

Weather and Climate Summary and Forecast April 2025 Report

Gregory V. Jones, Ph.D.
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Summary:

- A cooler than average¹ March in California and the southwest, while the PNW and central to northern Rockies experienced a warmer than average month.
- A wet March was had over northern California, most of Oregon and Washington, and the intermountain west.
- Drought conditions heading into spring either stayed roughly the same (southern California and the southwest) or improved (Oregon, Washington, and the northern Rockies). April 1 snow water equivalents made significant jumps in Oregon, northern California, and Nevada, while rising closer to average for most regions except the northern Cascades, Four Corners, and Front Range watersheds where very little moisture is carrying over into spring and summer.
- A typical spring seesaw over the next 10 days with very nice days interspersed with fronts and clouds carrying precipitation for many. Wetter conditions are likely from northern California into the PNW, drier likely in more southern regions of the west. No extremely cold air in the short term but clearing skies behind the fronts will bring inversions and scattered frost to inland valleys.
- The overall April forecast is holding equal chances of above to below temperatures and precipitation for most of the west. If I am reading things right there will likely be some colder and wetter conditions later in the month.
- The 90-day forecast is pointing to a warmer and drier California into the southwest and Rockies, while the PNW does not have a clear trajectory at this time. Trying to break these signals into individual months, my read on it is for cool to average in April, average to slightly warmer than average in May, then warm and dry into June.

Past Month and for the Water Year to Date:

The March forecast flipped from the expected pattern of a cool north and warm south, resulting in cooler temperatures across California (0.5-2.0 degrees below average) and warmer temperatures in the PNW (1-3 degrees above average (Figure 1). The cooler temperatures in California and the southwest were the only portions of the country seeing below average conditions as the rest of the country ranged from 1-6 degrees above average in March (not shown).

Precipitation in March was variable across the west with portions of California, the intermountain regions, northern Rockies, and most of the PNW seeing 100-200% of normal while portions of the southwest and northern Plains remained dry (Figure 1). The northern and central Plains, Texas, western Mississippi River valley, and the Appalachian

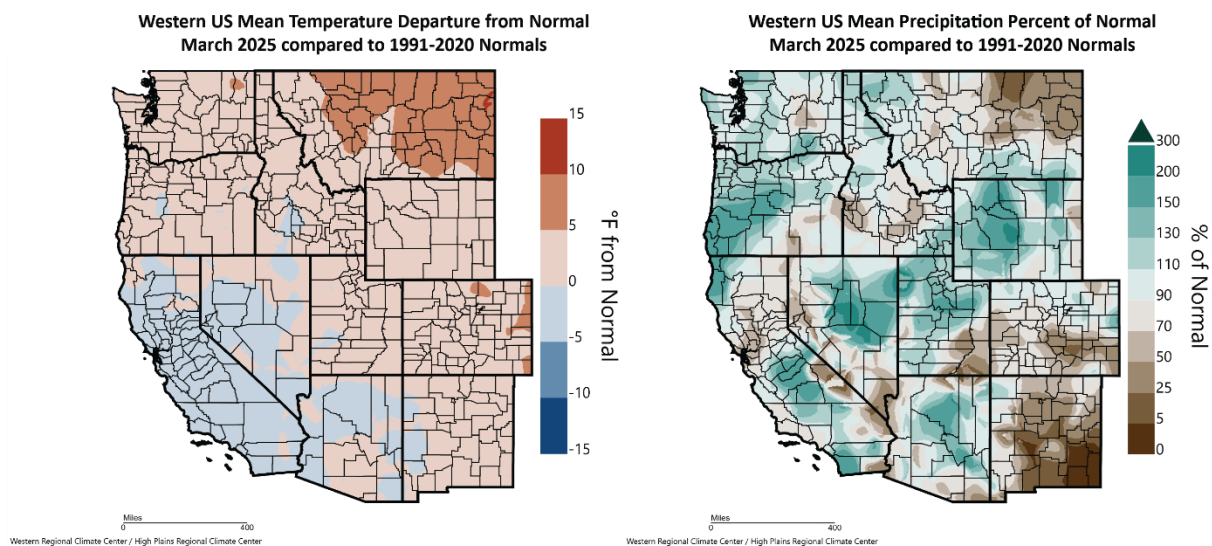


Figure 1 – Western US March 2025 temperature departure from normal (left) and percent of normal precipitation (right; images from Western Regional Climate Center and High Plains Regional Climate Center, 2024)

