National Significant Wildland Fire Potential Outlook

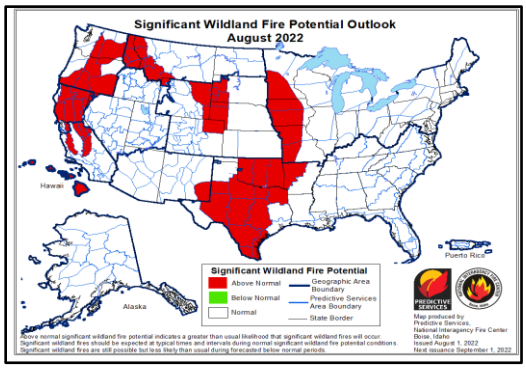
Predictive Services
National Interagency Fire Center

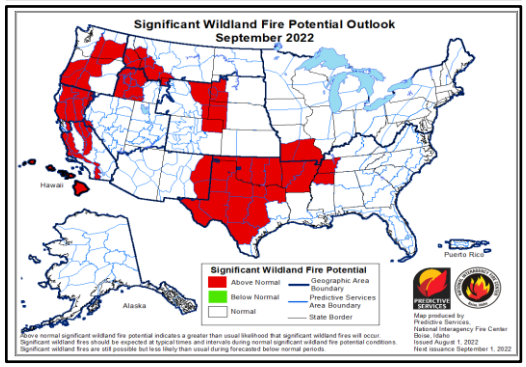
Issued: August 1, 2022
Next Issuance: September 1, 2022

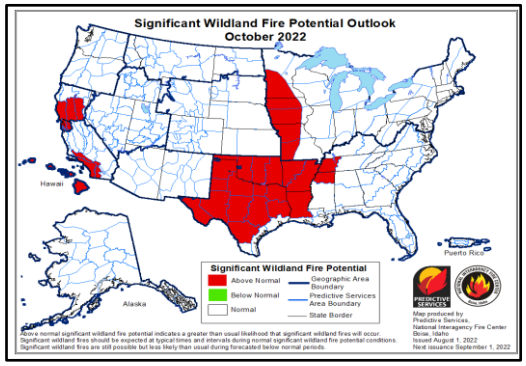
Outlook Period – August through November 2022

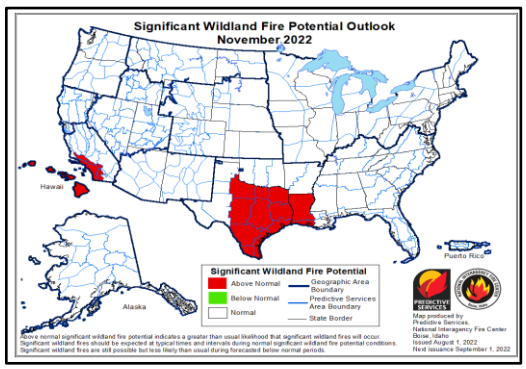
Executive Summary

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 decreased significantly in mid to late July across Alaska, but large fire activity increased across much of Texas and Oklahoma. Large fires began to emerge in central Idaho, Montana, and northern California towards the end of July as lightning followed prolonged hot and dry conditions. Year-to-date acres burned for the US is approximately 160% above the 10-year average, with over 90% of the total acres burned in the Alaska, Southwest, and Southern Areas.

Drought rapidly intensified and expanded across Oklahoma, Arkansas, the Ozarks, portions of Texas, and into the Lower Mississippi Valley in July due to very hot and dry conditions. Drought improvement was noted in Colorado, New Mexico, and Arizona due to the North American Monsoon and in portions of the Ohio Valley into the Carolinas and Georgia. However, much of California, the Great Basin, especially the northern Great Basin, and Oregon retained drought as the monsoon was slow to expand northwest.

The monsoon should continue through August over the Southwest and into the greater Four Corners region, while above normal temperatures are forecast across the northern Intermountain West, central US, and Southeast. Above normal temperatures are likely on much of the Plains into fall, with near to below normal precipitation focused on the central and southern Plains. Drought is anticipated to increase on the southern and central Plains into portions of the Midwest and Mississippi Valley, with continued improvement in parts of the Southwest and Alaska.

Above normal significant fire potential is forecast for much of Oklahoma and Texas through October and spreading into the Ozarks and Lower Mississippi Valley during the late summer into fall. Above normal potential will likely continue in Texas away from the southern High Plains in November. Above normal potential is also likely in portions of the Missouri Valley and western Mississippi Valley in August and October. Eastern Wyoming, western South Dakota, and western Nebraska are likely to have above normal potential into September.

