Weather and Climate Summary and Forecast
February 2025 Report

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February 6, 2025

Summary:

- A cooler than average[1] January occurred over much of the western US.
- January remained dry in the south and turned quite dry over the vast majority of the rest of the west.
- Drought conditions worsened in California, the southwest, and western Washington. Snow water equivalents across watersheds in the west are quite mixed, with very low amounts in California and the southwest, above average amounts in northern California, Oregon, and portions of the Great Basin and Rockies, and near average across the central Rockies.
- The coldest air of the winter is with us for the next ten days. Most areas in the west are likely to experience below average temperatures and a continued chance for snow, snow/rain mix, or just rain depending on location and elevation.
- The overall forecast for February is pointing to a cool and wet month in the PNW and northern states and an average to cool and dry month for California and the southwest.
- The 90-day forecast heading into spring is being driven by some volatility in the Arctic and the current La Niña and the Pacific Decadal Oscillation influences. The result is that the forecast points to a cooler and wetter winter from northern California into the PNW and cool to near average and dry into southern California and the southwest. Late winter periods such as this have historically brought higher spring frost risk for much of the west.

Past Month and for the Water Year to Date:

After a relatively warm and wet December, January turned cooler and generally drier over the western US (Figure 1). The majority of the west was 1-5 degrees below average with portions of northern California, the inland PNW, and northern Plains just slightly above average. The month was also colder than average for most of the country with Arctic air reaching south to Texas, the Gulf Coast, Florida, and the southeast (not shown). January turned mostly dry over the western US with most areas running less than 50% of average precipitation (Figure 1). The inland PNW was closer to average for the month, while the Rockies were the only areas seeing above average precipitation for the month. The front range of the Rockies, central Plains, and Texas into the Ohio River valley were wetter than normal for the month, while everywhere else across the country was much drier than normal (not shown).

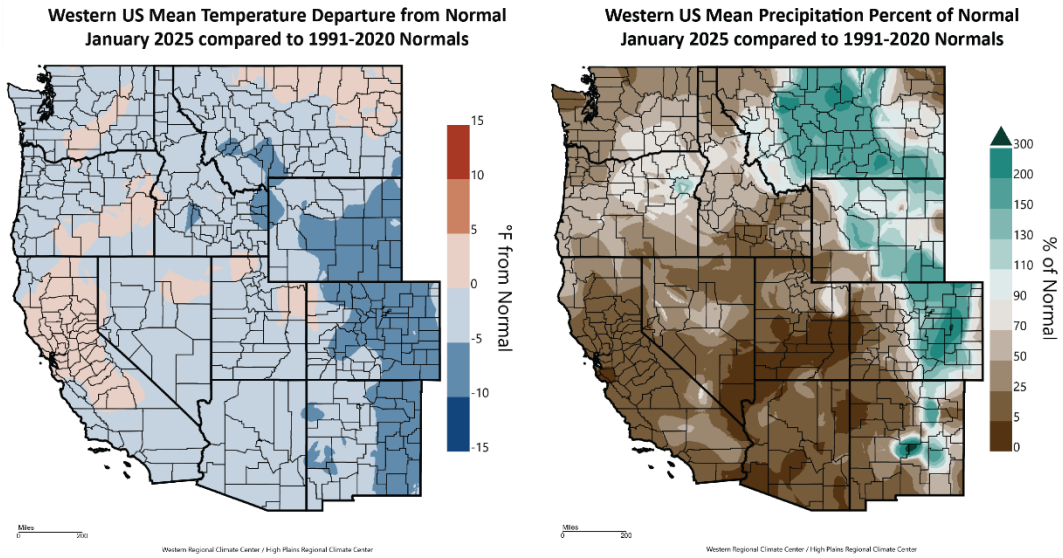

Figure 1 – Western US January 2025 temperature departure from normal (left) and percent of normal precipitation (right; images from Western Regional Climate Center and High Plains Regional Climate Center, 2024)

[1] Note that all references to normal or averages in this report are to the 1991-2020 climate normal for each weather/climate parameter unless stated otherwise. See this website (https://www.climateofwine.com/climate-normals) for more information on climate normal.

The water year to date (October through January) is currently running warmer than average for the vast majority of the western US (Figure 2). Most of the west has seen temperatures between 1-2 degrees above average with the northern Rockies and Plains seeing 2-5 degrees warmer than average. Isolated areas in the Cascades, northern California, Colorado, and New Mexico have seen temperatures so far this water year of less than 0.5 degrees below average. The rest of the country has seen largely warmer than average temperatures since October 1, with the Plains and Great Lakes to Texas and the Gulf experiencing the warmest conditions (not shown). Closer to average or slightly cooler water year to date conditions have been seen in small areas of Florida and along the eastern seaboard (not shown).

