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.

Significant fire activity continued across the Northwest, northern Rockies, California, and northern Great Basin through early September. Precipitation events reduced fire activity mid to late September across these areas, although fire activity did continue in portions of the Northwest, Idaho, and western Montana during elevated and critical fire weather. Fire activity increased across the Southern Area, especially late in the month. Year-to-date acres burned for the US is approximately 108% of the 10-year average, with an above average number of fires as well.

Drought continues in much of the West, with expanding and intensifying drought in portions of the Northwest, Idaho, and Montana due to warmer and drier than normal conditions in September. Most of California received well above normal rainfall for the month and much of the Northeast did as well, helping to reduce drought in New England. Warmer and drier than normal conditions also occurred in much of the southern and northern Plains into parts of the Southeast, Texas, and Midwest.

Near normal temperatures and near to above normal precipitation are likely for portions of the Pacific Northwest and northern Rockies into early winter. Near to below normal precipitation is forecast for the rest of the West through the southern and central Plains into the Gulf Coast and Southeast, barring any landfalling tropical cyclones on the Gulf and Atlantic Coasts. Near to above normal temperatures and near normal precipitation are forecast for the Midwest through the Mid-Atlantic and Northeast.

Above normal significant potential is forecast for much of Oklahoma, Texas, the Lower Mississippi Valley, and central Gulf Coast into December. Above normal potential is likely for much of the Mississippi Valley in October and the western Ohio Valley through the Ozarks into November. Southern Area is forecast to return to near normal significant fire potential during January.

The Transverse and Peninsular Ranges of southern California to the coast, areas prone to Santa Ana winds, will have above normal significant potential October through November, before returning to normal potential in December. The Hawaiian Islands will continue to have above normal potential, especially lee sides, through November before returning to normal potential in December. All the US is forecast to have near normal significant fire potential during January.

Past Weather and Drought
A historically strong heatwave developed across the West, especially on the West Coast and northern Intermountain West, in early September as daily, monthly, and all-time record temperatures were observed. Hot, dry, unstable, and windy periods early in the month led to significant fire growth in California, the Northwest, Northern Rockies, and northern Great Basin. Additionally, dry thunderstorms helped ignite large fires across most of these areas. September 6 featured hot, dry, unstable, and windy conditions coincident with dry thunderstorms from northern California through the Pacific Northwest, Northern Rockies, and northern Great Basin, representing the peak of the western fire season. Strong offshore winds also affected the Cascades late in the second week of September, which fueled fire growth.

Tropical Storm Kay moved just offshore southern California around mid-month, with moisture spreading into portions of the Desert Southwest and southern California producing heavy rain, which eventually moved into the Great Basin as well. Heavy rain fell across northern California during the third week of September, which significantly reduced fire activity and potential. Widespread wetting rain fell across the northern tier of the West and the greater Four Corners region during mid to late September. However, below normal precipitation has been observed this month west of the Cascades and portions of the Inland Northwest into the northern Rockies, which has let some large fires continue to burn in these areas during warmer, drier, and windy periods.

Hurricane Ian made landfall September 28 as a category four hurricane near Fort Myers, Florida. Widespread heavy rain fell on the Florida Peninsula and eventually stretched along and east of the southern and central Appalachians to the southeast Atlantic coast. New England received multiple rounds of wetting rain, which helped alleviate drought and fire potential concerns, while much of Oklahoma and Texas into the Lower Mississippi Valley and central Gulf Coast remained dry with increased fire activity. Hurricane Fiona dropped heavy rainfall on much of Puerto Rico, with tropical storm to hurricane force winds across much of the island as well September 17-18.

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 continue, with below average sea surface temperatures (SSTs) over much of the equatorial Pacific Ocean. SSTs have remained generally steady for the past month, with La Niña conditions likely to continue through fall. CPC is forecasting an 91% chance of La Niña continuing through the fall, decreasing to a 54% chance of La Niña conditions continuing through winter. This will be a rare “triple dip” La Niña.

