

# Seasonal Climate Forecast

## May – July 2024

Issued: April 18, 2024

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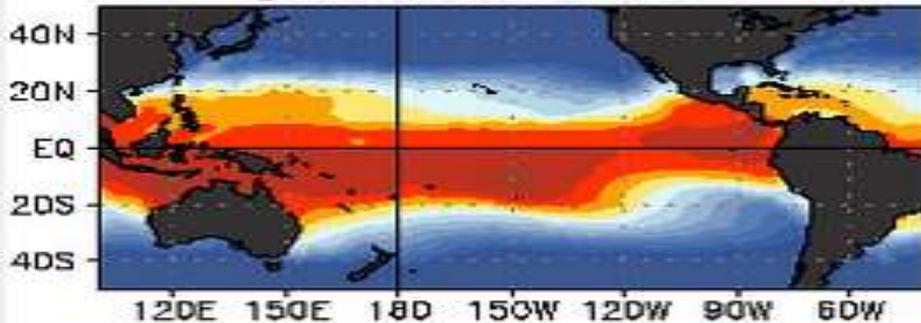
R. GRESS

# El Niño vs La Niña

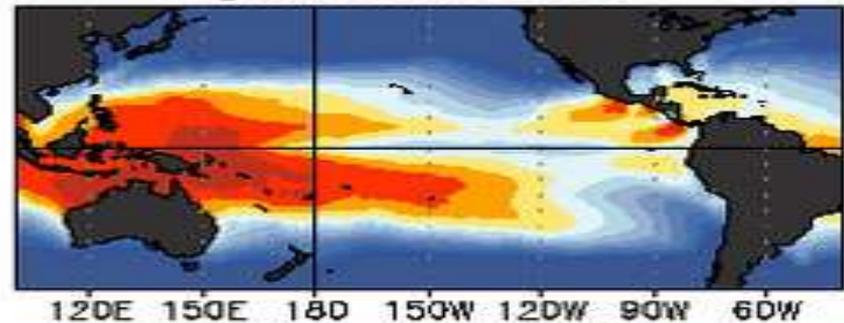
(SST Patterns in the Tropical Pacific Ocean)

## OCEAN TEMPERATURES (°C)

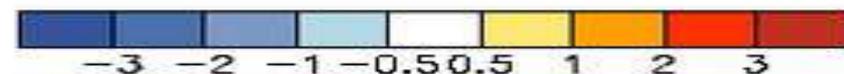
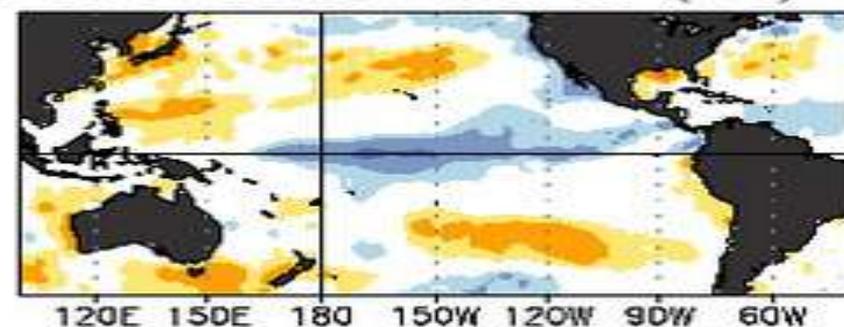
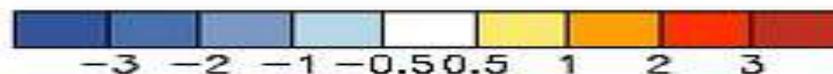
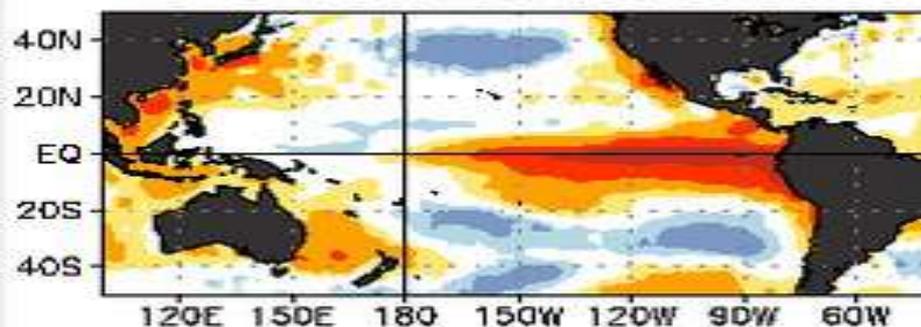
**EL NIÑO**  
Jan-Mar 1998



**LA NIÑA**  
Jan-Mar 1989



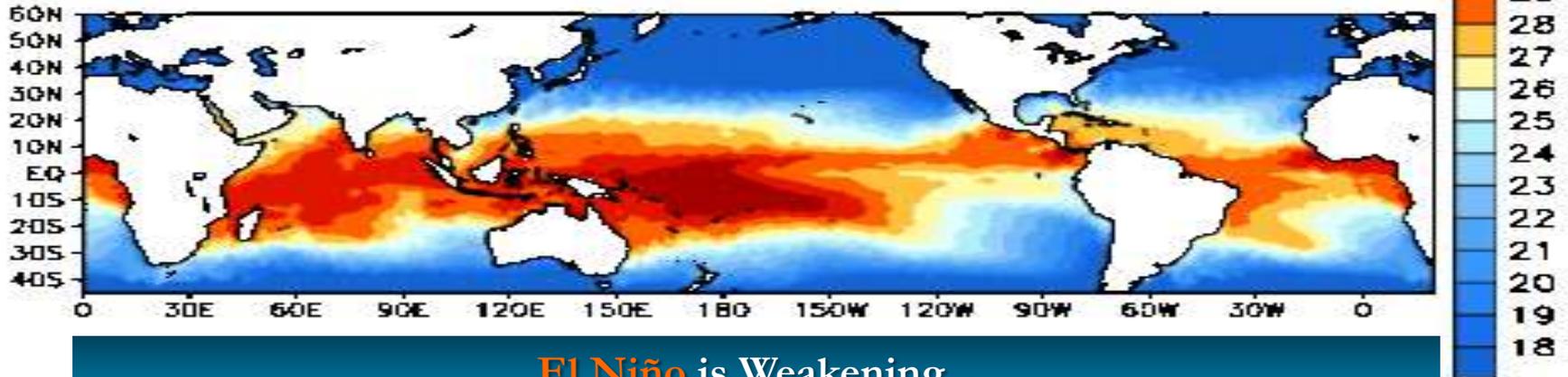
## OCEAN TEMPERATURE DEPARTURES (°C)



# Sea Surface Temperatures (SSTs)

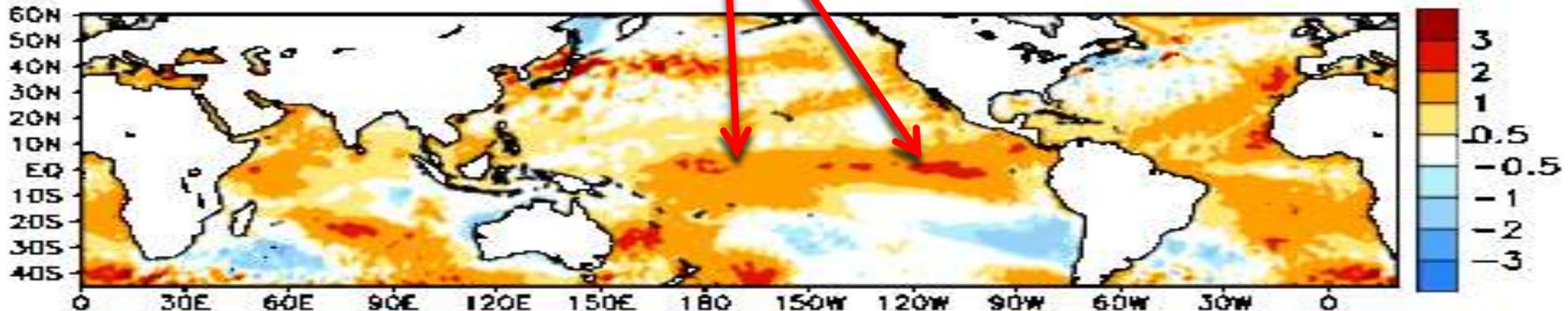
Animated (PowerPoint only) SSTs (top) / Anomalies (bottom)

Week centered on 24 JAN 2024  
SST (°C)



El Niño is Weakening...

Anomalies (°C)



# El Niño Southern Oscillation (ENSO)

## Current Status and Forecast

- The March Southern Oscillation Index (SOI) increased to +0.4, reflecting strengthening trade winds across the tropical Pacific Ocean, which corresponds with weakening **El Niño** conditions.
- The January – March Oceanic Niño Index (ONI) fell to **+1.5°C**, indicating cooling of the sea surface temperatures (SSTs) in the tropical Pacific. This index lags real-time SSTs, which show additional cooling.
- \*NOAA’s Climate Prediction Center (CPC) expects **El Niño** to transition to **ENSO-neutral** this spring and to **La Niña** this summer.