Precipitation for the western US for the water year to date is showing a mostly wetter than average PNW and drier than average most everywhere else (Figure 2). From the Bay Area north into Oregon and the inland PNW 110-150% of normal precipitation has been recorded, while south of the Bay Area into southern California and the southwest most areas are running 5-50% of normal. Figure 2 also shows the eastern portions of Colorado and New Mexico experiencing wetter than normal conditions which extends across the central Plains in the Mississippi River valley, otherwise most everywhere else in the country has seen a dry water year to date (40-80% of normal; not shown).

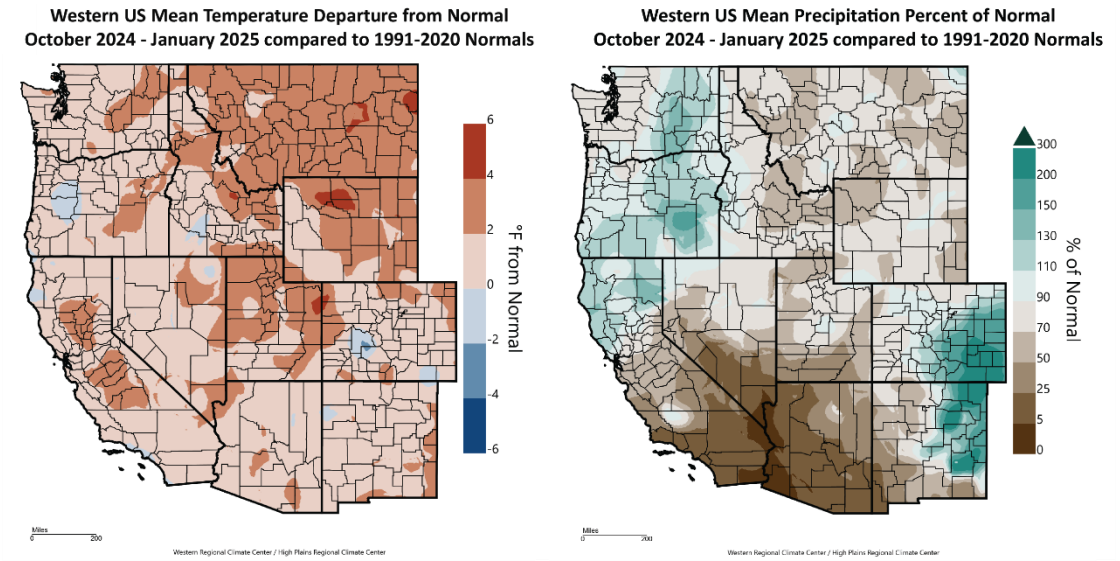

Figure 2 – Western US water year (October 2024 through January 2025) temperature departure from normal (left) and percent of normal precipitation (right; images from Western Regional Climate Center and High Plains Regional Climate Center, 2024).

Drought Watch – With the broad drier than average water year to date for much of the US, the overall drought pattern remains from last month, with expansion in some areas and contraction in others. Central California, across much of the Great Basin, across the southwest and into the northern Rockies and Plains have the most prolonged and severe drought situation (Figure 3). The eastern seaboard is also showing increasing drought concerns. For the continental US, the overall drought footprint depicted in Figure 3 increased slightly from last month to nearly 70% and the most extreme drought categories increased to nearly 18%. For the western US, the overall drought footprint has increased to just above 75% with the most extreme categories rising to 27% of the region. A moderately dry January was enough to increase Washington's drought area to just above 48% of the state with the most extreme categories staying at zero. Similar to Washington, January precipitation in most of Oregon (Figure 1) was lower than normal but was enough to lower the drought footprint in the state to 16% with the extreme drought categories (severe, extreme, and exceptional) staying at zero. The mountains of northern Idaho and western Montana are one of the drier regions in the west. Montana is now at 92% of the state in some level of drought with the extreme categories decreasing slightly to just under 24% of the state. Idaho saw some improvement since last month with just over 79% in overall drought coverage but with the most extreme drought categories increasing to nearly 10%. January precipitation in California was much below average statewide (Figure 1). While northern California remains out of drought for the time being due to a very wet December, the rest of the state saw a major jump in drought conditions to nearly 67% of the state. The more extreme drought categories jumped the most with nearly 35% of the state now considered enduring a severe drought (Figure 3).

