



National Significant Wildland Fire Potential Outlook

Predictive Services
National Interagency Fire Center

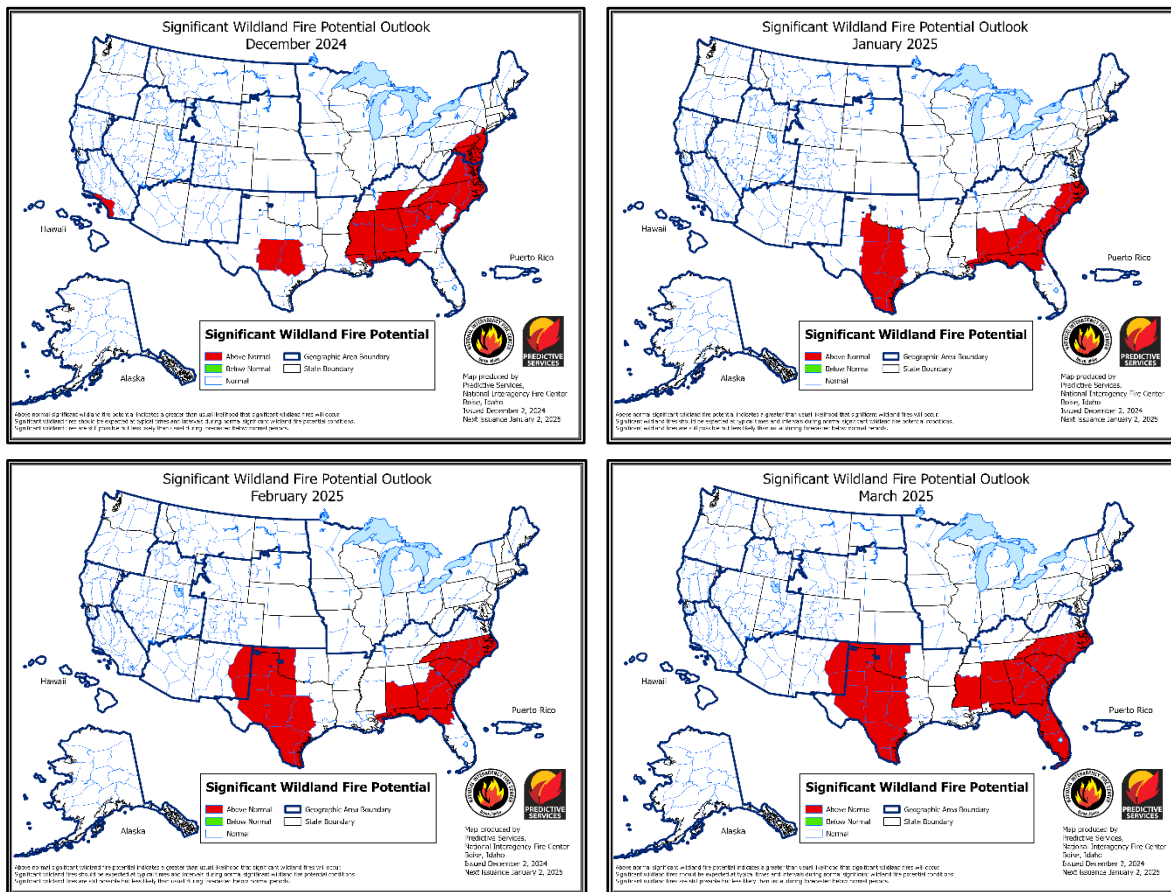


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Next Issuance: January 2, 2025

Outlook Period – December 2024 through March 2025

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 continued to slowly decrease in November across the US, with the National Preparedness Level falling to one (on a scale of 1-5) November 13. However, portions of the Eastern Area remained active into late November, especially across the Mid-Atlantic and southern New England. Southern California also observed a brief spike in activity at the beginning of November due to a Santa Ana wind event, while all other geographic areas followed the national trend. Year-to-date annual acres burned for the US is above the 10-year average at 122% of normal, with a slightly below average year-to-date tally of wildfires, near 95%.

Precipitation across the US varied in November, with well above normal precipitation recorded on much of the Plains, Mid and Upper Mississippi Valley, and northern California. Above normal precipitation was also observed across much of the Northwest, central California, and Lower Mississippi Valley. The Lower Colorado River Valley and southern California had well below normal precipitation in November, with below normal precipitation also observed along much of

the East Coast, South Texas, and Wyoming. Temperatures in November were above normal from the Plains to the East Coast, but below normal across much of California to the Greater Four Corners. Drought improved across much of the Northwest, Plains, Mississippi Valley, and Great Lakes in November. However, drought expanded and intensified in much of New England to the Mid-Atlantic. Drought also intensified in the Lower Colorado River Valley and southeast Arizona.

Climate Prediction Center and Predictive Services outlooks issued in late November depict above normal temperatures are likely from the Greater Four Corners eastward into the Southeast for December. Precipitation in December is likely to be above normal much of the Northwest and northern Rockies, but below normal from the Southwest into much of Texas, the Gulf Coast, and along much of the East Coast. For January through March, above normal temperatures are likely from the Southwest into much of Texas, the Southeast, and East Coast, but below normal temperatures are likely from the Northwest to the northern Plains. Precipitation is likely to be above normal in much of the northwestern US, and in the Great Lakes to Ohio Valley. Below normal precipitation is likely in the Southwest, southern Plains, and along the Gulf and Southeast coasts.

