



# National Significant Wildland Fire Potential Outlook

Predictive Services  
National Interagency Fire Center

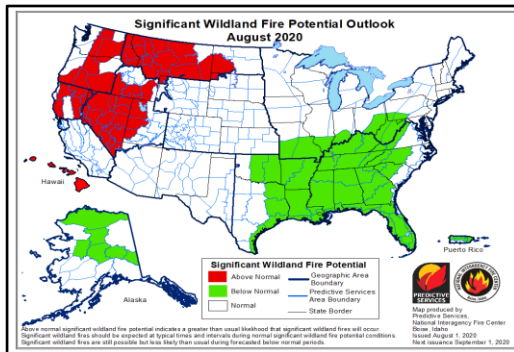


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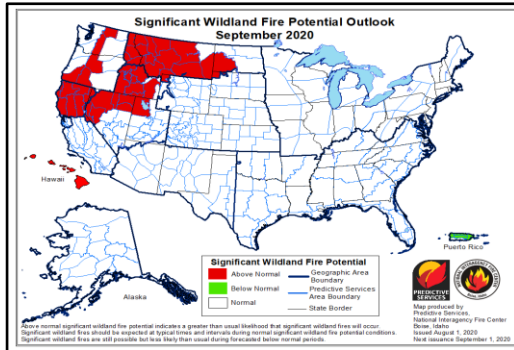
## Outlook Period – August, September, October and November 2020

### Executive Summary

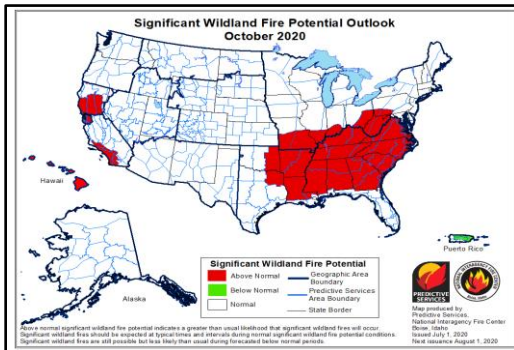
The significant wildland fire potential forecasts included in this outlook represent the cumulative forecasts of the ten Geographic Area Predictive Services units and the National Predictive Services unit.



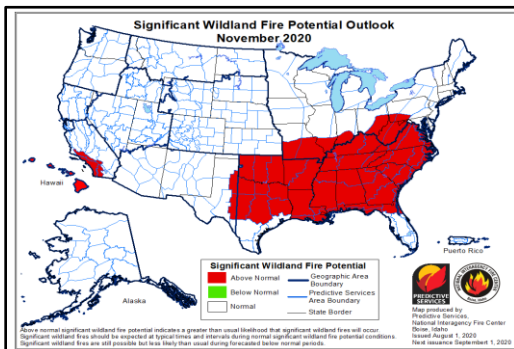
A significant increase of fire activity was observed in July as fuels continued to dry across much of the West and lightning spread farther north and west into the Great Basin, northern California, Pacific Northwest, and northern Rockies. While the Rocky Mountain Area, Southwest, and southern Great Basin saw an increase in fire activity into mid-July. However, greater coverage and consistency of thunderstorms producing wetting rain saw an overall decrease in fire activity in New Mexico, Arizona, Colorado, and portions of Utah and Wyoming. Alaska, Eastern Area, and Southern Area all experienced downward trends in fire activity as well.



The delayed onset of the North American Monsoon resulted in an eastward shift of the moisture across the Southwest, Four Corners, Colorado Rockies, and the Plains resulted in drier than normal conditions in the southeast California and much of the Great Basin and Arizona. With a suppressed upper-high and consistent upper-level trough passages across the northern CONUS, temperatures were near normal across the West with below normal temperatures and above normal precipitation across much of the northern Rockies and northern Plains.