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.

mountains were the driest areas of the country, while the Great Lakes and portions of the Gulf Coast were the wettest areas in March (not shown).

For the water year so far (October through March) the majority of the western US has been warmer than normal (Figure 2). Temperatures are running between 1-4 degrees above average with portions of the Rockies seeing 2-5 degrees warmer than average temperatures. Northern California, western Oregon, and portions of the Oregon and Washington Cascades, and south-central Idaho are currently running 0.5-1.5 degrees below average for the six month period. The rest of the country continues to experience largely warmer than average temperatures since October 1, with the Plains and Great Lakes to Texas and the Gulf experiencing the warmest conditions (2-5 degrees above average; not shown). Closer to average or slightly cooler water year to date conditions have been seen in central North Dakota and northeastern Maine (not shown).

The broad drought pattern in Figure 3 can be seen in the water year precipitation pattern over the west (Figure 2) and the rest of the US (not shown). A pattern of a generally wetter north and a drier south has occurred during the winter with precipitation for the western US greater than average from northern California into Oregon, eastern Washington, and western Idaho (100-200% of normal) (Figure 2). From the Bay Area southward into southern California and southwest most areas are running 5-80% of normal. Figure 2 also shows that the eastern portions of Colorado and New Mexico have experienced a wetter than normal winter so far, which extends across the central Plains and portions of the middle Mississippi River and Ohio River valleys, otherwise most everywhere else in the country has seen a dry water year to date (40-80% of normal; not shown).

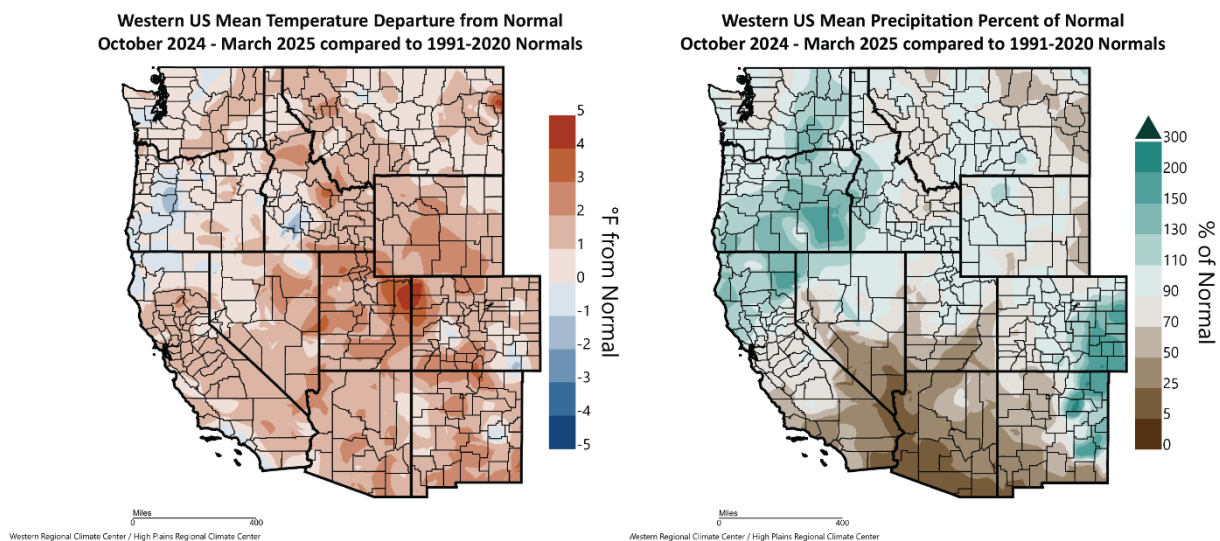


Figure 2 – Western US water year (October 2024 through March 2025) temperature departure from normal (left) and percent of normal precipitation (right; images from Western Regional Climate Center and High Plains Regional Climate Center, 2024).

