National Significant Wildland Fire Potential Outlook

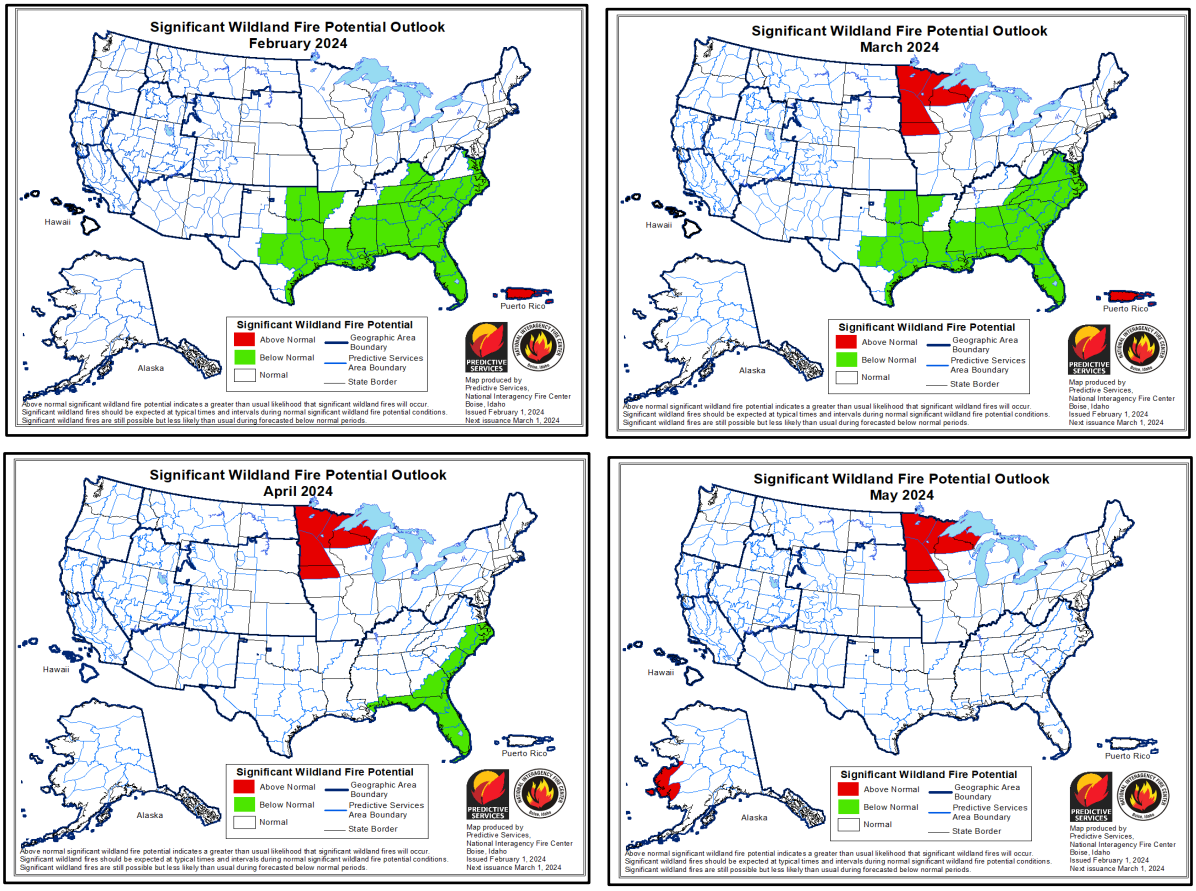
Predictive Services
National Interagency Fire Center

Issued: February 1, 2024
Next Issuance: March 1, 2024

Outlook Period – February through May 2024

Executive Summary

The significant wildland fire potential forecasts included in this outlook represent the cumulative forecasts of the ten Geographic Area Predictive Services units and the National Predictive Services unit.



Fire activity remained at very low levels through January across the US. A limited number of large fires burned briefly across the country, mainly in the Southern Area. Year-to-date annual acres burned for the US in 2024 is well below the 10-year average at just over 20%, with a below average number of fires as well, at 67%.

Precipitation across the CONUS varied, especially across the West, while much of the eastern US received above normal precipitation. Above normal precipitation was widespread from the central and southern Plains to the East Coast, while the northern Plains and western Great Lakes received below normal precipitation. Across the West, precipitation was generally above normal in the Northwest and below normal in the northern Rockies, with a mosaic of above and below normal elsewhere. Hawai'i had variable anomalies, with above normal precipitation focused on Maui and the west side of the Big Island, while the east side of the Big Island was drier than normal. Temperatures were below normal from the northern Rockies into much of the Plains and

Lower Mississippi Valley, while above normal temperatures were most widespread in the Great Lakes and Northeast. Extreme to exceptional drought persists in portions of Louisiana, Mississippi, and New Mexico, although the overall area of exceptional drought continues to slowly decrease, as does the area of extreme drought. More widespread drought improvement occurred from the Lower and Mid-Mississippi Valley into the southern Appalachians, where some areas were removed from drought. However, drought developed or intensified across portions of the northern Rockies.

Climate Prediction Center and Predictive Services January outlooks depict above normal temperatures are likely for much of the northern half of the US and Alaska, while temperatures likely to be near to below normal across the Southwest, southern Plains, and Southeast. Precipitation is likely to be above normal across much of southern California into the Lower Colorado River Valley and from the central and southern Plains into the Southeast into early spring. Precipitation is most likely to be above normal across southern Georgia into Florida. Meanwhile, below normal precipitation is likely across the Northwest and northern Rockies, as well as portions of the Great Lakes into the Ohio Valley. The temperature and precipitation forecasts are consistent with a mature El Niño.

Above normal significant fire potential is forecast for Puerto Rico and the US Virgin Islands for February and March. Southern Area is forecast to have below normal significant fire potential across much of central and eastern Oklahoma and Texas eastward into much of the Carolinas and southeast Virginia, expanding to include all of Virginia as well in March. Below normal significant fire potential will continue across much of the northeast Gulf Coast, Florida, and Southeast Coast in April before returning to normal potential in May. Portions of the Upper Midwest are forecast to have above normal potential March through May, with above normal potential also forecast for portions of southwest Alaska in May. Areas of the US not mentioned thus far will have normal significant fire potential February through May.