August represents the peak of fire season for the West and Above Normal significant fire potential is expected across much of the Great Basin, northern California, Pacific Northwest, and northern Rockies. The North American Monsoon is forecast to remain intermittent, which will provide chances of lightning without moisture surges extending into portions of the Great Basin, California, Pacific Northwest, and northern Rockies. Given the dry fuels, any lightning will likely result in increased fire activity and above normal significant large fire potential into September.



As precipitation and cooler temperatures arrive in fall, areas of concern will shift southward to portions of California as offshore wind events become more likely. Without a robust monsoon and potentially delayed fall precipitation, fuels will remain very dry across much of California. With ENSO-neutral to potentially La Niña conditions, an increase of frequency of offshore wind events are possible. Additionally, drier than normal conditions are likely across much of the Southern Area given current long-term weather and climatological trends. However, an active hurricane season is a source of uncertainty.

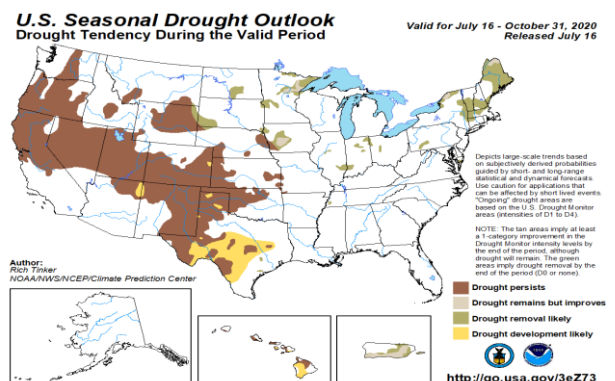
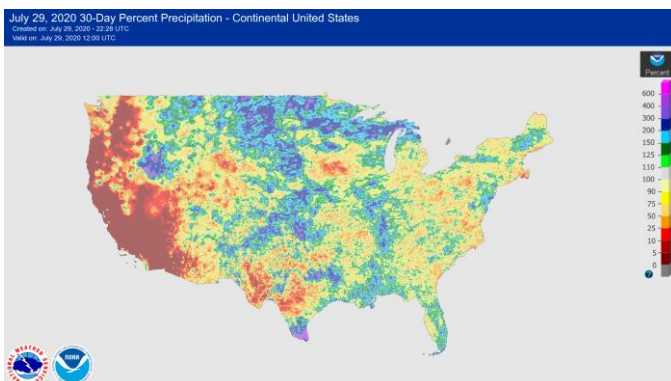
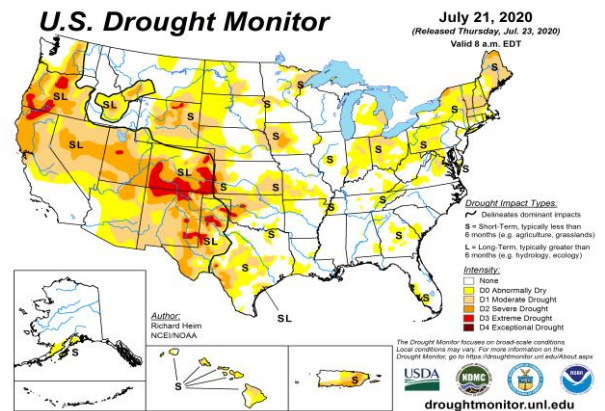
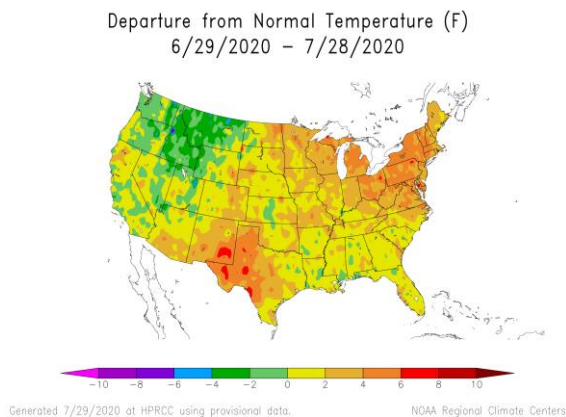
## Past Weather and Drought

An active northerly storm track brought consistent upper-level trough passages across the northern tier of the CONUS with weak upper-level troughing over and near the West Coast. This also resulted in suppressing upper-level ridging over the West, which delayed onset and limited moisture intrusions into the Southwest and Intermountain West via the North American Monsoon. Multiple easterly waves moved over portions of the Southeast and Gulf Coast during the last half of the month culminating in Hurricane Hanna making landfall near Corpus Christi, Texas.