Northern California, the Inland Northwest, and northern Rockies, along and west of the Divide, are expected to have above normal significant fire potential through August into September, with above normal potential spreading into southern Idaho in September. Above normal potential is also expected in portions of the central and southern Sierra and foothills, as well as the central California coast through September. By October, only downslope wind favored areas of northern and southern California are forecast to have above normal potential, with

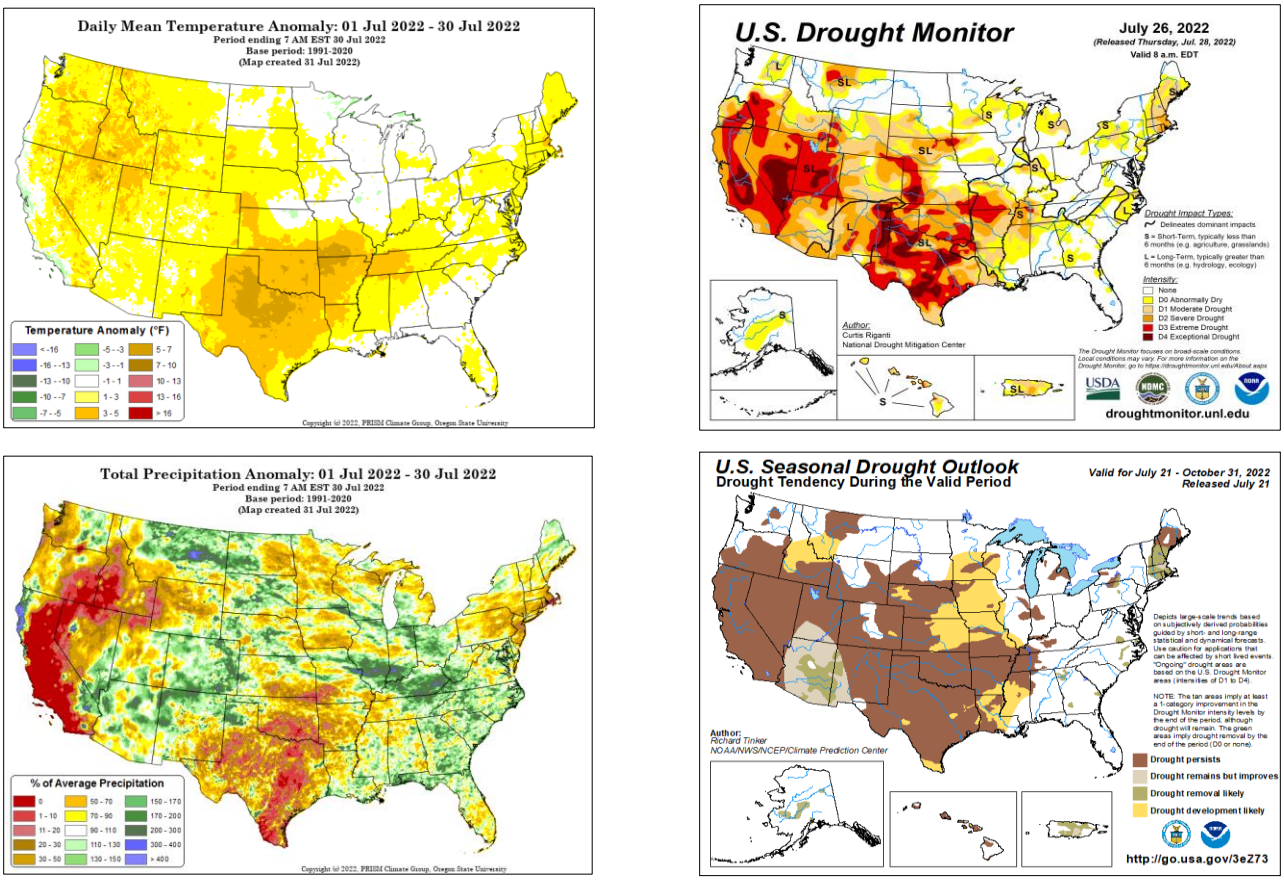
areas in southern California retaining potential in November. Hawai'ian Islands, especially leeward sides, will have above normal potential through November due to ongoing drought and enhanced trade winds.

Past Weather and Drought

The North American Monsoon continued across much of the greater Four Corners region in July, but did wane at times, with sporadic areas receiving below normal precipitation. Towards the end of July, the monsoon shifted westward, more focused over Arizona and into southern Nevada, southern Utah, and southeast California, while continuing over the Colorado Rockies and western and northern New Mexico. Moisture struggled to expand north and west into California, the northern Great Basin, Pacific Northwest, and northern Rockies, where most areas received well below average precipitation, until late July. Much of the southern Plains, Texas, and the Ozarks into the Lower Mississippi Valley had below average precipitation and well above normal temperatures. Portions of the northern Plains, Mid-Mississippi and Ohio Valleys, and the Southeast had above average precipitation, including devastating floods in eastern Kentucky.

Drought continues across more than 70% of the West and much of the central and southern Plains into the Ozarks and Lower Mississippi Valley. Much of Oklahoma, Arkansas, and the Lower Mississippi Valley had a rapid onset and intensification of drought, with drought intensification and expansion in Texas as well. Drought developed or intensified in portions of Alaska, Hawai'i, New England, the Southeast, and Ohio Valley. Portions of the Southeast, especially the Carolinas and Georgia, and Montana observed a reduction in drought.

Fire activity began to wane in Alaska during the last half of July as consistent cooler and wetter conditions spread across the state. However, fire activity continued and increased across Texas, Oklahoma, and Arkansas. Significant fire activity was slow to increase across the West, but large fire activity did start during late July in central Idaho and a couple of large wildfires near Yosemite National Park. Additionally, very hot and dry conditions preceding mixed wet and dry thunderstorms led to an increase of significant fire activity in far northern California, central Idaho, central Oregon, and Montana the last week of July.



