



# National Significant Wildland Fire Potential Outlook

Predictive Services  
National Interagency Fire Center

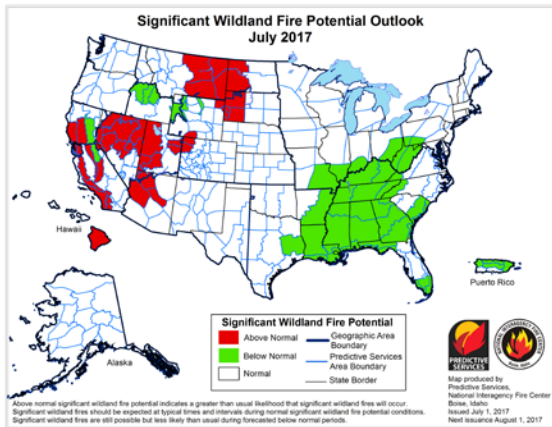


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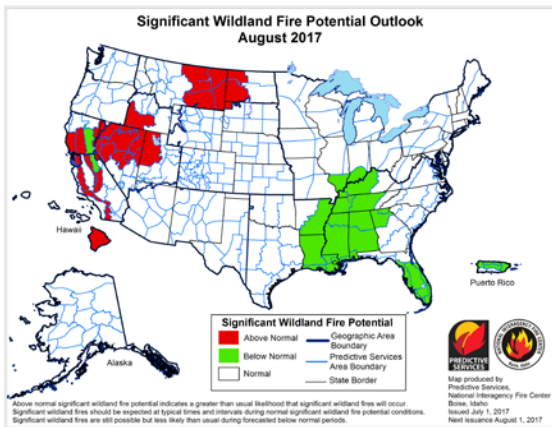
## Outlook Period – July, August, and September through October 2017

### Executive Summary

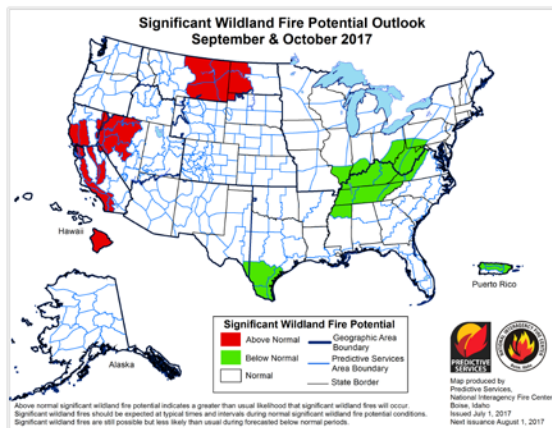
The significant wildland fire potential forecasts included in this outlook represent the cumulative forecasts of the ten Geographic Area Predictive Services units and the National Predictive Services unit.



Fire activity across the West began to increase significantly in June as preexisting dry conditions along with record-setting heat events allowed for the fuels to become critically dry across portions of the Southwest, southern Great Basin, and Southern California. By month's end, fire activity began its usual expansion northward as fires became more frequent in the lower and middle elevations. Several wetting systems slowed fire activity in Alaska. The fire season in Georgia and Florida diminished as multiple wetting rain events relieved the preexisting drought conditions.



Timely precipitation along with above average soil moisture has led to the growth of an abundant crop of fine fuels across much of the west. Periodic cooler than average temperatures across the northwestern portion of the country has slowed curing and drying rates in the grasses and has continued to slow the melting rates of the remaining snowpack. The southwestern states, however, have been drier and more continuously warm than average for several months making fuels more receptive to fire activity. Due to below average precipitation received across the Great Plains portions of eastern Montana and the Dakotas should be monitored closely for a possible increase in fire activity in July. The eastern U.S. been largely milder than average as several frontal systems produced significant rainfall.

