



Seasonal Climate Forecast Verification

August – October 2024

Issued: November 20, 2024

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R Gress

Format and Purpose:

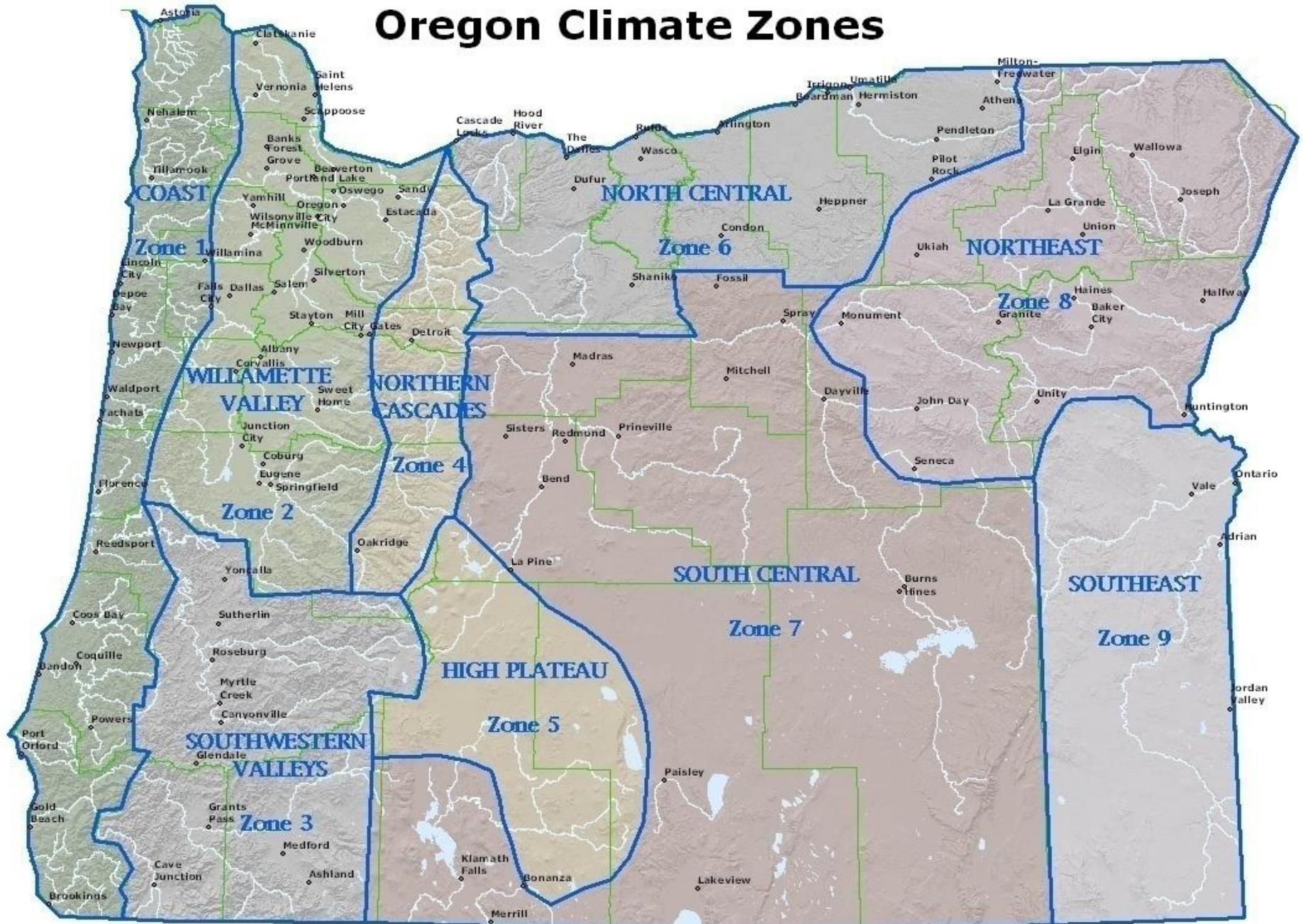
- A side-by-side comparison of the “**Seasonal Climate Forecast**” vs. what (**Actually Occurred**) is done for both the 1-month & 3-month forecasts.*
- The accuracy of each forecast is reviewed, and the need for analog-year updates is examined.
- This is part of an ongoing assessment of the utility of this forecast method.**

**Utilizes 1991-2020 long-term averages*

**See “Forecasting Methods...” at:

<https://oda.direct/Weather>

Oregon Climate Zones

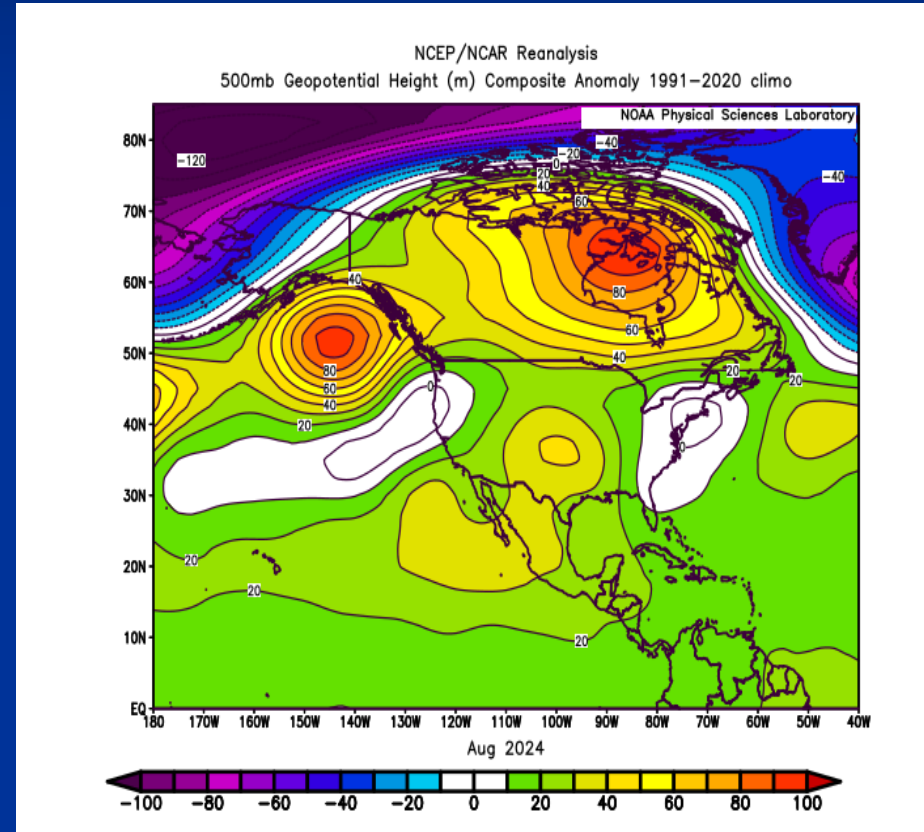
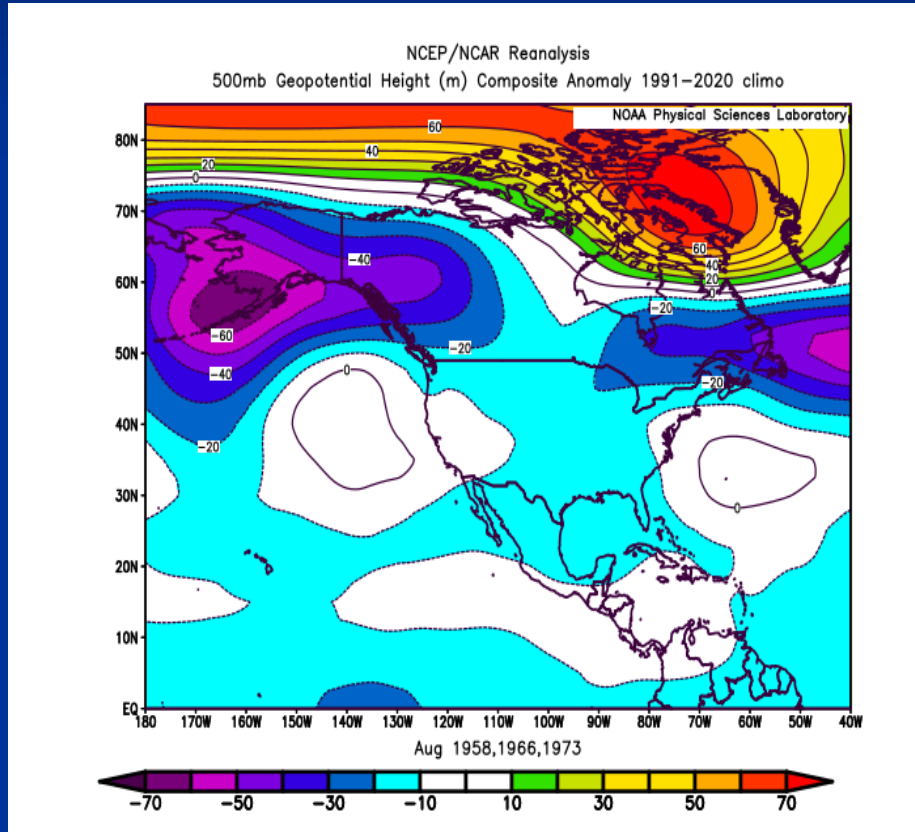


August 2024

(Forecast Issued July 18, 2024) / (Actual)

Forecast Upper-Air Anomalies

Actual Upper-Air Anomalies



- Both the forecast (left) and observed “August 2024” (right) had prevailing SW flow aloft over Oregon with minimal overall anomalies...resulting in modestly warm temperatures and enhanced thunderstorm activity. *A “partial forecast hit.”*