This pattern resulted in above average precipitation and below average temperatures across much of the northern Rockies and northern High Plains. Above average precipitation was observed in portions of the northern Plains, western Great Lakes, and portions of the Northeast and Mid-Atlantic. However, temperatures were generally well above average in these regions for July. Cooler than average temperatures in most of the Pacific Northwest, but most of the precipitation stayed north in Canada resulting in generally below average precipitation across the Pacific Northwest.

The North American Monsoon onset was delayed across the Southwest and more focused on eastern Arizona and much of New Mexico. However, due to the late onset and lack of robust surges into western portions of the state, much of Arizona is at normal-to-below normal precipitation for July. Overall, drought continued and intensified in many areas across the West. While multiple lightning events occurred across the Great Basin, northern California, and portions of the Pacific Northwest, storms were relatively dry and scattered in coverage leading to mostly below average precipitation. However, wetter storms did develop in portions of the northern Great Basin into the northern Rockies during two of these moisture surges.

Moisture from the North American Monsoon and typical moisture return over the Plains from the Gulf of Mexico resulted in generally above average precipitation across the Plains. However, portions of central, west, and southwest Texas missed many of these convective systems and rainfall associated with remnants from Hurricane Hanna exacerbating and spreading drought conditions in these areas.



Left: Departure from Normal Temperature (top) and Percent of Normal Precipitation (bottom) (from High Plains Regional Climate Center and the National Weather Service). Right: U.S. Drought Monitor (top) and Drought Outlook (bottom) (from National Drought Mitigation Center and the Climate Prediction Center)

## Weather and Climate Outlooks

ENSO-neutral conditions continued in July with near-to-below average sea surface temperatures (SSTs) in the equatorial east-central and eastern Pacific Ocean. The Climate Predicter Center (CPC) forecasts ENSO-neutral conditions continuing through the summer, and a 50-55% chance of La Niña conditions developing during the fall and continuing through the winter. The North American Monsoon is forecast to go through typical breaks and bursts through August, which may lead to precipitation deficits across portions of Arizona, southeast California, and southern Great Basin given the delayed onset and eastern shift of the monsoon thus far.

## Geographic Area Forecasts

**Alaska:** The forecast for Alaska's wildfire potential for the remainder of the 2020 season is for approximately normal wildfire behavior in the southern and western portions of the state, with below normal behavior over portions of the interior and North Slope. However, August already tends to have lower wildfire potential than June and early July.