The seasonal drought outlook in Figure 3 shows some improvement in some regions while others are likely to have continuing drought concerns. Drought conditions remain and are likely to develop further across the south from southern California to the Four Corners region, to Texas and across the Gulf Coast and into the southeast (Figure 3; left panel). Improving conditions or complete removal from drought is forecast for New England, portions of the Great Lakes, and across the PNW and northern Rockies. The northern Plains is also forecast to see drought persist through the second half of winter and into spring (Figure 3; right panel).

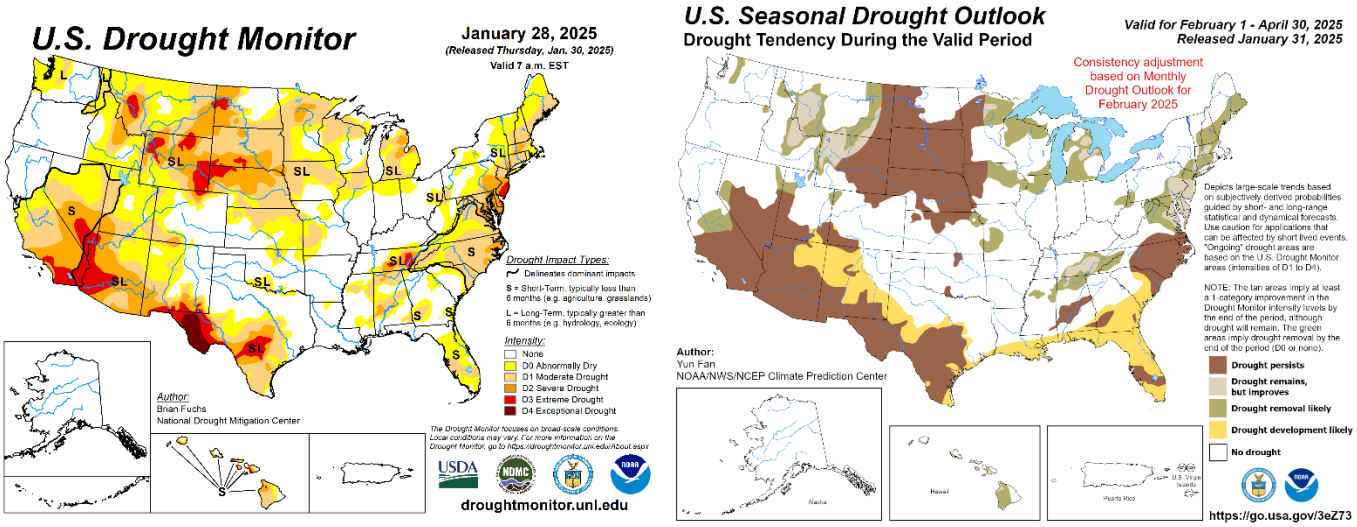

Figure 3 – Current US Drought Monitor and seasonal drought outlook.

ENSO Watch – Ocean areas across the central to eastern equatorial Pacific are currently exhibiting below average sea surface temperatures (SSTs) across the region (Figure 4); as such La Niña conditions are present. The Climate Prediction Center (CPC) is continuing the La Niña advisory with current modeling plumes forecasting SSTs remaining near average to below average over the next few months. The CPC has a 59% chance of La Niña conditions persisting through the February-April period with a transition back to ENSO-neutral by March to May 2025 (60% chance). The official outlook from numerous agencies confirms this forecast with the outlook calling for a weak and likely short duration La Niña during the spring. Conditions so far this winter have flipped back and forth between cool/wet and cool/dry for the west, with the broad pattern over the western US being close to what would be expected in a La Niña winter. The forecast models (see below) are continuing to show this influence with northern California northward into the PNW likely to see a cooler/wetter rest of winter, while California, Nevada, and the southwest have higher odds of being slightly warmer and drier during the winter (see the 90-day forecast below).

