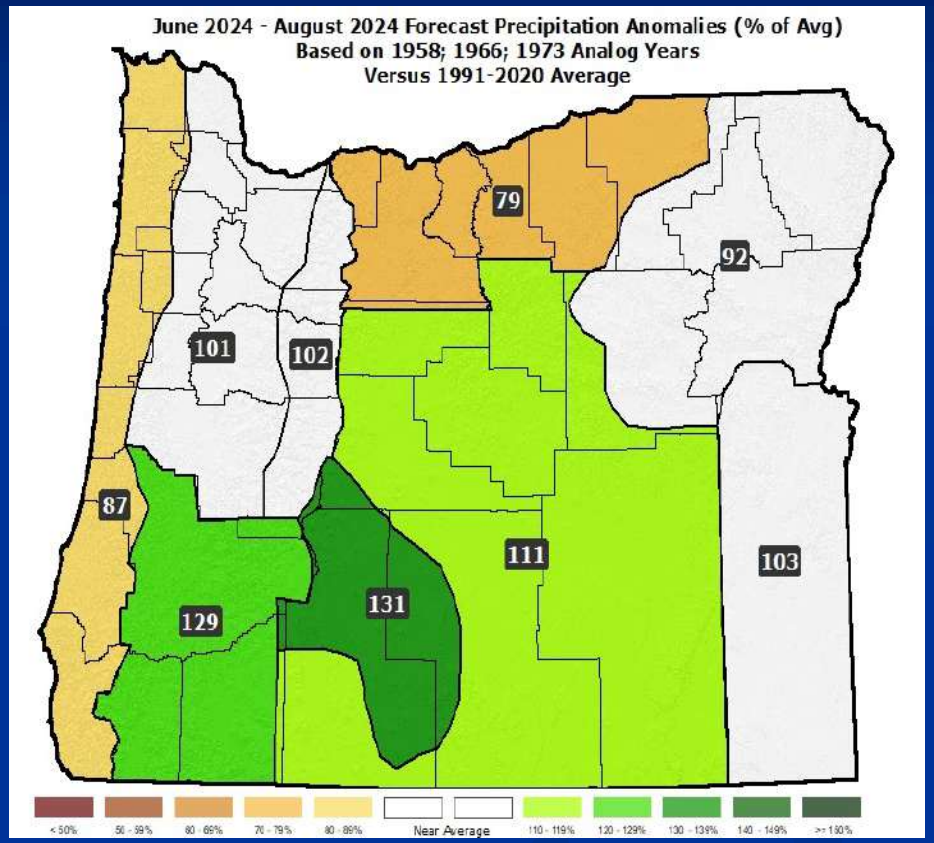
- Expect a gradual weakening of the "split-flow" pattern that El Niño was largely responsible for establishing along the west coast.
- Prevailing SW flow aloft favors warmer and drier than average summertime weather but can also promote thunderstorm activity.

June – August 2024 Forecast

Temperatures



Precipitation



- Above-average temperatures, but long heat waves and/or periods of extreme heat are not indicated.
- Near-average rainfall. Increased chances for thunderstorms, especially south and east, which can cause local excessive rainfall.