*\*Note: 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 evolution of the current ENSO state.*

# Southern Oscillation Index (SOI)

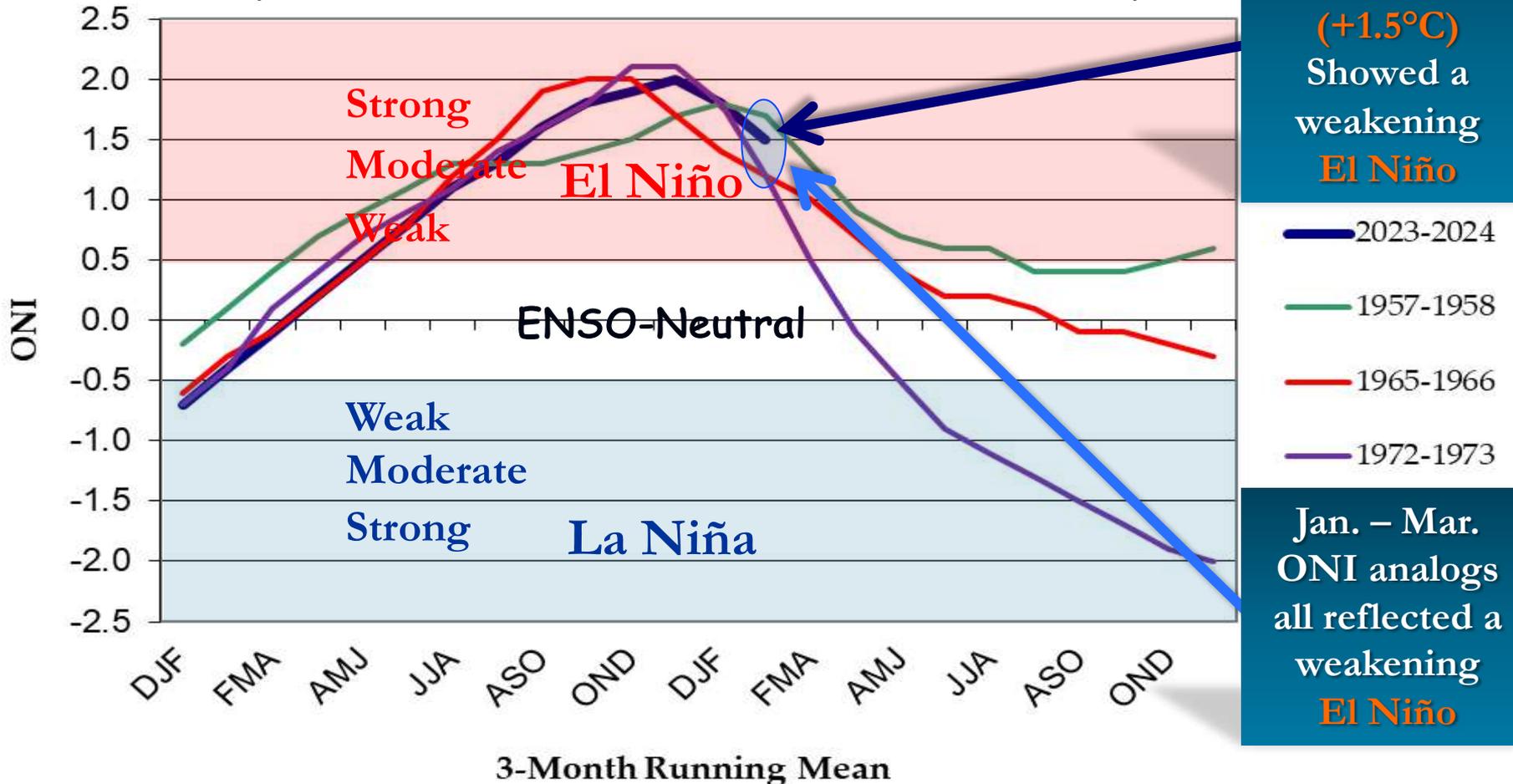
SOI values from the top "analog years" compared with the current period (2023-2024)  
(1957-1958; 1965-1966; 1972-1973)



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; 1972-1973)



Jan. – Mar.  
 2024 ONI  
 (+1.5°C)  
 Showed a  
 weakening  
 El Niño

— 2023-2024  
 — 1957-1958  
 — 1965-1966  
 — 1972-1973

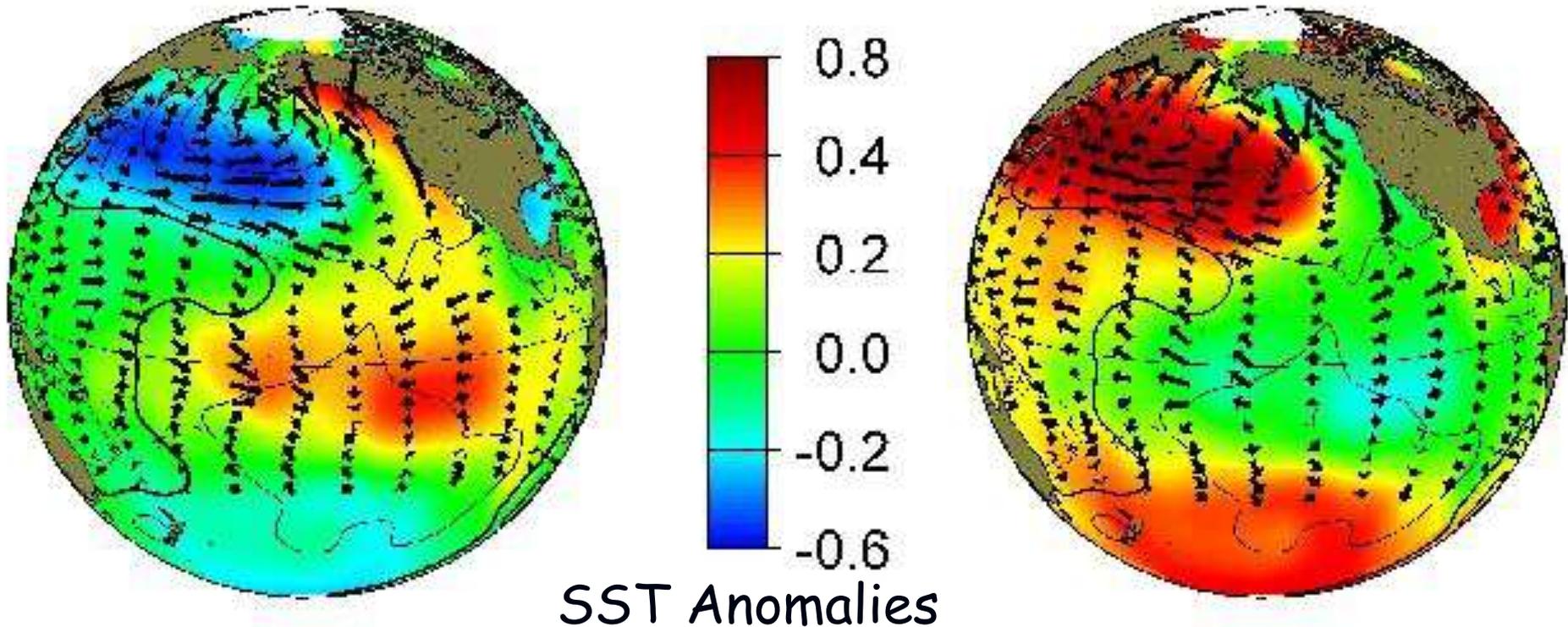
Jan. – Mar.  
 ONI analogs  
 all reflected a  
 weakening  
 El Niño

# The Pacific Decadal Oscillation (PDO)

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

Positive (Warm)  
"Phase"

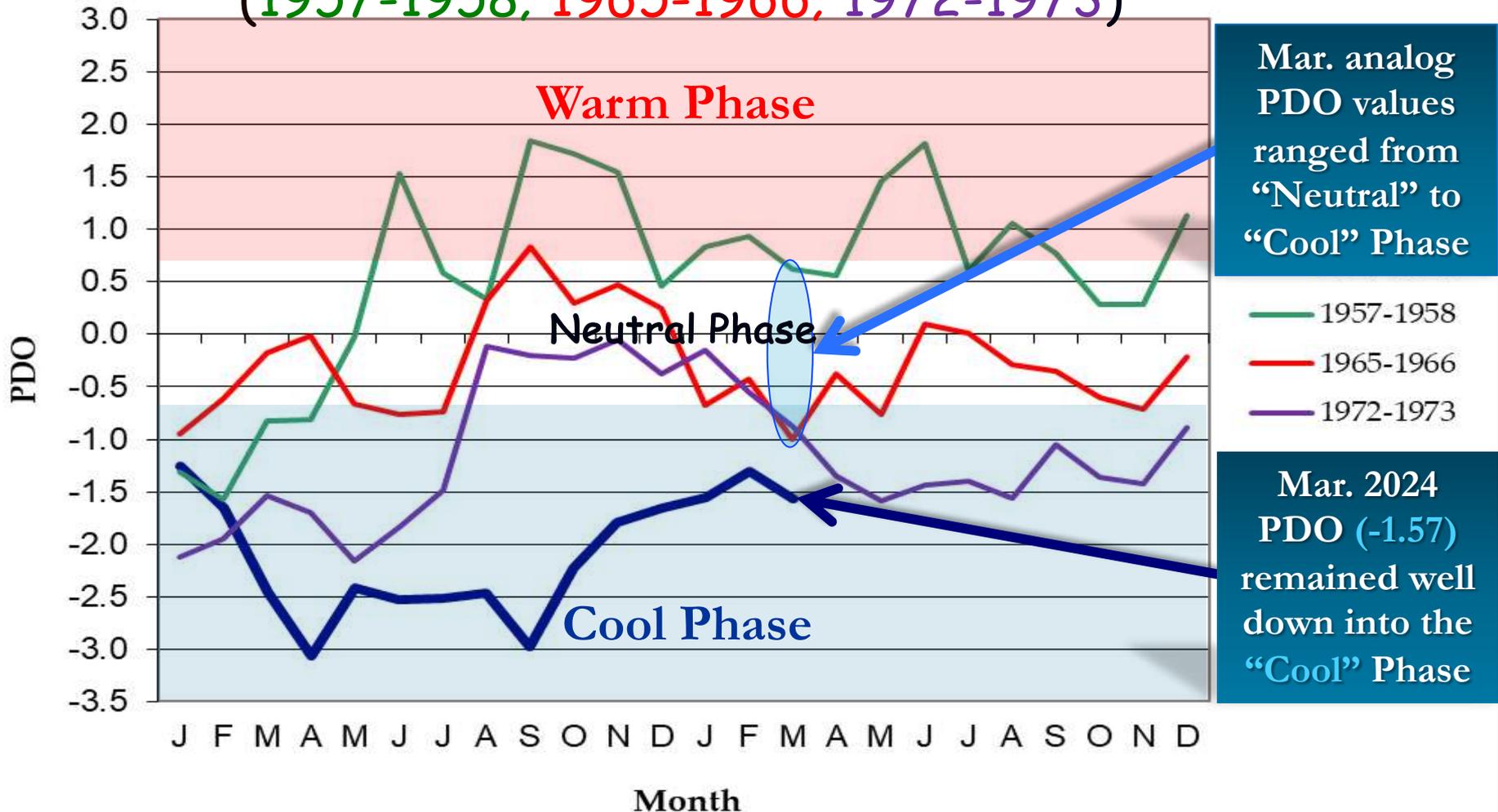
Negative (Cool)  
"Phase"