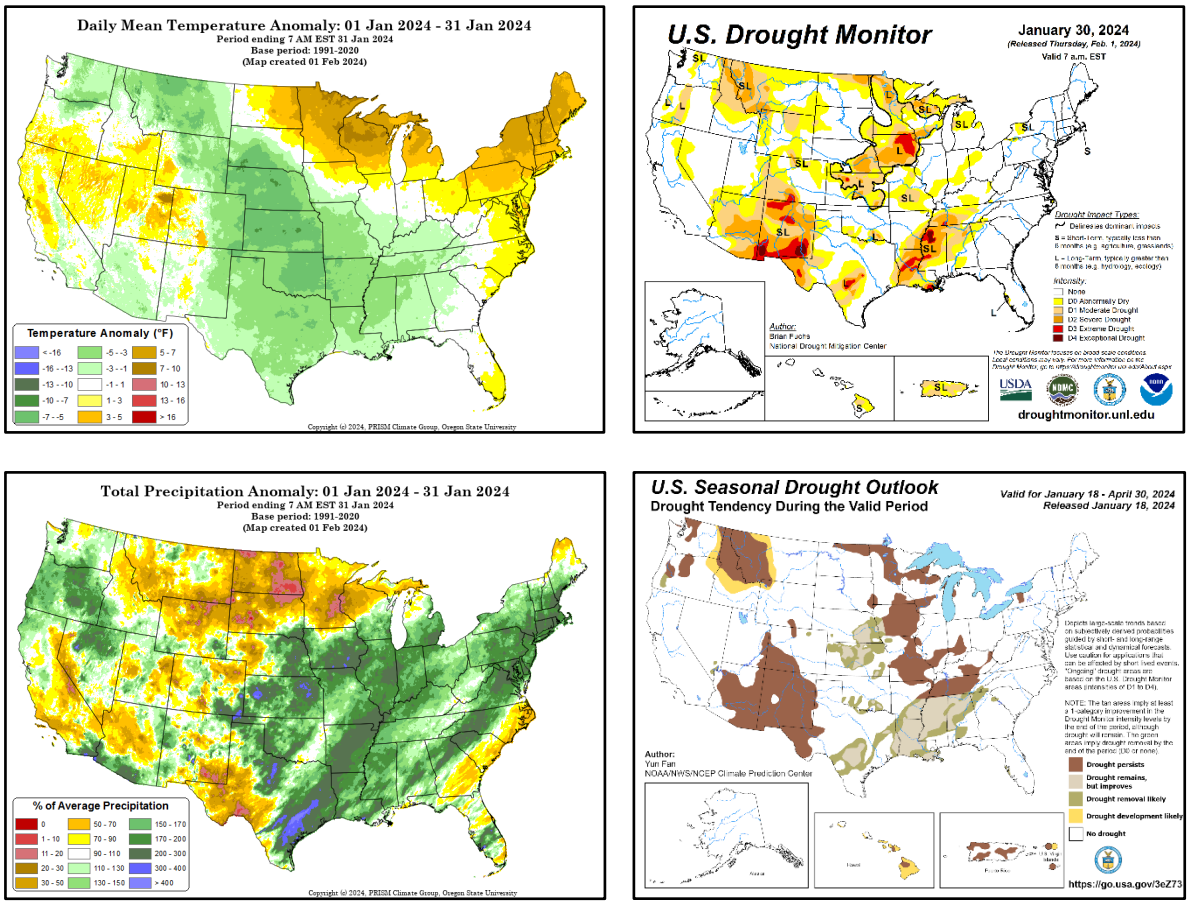
Past Weather and Drought

Temperatures were above normal across the Great Lakes into the Northeast and Mid-Atlantic for January, while temperatures were below normal from the Continental Divide into much of the Plains and Lower to Mid-Mississippi Valley. However, a late January warm spell across the northern Plains into the Great Lakes resulted in temperature anomalies up to 30 degrees above normal. Temperatures in the West were mixed, but below normal in Arizona and near the Canadian border to above normal in much of the Great basin into the California Central Valley. Temperatures in Alaska were above normal on the west coast to below normal across the central and eastern Interior, while Hawai'i was near to above normal. Above normal precipitation was recorded from the central and southern Plains through much of the Mississippi Valley and Appalachians to the to the East Coast, but slightly below normal precipitation was recorded along the Southeast Coast. Below normal precipitation fell across the northern Rockies into the northern Plains and western Great Lakes. Precipitation anomalies across the West were mixed, with above normal precipitation centered over Oregon, with the greatest concentration of below normal precipitation from the Sierra into southern California and central Arizona.

January started dry in the West, but a series of atmospheric rivers impacted the West Coast in the middle of the month centered on Oregon. Very cold air also moved into the northern half of the West with significant low elevation snow across the northern Intermountain West and an ice storm in the Willamette Valley January 18-19. This was followed by a significant warm-up at the end of the month, with numerous daily record high temperatures set across the northern Intermountain West. Snowpack continues to lag overall across the West, with most basins reporting 50-80% of normal as of January 30. However, the series of atmospheric rivers and cold temperatures in the middle of the month have resulted in near normal snowpack across portions of the northern Great Basin into eastern Oregon, with near normal snowpack in portions of the southern Rockies as well.

Strong cold fronts the second week of January brought extreme cold to much of the Plains to the East Coast through the middle of the month, with snow falling across portions of Oklahoma, Texas, Arkansas, Tennessee, and Kentucky. A strong storm then moved through the eastern half of the country at the end of the extreme cold January 21-23, with a significant ice storm for portions of Oklahoma and Arkansas into the Great Lakes and heavy rain to the Lower Mississippi Valley and Deep South. Cold fronts continued to bring heavy rain to eastern Oklahoma and Texas into the Tennessee Valley and Deep South through the end of the month. The Hawai'ian Islands had several cold fronts move through during January with periods of precipitation, heaviest across Maui, and strong southwesterly winds as well. Alaska was very cold the latter half of January for the central and eastern Interior into south-central Alaska. Snow also fell across these areas as well at times during the month, focused on south-central Alaska, where Anchorage has recorded over 104 inches of snow so far this winter, a record through January.