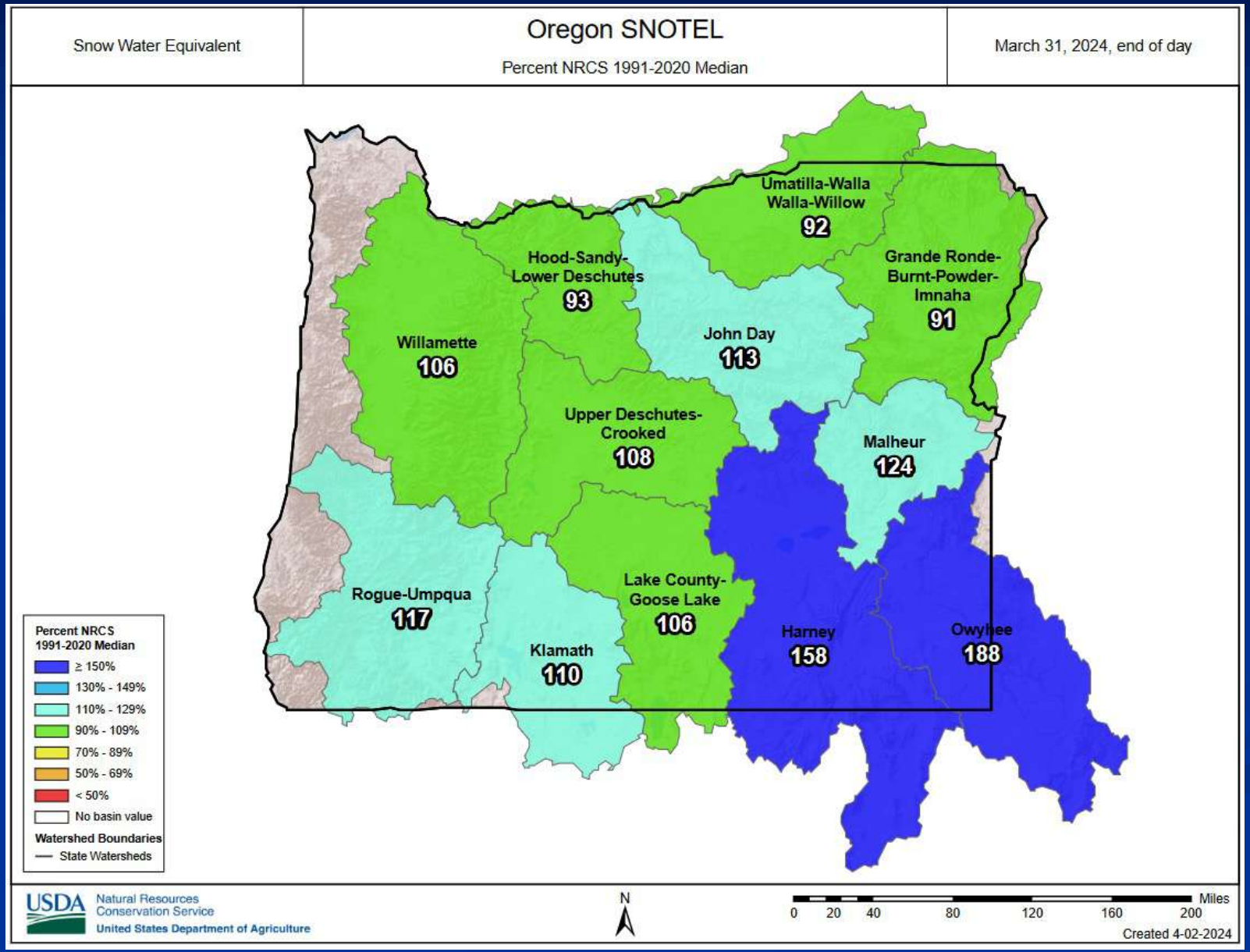
Forecast Highlights

- This forecast is based on weather that occurred during the (1958; 1966; 1973) analog years (no changes to the analogs from last month).
- With El Niño ending, the prevailing "split-flow" jet stream pattern along the west coast of North America should slowly weaken.
- Relatively "warm & dry" weather is favored, but prevailing SW flow aloft may enhance thunderstorm development, which increases the chances for wildfire starts and/or local bursts of heavy rain/hail.
- Of the three top analog years, 1958 had the most thunderstorm activity, with progressively fewer storms in 1966 and 1973.

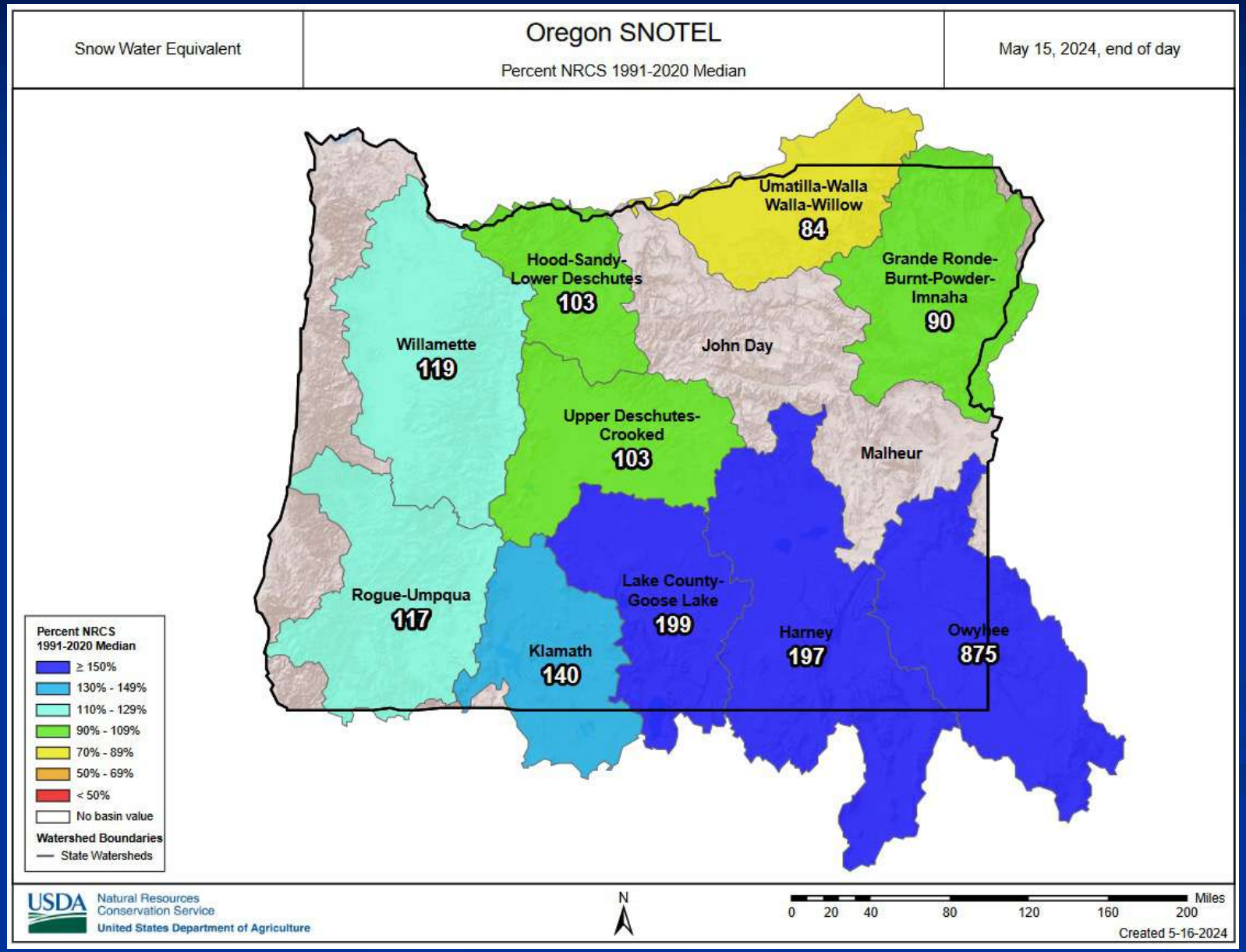
Disclaimer: This forecast is not associated with NOAA's CPC (see "Forecasting Methods…" at: https://oda.direct/Weather) nor the official CPC "Three-Month Outlooks," which are available at: https://www.cpc.ncep.noaa.gov/products/predictions/long_range/seasonal.php?lead=1