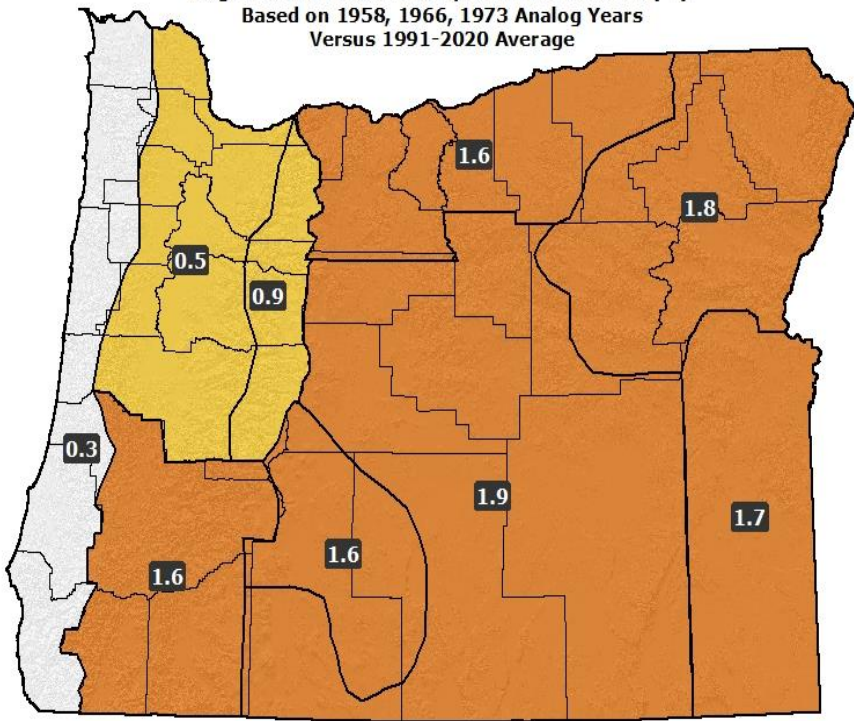
August 2024

(Forecast Issued July 18, 2024) / (Actual)

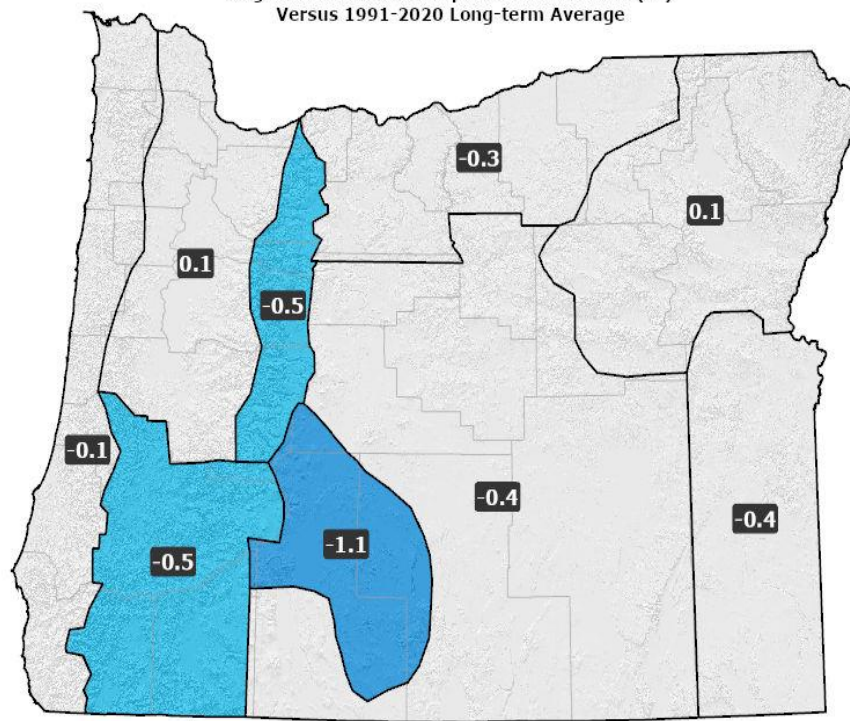
Forecast Temperatures

Actual Temperatures

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



August 2024 Actual Temperature Anomalies (°F)
Versus 1991-2020 Long-term Average



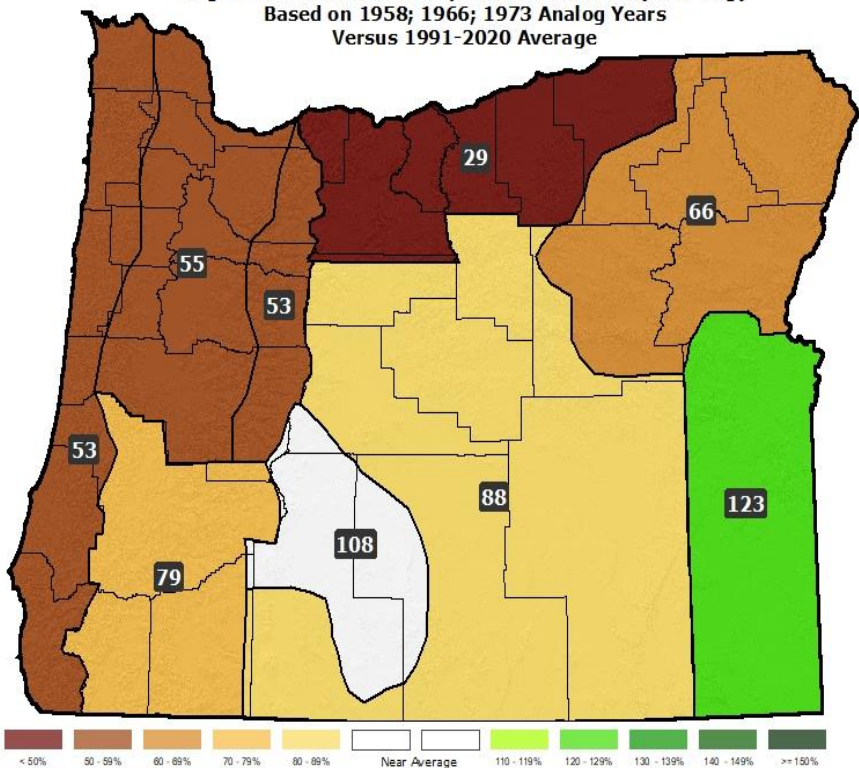
Data courtesy of the National Centers for Environmental Information (NCEI)

August 2024

(Forecast Issued July 18, 2024) / (Actual)

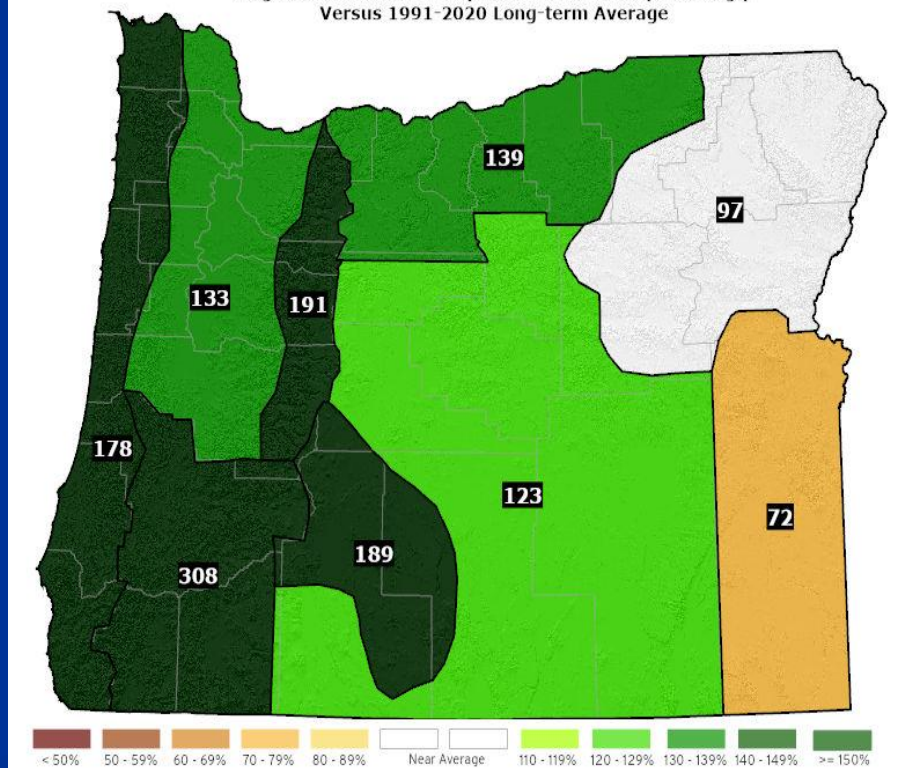
Forecast Precipitation

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



Actual Precipitation

August 2024 Actual Precipitation Anomalies (% of Avg.)
Versus 1991-2020 Long-term Average



Data courtesy of the National Centers for Environmental Information (NCEI)

August 2024

(Forecast Issued July 18, 2024)/(Actual)

