Weather and Climate Summary and Forecast
May 2022 Report

Gregory V. Jones
May 4, 2022

Summary:

- April 2022 was much cooler than average[1] for all locations north of the Bay Area with many areas experiencing the coldest April since 2010. Widespread frost was experienced over most of the western US wine regions.
- Northern California and much of the PNW experienced some sorely needed precipitation, doubling up what is normal in the month of April. However, already dry regions southward continued the ongoing dry winter into spring adding to the overall drought concerns. Over 90% of the west continues in some level of drought, with the most severe to exceptional drought conditions inching up to 37% of the western states. Given that we are headed in our driest months, chances for much drought improvement are not likely.
- For the short term, warm days will give way to a cool and wet weekend (wet at least for northern areas) which appears to linger into next week the further north you go. Drying southward but continued unseasonably cool.
- Mid-month appears to be when we turn the corner to warmer and drier conditions. But before then we have a short stretch of chilly air and possible frost in the most prone areas, especially further inland, at elevation, and if clear nights occur.
- Heading into summer, the forecast tilts the odds to warmer conditions over most of the west and the country. Since we are heading into our seasonally dry period, the forecast is saying to expect it to be normal or dry.

Past Month and 2022 Year to Date

February in April … after a moderately warm and extremely dry winter dominated by ridging over the Pacific and the western US, the circulation flipped to a more winter like flow. After a couple of warm days early in April, the onslaught of cold and wet systems out of the Gulf or Alaska set in resulting in one of the coolest Aprils in a while (Figure 1). From roughly the 38°N latitude line northward (Bay Area across the entire country) temperatures ranged from 1 to 10° below average bringing advective frost events from April 10-20 to much of the western US wine regions. Across the country the coldest region was the northern Plains into the Midwest, while the southern tier of states was largely warmer than normal (not shown). April brought some much-needed precipitation from northern California to the PNW (Figure 1), alleviating but not removing ongoing drought concerns. For central to southern California, across the desert southwest,

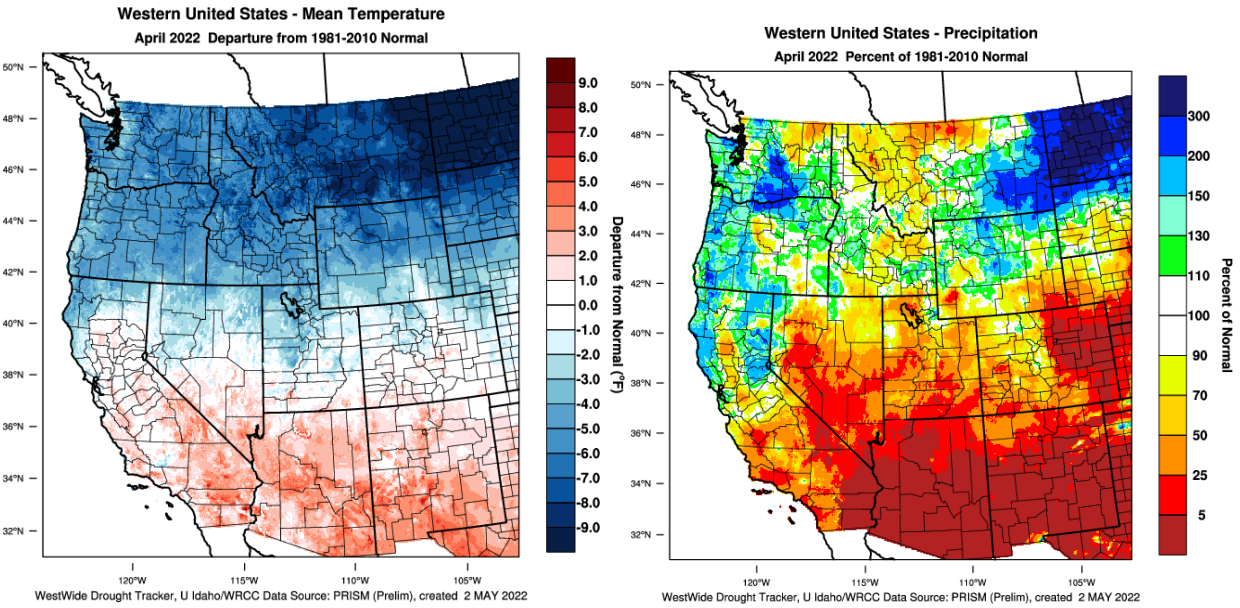

Figure 1 – Western US April 2022 temperature departure from normal (left) and percent of normal precipitation (right; images from WestWide Drought Tracker, Western Region Climate Center; University of Idaho).

