



# Seasonal Climate Forecast

## March – May 2024

Issued: February 15, 2024

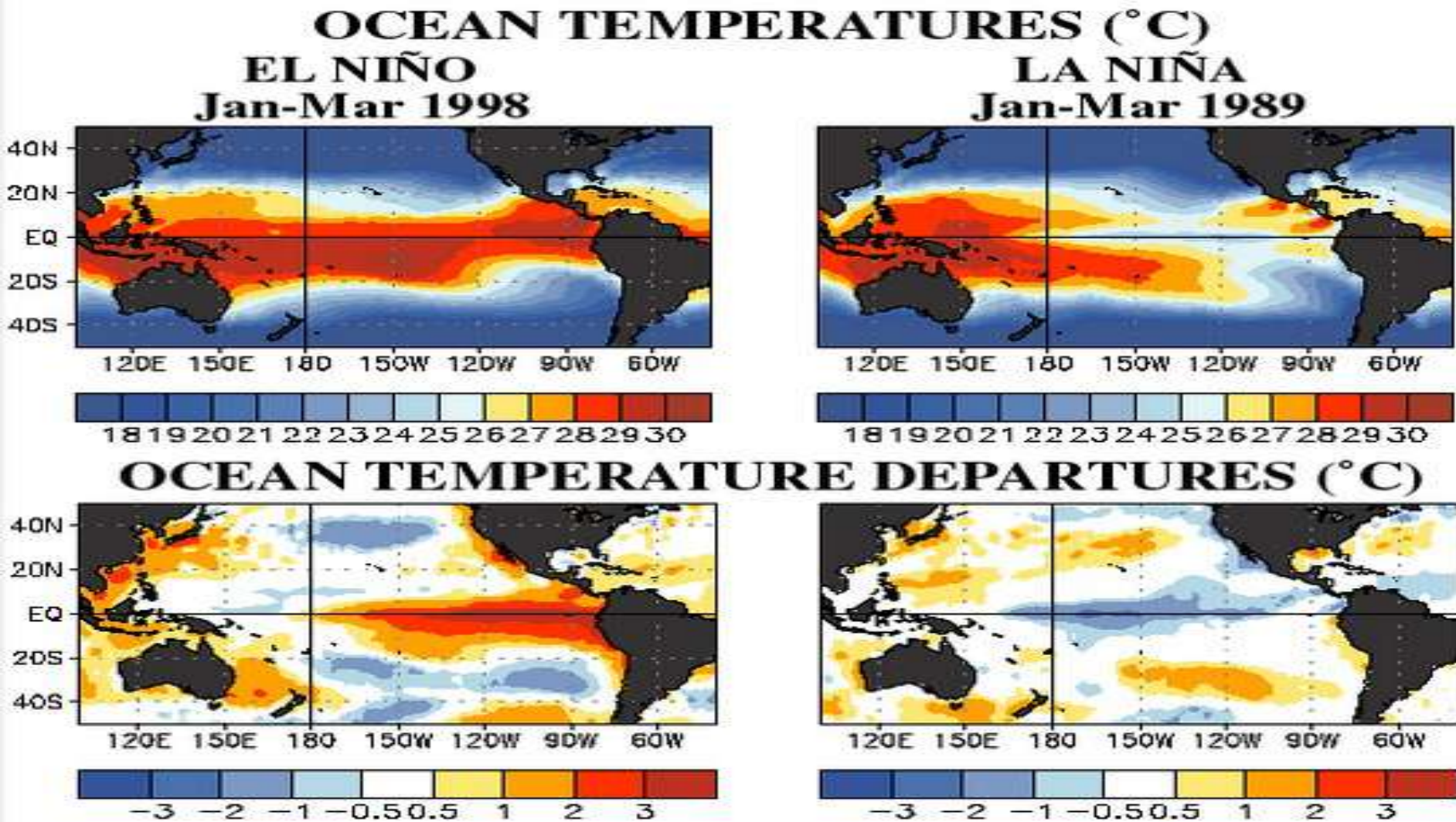
Contact: ODF Lead Meteorologist Pete Parsons  
503-945-7448 or [peter.gj.parsons@odf.oregon.gov](mailto:peter.gj.parsons@odf.oregon.gov)

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

*A Meyer*

# El Niño vs La Niña

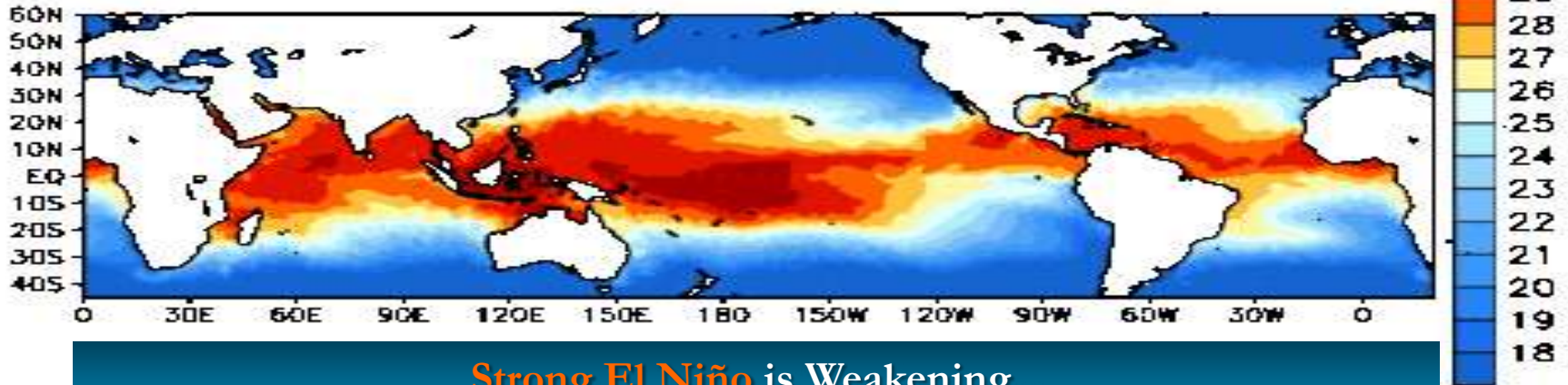
## (SST Patterns in the Tropical Pacific Ocean)



# Sea Surface Temperatures (SSTs)

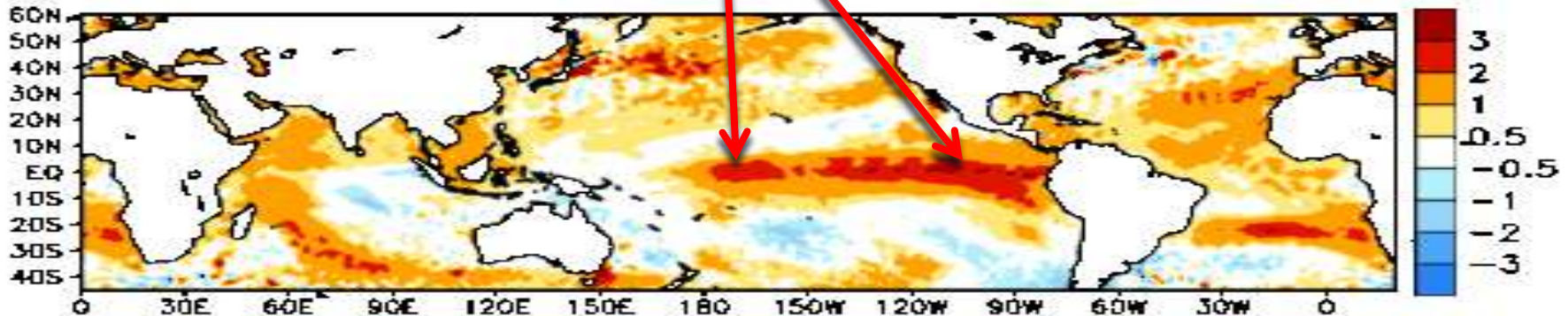
Animated (PowerPoint only) SSTs (top) / Anomalies (bottom)

Week centered on 22 NOV 2023  
SST (°C)



Strong El Niño is Weakening...

Anomalies (°C)



# El Niño Southern Oscillation (ENSO)

## Current Status and Forecast

- The January Southern Oscillation Index (SOI) rose to 0.5, reflecting strengthening of easterly trade winds across the tropical Pacific Ocean (indicating that **El Niño** is weakening).
- The November – January Oceanic Niño Index (ONI **+2.0°C**) remained in the **strong El Niño** range. This index lags real-time sea surface temperatures (SSTs), which show **El Niño** weakening.
- NOAA's Climate Prediction Center (CPC) expects a rapid transition from **El Niño** to **ENSO-neutral** this spring and to **La Niña** this summer.

*Important Note: This “Seasonal Climate 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.*

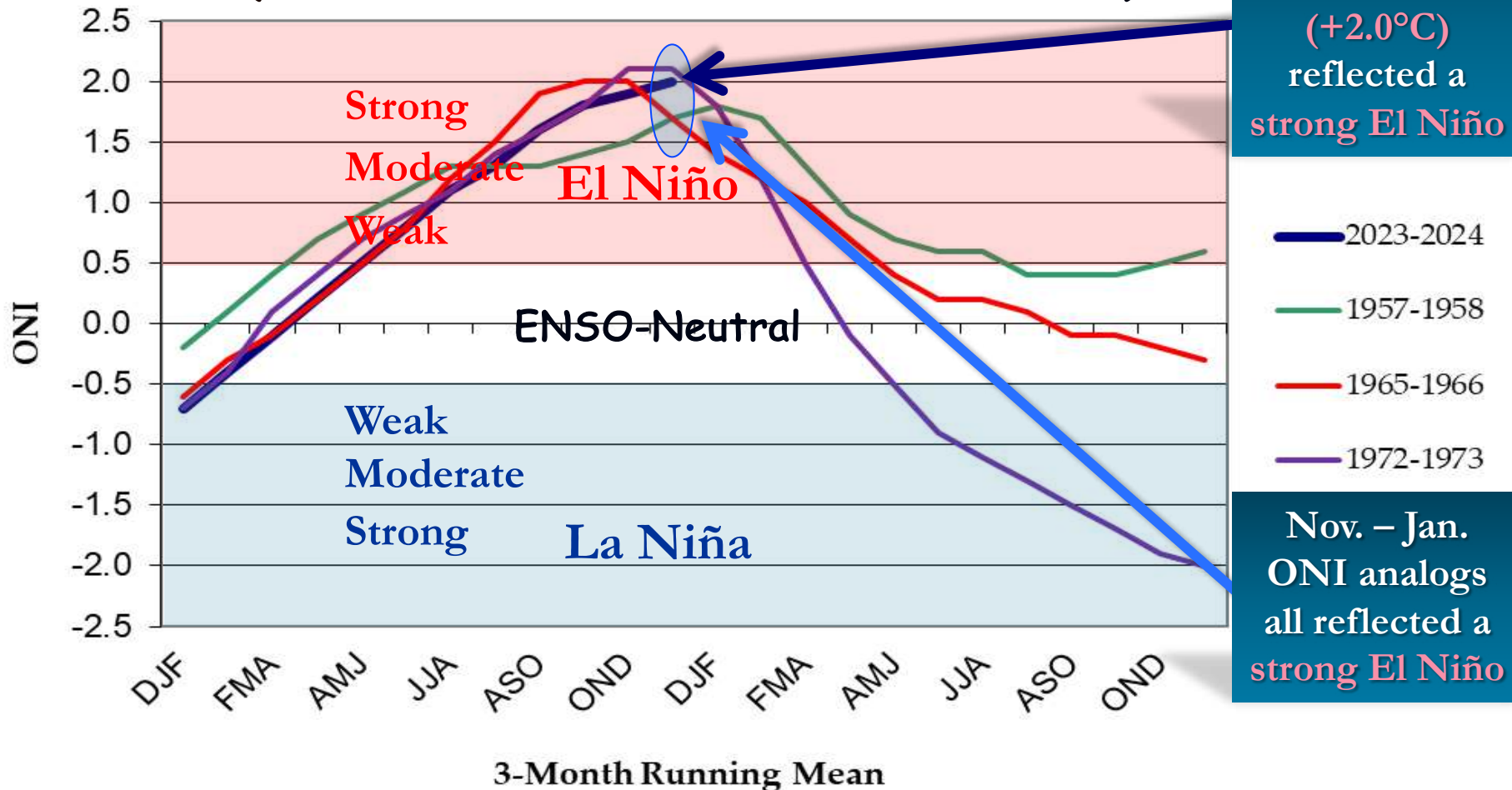
# Southern Oscillation Index (SOI)