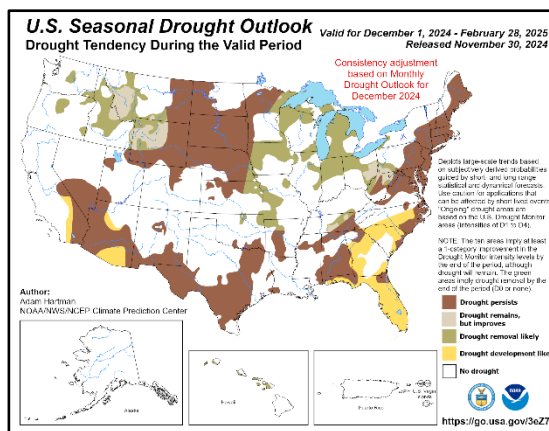
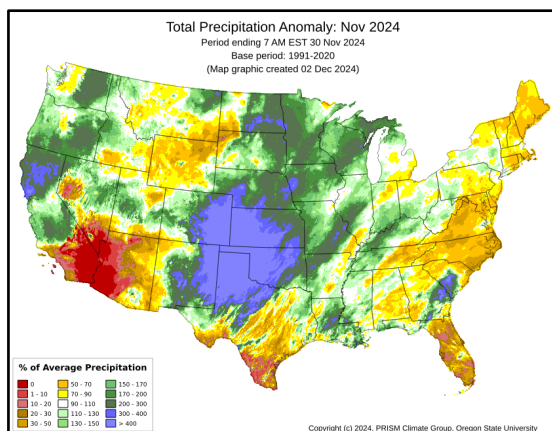
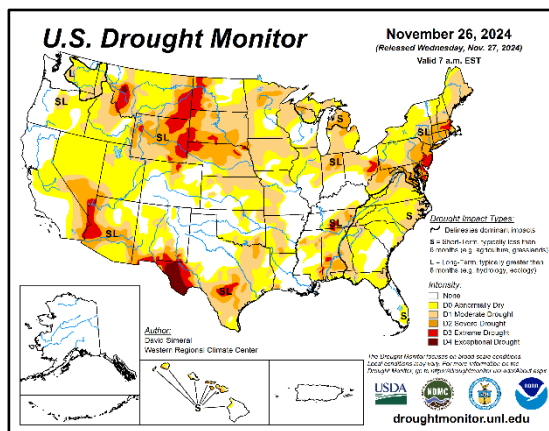
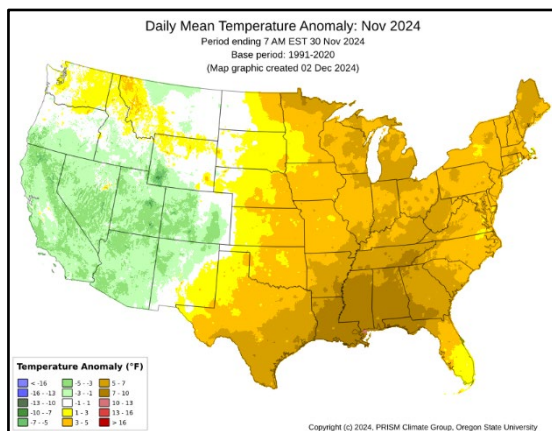
In December, above normal significant fire potential is forecast across portions of southern California, central Texas, and much of the Southeast, Carolinas, and Mid-Atlantic. Above normal potential is forecast to continue in portions of the Southeast and along the Carolina coast into January, while above normal potential expands across much of central and South Texas. Above normal potential is forecast to persist across the Southeast into February and expand across much of the Carolinas. Above normal fire potential is also forecast to expand from central and South Texas into much of West Texas, western Oklahoma, and eastern New Mexico in February, then expand into central Oklahoma in March. Above normal potential is also forecast for much of the Southeast and Florida in March.

Past Weather and Drought

Above normal temperatures were observed across much of the Plains to the East Coast in November, with temperatures averaging as much as 10 degrees above normal in the Deep South. Well above normal temperatures were also observed in the Northeast for the first two-thirds of the month before a cooler period began November 21. Temperatures were below normal across much of California into the central and southern Rockies, but averaged close to normal for the Northwest and northern Rockies. Temperatures in Alaska were close to normal overall, but below normal the last ten days of November. Slightly above normal temperatures were observed in Hawai'i, although Maui and Molokai were near normal.

Well above normal precipitation fell across much of the Plains, mainly from the Texas Panhandle and Oklahoma north and east into North Dakota and the Mid and Upper Mississippi Valley. Well above normal precipitation was also observed across northern California, mainly due to a strong and long-lasting atmospheric river November 19-23. Precipitation was also above normal in much of the Northwest, central California, the Lower Mississippi Valley, and Ohio Valley, with smaller areas of above normal precipitation in southeast Georgia, southern South Carolina, and east-central Nevada. Well below normal precipitation was observed in the Lower Colorado River Valley. Much of the East Coast observed below normal precipitation for November, with areas of well below normal precipitation in Florida. Much of the Northeast was well below normal, as well, until a strong Nor'easter November 21-23 brought widespread heavy precipitation. However, portions of the Mid-Atlantic region and North Carolina only received lighter precipitation from this storm. Cold air across the great Lakes at the end of the month brought heavy lake effect snow to the Great Lakes, which will continue into early December. Below normal precipitation was observed in Hawai'i and Alaska, except for an area of well above normal precipitation on the Big Island.

While fire activity continued a slow decline throughout much of November, with the National Preparedness Level falling to one (on a scale of 1-5) November 13, fire activity remained well above normal from the Mid-Atlantic region into southern New England into late November. The very dry conditions from October continued into the third week of November, with numerous significant fires developing during the dry period, often showing enhanced spread on days with breezy winds. Notable fires include the Jennings Creek Fire on the New York-New Jersey border, the Butternut Fire in western Massachusetts, and the Huntingdon Pike Fire in central Pennsylvania. On the opposite side of the country, a strong Santa Ana wind event November 6-8 resulted in the Mountain Fire, which burned hundreds of structures near Santa Paula, California.