Drought improved in portions much of the Lower Mississippi Valley into the southern Appalachians and Lower Ohio Valley, with drought ending across portions of the southern Appalachians. Drought also improved across portions of the Northwest, Texas, Oklahoma, Kansas, Nebraska, and Iowa. However, drought worsened in the northern Rockies, particularly across north Idaho and western Montana, while drought persisted across portions of the northern Plains, and much of the Southwest. California remains drought free, and drought has improved across much of Hawai'i but persists on portions of Maui and the Big Island. Drought has developed and intensified across much of Puerto Rico and the US Virgin Islands as well. Drought is forecast to continue to improve across much of the Lower Mississippi Valley, Deep South, and central and southern Plains, but drought development is likely across portions of the northern Rockies and the southern half of the Hawai'i Islands.

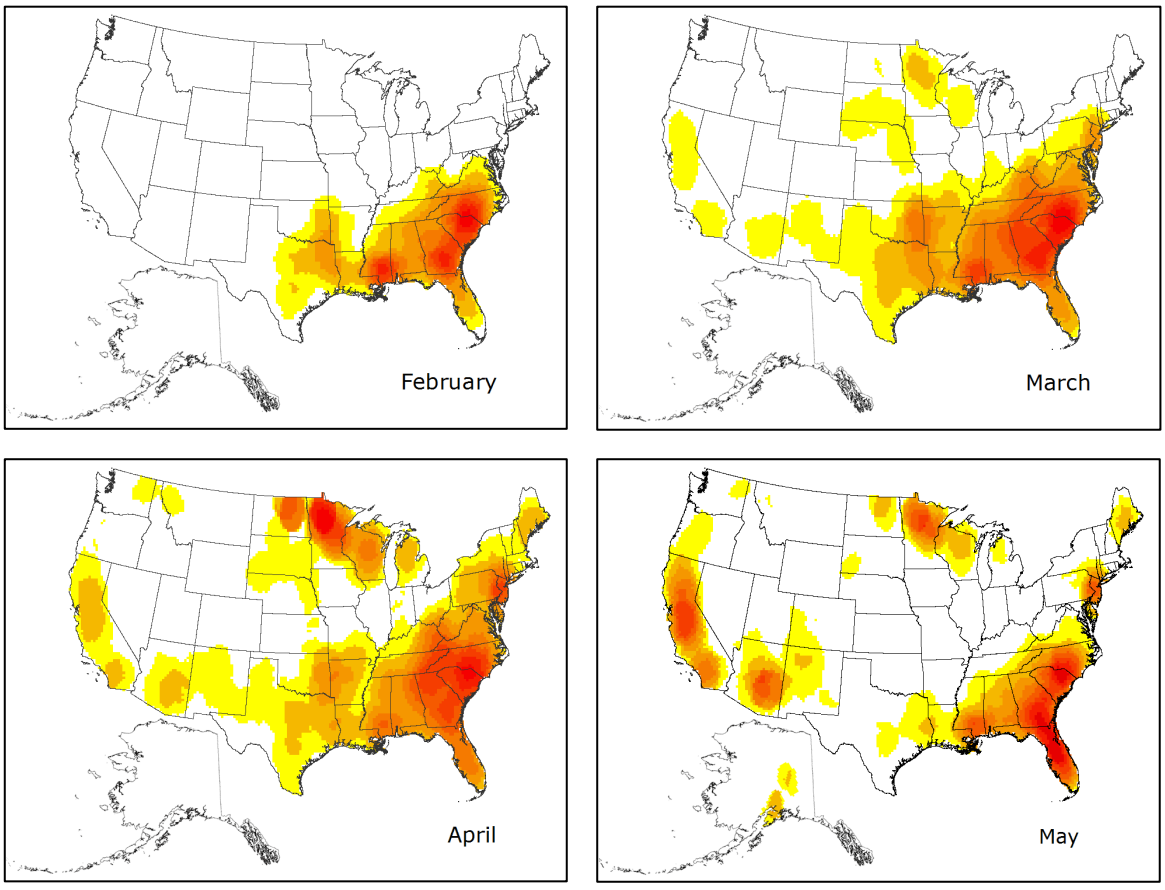


Left: Departure from Normal Temperature (top) and Percent of Normal Precipitation (bottom) *(from PRISM Climate Group, Oregon State University).* **Right: U.S. Drought Monitor (top) and Drought Outlook (bottom)** *(from National Drought Mitigation Center and the Climate Prediction Center).*

Weather and Climate Outlooks

El Niño continues in the equatorial Pacific Ocean, with the warmest sea surface temperature (SST) anomalies migrating from the eastern Pacific to the central Pacific Ocean during the past month. The Madden Julian Oscillation (MJO) has been unusually strong for an El Niño the past month as well. El Niño has also been weakening during January, with current forecast guidance showing a rapid weakening of El Niño into spring. The Climate Prediction Center (CPC) forecasts El Niño will weaken rapidly into early spring, with a 73% chance of El Niño-Southern Oscillation (ENSO) neutral conditions for the April – June period. A lack of previous analogs exists due to this El Niño occurring coincident with other teleconnection patterns that do not normally happen. The MJO, Pacific Decadal Oscillation, Pacific-North American Pattern, and Arctic Oscillation are likely to influence weather and climate during the outlook period, but El Niño will be the main driver.

Geographic Area Forecasts



Normal fire season progression across the contiguous U.S. and Alaska shown by monthly fire density (number of fires per unit area). Fire size and fire severity cannot be inferred from this analysis. (Based on 1999-2010 FPA Data)

Alaska

Typical wildfire potential is expected for Alaska from February through April. Potential will also be typical for most of Alaska in May, except for the Yukon-Kuskokwim Delta, where wildfire potential will be above normal. Wildfire behavior is typically minimal through March as the winter snowpack prevents significant wildfire activity. The season's first wildfires will likely break out in April at lower elevations in the Interior as the snowpack begins melting. All areas will become free of snow in May and Alaska's wildfire season will begin.

No areas of Alaska are in drought status. Interior, south-central, and southeast Alaska have established a respectable snowpack by the end of January. The snowpack over southwest Alaska is slightly lower than normal for mid-winter.

Alaska is out of fire season, and no wildfires are being tracked as of late January. Fuels across the state are unburnable and are expected to remain so through the end of March. The snowpack will begin melting in April, especially at lower elevations across the Interior. The absence of snow will allow dead surface fuels to dry, but subsurface duff layers will remain comparatively cool and wet through the end of April. The snowpack across all burnable elevations will melt in May, and the subsurface fuels will begin drying and warming.