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

La Niña conditions remain, with below average sea surface temperatures (SSTs) over much of the equatorial Pacific Ocean. SSTs have warmed this summer, with weak La Niña to neutral conditions are forecast late this summer into fall by the Climate Prediction Center (CPC). However, SSTs may cool again in the equatorial Pacific Ocean, with CPC forecasting a 66% chance of La Niña strengthening during fall and early winter. This would be a rare "triple dip" La Niña.

Geographic Area Forecasts

Alaska: Normal fire potential is expected for Alaska through the rest of the 2022 wildfire season. Areas with existing fires will continue to have periods of drier, windier weather that will revive fires, requiring increased management efforts. Periods of wetter weather will ensue, and fire activity will remain normal for this late summer season.

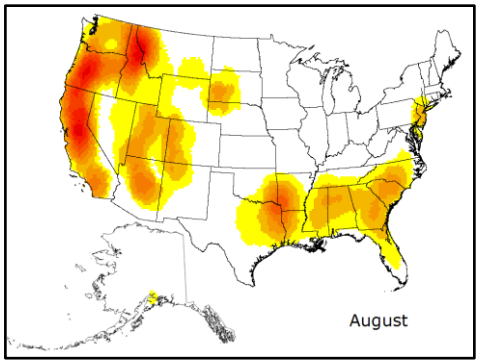
Hot and dry weather across much of the state led to extremely dry fuels that supported numerous ignitions and a busy fire season. In the last two weeks, ample rain has fallen over most of the state, wetting even the deeper fuels. Current fire danger indices indicate that the deeper duff layers returned to moderate dryness levels, though some drier areas in the central and eastern Interior do exist.

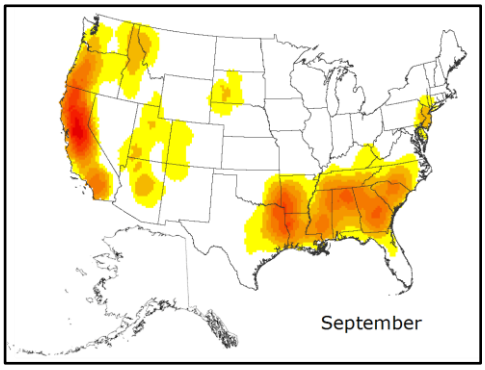
Fire activity peaked around July 13, with six complexes consisting of multiple fires, and another 17 staffed fires. Since that time, the weather has significantly moderated fire activity. Though strong winds increased fire spread during the last week of July, fires are now under reasonable control measures. However, there is enough fire on the landscape to keep some resources busy for the remainder of the summer, until the ground freezes.

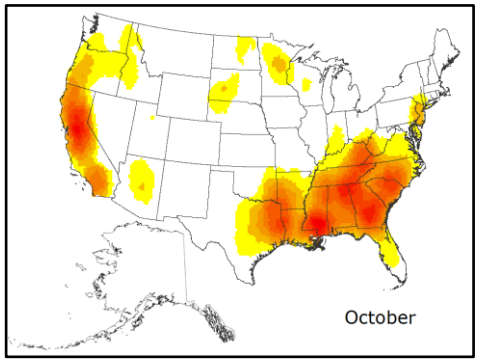
Fuels have had enough rainfall to dampen even the deepest fuel layers for most of the state. The exception is the area around the Yukon Flats and Middle to Upper Tanana Valley, where drier deep duff layers suggest that fires may be able to hold over through a couple of damp days at a time. Periods of warmer and drier weather will likely dry surface fuels enough to help rejuvenate these fires periodically during the next two months.

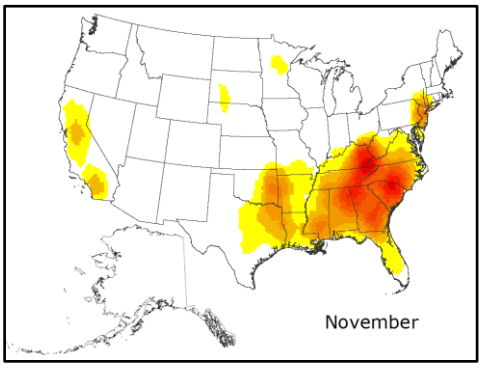
Warmer than normal weather is forecast by the Climate Prediction Center for Alaska in August, but many days of warm and dry weather would be needed to dry fuels sufficiently to bring fire potential back above normal. Rapidly shortening daylight hours, lower sun angle, and a fall weather pattern indicate that the hot and dry period of summer is over. In August, Alaska typically sees a wetter pattern, and this transition has already occurred.

Though Alaska had a very active fire season this year, the start of typical end-of-season rains has already helped to significantly slow fire activity. Though there will be some periods of drying during August and September that increase activity, these will be short-lived, keeping fires relatively easy to manage. By October, temperatures will drop below freezing and snow will begin to accumulate. Thus, the outlook for August through November is for normal significant fire potential for Alaska.