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 Seasonal Drought Outlook (bottom) (from National Drought Mitigation Center and the Climate Prediction Center).

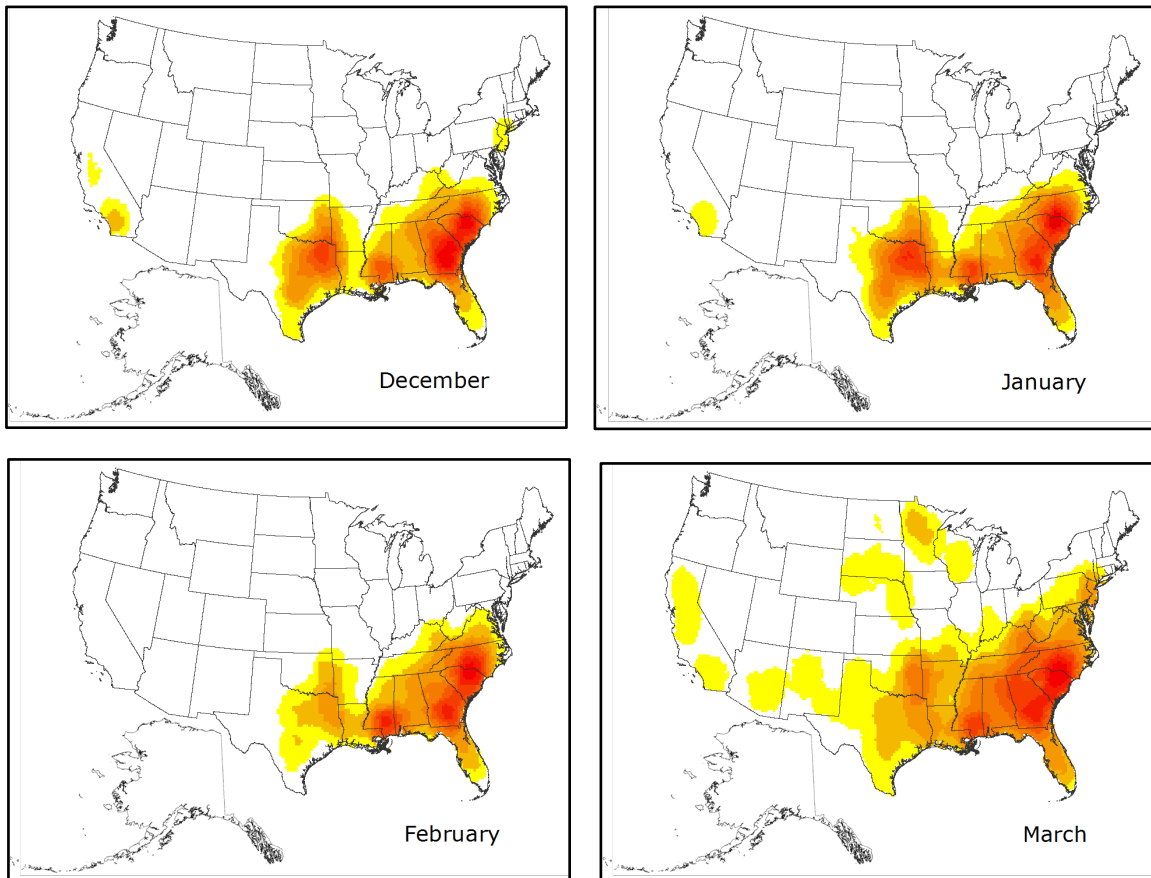
Drought expanded and intensified across much of the Mid-Atlantic region and southern New England due to the continued dry weather the first three weeks of November. Small areas of drought also developed in portions of the Carolinas and northeast Florida, while drought intensified in the Lower Colorado River Valley. However, drought improved across much of the Northwest, Plains, and Mississippi Valley over the past month, with the most significant reduction in drought noted over portions of Oklahoma, southwest Missouri, and northwest Arkansas. However, drought persisted in portions of South and West Texas. At the end of November areas of extreme to exceptional drought were observed across portions of West Texas, central Texas, southern New Mexico, western Arizona, far southern Nevada, western Montana, the northern High Plains, southeast Ohio, Massachusetts, and southern New Jersey. Very small areas of extreme drought continue in portions of Tennessee and Alabama, as well.

Weather and Climate Outlooks

El Niño-Southern Oscillation (ENSO) neutral conditions persist in the equatorial Pacific Ocean. Sea surface temperature (SST) anomalies in the central equatorial Pacific are near to slightly

below average, with SSTs slightly above average along the South American coast. A transition to La Niña is still likely in December, although chances have decreased, with the Climate Prediction Center forecasting a 57% chance of La Niña developing by the end of the year. La Niña is then expected to persist into March, assuming it develops. A strongly negative phase of the Pacific Decadal Oscillation (PDO) is also expected to persist through the winter. The Madden-Julian Oscillation (MJO) has also been active the past month, with another pulse moving through the Indian Ocean the last two weeks. The MJO is expected to remain active through mid-December as it slowly moves into the western Pacific, with impacts possibly lasting through much of the month. From January through March, the developing La Niña and negative PDO are expected to be the main drivers of this outlook. Active MJO periods remain possible through the winter, but their location and intensity are difficult to forecast more than two to three weeks in advance.

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

Alaska will be out of fire season from December through March. Fire potential will be normal for the winter.