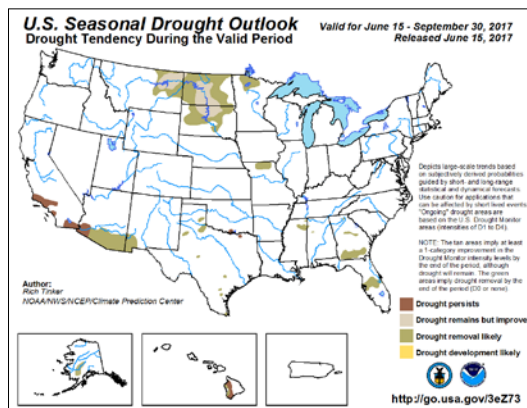
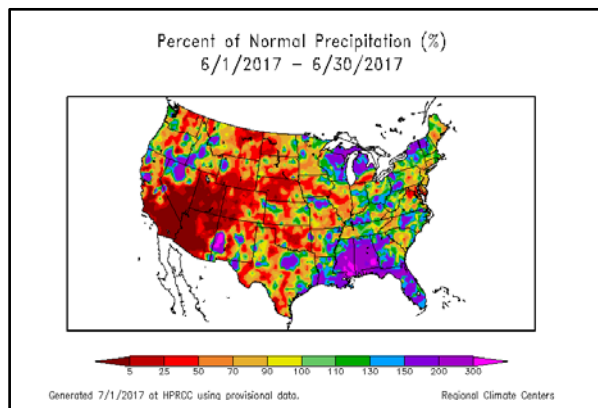
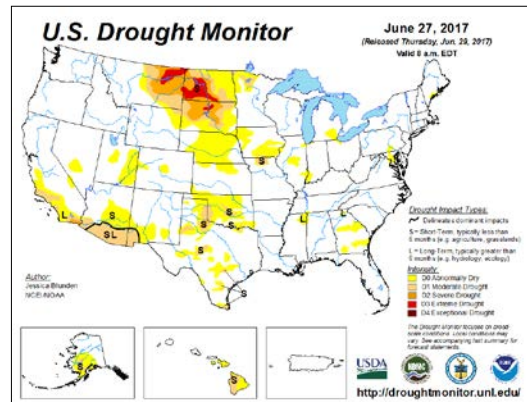
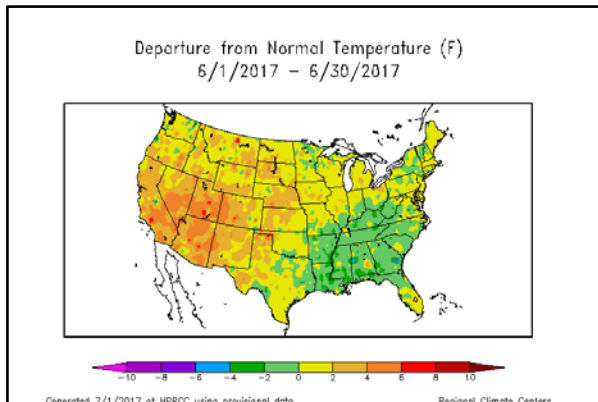


Above normal significant fire potential is expected across a large portion of the rangelands of the west through August before trending toward normal in September and October with seasonal changes that bring wetting precipitation. The Southwest can expect a typical end to its fire season as monsoonal moisture becomes more firmly established by the end of July. Higher elevations across northwestern states will continue to experience below normal significant fire potential in July followed by normal potential for August as high elevation heavy fuels begin to dry out. A normal reduction of fire activity is expected in September across much of the west. The eastern half of the nation is in full green-up and fuels are generally not receptive to significant fire activity. Expect these conditions to persist into fall.

## Past Weather and Drought

June began with significant improvement to the preexisting drought conditions that had impacted Florida and Georgia with above average fire season activity. By mid-month, some locations had received more than a foot of rainfall. The remainder of the East was generally wetter than average as several cold fronts passed and produced multiple rounds of significant rainfall. Drier than average conditions continued across much of the Southwest, southern Great Basin and nearly the entire Great Plains during the month. While several wet systems moved across the northern Great Basin, northern California, Pacific Northwest, and the Rocky Mountain regions, precipitation amounts received were generally below average as well. Mountain snowpack was observed in the higher elevations in the mountains of the northwestern states at months end. Temperatures were slightly below average across most of the eastern states and slightly above average across the western states and northern Great Plains through the Great Lakes region. In Alaska, precipitation received was generally above average across western portions of the state and below average across the eastern interior. Temperatures statewide were generally above average for the month.

While drought conditions were nearly completely mitigated across the southeast, portions of the northern Great Plains quickly saw drought emergence and intensification, especially across eastern Montana and North Dakota. Moderate to Severe drought conditions slowly expanded and intensified along the Mexican border with Arizona and California. Abnormally dry conditions continued across portions of Texas and across south central and southeastern Alaska. Most other locations across the nation continued to be drought free.



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) continues in a slightly positive, neutral state. Latest model forecasts show existing conditions persisting through the remainder of the summer and fall into winter.