Geographic Area Forecasts

Alaska: Normal significant fire potential is expected in Alaska during the fall and early winter. Alaska is essentially out of fire season.

Ample rainfall over most of the state during the second half of the wildfire season has eliminated all drought conditions across Alaska, apart from a small area in the southeast Interior. Wildfire activity in Alaska was minimal as of late September, with a handful of fires in monitor status and no staffed fires. There have been several wind-driven fires in the Upper Tanana Valley that have required rapid suppression actions this month, but Alaska’s 2022 wildfire season has essentially ended.

Fuels across the state are wet at the surface and through the middle duff layers. Though dry deep duff layers persist in the Yukon Flats and the Tanana River Valley, upper fuels in these areas will not support prolonged wildfire behavior. At best, surface fuels may dry and support wind-driven fire behavior for a short time.

Precipitation patterns are expected to be near normal for all of Alaska except for a slight moist signal over southwest Alaska’s river deltas. There is a trend for colder temperatures over the southeast Interior and the southeast Panhandle, a trend for warmer temperatures in the northwest, and no signal over the remaining areas. Large storms may bring strong wind events to parts of the state this fall that could spur rapid, though short-lived, human ignitions. Climatologically, snow will begin spreading over northern Alaska at the beginning of October, moving towards southern Alaska by the end of the month.

The snowpack will begin building in October, first at higher elevations and over the northern Interior, then advancing to cover the entire state through early November. Until the snowpack deepens, there is the possibility of wind-driven surface fires, particularly in the Upper Tanana and Matanuska Valleys and some coastal areas in the south. Overall, Alaska will remain out of season until next spring.

Northwest: Significant fire potential in the Northwest Geographic Area for October through January is expected to be near normal as cooler and moister fall weather arrives. As the Northwest will be out of fire season, normal indicates very low risk.

Overall, September was warmer than typical for the Pacific Northwest. The geographic area was mostly drier than normal, with south-central Oregon wetter than normal and western Washington and northwest Oregon uncharacteristically showing the driest precipitation anomalies. The first week of the month was showery with some isolated mixed wet and dry thunderstorms. Just after Labor Day, a weather system dropping out of Canada into the northern Rockies and a thermal trough west
of the Cascades generated the first, but short, east wind event of the season, desiccating fuels on the west side of the geographic area. A series of troughs lingered along the coast through the middle part of the month, bringing rounds of showers and mostly wet thunderstorms to most of Oregon and parts of eastern Washington, while western and central Washington remained dry. The final week of the month started with light east winds, giving way to onshore flow as an upper-level trough arrived. Abnormally dry conditions persist over most of Washington, while southwest and eastern Oregon continue to see moderate to extreme drought, with a small area in north-central Oregon still in exceptional drought.

Approximately 260 fires were reported in August and around 570 fires were reported in September. Most were from lightning, but human caused starts did contribute to initial attack. The storms in early and mid-September resulted in mostly new lightning ignitions. The quantity of lightning was slightly above average for most of the PSAs except PSAs 1 and 2 where lightning was nearly absent. However, the limited dry lightning that moved through these PSAs produced several ignitions.

In the closing days of August, a series of fires in northwest and north-central Washington were ignited by lightning. These fires in wilderness in the north Cascades grew from a few acres to a few thousand. The fires in northwest Washington persisted and required type 3 teams and a National Incident Management Organization team for support. Several areas in northwest Washington had not received wetting rains for over forty days, with multiple large fires resulting. The dry spell primed the fuels and eventually two more large fires emerged that required incident management team mobilization. One fire near Skykomish was in a forest that had not burned for around 400 years. The deep duff and decomposed logs burned slowly, but with intensity.

Meanwhile the large fires in northeast Oregon that began in late August continued to grow. These fires were slowed with two significant bouts of moisture that placed the fires in monitor status quickly, after burning over 180,000 acres. Farther west, the large fires in the Cascades had the same rainfall events and fire behavior moderated rapidly. Several RAWS stations recorded season slowing events over most of the southern half of Oregon to mitigate the threat of holdover fires that came with the storms. Fire behavior through the Oregon Cascades has varied from long range spotting and torching with runs of several miles in one afternoon to only a few feet per day due to a combination of marine air, storms, and a return to moderate temperatures. Most of the fire behavior was reported as moderate and the number of fires was within the 30-year average for September.