# North Pacific Ocean

(Poleward of 20°N Latitude)

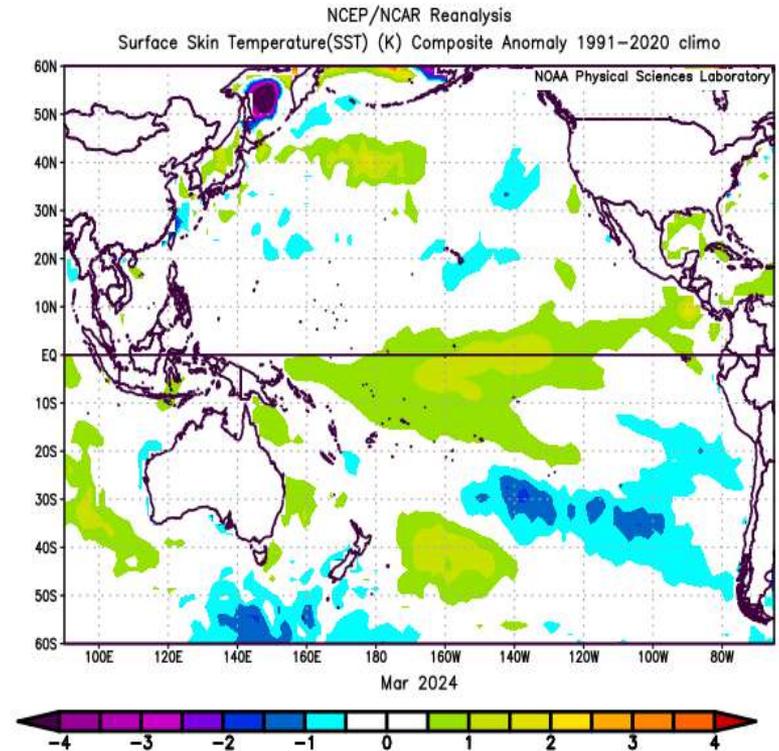
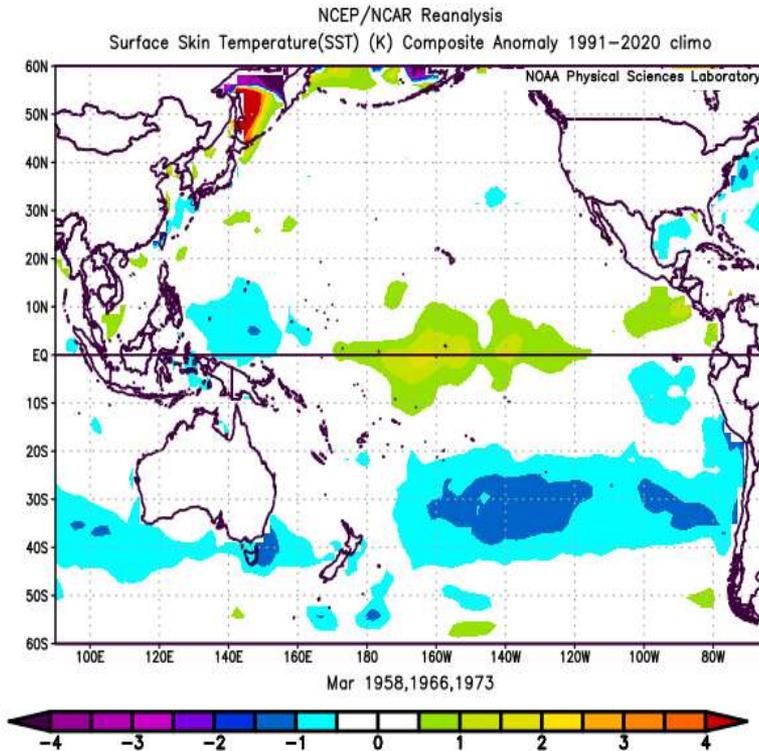
PDO values from the top "analog years" compared with the current period (2023-2024)  
(1957-1958; 1965-1966; 1972-1973)



# SST Anomalies Comparison

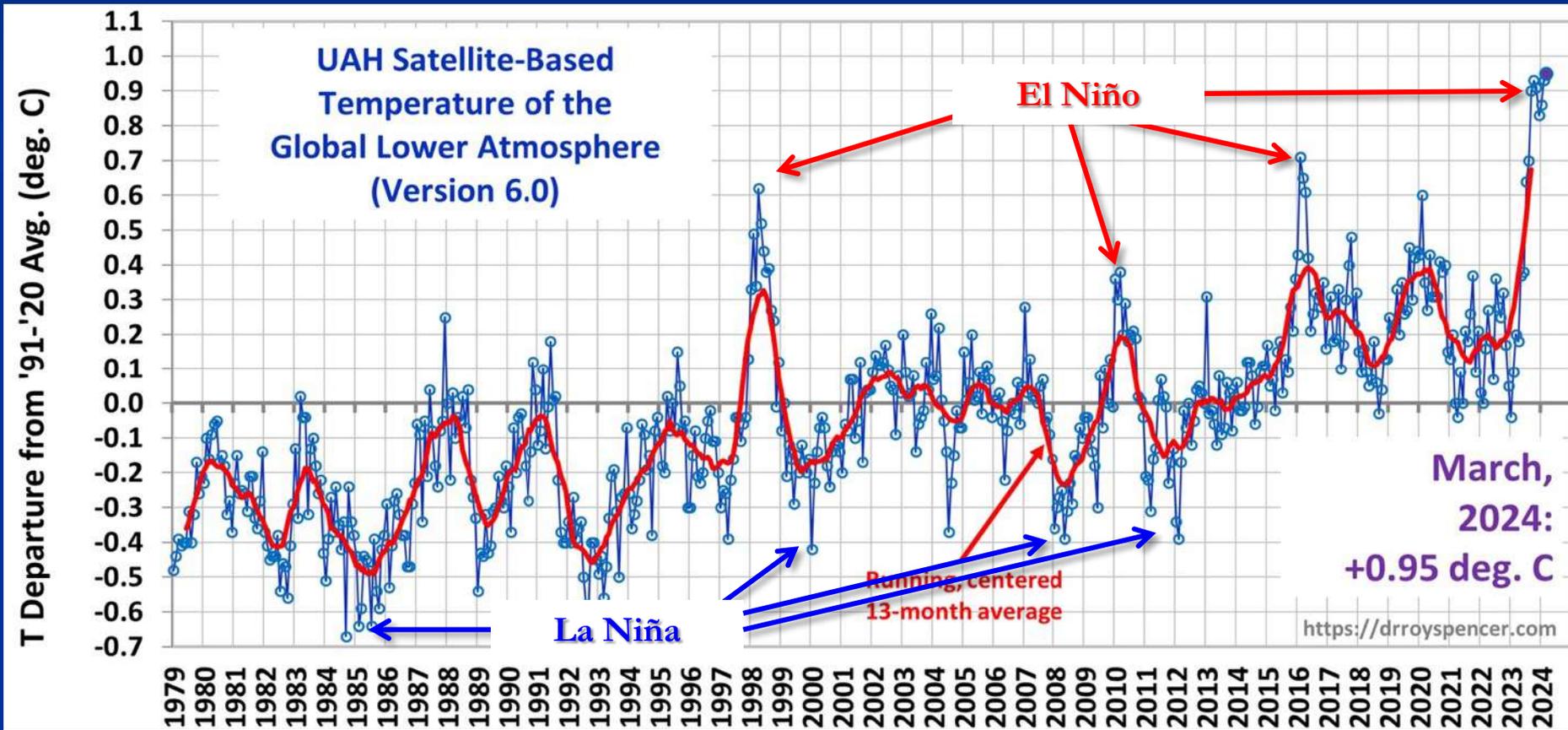
## March Analogs

## March 2024



- The March analog composite (left) has a similar SST anomaly pattern (“fair match”), compared to that of March 2024 (right).
- Both charts reflect weakening **El Niño (warm)** conditions in the tropical Pacific Ocean.