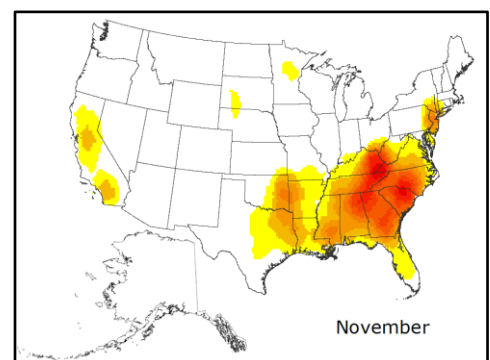
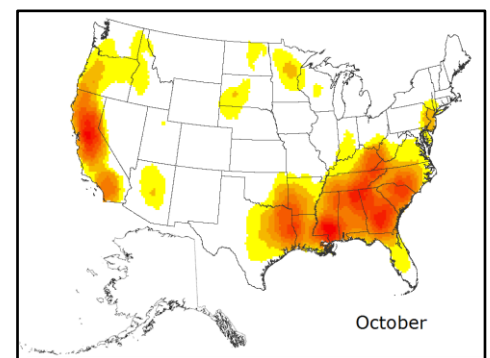
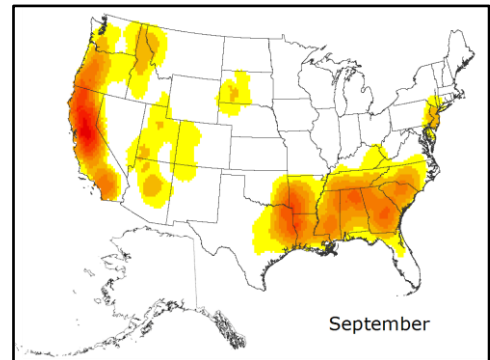
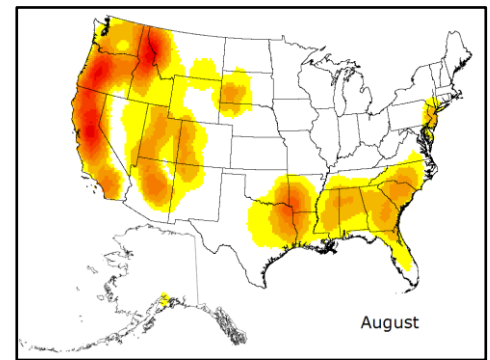
Ample rainfall and temperatures near to slightly below normal occurred over Alaska in early summer. These weather conditions have rendered the sub-surface duff layers much less burnable than at this time in 2019. The outlook for August from CPC indicates normal conditions over Alaska's Interior, with warmer and wetter than normal conditions expected along the coastal areas, especially south of the Bering Strait. While a warm period is expected over Alaska's Interior at the beginning of August, it is unlikely that this pattern will persist long enough to make a meaningful impact on the sub-surface fuels.

With the summer solstice now more than a month ago, daylight hours are decreasing, and the sun angle is lowering. These changes indicate that a period of warm and dry weather in August will likely not dry the duff layers enough to support extreme wildfire behavior for the remainder of the 2020 season. From September onward, Alaska is generally out of the wildfire season.

**Northwest:** An above average risk of large fires is expected in central Oregon, southwest Oregon, southeast Oregon, and central Washington through August. By September, large fire potential will fall back to normal across the geographic area.

Precipitation was quite low in July across the Pacific Northwest. Only the west slopes of the Washington Cascades received normal amounts of rain for the month. Temperatures were cooler than normal for all of Washington and nearly all of Oregon. The first half of July was particularly cool but gradually returned towards normal by the end of the month. Drought continues over sections of central Oregon and central Washington, as well as in southwest Oregon. This has been the case since 2019.

Fire danger started below average in most PSAs in early July and gradually increased to average or slightly above average. Fire danger in central Oregon and central Washington (Predictive Service Areas (PSAs) NW05, NW06, NW07, NW08)



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)



tracked at or above average through July. Heavy dead fuel moisture decreased to near normal in areas that had previously tracked above normal. Live fuels are now considered capable of burning at lower elevations.

The number of fires and acreage burned remained well below average for the geographic area for the first three weeks of July. In the last week of July, lightning and rising fire danger led to increased ignitions and several large fires requiring incident management teams mainly in central Washington and central Oregon. Overall, the number of fires and acreage burned for July were below normal.

Near normal conditions are currently forecast for the Pacific Northwest in August, although there remains a fair amount uncertainty. For September and October indications tend toward wetter than average, which would likely reduce fire danger below levels needed for large fire development. Given the recent fire activity and potential increase in lightning, above normal fire activity is likely to occur in August and continue into September before the expected wetter than normal conditions.

**Northern California and Hawaii:** Above normal large fire potential is expected across all areas in northern California above 3000 feet in elevation with normal large fire potential elsewhere. Normal large fire potential is expected across all areas in September and November, but above average in central and southwest portions of northern California during October. Above normal large fire potential is forecast in August through October on lee sides of the Hawai'i Islands with normal fire potential elsewhere. Large fire potential is expected to be normal for the islands in November.