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



# Oceanic Niño Index (ONI)

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

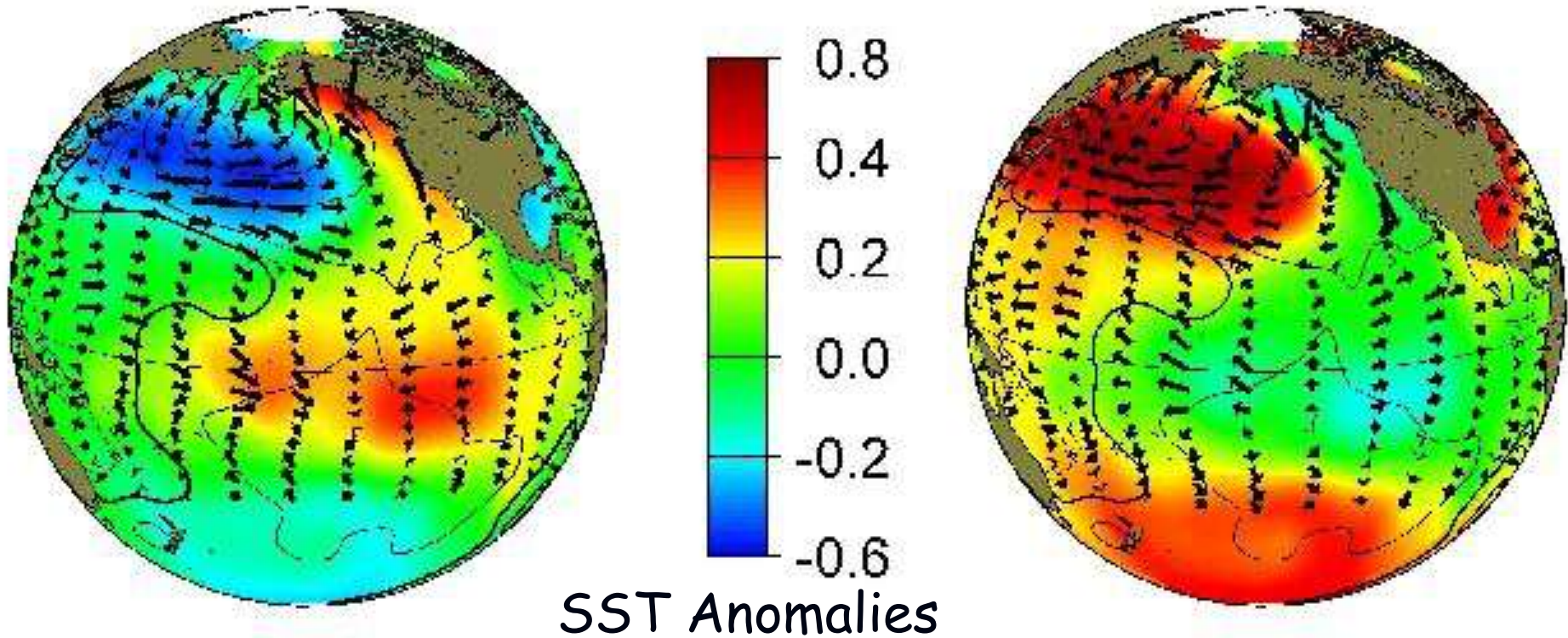


# The Pacific Decadal Oscillation (PDO)

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

Positive (Warm)  
“Phase”

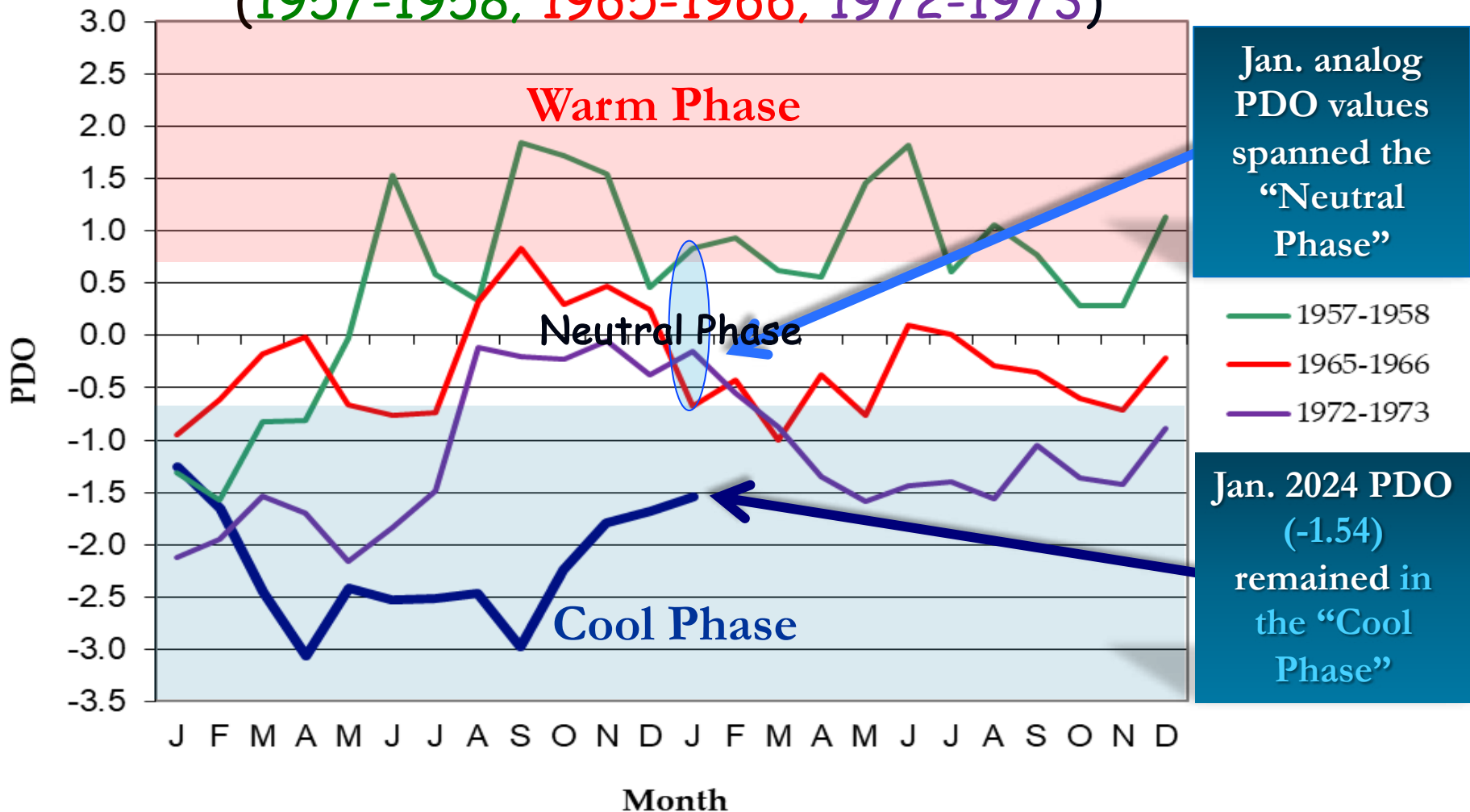
Negative (Cool)  
“Phase”



# North Pacific Ocean

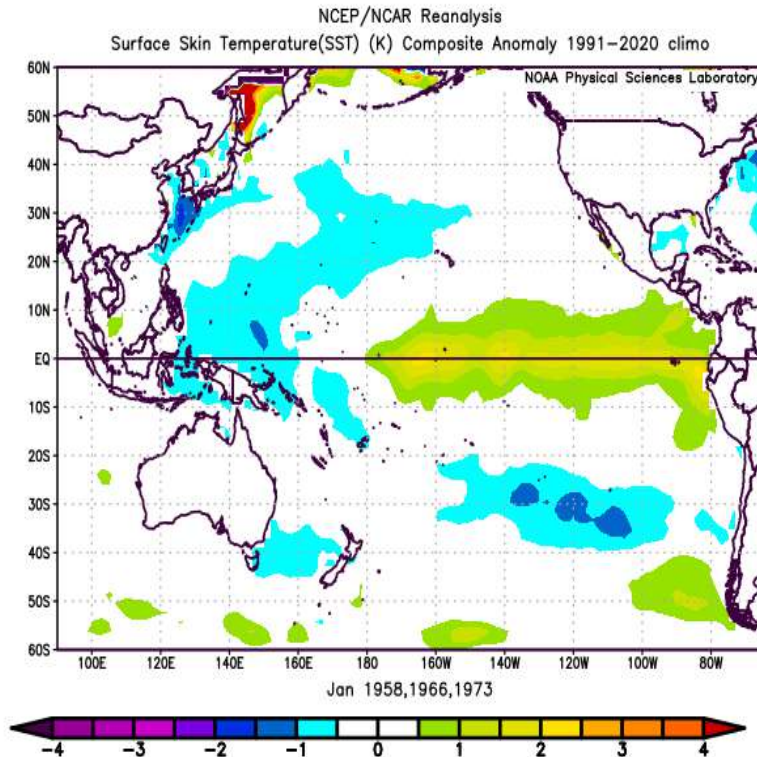
(Poleward of 20°N Latitude)