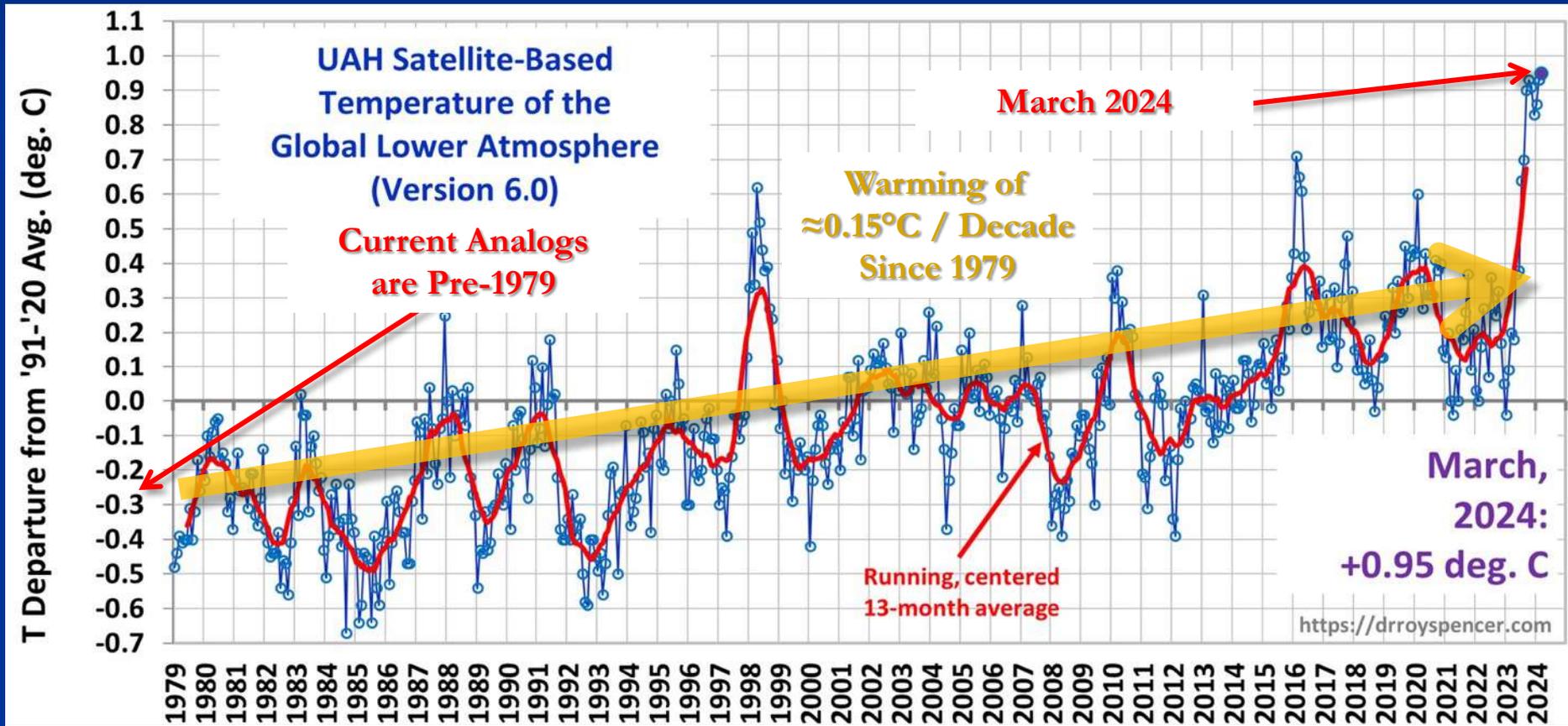
# El Niño & La Niña Impact Global Temperatures...



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

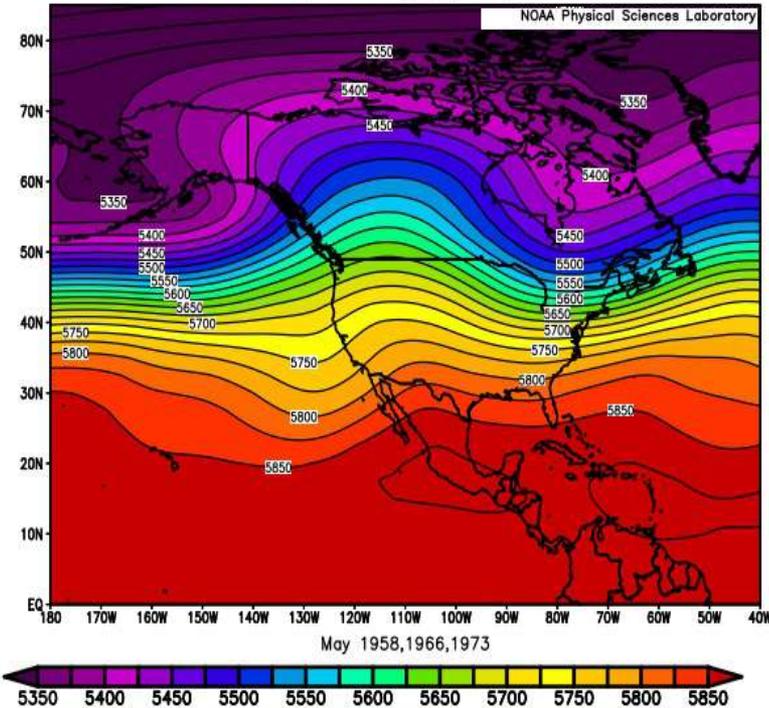


# May 2024 Forecast

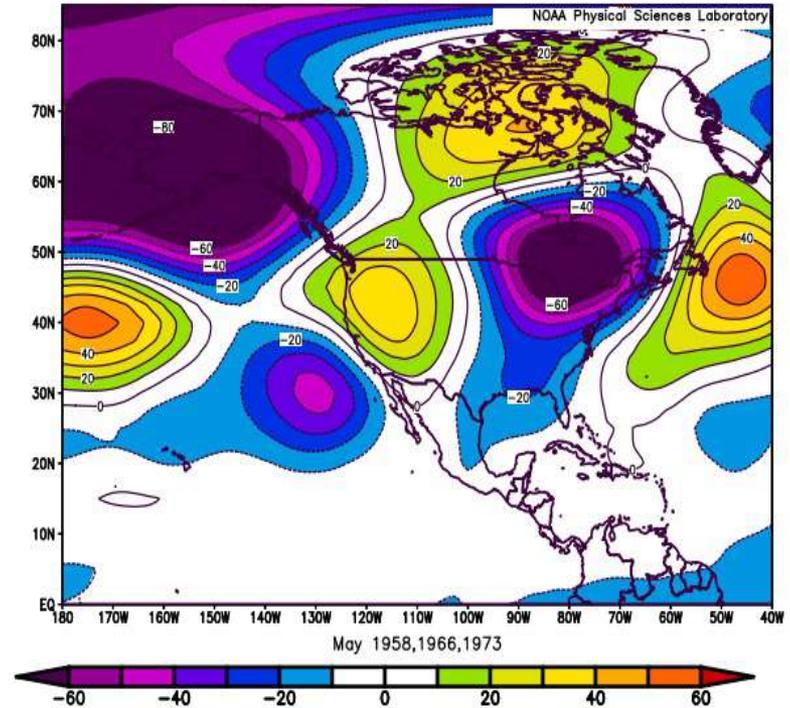
## Mean Upper-Air Pattern

## Upper-Air Anomalies

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



NCEP/NCAR Reanalysis  
500mb Geopotential Height (m) Composite Anomaly 1991–2020 climo

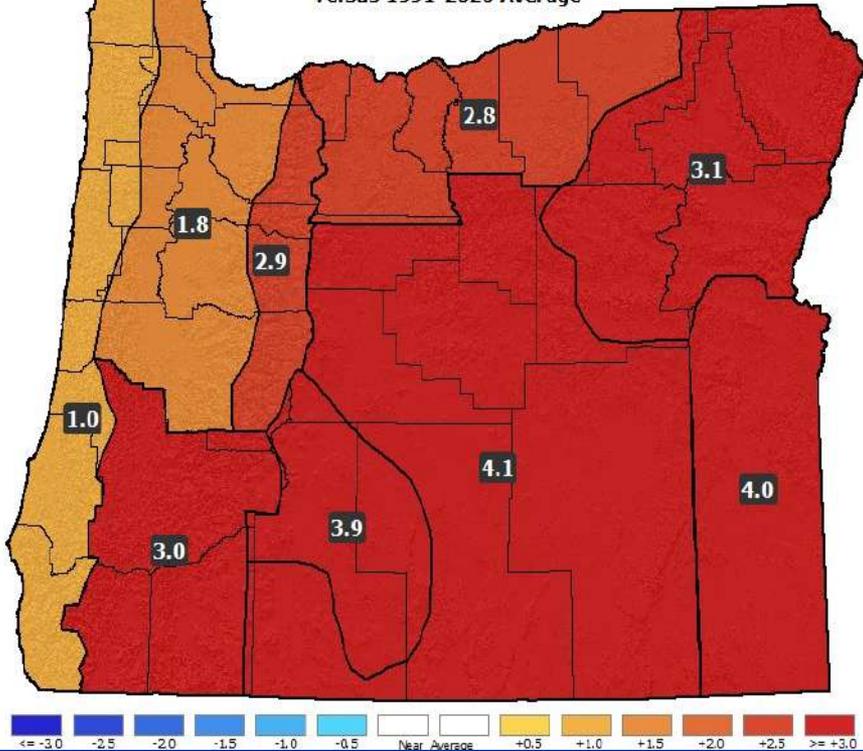


- A “split-flow” pattern should continue over the Pacific Northwest with mean ridging over the Rockies.
- Despite a weakening **El Niño**, analogs consistently maintained anomalous ridging over Oregon.

