



National Significant Wildland Fire Potential Outlook

Predictive Services
National Interagency Fire Center



Issued: August 1, 2018
Next Issuance: September 1, 2018

Outlook Period – August, September, October and November 2018

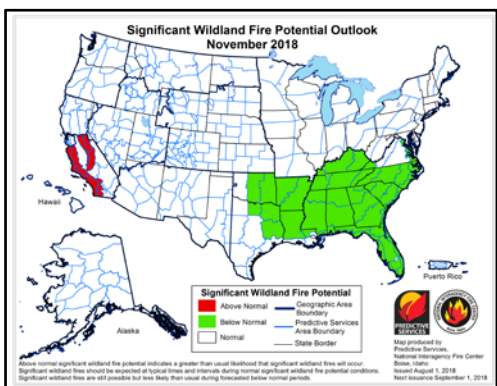
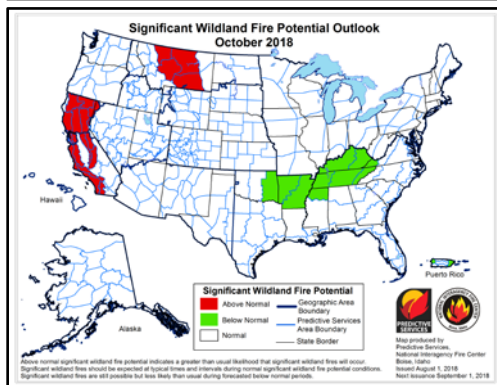
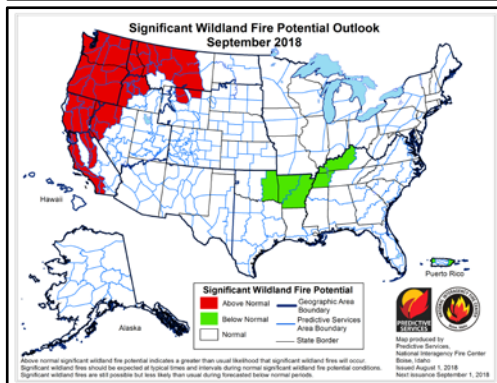
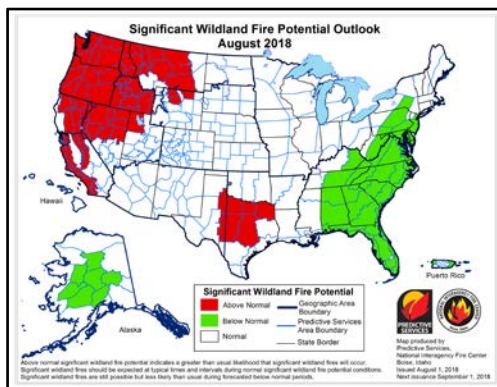
Executive Summary

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.

The northward progression and intensification of drought along the West Coast continued in July. By month's end, moderate to severe drought conditions were observed as far north as the western Washington. Exceptional drought conditions continued across the Four Corners Region, but signs of relief were emerging due to the presence of an active monsoon. Drought expansion and intensification occurred across central Texas. By late July, areas of Extreme drought were developing which was leading to an increase in fire activity. Drought improvement was observed across portions of the central Great Plains and the Dakotas. The active monsoon produced rainfall amounts of nearly 400% above average across portions of Arizona and southern Nevada. East of the Divide, below average amounts extended from central New Mexico east across Texas. Extreme rainfall deficits were observed across California, the Pacific Northwest, northern Great Basin, and the Northern Rockies where amounts received were less than 25% of average. In the East, precipitation amounts were near average, except across Michigan and Upstate New York where deficits were observed. Temperatures nationwide were within a few degrees of average except across the Great Basin, California, the Pacific Northwest, and Texas where temperatures were above average.