Peak Spring Snowpacks Near-to-Above Average

(end of March 2024)



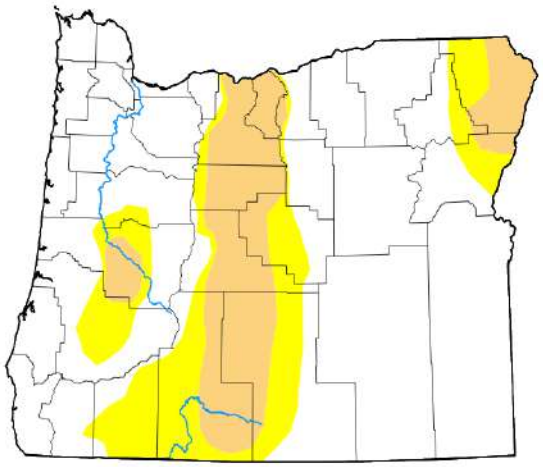
Current Snowpacks
(Mid-May 2024)



Continued Drought Improvement

(over the past 3 months)

February 1, 2024



Map released: Thurs. February 1, 2024
Data valid: January 30, 2024 at 7 a.m. EST

Intensity

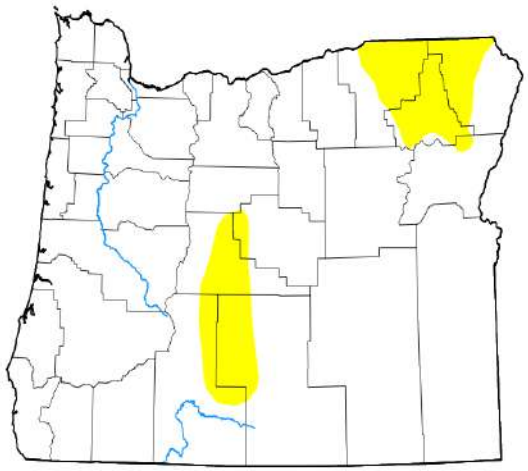
- None
- D0 (Abnormally Dry)
- D1 (Moderate Drought)
- D2 (Severe Drought)
- D3 (Extreme Drought)
- D4 (Exceptional Drought)
- No Data

Authors

United States and Puerto Rico Author(s):
Brian Fuchs, National Drought Mitigation Center

Pacific Islands and Virgin Islands Author(s):
Curtis Riganti, National Drought Mitigation Center

May 14, 2024



Map released: Thurs. May 16, 2024
Data valid: May 14, 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

Authors

United States and Puerto Rico Author(s):
Lindsay Johnson, National Drought Mitigation Center

Pacific Islands and Virgin Islands Author(s):
Richard Tinker, NOAA/NWS/NCEP/CPC

Courtesy: National Drought Mitigation Center (NDMC)

https://droughtmonitor.unl.edu/

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

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Contact: Pete Parsons, ODF Lead Meteorologist
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