Seasonal Climate Forecast
July – September 2022
Issued: June 16, 2022

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El Niño Southern Oscillation (ENSO)
Current Status and Forecast

- The March – May 2022 Oceanic Niño Index (ONI) cooled slightly, to -1.1°C, which keeps it in the moderate La Niña range.

- The ONI is a 3-month running mean and lags real-time sea surface temperatures (SSTs), which have warmed slightly but still show La Niña.

- NOAA’s Climate Prediction Center (CPC) thinks La Niña may weaken this summer but continue through the year, which would make three consecutive fall/winters with La Niña (last occurrence 1998-2001).

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.

[Link to the full report]
Forecast Highlights

- The analogs (1955, 1971, & 1975) are unchanged from last month and are continuing to track current SST patterns well. However, they are rather aged (47-67 years ago) and generated inconsistent weather patterns, which lowers forecast confidence.

- Unusually cool and damp conditions from April through early June slowed the annual melt-off of maintain mountain snowpacks and brought some improvement to the drought conditions (next 3 slides).

- The July – September period should be markedly cooler than last year with near or above-average precipitation. However, since this is typically the driest time of year, don’t expect much additional improvement in drought conditions (see “U.S. Drought Monitor” graphic).

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 here: https://www.cpc.ncep.noaa.gov/products/predictions/long_range/seasonal.php?lead=1
Oregon SNOTEL Current Snow Water Equivalent (SWE) % of Normal

Jun 16, 2022


- unavailable *
- <50%
- 50 - 69%
- 70 - 89%
- 90 - 109%
- 110 - 129%
- 130 - 149%
- >=150%

* 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).

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

https://droughtmonitor.unl.edu/

Map released: Thurs. May 19, 2022
Data valid: May 17, 2022 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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Map released: Thurs. June 16, 2022
Data valid: June 14, 2022 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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U.S. Drought Outlook

NOAA/NWS/NCEP/Climate Prediction Center

U.S. Seasonal Drought Outlook
Drought Tendency During the Valid Period

Valid for June 16 - September 30, 2022
Released June 16

Depicts large-scale trends based on subjectively derived probabilities guided by short- and long-range statistical and dynamical forecasts. Use caution for applications that can be affected by short lived events. "Ongoing" drought areas are based on the U.S. Drought Monitor areas (intensities of D1 to D4).

NOTE: The tan areas imply at least a 1-category improvement in the Drought Monitor intensity levels by the end of the period, although drought will remain. The green areas imply drought removal by the end of the period (D0 or none).

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NOAA/NWS/NCEP/Climate Prediction Center

https://www.cpc.ncep.noaa.gov/products/expert_assessment/season_drought.png

http://go.usa.gov/3eZ73
Tropical Pacific SSTs still show La Niña conditions.
Tropical Pacific Ocean

SSTs indicate ongoing La Niña conditions

La Niña continues...

Courtesy: https://www.cpc.ncep.noaa.gov/products/analysis_monitoring/enso_update/sstweek_c.gif
Tropical Pacific Ocean

ONI* values from the top "analog years" compared with the current period (2021-22)

(1954-55; 1970-71; 1974-75)

March – May ONI analogs were all in Weak La Niña

March – May 2022 ONI (-1.1°C) cooled to Moderate La Niña

*ONI explanation via "Forecasting Methods..." at https://oda.direct/Weather
SOI* values from the top "analog years" compared with the current period (2021-2022) (1954-55; 1970-71; 1974-75)

May 2022 SOI (+1.4) was in the La Niña range

May SOI analogs were near the Weak La Niña range

Tropical Pacific Ocean

"SOI explanation via "Forecasting Methods..." at https://oda.direct/Weather"
PDO* values from the top "analog years" compared with the current period (2021-22)
(1954-55; 1970-71; 1974-75)

North Pacific Ocean
(Poleward of 20°N Latitude)

May 2022 PDO
analogs were all in "Cool" phase

May 2022 PDO (-1.92) was deeper in "Cool" phase

*To see PDO explanation, go to https://oda.direct/Weather and click on "Forecasting Methods."
The Pacific Decadal Oscillation (PDO)

Positive “Warm” Phase

Negative “Cool” Phase

SST Anomalies

Courtesy: http://research.jisao.washington.edu/pdo/img/pdo_warm_cool.jpg
The May analog composite (left) has a similar SST anomaly pattern, compared to May 2022 (right).

Both charts depict cooler-than-normal conditions in the tropical Pacific Ocean (La Niña) and in the northern Gulf of Alaska (negative PDO).
Analogs had significant swings between anomalous troughing and anomalous ridging over Oregon, which lowers forecast confidence.

Their blend (above) shows above-average troughing over Oregon...especially for the western zones.
July 2022 Forecast

**Temperatures**

Overall, temperatures should be near or slightly below average. Significant swings between cool and warm periods are possible.

**Precipitation**

Precipitation near or above average. **Note:** In the driest time of the year, large percentage departures are easily obtained.
The 1955 and 1971 analogs had anomalous ridging over Oregon; the 1975 analog had much more troughing...lowering forecast confidence.

The analog blend (above) yields near average upper-air patterns, which implies some warming/drying, relative to average, compared to July.
The 1975 analog skews western zones slightly cooler and wetter than average, but that is not fully supported by the 1955 & 1971 analogs.

Forecast confidence is not stellar, but it does favor relatively warm and dry conditions across the central and eastern zones.
September 2022 Forecast

Mean Upper-Air Pattern

Large variance among analog solutions lowers forecast confidence.

Analog blend (above) shows near-average conditions, but individual solutions ranged from cool (1971) to warm (1975) over Oregon.
September 2022 Forecast

Temperatures

Precipitation

- Graphics above are skewed somewhat cool and wet by the 1971 analog. 1975 leaned warm & dry, while 1955 had near-average conditions.

- Notable: Both 1955 & 1975 had widespread lightning episodes, which would enhance the risk of wildfire starts.
July – September 2022 Forecast

Mean Upper-Air Pattern

Upper-Air Anomalies

- 1955 and 1971 had anomalous troughing over Oregon, while 1975 had near-average conditions.
- Their blend (above) favors more troughing than average over Oregon, especially early in the 3-month period.
Temperatures near or slightly below average...coolest NW zones.

Precipitation generally above average. **Note:** This is the driest time of the year, so large relative-percentage swings are easily obtained.
Forecast Resources

- **ODA Seasonal Climate Forecast Home:**
  https://www.oregon.gov/ODA/programs/NaturalResources/Pages/Weather.aspx

- **CPC Official US Three-Month Forecasts (Graphics):**

- **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:**

- **Australian Government ENSO Wrap-Up:**

- **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:

- 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)
Updated Monthly

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Photo: Pete Parsons