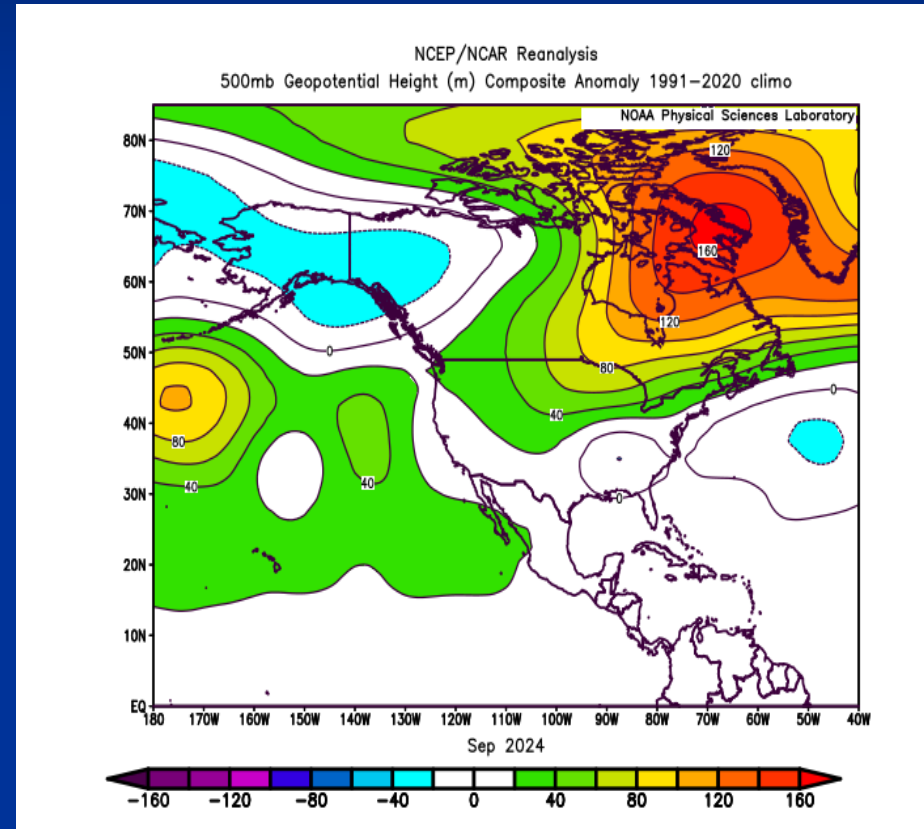
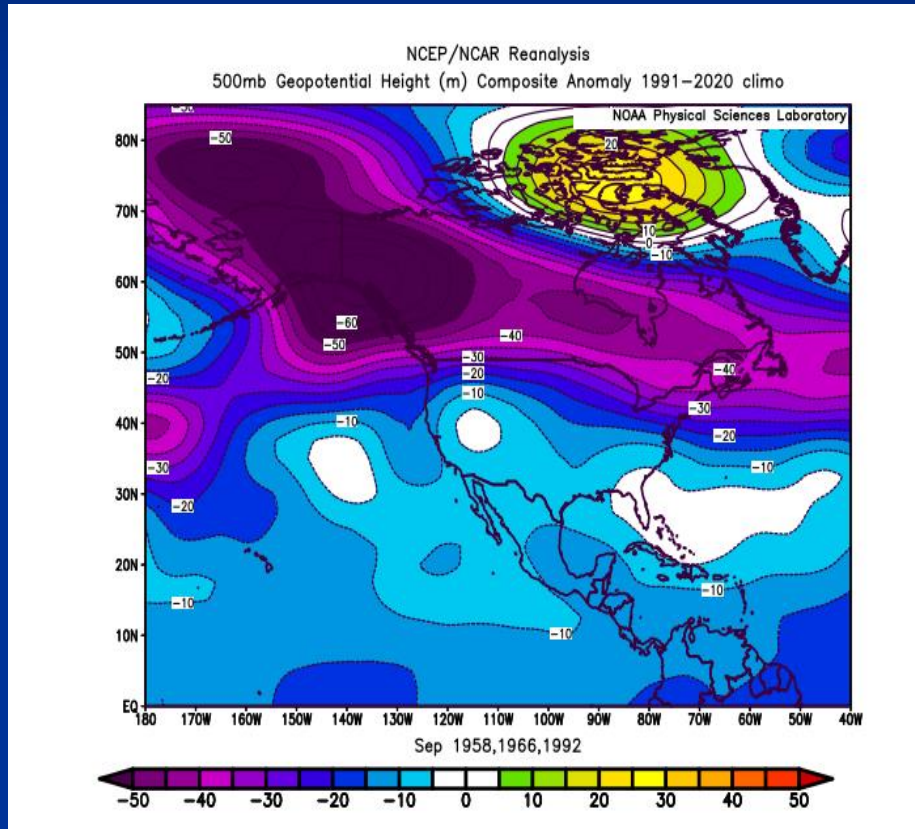
- A very warm 1958 was blended with the progressively cooler 1966 & 1973 analogs for a modestly warm forecast. (The month started and ended with warm spells, with moderate temperatures otherwise. Overall, temperatures were near average.) A “partial forecast hit.”
- Analogs had enhanced thundershower activity, with spotty downpours, especially 1958 & 1966. (A series of upper-level troughs brought thundershower activity throughout the month. These storms produced locally heavy rainfall.) A “partial forecast hit.”

September 2024

(Forecast Issued August 15, 2024) / (Actual)

Forecast Upper-Air Anomalies

Actual Upper-Air Anomalies



- Analog forecast (left) and observed (right) both had negative anomalies extending from the Gulf of Alaska to SW Canada. The differences in magnitude are partially due to “norming error.” *A “partial forecast hit.”*

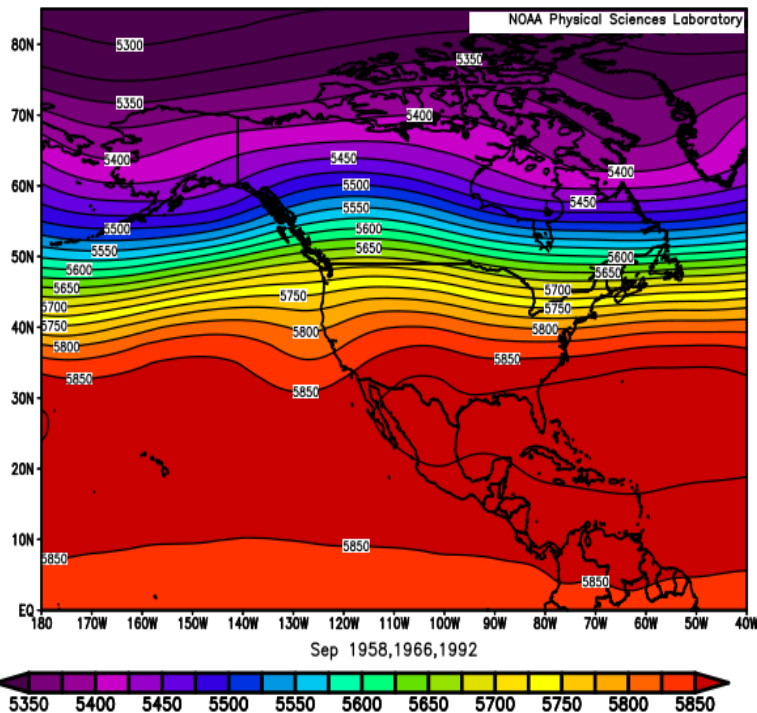
September 2024

(Forecast Issued August 15, 2024) / (Actual)