July featured a wild fire season transition from the Southwest and Central Rockies into the Great Basin and California early with the onset of the monsoon followed by a northward expansion into the Pacific Northwest and Northern Rockies during the latter half of the month as lightning events became more prolific and as fuels continued to dry. Fire danger indices were at or near record levels for severity across portions of the Pacific Northwest and elevated elsewhere across surrounding states at the end of the month. The Alaskan fire season ended early in the month.

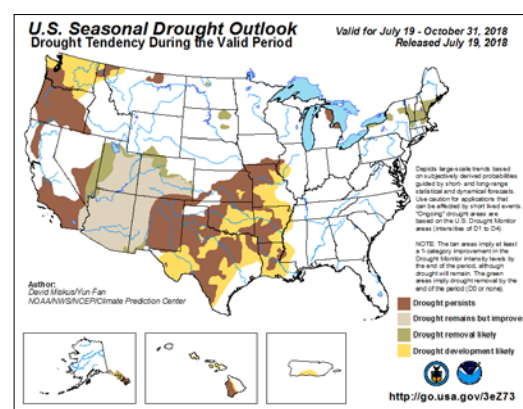
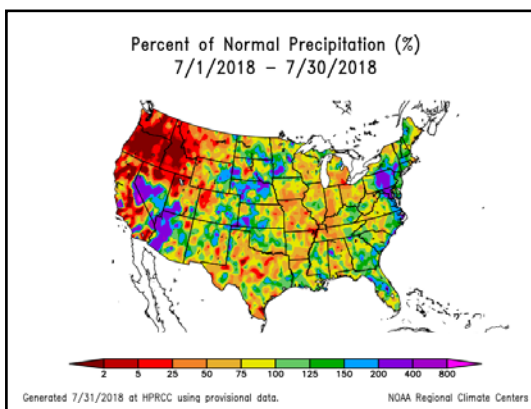
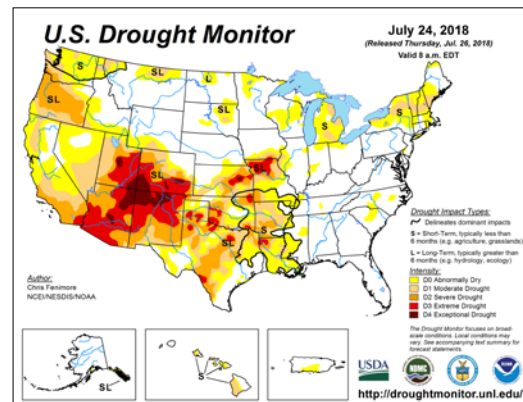
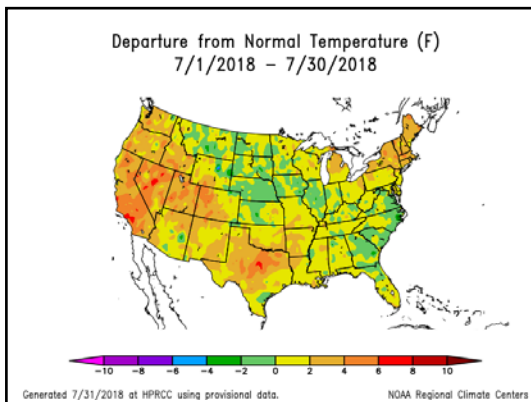
August is the peak month for fire activity across the West. Given the amount of lightning received along with preexisting heavy fuel loading and dryness, a very active month is expected with Above Normal significant wildland fire potential likely across portions of the Pacific Northwest, Northern Rockies, northern Great Basin, and California. Typically, a weather event occurs by mid-September that brings moisture to regions experiencing significant fire activity which allows for the western fire season to begin to decrease in activity. Given ongoing trends that support a normal seasonal progression and given a transition from ENSO Neutral conditions to El Niño, such an event is expected. Most regions will exit the fire season at this point, but only a brief lull is expected across California before it enters its fall fire season by October and November. Given ongoing dryness in the fuels, the fall season may very well be robust across portions of the state.