Fire danger indices peaked at the beginning of September for the geographic area and began to taper slowly downward the remainder of the month. A few upward spikes in fire danger occurred prior to cold fronts with fire danger then dropping as precipitation or higher humidity returned. Large 1000-hr fuels were measured at seasonal lows of 6-8% in south-central Oregon, with sagebrush moisture dipping into the 50% range for the eastern basins, while junipers were in the 80% range. Conifer and brush fuel moistures measured stayed within average seasonal ranges. The upper elevation meadows remained green while the heavy fuels provided the catalyst for continued fire behavior. Overnight humidity recovery moistened the 10 and 100-hr fuels from critically low levels. The 100-hr fuels kept rebounding from below average to average with the weather patterns, which allowed for fire behavior moderation and initial attack success.

Climate outlooks for October suggest warmer than normal temperatures for most of Oregon, while no signal exists for northwest Oregon and Washington. Western Washington could be wetter than normal, while the rest of the region is forecast to receive near average precipitation. November through January is forecast to trend cooler and wetter than typical as La Niña conditions persist through the winter.

**Northern California and Hawai‘i:** Significant fire potential is projected to be normal October through January. Historically during October all Predictive Services Areas (PSAs) observe one or less large fire while less than one occurs from November through January. Hawai‘i’s significant fire potential is above normal during October and November across all the islands but especially the leeward sides, then returns to normal during December and January.

The weather pattern during September across northern California was diverse, with a mixture of warm and dry periods followed by cool and moist periods. A multi-day heat wave occurred September 1-10 and was
immediately followed by a surge of tropical moisture from the remnants of Hurricane Kay during September 11-13. Approximately 950 cloud to ground lightning strikes were observed due to the remnants of Kay. An unusually cold and moist cutoff low pressure system affected the entire geographic area from the September 17-21 providing wetting rain and high elevation snow in addition to nearly 2700 lightning strikes.

Precipitation during September was generally above to well above normal, with some areas near normal across far northwest California. Temperatures were generally near to above normal. Dead fuel moistures were variable with widespread record low values during the heat wave and widespread unusually high values following the cutoff low passage. Herbaceous fuels were cured to mostly cured by the middle of the month across most elevations, although a flush of new green-up was initiated by the abundant moisture across many low elevation areas later in the month. Live shrub and tree moisture readings were flammable across most species and elevations during the month with near seasonal low values.

Several Red Flag Warnings and several days of high-risk significant fire potential were issued across northern and eastern PSAs for either lightning, wind, or heat. Type 1 Incident Management Teams were dispatched to the Mountain and Mill Fires which ignited on September 2, the Mosquito fire which started September 6, and Barnes fire which started September 7. Minimal prescribed burning occurred during the first three weeks of September but picked up slightly the last week due to the abundant precipitation.

The weather outlook for October through January calls for mixed temperature and precipitation anomalies due to highly variable weather patterns. October should be a mix between warmer and drier conditions followed by cool and slightly moist periods, with a few northerly offshore wind events. The jet stream should get more active during November and provide more widespread wetting precipitation. North Ops is expected to lie between abundant precipitation to the north and drier conditions to the south during December and January. Cooler than normal periods are expected to be most prevalent during the fall. Lightning is not expected to be a big factor during this outlook period, with long-term drought likely to improve later in the fall. Low fuel moistures, both live and dead fuels, will likely occur in smaller increments during this outlook period due to timely cool and moist periods, decreasing daylight hours, and a lowering sun angle. Herbaceous green-up has started across the lower elevations and will provide a partial heat sink for new ignitions when intermixed in the cured carryover fuel bed, but the main green-up period should be more noticeable during November and beyond. The carryover herbaceous fuel loading is near to above normal and likely won’t be significantly altered until late fall. Tree mortality, induced by a multi-year drought, will remain a concern across the mountains, especially in the Sierra.