# May 2024 Forecast

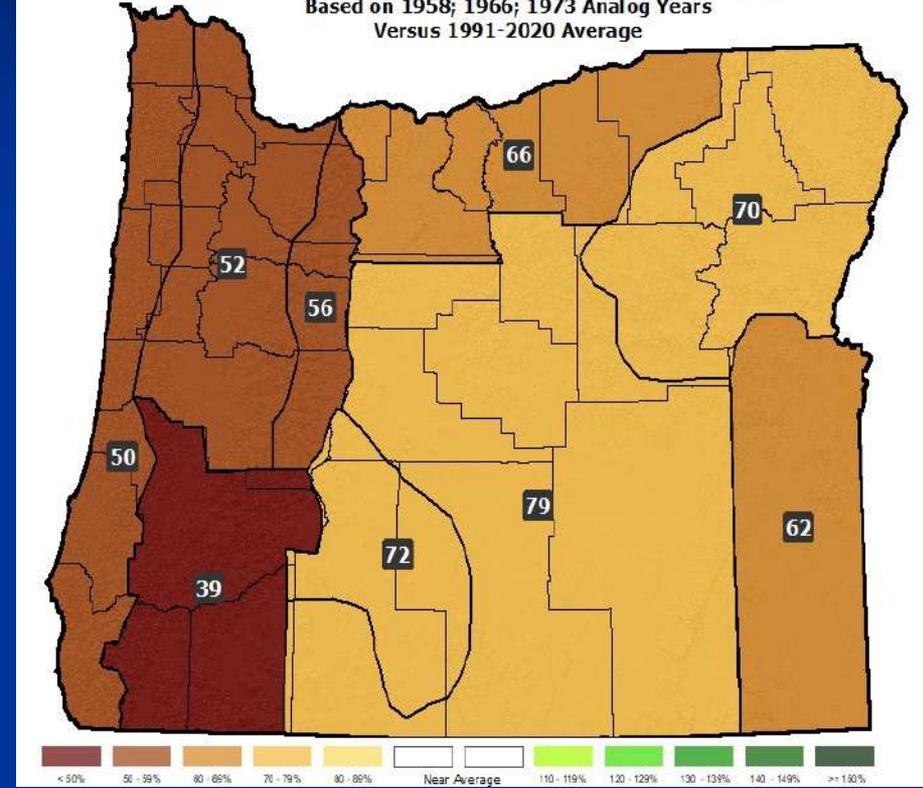
## Temperatures

May 2024 Forecast Temperature Anomalies (°F)  
Based on 1958, 1966, 1973 Analog Years  
Versus 1991-2020 Average



## Precipitation

May 2024 Forecast Precipitation Anomalies (% of Avg)  
Based on 1958; 1966; 1973 Analog Years  
Versus 1991-2020 Average

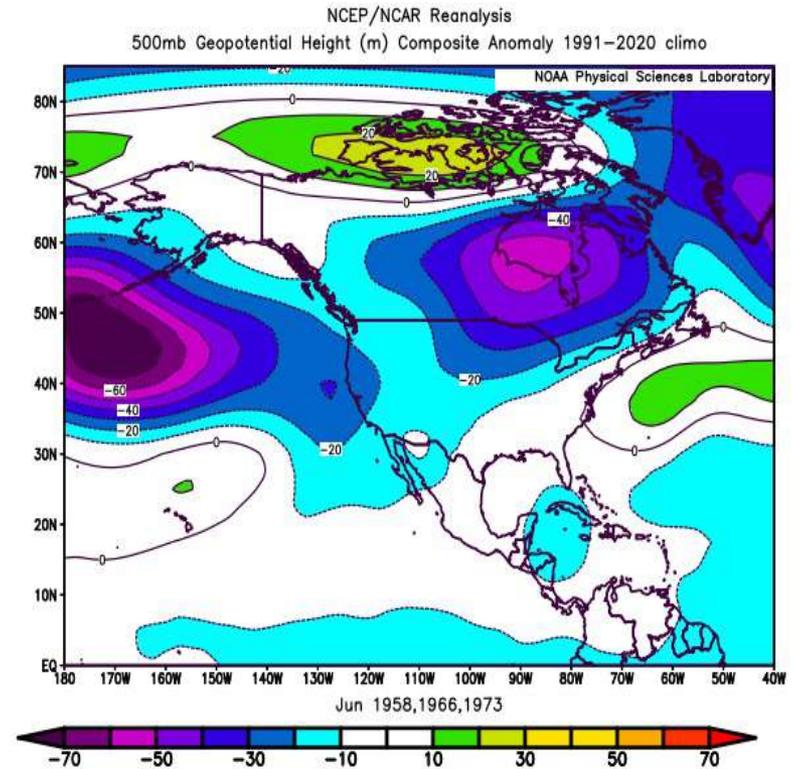
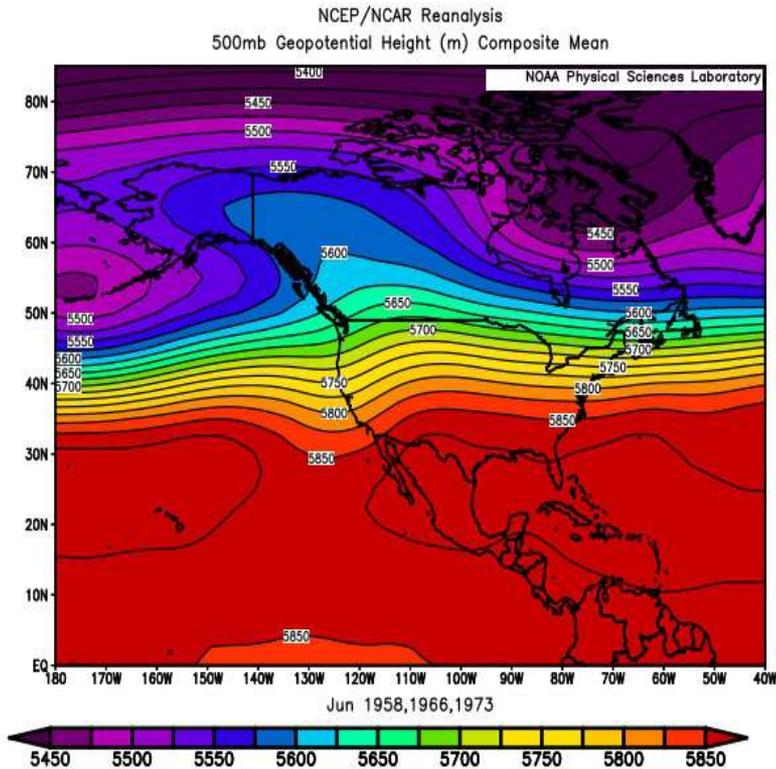


- A cool 1966, with a western valley freeze late in the month, is more than countered by the relatively warm years of 1958 & 1973.
- 1958 had considerable thunderstorm activity statewide, but 1966 and 1973 were much drier. The blend skews dry.

# June 2024 Forecast

## Mean Upper-Air Pattern

## Upper-Air Anomalies

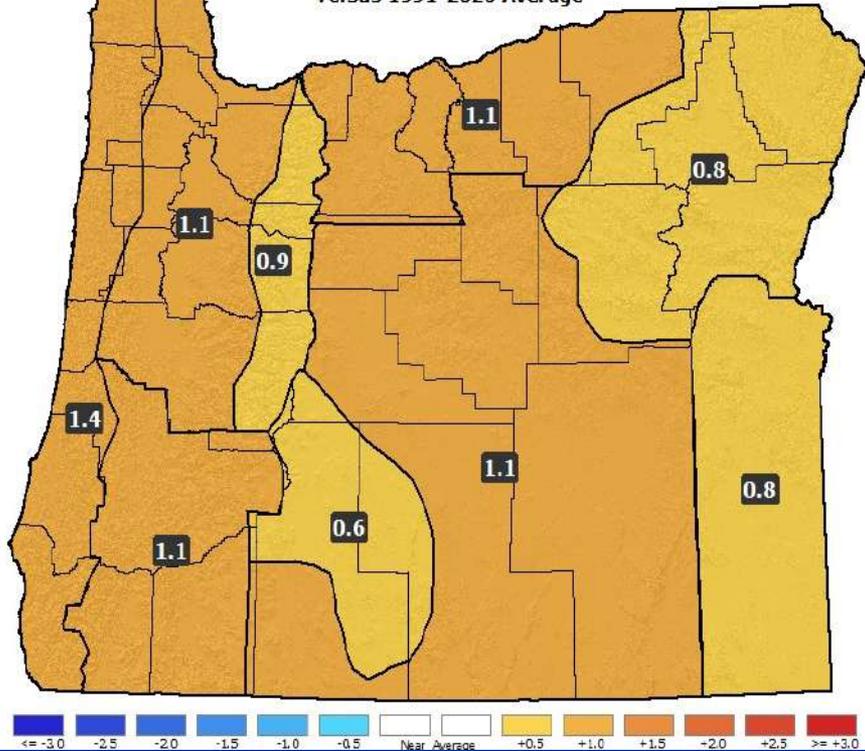


- A “split-flow” jet stream pattern should continue across the Pacific Northwest with enhanced storm activity directed towards California.
- This is a relatively warm pattern, but prolonged extreme temperatures are not featured. Thundershower activity may be enhanced.