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)

Northwest: Potential for significant fires in the Northwest Geographic Area during August and September is above normal in central Oregon predictive services areas (PSAs) NW06 and NW07, southeast Oregon PSA NW12, southwest Oregon PSA NW04, and central Washington PSAs NW05 and NW10. Elsewhere, the potential for significant fires is expected to be near normal, with the entire geographic area returning to near normal significant fire potential in October and November.

July started off cooler than normal for the Northwest Geographic Area but gradually warmed to above average east of the Cascades by the end of the month and to normal west of the Cascades. The first week of July was much wetter than typical, but the weather gradually dried out during the remainder of the month. For July as a whole, only parts of the Columbia Basin registered above-normal precipitation.

During the closing days of June, two large fires emerged to consume 43,274 acres. The largest fire burned more than 40,000 acres near Vale, while being pushed by strong winds in cured cheatgrass. The other large fire in central Washington rangeland burned over 3,000 acres. Otherwise, only four large fires burned around 3,700 acres near the Columbia Basin in Washington during July. The total number of fires for the month is around 470, and the daily average for July has been less than half of the average number of ignitions.

Lightning has been accompanied by moisture, and the number of strikes is also below average. After each lightning event, temperatures decreased and winds subsided to favor initial attack. Lightning occurrence has primarily been in northeast Washington and Oregon at higher elevations where fuel moistures have been above average. Holdover fires have been infrequent and small at high elevations.

Fire danger and fuel moisture at beginning of the month were near average across the geographic area. Large fuels absorbed moisture from wet thunderstorms to climb above average in northeast Washington and Oregon. Large fuels in PSA NW04 improved with an unusual shot of moisture early in the month. The late July heat decreased 1000-hour dead fuel moisture below 15% and eventually into the single digits in southeast Oregon. Middle elevation fine fuels cured, and the green belt in elevation continued to climb up to around 3,500 feet east of the Cascades. There has been noted discrepancies between fire danger output and live fuel moisture sampling in portions of the geographic area, including west of the Cascades, where higher fuel moisture is being observed.

Climate outlooks through November suggest above normal temperatures are most likely for the geographic area except for western Washington in August. No significant anomaly for rainfall is anticipated over the geographic area through November.

For August, Oregon PSAs NW04, NW06, NW07 and NW12 as well as Washington PSAs NW05 and NW10 will have above normal significant fire potential. Elsewhere, normal potential is forecast in August. In September, above normal potential is forecast for PSA NW03 western Oregon, while PSA NW12 in southeast Oregon is expected to drop back to near normal potential. The entire Northwest Geographic Area is forecast to have near normal significant fire potential in October and November.

Northern California and Hawai'i: Significant fire potential is projected to be above normal for all elevations and areas excluding some near coastal portions of Northern California, such as the North Coast and Bay Marine predictive services areas (PSAs) during August and September. A reduction in the above normal footprint should occur during October to include west of the lower Cascade and Sierra Crests to the Pacific Ocean. Historically, most PSAs generally average between two to five large fires during August and one to three large fires during September. The exceptions include less than one large fire in the Bay Area PSAs during this period, with the Far Eastside PSA generally observing less than one large fire during September. During October and November, all PSAs observe one large fire or less. Hawaii significant fire potential is above normal from August through November across a good portion of the islands, especially the leeward sides.

The weather pattern during July was quite diverse and a tale of two periods, with the first two weeks dominated by upper-level ridging over the Intermountain West and periodic cool and moist periods due to troughing. The last two weeks consisted of a stronger ridge, with the first summer heat wave during the last week of the month. The widely varying weather patterns created mixed precipitation and temperature anomalies. Above normal precipitation was generally found across northwest areas due to a system passage July 2-5 as well as heavier drizzle periods associated with a deeper marine layer across portions of the Bay Area. Drier than normal conditions were found across central and eastern portions of the Northern California. Due to the weather pattern fluctuations, average temperatures ended up being near normal on a region-wide scale, with some below and above normal anomalies observed locally.

Dead fuel moistures fluctuated but were generally near to below normal the last three weeks of the month and "flash" drying produced critically low values the last two weeks of the month. Energy release component (ERC) values were near or above the 97th percentile across all PSAs, except the North Coast and Bay Marine PSAs, by the end of the month. Herbaceous fuels continued to cure during June and July, with cured or mostly cured forbs and grasses found below 4,000 feet and partly to mostly cured between 4,000 to 6,500 feet depending on whether the species was an annual or perennial. Herbaceous green-up had peaked above 6,500 feet during July, with curing starting to take place. Live shrub and tree canopy moisture levels began to dry within all species and rapid drops occurred during the latter half of the month in response to the warmth and dryness.

There were several gusty wind-lower humidity days during the 2nd and 3rd weeks of July, with Red Flag Warnings issued for portions of far northern California. The only significant lightning that occurred before the last weekend of July was on July 2, with nearly 900 cloud-to-ground lightning strikes. Monsoon moisture intrusions increased during the last week of the month bringing lightning. Daily wildfire ignitions fluctuated but generally averaged around 20 per day but some days exceeded 30. Several large fires were reported across the lower and some mid elevations, but the McKinney and China 2 Fires ignited near the end of the month, with the McKinney Fire burning tens of thousands of acres and producing multiple pyrocumulonimbus clouds in less than 48 hours. Prescribed burning wound down quickly as the fuels became critically dry.