Sea surface temperature (SST) anomalies surrounding the Hawai‘ian Islands are near to slightly above normal. Average temperature anomalies during September were mixed, with some islands slightly below normal and others were a little above normal. Precipitation anomalies were also mixed, with below normal readings found across Kaua‘i and Hawai‘i and above normal across most of O‘ahu, Moloka‘i, and Maui. Long-term drought improved slightly across the central islands but remained across most of the islands.

The seasonal weather outlook calls for near to below normal precipitation during October and November across Hawai‘i and then near to above normal precipitation in December and January as the rainy season establishes. Temperatures should be near to above normal during the outlook period with mixed SST anomalies. Significant fire potential is projected to be above normal October and November, especially across the leeward sides of the islands, due to cured to partially cured herbaceous fuels, drought conditions, and periods of enhanced trade winds due to La Niña. Normal significant fire potential is projected for December and January as La Niña impacts wane. During this period green-up should become more widespread while dead fuel moisture values rise, although December could be a transition month so there is less confidence for that period.

**Southern California:** Given the potential for a later than normal start to the rainy season, the ongoing drought and the expectation of below normal rainfall, significant fire potential is expected to remain above normal over portions of South Ops this fall. The first widespread wetting rain this fall will likely follow two to three offshore wind events. All fuel types will readily carry fire in southern California until short daylight hours, a low sun angle, and wetting rains arrive sometime late in December. The rainfall of the summer only was a blip in an overarching dry pattern, which is likely to continue into the winter.
Southern California was the focus of the precipitation from a dissipating Hurricane Kay. The storm took northwestward path, which brought it close enough to impact far southern portions of the state. As a result, bands of upslope precipitation fell across the southern California mountains. Unusually, the desert-facing, east sides of both the Cleveland and San Bernardino National Forests recorded the heaviest rainfall from Kay. Some areas of San Diego County received over five inches of rain, but the area which received heavy rainfall was quite small and was generally south and east of Los Angeles.

Later, a deep trough which had its origins in the Bering Sea dropped into central and northern California. Very cold air aloft along with copious moisture resulted in record rainfall for the northern two-thirds of the state. Over four inches of rain fell along the central coast and in the Sierra and Sierra Foothills north of Fresno County. Unlike the rainfall from Kay, the rain fell as a long duration stratiform event, with rainfall rates generally under a half inch per hour.

Temperatures were generally a few degrees above normal last month; mainly due to a record-setting heatwave during the first week of September. The rest of the month saw maximum temperatures oscillate between well below normal and well above normal. Despite a lack of offshore winds, minimum temperatures were generally well above normal as a monthly average. Humidity levels were also above normal, in general, with few days of extremely low relative humidity, which is also unusual for September.

It would be difficult to find a recent summer month where dead fuel moisture (DFM) values swung from record dryness to well above normal in such a short period of time. But this was the case in September as record heat exposed dead fuels to kiln-like conditions before the heavy rains arrived later in the month. At the time of this writing, dead fuel moisture is quickly waning as more typical early-fall weather arrived. DFM is quickly falling to below normal levels. With little, if any, rainfall expected the next few weeks, DFM will likely remain well below normal for an extended period.

Live fuel moisture has fallen to critically low levels despite the rainfall. As it is well outside the norm to see significant rains arrive in September, the storms did not spawn a fresh spurt of growth on brush or develop a new grass crop. Shorter daylight hours and a lower solar angle will be necessary for the live fuels to come out of dormancy in most areas. Thus, all fuel types will be available for burning, except in the highest elevations of the Sierra.

Recent rainfall from two remarkable weather-events notwithstanding, the overall weather pattern and outlook has changed little recent weeks. The eastern Pacific remains locked in a La Niña pattern for the third year in a row based on sea surface temperatures (SSTs) in the eastern Equatorial Pacific. Such a “triple dip” La Niña is exceptionally rare with only a handful of occurrences recorded since 1950. The intensity of the current La Niña may have already peaked, but SSTs are expected to remain in at least a moderate La Niña pattern through most of the upcoming rainy season.