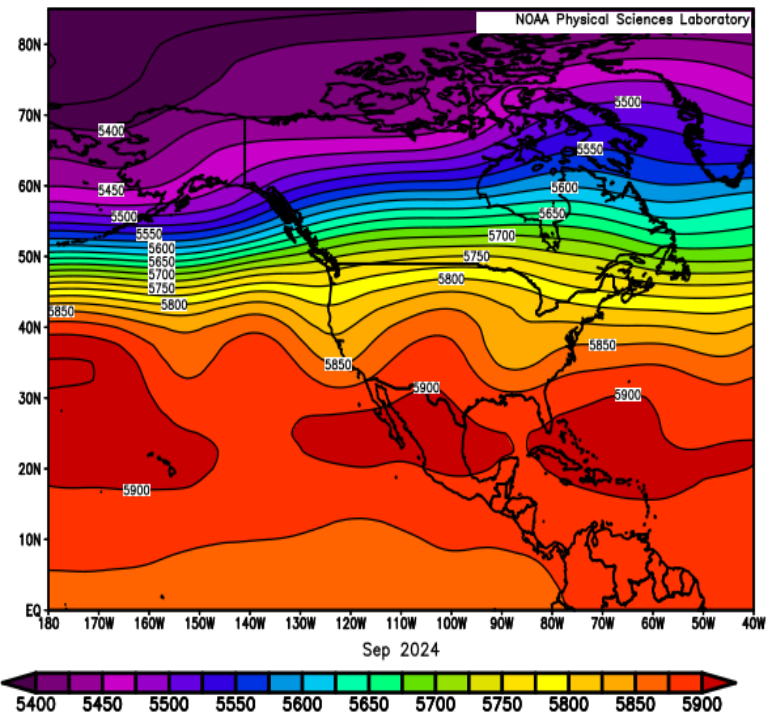
Forecast Upper-Air Pattern

Actual Upper-Air Pattern

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



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



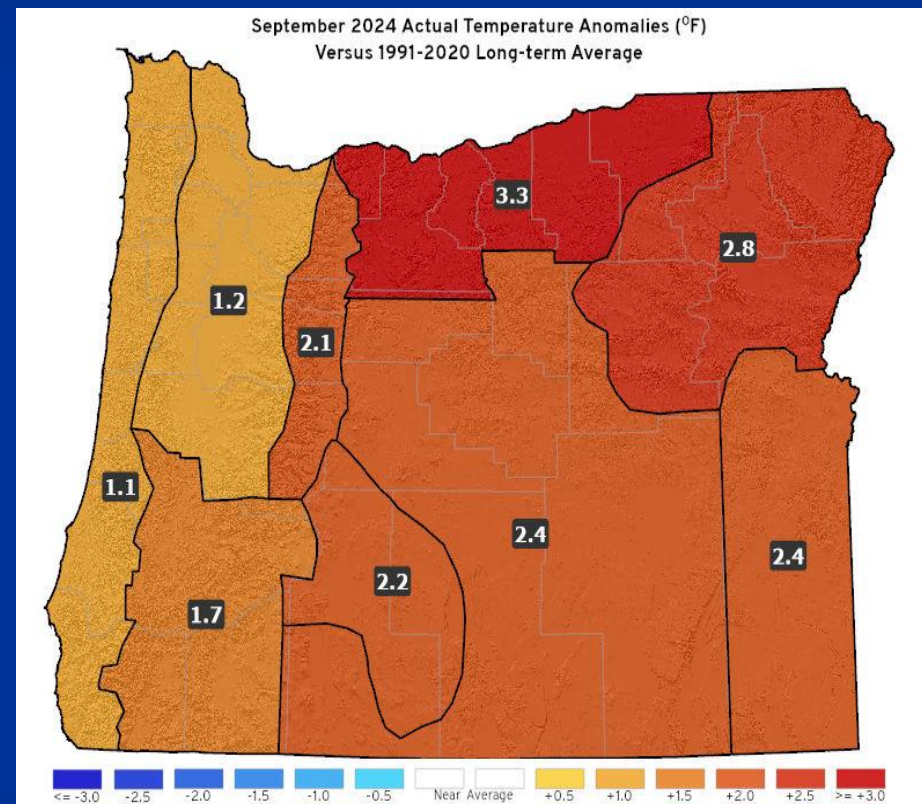
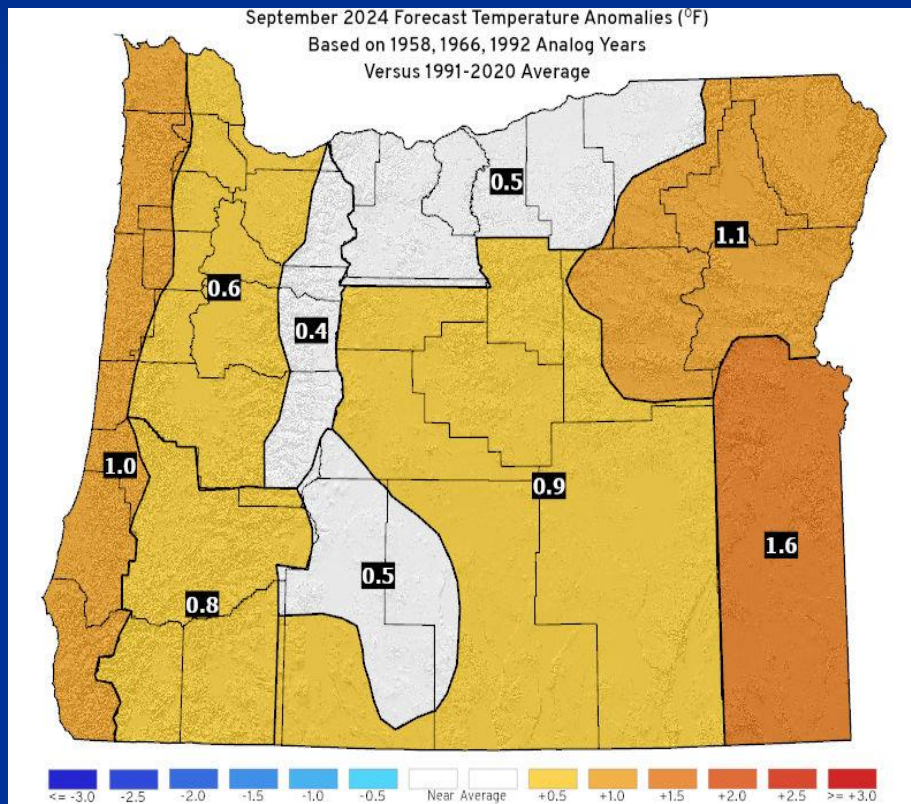
- The forecast (left) and observed (right) upper-air “patterns” both showed the remnants of a “spit-flow” pattern along the Pac NW Coast...with the latter showing generally warmer conditions over the U.S. *A “partial forecast hit.”*

September 2024

(Forecast Issued August 15, 2024) / (Actual)

Forecast Temperatures

Actual Temperatures

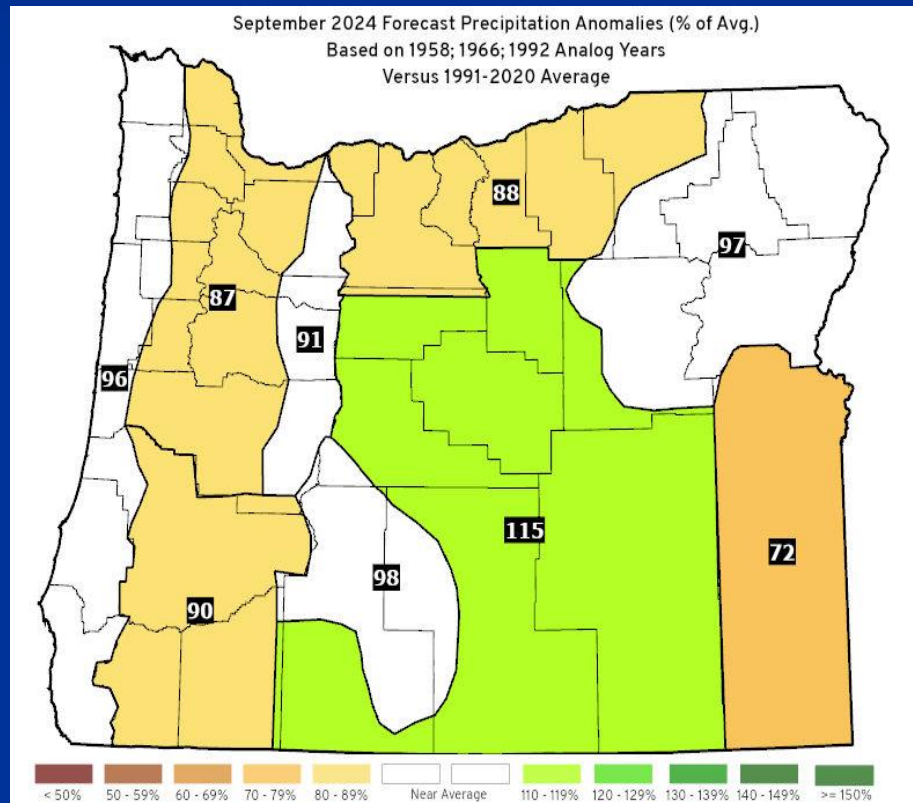


Data courtesy of the National Centers for Environmental Information (NCEI)

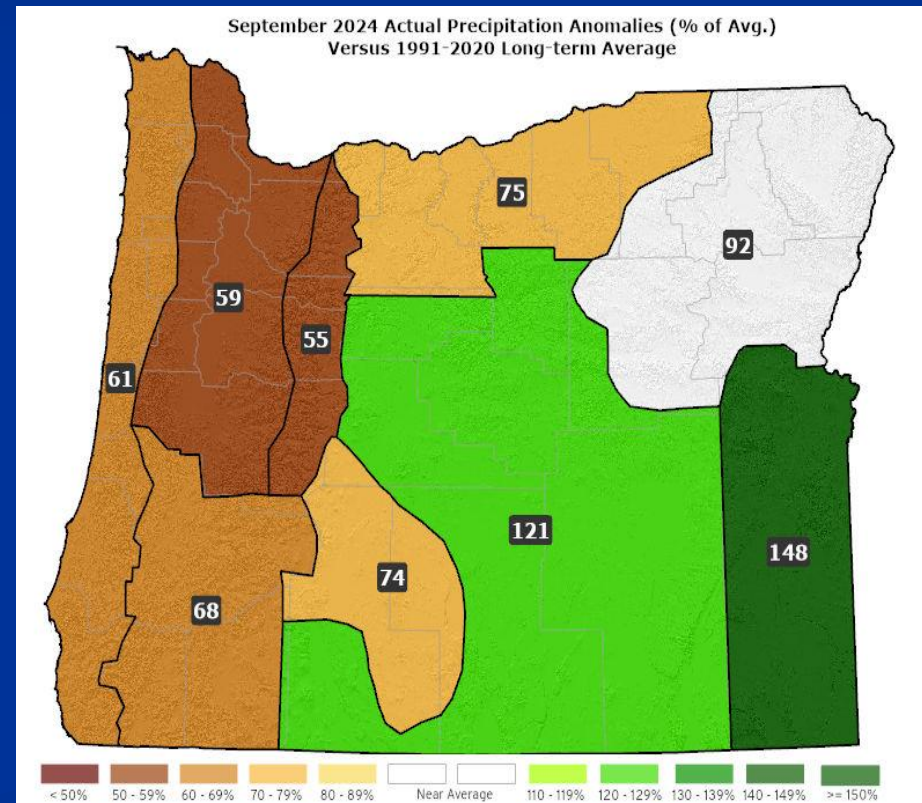
September 2024

(Forecast Issued August 15, 2024) / (Actual)

Forecast Precipitation



Actual Precipitation



Data courtesy of the National Centers for Environmental Information (NCEI)

September 2024

(Forecast Issued August 15, 2024) / (Actual)

- Modestly warm temperatures with some “very warm” days (over 90°F in the interior), especially early in the month. (The month began very warm/hot with NW valleys recording highs over 100°F on the 5th. A cold trough brought a marked flip to much cooler weather beginning around the 10th with alternating cool and warm periods after that. Overall, temperatures were above average.) A “forecast hit.”
- Expect a transition from relatively dry-and-warm to cooler-and-damp weather during the second half of the month with near-average overall rainfall. (The month dry west, but more-moist east. Strong troughs produced vigorous showers on/about the 11th & 25th.) A “partial forecast hit.”