Drought Watch – A mixed bag of improvement in drought conditions in the Great Basin, Rockies, Northern Plains, south, southeast, and upper Midwest along with worsening conditions in the southwest, lower Midwest, and the mid-Atlantic (Figure 3). For the continental US, the overall drought footprint depicted in Figure 3 is very similar to last month at just over 66% with the most extreme drought categories increasing to just over 21%. From southern California, across much of the southwest and into the northern Rockies and Plains continue to have the most prolonged and severe drought situation (Figure 3). The overall drought footprint in the western US dropped slightly from last month to just above 65% with the most extreme categories increasing to just over 31% of the west. Precipitation in the PNW helped drop drought coverage in Washington to just under 35% of the state with the most extreme categories staying at zero. A wet March also helped remove all of Oregon from any category of drought. While the mountains of northern Idaho and western Montana continue to be one of the drier regions in the northwest, March precipitation in Montana was enough to keep the overall drought footprint close to last month at 63% of the state in some level of drought with the extreme categories decreasing to just over 12% of the state. Likewise, Idaho also had a relatively wet March, which resulted in a drop to 40% of the state in overall drought coverage and the most extreme drought categories dropping to zero. California remained wetter in the north and drier in the southern portion of the state (Figure 3) with a slight drop in

statewide overall area in drought to 56%. The more extreme drought categories remained close to 25% of the state now enduring severe drought, all located in the southern portion of the state (Figure 3).

Broadly speaking the seasonal drought outlook remains similar to last month (Figure 5; right panel). Most of the southwest, Rocky Mountains, and northern to southern Plains are likely to see drought conditions persist or develop further. For the West Coast states, central to northern California, all of Oregon, and significant portions of Washington, Idaho, and Montana are likely to stay out of drought heading into summer. However, portions of the northern Cascades of Washington and the Bitterroot Mountains of Idaho and Montana will see areas of drought persist. Drought concerns along the eastern seaboard are mixed with some areas forecast to improve (Florida and southern New England), but very dry conditions are forecast to remain in the southeast states of Georgia, South Carolina, and North Carolina (Figure 5; right panel).