As such, the onset and length of the “winter rainy season” will probably be such that drought relief will not occur over most of South Ops. A good chunk of the geographic area remains in exceptional drought, which may only see modest levels of improvement this winter. The precipitation deficits are expected to be more acute in southern California as the storm track is expected to remain too far to the north to allow for sustained rainfall, especially from Kern and Santa Barbara Counties southward.

**Northern Rockies:** Given the status of the fuels and climate outlooks, we will be maintaining normal significant fire potential for the NRGA in October and November. It has been rare to have significant fire potential and activity east of the Divide in December and January, and given the climate outlooks continuance of La Nina conditions, which promote colder, wetter winters, normal significant fire potential is forecast across the NRGA through January.

The first week of September started off hot and dry, with strong upper-level high pressure, but ridge breakdowns eventually led to a seasonal pattern by mid-month. The early month heatwave caused some portions of central Montana to see their latest ever recorded 100°F temperatures. The ridge breakdown did allow some precipitation to fall across the region. One unusual aspect of September was moisture from
the remnants of Hurricane Kay drifted through the geographic area and kept humidity above typical September values for about a week.

A wet storm system tracked across the geographic area and produce season ending rainfall amounts across most of western Montana and northern Idaho on September 21-23. Lesser amounts fell over eastern portions of the Northern Rockies Geographic Area (NRGA), which will maintain typical fall fire weather concerns.

Drought indices improved across the western part of the NRGA but were little changed across northern Montana, east of the Continental Divide. Predictive Service Areas (PSAs) NR13 and NR15 contain the most severe (D2) to extreme (D3) drought coverage. This region is showing just 70% of normal precipitation during the past 24 months. Smaller pockets of multi-year dryness are present up in southwest Montana, with most of western Montana and northern Idaho tracking closer to normal. Except for NR13 and NR15, nearly all the remainder of the NRGA is reporting no drought or abnormally dry.

The early month heatwave pushed ERCs above the 90th percentile. Mid-month cooling and precipitation pushed ERCs to track closer to seasonal values. The late month event drove ERCs below seasonal values across the western portion of the NRGA except for the Idaho Panhandle. Fuels look to remain close to seasonal normals into the fall and early winter months. Eastern Montana and North Dakota grasses have cured or will be freeze killed shortly, with fall wind driven fires a typical threat, especially for October and November, until adequate snow cover arrives. Despite the multi-year precipitation deficit mentioned above, heavier fuels in eastern Montana are only tracking slightly below normal fuel moisture.

Large fire activity increased again during the first week of September when a strong upper ridging pattern and heat wave brought hot, dry weather to north Idaho and Montana. Some all-time September high temperature records were broken west of the Continental Divide. Holdovers from extensive lightning activity in the western timbered PSAs in late August came to life, and existing large fires exhibited significant growth. More than half of the current season to-date acreage of just over 150,000 burned during the first ten days of the month. An upper trough in northwest flow brought wetting rainfall to much of central and eastern Montana September 8-9, which reduced activity and potential there. Over the next several days, cooling and higher humidity also occurred in the western PSAs and increased dead fuel moisture, which slowed fire growth. The only Type 1 Incident Management Team deployment of the season occurred during the second week of the month, to manage a complex of lightning-caused fires in the Bitterroot Range. Fire history suggested these fires had high values at risk due to the potential to spread eastward into the populated Bitterroot Valley. A moist upper trough passage brought season-ending (according to NRGA-derived standards) wetting rainfall of 0.25-2.00” to most of the western PSAs September 21-22, with lighter amounts farther east.

Although the US Drought Monitor indicates portions of the NRGA are reporting some degree of drought, dead fuel moistures are at not critical, due to the two upper trough passages that occurred earlier this month. In addition, live fuel moisture levels are not indicative of significant drought stress in any PSA. Latest Climate Prediction Center temperature and precipitation outlooks, as well as short-term weather modeling, indicate a transition toward near-average conditions for October. These continue into November, and the seasonal outlooks, based on La Niña conditions persisting through the coming winter, suggest above-average precipitation could occur in December and January. Short periods of higher fire potential and activity in the grasslands and brush east of the Continental Divide in October into November are typical, due to weak, dry upper trough passages producing wind events with low humidity.