Alaska is free of drought and all areas are snow-covered except coastal areas of southern Alaska, which remain cool and damp.

Climate Prediction Center forecasts for the next few months indicate that Interior Alaska will have close to normal temperatures, while in the north it is likely to be warmer than normal, and in the south cooler than normal. There is also a chance that precipitation will be above normal in the

western part of the state. All of this has little bearing on fire potential as snowpack prevents new ignitions and limits spread potential.

There have been no new fires for the month of November and that trend is expected to continue through the winter. Fuels are covered with snow for most fire-prone areas. The panhandle, Alaska Peninsula, and Kodiak areas are mostly snow-free, but cool temperatures and a maritime environment keep fuels too damp for significant burning during the winter months.

Alaska is out of fire season for the winter months. Small local fires are possible in areas with minimal snowpack along the southern coastal areas of Alaska, but any such fires will be confined to surface fuels as all duff layers are wet.

Northwest

Winter seasonality indicates a normal or very low risk of new significant fires and costly activation of incident management teams across the Northwest Geographic Area.

The parade of weather systems across the Northwest Geographic Area continued from October into November. An initial pair of weather systems brought soaking rains and high elevation snow from the Cascades westward and solid wetting precipitation on the eastside. High pressure then brought warm temperatures and dry weather to close the first week of the month. The second week brought another series of low-pressure systems with cool, wet, and windy conditions. Heavy precipitation fell across the westside with additional eastside wetting rain. An atmospheric river brought soaking rains to southern Oregon and most areas east of the Cascades spanning the third and fourth weeks of November.

Oregon lowland temperatures hovered near to slightly below average while Washington temperatures were near to slightly above average. Temperatures in the mountains across both states generally ran slightly below normal. For most of the region, precipitation amounts generally ran above to well above normal. Exceptions were near to slightly below average precipitation for portions of inland western Washington and about half of average for north-central Oregon. The overall cooler than average conditions allowed much of the mountain precipitation to fall as snow. All Pacific Northwest river basins currently indicate an above average November snowpack for only the second time in the last decade.

The precipitation resulted in a decrease of drought designations across large parts of the geographic area. The Cascade Crest westward was removed from any designation. The moderate drought areas were reduced from the crest eastward, though a small area of the central Washington Cascade east slopes remains in severe drought.

Wildfire activity decreased in the middle of October, and the transition to prescribed fire implementation began, with prescribed burning continuing into November. Moderated weather conditions allowed for both broadcast and pile burning to occur across the Northwest. Initial attack activity remained minimal for the entire geographic area for November.

Energy Release Component values continue their seasonal decline as moisture is absorbed by fuels of all size classes. Flammability of dormant rangeland fuels east of the Cascades has the potential to increase after periods of dry weather. Windy conditions coupled with these recently dried fuels have potential to produce rapid fire spread if ignitions arise, but any such fires should be easily suppressed in one burn period.

Seasonal weather outlooks continue to favor a cool and wet winter season. The Climate Prediction Center continues to favor that scenario with a 40-60% probability of occurrence. Warm and dry conditions or near average conditions are less likely, each having a 20-30% probability of occurrence.

La Niña forecasts are relatively unchanged since the end of October. La Niña conditions remain favored to develop in the Pacific Basin by the end of the calendar year with a 57% probability. Cooler and wetter than average conditions frequently, but not always, occur across the geographic area under weak La Niña conditions. Therefore, normal, or very low significant fire potential is forecast through the winter season for the entire Northwest Geographic Area.

Northern California and Hawai'i

Significant fire potential is projected to be normal from December through March. Historically, less than one large fire occurs per Predictive Service Area (PSA) December through March. Hawaii's significant fire potential is forecast to be normal December through March.

The pattern observed during November was largely under the influence of Pacific troughing and active jet stream periods. A strong atmospheric river November 19-23 led to the most active precipitation period and created widespread above to well above normal precipitation accumulation across most of the area. Far eastern and southern areas received the least amount of precipitation, and the monthly average was near to a little below normal. Average temperatures were generally below normal. A widespread frost and freeze event was observed across most of northern California during the morning of November 19. Around 400 lightning strikes were recorded, which is double the 2012-2022 November average of a little over 200 strikes. Two moderate to strong northerly to easterly dry wind events occurred during the first week of November, prompting Red Flag Warnings from November 5-7 and the issuance of high risk for significant fire potential on November 6. Red Flag Warnings were also issued for far southeast portions of Lassen County on November 13 and 20 due to dry and strong southwesterly winds.

Dead fuels experienced fluctuating moisture readings during November with one noticeable drying trend November 3-9. Energy Release Component (ERC) values exceeded the 80th percentile across the Bay-Marine PSA November 7-9; otherwise, dead fuels were generally less flammable overall with significant moistening the third week of the month. Dormancy set in across most of the live woody vegetation with the significant precipitation events taking the edge off the flammability. The widespread heavier precipitation initiated a more pronounced herbaceous green-up across the lower elevations, generally below 3,000 feet. A moderate drought signature remained across portions of the Klamath River Valley, although it shrunk in size between late October to late November. Snow cover fluctuated throughout November but was generally found above 4,500-5,500 feet at the end of the month. The one-month Evaporative Demand Drought Index (EDDI) values also improved between late October to late November, which indicated less stress on the fuels.

Wildfire business lessened during November with an average of five fires reported per day compared to ten per day during October. The Gaylord Fire burned 47 acres November 3 near Corning, California and represented the largest reported fire during the month. Pile burning increased substantially as the month progressed with fewer broadcast burns due to the fuel bed becoming less flammable.