The weather outlook for August through November depicts mixed temperature and precipitation anomalies but generally near to below normal temperatures across the marine influenced areas and above normal across eastern portions of Northern California. The weather pattern during August appears to be more Pacific trough influenced, with deeper and potentially stronger onshore flows at times creating some cooler air intrusions. Lightning associated with monsoon moisture surges is likely to be less common as August progresses. Remnant tropical storm moisture surges from the eastern Pacific will remain a wildcard. There is less confidence for the overall weather patterns during September and October due to conflicting analog year forecasts and dynamic climate model information. Analog years suggest a little more active upper-level jet, with some moisture intrusions likely favoring far northern California, while the dynamic climate models, indicate drier conditions.

Long-term drought conditions are not expected to change much during August, with short term drought conditions likely to affect central and eastern areas the most. Critically flammable vegetation, in both the live and dead fuel types, will occur at times across a broad area of the Northern California but especially impact central and eastern areas during August with less confidence in the trends for September and October. Near to above normal herbaceous fuel loading is found across the landscape and will not be altered until fall or winter storms begin. Other uncertainties regarding fuels that impact significant fire potential include large areas of blow-down with cured leaves and needles due to the intense December storms across portions of the Tahoe, Eldorado, and Six Rivers National Forests as well as increased tree mortality that has returned in higher numbers compared to recent years due to the extended significant drought.

Sea surface temperature (SSTs) anomalies surrounding the Hawai'ian Islands are near normal. Average temperatures were generally observed to be near normal during July. Temperatures should be near to above normal from August through November due to mixed SST anomalies and localized dry soils. Precipitation during July was generally drier than normal across most of the islands with exceptions of

positive anomalies across the northern tip of the Big Island and the far eastern side of Maui. The four-month weather outlook calls for below normal precipitation from August through November. Significant fire potential is projected to be above normal from August through November, especially across the leeward sides of the islands, due to cured and curing herbaceous fuels, intensifying drought, and periods of enhanced trade winds.

Southern California: Temperatures will likely be above normal through October, with the monsoon likely to ebb, or end altogether, towards the end of August. Several offshore wind events, near the annual average, are likely before significant rains arrive in southern California this fall. Overall, significant fire potential is forecast to be above normal in portions of the Coast Ranges in central California and the Sierra Nevada through September, with increasing potential in the Peninsular and Transverse Ranges during September. Coastal southern California is likely to have above normal potential during October and November.

July featured some uncommonly cool weather along the coast, while inland areas were generally a bit warmer than normal. Few temperature records were tallied, and July 2022 will finish within a few degrees of normal for the month. There were several surges of monsoonal moisture, the most substantial of which occurred during the week of July 24. A few desert locations, including Horse Thief Springs, received a substantial amount of their average annual precipitation, with some areas recording over 2" of rainfall in passing thunderstorms. The central part of the state was much drier overall. A few places near the Sierra Crest recorded several thunderstorm days but few storms drifted away from the crest. Most of the Sierra and Sierra foothills observed far less precipitation than usual.

Another dry month across central California caused fuel moisture to drop to record dry levels. Currently, dead fuel moisture is at all-time record low values in the central Sierra, the Sierra foothills, and the central coast interior. The Kern County Mountains and southern Sierra are very close to all-time record dryness levels. Dead fuel moisture is a bit higher over southern California, but values are still far below normal. Only coastal areas and the eastern deserts are seeing dead fuel moisture values anywhere close to normal. Live fuel moisture values are near or below critically low levels in central California.

The rapid spread of the Oak Fire underscores the dryness in the forests and the overall poor vegetative health of older growth areas. The fire grew rapidly and was largely fuels-driven as there was not much wind during the first few hours of fire growth. Conditions such as these will continue during peak heating hours until significant wetting rains occur, the sun angle lowers, and daylight becomes shorter.

High pressure is expected to strengthen over the Pacific Northwest and northern Great Basin in August. This will likely keep central California significantly warmer than normal. The availability of moisture has been high over northern Mexico much of this summer, and this is expected to continue into August. This would result in relatively humid conditions over southern California, with a chance of above normal precipitation in the deserts.

Looking ahead toward the fall, La Niña conditions are expected to continue for several more months. It may peak in intensity in October or November before possibly weakening late in the year. This may lead to a delayed start to the "rainy season" – especially over southern California. Central California will likely fare better in this pattern as departure from normal precipitation typically becomes less acute farther northward.

Given the expectation that La Niña will likely continue into the fall, the "rainy season" may begin a few weeks later than usual. Offshore wind events are expected to be near normal, which makes it likely that several offshore wind events will precede meaningful wetting rains over southern California. Given the late start of the rain and the extreme dryness of the fuels, significant fire potential will likely remain above normal over southern California through October and perhaps well into November.

Central California should see a north to south lowering of the fire potential, and by the end of September, the entirety of that area should see little, if any, large fire activity. At the current time, it is too soon to make a reliable prediction about what the winter may bring. It is rare for a La Niña to continue as long as the

current one has; the last La Niña that rivals this one in longevity was roughly ten years ago. The calendar year of 2012 finished with well below normal precipitation over southern California. Central California was closer to normal and with slightly above normal precipitation in the Sierra. However, the La Niña of 2010-2012 dissipated before the start of the winter of 2012 whereas the current La Niña may continue for a few weeks longer.