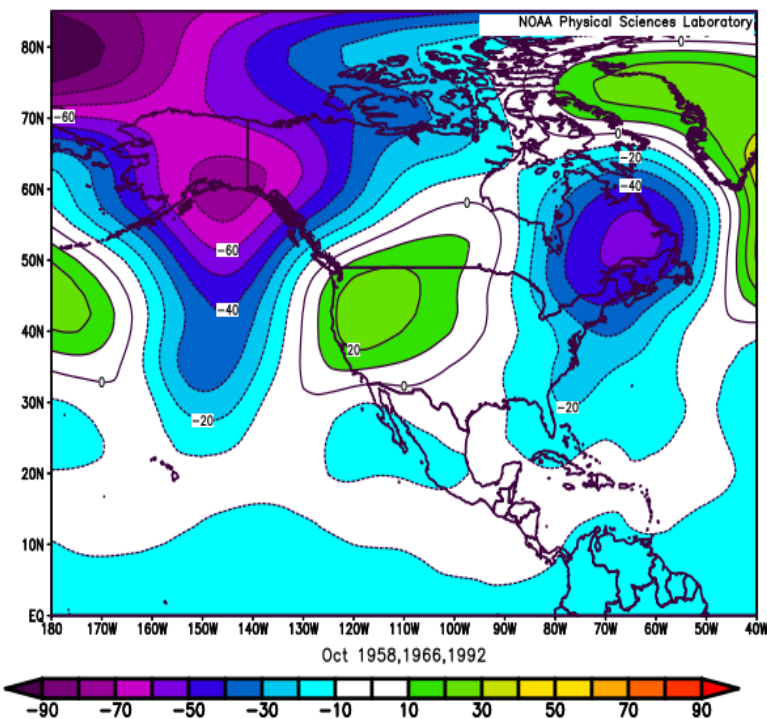
October 2024

(Forecast Issued September 19, 2024)/(Actual)

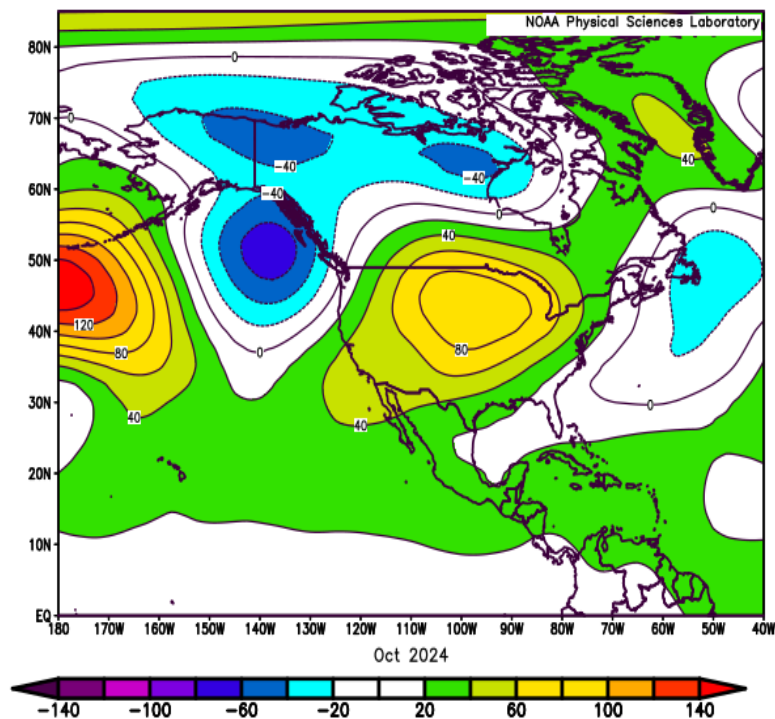
Forecast Upper-Air Anomalies

Actual Upper-Air Anomalies

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



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



- Near or above-average ridging was predicted (left) and observed (right) over Oregon. The center of the “observed” positive anomaly was stronger and farther east... Negative anomalies verified in the Gulf of Alaska. *A “partial forecast hit.”*

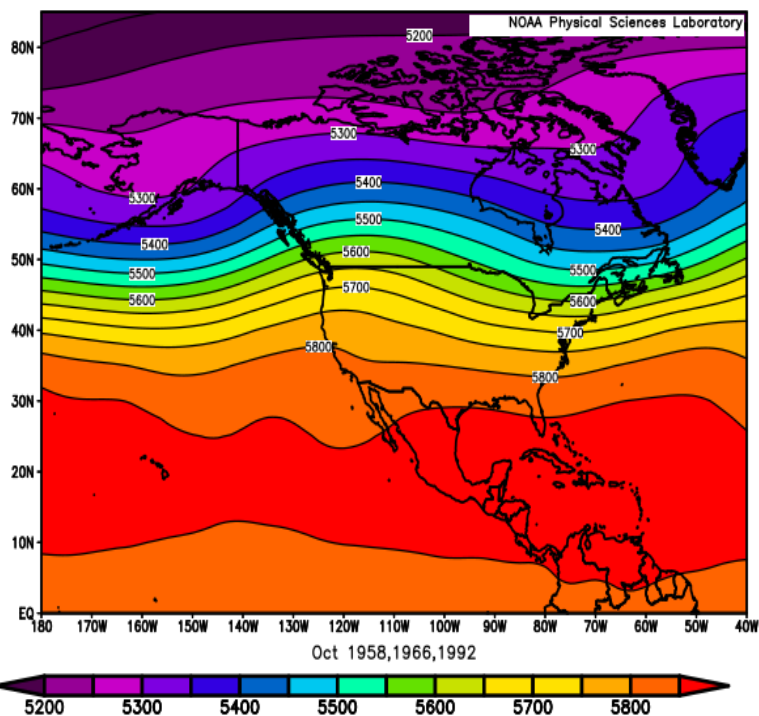
October 2024

(Forecast Issued September 19, 2024)/(Actual)

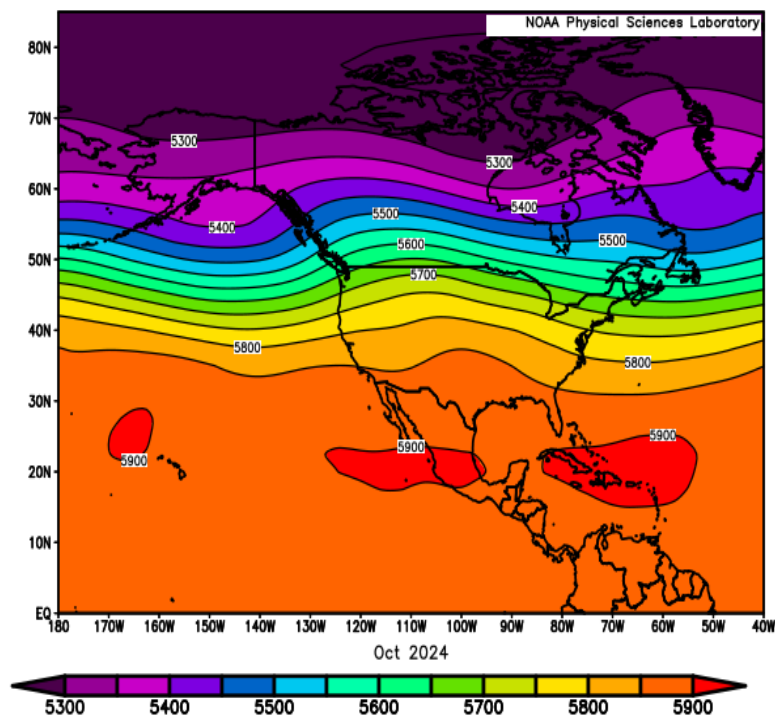
Forecast Upper-Air Pattern

Actual Upper-Air Pattern

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



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



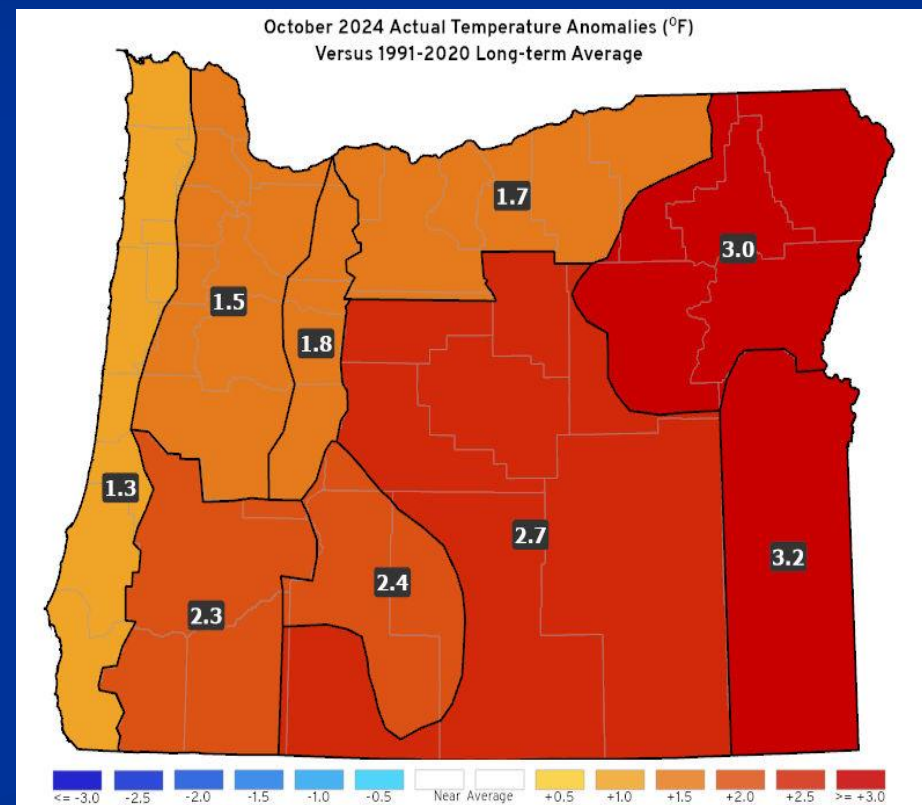
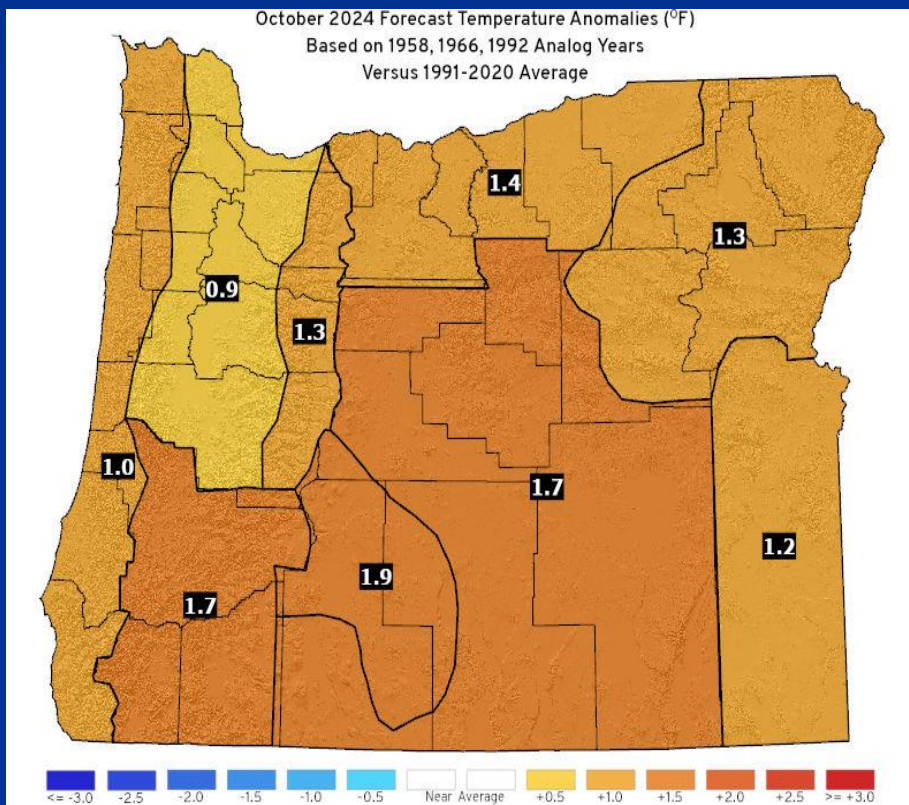
- The forecast (left) showed a mean ridge position over Idaho, while the observed pattern (right) placed a mean ridge farther east...just east of the Rockies. Both have prevailing weak SW-W flow aloft over Oregon. A “partial forecast hit.”