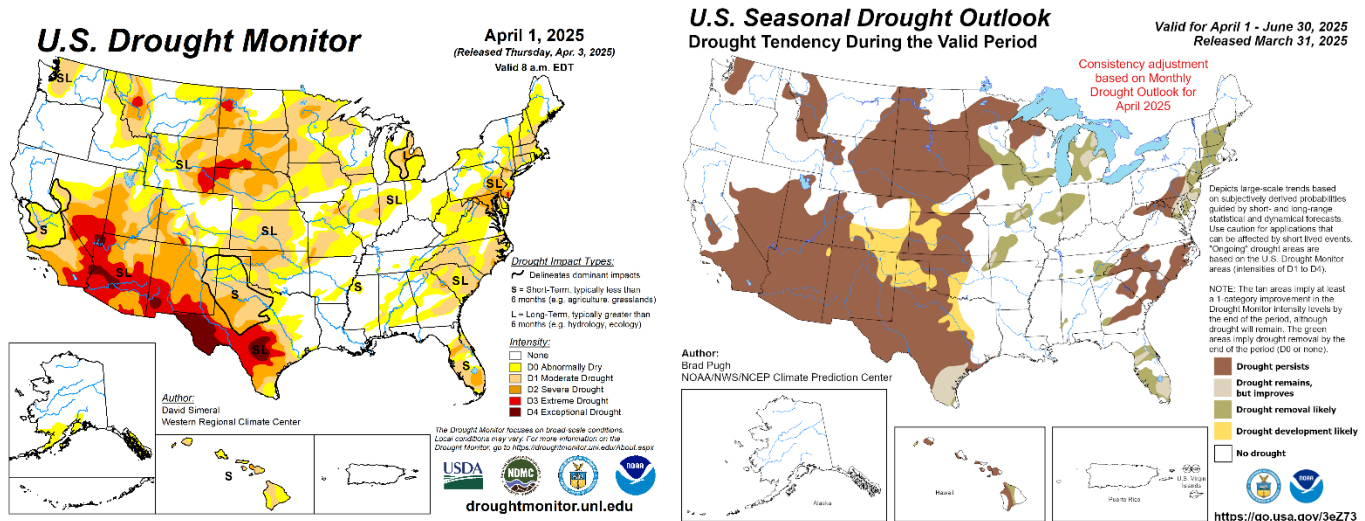


Figure 3 – Current US Drought Monitor and seasonal drought outlook.

ENSO Watch – A La Niña advisory by the Climate Prediction Center (CPC) remains in place. Conditions in the Tropical Pacific Ocean show areas across the central Pacific experiencing below average sea surface temperatures (SSTs) while those in the eastern Pacific Ocean are above average (Figure 4). Tropical Pacific atmospheric conditions also show anomalies that are consistent with La Niña. Observations and models are continuing to show a trajectory of SSTs remaining near average to below average over the next month or so, remaining in a weak La Niña, then most models favor ENSO-neutral developing and persisting through the summer (62% chance in June-August 2025). Other agencies

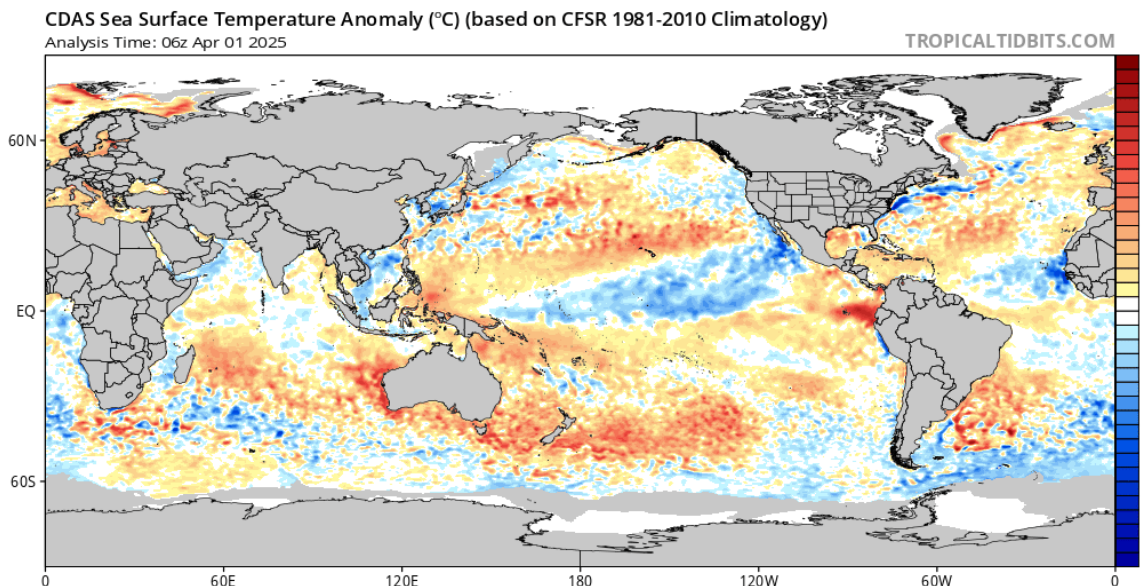


Figure 4 – Global sea surface temperatures (°C) for the period ending April 1, 2025 (image from TropicalTibbits.com).

around the Pacific basin agree on the forecast for a weak La Niña to continue then transition. Heading into spring and summer the overall effect of ENSO on the west coast weather starts to wane but can still be influential in some years. The forecast over the next 90 days is still holding to this seasonal influence with equal chances of the northern states seeing cool/warm and wet/dry conditions, while the southern states are more likely to see warmer and drier conditions from spring heading into summer (see the 90-day forecast).