# June 2024 Forecast

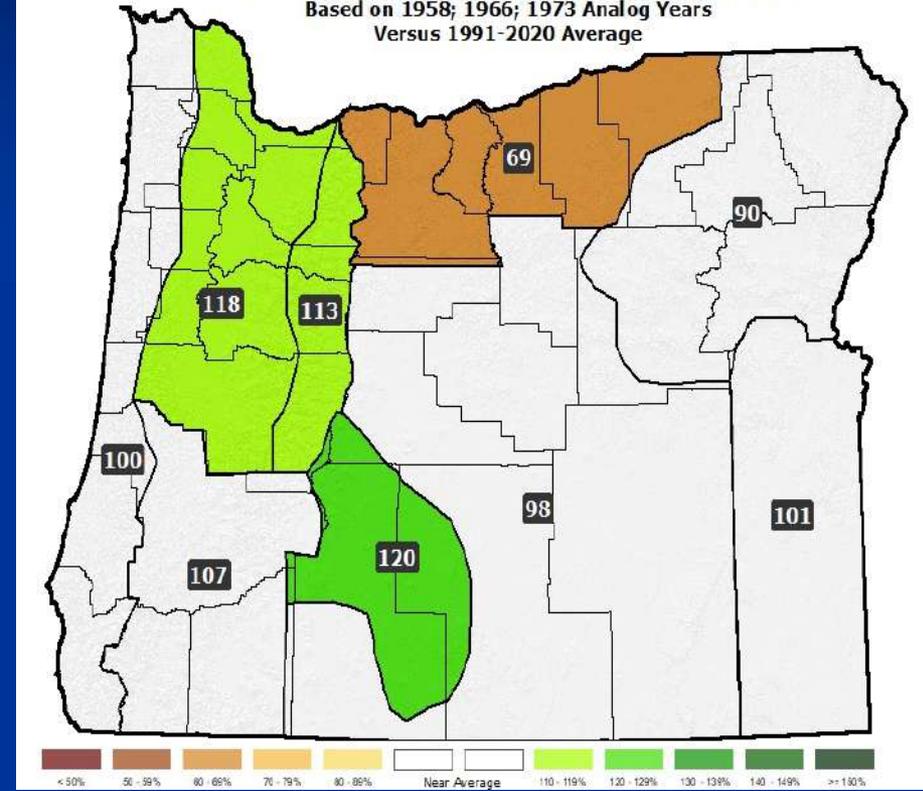
## Temperatures

June 2024 Forecast Temperature Anomalies (°F)  
Based on 1958, 1966, 1973 Analog Years  
Versus 1991-2020 Average



## Precipitation

June 2024 Forecast Precipitation Anomalies (% of Avg)  
Based on 1958; 1966; 1973 Analog Years  
Versus 1991-2020 Average

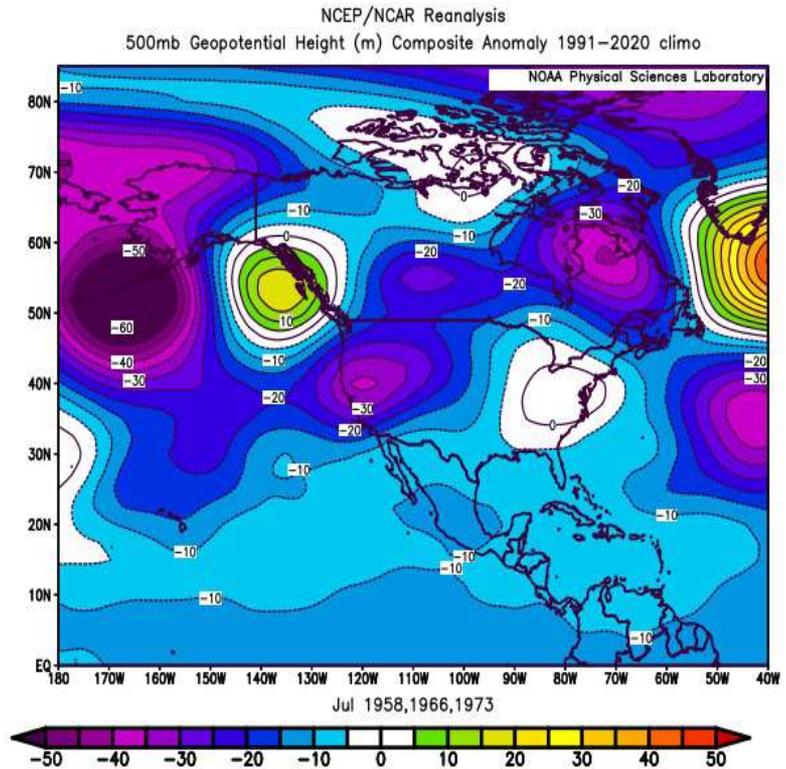
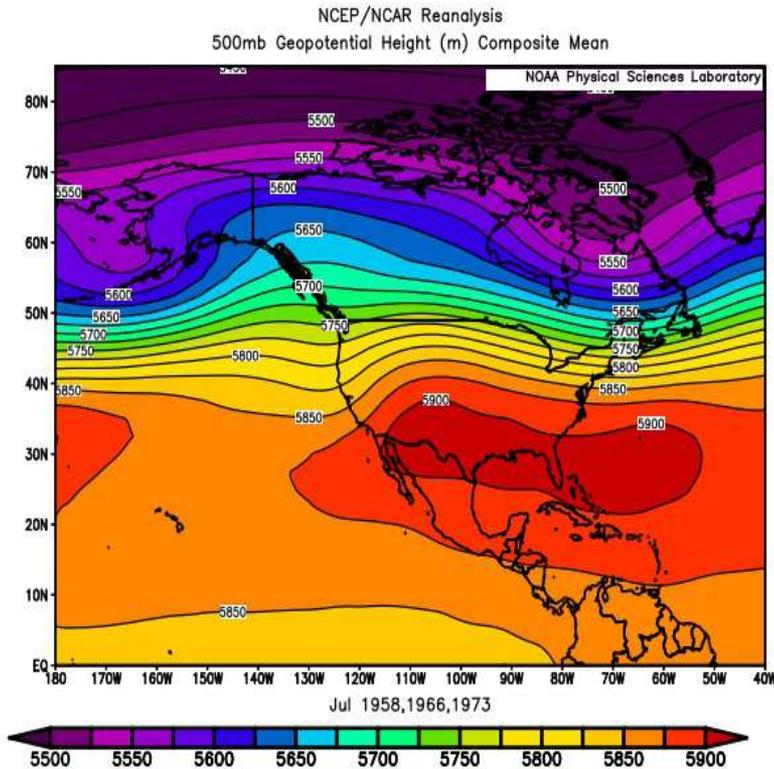


- Above-average temperatures with some “warm” spells (over 90°F in the interior) likely from mid-month on...
- Expect ample days with precipitation and an increased threat of thunderstorms statewide.

# July 2024 Forecast

## Mean Upper-Air Pattern

## Upper-Air Anomalies

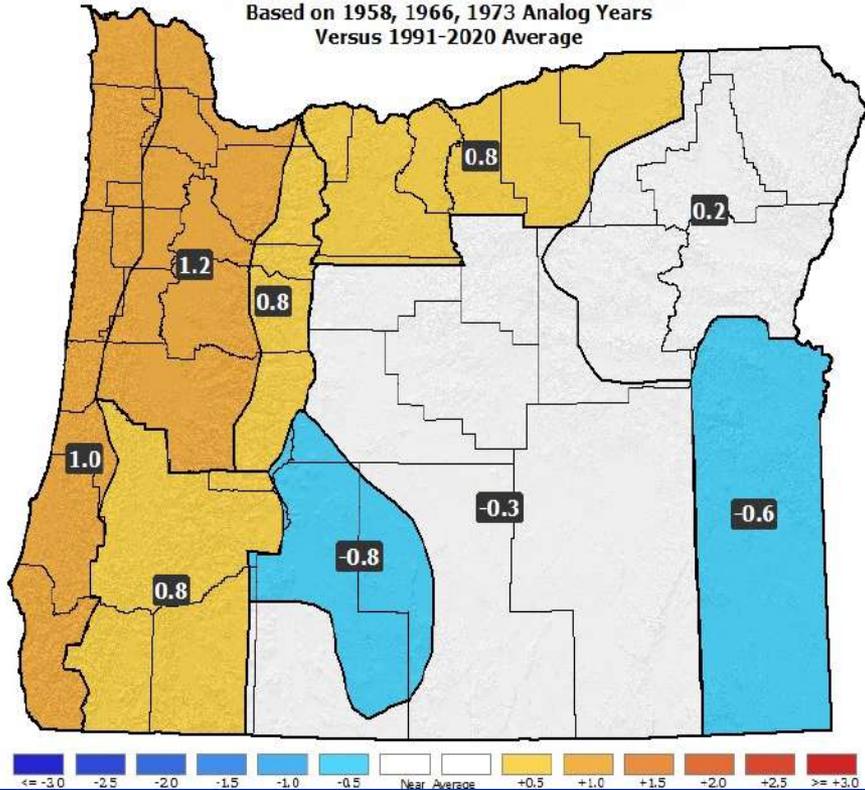


- The analog composite shows anomalous ridging centered along the B.C. Coast with some downstream troughing over the Pac NW.
- An **El Niño-driven** “split-flow” pattern should persist over the west coast of North America despite a likely transition to ENSO-neutral.