[1] Note that all references to normal or averages in this report are to the 1981-2010 climate normal for each weather/climate parameter unless stated otherwise. Also, note that the 1991-2020 climate normals are starting to become available across reporting agencies and will be used in this report when possible.

the Four Corners region, and the Rockies little to no precipitation was seen exasperating drought conditions. For the rest of the country, the Great Lakes, New England, and the southeast experienced a wetter than average month of April while the Ohio River valley and the mid-Atlantic along with Texas were drier than normal for the month (not shown).

Year-to-date temperatures across the western US have been warmer than average for much of California, portions of Nevada and the southwest, while near average for much of the rest of the west (Figure 2). Cooler than average year-to-date temperatures have held in eastern Washington, eastern Oregon, the Snake River Valley, and most of the Rockies (Figure 2). For the rest of the country, the Plains and Great Lakes southward to Texas and the western Gulf has been colder than average year-to-date, while the southeast and eastern seaboard has been slightly above average (not shown). Precipitation amounts year-to-date remain below average for many, although the relatively wet April helped lower the deficits for areas in the PNW (Figure 2). The vast majority of California, Nevada, and the southwest are currently 70% or less year-to-date precipitation with a large swath of these regions running 20% or less. Central and southern Oregon, eastern Washington, and Idaho are running between 50-85% of average (Figure 2). Year-to-date precipitation for the rest of the country is running below average from Texas to South Dakota while the northern Plains, Great Lakes, Ohio and Mississippi river valleys up into New England are wetter than average year-to-date (not shown).