Expect fires this fall to spread more rapidly, be more difficult to control and perhaps more critically, exhibit growth during conditions not normally associated with critical fire weather conditions. Recent years have seen fires spread rapidly, even during light winds or humid conditions. A high dead fuel component is partially responsible for this atypical fire behavior. Thus, only during the rainiest and coolest months will large fire potential fall to normal or below normal levels. Vigilance and strict adherence to safety protocols are critically important given the dire state of the vegetation around district. All fuel types will readily carry fire this autumn until significant wetting rains fall.

Northern Rockies: Areas along and west of the Divide are likely to have above normal significant fire potential into September, and near normal potential is expected during October and November as the geographic area transitions out of fire season. Portions of northern Plains may have above normal potential into the fall, with prolonged warm and dry periods followed by critical fire weather conditions increasing significant fire potential, especially given the areas with above normal fine fuel loading.

After several cooler than average months, the past thirty days have seen warmer than average conditions return to all the Northern Rockies Geographic Area (NRGA), though not to extreme levels, yet. North Idaho has been the closest to average mean temperatures during this period, while the southern half of Montana has been the most above normal. Precipitation during the past month has varied, across the geographical area. Most of north Idaho has been drier than average, especially closer to the Salmon River. Most of western Montana has been drier than average, especially in the southwest, as has Yellowstone National Park. West-central Montana has been wetter than average though, and this moist departure extends east across the rest of Montana into the western half of North Dakota. However, the southern third of Montana has been significantly drier than average, as has eastern North Dakota. The latest US Drought Monitor shows slight reductions in all the drought categories and areal extent in north-central to northeast Montana during the past month. The areas west of the Continental Divide and North Dakota are drought-free.

Fine fuel curing has accelerated over the past month, and lower elevations in the western predictive service areas (PSAs) have largely cured fine fuels. Live fuel moistures are at near average levels, generally free of drought effects in the western PSAs as well. Dead fuel moistures have dropped to below average in most western PSAs due to the warmth and short-term dryness. In the southern portion of the Idaho Panhandle and southwest Montana, 100 and 1000-hour dead fuel moistures are near the 3rd percentile of dryness. Fine fuel curing is fully underway in central Montana into western North Dakota, while eastern North Dakota remains greener. Dead fuel moisture in the eastern PSAs have not fallen as quickly as they have farther to the west due to more frequent periods of higher humidity and wet thunderstorms.

Large fire activity was minimal during the first half of July due to the cool, moist conditions over most of the NRGA through much of June, which led to slower green-up and slower than usual fine fuel curing. Large fire activity developed in the lower elevations of north Idaho and western Montana during the last ten days of July, as well as in southeast Montana, as fine fuel curing accelerated, and dead fuel moisture dropped. On July 17, the NRGA went to preparedness level two.

A significant heatwave began over the western PSAs at the end of July and will continue through early August. This will rapidly dry live and dead fuels and greatly increase fire potential to above average levels. Dead fuel moisture in most of the western PSAs are already drier than average. A pattern change seems to be occurring, with a farther westward and more northerly extent in the typical Four Corners upper-level high. This would keep the western PSAs drier and warmer than average through much of August and possibly into September. The latest Climate Prediction Center monthly and seasonal temperature and precipitation outlooks for August and the August-October periods have shifted warmer and drier than average conditions farther west, over the western PSAs.

Given these factors, and the fact that wetter convection east of the Continental Divide has kept fuel moisture from rapid drying and live fuels free of drought stress, above normal significnat fire potential is being shifted westward from earlier outlooks to the north Idaho and western Montana PSAs and Yellowstone National Park in August and September. In contrast, PSAs east of the Divide will be reduced to normal significant fire potential during this period. One complicating factor will be the heavy fine fuel loading east of the Divide from the long, cool, and wet spring. If long periods of warm, dry, and windy weather occur into September, significant large fire potential will be higher into October in central and eastern Montana, possibly into western North Dakota. For now, these areas will be kept at normal fire potential for the duration of the outlook period. In November, it is exceedingly rare for any large fire activity to occur in the western PSAs, so these will be depicted as normal or out of season. There can be significant fire activity in the Plains extending into November during warmer and windier years. For now, the eastern PSAs will be depicted as having normal fire potential in November, as any strong climatic signaling that would suggest otherwise is lacking.

Great Basin: July saw prolonged warmth and dryness shift north and west into northwest Nevada and much of Idaho and Wyoming. Farther south, monsoonal moisture took a respite in early July, with new large fires emerging, but were quickly followed by more surges of monsoonal moisture into the southern half of the Great Basin, with above average precipitation and high humidity for most areas south of the I-80 corridor. The monsoon is expected to continue for southern and eastern areas through most of August, possibly as far north as southeast Idaho and western Wyoming. After a surge of monsoonal moisture in early August, warm and dry conditions are expected farther west and north later in August into September.