North Pacific Watch – The general pattern in SSTs over the North Pacific remains largely the same from the last couple of months. A broad area of the North Pacific basin remains warmer than average, while cooler than average SSTs also remain along the western North American coast from Alaska south to Baja California and central Mexico (Figure 4). While the Pacific Decadal Oscillation (PDO) has been in a strong negative phase since early 2020, it has continued to weaken slightly since October 2024 but appears to continue its influence on our transition into spring. During the next 90 days a negative phase of the PDO would typically bring warmer than normal conditions for much of the southern and eastern states, while the west coast and the PNW are normally colder than average. 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. The current forecast appears to be at least partially influenced by these PDO conditions and influences (Figure 2).

Forecast Periods:

Next 5 Days: All indications are for a fairly typical early April with nice spring days followed by slightly cooler and potentially wet days. Decent temperatures over the next few days but clear skies could bring inversions and frost to low-lying areas almost everywhere in the west. Warmer and drier central California southward, cooler and a greater chance for precipitation northward into the PNW.

6-10 Day (valid April 10-14): Near normal temperatures from northern California into the PNW with far western Washington tilted to likely seeing slightly cooler temperatures. Greatest chance for colder nights throughout western valleys in Washington, Oregon, and northern California. Central California into the Basin, Southwest, and Rockies holding to a decent chance for warmer than average temperatures. Above normal temperatures are highly likely in the middle of the country from Texas into the Great Lakes, then transitioning to near to below normal conditions along the east coast. Above normal precipitation is forecast for the PNW, transitioning to dry in central California and across the entire southern tier of states. Near normal precipitation for much of the northern states across into New England.

8-14 Day (valid April 12-18): Cool and wet conditions are likely to remain in the PNW and into northern California, not exceptionally cold but clearly spring is still holding on while throwing a few lovely days into the mix. Moderate to high chance for warmer than average temperatures from central California across the Rockies, the middle of the country and into the southeast. Near normal to below normal temperatures are likely for New England. California and the southwest, along with the Gulf Coast and southeast are forecast to remain dry, while most everywhere else likely to be close to normal for mid-April.

30 Day (valid April 1-30): A cooler than normal April has been in the long term forecast for a while now. The latest outlook shows a slightly better scenario with equal chances of slightly above to below average temperatures across most of California, the PNW, northern Rockies, and the northern states across to New England (Figure 5). Warmer temperatures during the month are likely from the southwest, into Texas, and across the Gulf Coast states and southeast. Precipitation in March is mostly forecast as equal chances of below or above normal, except in the Mississippi to Ohio River valleys, where extreme rainfall events in the early part of the month will put the region much above average, and in the southwest where dry conditions are likely to persist (Figure 5).

90 Day (valid April-May-June): The 90-day forecast from spring into summer has the PNW, the northern Rockies, and northern Plains having equal chances of slightly above/below temperatures and precipitation (Figure 5). During this period the forecast for the southern tier of states continues to show the likelihood of above average temperatures that extend from the southwest across to Texas, the Gulf Coast, southeast, and into the mid-Atlantic and New England. The precipitation forecast has the southwest, southern Rockies, and most of Texas very likely staying dry into early summer, while the Great Lakes and Ohio River valley are forecast to see a wetter than average April through June (Figure 5).