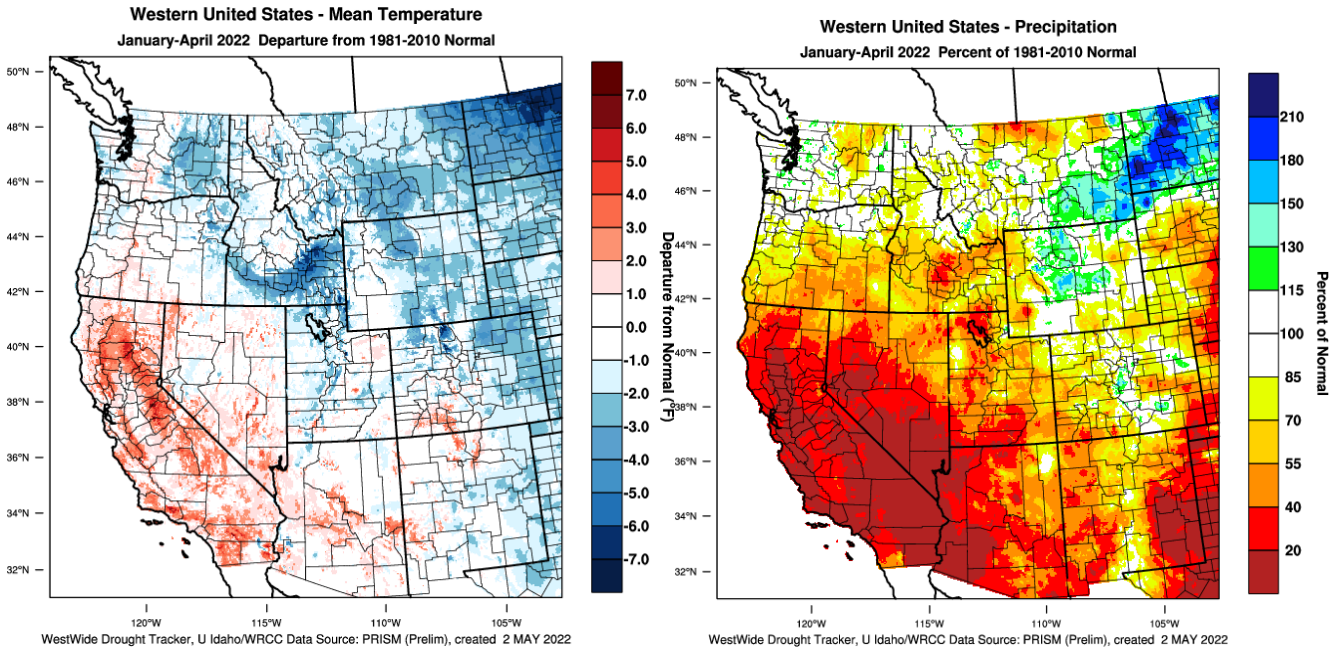

Figure 2 – Western US year to date (January-April 2022) temperature departure from normal (left) and percent of normal precipitation (right; images from WestWide Drought Tracker, Western Region Climate Center; University of Idaho).

Figure 3 shows a map of growing degree-days (GDDs) over the western US for March through April. First, it should be noted that the month of March accumulated more heat than April for most of the western US, reflecting the cold month detailed above. While areas in California and southwest are running slightly ahead of normal GDD for the period, northern California and the PNW are significantly below what is normal for this time of year. Converting the mapped data in Figure 3 to days ahead or days behind normal finds the warmer areas in California are 4-16 days ahead of normal accumulation amounts while wine regions in western Oregon, eastern Washington and Oregon, and the Snake River Valley are 4-16 days behind the normal accumulation by the end of April (not shown).

Heat accumulation (GDD) amounts for four locations that I have tracked for many years in wine regions in Oregon are all substantially below both the 1981-2010 and 1991-2020 climate normals for the month of April. Each of these locations had more GDD in March than April with the April amounts the lowest observed since 2010 (Figure 4).

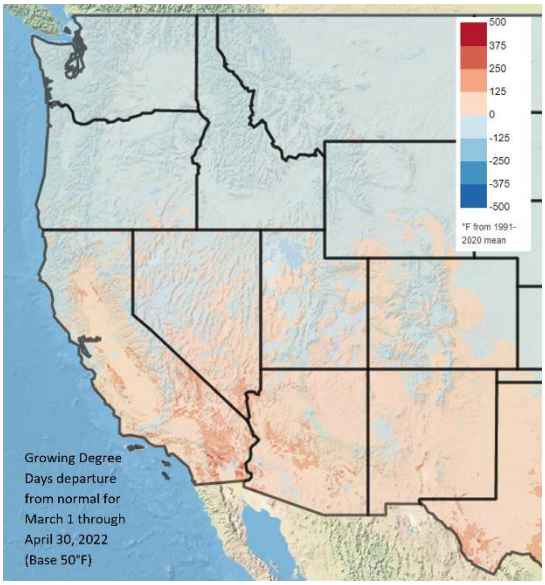

Figure 3 – Western US March through April 2022 growing degree-days (image from Climate Impacts Research Consortium, University of Idaho).