A heavier degree of uncertainty remains for the predicted weather patterns during the next four months. There is a lack of solid analog years due to various and changing teleconnections, plus there are some differences within the dynamic model outputs. With that being said, temperatures are likely to be near to above normal with a drier tilt to the precipitation anomalies during December. It appears the jet stream should be active enough during January through March to create near to perhaps above normal precipitation favoring the northern tier. Temperatures should be near to above normal January through March. The wind patterns are likely to continue to fluctuate between stronger onshore and offshore influences with a tad more offshore influences expected during December.

Based on the current fuel state and future weather predictions, normal significant fire potential is projected for the entire area from December through March. Historically this is a period with

minimal large fire occurrence. Herbaceous green-up will be well underway across the lowlands, and this will help to offset any extended dry periods during the coming months. The long nighttime hours and low sun angles will also help to keep fuel conditions from becoming critically flammable for any longer length of time. Expected fire environment conditions during December could maintain an unusually long burn window for any planned prescribed burns.

Sea surface temperature (SST) anomalies surrounding the Hawai'ian Islands were a little above average during November. Average temperature anomalies were generally near to above normal across most of the islands. Precipitation was generally below normal across most of the islands although above normal across the Big Island. Drought severity and coverage improved across the Big Island during November but remained across the rest of the leeward areas. A Red Flag Warning was issued November 15-16 due to strong trade winds and low relative humidity. The Ma'alaea Fire grew to around 100 acres in grass and brush on Maui November 14.

A weak La Niña is expected to develop during a large portion of the islands' wet season. Average temperatures during the next four months should generally be above normal. Precipitation should also generally be above normal, especially across the windward sides due to enhanced trade wind periods. Leeward areas may experience more mixed anomalies, but sufficient moisture should fall across most of the leeward areas to jumpstart herbaceous green-up and lessen drought stresses during the outlook period. Accordingly, normal significant fire potential is expected in Hawai'i December through March.

Southern California

A cool and dry weather pattern persisted for most of November as temperatures averaged 2-4°F below average. A large swath of southern California received less than 25% of average November precipitation. Central California experienced a less extreme precipitation anomaly due to most regions receiving between 50% and 75% of their average November precipitation.

The El Niño Southern Oscillation (ENSO) remains in the cooler part of the neutral phase (closer to La Niña than El Niño). Sea surface temperature (SST) anomalies have fluctuated between -0.5°C and -1.0°C for the past two months. However, a formal La Niña has not been declared since there have not been five consecutive overlapping three-month periods where the Oceanic Niño Index (ONI) has remained -0.5° C or lower.

The US Drought Monitor shows a wide area of abnormal dryness across central California. A drought has been declared for the northern deserts through the central Mojave Desert into the lower and eastern deserts. Most of the northern deserts and central Mojave remain in moderate drought, though the eastern portions of the Central Mojave Predictive Services Area (PSA) and the Lower and Eastern Deserts PSAs are in severe drought. Extreme eastern portions of the Eastern Deserts PSA, where portions of San Bernardino, Riverside, and Imperial Counties abut the Arizona border, are in extreme drought conditions. These drought conditions are attributed to a lack of a monsoon season over the deserts in southern California.

Due to recent moisture, Energy Release Component (ERC) remains below normal for most PSAs. Conversely, ERC remains above normal across the Lower and Eastern Deserts PSAs; however, very low fuel loading has been a major factor limiting fire occurrence across this area. The South Coast PSA currently has below normal ERC values, but they are expected to trend upward during early December. Live fuel moisture remains at critically low levels across the region, and there has been no green-up yet. However, due to the larger amount of precipitation across central California, green-up is likely to begin during December. For Southern California, green-up remains unlikely for the first half of December as significant precipitation is not expected the first two weeks of the month.

Climate models suggest either a weak La Niña or a colder ENSO neutral state for the winter season. Due to a favored La Niña-like pattern this winter, climate models suggest a tilt towards a

warmer and drier winter. Given the lack of a significant precipitation event across southern California thus far, the probability for southern California to see green-up conditions in December is low. There is a stronger likelihood for central California to experience green-up conditions in December due to those areas experiencing moderate precipitation in November.

With green-up conditions unlikely for southern California in the next few weeks, there is an increased probability of above normal significant fire potential for the South Coast PSA for December, followed by a greater likelihood of normal fire potential for January through March. However, if there are no significant precipitation events in December, there is a chance for January to continue to lean toward above normal significant fire potential for the South Coast PSA in the next outlook. All other southern and central California PSAs are likely to have normal significant fire potential through March.

Northern Rockies

Significant wildland fire potential in the Northern Rockies Geographic Area (NRGA) for December through March is expected to be normal. A transition to winter weather is occurring across the NRGAs with increasing snow cover, and short-term forecasts expect this process to continue. Long range outlooks lean towards cooler than normal temperatures and above normal moisture for a large portion of the NRGAs for the rest of the winter, which is consistent with La Niña climatology. Drought is present over portions of the NRGAs, and it is uncertain whether winter precipitation amounts will reverse trends. Nonetheless, wildfire activity in the NRGAs is minimal when snow cover becomes persistent, which is normal for the time period.

The US Drought Monitor indicates moderate drought or drier is present in half of the NRGAs. During the past month, extreme drought has expanded over eastern Montana and western North Dakota and continues to be present in southwestern Montana. Parts of central Montana, northern Idaho, and northeastern North Dakota are less dry, showing only abnormal dryness but also including some areas excluded from drought.

November weather featured periods of heavier precipitation for central and northern Idaho and parts of western Montana as atmospheric river events impacted the West Coast. Central Montana and southwest North Dakota were below normal for precipitation.