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

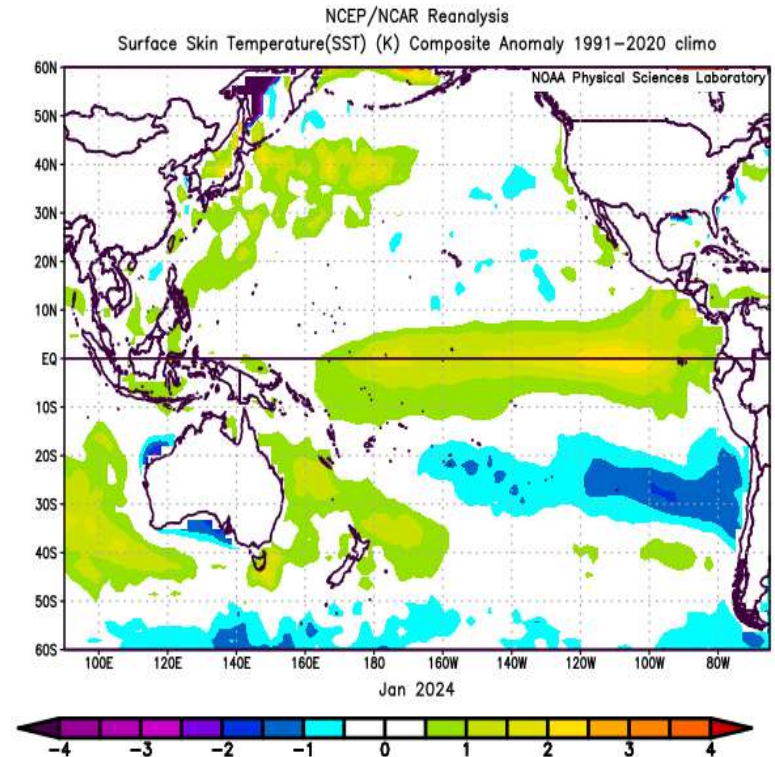


# SST Anomalies Comparison

## January Analogs



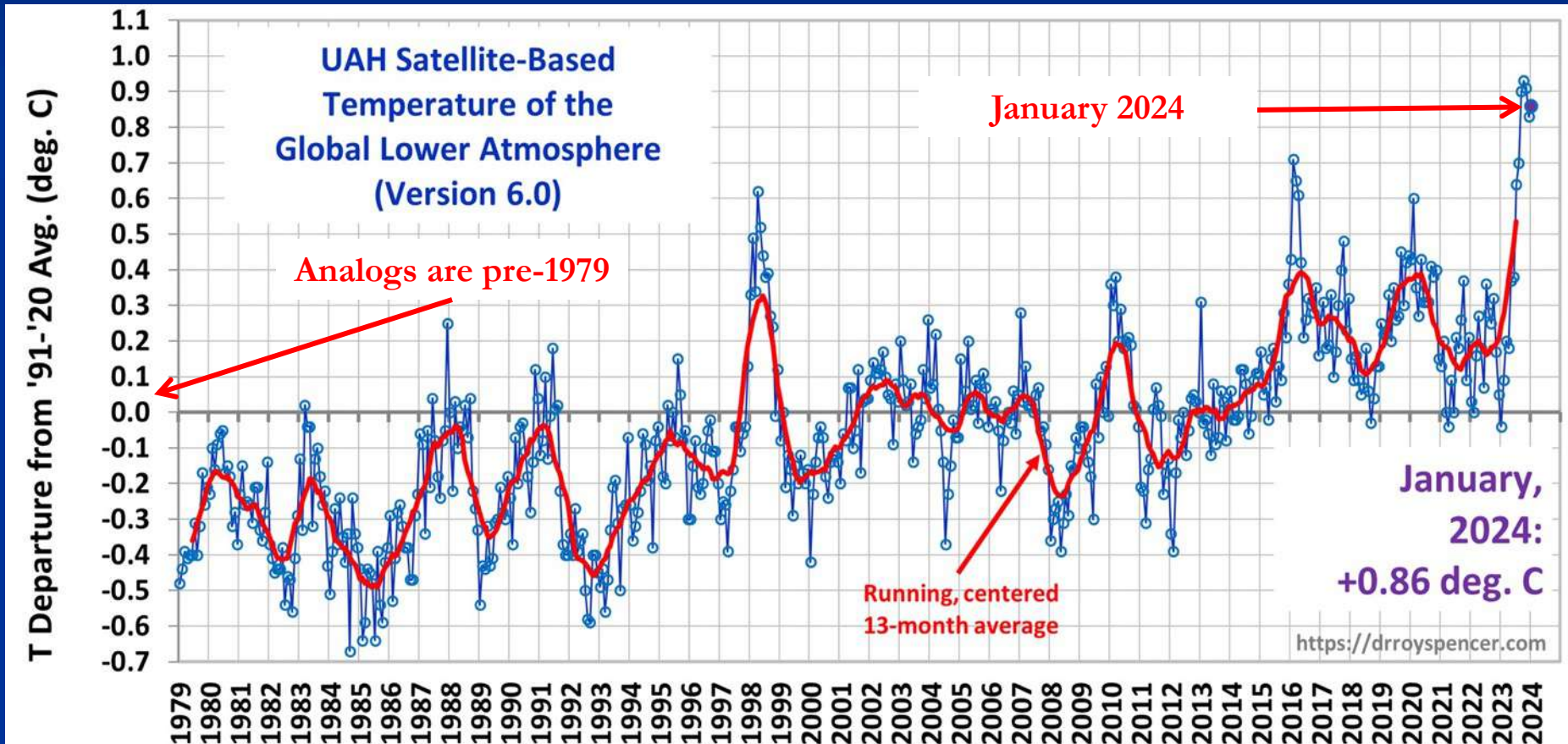
## January 2024



- The January analog composite (left) has a similar SST anomaly pattern (“good match”), compared to that of January 2024 (right).
- Both charts show moderate-to-strong **El Niño (warm)** conditions in the tropical Pacific but have significant differences in the north Pacific.

# Global Temperature Changes

## Increase Error in Analog Forecasts!



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

# Oregon Climate Zones

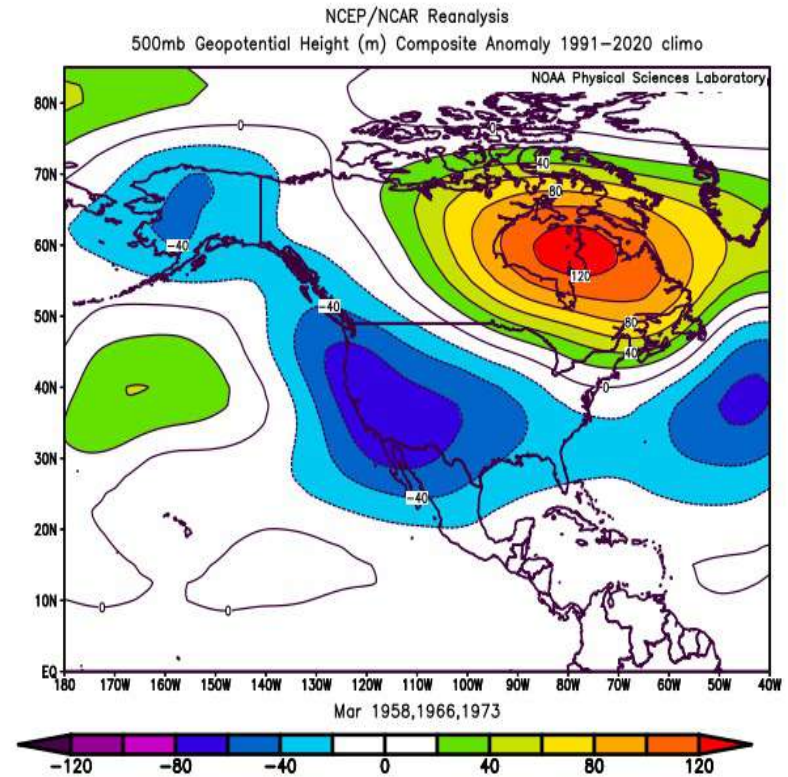
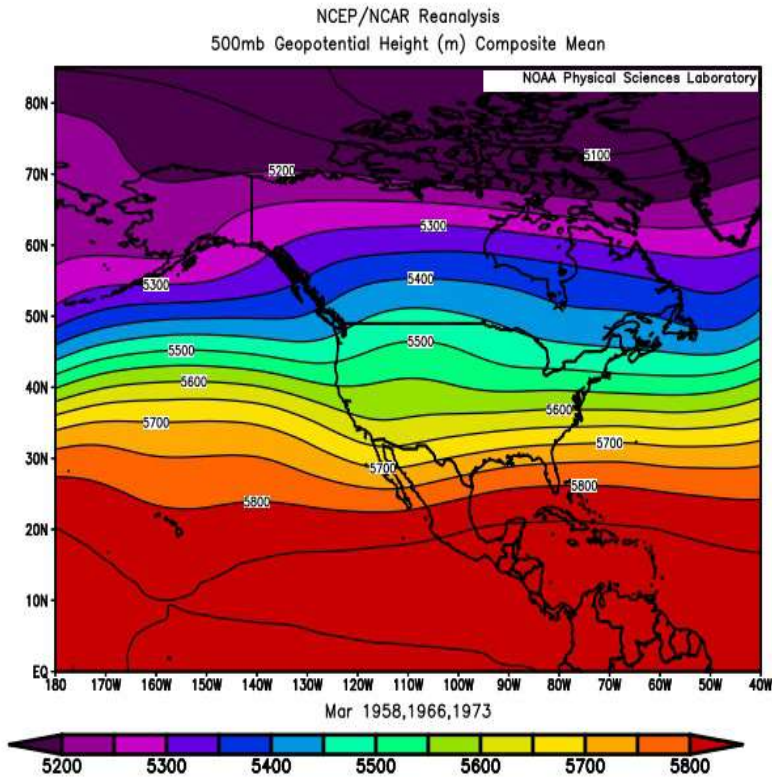
This map illustrates the nine climate zones of Oregon, each with distinct geographical characteristics and major cities. The zones are defined by blue boundaries and labeled in blue text. Major cities are marked with black dots and labeled in black text. The background is a light gray map showing topographical features like rivers and mountains.