The prominent El Niño now in place suggests a tendency for warm weather through the second half of winter for the entire state. The signal regarding precipitation is less clear. The vital factor to watch over the coming months is the phase of precipitation, especially over southwest Alaska. If the proportion of precipitation falling as rain is unusually high, an early start to the 2024 wildfire season will be possible even if the overall amount of precipitation received through the winter finishes at or above normal.

No meaningful wildfire activity is expected through March. Small local fires are possible in areas with minimal or no snowpack, such areas are typically along the coastline in western and southern Alaska. The opportunity for more meaningful wildfire activity begins in April as the snowpack begins to melt. Any fires that break out in April will be wind-driven surface fires, as the deeper subsurface fuels will still be too cold and wet to contribute to wildfire activity. The window for significant wildfire potential opens in May over southwest Alaska, provided the current trend for a below-normal snowpack persists in that area.

Northwest

The Northwest Geographic Area significant fire potential is expected to remain normal through May (minimal potential).

Precipitation was heavier than normal for almost all of Oregon and at or above normal for limited sections of Washington. Temperatures were below average for the geographic area except for a few sections of southern Oregon. A series of cold and wet weather systems arriving in the middle of the month radically shifted the previously observed warm and dry trend.

Snow accumulation jumped upward rapidly for Oregon in mid-January with the arrival of cold and wet weather systems. Most of Oregon’s snow reporting basins are 85% to 116% of seasonal normal for late January. Washington, however, accumulated less snow in January. Snowpack remains well below seasonal normal for all its reporting basins except the southern Washington Cascades.

Areas of drought have shrunk slightly over both Oregon and Washington since early December, but the north Washington Cascades, far eastern Washington, sections of the Oregon Cascades, and central Oregon continue to include areas of moderate drought to severe drought.

Fuels overall continue to be too moist to support noteworthy risk of significant fires in the Northwest Geographic Area. There continues to be a lack of substantial snowpack across much of the Pacific Northwest, most notably the Olympic Peninsula and the Washington Cascades. The Oregon Cascades recently received multiple rounds of moisture that brought many fire danger and fuel indices back to near average levels for the time of year. East of the Cascades cured low elevation rangeland fuels may exhibit increased potential rates of spread when aligned with strong winds. Fire activity continued to be minimal in January. Prescribed fire activity continued as conditions allowed, mainly east of the Cascades.

NOAA's outlooks for February suggest warmer than normal temperatures for the Pacific Northwest with no clear anomaly for precipitation foreseen. For March through May, outlooks continue to suggest that temperatures will generally be warmer than typical. For rainfall and snowfall, outlooks are less certain but suggest lower than normal accumulation of rain and snow for Washington and northern Oregon. For southern Oregon no clear anomaly is anticipated.

Normal (i.e., low) significant fire risk is expected through May. Poor snow accumulation at low elevations, mainly in Washington, could produce an earlier start to this year's fire activity, particularly from the Cascades westward. Above normal potential may develop earlier than typical depending on remaining winter month snowpack development and spring rainfall.

Northern California and Hawai'i

Significant fire potential is projected to be normal from February through May. From February through May all PSAs average less than one large fire per month. Hawaii's significant fire potential is forecast to be normal February through May.

January was an unsettled weather month with extended periods of significant moisture due to an active jet stream. Precipitation was reported somewhere across northern California on all but four days. Atmospheric river events occurred during four separate periods. Precipitation anomalies were generally above normal with a few small pockets of below normal across the far eastern portions of North Ops. Average temperatures were mixed with some areas above normal and others below normal. Lightning recorded during the month was below normal, less than 100 strikes, as the 2012-2022 January lightning strike average is a little over 200. A very weak drier northerly and easterly wind event occurred on January 5, and several stronger southerly wind days occurred but were accompanied with high humidity.

Dead fuel moistures were unusually moist across most of the area and not very flammable although readings were near normal, if not a little below normal, across northeast California and Far Eastside Predictive Service Areas (PSAs) during most of January. Shrub and canopy fuels were mostly dormant and less flammable, although chamise continued to hold onto some flammability. Herbaceous fuels experienced periods of freezing, especially during the first half of the month thus keeping green-up in check. Herbaceous fuels were mostly in a dormant state above 3000 feet. Moisture found within the snowpack was around 30 percent of normal on January 1 but by the January 26 was between 55 to 65 percent. Snow cover by the end of the month was generally relegated to sheltered elevations above 5000-6000 feet due to rain-on-snow and warmer atmospheric river impacts toward the end of the month. There were no drought designations for northern California.

Fire business was light during January with an average of less than one fire per day, and there were no lightning fire ignitions. The largest human start was 3 acres located near Kilaga, or north of Roseville, on the January 19. Pile burning was the main fire business activity during January.

There will be several complex oceanic-atmospheric teleconnections during the next four months that will alter the jet stream and storm track, leading to some outlook uncertainties. Precipitation for February and March is expected to be near to below normal although the jet stream should be more active during the earlier portion of February. The precipitation forecast for April and May is less certain, although timely moisture intrusions are likely and should keep the area devoid of critically dry dead fuels for an extended period of time. Temperature anomalies during the next two to three months should be near to above normal, while May could trend cooler depending on the El Nino/ENSO transition. There is no indication for unusual dry northerly or offshore wind event activity, so a near normal number of events is forecast. The significant herbaceous green-up or growth spurt should occur one to two weeks earlier than normal and occur during March and April across the lowlands. May will be a transition month for curing in the lowlands while herbaceous green-up moves further up the slopes. The snowpack is expected to be below normal

on April 1, when moisture found within the snowpack is generally at its peak. The most impactful snow cover should be found above the 6000-foot elevation level on April 1 and will be 2000 to 3000 feet higher compared to last year at that time. Despite some drier timeframes during the next four months, drought is not expected to develop, and critically dry alignments should be kept at a minimum, therefore normal significant fire potential has been designated for northern California from February through May.