October 2024

(Forecast Issued September 19, 2024) / (Actual)

Forecast Temperatures

Actual Temperatures



Data courtesy of the National Centers for Environmental Information (NCEI)

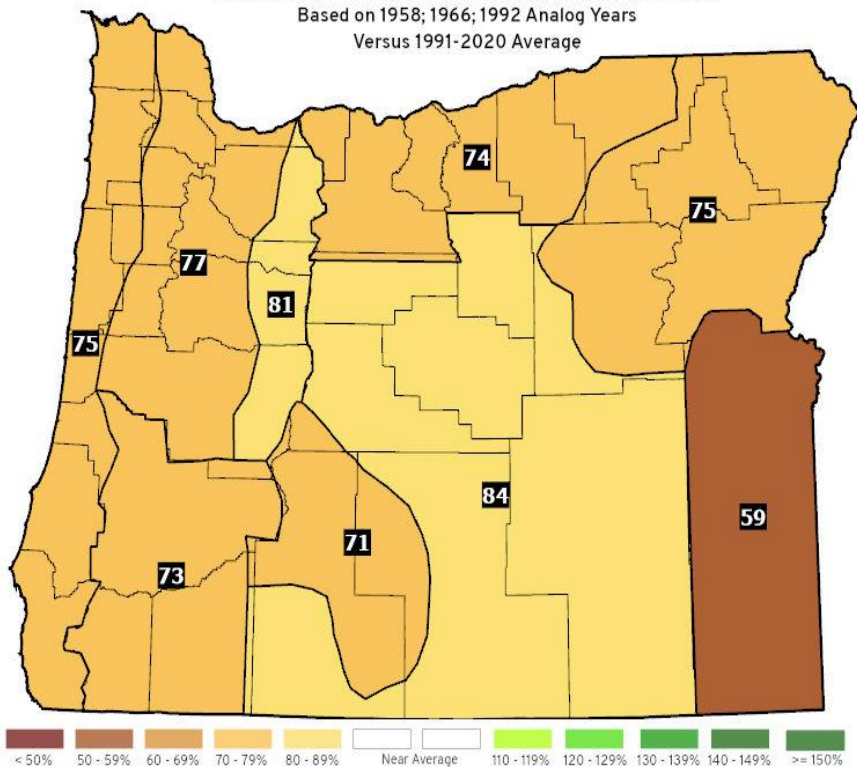
October 2024

(Forecast Issued September 19, 2024) / (Actual)

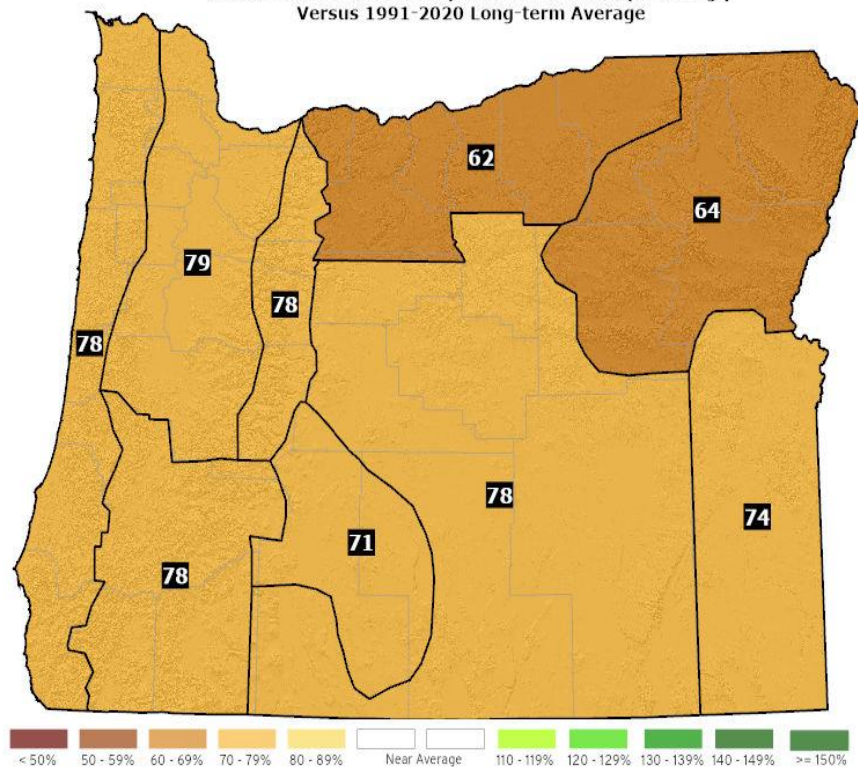
Forecast Precipitation

Actual Precipitation

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



October 2024 Actual Precipitation Anomalies (% of Avg.)
Versus 1991-2020 Long-term Average



Data courtesy of the National Centers for Environmental Information (NCEI)

October 2024

(Forecast Issued September 19, 2024)/(Actual)

- Near or above-average temperatures with all three analog years seeing their warmest conditions early-to-mid month. (Temperatures were above normal by slightly more than predicted.) A “forecast hit.”
- Rainfall a little below average. (With the exception of one day, the first half of the month was quite dry. The typical transition into cooler/wetter weather began at mid-month and continued through Halloween. Overall, precipitation was a little below average.) A “forecast hit.”

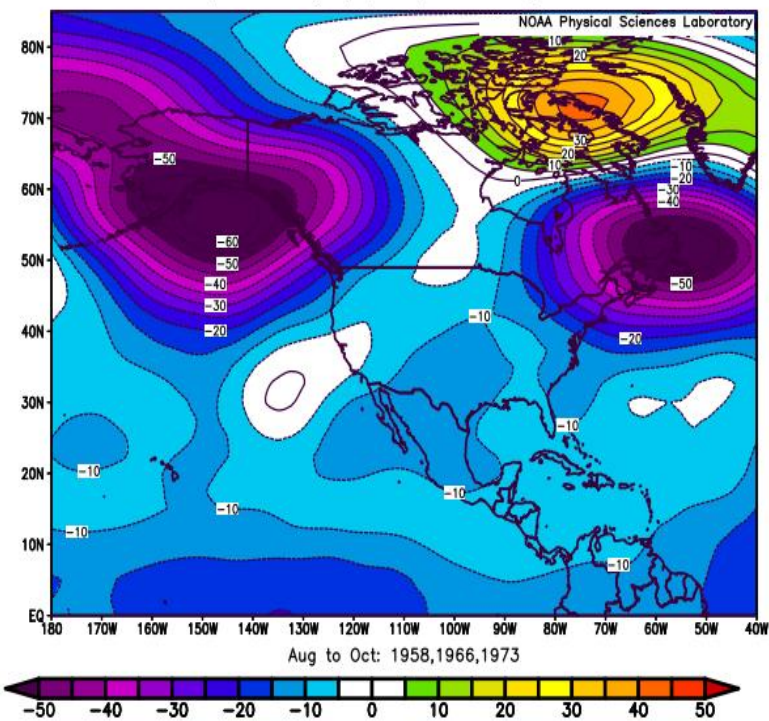
August – October 2024

(Forecast Issued July 18, 2024) / (Actual)