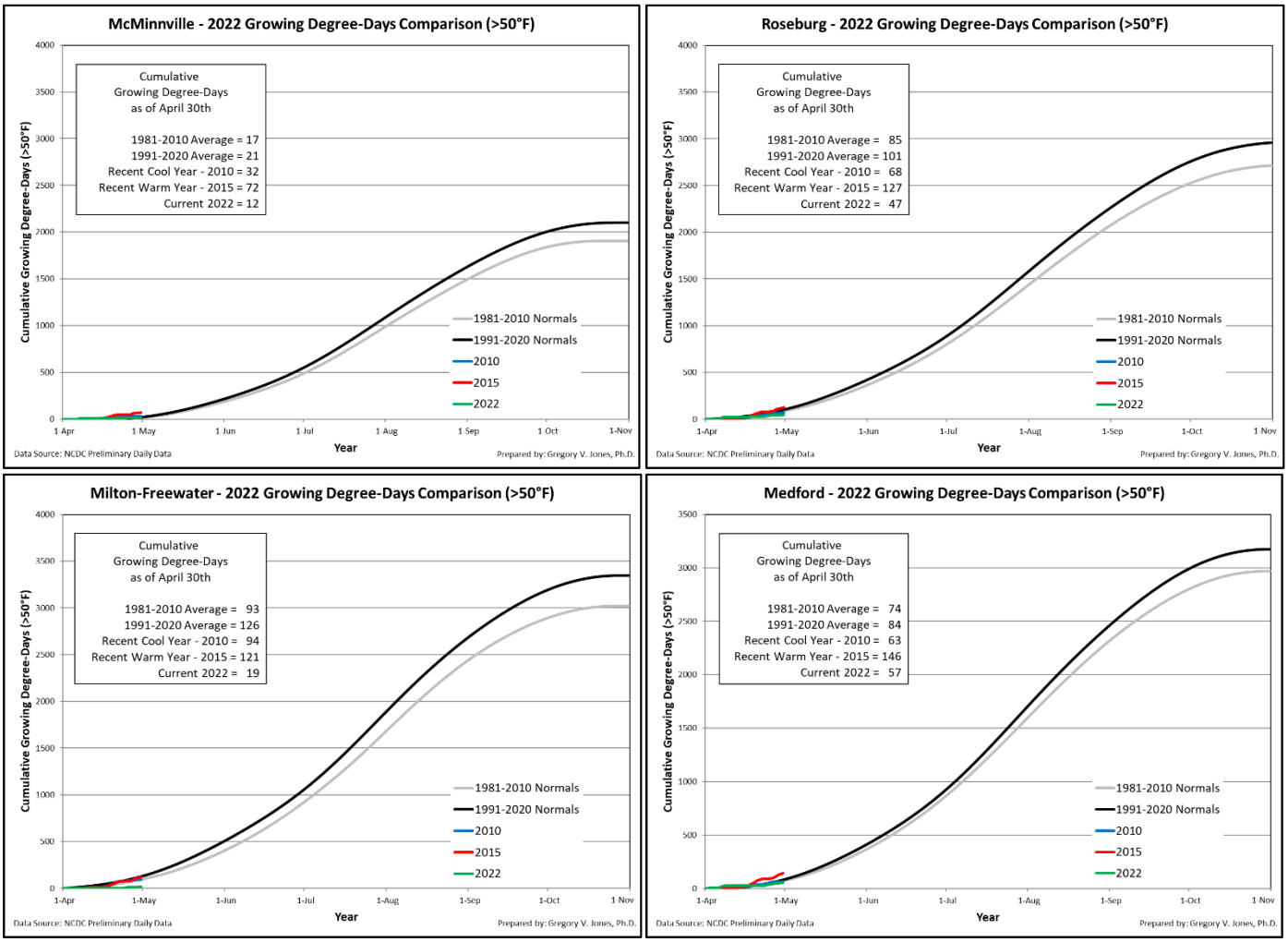

Figure 4 – Cumulative growing degree-days (base 50°F, no upper cut-off) for McMinnville, Roseburg, Milton-Freewater, and Medford, Oregon. Comparisons between the current year (2022) and a recent cool year (2010), a recent warm year (2015), and both the 1981-2010 and 1991-2020 climate normals are shown (NCDC preliminary daily data).

Drought Watch – With the cool April came welcomed precipitation, from the Bay Area north into Canada, many regions added significant rains and mountain snow (Figure 1). While not completely removing drought concerns, portions of

northern Oregon and western Washington saw considerable improvement. Unfortunately, much of the west is still experiencing very dry conditions with over 90% of the region continuing in some level of drought (Figure 5) while the most extreme drought conditions (extreme and exceptional) have risen to 37% of the west today. Drought zones also continue to extend across the Rockies, portions of the Plains, and most of Texas. The seasonal drought outlook (Figure 5, right panel) continues to show both short and long-term drought issues for much of the west. However, portions of western Washington, northwest Oregon, northern Idaho, and western Montana have been removed from the outlook. In addition, the outlook points to drought improvement and or removal for areas of the northern and central Plains along with the desert southwest where monsoon rains are anticipated (Figure 5). The easter half of the country appears to be moving into summer largely free from drought.