Fuels, both live and dead, of all size classes and at all elevations throughout the region are drier than average for early August, which is the time of the year when fuel dryness peaks. The outlook calls for warmer and drier than normal conditions through October, although some locations may start to see near normal precipitation in October as the rainy season begins. The first full month of the rainy season, November, is expected to be close to normal. The North American Monsoon, which typically impacts the region on occasion into the middle of September, is expected to surge into the region less than usual, meaning that less than the average amount of lightning is expected.

Areas above 3000 feet elevation have above normal significant fire potential in August. North-northeast, offshore winds are less common, and lighter when they do occur, so elevations below 3000 feet (west of the Sierra crest) are in the normal category in August. In September, there is a transition from the lightning threat back to the north-northeast, offshore wind threat. Due to these potential weather triggers and the expectation of very dry fuels across the region, all areas have above normal significant fire potential in September. In October, the focus for above normal significant fire potential is for those areas with abundant cured fine fuels and that are vulnerable to north-northeast, offshore winds, from the western Cascade-Sierra slopes to the coast, from about Ukiah and southward through the Bay Area. Significant fire potential is expected to return to normal across the region in November.

Sea surface temperatures (SSTs) surrounding the Hawai'i Islands are warmer than normal, and the warm SSTs are expected to continue through November, leading to above average temperatures in the region. Hurricane Douglas brought widespread light rain in late July, primarily to windward sides of the islands, but the benefits will be gone by the middle of August. The Drought Monitor shows large areas of abnormally dry and drought conditions with lee sides remaining very dry. The general outlook is for warmer and drier than average weather through the fall. The lee sides of all the Hawai'i Islands have above normal significant fire potential through October.

**Southern California:** Normal large fire potential is expected for August and September across the region. However, above normal large fire potential is expected for the Transverse and Peninsular Ranges and westward to the coast in October and November.

The strong subtropical high that is usually centered near the Four Corners during the summer months has been pushed further to the south and east than normal by a persistent trough over the Pacific Northwest. The center of this area of high pressure has been shifting back and forth between the New Mexico/Arizona Border and the southeastern States. However, it has been centered primarily over Texas most of July. The

ridge was at its strongest and furthest west July 10 – July 12 when many record high temperatures were set, especially across interior portions of the area. Most days had near to slightly below normal temperatures during the month and overall temperatures came in near normal just like in June. There were no monsoonal showers or thunderstorms this month since the center of the high pressure area did not make it far enough north and west to bring abundant moisture in. However, several weak areas of low pressure formed off the California Coast bringing daily isolated afternoon thunderstorms to the High Sierra from July 15 – July 26. Most of the region received no rainfall this month and thus well below normal rainfall. The only exception was across the eastern Sierra, where they received near normal rainfall.

Similar to the past couple of months, there has been no change to our drought situation with no drought across all of southern California and the central California Coast. Abnormally dry to moderate drought conditions continued for the interior parts of central California north of Kern County. Due to the absence of monsoonal showers, the 1000-hour dead fuel moisture has dropped to between the 10th and 3rd percentile away from the coastal areas. There were record low 100-hour dead fuel moistures across most the region July 10 – July 12, when well above normal temperatures combined with humidity in the single digits. The live fuel moisture continued to plummet and now most locations are between 70% and 90%. This is a little below average for the end of July.