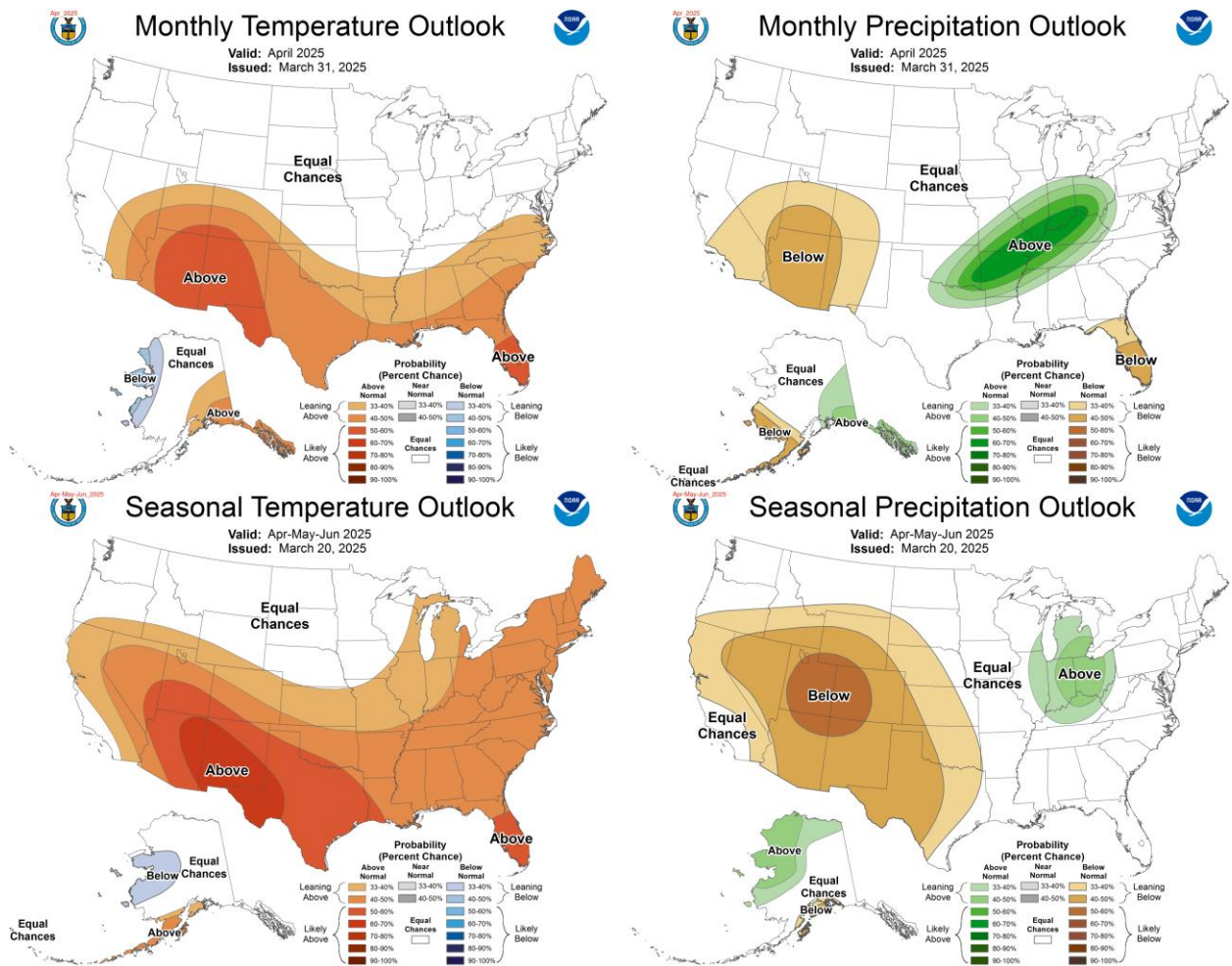


Figure 5 – Temperature (left panel) and precipitation (right panel) outlooks for the month of April (top panel) and April, May, and June (bottom panel) (Climate Prediction Center, climate.gov).

Gregory V. Jones, Ph.D.
 CEO, Abacela Vineyards and Winery
 TEL: 541-324-9269
 EMAIL: greg@abacela.com

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