Most fuels are at normal levels for the end of fall. Southeast Montana and western North Dakota continue to be abnormally dry, but snow cover is expected to increase over the area during the end of November and beginning of December.

Moisture patterns reduced most prescribed fire activity to pile burning over the western portion of the NRGAs. Snow cover was late in arriving to central Montana eastward into North Dakota, but moderate weather prevented wildfire activity and allowed agricultural burning with few control problems.

Significant wildland fire potential will be normal for the NRGAs for December through March. Winterlike conditions are or will become established over the NRGAs, placing a strong limitation on wildfire potential. A weak La Niña should maintain normal winter weather including cold and snow through January or February.

Great Basin

Fire activity decreased dramatically across the Great Basin during November as a series of winterlike storms brought periods of cooler and wetter weather. A few days saw very strong prefrontal winds along the Sierra Front in western Nevada, which temporarily increased the potential for large fires. These episodes may continue until more significant precipitation comes to the area.

Temperatures over the last thirty days averaged 2-4 degrees below normal for much of the area with only the central Idaho mountains showing values slightly above normal. Precipitation was above normal across western Idaho, the Snake River Plain, and the mountains of central and southern Utah, while all other areas were near to below normal. Western Nevada was particularly dry during the month of November. Drought has been developing over the last few months due to the very warm and drier than normal late summer in most areas of the Great Basin. Abnormally dry conditions cover much of the region, with areas of moderate to severe drought over portions of central and eastern Idaho, Wyoming, southern Nevada, and southwest Utah. Even a small portion of extreme drought has developed in western Wyoming. Drought may intensify in parts southern Nevada, Utah, and Wyoming, but may improve over central and southwest Idaho and northwest Nevada as precipitation through the fall may increase in the northern Great Basin.

Fuels have generally gone into dormancy as overnight temperatures have regularly dropped below freezing. Dried grasses will still be abundant over southern Idaho, northern Nevada, and northwest Utah. Dry periods followed by very strong winds could still pose a wildfire risk along the Sierra Front through the winter.

Fire activity decreased significantly through November with very few wildfires across the geographic area, especially during the second half of the month.

Normal fire potential is expected across the Great Basin through March, which generally indicates very few wildland fires. However, fire potential may occasionally increase for a burning period through December or January in areas of northern and western Nevada after prolonged warm and dry weather that is followed by gusty winds in areas where fine fuel loading is above normal.

Southwest

Significant fire potential will be normal across the Southwest Area for the next two months. Areas of above normal significant fire potential will arise across the eastern plains by late winter into early spring. In addition, some areas of above normal significant fire potential could emerge across the southern tier of the region by late winter and early spring.

The period from August through October was a warmer than normal period for the Southwest Area with above normal precipitation limited to a small area from the Four Corners eastward across far northern New Mexico. The remainder of the Southwest Area experienced below normal precipitation August through October. The November weather pattern was more active, with widespread above normal precipitation across all areas along and east of the New Mexico central mountains and near to below normal precipitation farther west. Most areas of the region were cooler than normal for most of the month, with only far southeastern sections of New Mexico averaging above normal temperatures in November.

A possible upcoming shift in the equatorial Pacific sea surface temperature setup could play a role in shaping the weather pattern for the bulk of the winter months. A La Niña Modoki scenario is most likely to evolve over the next month, characterized by cooler water the central tropical Pacific and warmer than normal water across both the far western and eastern sections of the tropical Pacific Ocean. In addition, the Pacific Decadal Oscillation remains strongly negative as winter approaches. These two factors in conjunction with recent developments with the polar vortex will greatly shape the upcoming winter season.

Using other historical setups as a guide, the month of December will be quite mild regionally with an active storm track just to the north and west across California into the Great Basin. The southeastern half of the region will be dry while the northwestern tier will be slightly wetter than normal. The months of January and February are expected to be primarily drier than normal, with temperatures likely to be normal to slightly above normal overall. Some periods of colder than normal temperatures could occur semi-regularly focused just to our east over the Plains states. Snowpack is expected to end up generally below normal overall, although the far northern tier of

the region may be closer to normal. As spring approaches, it is likely the La Niña Modoki will turn back to neutral, which will gradually allow a more active storm track and some moisture into the region for the bulk of spring.

Periods of critical winds combined with low relative humidity are expected by late winter into early spring, focused along and east of the New Mexico central mountains. Areas of above normal significant fire potential are expected for the months of February into March across the eastern plains of New Mexico due to this expectation.

Rocky Mountain

Significant fire potential will remain normal through March across the Rocky Mountain Area. November saw more precipitation, falling mainly across Colorado and Kansas, which helped bring some drought relief to the southern third of the Rocky Mountain Area. Elsewhere, drought conditions largely remained unchanged. La Niña is still favored to develop during the winter, but the probability of La Niña developing has decreased. As a result, impacts from La Niña may not be as strong as originally forecast.

November saw the weather pattern become active with more storms coming through the Rocky Mountain Area. Several weather systems moved through the central and southern Rockies the first half of the month, which brought heavy precipitation to Colorado and Kansas. Amounts were lighter farther north, but Wyoming still received some much need precipitation. The second half of the month saw the pattern remain active, but precipitation was much lighter. South Dakota is the one area that has largely been left out of the precipitation. Temperatures have generally been cooler on the West Slope and in southwestern Wyoming, while much of the central Plains remained above normal. The precipitation resulted in improving drought conditions across Colorado and Kansas, while Wyoming and South Dakota saw drought conditions persisting.