Past Weather and Drought

Temperatures across the country were generally near average for July except across the Great Basin, Texas, and the Pacific Northwest where they were three to six degrees above average. However data from the latter half of the month showed a trend toward warmer than average across the Great Basin, Texas, California, and the Pacific Northwest where data showed large areas that experience temperatures that were six to eight degrees above average. Precipitation amounts received across the West were generally well below average except across western portions of the Southwest and Southern California where a very active monsoon produce above average amounts. The final two weeks of the month showed a striking trend as most locations across Northern California, the Pacific Northwest, Idaho, and Western Montana showed less than 25% of average precipitation received for the period with many areas receiving 5% or less! Elsewhere across the country, precipitation amounts received were near average except across Texas where below average amounts were received.

Drought expanded its grip in the northwestern states as its coverage expanded and intensified. By late July, moderate to severe drought conditions had developed across a majority of Oregon and western Washington. Nearly the entire Great Basin, California, and the Southwest remained under drought. The monsoon was bringing minor relief to portions of the Southwest while slight intensification was occurring across northwestern Colorado and northeastern Utah. Coastal areas of Texas and the Texas Panhandle were showing slight drought relief; however, the interior of the state saw areas of rapid drought intensification due to the frequent presence of a very hot and dry ridge of high pressure over the state. Drought remained in place across the central Great Plains but showed some decrease in severity. The East was largely free of drought except across New England and portions of Michigan where ongoing drought stirred an uptick in fire activity mainly during dry periods and wind events.



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

Weather and Climate Outlooks

El Niño-Southern Oscillation (ENSO) should transition into a weak El Niño by early September where it will persist into the winter months. The atmospheric response to the change will be somewhat delayed and coincide with seasonal changes in October and November.

Short term temperature trends in August should be a continuance of what has been observed thus far this summer. Overall, temperatures should be above average across the West under a high pressure ridge and below average in the East under a trough of low pressure. Exceptions to this will be across the Four Corners Region where a robust monsoon will continue and will promote periods of cooler than average conditions. Looking at October and beyond, a bit of a pattern change is expected that will promote overall average to cooler than average temperatures across the Southwest September through November. Elsewhere, above average temperatures are expected across the Southeast in September and November. September's warm signal will shift north to be located across the Upper Midwest and the Mid-Atlantic States for October. Alaska can expect overall cooler than average conditions along the Bering Sea Coast and a transition to warmer than average conditions in the East in August. Warmer than average conditions will develop and persist in western areas in September and October while cooler than average conditions develop across the eastern Interior by October. November looks to be warm in the north and cool along the Gulf coast.

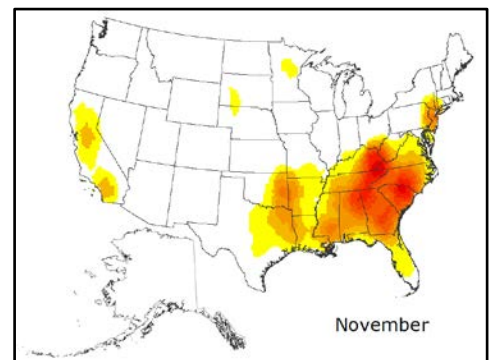
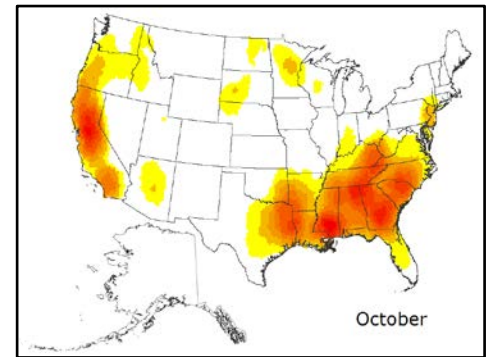
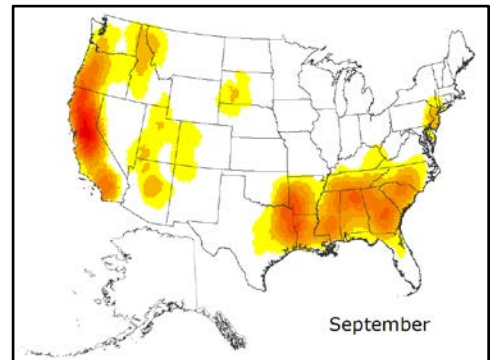
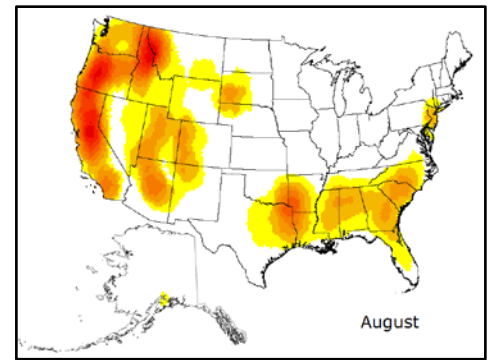
Precipitation outlooks show overall wetter than average conditions developing across the mid-section of the country by September and expanding to include most of the country by November, except the Great Lakes where below average precipitation is expected. Pockets of drier than average conditions are expected August through September along the West Coast, in the Northern Rockies and along the Canadian border in the northern Great Plains. Alaska can expect overall wetter than average conditions.