**Great Basin:** Normal significant fire potential is expected from October through January, which typically means low fire potential.

September had dry conditions to start the month as the monsoon was suppressed farther south, but wetter conditions materialized mid to late month, with well above normal precipitation across much of the Great Basin over the last two weeks. Temperatures were well above normal at near record levels for an extended time in early September, then temperatures cooled the last half of the month as storm systems moved through the geographic area. Overall, temperatures were above normal for the month due to the early
September heat. Severe to extreme drought continues across Nevada and Utah into southern Idaho and western Wyoming, with moderate drought conditions farther north into central Idaho.

Energy release components (ERCs) peaked across much of the Great Basin in early September due to the heat wave, with record low fuel moisture observed. ERCs have dropped significantly in the last two weeks, with multiple storms moving through the region and are near to below normal across the Great Basin. Fuel moisture will decrease somewhat in early to mid-October, with a period of drying but will likely not return to critical levels due to the time of year, cooler nights, and less daylight. Storms later in October and more likely November through January are expected to periodically increase fuel moisture.

Fire activity increased in early September across Idaho due to very dry and warm conditions continuing to increase fire danger. However, the last half of September brought more moisture to the north. This brought multiple days of increased relative humidity, areas of showers and thunderstorms, and wetting rains to all the fires to reduce fire activity. Farther south, September was very quiet for fires as monsoon moisture effectively lowered fire activity in August.

Fire activity increased during September in Idaho due to very dry and warm conditions continuing to increase fire danger. However, the last half of September brought more moisture to the northern Great Basin. This brought multiple days of increased relative humidity, areas of showers and thunderstorms, and wetting rains to all the fires, which reduced fire activity. A storm system is expected to move through the Great Basin early in October, followed by prolonged drying before any other additional precipitation. Fire danger will likely creep upwards during the dry periods, but not enough in October for any areas to become critical. Grasses should transition to dormancy throughout the fall and enough moisture should move through at times to keep fire danger lower. Therefore, normal significant fire potential is expected through January across the Great Basin, which translate to low fire activity for geographic area.

**Southwest:** Normal significant fire potential is anticipated area-wide for the remainder of the fall into early winter. Localized areas of enhanced fire potential are possible at times for portions of the eastern plains of New Mexico.

The early arrival of the North American Monsoon in mid-late June ended the large fire season in the Southwest Area. The monsoon season has been quite impressive overall regionally, with precipitation near or above 150% of normal during the past 90 days. In fact, portions of both western and northwest New Mexico and much of western Arizona have experienced at least 200% of normal precipitation since the monsoonal period began. This has been one of the more robust monsoonal periods in recent history for much of the geographic area.

For October, a seasonably humid and wet beginning will more than likely gradually turn to a drier, breezier, and more seasonable weather pattern later in the month. The combination of increasing frequency of storm systems passing to the north and periods of weak, slow-moving systems just to the south will continue a trend of near normal precipitation and temperatures. Although widespread above normal significant fire potential is unlikely across the east during October, some local areas could have more active periods during warmer and drier periods.

November into January will more than likely turn drier overall with temperatures near to slightly above normal. This trend, although drier and milder than normal, is occurring in the wake of an impressive monsoon. As a result of this and cooler temperatures coincident with a lower sun angle, significant fire potential will remain normal area-wide. Areas across eastern portions of New Mexico will be monitored as lingering dryness will more than likely worsen through the fall months. Absent significant wind, however, these areas are expected to retain near normal significant fire potential.