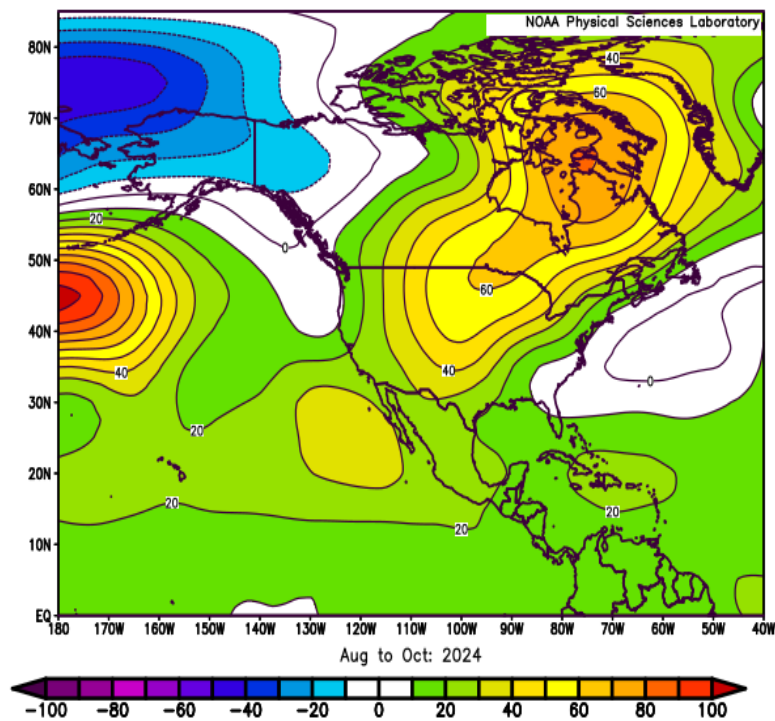
Forecast Upper-Air Anomalies

Actual Upper-Air Anomalies

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



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



- The analogs had various strengths of a mean ridge centered over the Rockies (left panel above). The actual ridge axis (right panel) was stronger and centered farther to the east. *A “partial forecast hit.”*

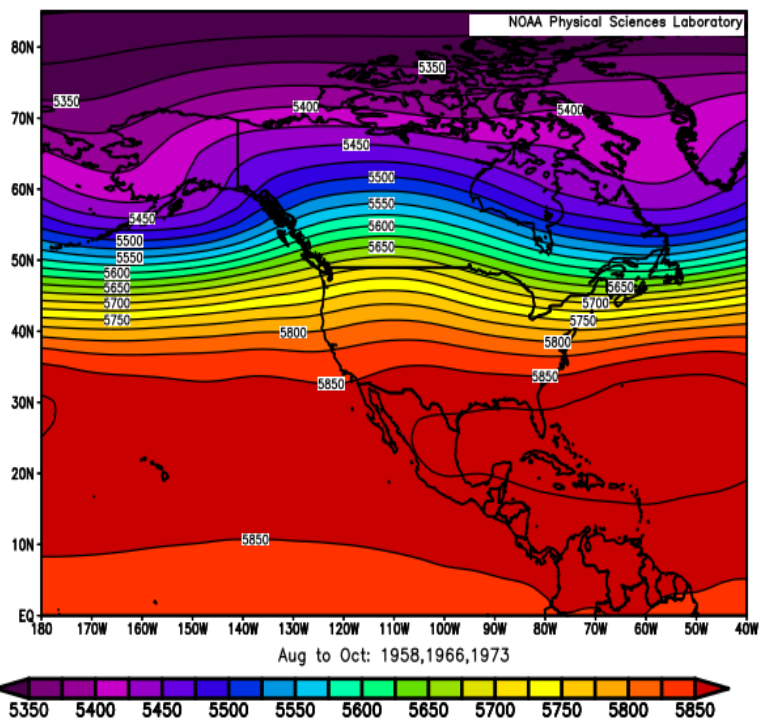
August – October 2024

(Forecast Issued July 18, 2024) / (Actual)

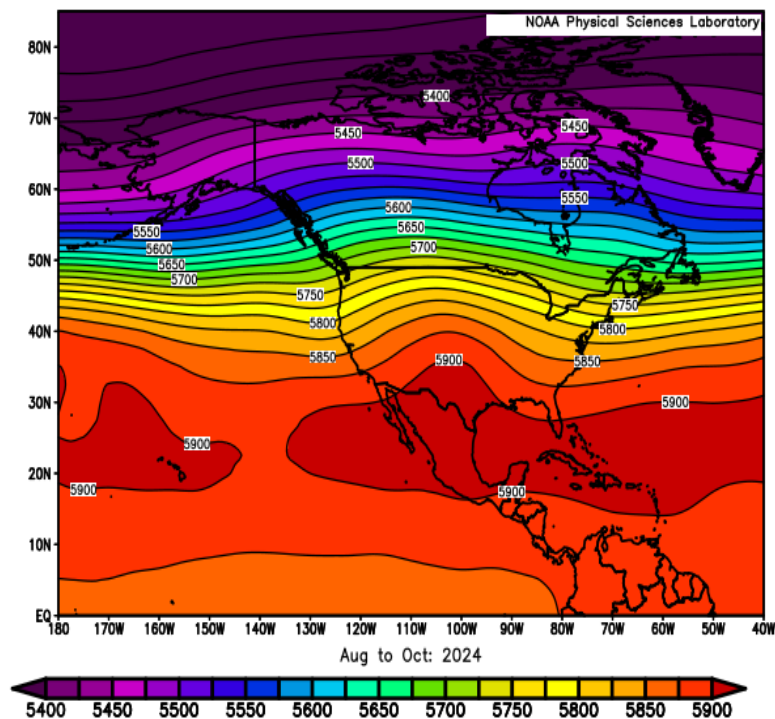
Forecast Upper-Air Pattern

Actual Upper-Air Pattern

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



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



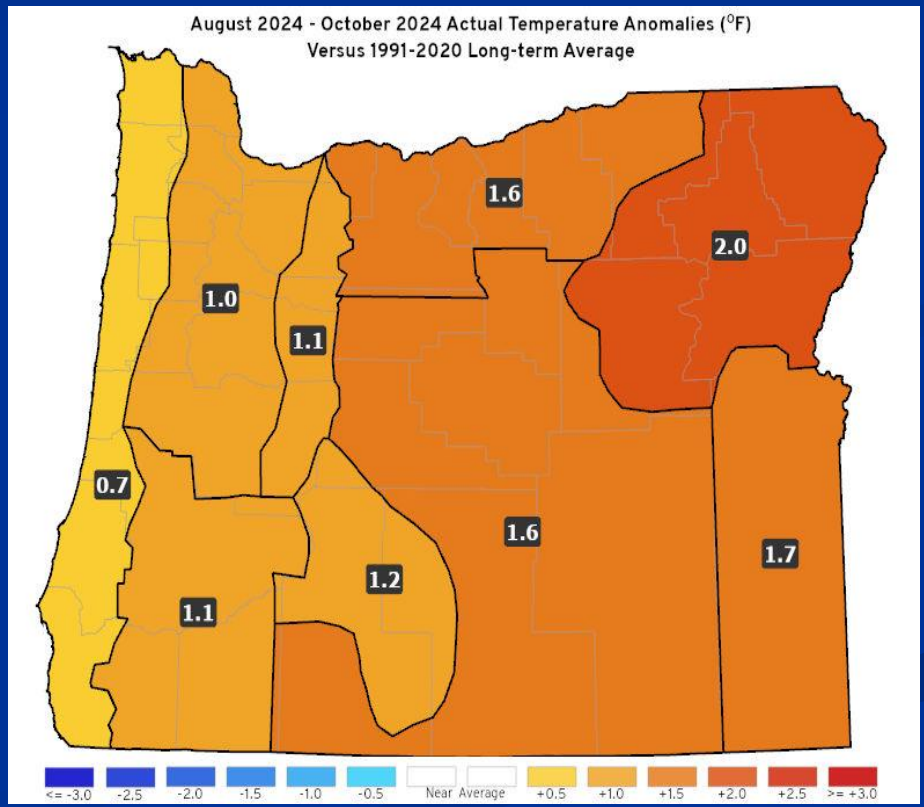
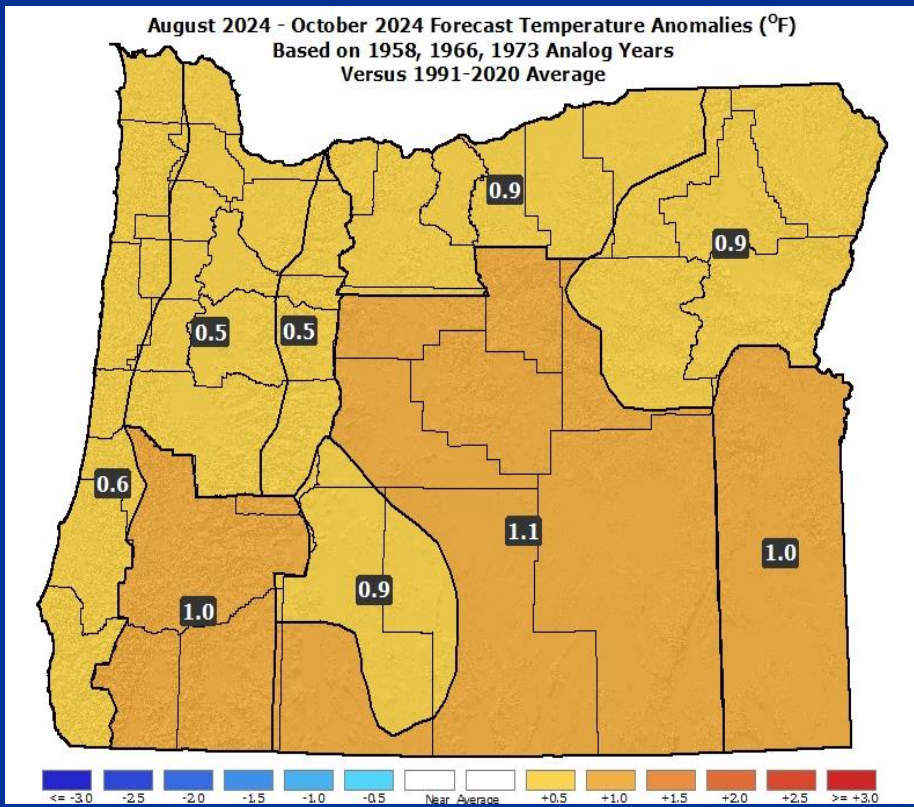
- Comparing the mean upper-air pattern predicted (left) and observed (right), the latter has the mean ridge position slightly farther east. Both show prevailing SW flow aloft over Oregon. *A “partial forecast hit.”*