Geographic Area Forecasts

Alaska: Below Normal significant wildland fire potential is expected across the western Interior and southwestern Alaska in August followed by Normal potential/out of season through November in all areas.

The U.S. Drought Monitor shows an area of Abnormally Dry on the western Kenai Peninsula and through the Alaska Panhandle. There have been very few days this summer with well above normal temperatures in Alaska until the last ten days of July, when a strong upper level ridge has brought the first extended dry period to the central and eastern Interior.

Outlook maps are forecasting warmer than average conditions for western and southern Alaska in August and over the entire state through the remainder of the period. Wetter conditions are also expected to be likely for western Alaska in August and through central Alaska into November. These forecasts seem likely since many different forecast models have been indicating these same trends. Given this and the



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)

persistence of this forecast we can expect a below average end to fire season over most of western Alaska.

Calculations of the Canadian Forest Fire Danger Rating System show that fuels remain fairly damp for this time of year due to a wet and cool summer, particularly in the west. Though the eastern Interior is drier, fire season was slow to materialize, and lack of fires and acres points to lower than average fire activity. Alaska has passed the normal peak of fire season. August typically heralds the end of fire season with activity significantly decreasing due to less solar radiation and shifting weather patterns. This year, the current end of July dry period may keep potential up a bit longer in the eastern Interior, though it will likely remain slower than normal for the rest of the state.

Northwest: Above Normal significant wildland fire potential is expected for the region through September followed by a return to Normal potential for October and November.

After a cool and dry June, July was unusually warm and dry across the region. Precipitation was well below average in all reporting areas with many individual stations reporting none at all. Temperatures were above average in nearly all reporting zones. Outlooks for the northwest geographic area for late summer and autumn continue to suggest warmer and drier than average conditions will persist.

Fire danger is at or near record values entering August based on records dating back to 1990. Live fuels across the region are cured and are actively contributing to fire activity. Fire danger is likely to remain at or near record values for the next few weeks. Forests, brush lands, and grasslands are highly receptive to fire starts and the risk of large, costly fires is correspondingly elevated across the region when critical combinations of weather and ignition sources are observed.

A number of large wind-driven fires occurred in light fuels in sections of central Oregon and central Washington in July. A lightning outbreak in mid-July resulted in an outbreak of large fires in timber fuels in southwestern and central Oregon.

Northern California and Hawaii: Above Normal significant large fire potential is expected for August in the Sacramento Valley and nearby foothills, the eastern Bay Area, the Far East Side, Northeast California, and the Northern Sierra. In September and October, Above Normal potential will include the entire Bay Area, the Mid Coast, Northwestern Mountains, Sacramento Valley and nearby foothills, and the Northern Sierra. Areas not mentioned above can expect Normal significant large fire potential.