- Zone 1: COAST** - Includes cities like Astoria, Clatskanie, Vernonia, Saint Helens, Scappoose, Banks, Forest Grove, Beaverton, Portland, Lake Oswego, Sandy, Estacada, Yamhill, Oregon City, Wilsonville, McMinnville, Willamina, Lincoln City, Falls City, Dallas, Salem, Slattery, Mill City, Gales, Detroit, Newport, Albany, Corvallis, Sweet Home, Junction City, Coburg, Eugene, Springfield, Florence, Reedport, Yoncalla, Sutherlin, Roseburg, Myrtle Creek, Canyonville, Glendale, Grants Pass, Medford, Ashland, Cave Junction, Brookings, and Gold Beach.
- Zone 2: WILLAMETTE VALLEY** - Includes cities like Junction City, Coburg, Eugene, Springfield, Florence, Reedport, Yoncalla, Sutherlin, Roseburg, Myrtle Creek, Canyonville, Glendale, Grants Pass, Medford, Ashland, Cave Junction, Brookings, and Gold Beach.
- Zone 3: SOUTHWESTERN VALLEYS** - Includes cities like Grants Pass, Medford, Ashland, Cave Junction, Brookings, and Gold Beach.
- Zone 4: NORTHERN CASCADES** - Includes cities like Sisters, Redmond, Prineville, Bend, La Pine, Oakridge, and Yoncalla.
- Zone 5: HIGH PLATEAU** - Includes cities like Sisters, Redmond, Prineville, Bend, La Pine, Oakridge, and Yoncalla.
- Zone 6: NORTH CENTRAL** - Includes cities like Cascade Locks, Hood River, The Dalles, Rainier, Wasco, Dufur, Condon, Shanika, Fossil, Sprague, Mitchell, Dayville, John Day, Seneca, and Unity.
- Zone 7: SOUTH CENTRAL** - Includes cities like Burns, Hills, and Vale.
- Zone 8: NORTHEAST** - Includes cities like Ukiah, Granite, Haines, Baker City, Halfway, and Huntington.
- Zone 9: SOUTHEAST** - Includes cities like Ontario, Adrian, and Jordan Valley.

# March 2024 Forecast

## Mean Upper-Air Pattern

## Upper-Air Anomalies

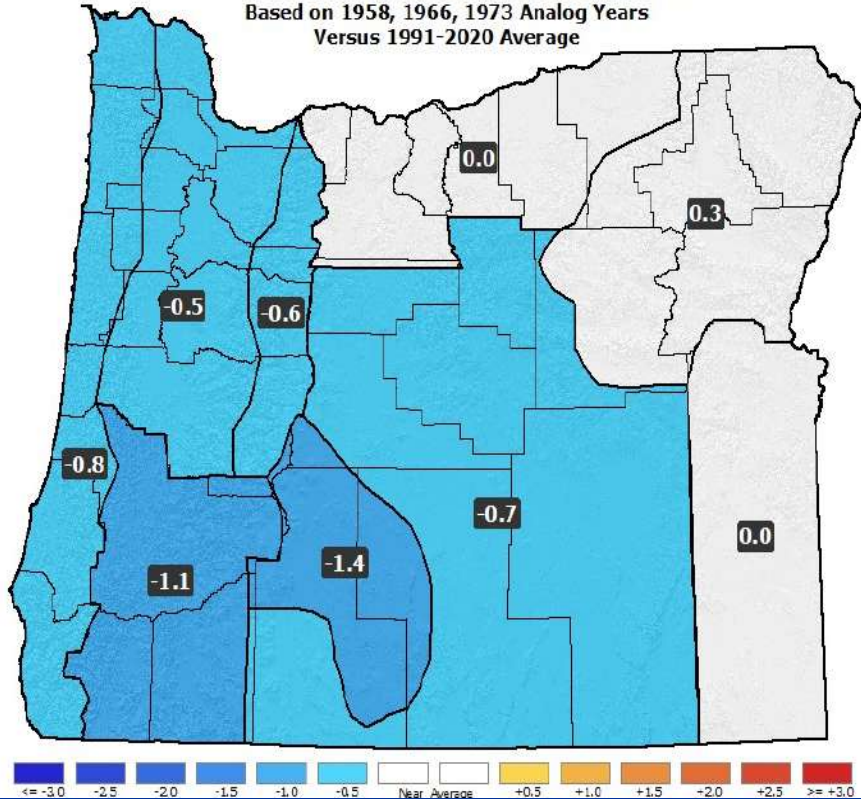


- A “split-flow” jet stream pattern should continue across the Pacific Northwest with enhanced storm activity directed towards California.
- Although storms will weaken as they approach the Oregon Coast, their frequency should be high enough to bring precipitation most days.

# March 2024 Forecast

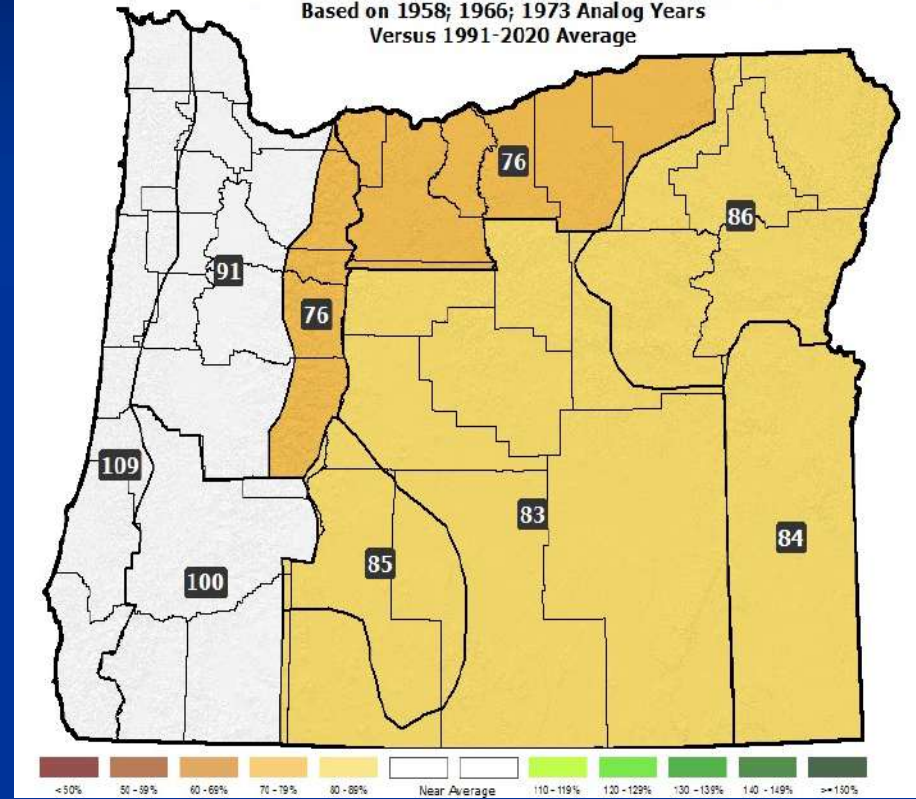
## Temperatures

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



## Precipitation

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

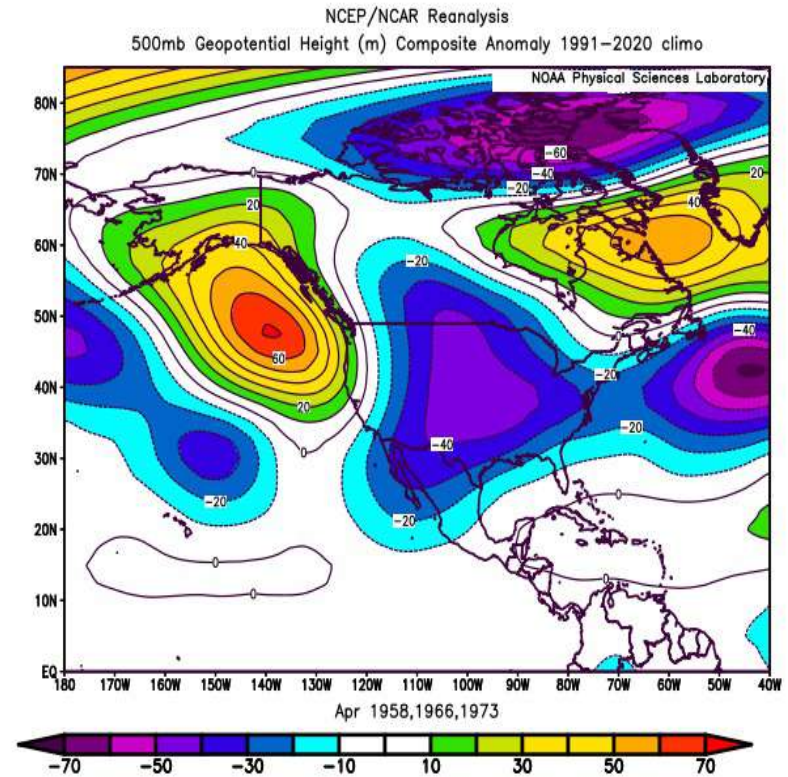
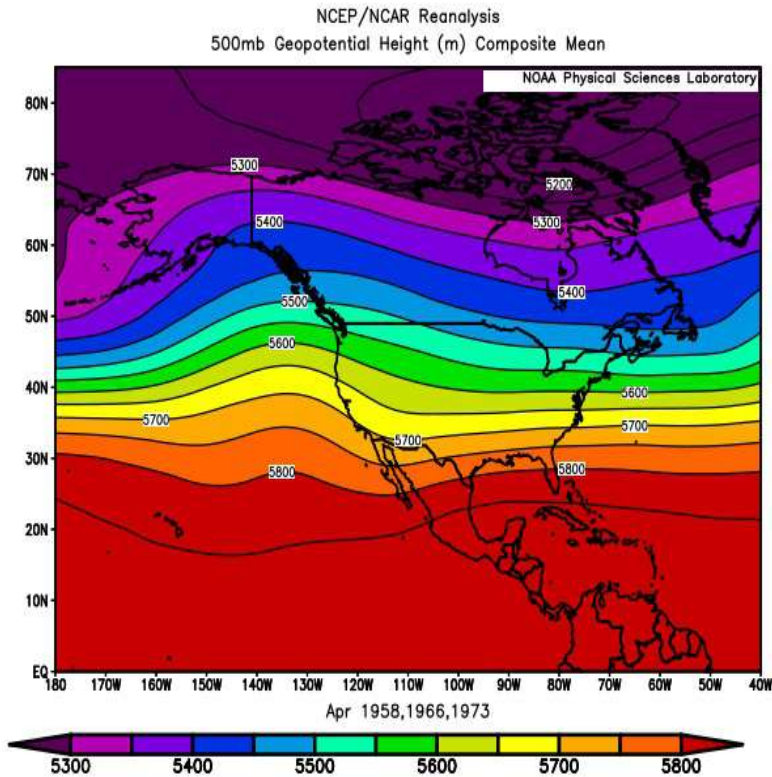


- All 3 analog years had near or below-average temperatures.
- Expect precipitation most days, but the “split-flow” jet stream pattern will tend to weaken storms as they come ashore...leading to mostly below average rain and mountain snow, especially north and east.