**Rocky Mountain:** Normal fire potential is expected across all portions of the Rocky Mountain Geographic Area (RMA) for the outlook period, which typically means low fire potential. Historically, there is a bi-modal trend of increased fire occurrence on the High Plains due to the seasonal curing of fine fuels. This year is expected to follow that trend with some periods of elevated fire potential due to persistent drought and above-normal fine fuel loading when warm, dry, and windy conditions overlap.
Weather patterns fluctuated significantly from week-to-week across the RMA from mid-August through September as several troughs periodically weakened an upper-level ridge of high pressure. These disturbances emerged thanks to a strengthening of the northern branch of the polar jet stream and caused the ridge axis to shift from the Four Corners region eastward and across the RMA in early September. This brought a heat wave with record temperatures during the first and second weeks of September, contributing to the highest number of days exceeding 90 degrees for September in the eastern half of the RMA.

As these low-pressure systems moved through the RMA, they temporarily pushed the bulk of monsoon moisture farther south into New Mexico and Texas. Stronger cold frontal passages coincided with these systems across the northern half of the RMA, with the coldest airmasses of the season resulting in high-elevation snowfall to Colorado’s Continental Divide during the third week of August, then to Wyoming’s Bighorn and Wind River Mountain ranges the second week of September.

While periodic showers and thunderstorms with wetting rain occurred across Wyoming, Colorado, and most of Nebraska, the highest precipitation deficits and dryness continued across the High Plains of South Dakota and Kansas over the past two months. Similarly, the Climate Prediction Center (CPC) depicts extreme soil moisture anomalies in eastern South Dakota through central and eastern Kansas. This has led to more widespread and severe drought on the Plains during the past 90 days according to the US Drought Monitor. However, there has been some subtle improvement in Wyoming and considerable improvement in southern Colorado thanks to a lengthy and robust monsoon.

Fine fuels in the lower elevations cured as they completed their growing season and are available for fire spread but may become too moist to burn under any prolonged period of showers and thunderstorms. Hot, dry, and windy conditions during the first week of September brought fire danger indices back above the 90th percentile at many sites across the Black Hills, South Dakota, western Nebraska, southwest Wyoming, and northwest Colorado. Since then, fire danger moderated with two fall-like cold fronts that brought cooler temperatures and a mosaic of precipitation to Wyoming, Nebraska, and western Kansas as well as mountain snow and valley rain in Colorado. South Dakota has remained drier overall and continues to show significant deficits in precipitation.

During periods of warm, dry, and breezy weather fire danger has been elevated-to-critical on the Plains and that is expected to continue as we transition through the fall months until snowfall covers the fuels. Fewer than average large fires and fewer than average acres burned across the RMA the past few months during what is traditionally considered to be the “core fire season”. Statistically, both the number fires and acres burned are about 10% of average for the season, allowing resource mobilization to remain below average for this time of year as well. In late summer there were a few large fires in the Wind River Range, near Casper, Wyoming, and in western Nebraska and South Dakota, but they were short-lived due to beneficial moisture from thunderstorms. During favorable conditions, prescribed burning has resumed in some areas of the RMA since the middle of September.

For the outlook period from October through January, a third consecutive La Niña is forecast, which will be a rare, “triple dip” cycle. The monthly outlook from CPC favors a warmer and drier-than-normal October for most of the Rocky Mountain Area. November through January are anticipated to transition to more of a traditional La Niña split pattern of wetter and colder across the northern half of the geographic area, with warmer conditions across the south. An important consideration for the upcoming fall and winter season is the alignment of other climate signals that may reinforce a wetter pattern in terms of snowfall for the western United States, including the RMA.

**Eastern Area:** Near normal significant fire potential is forecast across the majority of the Eastern Area October into January. Above normal fire potential is expected across the western Mississippi Valley through the remainder of fall.
Drier than normal conditions were indicated towards the end of September across the western Mississippi Valley, northern Wisconsin, and the eastern Lower Peninsula of Michigan. Thirty to 90-day soil moisture and precipitation anomalies were near to above normal across the remainder of the Eastern Area.

Above normal temperatures are expected over the majority of the Eastern Area October into November. Below normal temperatures are expected across the Great Lakes December into January. Drier than normal conditions are forecast over the Mississippi Valley into October. The drier than normal conditions are expected to shift into parts of the eastern states November into December. Periods of below normal fuel moisture levels are likely October into November over drier parts of the Mississippi Valley if the forecast warmer and drier than normal conditions occur.