Sea surface temperature (SSTs) anomalies surrounding the surrounding the Hawai'ian Islands were generally above normal. Average temperature anomalies observed during January were generally near to above normal, with the strongest positive anomaly found across the Big Island. Precipitation anomalies were mixed due to various impacts from cold frontal systems. Widespread moisture with areas of heavy rain and high elevation snow impacted the island chain January 7-9. Drought intensities and coverage improved, with drought generally relegated to portions of Maui and the Big Island by the end of the month. Gusty west to southwest winds occurred periodically throughout the month but did not provide critical drying.

El Niño conditions have peaked and will weaken, perhaps transitioning to a neutral state late during the outlook period. Average temperatures should be near to above normal during the outlook period, with precipitation likely near to below normal. Drought intensities will fluctuate with some residual drought likely continuing during most, if not all of the four-month period, especially impacting the Big Island. Green-up, however, is more noticeable across the leeside areas creating less critical landscapes of concern across the island chain. Timely significant moisture events, like what has been observed the past two months, should also continue despite the drier overall theme. Due to the mixed bag of ingredients, normal significant fire potential is projected for the island chain February through May, but drought and herbaceous curing trends will be monitored closely, especially if significant, timely moistening events don't occur. Leeside portions of the Big Island have the most concern.

Southern California

January was overall cooler and drier than average for most of the geographic area. Most areas ranged 1-3°F cooler than average except for the Central Valley, which was 1-3°F above average. The coldest anomalies were along the South Coast, Lower Deserts, and Eastern Deserts Predictive Services Areas (PSAs), while the warmest anomalies were in the Central Valley. Precipitation had a larger variance, though most areas remained below average. The driest anomalies occurred in the Northern Deserts PSA, with some areas receiving less than 5% of the average January precipitation for that area. However, there were other locations that were wetter than normal, with the Eastern Deserts PSA receiving over 200% of their average January precipitation into the upper deserts. Portions of the Central Mojave Desert and Kern County west of the Tehachapi Mountains also experienced a wetter than average January.

The latest US Drought Monitor shows zero areas in drought status across southern California. The current fuel loading pattern significantly favors the live fuel component as live fuel accounts for most of the current fuels. Live fuel moistures continue to remain above normal, and 1000-hr dead fuel moisture also remains above normal. It is likely live fuel moisture remains above normal for February and March and near normal for April and May. Forecast confidence is significantly lower for April and May due to the uncertainty given the weather pattern this winter does not represent a textbook El Niño pattern across southern California.

The current state of the El Niño Southern Oscillation (ENSO) is a transition between a traditional East Pacific El Niño and a Central Pacific El Niño Modoki as the core of the warmest waters in the equatorial Pacific is slowly propagating westward. Climate models suggest a transition in ENSO from the El Niño phase to an ENSO neutral phase as upwelling is projected to strengthen and thus sea surface temperatures (SSTs) in the equatorial Pacific cool. Given that the current wet season is not following the typical El Niño pattern combined with the likely phase change of ENSO, there is a high degree of uncertainty this forecast period, especially the second half of the

period. Live fuel moisture will likely remain above normal into April, given the persistent trends of above normal fuel combined with February and March being the wettest and third wettest months of the year climatologically.

Climate models suggest equal chances for above, near, and below normal temperature and precipitation anomalies for southern California during the February – May period. Given the aforementioned dynamics of this season not following the typical El Niño pattern combined with the likely phase change in ENSO, the solution of equal chances is plausible given the large variance in possible outcomes with these dynamics. Given the warmer than normal SST anomalies off the immediate California coast, the odds tilt in favor of a weaker than normal marine layer (i.e., less "May-June gloom") across southern California this spring. A weaker marine layer corresponds to ample sunshine and drier conditions due to more nights of poor overnight recoveries and lower daily minimum relative humidity.

Translating this to the upcoming fire season, if precipitation from February through May remains near-normal, then near-normal significant fire potential is likely by the end of the forecast period. If February through May continue the same moisture trend as October 2023 – January 2024, then above normal potential for significant fires becomes more likely by late spring.

Northern Rockies

Significant wildland fire potential in the Northern Rockies Geographic Area (NRGA) for February through May is expected to be normal. This period sees little fire activity in the NRGA except for fires associated with extreme wind events in the lee of the Continental Divide. While El Niño is expected to bring warmer and drier than normal conditions this winter, it is not expected to support a significant departure from normal fire activity. In addition, the likelihood is increasing that El Niño has already reached its peak, which may allow the pattern to switch and change the areas getting moisture by the end of this outlook period. While Climate Prediction Center forecasts do not show any areas of above normal moisture potential in the outlook, many long-range climate models have shown consistently wet signals in May. This is an important detail because May is a high moisture month for the region, and a wet May could reduce deficits accumulated over the drier months of February through April. In addition, an anomalously wet May could severely impact this year's prescribed burns, since many factors, including live fuel moistures, keep the bulk of the NRGA prescribed burning season confined to May.

Almost all of the NRGA observed well below normal mean temperatures for January. The exception was eastern North Dakota, which observed well above normal January temperatures. Much of the area observed slightly below normal precipitation amounts for the month. However, since January is normally not a very wet month, the magnitude of the anomaly was very small in most of the geographic area, with larger negative anomalies in north Idaho and western Montana where more precipitation is typically observed. Despite colder than normal temperatures keeping the potential evapotranspiration and vapor pressure deficit below normal, the lack of precipitation was still enough to continue the expansion of drought and abnormally dry conditions, with a one to two-class degradation across a large swath of the NRGA. As a result, all of western Montana and north Idaho are currently under moderate to severe drought, with abnormally dry conditions reaching across most of central and eastern Montana and North Dakota. The northeastern corner of North Dakota is also experiencing moderate to severe drought. The seasonal drought outlook shows that drought is likely to continue in northeast North Dakota and expand in western and central Montana.

As a result of warmer than normal conditions and large areas of below normal precipitation, snowpack is well below normal in all basins of the NRGA. Most basins are between 55% and 65% of normal snowpack, although two basins are below 50% of normal. A few individual stations are near or at normal snowpack west of the Continental Divide, but no stations are above normal. With little to no snow on the ground at lower elevations after this week's warm temperatures, rangeland fire concerns will return quickly in cured light fuels. In general, the highest Energy Release Components (ERCs) and lowest dead fuel moistures are in southeastern Montana,

where the snow cover melted first. Another consideration is grass fuel types are usually compacted by snow this time of year, making these fine fuels harder to burn. However, in areas with little snow accumulation, uncompacted grassy fuels are more readily available to burn during high wind and low humidity events. Persistent inversions are preventing rapid drying in the valleys and mid-slopes west of the Continental Divide, while most higher elevations are seeing at least some snow cover despite below normal snowpack levels. Over the month of January, no initial attack was recorded, and conditions generally prevented prescribed burning.