# July 2024 Forecast

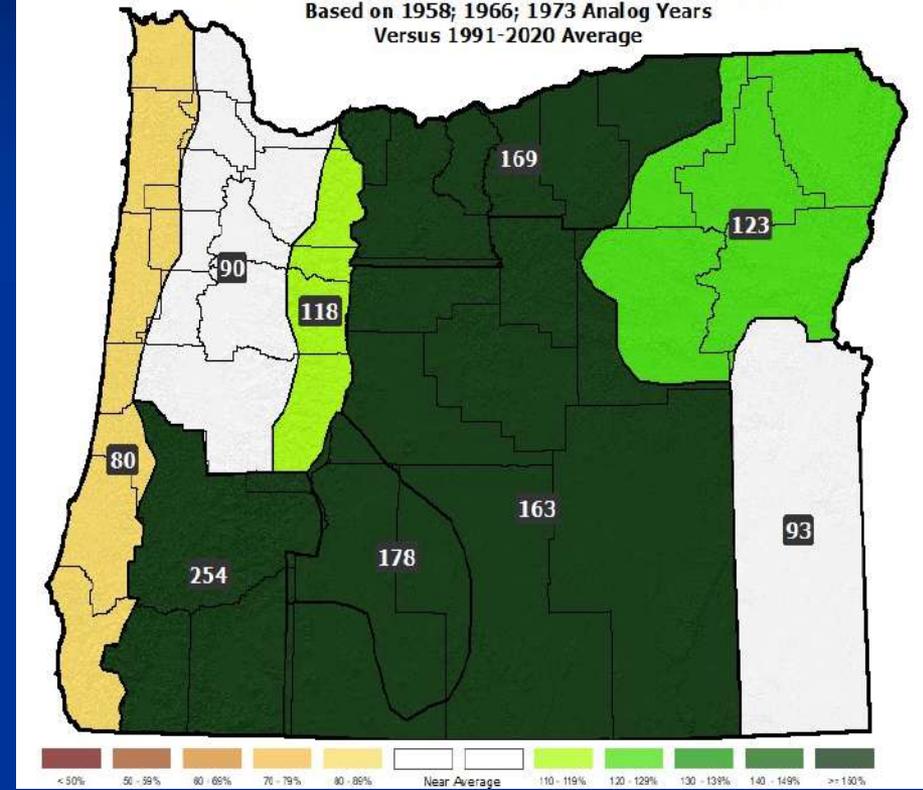
## Temperatures

July 2024 Forecast Temperature Anomalies (°F)  
Based on 1958, 1966, 1973 Analog Years  
Versus 1991-2020 Average



## Precipitation

July 2024 Forecast Precipitation Anomalies (% of Avg)  
Based on 1958; 1966; 1973 Analog Years  
Versus 1991-2020 Average

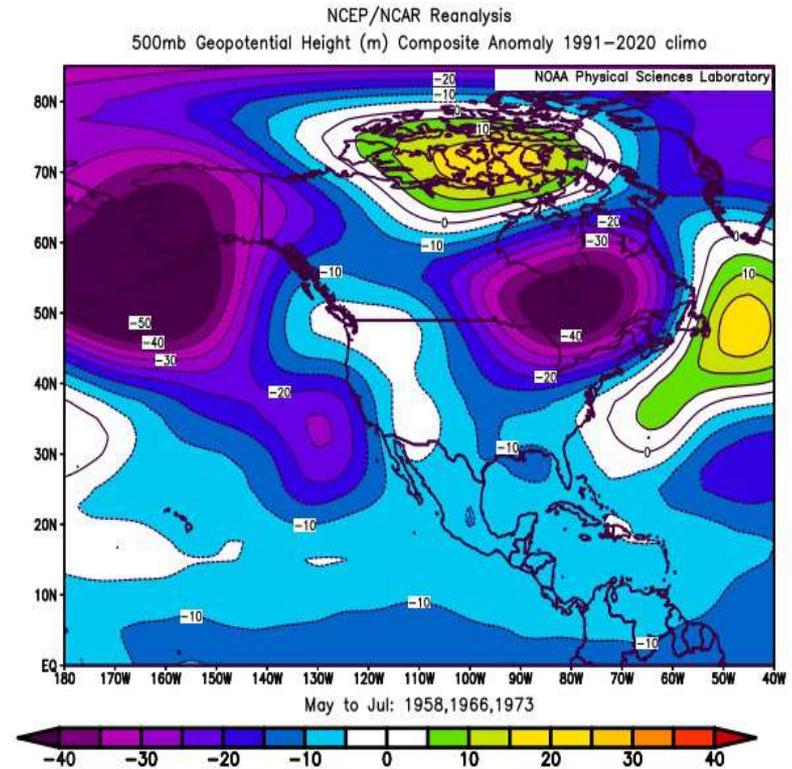
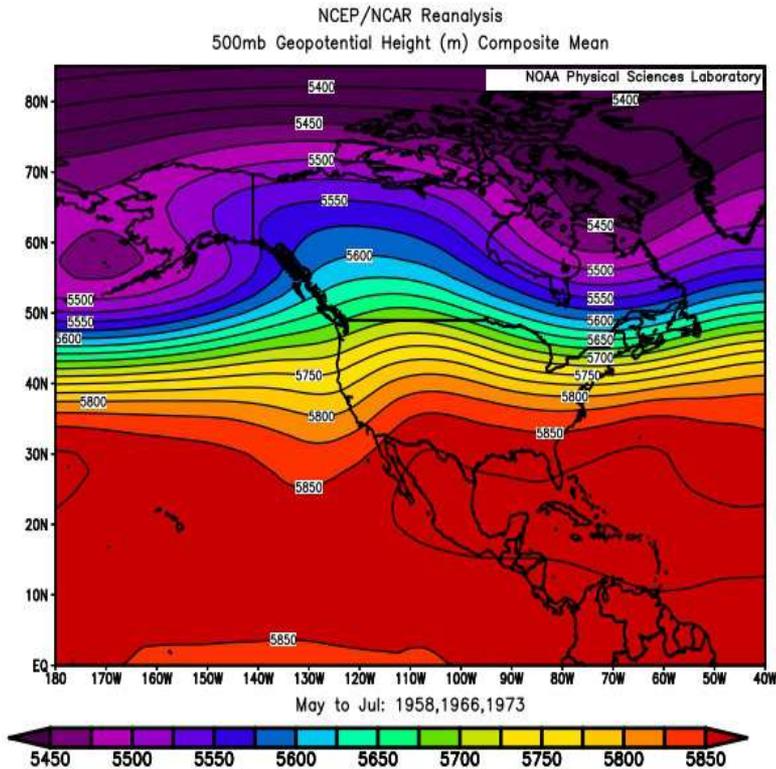


- Analog years straddled either side of average temperatures with 1966 being the coolest and 1958 the warmest.
- A wet 1966 skews the precipitation to near or above normal, despite both 1958 & 1973 being drier than average (lowers forecast confidence).

# May – July 2024 Forecast

## Mean Upper-Air Pattern

## Upper-Air Anomalies

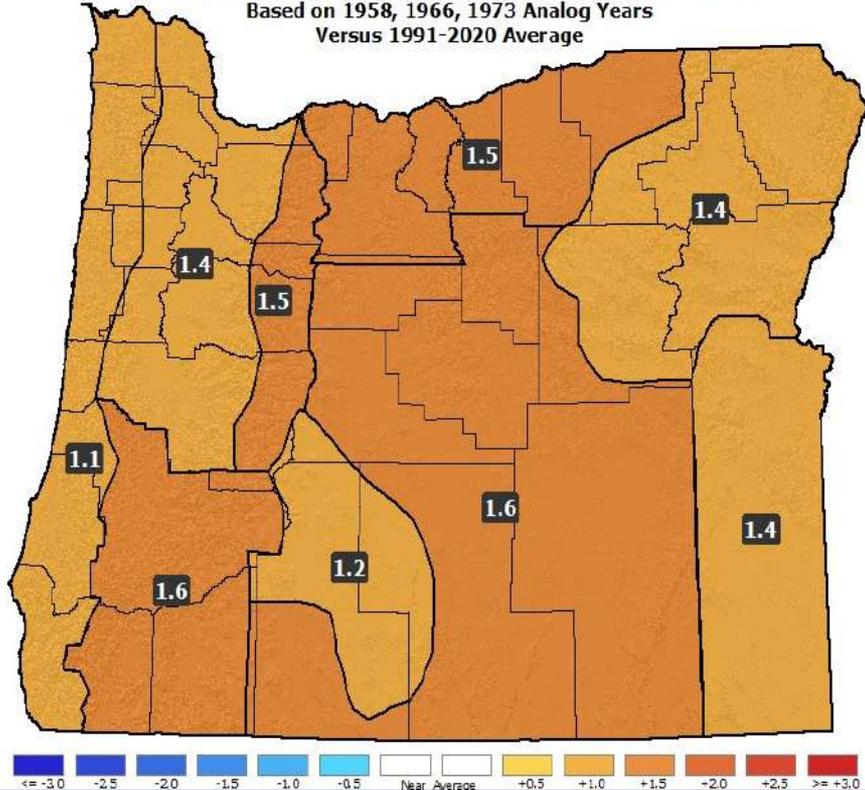


- Expect a continuation of a “split-flow” jet stream pattern along the U.S. West Coast (an **El Niño** signature).
- This pattern favors relatively warm weather across Oregon but can also prove quite volatile during the late-spring/early-summer period.