Fuels became dormant across the Rocky Mountain Area following hard freezes over the last month. Cooler temperatures and the increased precipitation across the area in November has resulted in fire danger indices returning to normal for late fall. Despite the heavy rain that has fallen in Kansas, the fine fuels on the central Plains quickly became flammable again due to warmer temperatures.

Most fires in November remained less than an acre. The largest fire at 120 acres occurred in grass in northeast Wyoming early in the month when drought was worse and before precipitation helped improve the fuel conditions some.

Overall, a weak La Niña pattern is favored to develop into winter. The chance of La Niña has decreased due to sea surface temperatures not cooling as fast as expected, and that is reflected in the long-range forecast. Current outlooks continue to lean towards a La Niña winter, with the northern third of the Rocky Mountain Area likely seeing cooler and wetter than normal conditions. Southwest Colorado is favored to see warmer and drier than normal conditions. The rest of the area will see more typical conditions, but there still could be extended warm and dry periods mixed with cooler and wetter weather. However, if the La Niña pattern does not develop, these impacts may be lessened. Additionally, a La Niña pattern may slightly favor more wind events during the winter months, but these types of events are hard to predict, and will be most impactful following periods of warm and dry weather.

For the winter, normal fire potential will continue. However, it is expected that periods of increased fire potential are likely during wind events for a couple of days, especially following warm, dry periods.

Eastern Area

Normal fire potential is forecast across the majority of the Eastern Area through March. The greatest 30-to-60-day negative precipitation anomalies towards the end of November were indicated across the eastern tier of the Eastern Area with the greatest deficits over the southeastern Mid-Atlantic states. Short term negative precipitation anomalies developed through the latter portion of November over portions of the Mid-Mississippi Valley. Longer term extreme or exceptional drought levels remained across southeastern Ohio, northern West Virginia, southern New Jersey, Delaware, and eastern Massachusetts. Moderate to severe drought was indicated along the East Coast, northern Great Lakes, northern Illinois and Indiana, and northwestern Ohio. Precipitation events were expected to persist over the Northeast and northern Mid-Atlantic states through the first part of December, thus helping to mitigate longer term drought levels.

Neutral El Niño Southern Oscillation (ENSO) conditions remained over the central Pacific towards the end of November. There is less confidence in a transition to a La Niña sea surface temperature (SST) regime heading into the winter season. If a La Niña SST episode does occur, it is now expected to only last into the early spring. Other SST regimes also contribute to global weather patterns adding to some uncertainty in long term weather forecasts. Near to above normal temperature trends overall are forecast over much the Eastern Area into January with precipitation trends more uncertain.

The Predictive Services precipitation outlook for December forecasts below normal precipitation over the far western Mississippi Valley. Wetter than normal precipitation is forecast over the central and eastern Great Lakes as well as the eastern tier of the Eastern Area in January. Drier than normal conditions are forecast over the eastern half of the Mid-Atlantic States in February and over much of the eastern states heading into March. Above normal precipitation is forecast over portions of the Great Lakes southward towards the Lower Ohio Valley February into March.

Above normal temperatures are forecast over the southwestern half of the Eastern Area in December and the majority of the Eastern Area heading into January. Above normal temperatures are expected over the portions of the southern tier of the Eastern Area February into March. Colder than normal conditions are expected over the northwestern Great Lakes February into March.

According to the latest Climate Prediction Center's temperature and precipitation outlooks, above normal temperatures are likely over the far southern tier of the Eastern Area with below normal precipitation likely across the far eastern Mid-Atlantic States. The seasonal outlook into February projects warmer than normal conditions are likely over the eastern tier of the Eastern Area with colder than normal trends over western Minnesota. Above normal precipitation is likely over the Great Lakes down into the Lower Ohio Valley this winter.

The eastern tier of the Northeast and Mid-Atlantic states has been experiencing significant drought conditions and fire activity in areas with historical above normal values for the Keetch-Byrum Drought Index (KBDI). Recent precipitation events in the Northeast have reduced fire activity and occurrence to more normal levels, but KBDI values are still historically above normal, and any interior burning on current fires will likely last throughout the winter unless significant precipitation or snowpack occurs during the outlook period. Leaf fall, dry available surface fuels like grass and pine needles, and human activities will continue to create potential for ignitions during dry and windy days until a soaking rain or series of frequent precipitation events can maintain a moist surface fuels environment. The Mid-Atlantic states of New Jersey, Delaware, and Maryland have largely been missed by recent precipitation events and are expected to continue to have above normal fire activity either in occurrence or occasional larger problem fires in December. This potential could continue through the outlook period if significant or frequent rainfall remains absent from the area. For the Great Lakes states, the Canadian Forest Fire Danger System (CFFDRS) indices are still showing drying deep into the soil in several areas of Minnesota and Michigan, which could impact the spring fire season depending on how significant

the snowpack is and the timing of the melt. The southern tier of Eastern Area has been receiving precipitation and relief from the fall drought, with normal potential predicted for the outlook period. For all of the Eastern Area, dormancy of grasses and shrubs combined with leaf fall will increase the available fuels environment so that any prolonged dry periods and days with persistent winds will increase potential for fire activity during the outlook period, unless snow is on the ground.

Moderate to significant precipitation deficits developed through the fall season across the eastern tier of the Eastern Area. Precipitation events occurred over much of the Northeast and portions of the Mid-Atlantic States through the end of November curtailing fire potential. However, precipitation coverage and amounts were lower across the southeastern Mid-Atlantic States. Above normal significant fire potential is expected to persist over this area into December. The rest of the Eastern Area should experience near normal fire potential through the winter season outside of any warm, dry, and windy periods that may occur.