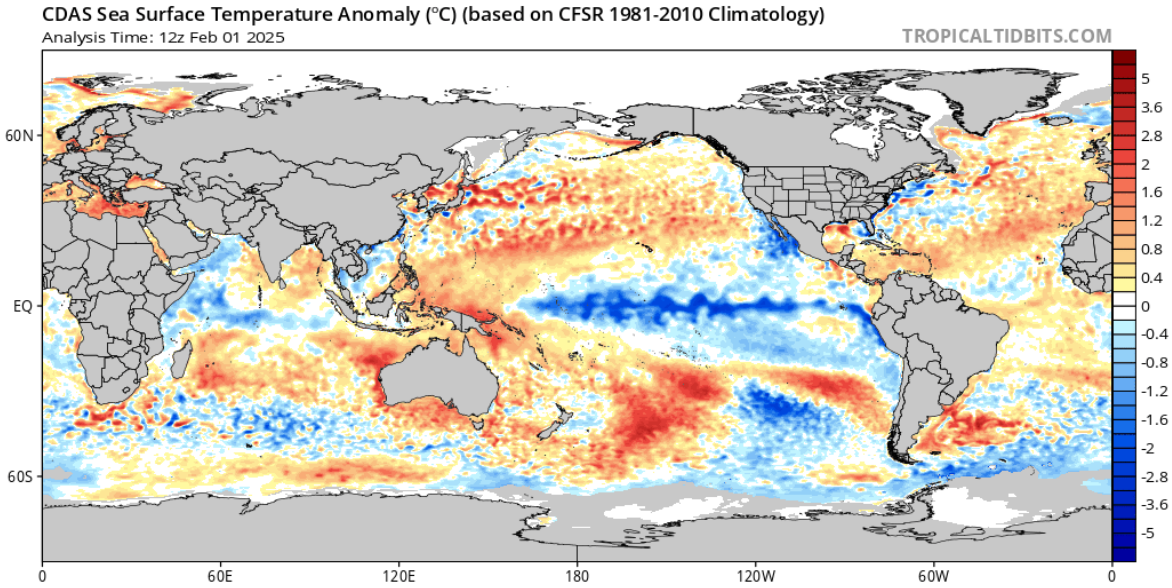

Figure 4 – Global sea surface temperatures (°C) for the period ending February 1, 2025 (image from Tropicaltibits.com).

North Pacific Watch – The broad SST pattern over the North Pacific remained largely the same over the last month with the vast majority of the North Pacific basin remaining warmer than average at this time. Some warming across the Gulf of Alaska did occur, along with some additional cooling along the western North American coast south as far as Baja California and central Mexico (Figure 4). The pattern in SSTs in the North Pacific continues the long run of the Pacific Decadal Oscillation (PDO) which has been in a strong negative phase since early 2020, although the January value has shifted more than anticipated. During winter, the negative phase of the PDO typically brings warmer than normal conditions for much of the southern and eastern states, while the west coast and the PNW are normally colder than normal. Precipitation is normally mixed over the lower 48, with typically a wetter, snowier winter in the PNW and northern Rockies, and drier conditions across southern regions. Conditions so far this winter have followed what the historical data would indicate.

Forecast Periods:

Next 5 Days: Most of the west will remain on the colder than normal side heading into the weekend, with continued chance for snow, snow/rain mix, or just rain depending on location and elevation. The coldest air will be along the northern border with Canada from Washington to the Great Lakes.

6-10 Day (valid February 12-16): The coldest period of the winter looks like it will be here during this forecast period. Cool south, cold north, with the coldest conditions across the northern tier of states to the Great Lakes. Much warmer conditions are likely across the Gulf Coast, southeast, and Florida. A wet west is highly likely with the bullseye remaining on central California but extending north into the PNW and hopefully south into southern California. Wet conditions are likely for most of the country except southwest Texas.

8-14 Day (valid February 14-20): Not much change into this forecast period with generally colder than average conditions across the northern tier of states and cool to warmer than average across the southern tier of states. Coldest conditions are likely along the northern border, but relatively cold air is in place in the PNW and south into California. The precipitation probability shifts out of California and into the PNW during mid-month. The eastern third of the country is likely to see a wetter than average period, while Texas and south Florida are likely to be dry during mid-month.

30 Day (valid February 1-28): The forecast for February is holding to what would be expected during a La Niña/cold PDO second half of winter … cool to cold and wet in the north and cool to warm and dry in the south (Figure 5). The coldest conditions are likely in the PNW across the northern states to the Great Lakes, while the warmest areas are likely from Texas across to the southeast and along the eastern seaboard. The February forecast for precipitation continues to show a high likelihood of a wetter northern California into the PNW and across to the northern Rockies. Above average precipitation is also likely in the Ohio River valley, Great Lakes, and portions of New England, while a dry month is forecast for portions of Texas and most of Florida (Figure 5).