# May – July 2024 Forecast

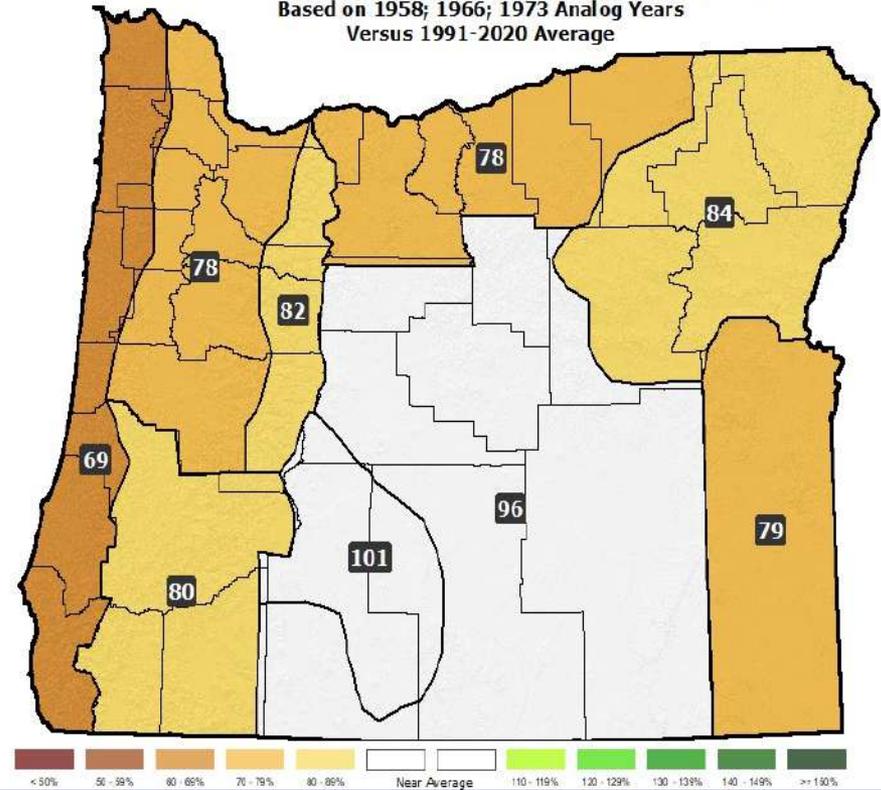
## Temperatures

May 2024 - July 2024 Forecast Temperature Anomalies (°F)  
Based on 1958, 1966, 1973 Analog Years  
Versus 1991-2020 Average



## Precipitation

May 2024 - July 2024 Forecast Precipitation Anomalies (% of Avg)  
Based on 1958; 1966; 1973 Analog Years  
Versus 1991-2020 Average



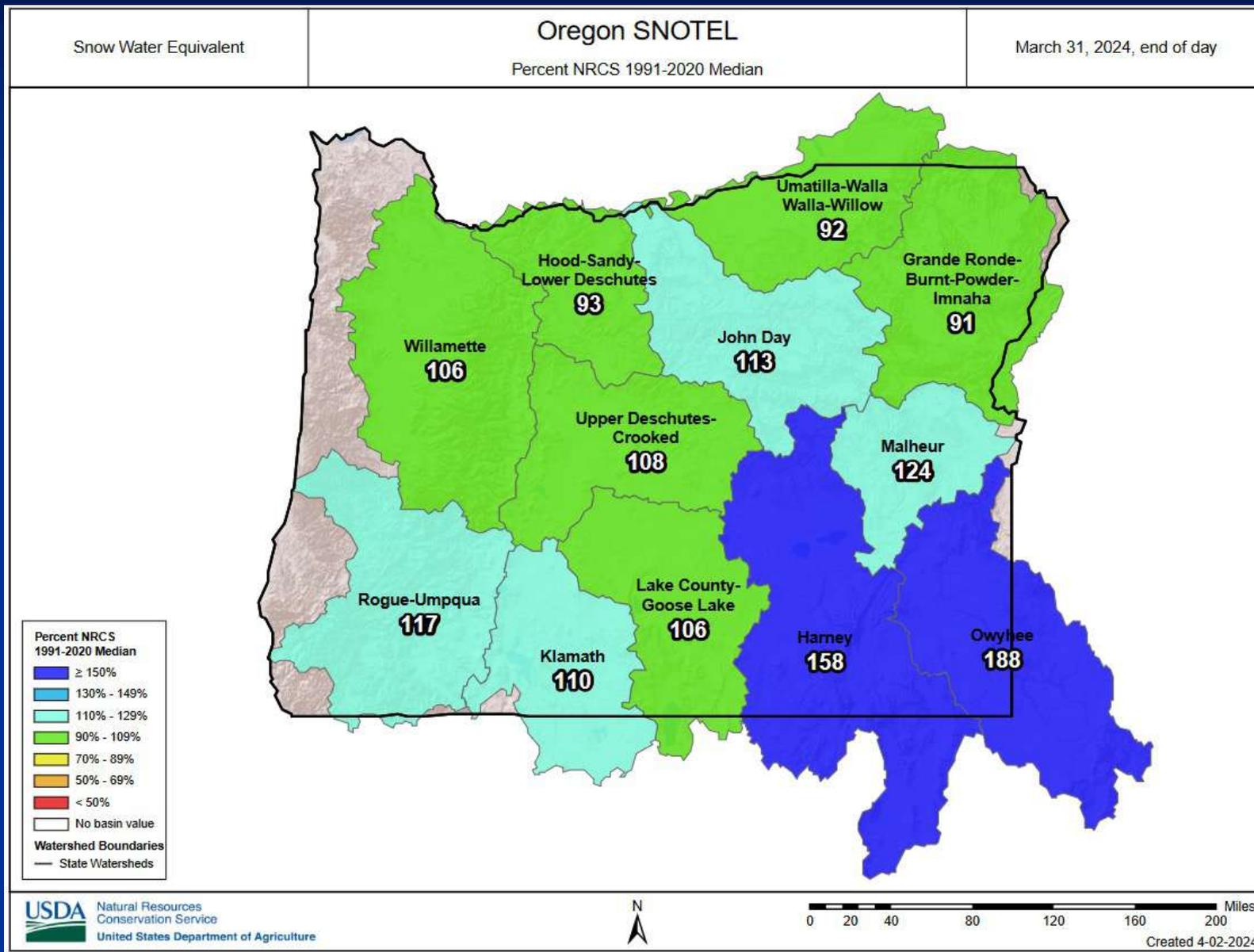
- Above-average temperatures indicated for the period. Heightened chance of extremes, in both directions, in May (1966 analog).
- Precipitation near or slightly below average. Heightened chance of late-spring thundershower activity (1958 analog).

# 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 pervasive “split-flow” jet stream pattern should continue along the west coast of North America, even though **El Niño** is rapidly weakening.
- Relatively “warm & dry” weather is favored, but analog years also exhibited counter-trend periods with more-volatile weather.
- May of 1966 had extreme temperatures in both directions. There was widespread thunderstorm activity in May & June of 1958. 1973 was mostly moderate but also had quite-warm temperatures in mid-May.

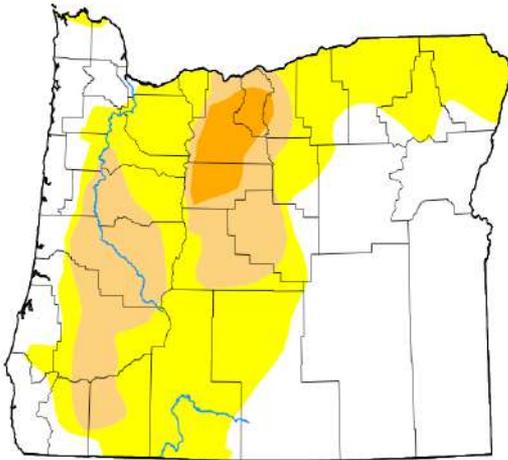
*Disclaimer: This forecast is not associated with NOAA's CPC (see “Forecasting Methods...” at: <https://oda.direct/Weather>) nor the official CPC “Three-Month Outlooks,” which are available at: [https://www.cpc.ncep.noaa.gov/products/predictions/long\\_range/seasonal.php?lead=1](https://www.cpc.ncep.noaa.gov/products/predictions/long_range/seasonal.php?lead=1)*

# Peak Spring Snowpacks Near-to-Above Average (end of March 2024)



# Drought Improvement (over the past 3 months)

January 2, 2024



Map released: Thurs. January 4, 2024

Data valid: January 2, 2024 at 7 a.m. EST

## Intensity

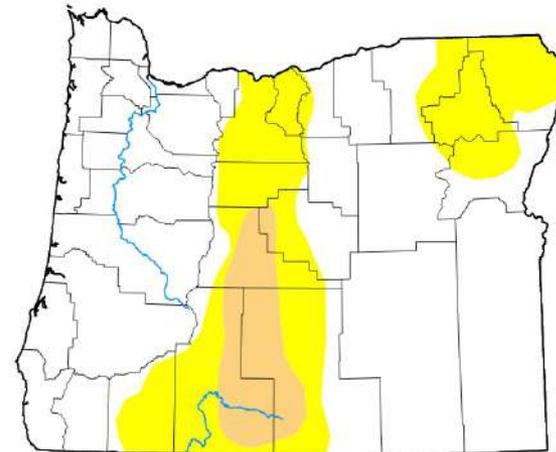


## Authors

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Pacific Islands and Virgin Islands Author(s):  
[Richard Helm](#), NOAA/NCEI

April 9, 2024



Map released: Thurs. April 11, 2024

Data valid: April 9, 2024 at 8 a.m. EDT

## Intensity



## Authors

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Pacific Islands and Virgin Islands Author(s):  
[Anthony Artusa](#), 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](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](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](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](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](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>

A photograph of a field of bright yellow poppies in the foreground, with a rustic stone wall in the background. The scene is brightly lit, suggesting a sunny day. The poppies are in various stages of bloom, and their green stems and leaves are visible. The stone wall is made of large, dark, irregular stones.

# 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](mailto:peter.gj.parsons@odf.oregon.gov)

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