# April 2024 Forecast

## Mean Upper-Air Pattern

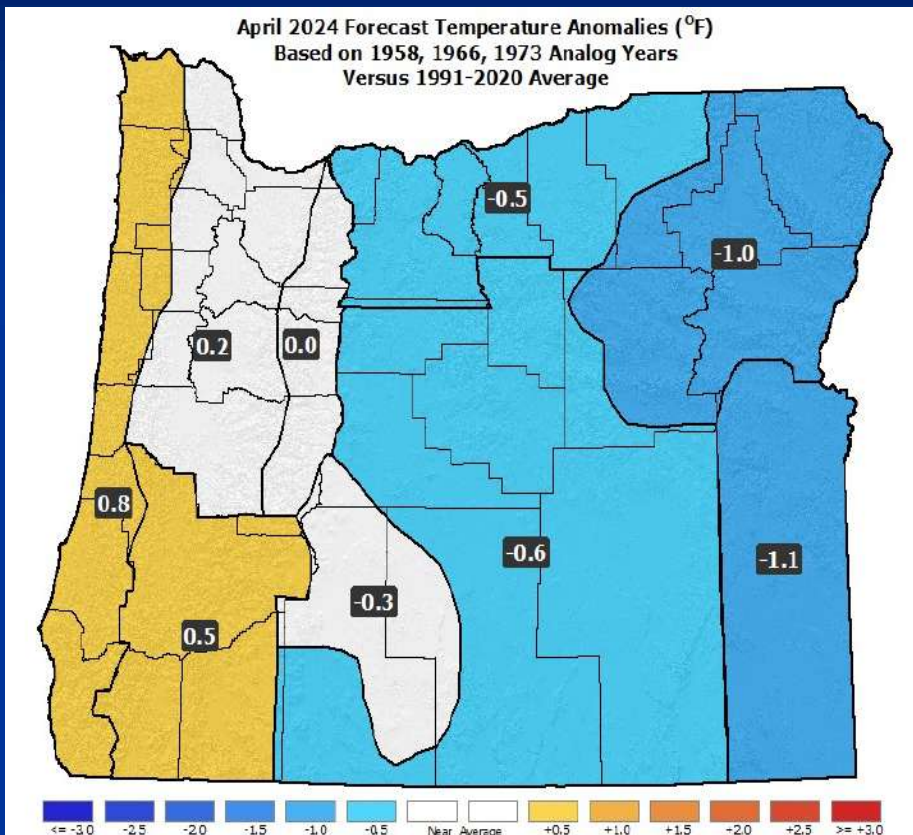
## Upper-Air Anomalies



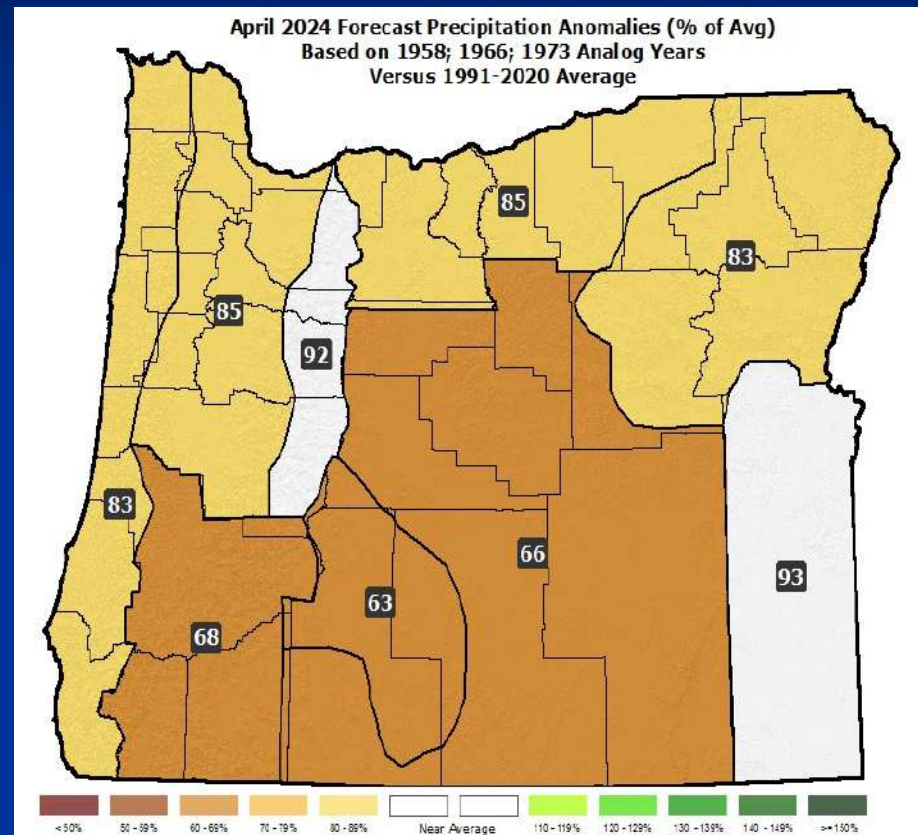
- The analog composite shows anomalous ridging extending from the eastern Gulf of Alaska to the Pacific NW Coast.
- This pattern, typically associated with **El Niño**, favors near-average temperatures but also opens the door for a late-season freeze.

# April 2024 Forecast

## Temperatures



## Precipitation

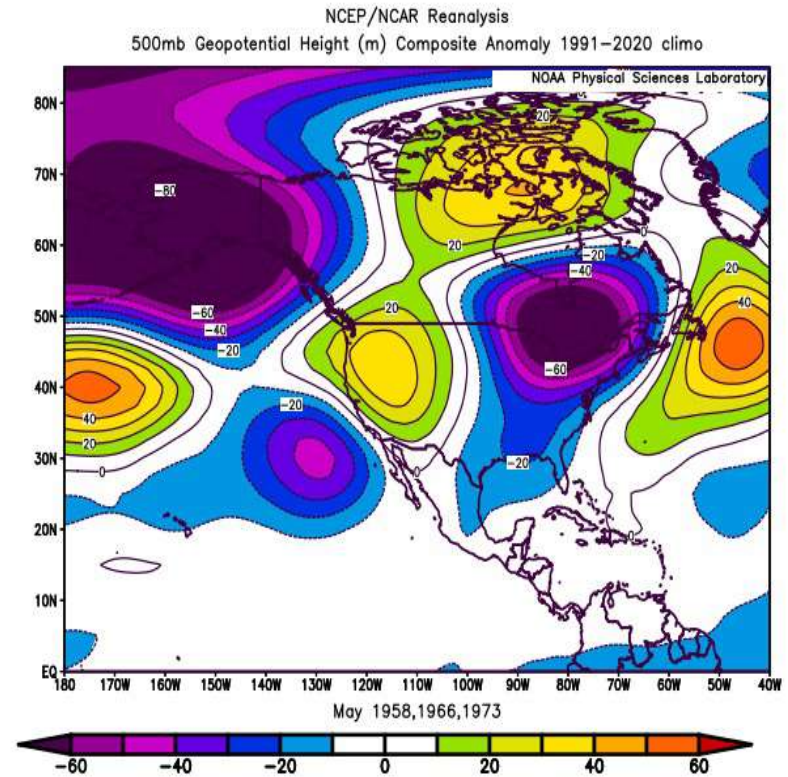
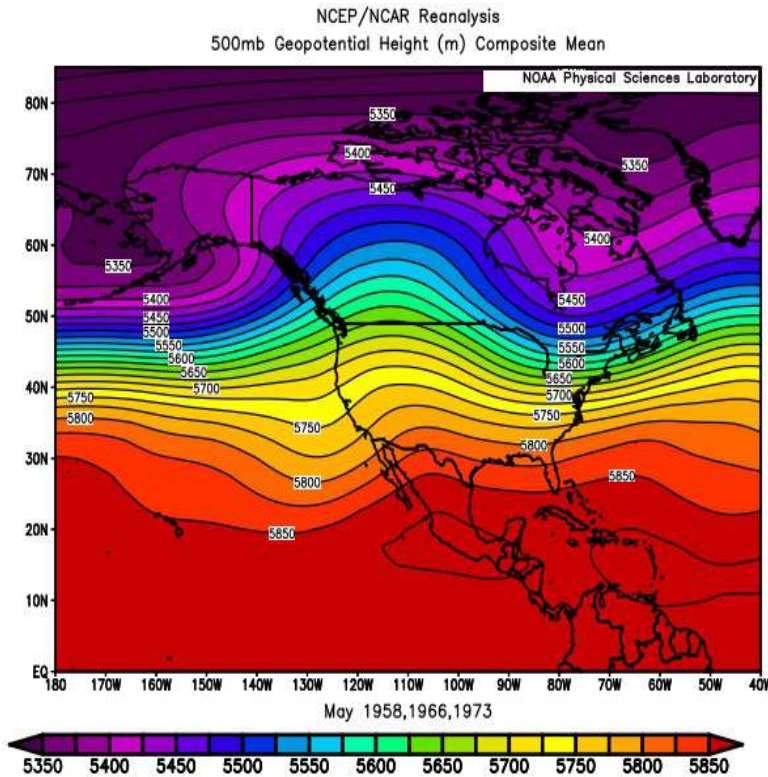


- Analogs had mostly near-average temperatures, but a cold snap in April 1966 caused considerable damage to fruit trees.
- Precipitation was above average in 1958 but well-below average in 1966 & 1973, which skews the overall forecast to below average.