Southern Area

After one of the warmest falls on record for most of the Southern Geographic Area, sharply colder conditions have arrived. High relative humidity and occasional rainfall from tropical remnants limited wildfire activity in November, but the recent pattern change is expected to result in drier weather to start December from the Appalachians into most of the Southeast. Delayed dormancy in most of the Southern Area has likely been one of the other mitigating factors in recent low fire occurrence. This may tend to skew the fall season later into December than is normal. Abnormal dryness and drought have otherwise been expanding after Helene's historic flooding, while record high atmospheric moisture associated with tropical storms Rafael and Sara contributed to some relief, if not drought removal, in scattered areas from the Lower Mississippi Valley to South Carolina. The wettest November on record in most of Oklahoma and northwestern Texas helped ease drought conditions considerably, also easing fire concerns there in the short term.

Above normal grass loading in parts of central and southern Texas and scattered across Oklahoma will become major players later in the dormant season, as long as drier and warmer than normal forecasts hold. Excess fuels and debris burning in areas impacted by hurricanes the last five years, in addition to tree mortality from beetle damage and drought, will sway expectations towards increased significant fire potential in this outlook if expected weather conditions materialize. Portions of eastern Louisiana into Mississippi have had a double dose of hurricane damage from Ida in 2021 followed by drought and beetle damage in 2023. Meanwhile, Hurricanes Idalia, Debby, and Helene have caused areas of overlapping tree damage in north-central to northeastern Florida and southern Georgia the last couple of years. Helene's footprint extended through eastern Georgia and western South Carolina, becoming more terrain-dependent with time across the southern Appalachians. The most catastrophic tree damage from Helene in the mountains was largely on south- to southeast-facing slopes in western North Carolina, northeastern Tennessee, and southwestern Virginia. These newly open areas will be exposed to increased sunlight and more rapid drying than nearby untouched trees, especially prior to 100% leaf drop and after green-up in spring.

Regarding the El Niño Southern Oscillation (ENSO), La Niña has not yet developed, and the Climate Prediction Center (CPC) has lowered the odds for its formation from last month's update. In an environment of unusually warm sea surface temperatures globally, it is conceivable that we technically remain ENSO-neutral through winter and spring. Contrarily, the Multivariate El Niño Southern Oscillation Index (MEIv2) has indicated weak La Niña-like conditions since the June-July period, which seems to be in alignment with our back-loaded hurricane season, unusual fall warmth, and periods of intensifying drought this fall. The CPC's outlook into spring mirrors a typical La Niña for the Southern Area and has good support from modeling. Like what is occurring in early December, there may be periods of abnormally cold or wet weather that are temporarily out of step with what occurs on average into at least March. Confidence is highest in warmer and drier than normal conditions through the period in Texas and for much of the coastal Southeast, while the Mid-Mississippi and Ohio Valleys should trend consistently wetter into early 2025.

For the Southeast, above normal significant fire potential in December is tied to three key factors: the increased availability of freeze-cured fuels in areas that were still unusually green in late November, frequently reinforced dry air masses behind mostly dry cold fronts the next few weeks, and areas of persistent drought. Air masses following several dry cold fronts through at least mid-December will originate over the Arctic, increasing the availability of herbaceous fuels and roadside grasses as freeze curing finally occurs. Leaf drop in hardwood forests should also accelerate due to the sub-freezing temperatures. This continental polar air will ensure quick drying of fuels due to abundant sunshine, periods of gusty winds and consistently low relative humidity, but below normal temperatures and the longest nights of the year could certainly be mitigating factors. Above normal temperatures are forecast to return later in the month, but any increase in rainfall chances is unclear. Farther west, hard freezes may not be widespread over the areas of above normal significant fire potential across Texas until later in the winter, but long-term drought and areas of above normal grass loading there should lead to increasing activity with time. Rainfall through the first half of December looks most likely for Deep South Texas and coastal areas of the Lone Star State.

The outlook for January through March mostly follows seasonal trends in activity, along with the impacts to fuel loading and availability from previously described conditions. Abundant water left in the swamps and rivers behind 2024's hurricanes will eventually become less of a factor into spring over Florida and southeast Georgia as dry and warm conditions dominate through winter. Activity over the peninsula could pick up earlier than indicated if the next few months are exceptionally warm with little to no rainfall, but this is not yet of high confidence. Similarly, depending on the placement of fronts and wet weather in late winter and spring, areas with unusual fuel conditions over Alabama and Mississippi could be exposed to increased rainfall and humidity. This common La Niña pattern could also contribute to a slow start to the spring season from eastern Oklahoma and Arkansas into Tennessee and Kentucky, and some of these areas could trend to below normal significant fire potential on subsequent outlooks. Meanwhile, the High Plains have varying degrees of grass loading due to the patchy nature of well above normal rain during the growing season. Otherwise, a weather pattern favoring dryline intrusions and their critical fire weather should become increasingly common and likely impactful over Oklahoma and Texas February and March. The most recent run of the Copernicus Climate Model shows substantial probabilities for warmer, drier, and windier than normal conditions in most of the Plains throughout the first few months of 2025, with the highest confidence in fire-effective weather patterns centered from Deep South Texas into most of the Hill Country. This generally lines up with the main areas of above normal grass loading surveyed by the Texas A&M Forest Service, adding to the confidence in potentially significant impacts.

There is no reason to believe that trends for large swings between dry and wet conditions observed during the past year will not continue into 2025. Therefore, actual wildfire occurrence is unlikely to be as widespread and pervasive as indicated by this high-level outlook. The bottom line is to expect the potential for rapidly changing conditions in the fire environment through the dormant season, especially in areas forecasted to see above normal significant fire potential.

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>