All PSAs are expected to have normal significant wildland fire potential February through May. Significant wildfire activity in north Idaho and northwest Montana is not favored climatologically in April and May. The seasonal forecast for February through April suggests warmer and drier than normal conditions, which could trigger an earlier onset of prescribed fire season. This may be especially important if the wetter than normal forecast for May manifests and impacts the ability to burn during that month, which is traditionally the focus of prescribed burning season. On the other hand, the continued drought signature, especially in north Idaho and northwest Montana, could result in drier than normal fuel conditions this spring and have impacts for prescribed burning. Managers should start watching trends in ERC, dead and live fuel moistures, and Buning Index earlier this season in preparation for a potentially earlier than normal prescribed fire season.

Great Basin

Fire activity remains low in the Great Basin, due to time of year with shorter daytime hours, fuels in dormancy, and occasional cold frontal passages bringing cooler temperatures, higher humidity, and precipitation, especially across the central areas of the Great Basin. Fire activity is expected to remain low and normal for the time of year through April, increasing in May, which would be normal. There may be a few upticks in fire potential on windy days in areas that have prolonged dryness and above normal grass crops in the lower elevations, depending on weather conditions. However, these instances would be localized and for a burning period or two.

Temperatures over the last 30 days have been near to just above normal, although January ended well above normal nearly areawide. A few cold fronts have moved through the geographic area and brought drops in temperatures and breezy winds for short periods to all areas. The northern half of Nevada into parts of southern Idaho, the higher terrain of Utah, and southwest Utah have seen above normal precipitation over the last 30 days, but all other areas have been below normal. The Great Basin is generally absent of drought, except for far southern Nevada, the Arizona Strip, and far eastern Utah where abnormally dry to moderate drought conditions continue. These areas will likely see some improvements through the winter as El Niño potentially brings more precipitation to the southern portion of the Great Basin.

Fuel moisture will continue to increase through the winter. We will continue to monitor the areas of eastern Utah, southern Idaho, and northern Nevada that have above normal fine fuel loading for windy conditions after prolonged dry periods that may drive fire potential up for a burning period or two, as grasses will be dormant. Fire activity remains low across the Great Basin, although prescribed burning activity continues over the southern half of the Great Basin.

Normal fire potential is expected through April, which is low for the Great Basin. Despite areas of above normal carry-over fuels in parts of northern Nevada and southern Idaho, the pattern of cold fronts moving through the Great Basin is expected to continue through the winter keeping fire potential low. The only areas to watch will be parts of eastern Utah, northern Nevada, and southern Idaho if prolonged dry periods occur are followed by strong winds. This may increase fire potential at times temporarily for a burning period or two. Fire activity should start picking up over the southern half of the region toward May, which would be normal. Otherwise, the focus over the next few months will be watching the shift in precipitation and temperatures associated with El Niño. The storm track is expected to shift south in February, with above normal precipitation potential over the southern half of the Great Basin. The Great Basin could be primed for significant fine fuel growth in the spring depending on the weather over the next few months.

However, the normal weather impacts that would occur from El Niño have been modified due to more dominant atmospheric oscillations, so the precipitation may not be as heavy as would normally occur with most El Niño years.

Southwest

Over the bulk of this past fall, precipitation was below normal overall with some above normal areas across the far southeast portions of the Southwest Area (SWA), while temperatures were above normal areawide, although a bit closer to normal across northwestern Arizona. During December, some wetter than normal areas occurred across northern and northeastern New Mexico and across southwestern Arizona, while northern and northwestern Arizona was below normal. Although December turned out to be milder than average with wetter than normal conditions across most of northern and northeastern New Mexico and far southwestern Arizona, the beginning of the new year has turned cooler than normal for many locations of the region despite an expected milder end to the month of January.

A shift in the equatorial pacific sea surface temperatures (SSTs) is beginning, which will likely play a substantial role in shaping the weather pattern for the rest of this winter through the upcoming spring. El Niño is starting to weaken and is expected to weaken, maybe even quickly, over the next couple months, possibly transitioning into weak La Niña territory by the late spring or summer months.

Thorough inspections of past years with a flip from an El Niño to near or into a La Niña in less than six months reveal a cool and wet pattern for the SWA due to a nearby jet stream well into the spring months. This year could see cooler temperatures well into April with strongly above normal precipitation for the SWA through March and perhaps lingering through April. It could be until late April into May before regular drier than normal periods arrive across the SWA. As a result, significant fire potential is expected to remain near normal areawide through May. It's possible that some areas of below normal significant fire potential could result by mid to late spring across at least some sections of the SWA, although confidence is not high enough at present due to some uncertainty in how quick the transition out of El Niño will occur this year.

Further out for the summer monsoon season, there is some potential for a slightly delayed onset this year, with an eventual focus along and east of the Divide. Drier than normal conditions could occur across western and southwestern sections of Arizona into the adjacent deserts of southern California and the southern Great Basin. Confidence is not high at present in this scenario as much of it will depend, again, on how quick the transition out of El Niño occurs this spring.

Rocky Mountain

The Rocky Mountain Area (RMA) continues to expect normal fire potential into late spring. The El Niño pattern has begun to weaken and is expected to dissipate by late spring. Temperatures in the last month broke the trend of well above normal values, with much of the area seeing below normal temperatures. Precipitation was more mixed, with much of the central Plains well above normal, while farther west there were areas of below normal precipitation. Kansas and Nebraska as well as northern Wyoming saw improvement in their drought, while much of the rest of the geographic area did not.

The weather over the last month shifted away from the typical El Niño pattern. Far northeast South Dakota and a few of the valleys in western and southern Colorado that were sheltered from the cold air were just a few degrees above normal. Much of the RMA, however, was 5 degrees or more below normal. At the coldest there were many stations east of the Continental Divide that saw temperatures 20 to 40 degrees below zero. Precipitation was a little more mixed for the month. Kansas, eastern Nebraska, and southeastern South Dakota saw well above normal amounts. The western mountains of Colorado and Wyoming were another exception coming in just above normal. The rest of the area was below normal, generally 50 to 90 percent. This snow

helped to close the gap in snowpack that had developed with the El Niño conditions so far this winter. Drought conditions largely remained similar, however the precipitation across Kansas saw much of the extreme drought removed, and all the exceptional drought conditions in Nebraska are gone. The severe drought in southwestern Colorado also decreased in coverage through the month.