August is expected to be warmer and drier than average throughout the region. Dry weather will continue into September and October as temperatures trend closer to average. At this time, precipitation is expected to be average in November, which is a time when precipitation typically begins to increase across the region. A semi-persistent low pressure trough is expected to set up along the West Coast early in August, and it may lead to a less than average amount of lightning in all but the eastern portion of the region where average lightning activity is expected. A heavier than average cured fine fuel crop will continue to keep fire potential high in the Sacramento Valley and surrounding foothills until wet weather systems arrive in the fall. Abnormally dry and Moderate drought conditions have spread across the central and western portion of the region. Dead and live fuel moisture values are well below average in all areas except the eastern areas that have recently been impacted by monsoon thunderstorm activity. Fires that occurred below 6000 ft have exhibited extreme behavior and rapid spread rates. These conditions are expected to spread to higher elevations in August with any lightning ignitions.

Sea surface temperatures (SSTs) surrounding the Hawaiian Islands are slightly above average, and average temperatures throughout the region were above normal in July. Warm SSTs and above average temperatures are expected to continue through November. Rainfall remained below average in July, but the near-term forecast into early August is for wetter than average precipitation. The outlook calls for wetter than average conditions at least through September or October, then trending drier. The potential of El Niño conditions in the equatorial Pacific during the fall and winter has risen to more than 70%, and this pattern tends to produce drier than average conditions during the Hawaiian rainy season.

Southern California: Above Normal significant wildland fire potential is expected along the coast and foothills across Southern California and the hills and mountains surrounding the central valley including the Sierra in August. For the period September through November, these areas will retain the elevated potential except for the Sierra which will return to Normal potential. Areas not mentioned above can expect Normal significant large fire potential through the outlook period.

July 2018 was an extremely hot month across the Geographic Area. Strong high pressure developed over the Southwest which kept conditions stable, subsident, and sunny. There was even an offshore wind event which occurred during the first week of the month--a highly unusual occurrence in the summer. The offshore winds along with the very strong ridge nearby allowed temperatures to reach all-time record highs in a few locations across Southern California. Even areas which are relatively temperate in July such as Santa Ana, Fullerton, and UCLA, saw the mercury pass the 110 degree mark. Temperatures did cool off a bit during the middle of the month, but another, less intense, heat wave occurred during the week of the 23rd. The heat seldom yielded and, at the time of this writing, several stations are likely to see this past month rank in the top 5 hottest July's ever recorded. Although some spotting wetting rains occurred in the mountains, it was too little, or fell too rapidly, to impact fuels much in the long term.

The hot weather exacted a toll on dead fuels with moisture readings plunging to record low readings over much of Southern California early in the month. The rate of drying leveled off during the middle of July before dropping to near record low readings after the 24th. Live fuel moisture dropped appreciably as well and many areas will be on course to see critical thresholds eclipsed several weeks early. Live fuels are critically dry over a few pockets of Southern California already as evidenced by the Skyline Fire in western Riverside County which grew rapidly despite high humidity and unfavorable winds.

Expect large fire potential to remain well above normal levels through the rest of the summer and into the fall due to the expectation of warmer than average temperatures. All long range models pin an area of well above normal near the district and there is a high likelihood of seeing extended periods of very hot and dry weather. Significant dead fuel loading continues due to the recent drought and the bark beetle infestation and the combination of extremely dry conditions and high temperatures/low humidities will continue to lead to large and difficult to control fires. This will continue to be especially true in the Sierra Foothills where the worst of the bug kill timber damage exists. Large fire potential will gradually ease from north to south by the middle of fall, but several offshore wind events likely before the arrival of season ending rains.

Northern Rockies: Above Normal significant wildland fire potential is expected from northern Idaho east through central Montana, excluding southwestern Montana and Yellowstone National Park in August in September. Above Normal significant wildland fire potential is expected for central Montana in October. Areas not mentioned above can expect Normal significant wildland fire potential during the outlook period.