# May 2024 Forecast

## Mean Upper-Air Pattern

## Upper-Air Anomalies

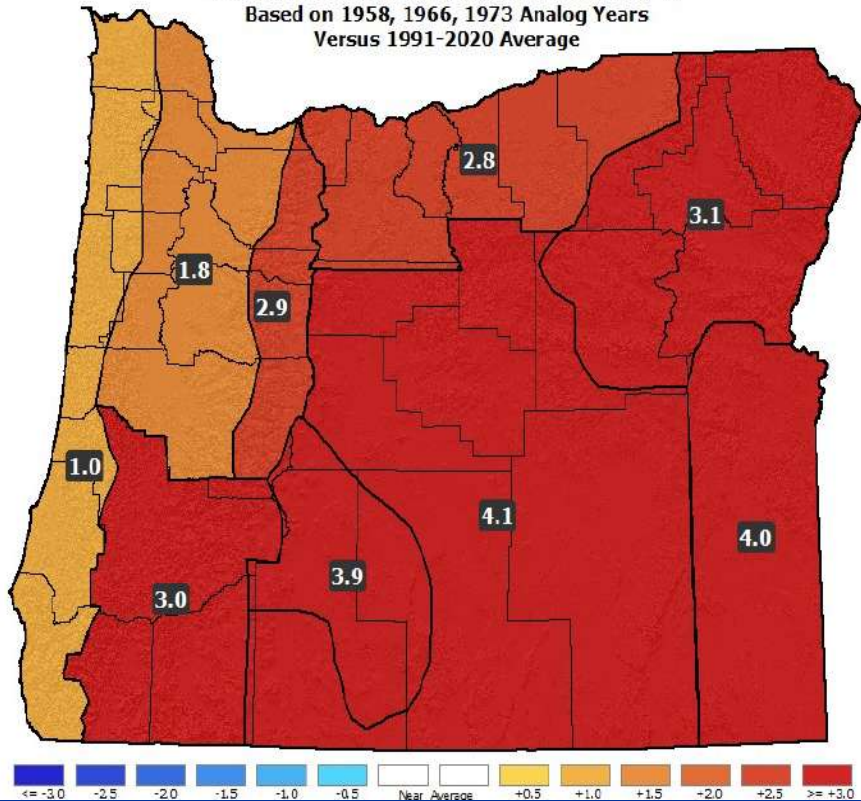


- A “split-flow” pattern should continue over the Pacific Northwest with mean ridging over the Rockies.
- Despite a weakening **El Niño**, analogs consistently maintained anomalous ridging over Oregon.

# May 2024 Forecast

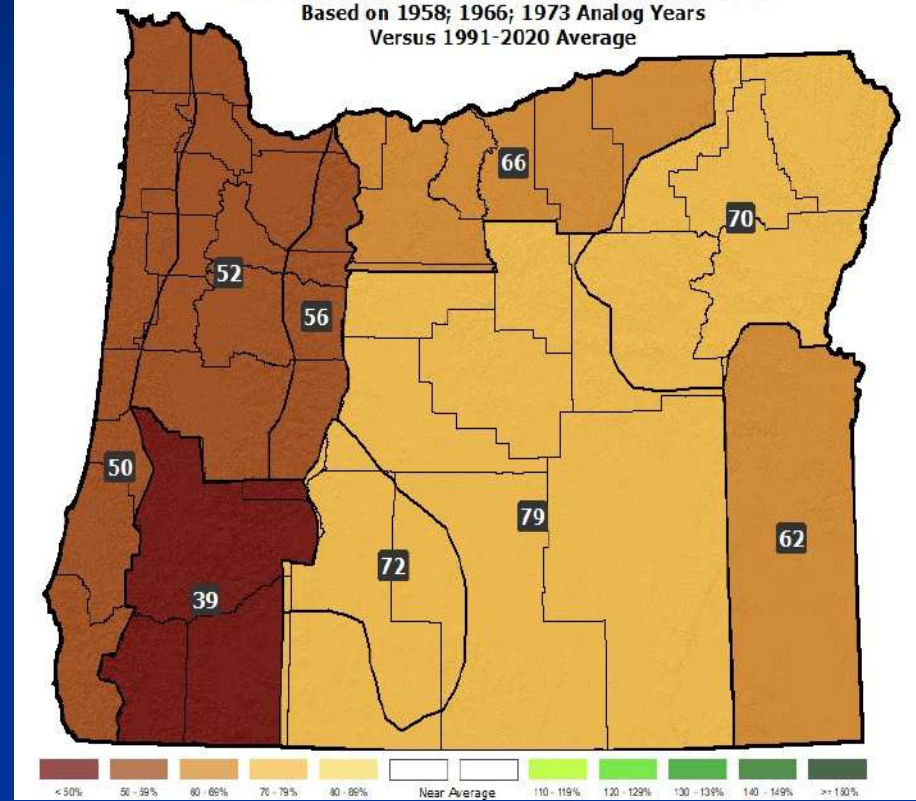
## Temperatures

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

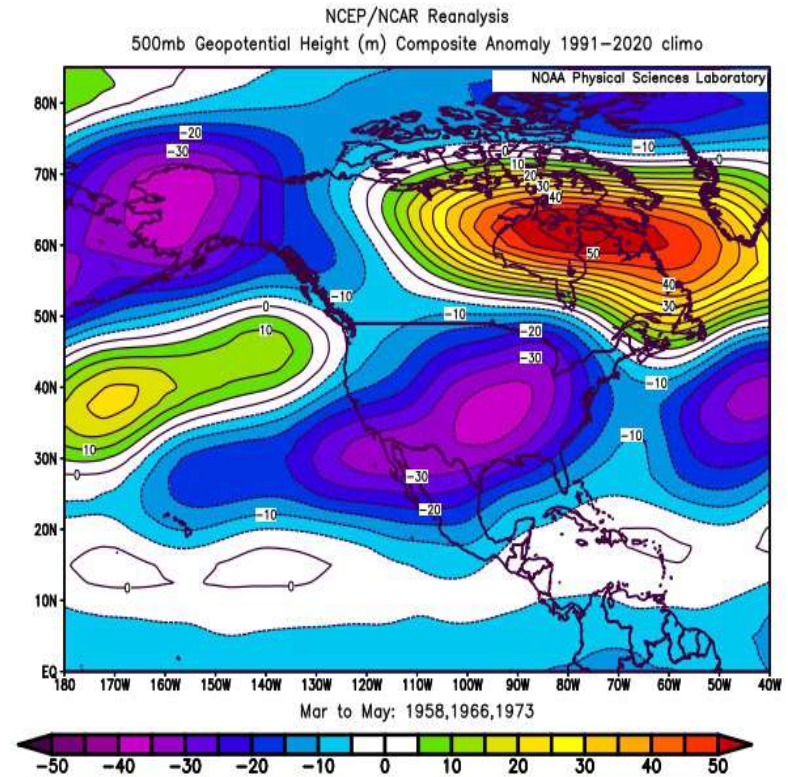
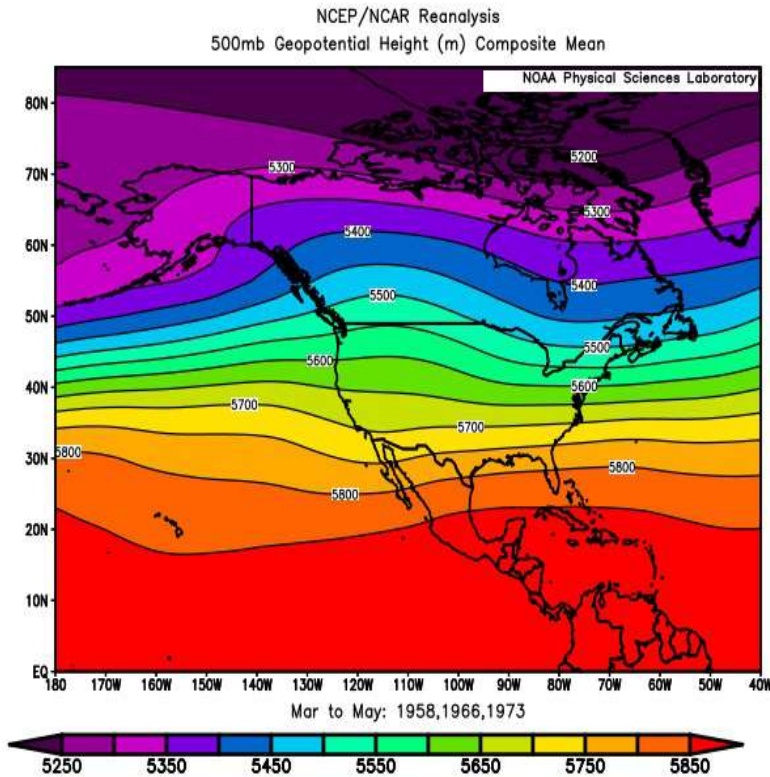


- Analog temperatures varied...ranging from a cool 1966 to an extremely mild 1958. 1966 had a western valley freeze late in the month.
- Precipitation should be below average, but 1958 had considerable thunderstorm activity across the state.