There are still areas that have above average fuel loading from the wet spring and summer, mainly in eastern Colorado and Wyoming into the Central Plains. For much of the Central Plains the snowpack has laid these fuels down, reducing the risk they pose.

With frigid and wetter conditions, initial attack activity remained minimal. Most fires were less than an acre in size.

El Niño has peaked and will be weakening through spring. By April, conditions may transition into the neutral phase, with ENSO neutral conditions likely by the late spring. Temperatures will continue to trend toward normal as El Niño weakens, however by the middle of spring, temperatures will start to trend above normal again. Precipitation will be trending towards normal conditions as well. Going into May, conditions may start to trend back toward below normal.

Eastern Area

Normal fire potential is forecast across the Eastern Area through February, with significant fire activity and above normal wildfire potential increasing in March across the Upper Mississippi Valley and the north-central Great Lakes, continuing into April and May. Fourteen to 30-day negative precipitation anomalies were indicated across the much of Minnesota, northwestern Wisconsin, and the Upper Peninsula of Michigan at the end of January. Longer term drought remained in place across portions of the Mississippi and Lower Ohio Valleys toward the end of January.

The El Niño-Southern Oscillation (ENSO) is forecast to transition from an El Niño to an ENSO neutral sea surface temperature (SST) regime this spring, with La Niña conditions likely for the summer. Other SST regimes also contribute to global weather patterns adding to some uncertainty in long-term weather forecasts. With El Niño conditions expected to persist through spring, north-central portions of the contiguous US will likely continue to experience above normal temperatures. Precipitation trends are more uncertain, but drier than normal conditions across the Upper Mississippi Valley and north-central Great Lakes may persist into the spring.

The Predictive Services precipitation outlooks forecast below normal precipitation across much of the Great Lakes and Ohio Valley in February and persisting over the Ohio Valley in March. Drier than normal conditions are expected over the central Great Lakes as well as the Mississippi Valley heading into April. Wetter than normal conditions are projected across the eastern tier of New England in February and April. NOAA’s Climate Prediction Center’s precipitation outlook for February through April indicates drier than normal conditions are likely across the eastern Great Lakes and Ohio Valley. According to the Predictive Services temperature outlooks, above normal temperatures are forecast to expand across the Eastern Area March into May. The Climate Prediction Center forecasts above normal temperatures across the northern two-thirds of the Eastern Area February into April.

Normal fire potential is forecast for the Eastern Area through February, with potential for an early fire season within the western tier beginning in March. With continued above normal temperatures combined with well below normal winter snowpack and rapid snowpack melting likely, it is likely that exposed surface fuels and tall grasses that were not compressed under snow will become available to burn by March. Dry wind events will be a big determinant in fire potential during the outlook period. Early green up or lack of curing of grasses from a warm and predominantly snow free fall and early winter may temper the fire potential from an early snow melt in some areas.

Long term drought as shown in the US Drought Monitor continues to exist in the western tier but is not expected to become a driving factor in this outlook period.

Longer term drought and negative soil moisture anomalies remained in place across much of the Mississippi and Lower Ohio Valleys towards the end of January. Negative precipitation and snow depth anomalies were in place across the Upper Mississippi Valley and the north-central Great Lakes. If these areas continue to experience below normal precipitation and above normal temperature trends continue into spring resulting in below average snowpack and precipitation, these areas are likely to experience periods of above normal fire potential heading into the spring season.

Southern Area

Episodes of heavy precipitation have continued to bring drought relief to the Southern Area over the past 30 to 60 days. While the lagging US Drought Monitor has not fully removed drought left from last summer and fall in parts of the Mississippi Valley, Keetch-Byram Drought Index (KBDI) anomalies have returned to or even below seasonal norms in the region due to flooding rainfall in late January. National Aeronautics and Space Administration (NASA) integrated soil moisture changes the past three months show widespread recharging of soils in central and eastern portions of the geographic area, though moisture is lagging behind values observed during late January 2023 in the majority of the Mississippi Valley and portions of the Appalachians. This lines up well with the long-term composite drought indicator from the National Drought Mitigation Center (NDMC). Significant drought remains ongoing in parts of west Texas and the Hill Country, as well. Meanwhile, drought has been steadily expanding in the Caribbean over the past couple of months, where KBDIs are at least locally near the climatological maximum for January.

Florida and portions of the East Coast have been relatively drier in January than in December 2023, but 28-day-averaged streamflow is mostly near to above normal for this time of year, especially across the Piedmont and the southern half of the Florida Peninsula. These anomalously high water levels for winter should factor into the fire environment into early spring, even if wetter conditions do not materialize as expected. However, any persistent dryness across the coastal plain in Georgia and the Carolinas may need to be monitored given some pockets of less than 50% of normal rainfall during January.

Fuel loading in the High Plains and Rolling Plains of Texas and western Oklahoma, in addition to South Texas, may enhance the risk for wildfires if extended periods of dry, warm, and windy weather develop during the forecast period. The Texas A&M Forest Service estimates below normal grass loading from the Hill Country into portions of the Trans Pecos, owing to the long-term drought and abnormally dry growing seasons in 2023. Cool season grasses may respond to recent precipitation in some of these areas, however.

Because of wet conditions elsewhere in the South, herbaceous fuels could see lush growth once the growing season begins in earnest. Green-up is behind last year at this time, as is evident in the growing season index throughout the geographic area. Any lag in green-up brought on by wet, cool soils, snow cover, or periods of cooler temperatures could potentially delay or prolong the spring fire season in hardwood-dominant areas. Timing of green-up in grass- and hardwood-dominant areas is the main driver of decreasing risk later in spring.