Fire activity increased in the eastern half of the central Idaho mountains during July, with extreme fire behavior observed on some fires. Energy release components in these areas are now between the 90th-97th percentiles. The western side of the Idaho mountains still have high live fuel moistures from the very wet spring, but dead fuels are at critical levels, and live fuel moistures should dry later in August. Northwest Nevada has missed most of the recent monsoonal moisture, and areas near the Idaho border into much of the Snake River Plain of Idaho have above average grass crops that are fully cured, with sage live fuel moisture down to critical levels. Farther south and east in the Great Basin, fuels have been modified significantly by the monsoon.

Consistent moisture over much of the Great Basin during at least the first half of August will likely lead to near normal significant fire potential across the geographic area. However, above normal potential is forecast across portions of southern and central Idaho and the Sierra Front in September. Near normal significant fire potential is forecast October through November for the Great Basin Geographic Area.

Southwest: Areas of above normal significant fire potential will exist across the eastern plains of New Mexico for both August and September, but near normal elsewhere in the Southwest Geographic Area. Significant fire potential will be normal area-wide by October into November.

The early arrival of the North American Monsoon in mid-to-late June ended the large fire season in the Southwest Area and is expected to remain rather robust well into the month of August. This will be especially true across the central parts of the geographic area, with eastern sections likely to exhibit hotter temperatures without significant precipitation. For the months of August into September, above normal significant fire potential will occur across portions of the eastern third of New Mexico, especially over the far eastern plains region as a large dome of high pressure is anticipated. This will be accompanied by areas of hot temperatures centered likely across much of the southern and central Plains. Areas farther west will begin to see some drier periods later in August, with a drier than normal September likely nearly area-wide. However, significant fire potential should remain closer to normal farther west despite the likely warming and drying during the late summer. The months of October into November will likely turn somewhat wetter across portions of the region as the westerlies become more active with the onset of fall as significant fire potential trends back to normal across the geographic area.

Rocky Mountain: Although significant wildfire potential has moderated across much of the Rocky Mountain Area (RMA) due to monsoon precipitation, there will still be areas with above normal fire potential across Wyoming and the Black Hills in August and September due to the persistence of long-term drought

and anticipation of warmer and drier-than-normal conditions. For fall, normal significant fire potential is expected across all areas, though there may be a continuation of warm and dry weather.

A weak La Niña continued into mid-summer but is favored to decrease slightly in magnitude through the late-summer months before increasing again this fall and early winter. The position of the ridge of high pressure continued to support a steady influx of monsoonal moisture streaming north from the subtropics, bringing timely and generous precipitation to Colorado during the past two months, while the rest of the RMA saw periodic showers and thunderstorms with sufficient moisture. On occasion, the moisture was enhanced by active East Pacific tropical storms and hurricanes. Farther north, wholesale dryness continued in western Wyoming and southeast Kansas until the last days of July when moist storms brought wetting rain to several areas of ongoing fires, including the Laramie Range of southeast Wyoming. Overall, precipitation anomalies in those areas for the month of July were about 20 to 50 percent of average.

Under a ridge of high pressure, the RMA experienced little in the way of broad-scale wind events outside of convective thunderstorms. There were only a few, infrequent hot, dry, and windy episodes on the southern end of cold frontal passages across Wyoming and South Dakota that elevated the potential for wind-driven fire spread, given few ignitions.

According to the US Drought Monitor, improvement was noted in both the severity and aerial coverage of drought over the past three months across most of the RMA, however about half of the RMA remains in moderate to severe drought. The most favorable improvement of drought conditions was in South Dakota and eastern Nebraska, but extreme to exceptional drought remains in a swath from the Nebraska Panhandle through southwest Kansas where soil moisture anomalies reflect extreme dryness.

There has been an uptick in lightning ignitions following recent thunderstorm activity, given that the heavy 1000-hour fuels are still exceptionally dry, especially in the higher elevations of Wyoming, southwest Colorado, and the Black Hills of South Dakota. However, live fuel moisture samples for 100-hour fuels are running near average except for some of the sagebrush in Wyoming. Energy release component (ERC) indices at the end of July were in the 70th to 90th percentiles in northwest Wyoming, but near average or below across the rest of the RMA. Since wind is an input to the burning index, that component of fire danger remained moderated except for southwest Wyoming where it was considered “High” to “Very High”. Finer fuels in the mid and high elevations are in a state between partially and fully cured as of late July sampling. According to the Evaporative Demand Drought Index (EDDI), there is a strong signal defined by the monsoonal moisture pattern depicting the wettest EDDI Drought Categories in Colorado but the driest categories on the High Plains of southwest Nebraska and northwest Kansas.

Over the past month there have been fewer than average large fires across the RMA but a modest increase in new ignitions, especially following lightning strikes within heavy fuels. As well, it was noted that there have been lightning-caused fires in the finer fuels and hardwood landscapes of the Nebraska Sandhills, which is considered a rare occurrence by local fire managers.

For the outlook period from August through November a third consecutive La Niña is anticipated to persist this fall, which will be a rare “triple dip” cycle, with expectations of another dry fall season, particularly in the southern and eastern half of the geographic area. According to the Climate Prediction Center (CPC) the first half of August is expected to bring a split of hot and dry weather in the central and eastern U.S. but cooler and wetter than average conditions west of the Continental Divide thanks to a continuation of the monsoon. Long-term outlooks from the CPC suggest that the period including September, October, and November are expected to be warmer and drier than normal for much of the RMA due to the influence of a ridge of high pressure and strengthening La Niña.