90 Day (valid February-March-April): Seasonal predictions across the continental US continue to be driven by the current conditions of an active Arctic circulation, the La Niña, and a cold Pacific Decadal Oscillation (see sections above for more information). As such the 90-day forecast heading into spring maintains a cooler than average northern tier of states (Figure 5) with the greatest probability for below average temperatures from the PNW across to the northern Plains. The seasonal forecast for the southern tier of states is holding to likely seeing above average temperatures that extend from the southwest across Texas, the Gulf coast, southeast, and into the mid-Atlantic and New England. Precipitation over this period is forecast to also deliver the expected Arctic, La Niña, and a cold Pacific Decadal Oscillation influences of a greater probability of being above average across the PNW and the Great Lakes and Ohio River valley, while the southern tier of states is forecast to experience below average precipitation over the next 90 days (Figure 5).

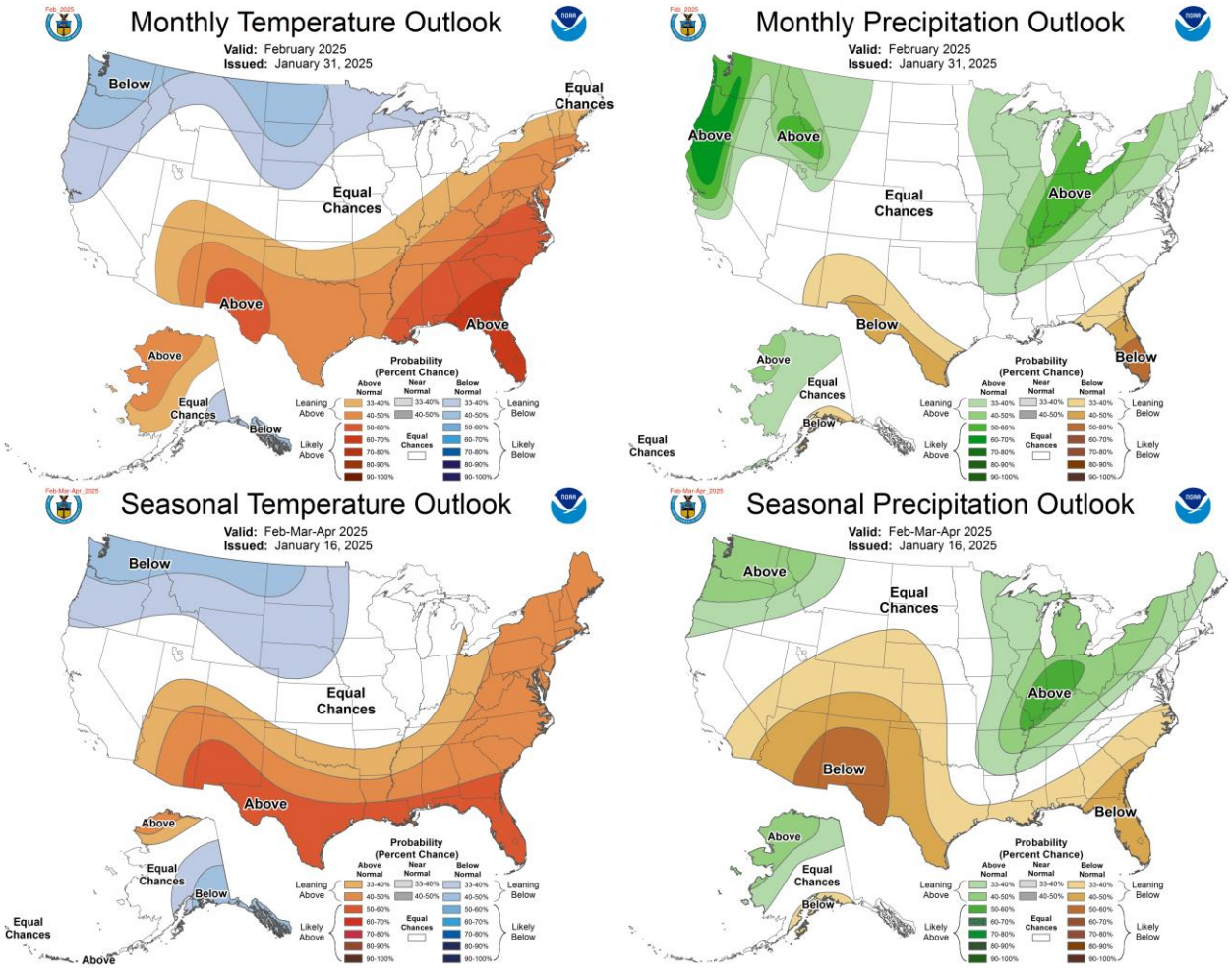

Figure 5 – Temperature (left panel) and precipitation (right panel) outlooks for the month of February (top panel) and February, March, and April (bottom panel) (Climate Prediction Center, climate.gov).

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