Little change from current sea surface temperatures are expected into the fall. Near normal temperatures are expected to continue across central and southern California through September, since SSTs remain near normal off the West Coast. Little in the way of monsoonal showers and thunderstorms are expected through September as the trough over the Pacific Northwest remains in place keeping the center of the high too far south and east of the region to bring in abundant moisture. Also, the sea surface temperatures over the equatorial Pacific remain below normal, which will prevent abundant moisture from coming into the area from the Pacific Ocean. Sea surface temperatures continued to warm over the past month in the Gulf of Alaska and they are now well above normal. Thus, above normal temperatures and below normal rainfall is likely during October and November as strong high pressure will likely set up off the California Coast. This strong upper high will likely lead to above normal Santa Ana wind events as upper-level troughs and cold air track from the Pacific Northwest into the Great Basin. Due to more offshore wind events than normal, above normal temperatures, and below normal rainfall, there will be an above normal large fire potential across southern California from the mountains westward in October and November.

**Northern Rockies:** Above-normal significant fire potential is still expected for August and September in all the western PSAs 01-09 and expand eastward into central and southeast Montana, possibly as far east as southwest North Dakota. One reason is the predicted monsoonal lightning pattern in combination with the warmer and drier than average weather conditions that will keep fuels receptive to fire ignition and spread. Another reason for this is due to the likelihood that a weak La Niña pattern will still develop in late summer with analog comparisons suggesting above normal fire potential during that time.

Precipitation during the past month has been near to above average over most of the Northern Rockies Geographical Area (NRGA) with some prominent exceptions. Those being most of north Idaho, but for the furthest north section, southwest Montana and Yellowstone National Park, and small portions of southeast Montana, and central North Dakota. Mean temperatures during the preceding month, however, were slightly below average throughout north Idaho and western/central Montana. They were slightly above average in eastern Montana and western North Dakota, and well above average for the eastern two-thirds of North Dakota. Because of the relatively cool temperatures during the preceding month, the small drought areas in southwest Montana did not increase in intensity, remaining at a moderate level. Small pockets of moderate drought also are present in southeast Montana and central North Dakota.

Latest observed data and climate modeling members are suggesting that ENSO-neutral conditions are in the process of transitioning toward a weak La Niña, which would continue through August, and then persist into winter. This may be why the Four Corners upper high is expanding farther north now over the western half of the NRGA, producing warmer and drier than average conditions, which typically happens during La Niña summers. This pattern change is also producing an increasing frequency of monsoonal moisture moving north over the NRGA, which is a prime pattern for dry thunderstorms in north Idaho and western Montana, and wetter thunderstorms further east.

Live fuels continued to cure in July with progressively longer periods of hot and dry weather, especially in the Idaho Panhandle and northwest Montana, where it has been much drier during the past 30 to 60 days. There has also been more persistent high pressure ridging sandwiched between relatively dry/breezy Canadian cold fronts. In addition to this ridging bringing steady overall drying, there has also been a trend in late July with less relative humidity recovery overnight, which is now contributing to drier, more exposed fuels in the higher terrain now that snow cover is lacking.

Typical summer convective storms continued in many of the PSAs east of the Continental Divide through mid-July, maintaining some live fuel moisture for the first part of the month, but recently there has been a noticeable drop off, especially in central/eastern Montana where the Rangeland Productivity Monitoring Service indicates well-above average herbaceous fuel. Now that these fuels have cured, there could be above normal fire potential in PSAs 10, 11, 13, 14, and 16, especially during windy periods of thunderstorm outflow or dry cold frontal passages.

Further east in North Dakota fuels continue to hold their moisture overall with southeasterly surface winds bringing moisture from the Plains. There have been multi-day periods of drier, northwest winds, but these have been during cooler stretches following Canadian cold fronts, when the conditions were not otherwise critical.

**Great Basin:** Above normal fire potential expected for most of Nevada, western Utah and southern Idaho in August, expanding northward in September. Otherwise normal conditions are expected.