The outlook for the RMA depicts normal significant fire potential across most of the geographic area, with the monsoon influence continuing in August. Above normal significant fire potential is anticipated to continue across the High Plains of eastern Wyoming, northeast Colorado, the Nebraska Panhandle, and western South Dakota for August and September as fine fuels continue to cure and carry fire. Even with a continued La Niña influence and drier conditions, shorter daylight hours and burning periods are expected to help lower the risk, with a return to normal significant fire potential in October and persisting into

November for all the RMA. It is important to note that the fall months typically bring a bi-modal resurgence of fire potential on the High Plains, and this will be somewhat elevated because of the ongoing drought conditions but not anticipated to be critically so.

Eastern Area: Above normal significant fire potential is forecast in portions of the Missouri Valley and western Mississippi Valley in August and October and in southern Missouri for September. Otherwise, near normal significant fire potential is forecast across the majority of the Eastern Area into November.

Thirty to 90-day soil moisture and precipitation anomalies were near to above normal across much of the Eastern Area towards the end of July. Drier than normal conditions were indicated across southwest Missouri, the northeast Great Lakes, northeast Mid-Atlantic States, and the New England Metro.

Above normal temperatures are forecast over the western tier of the compact through August. Slightly cooler than normal temperatures are expected over the majority of the Eastern Area in September except across eastern New England where above normal temperatures are forecast. Above normal temperatures are expected through the rest of fall.

Drier than normal conditions are forecast over much of the western half of the Eastern Area in August and across parts of the Mississippi and Lower Ohio Valleys heading into September. Above normal precipitation is expected over parts of the northern tier in September and over the eastern Great Lakes moving into October.

Near to above normal fuel moisture is forecast over the majority of the Eastern Area through the remainder of the summer and into the fall season. Above normal fire potential is expected to persist or redevelop over the parts of the western Mississippi Valley August into October, especially if the forecast warmer and drier overall trends persist or redevelop.

Southern Area: Despite a temporary weakening of the otherwise persistent upper-level ridge heading into early August, rapidly worsening drought is contributing to an environment that supports above normal significant fire potential across western portions of the Southern Area. This risk during August may be tempered with northern extent across Oklahoma into Arkansas to begin the month, but the return of widespread-triple digit heat is expected to maintain or worsen energy release components (ERCs) that are currently well above the 90th percentile over much of Texas, Oklahoma, and Arkansas. Fire occurrence across Texas and Oklahoma during July has primarily been observed in mixed fuel beds, with both live and 1-, 10- and 100-hour dead fuel moisture well below normal, in addition to 1000-hour dead fuel moisture values that are below the 3rd percentile. Fires that develop in areas with such dry, heavy fuels may continue to escape containment, while KBDIs above 700 also lead to extended mop-up periods. Given a strong signal for upper-level ridging to continue into August and possibly September, these trends should persist and expand as drought becomes increasingly extreme.

Abnormally dry conditions the past several months across northern Mississippi and Alabama into western Tennessee and Kentucky are expected to be mitigated by a heavy rain event that may extend into early August. If drought-busting rain fails to materialize, these areas may be prone to an increased risk for large fires during periods of extended very hot and dry weather in August. There is greater confidence that conditions may become more favorable for large fires heading into fall, particularly given that fuel loading may have been affected by a wetter than normal spring across the Mississippi Valley.

A return to wetter and cooler conditions may develop during November across parts of Texas and Oklahoma into the Mississippi Valley. Above normal significant fire potential is maintained across most of Texas to the east of the Plains into November, but if this potential pattern change often associated with La Niña is delayed or does not occur, significant fire potential may remain higher than normal across parts of Oklahoma, Arkansas, and the Mid-Mississippi Valley. Ongoing drought conditions across Louisiana, especially over western portions of the state that were impacted by Hurricane Laura in 2020, should see increasing significant fire potential during October and November, as well.

Hot and abnormally dry weather is expected to start the period over much of Florida into Georgia and possibly the Carolinas. Some of these areas have missed out on above normal rainfall that occurred farther inland over the past month, and KBDIs more than 400 are noted along the Florida Atlantic coast into coastal Georgia, in addition to small, scattered areas across the Carolinas into Virginia. As is often the case when La Niña conditions are in place, abnormally dry and warm weather may become increasingly likely over the Southeast heading into late fall, which could set the stage for above normal significant fire potential once leaf drop occurs. Given mixed signals in analog years and climate models, normal conditions are forecast across the Southeast through the period for now. Areas of longer-term underlying drought will be monitored closely for significant fire potential, especially for areas immediately south and east of the Appalachians.

Landfalling tropical cyclones will cause uncertainty regarding significant fire potential nearly anywhere in the Southern Area into November. It is too early to have any confidence in what portions of the geographic area tropical systems may favor this year and just one system could produce drought-busting rains. Additionally, large swings in above and below normal rainfall and temperature patterns have been a common theme in recent history. Whether this is occurring in response to multidecadal fluctuations, undiscovered climate forcing, or the warming planet, it unfortunately adds another layer of complexity to the forecast, both in terms of what weather to expect and regarding how the landscape responds to increased variability.

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