August – October 2024

(Forecast Issued July 18, 2024) / (Actual)

Forecast Temperatures

Actual Temperatures



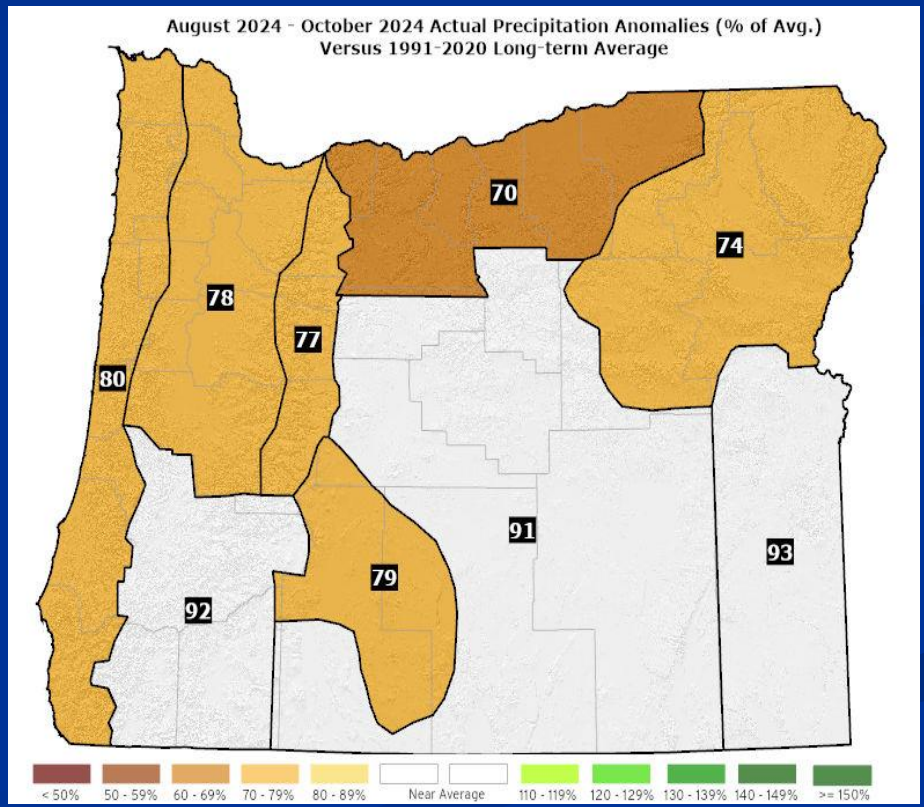
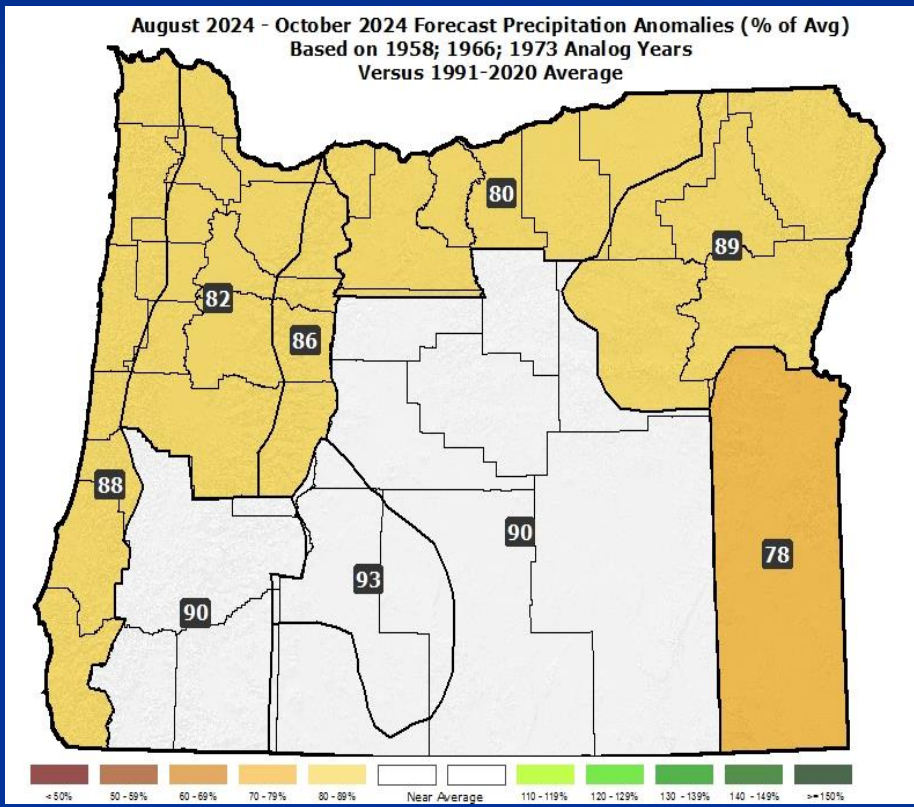
Data courtesy of the National Centers for Environmental Information (NCEI)

August – October 2024

(Forecast Issued July 18, 2024) / (Actual)

Forecast Precipitation

Actual Precipitation



Data courtesy of the National Centers for Environmental Information (NCEI)

August – October 2024

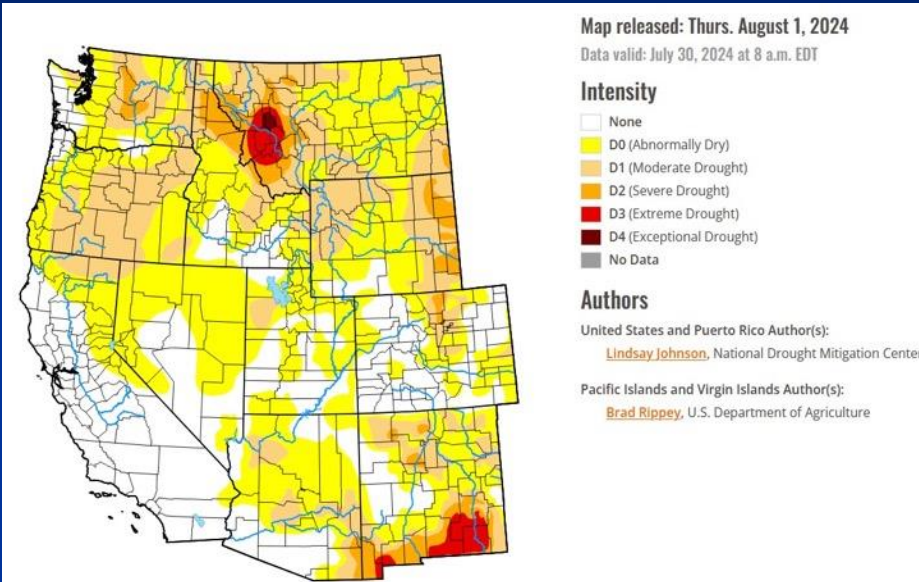
(Forecast Issued July 18, 2024)/(Actual)

- **Above-average temperatures.** (August began and ended quite warm but was otherwise moderate. September had hot weather early, before turning cooler with a few warm periods. October was warmer than average. Overall, temperatures were warmer than average.) A “forecast hit.”
- **Precipitation below average, especially in the north.** (August brought increased thunderstorm activity with local downpours. September was generally dry but with increasing shower activity. October started dry with some ramping up of rainfall in the second half of the month. Overall, rainfall was below average.) A “forecast hit.”

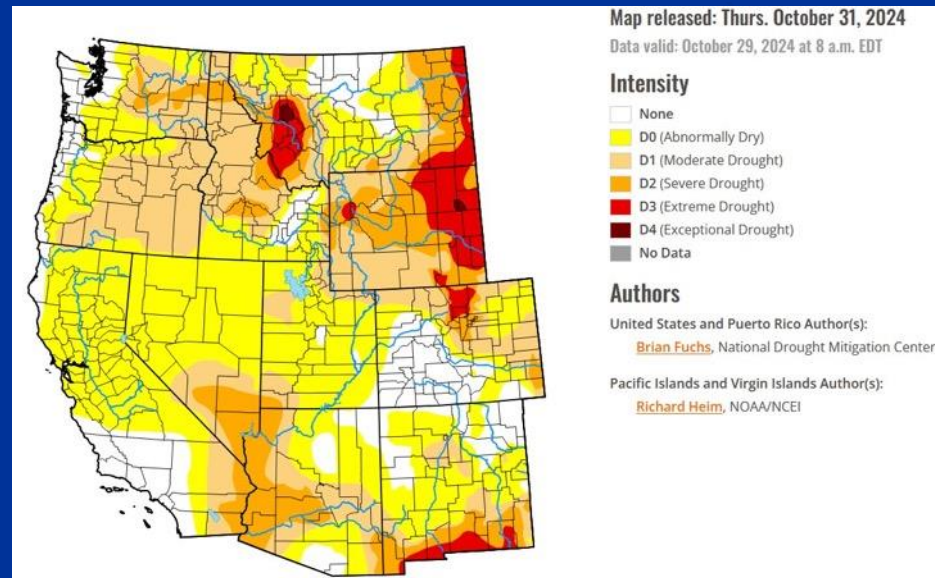
No Drought Relief Through October...

(Improvement is Expected!)

July 30, 2024



October 29, 2024



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 Mid-Month

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