A drier than normal month across the Great Basin in July, along with about a ten-day delay in the onset of the traditional Monsoon, resulted in drier than normal conditions across many southern areas of the region. After a brief shot of monsoonal moisture to the southern Great Basin, the monsoonal moisture has dissipated and retreated southeastward. This will result in rapid drying across parts of Utah, the Arizona Strip and southern Nevada into August, and above normal large fire potential has been expanded southward for some areas. Southeastern areas have been excluded at this time, as there is a possibility of some moisture returning there by mid-August. Elsewhere, northern areas will be warming and drying rapidly, but fuel moisture remains above normal across the higher elevations of Idaho and Wyoming with a gradual return to normal large fire potential there. In September, it is expected that the warming and drying will continue for northern and central areas, and above normal will be expanded northwards. At the same time, southern areas should get occasional thunderstorm activity from the waning monsoon with normal conditions there and elsewhere. Normal conditions are expected in October and November.

Above normal fuel moisture in Idaho and Wyoming in early August should quickly dry to normal late summer dryness by mid-month. Elsewhere drier than normal fuels will continue thru August and much of September.

**Southwest:** Overall, most of the Southwest Area should experience normal significant large fire activity through the forecast period of August-November.

Over the past two months, average high temperatures have been mainly about two to seven degrees above normal nearly area-wide, especially across northern and eastern New Mexico. Examining precipitation, both the western half of Arizona and the southeastern portion of New Mexico have experienced 50% or less than normal precipitation over the past two months with the wettest areas being across the Gila/White mountains area and across parts of central New Mexico.

Oceanic conditions are expected to remain near neutral overall turning into weak to moderate La Niña type conditions by the late summer months into the coming fall. Overall, this type of oceanic setup means that average high temperatures will be normal to above normal as the monsoonal period attempts to continue into August. The monsoonal outlook calls for normal to above normal precipitation amounts across southeastern Arizona and across northern/northeastern New Mexico in August. Far western and northwestern Arizona will continue to remain mostly dry well into August as much of the Great Basin and California also remain dry due to the presence of the upper level high center frequently being overhead.

Late summer and fall will likely be warmer than normal with near normal precipitation likelihood although an earlier end to the monsoonal timeframe is likely with a brief period in late September or October of wetter conditions for the region also anticipated.

**Rocky Mountain:** Average large fire potential is predicted for the Rocky Mountain Area (RMA) through the remainder of the summer and fall. During the fall months, long range CPC forecasts point toward drier than average conditions across mainly southern portions of the RMA, and this area will need to be monitored closely for a possible increase in large fire risk during the fall, especially east of the divide in Colorado through the southern portion of the eastern plains.

Temperatures in June began with a large portion of the RMA above average, but in July have been closer to average, except warmer than average from eastern Colorado through southeast Wyoming and western Nebraska. In July rainfall has been average to above average from southern and eastern Colorado through far eastern Wyoming, the Black Hills, and the eastern plains. Conversely, below average precipitation occurred in July from western-northwestern Colorado through central to western Wyoming. Longer range rainfall deficits (60 days) are most prevalent across portions of western Colorado and central Wyoming where overall it has been less than 75% of average, with some areas less than 50%. The Drought Mitigation Center portrays extreme drought across southern Colorado, with moderate to severe drought indicated across central to northcentral and east-central Wyoming.

The most recent soil moisture calculations show large deficits over Colorado, western Kansas, southwest Nebraska, and southeast Wyoming, while average to wetter than average anomalies are depicted in northwestern Wyoming, South Dakota, and northcentral Nebraska. ERC values (May-September period) as of late July are greatest with a few RAWS stations above the 80th percentile from northwest Colorado through central Wyoming, and the Black Hills. Although recent rainfall has resulted in declining ERC's at many locations, the 1000 hour heavy dead fuel moistures are still significantly drier than average for much of the geographic area, except more moist values close to average in southwestern Colorado, the mountains of northwestern Wyoming, and southern portions of the Black Hills.

For the latter portion of July into early August an upper level pattern shift is predicted to take place with high pressure becoming centered over the Great Basin with a westerly-northwesterly flow over the RMA. As a result locations west of the Continental Divide into central to western Wyoming are projected to dry out during the first week or so of August, while there is indication that western-southwestern Colorado will return into a monsoonal pattern with pulses of moisture returning by the second week of the month. CPC long range forecasts show a wetter than average regime in August into the fall from northeastern Wyoming through South Dakota with drier than average conditions emerging in the fall across southern Wyoming through Colorado and western Kansas.