Much drier than average conditions have occurred over northern Idaho and western Montana during the past month, with many sites nearing or exceeding 30 days since their last wetting rainfall. Although average precipitation in these areas is low this time of year, its absence is significant for fuels drying. From the Continental Divide westward, almost all areas have had less than half of average precipitation, and across much of northern Idaho and northwestern Montana, less than 25 percent of average fell. Fortunately, this has been accompanied by near-average temperatures, unlike what had occurred during this time last year, so only small areas of Moderate drought currently exist in northwestern Montana. Central Montana has been very dry as well, with near-average temperatures, but not quite to the extent as areas to the west. A small pocket of Moderate drought persists in north central Montana which has been drier than average for the last three months. Eastern Montana and North Dakota have had near to above average precipitation during the past month from wet thunderstorm activity, but with warmer than average temperatures.

The transition to a weak El Niño this fall will lead to a seasonably drier and warmer than average pattern persisting through August across northern Idaho and western-central Montana, while North Dakota will be cooler than average with near-average precipitation. This leaves eastern Montana in the transition zone between the two regimes. This basic pattern will slowly shift in September and persist through October to a drier and warmer one for the eastern half of the region, which is typical during El Niño fall and winter

periods. This warm and dry pattern for the eastern half of the region can persist even longer in fall and winter during strong El Niño years, but latest climate outlooks forecast the entire region to have near to below average temperatures and above-average precipitation in November.

Dead fuel moistures in the western PSAs have already reached or exceeded their climatological peak dryness values two weeks earlier than average. In the driest areas of northern Idaho and northwestern Montana, 1000 and 1000 hour fuel moistures (and ERCs) are nearing 97th percentile values. In central Montana dead fuel moistures are slightly drier than average, but in eastern Montana and North Dakota are at near average values. Live fuel moistures are starting to drop below average in the driest areas of northern Idaho and northwestern Montana, but are at healthier levels along the Continental Divide and in central Montana. Lightning strikes have been very efficient the last few days over northern Idaho and western Montana with the low dead fuel moistures and fine fuel moisture levels in the driest PSAs. In central and eastern Montana, fine fuels are curing more slowly but will fully in the next few weeks. This will take a little longer in North Dakota, since they have been getting more precipitation.

With warmer and drier than average conditions forecast to persist through August, into September over the western half of the region, fuel moisture boosts will be minimal. In addition, the fine fuels curing process will be complete over all but the highest elevations of the western PSAs within a few weeks, as well as in central and much of eastern Montana. Heavy loadings of dead fine fuels from a wet spring will also contribute to fire potential over the western two-thirds of Montana. Live fuels will start to become more fully available in the driest western areas as well in the next one two weeks as drought stress develops. Thus the western half of the region will have Above Normal fire potential in August and September. The only exceptions will be southwestern Montana and Yellowstone National Park where slightly cooler and moister conditions are expected due to increased availability from monsoon moisture to generate wet thunderstorms. Moister conditions in eastern Montana and North Dakota from wet thunderstorm activity will help to keep their fire potential at Normal levels in August and September. Moving into October, northern Idaho and western Montana typically rapidly respond to the longer nights, cooler temperatures, and shorter daily burn periods, so fire potential is expected to return to average levels there. Central and eastern Montana often experience more frequent dry and windy periods in late summer and fall moving into El Niño winters; this combined with their heavy fine fuels loadings will keep potential Above Normal across central Montana but conditions will moderate by November as moister condition develop.

Great Basin: Above Normal significant wildland fire potential is expected through August across northern Nevada, Utah, and southern and central Idaho. Above Normal significant wildland fire potential is expected across western through northwestern Nevada and southwestern through south central Idaho in September. Areas not mentioned above can expect Normal significant wildland fire potential during the outlook period.