Above normal fire potential is expected over the western Mississippi Valley through the remainder of the fall season, with the forecast warmer and drier conditions.

**Southern Area:** The footprint of critically dry fuels has rapidly expanded at the end of September, with an anomalously dry air mass entrenched over much of the Southern Area and little hope for relief through at least the first half of October. One obvious exception here is Hurricane Ian, which should alleviate short-term concerns of increasing drought across the Carolinas and eastern Virginia. Large portions of Texas and Oklahoma into the Mississippi Valley, Tennessee Valley, and Gulf Coast have not received wetting rainfall in several weeks, with many of these areas observing less than 25% of normal rainfall over the past 30 days. Live fuel moistures recovered considerably across Texas after some areas there and into the Lower Mississippi Valley experienced their wettest August on record, but the recent drying trend is reason for concern heading into what should be a drier than normal October. It is also worth noting that the above normal rainfall across much of Texas in August contributed to greening and growing of native grasses, which are now transitioning to a cured state increasing fuel loading. Grasses across the High Plains have not yet been assessed by the Texas Forest Service, but it is thought that long-term drought owing to the multi-year La Niña has left lower than normal fuel loading heading into winter.

Warmer than normal conditions are forecast to overspread most of the Southern Area behind Hurricane Ian. Coupled with the lack of moisture flow off the Gulf, increasingly dry finer fuels are expected and 100-hour fuel moistures should drop below critical thresholds over much of the Mississippi Valley and Plains in October. One major factor to consider in the South’s fall fire season is the first freeze, which greatly increases the fuel load. While influxes of cool air over the Great Lakes and Northeast may occasionally spill into eastern parts of the Southern Area, it is not clear when killing frost will occur at this juncture. One final important note is that a number of states have reported some early leaf drop due to drought over the past several months, even in places that may have seen brief wetter than normal periods over the summer.

For October, Oklahoma is emerging as the greatest area of concern due largely to increasingly widespread extreme to exceptional drought. Elsewhere, considerable changes were warranted given the rapid drying, increasing drought, and the forecast for drier than normal conditions to continue. The fine fuels along the Gulf Coast are expected to quickly dry out, resulting in an above normal risk for significant wildfires that may continue into winter given the canonical La Niña outlook for a dry and warm October-December period.

Concerns have recently materialized in the Lower Mississippi Valley, where a record wet August has been followed by mostly dry weather and excess evapotranspiration. Fire activity has steadily picked up there recently into portions of the Deep South, and with no obvious signs of relief heading into October, above normal potential is warranted for the fall season. Western and central Louisiana is one area of particular concern due to expected flash drought development and leftover debris from 2020’s Hurricane Laura.

Longer-term and quickly worsening short-term drought indicators, along with widespread heat through at least early October have prompted an expansion of above normal fire potential from October through December across Texas as well. Conditions across the Florida panhandle are less clear cut, but recent dryness and a subtle uptick in initial attack fires the past few weeks warranted inclusion for October. There
is potential to see above normal potential for the Florida panhandle continue into the end of the year on later updates, pending frontal and tropical activity.

Areas from Georgia through the Appalachians are of lower confidence. Both short-term and long-term dryness have been noted across the mountains despite flooding rain earlier this summer. With Ian largely missing to the east, there may be a growing potential for the Appalachians to have an above normal fall, but trends later in October will be to potential there in November.

A pattern change that typically begins during La Niña Decembers in the eastern United States should allow for increasing precipitation from portions of eastern Oklahoma and Texas into the Mississippi, Ohio, and Tennessee Valleys by the time January arrives. As a result, north-central portions of the region are forecast to return to normal significant fire potential during December, and by January, there is too little confidence in climate models and sparse 3rd-year La Nina analogs, so the entire geographic area is forecast to see normal conditions. It will be interesting to see trends across Florida and the Southeast later this winter into early spring, especially if no additional tropical cyclones affect the region through the end of the season.

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