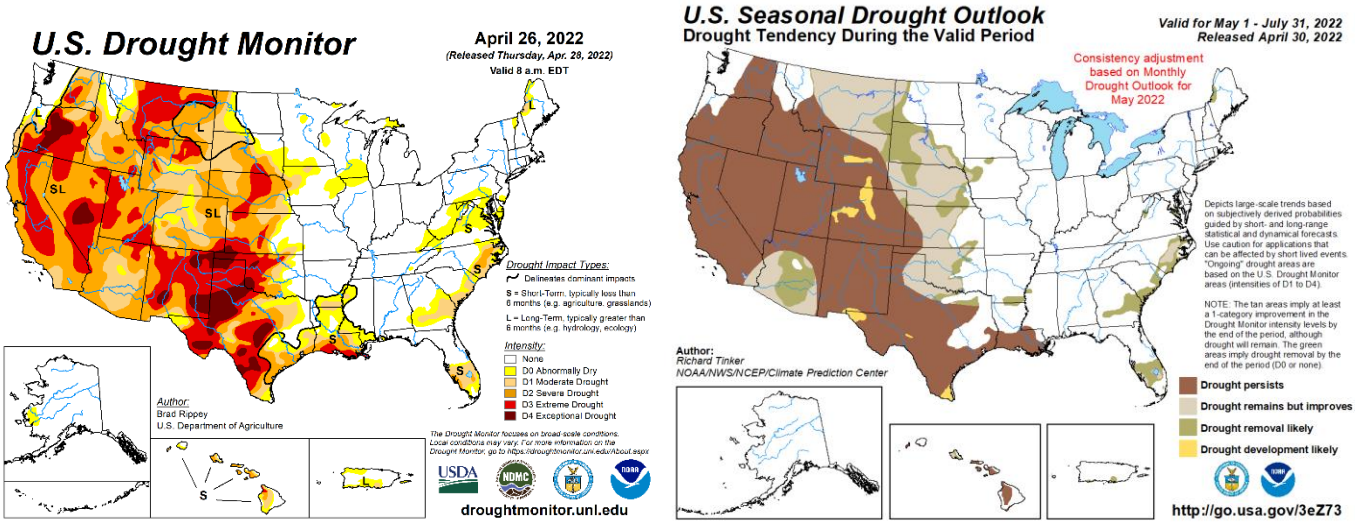

Figure 5 – Current US Drought Monitor and seasonal drought outlook.

ENSO Watch – There was some anticipation over the last couple of months that the current La Niña would start to wane by now, however tropical Pacific SSTs in the central-eastern equatorial Pacific have remained below average and even strengthened slightly. These conditions mean that La Niña is still with us (Figure 6), and the Climate Prediction Center (CPC) is continuing the La Niña Advisory into May and the early summer. Numerous other oceanic and atmospheric variables are consistent with the observed La Niña conditions and most models continue to predict SSTs remaining below average during the next month or so, remaining a moderate to weak La Niña before returning to ENSO-neutral levels during the summer. The official outlook from numerous agencies confirms this forecast with the outlook calling for moderate to weak La Niña to continue, although the two main forecast methods vary when it might dissipate or even reemerge into the fall. Seasonal model forecasts continue to be influenced by La Niña conditions, pointing to the PNW likely seeing a cool/wet May and early summer, while California is likely to see near average to slightly below average precipitation and slightly warmer temperatures during this time with the entire western US transitioning to closer to average or warmer than average temperatures and dry to near average precipitation (see the 90-day forecast below).

North Pacific Watch – Strong negative values are still being observed in the Pacific Decadal Oscillation (PDO), with very warm water out over the central to western North Pacific and cooler SSTs in the Gulf of Alaska and south along the western US (Figure 7). The strength of the PDO, along with continued La Niña conditions in the Tropics, has likely had a strong influence on our very cold and moderately wet April (see above) and will likely continue to influence the 90-day forecast into summer (see below).