Precipitation across portions of the region during July helped push large fire risk back into the average range, especially from monsoon moisture pulses across southern Colorado. After a wetter than average month of June across western Wyoming, a drier than average pattern developed in July across central to western portions of the state with large fire risk gradually increasing. As a result, expectations are for a possible increase in large fire activity across central to western Wyoming in August, but mainly in the lower elevations with shorter duration wind driven large fires. The short-range forecast across central to western Wyoming indicates an active pattern with occasionally windy periods followed by post frontal cooler conditions and limited chances of rainfall.

**Eastern Area:** Near normal fire potential is expected over much of the Eastern Area through the rest of the summer into the fall with below normal fire potential in August for portions of the Ohio River Valley and into West Virginia and the Ozarks. Elevated fire potential may develop over parts of the southern tier if forecast drier than normal conditions develop. The fall fire season is forecast to develop in a normal time frame from north to south.

30-day soil moisture and precipitation anomalies were near to above normal across much of the region towards the end of July. Some medium range drying/drought remained in place across the southern Lower

Peninsula of Michigan, central Iowa, the New England Metro, portions of the western and north central Mid-Atlantic States, and the coast of Maine.

Warmer temperatures and somewhat wetter conditions are forecast over much of the compact in August. Drier than normal conditions south and wetter trends across the northern tier of the region are forecast this fall. Near to above normal temperatures are forecast to persist into the fall across the majority of the Eastern Area.

Near to above normal fire danger index levels were indicated across the majority of the region. Some above normal indices were indicated over drier areas noted above.

**Southern Area:** Below normal significant large fire potential is expected for much of the Southern Area in August before transitioning to above normal significant large fire potential for most of the Southern Area in October and November. Trends will be monitored for next month's issuance for potentially above average significant large fire potential in September for portions of the Southeast and southern Plains.

A trend for cooler than average tropical Pacific (both surface and subsurface) continues. Historical analogs have been telegraphing this development and global models are also in agreement that a colder, if not La Niña episode is favored to evolve during the fall. Both CPC and the Australia's Bureau of Meteorology have issued a La Niña Watch for this possibility. The cooler water pattern for the rest of summer and into early fall, along with the more favorable atmospheric conditions in the tropical Atlantic it produces, should continue to produce heightened humid conditions and rain activity for most of the Southern Area into September. Cooler than average tropical Pacific water/La Niña conditions should begin to produce longer lasting warmer and drier than average with higher pressure for the Southern Area into the fall. This should result in a broad drying trend in our fuels and with fall leaf drop, are indicators for the development of an above average trending fall fire risk season.

Peaking Atlantic tropical activity (September/October) is a source of uncertainty for the expected drier fall season. Any significant landfalling activity or "near coast" track, which could further amply outflow subsidence drying/winds to the west or north of a storm, would change the depicted September outlook.

For western Oklahoma and particularly western Texas, an overall drier and warmer than average pattern should be the trend for the next few months with CPC indicating drought development is likely. This area, long term, will need to be monitored for gradual and possible continued or earlier drying during late summer and fall, which could change the outlook.

With the exception of West Texas and Oklahoma, drought remains either non-existent or very limited across the South. Fuel moistures across all fuel classes continue to trend at mostly above to well above average levels with robust green conditions and healthy vegetative states. The current drought outlook, which looks out to the end of October is now indicating an area of drought to evolve in central Texas with drought to persist from western Oklahoma and the Texas Panhandle south to the Texas Trans Pecos. Otherwise, drought development is not expected across the rest of the Southern Area.

Fire activity in July remains, as it has for the past few months, at below average levels due to the frequent and broader coverage of summertime rain activity and humid conditions. Most of the fire activity of note continues to occur across West Texas. Weekly and multiday summertime rain events and trending more humid conditions should continue to mitigate the fire threat into September.

### **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>