# March – May 2024 Forecast

## Mean Upper-Air Pattern

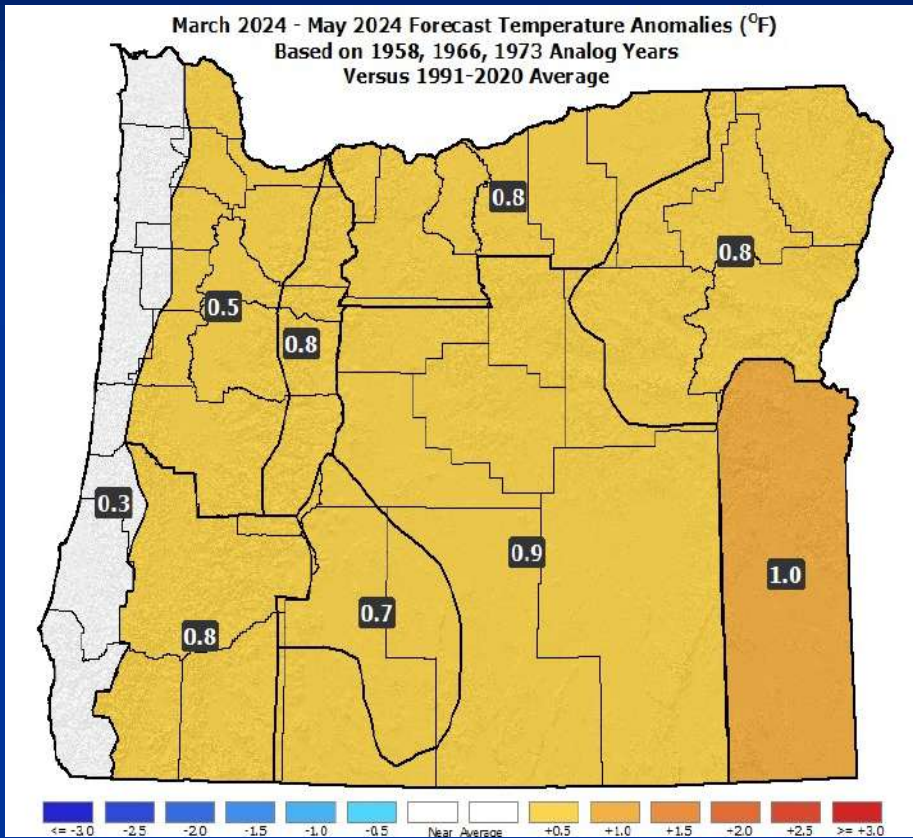
## Upper-Air Anomalies



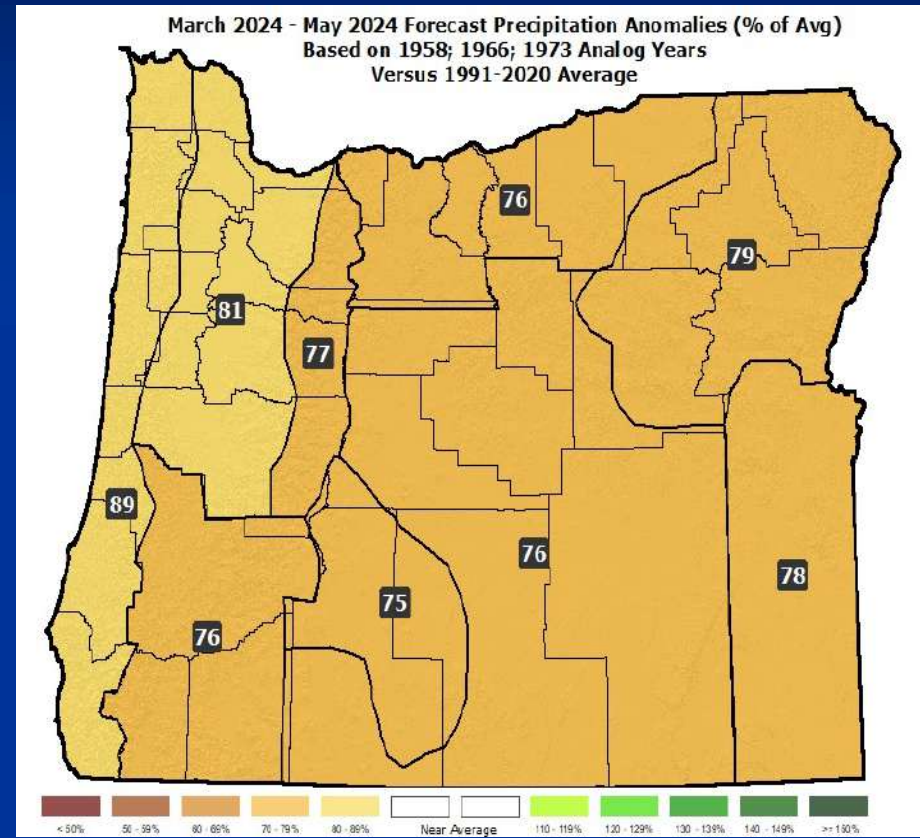
- Expect a classic **El Niño** “split-flow” jet stream pattern coming into the Pacific Northwest with increased storminess across the SW US.
- Overall, this pattern tends to produce relatively mild and dry weather across Oregon but not without “nested” cool and/or damp periods.

# March – May 2024 Forecast

## Temperatures



## Precipitation



- Slightly above-average temperatures but not without cool periods. The 1966 analog year had western valley freezing periods in April and May.
- Expect an abundance of days with precipitation but overall rain and mountain snow should generally fall short of average.

# Forecast Highlights

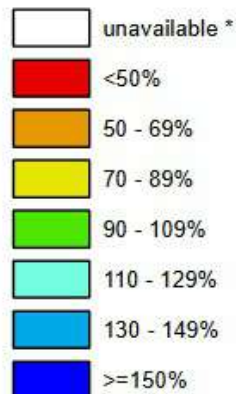
- This forecast is based on weather that occurred during the (1958; 1966; 1973) analog years (no changes to the analogs from last month).
- A dominant “split-flow” jet stream pattern is expected to weaken and shear apart storms as they approach Oregon.
- Above-average temperatures & below-average precipitation is favored. Snowpacks will likely finish the season below average, especially north.
- Brief cool/damp periods, counter to the overall trend, are likely.
- Late-season freezes (April and May) occurred in the 1966 analog year.

*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)*

# Oregon SNOTEL Current Snow Water Equivalent (SWE) % of Normal

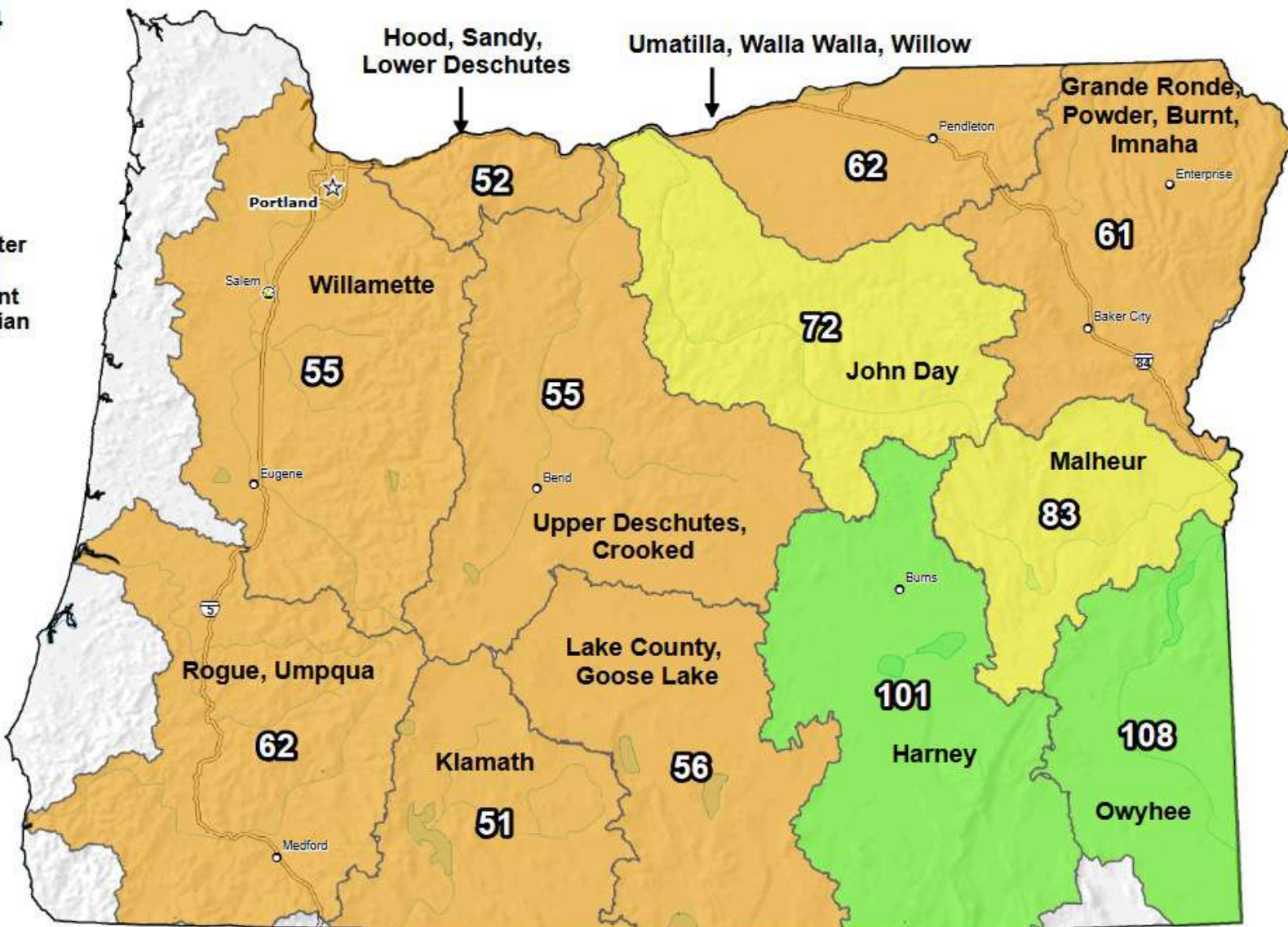
Jan 09, 2024

Current Snow Water Equivalent (SWE) Basin-wide Percent of 1991-2020 Median



\* Data unavailable at time of posting or measurement is not representative at this time of year

Provisional Data  
Subject to Revision



The snow water equivalent percent of normal represents the current snow water equivalent found at selected SNOTEL sites in or near the basin compared to the average value for those sites on this day. Data based on the first reading of the day (typically 00:00).

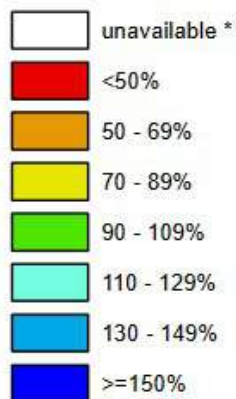
0 10 20 40 60 80 100 Miles

Prepared by:  
USDA/NRCS National Water and Climate Center  
Portland, Oregon  
<https://www.nrcs.usda.gov/wps/portal/wcc/home/>