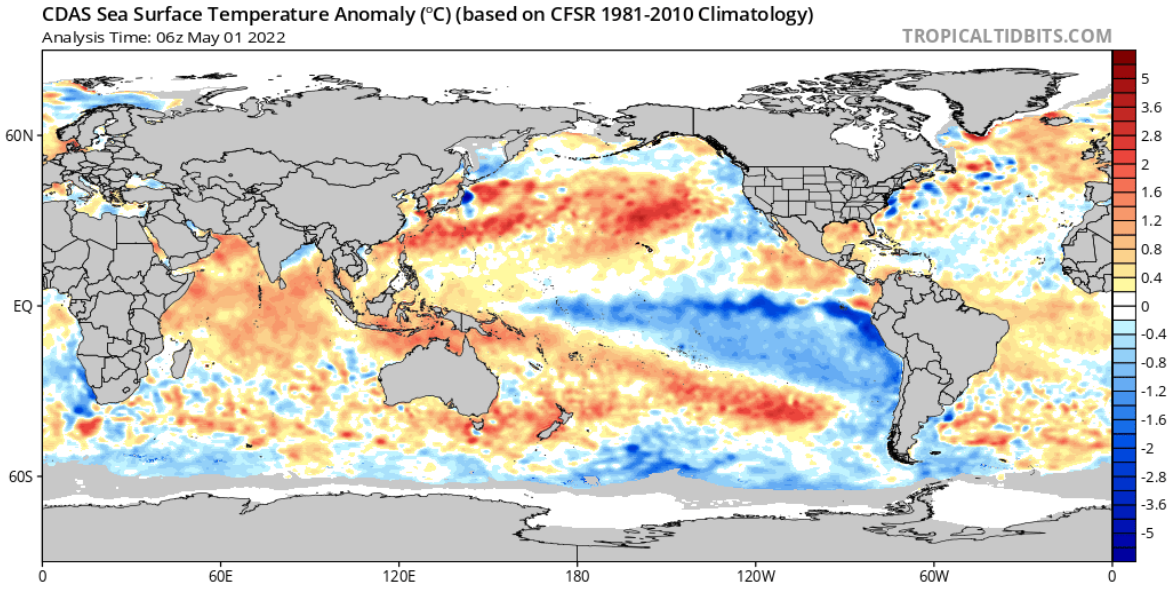

Figure 6– Global sea surface temperatures (°C) for the period ending May 1, 2022 (image from Tropicaltibits.com).

Forecast Periods:

Next 5 Days: After a ridge bringing the warmest days in a few weeks, the relatively cool pattern continues with temperatures trending lower through the weekend. Precipitation will be off and on during this time with frontal passages bringing moderate chances from British Columbia south into northern California but mostly just cloudy and cooler conditions from the Bay Area southward. Also turning windy for most west side locations.

6-10 Day (valid May 8-12): Unseasonably cool conditions are likely to continue for most of the western US during the first ten days of the month as the circulation pattern favors troughs of low pressure over the region. While the west is likely to be cooler than average, the eastern US will likely see very warm conditions from Texas northward in the Great Lakes while the mid-Atlantic is forecast to see below-average temperatures. Precipitation during this period is likely to be near average for most of the west, with only central California forecast to be below average. The middle of the country from the Plains across to the western Great Lakes is forecast to see above-average precipitation during this period while the east coast is likely to be on the dry side.

8-14 Day (valid May 10-16): A warm-up and dry-down appears likely into mid-month for the western US. Temperatures are forecast to be near average in the PNW to above-average throughout California. From the desert southwest into the Rockies and across the northern Plains, temperatures are forecast to be below average while the rest of the eastern US is more likely to see warmer than average temperatures. Dry conditions are likely across most of the west, except in the Rockies where thunderstorms are expected. North to south, the Plains are forecast to see above-average rainfall while the southeast will likely be closer to average and New England slightly below average.

30 Day (valid May 1-31): The cool start to the month, followed by likely near average temperatures for the rest of May is expected to leave the PNW across to the Great Lakes below average (Figure 7). A wide swath of the middle of the country is forecast to be closer to average, giving way to the southern tier of states from the desert southwest to the mid-Atlantic likely seeing above average temperatures. In terms of precipitation, the month of May appears to continue the wet PNW and drier conditions south into California. The forecast calls for a wetter than average month from the PNW across to the Great Lakes and extending south into the southern Plains. An NW to SE zone from northern California to Texas is forecast to see a drier than average month, while southern California and the southwest will likely be closer to average (Figure 7). From the Mississippi River valley east, the country is forecast to have equal chances of seeing slightly above to slightly below-average precipitation for the month of May.

90 Day (valid May-June-July): The 90-day outlook moving into the first half of summer is hinting at warmer than average temperatures for much of the country with the bullseye being over the Four Corners region (Figure 7). The coastal zones from Washington to southern California are given an equal chance of being above or below, hinting at more normal coastal zone temperatures which would make sense with the cooler coast waters seen in Figure 6. As we head into the dry season in the west, the seasonal outlook for the next 90 days shows that a sizable portion of the western US from the PNW across the Rockies and into the Plains will likely see below-average rainfall for this time of year. For central to southern California and into the southwest, anticipated monsoon rains will likely increase the region's chance to see average to slightly above average precipitation (Figure 7). Moving out of the Plains, the eastern portion of the country is largely anticipated to be near average while Florida and the Ohio River valley to the mid-Atlantic are likely to see above-average precipitation over the next 90 days.