February typically sees a steady increase in the risk for wildfires across the Southern Area as days become longer and warmer temperatures arrive, but it is historically the wettest month of the year over large parts of Mississippi, Alabama, Tennessee, and Georgia. Large fire climatology as compiled by the National Weather Service (NWS) indicates the greatest potential across Florida and along the Gulf Coast, with a notable increase in risk during the latter half of the month across much of Texas and Oklahoma, as well. March into the first half of April is generally the peak of spring fire season for most of the geographic area, including the Caribbean islands. By May, the climatology for large fires shrinks back to much of Florida and far southeast Georgia, in addition to the High Plains and Trans Pecos, largely due to the increase in lightning ignitions at the beginning of the rainy season and North American Monsoon, respectively.

The ongoing strong El Niño event is the primary basis for expected weather conditions through at least March, even as forecasts call for it to rapidly weaken heading into summer. Sea surface temperatures (SSTs) in the central and eastern tropical Pacific likely peaked at the end of December into early January, with a steady cooling trend noted recently. Water temperatures below the surface also indicate the pool of above normal heat content is being depleted. This event rivals the five strongest El Niños going back to 1950, but to date, falls just short of the historic Super El Niños of 2015-2016 and 1997-1998. Long-lived El Niños are rare, and all of the events in the past 30-40 years as strong as the current event have been followed by La Niña conditions no later than the following autumn.

El Niño correlates strongly to precipitation trends on seasonal timescales in the Southern Area, but other climate drivers that are less predictable can still have major, hard-to-predict impacts beyond a few weeks at a time. The Madden-Julian Oscillation (MJO) has had a strong influence on weather patterns recently, which is unusual during strong ENSO events. This may be due to the abnormally warm waters of the western Pacific, which is helping to fuel more convective activity farther west than would otherwise be expected. As El Niño fades later this spring, the MJO and other atmospheric and oceanic oscillations will potentially have even more of an impact on our weather for April and May, which makes precipitation and temperature patterns more difficult to predict this far in advance.

Present MJO forecasts on top of El Niño climatology may make for a rather interesting February and March in the Southern Area. Arctic air masses will largely be missing from the country to start February, but there are growing indications of another round of abnormally cold weather later in the month, which could last into at least the beginning of March. Model guidance and outlooks from both Predictive Services and NOAA show limited warmth in February and March, which may reduce evaporative demand and wildfire potential, even in areas that stay in drought. Long-range weather models are in growing agreement that an active weather pattern will continue for the Gulf Coast, with wetter conditions likely to return to the Florida Peninsula in February and March, as well. Atmospheric blocking may also come into play during the next couple of months. This has historically led to significant winter storms and developing Nor'easters impacting the Appalachians and East Coast in February and March. Heavy snow and ice storms could alter the fire environment dramatically for the rest of 2024, both in terms of compacting herbaceous fuels and by creating a fresh supply of heavy, dead fuels due to potential tree damage.

A sharp gradient in seasonal precipitation may occur in the Mid-Mississippi Valley through at least February and March, potentially setting up highly varying conditions during the spring wildfire season over a short distance. Confidence in precipitation trends is somewhat lower for the Rio Grande Valley, west Texas, and the adjacent Plains, but persisting or expanding drought cannot be ruled out. Conditions appear to favor worsening drought the next several months for much of Puerto Rico and the US Virgin Islands, even as a briefly wetter pattern starts off February. However, model guidance is increasingly supportive of an early onset to the rainy season for Puerto Rico and the Virgin Islands, which normally does not begin until May. This may be due at least in part to the unusually warm SSTs across the tropical Atlantic.

February is likely to feature below normal significant fire potential and limited prescribed burn windows in much of the Southern Area, due to the combination of wet soils or high water levels, a generally wetter than normal pattern, the potential for winter storms, frequent cloud cover, and fog, along with near to below normal temperatures. Confidence has only increased in this scenario due to the drought relief observed in January. Meanwhile, Puerto Rico and the US Virgin Islands can expect above normal significant fire potential due to worsening drought conditions. Wildfire activity has picked up in drier parts of Puerto Rico in the past few weeks, and hot temperatures should generally continue to allow for increasing KBDIs where significant showers do not occur.

March is also expected to be quieter than normal for most of the geographic area due to a continuation of cooler and wetter than normal conditions and above normal water levels in the wetlands. Below normal significant wildfire potential is forecast from eastern portions of the Plains into the eastern states, and this has the potential to expand throughout north-central parts of the geographic area on next month's update if February ends up wet or snowy across Tennessee and Kentucky. Some of the below normal potential in Texas is due to below normal grass loading,

mainly in the Hill Country. Above normal significant fire potential is forecast to continue for the Caribbean islands in March.

Conditions in April remain of lower confidence, but even with expectations for a weakening El Niño, its impacts may continue. As a result of what is likely to be an unusually wet end to winter and start to spring, above normal water levels in Florida and the coastal plain of Georgia, South Carolina and North Carolina will result in below normal significant wildfire potential there. If green-up is delayed in hardwood-dominant areas farther north, that could result in peak activity being skewed later into April than what typically occurs, especially for the Appalachians and Mid-Mississippi Valley, but green-up will inevitably occur due to the longer daylight hours after the equinox. Areas with above normal grass loading in Texas and Oklahoma may be candidates for above normal significant wildfire potential in April, but confidence is low in fire-effective weather occurring because of continued impacts from El Niño. Meanwhile, the previous outlook for above normal significant potential in Puerto Rico and the USVI no longer appears valid due to consistent forecast guidance showing the rainy season starting there in April.

May conditions are of low confidence, resulting in normal significant fire potential areawide. There are plenty of prior post-El-Niño analogs indicating the potential for rapid drought onset in the Southern Area, but it is too early to say where this might occur. If drought lingers or worsens in the High Plains and Trans Pecos, increasing thunderstorm activity could result in above normal significant fire potential there, especially in areas of near to above normal grass loading.

Outlook Objectives

The National Significant Wildland Fire Potential Outlook is intended as a decision support tool for wildland fire managers, providing an assessment of current weather and fuels conditions and how these will evolve in the next four months. The objective is to assist fire managers in making proactive decisions that will improve protection of life, property, and natural resources, increase fire fighter safety and effectiveness, and reduce firefighting costs.

For questions about this outlook, please contact the National Interagency Fire Center at (208) 387-5050 or contact your local Geographic Area Predictive Services unit.

Note: Additional Geographic Area assessments may be available at the specific GACC websites. The GACC websites can also be accessed through the NICC webpage at:
http://www.nifc.gov/nicc/predictive/outlooks/outlooks.htm