# Oregon SNOTEL Current Snow Water Equivalent (SWE) % of Normal

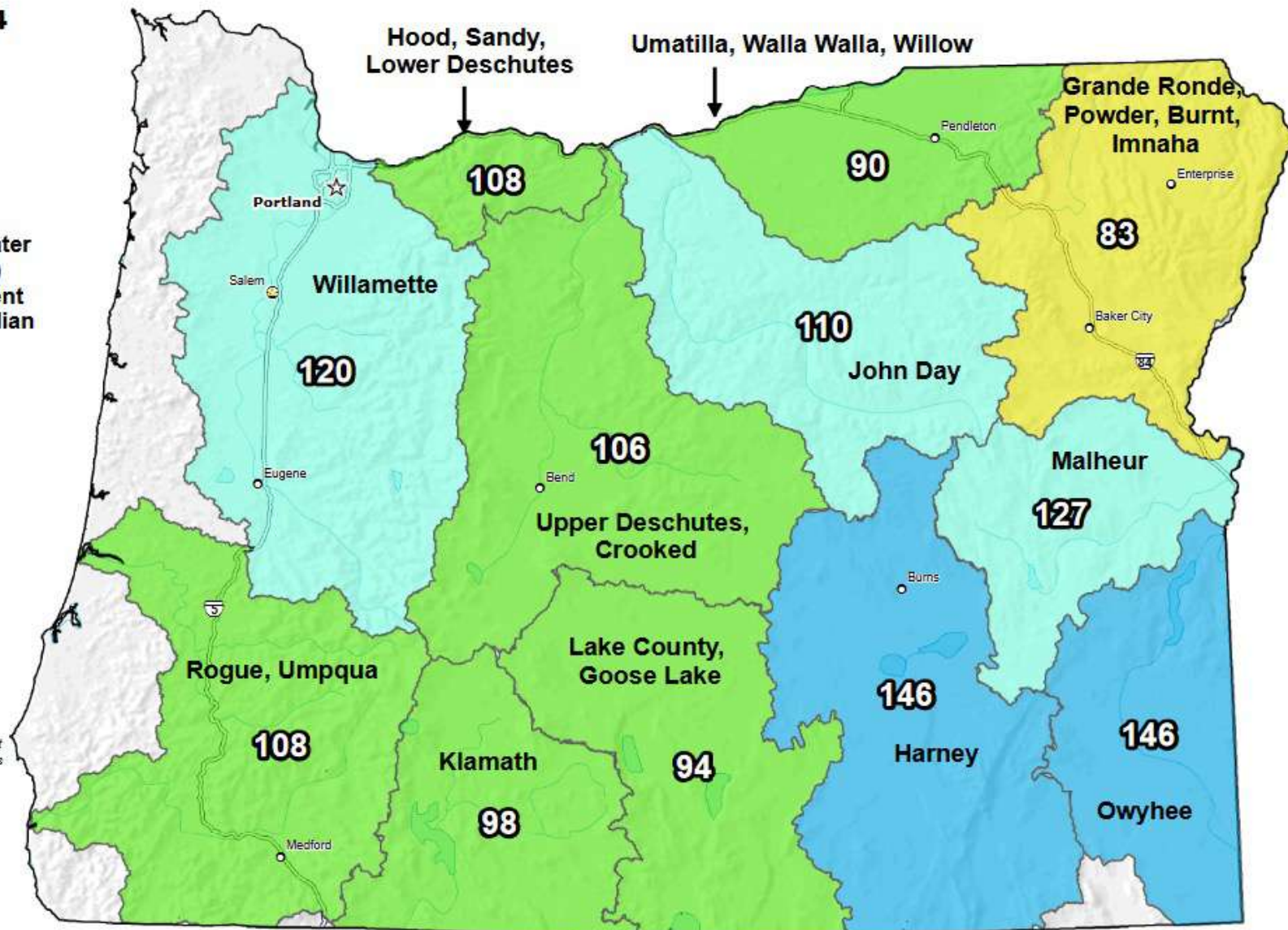
Jan 18, 2024

Current Snow Water Equivalent (SWE) Basin-wide Percent of 1991-2020 Median



\* Data unavailable at time of posting or measurement is not representative at this time of year

Provisional Data  
Subject to Revision



The snow water equivalent percent of normal represents the current snow water equivalent found at selected SNOTEL sites in or near the basin compared to the average value for those sites on this day. Data based on the first reading of the day (typically 00:00).

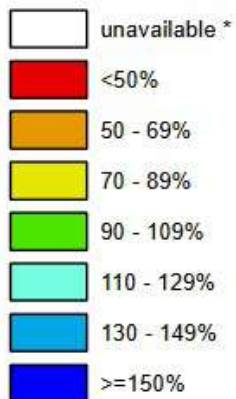
0 10 20 40 60 80 100 Miles

Prepared by:  
USDA/NRCS National Water and Climate Center  
Portland, Oregon  
<https://www.nrcs.usda.gov/wps/portal/wcc/home/>

# Oregon SNOTEL Current Snow Water Equivalent (SWE) % of Normal

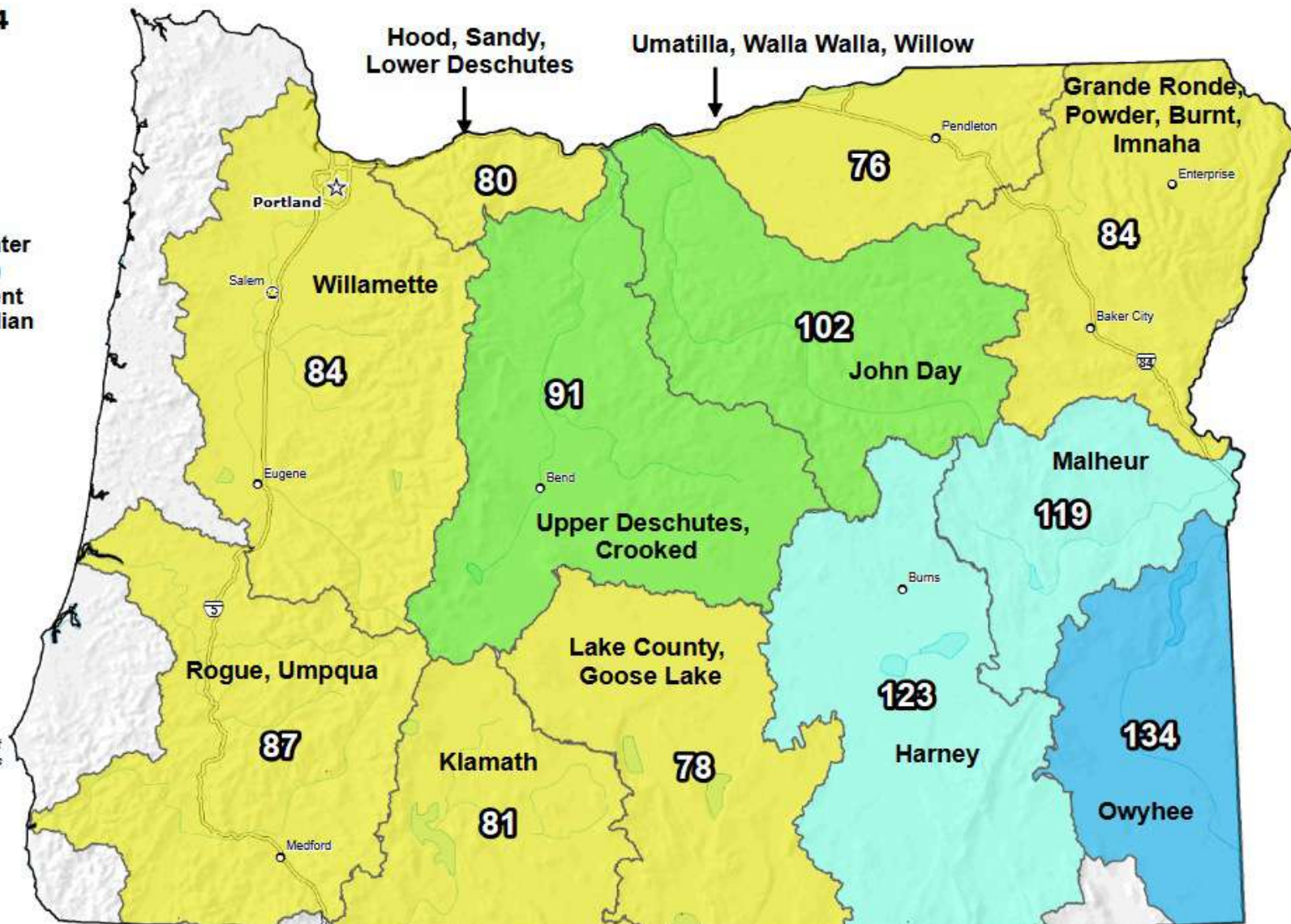
Feb 14, 2024

Current Snow Water Equivalent (SWE) Basin-wide Percent of 1991-2020 Median



\* Data unavailable at time of posting or measurement is not representative at this time of year

Provisional Data  
Subject to Revision



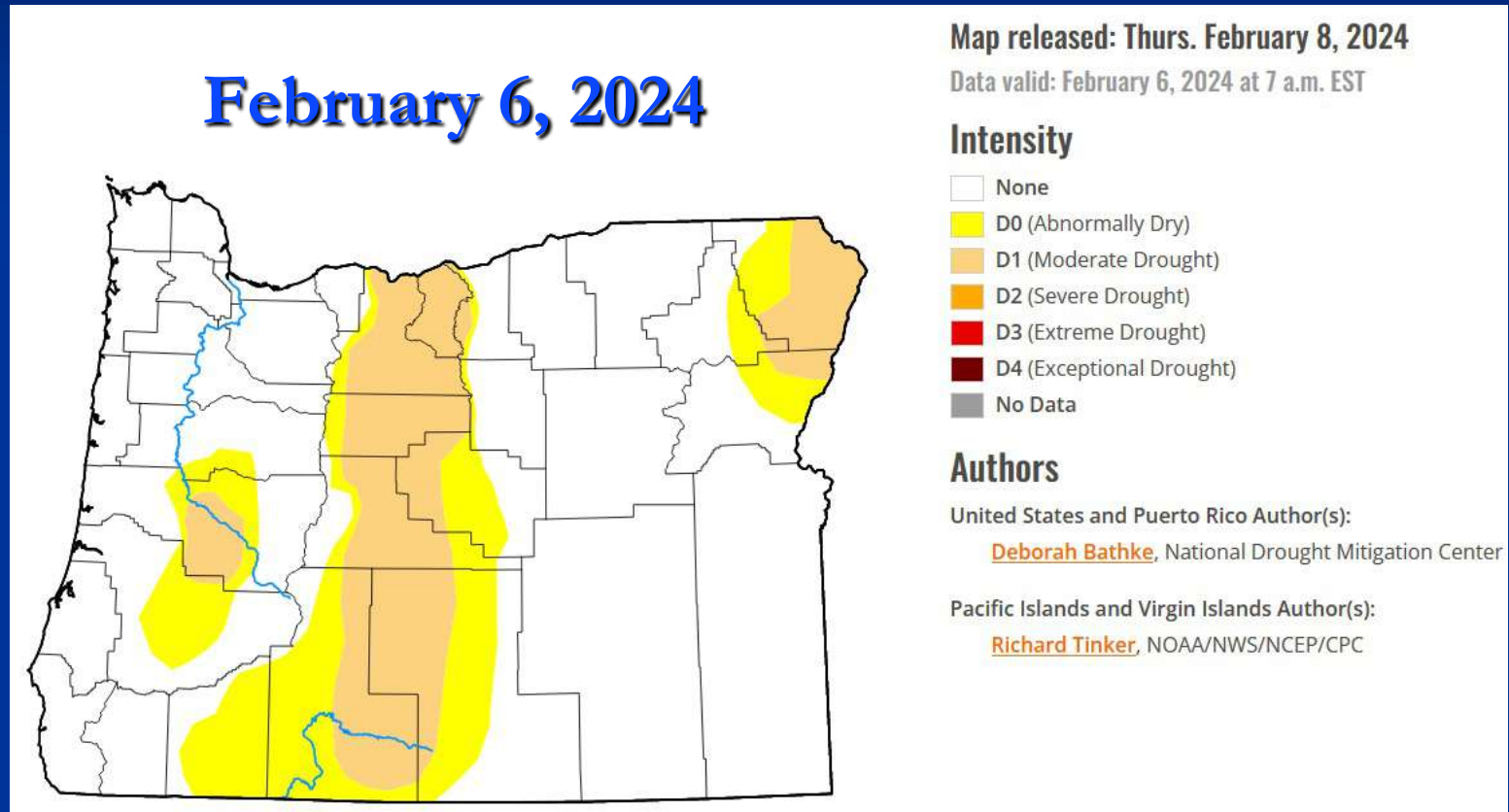
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0 10 20 40 60 80 100 Miles

Prepared by:  
USDA/NRCS National Water and Climate Center  
Portland, Oregon  
<https://www.nrcs.usda.gov/wps/portal/wcc/home/>

# Drought Has Improved for Much of Oregon

(January replenishing of the statewide snowpack was welcome)



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>



# 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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