Over the last month wetter than average conditions have occurred over the southern half of Nevada, Utah and the Arizona Strip with well below average precipitation across northern Nevada, northern Utah and Idaho/Wyoming. Temperatures have been above average over most of the Great Basin over the last 30 days. Severe to extreme drought persists across the eastern and southern half of Utah into the Arizona Strip, with moderate drought to abnormally dry conditions further west across much of Nevada into far southern Idaho.

Fire activity increased significantly across the Great Basin in July, with the most notable increase during the last few weeks across the northern half of Nevada, northern Utah and southern Idaho. The main areas of concern heading into August will continue to be western and northern Nevada into northwestern Utah and Idaho. After long periods of little rainfall, hot temperatures and low humidity, the fuels are currently most critical over these areas, especially in Idaho. ERCs are well above average (above the 80th - 97th percentile) over much of southern, central and southwestern Idaho into northern Nevada, with near record low 100/1000-hr fuel moisture. Sagebrush live fuel moisture has dropped to critical levels and is also well below average and near record lows over portions of Idaho/far Northern Nevada. Fuel moisture will continue to drop late in July into early August as warm/dry weather continues in the north. Any significant monsoon moisture with widespread wetting rains will remain confined to the southern half of the Great Basin, with sporadic shots of moisture heading north into western/northern Nevada, northern Utah and Idaho/Wyoming.

The significant grass crop from 2017 was not compacted by snow during the 2017-2018 winter in most areas of western/northern Nevada, northwest Utah and southern Idaho, allowing for a significant carryover fine fuel crop. In addition to the carryover fuels, multiple crops of cheat grass grew this spring due to repeated periods of wetter weather that lasted well into May/June.

Southwest: Normal significant wildland fire potential is expected for the region during the outlook period.

Given the ongoing summer monsoonal season combined with the onset of an El Niño state in the eastern-central Pacific Ocean later this summer through the upcoming fall the overall expectation is for above average precipitation to occur across a majority of the region through the forecast time frame. Confidence in this overall outlook is above average as El Niño-like conditions are presently slowly increasing in strength and most, if not all, forecasts have this trend continuing through the fall. The expectation is for overall temperatures to generally remain warmer than normal through the forecast period although cooler than average readings will occur during wetter periods. Areas across western Texas and far eastern New Mexico have experienced less summer precipitation than areas further west and will likely continue to be drier through August. It's possible that some small fire activity could increase for brief periods of time during August. Any drier than normal periods are not expected to result in fires that will require out of area resources.

Rocky Mountain: Above Normal significant large fire potential is expected across Northwestern Colorado and south central through southwestern Wyoming through early August followed by a return to Normal potential. Above Normal significant large fire potential is expected across North Central through Northwestern Wyoming in August and September. All other areas can expect Normal significant large fire potential during the outlook period.

Precipitation deficits have been greatest across western-north western Colorado and to a lesser extent south central and southwestern Wyoming during the summer with less than 25% of average precipitation received. Temperatures were above average across southern and far eastern portions of the geographic area during the early summer, and have become centered over locations west of the Continental Divide in July. Long range drought trends have shown expansion over southern and western Colorado, while slight improvements have occurred over Kansas and South Dakota. Exceptional drought conditions have been observed across southern Colorado.

ERC values remain near to above 90th percentile over portions of the northwestern Colorado into south central Wyoming entering early August, with lower values observed elsewhere across the region especially across the Front Range north into eastern Wyoming and the Black Hills. Abundant fine fuel loading is expected to continue to be an issue over the lower elevations across northern portions of the geographic area (especially northern Wyoming) as curing continues after a very wet spring and early summer.

Short term forecast precipitation going into early August is reflective of an active northwesterly flow keeping locations east of the Continental Divide in a relatively wet pattern; while forecast amounts west of the Continental Divide are much less substantial. Resultant initial attack from thunderstorm activity in western areas will continue to be problematic at times, especially across northwestern Colorado and southwestern through south central Wyoming. Consensus long term forecasts for the summer and fall lean towards an average temperature regime for the geographic area, with average to wetter than average conditions focused mainly from central to southern portions of the region.