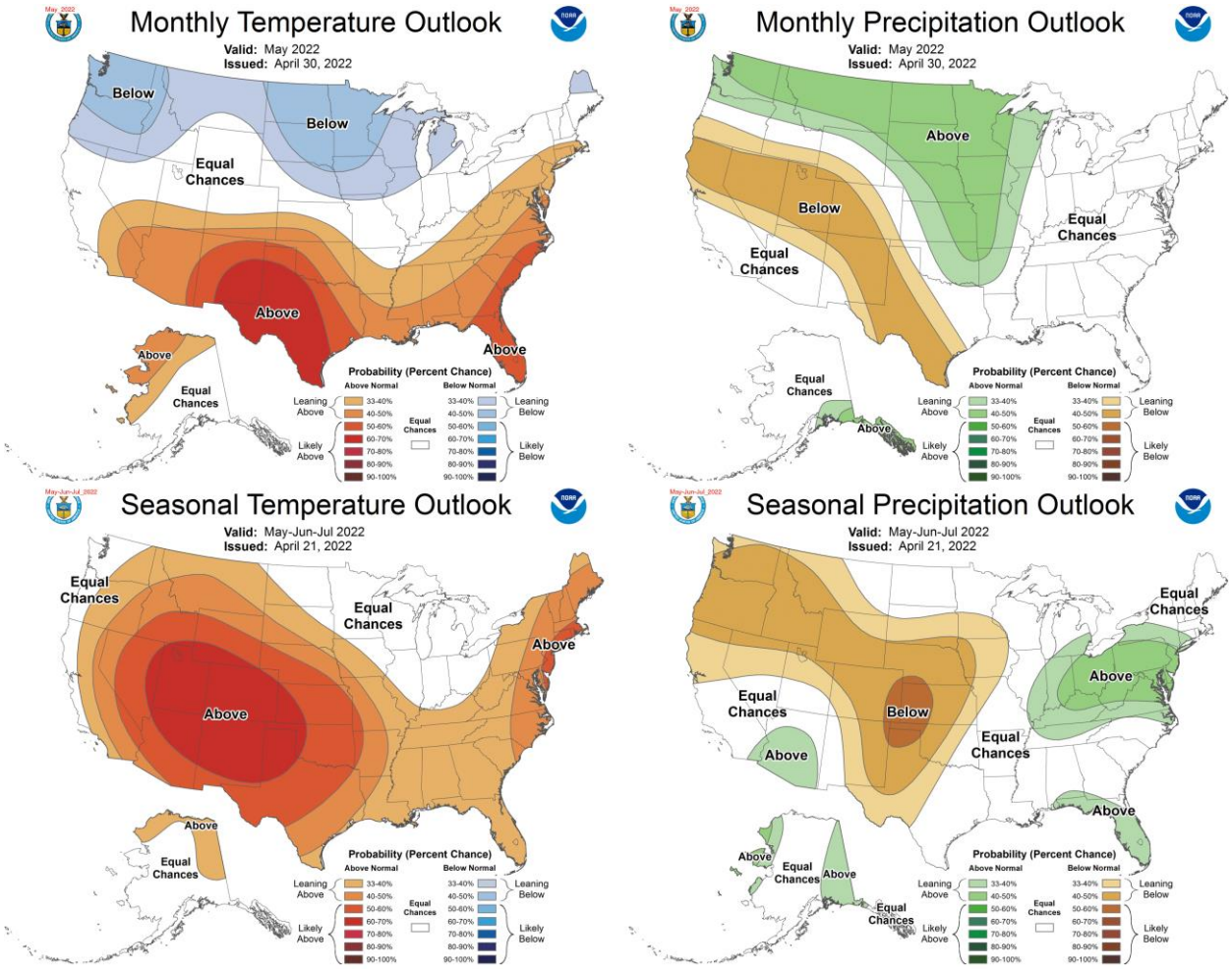

Figure 7 – Temperature (left panel) and precipitation (right panel) outlooks for the month of May (top panel) and May, June, and July (bottom panel) (Climate Prediction Center, climate.gov).

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

Abacela®
AN ICON OF INNOVATION EST. 1995