Above Average large fire potential is expected during the early portion of August across northwestern Colorado into southwestern and south central Wyoming as a result of antecedent dry conditions and occasional thunderstorm activity with limited moisture, then becoming closer to average by mid-month with long range predictions indicating increasing monsoon moisture. Otherwise over a larger area western of the Continental Divide, expect limited rainfall from thunderstorms during the early portion of August to result in a significant increase in initial attack at times. Abundant fine fuel loading may increasingly become an issue especially across northern Wyoming during the remainder of summer into the fall over the lower elevations in northern portions of the geographic area as a result of a robust greenup from a very wet

spring and early summer. Above Average large fire potential is predicted over northern portions of Wyoming during August and September in the lower elevations due the abundant fuel loading (cured grasses) and the possibility of wind driven (mainly short duration) fire runs.

Eastern Area: Normal significant wildland fire potential is expected across the region through the outlook period except for the Mid-Atlantic States in August where Below Normal significant wildland fire potential is expected.

30 day soil moisture and precipitation anomalies were below average across portions of the northern Great Lakes, and Missouri at the end of July 2018. Above average precipitation and soil moisture 30 day anomalies were in place over parts of the Upper Mississippi and the eastern Mid-Atlantic States.

Below average temperatures are forecast across the region in August. Above average temperatures trends are expected over the southern tier in September spreading northward into the Upper Mississippi Valley into October. Wetter than average conditions overall are forecast to persist across the eastern tier of the region into August. The wetter trends are expected to shift westward into the eastern Great Lakes and Mid-Mississippi Valley transitioning into September. Wetter conditions are forecast to remain in place over the Mid-Mississippi in October with drying expected over the eastern tier.

100 and 1000 hour fuel moistures as well as Energy Release Components or Canadian Build-Up Indices were below/above seasonal average levels respectively towards the end of July over the portions of the northern Great Lakes and Missouri where precipitation deficits were the greatest. The onset of the 2018 fall fire season may be delayed over parts of the Eastern Area where wetter than average conditions develop/persist through the rest of the summer.

Near Normal fire potential is expected over the majority of the region for the rest summer into the fall. Periods of above average fire potential may persist over portions of the northern Great Lakes and Missouri if wetter trends do not materialize through the rest of the summer. Below average fire potential is expected over the eastern Mid-Atlantic States into August.

Southern Area: Above Normal significant large fire potential is expected across north central and northeastern Texas in August. Below Normal significant large fire potential is expected across portions of the Mid-South along the Mississippi and Tennessee Rivers August through October and across nearly the entire outlook area in November. Elsewhere, expect Normal significant large fire potential.

A much warmer and still drier pattern for a larger area of Oklahoma but particularly Texas is likely to remain dominant through most of August and will keep a drier and fire receptive fuels environment in place. Existing high ERCs, dry and drying fuel classes, and ongoing fire activity here will keep some areas of central and north central to northeast Texas in periods of elevated fire danger. Texas State Forestry continues to issue and update fire advisories for this area. The current thinking is that most rain events will miss these critically dry areas.

Puerto Rico remains in a generally humid summertime tropical environment. While recurring Saharan dust continues to lower rain activity, there have been enough recurring periods of rain to keep fire danger at mostly average to below average levels. The southern and central Puerto Rico areas, however, still remain in a relatively drier pattern and could pose a fire potential problem late this year once the drier months of the year arrive in late November and December. This area will need to be closely monitored through the fall for potential increasing fire danger, which is a pattern supported by the colder sub-tropical/tropical Atlantic waters.

All regional drought remains confined to states west of the Mississippi River. As a result, Texas is currently experiencing most of the significant fire activity. As previously indicated, central and southern areas of Puerto Rico area are also abnormally dry. The drought outlook expects these areas to not significantly improve in the near term.

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>