Above average temperatures will continue across Alaska from July into September as overall as dry conditions persist over much of the state due to recurring areas of high pressure systems moving across the state. The seasonal transition in late September and October should feature a return to average conditions for both temperatures and precipitation

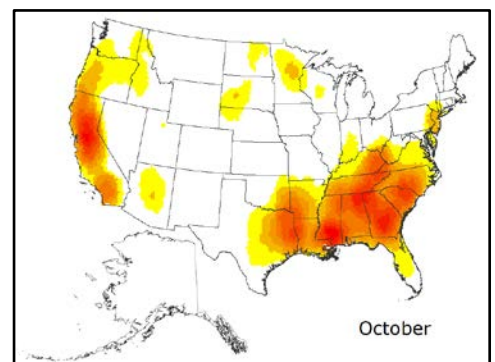
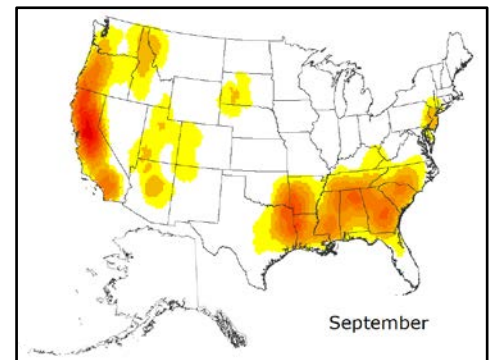
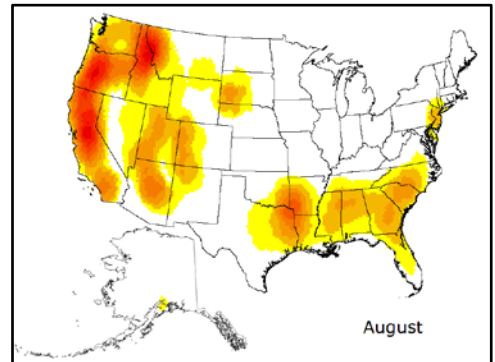
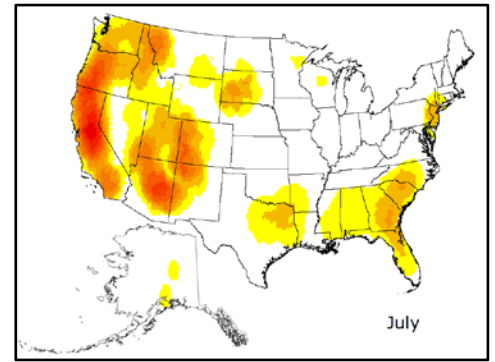
Across the remainder of the country, expect overall warmer than average conditions to persist into September with the highest possibility for heat events being in July and August across western portions of the Southwest and California. Due to the observed progressive nature of the current season, heat events may be of shorter duration than what is typically observed and could suggest it could also suggest that the onset of the southwestern monsoon might be slightly delayed. A higher frequency of breezy conditions across central portions of the West is also possible. Available data suggests that near average precipitation is expected across most of the West in July and August followed by a transition to slightly wetter than average conditions for September and October. The Great Plains can expect overall drier than average conditions in July that give way to average conditions for the remainder of the period except across the southern plains where drier than average conditions are expected throughout the outlook period. While the northeastern states can expect a continuance of above average precipitation, southeastern states can expect a reversion to below average precipitation by September and October.

## Geographic Area Forecasts

**Alaska:** Normal significant wildland fire potential is expected for Alaska through the outlook period.

The U.S. Drought monitor is showing an area of abnormally dry over much of the southern mainland Alaska including an area of Moderate Drought in the interior of southwest Alaska. Though recent rains have dampened fire danger, this long term drought may account for the persistence of some of the fires in that quarter of Alaska. June has seen quite variable weather with lightning activity gearing up, but a wet pattern has kept ignitions to a minimum. The Upper Yukon Valley has been the driest region over the past month with the greatest potential for long lasting fires if ignitions occur. Thus far lightning has been accompanied by ample precipitation.

After a June with cooler, variable weather, July is expected to start warm but with an increased chance of above normal precipitation in the west. Temperatures for July are showing a preference for above normal over all of mainland Alaska with the greatest chances for warmer temperatures in the southwest. The precipitation forecasts for July show increased potential for above normal precipitation for



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)

the Yukon Kuskokwim Delta and Alaska Peninsula. August through October continue in the same vein.

Fuel dryness and fire potential in the fine surface fuels are greatest in the Upper Yukon Valley, running in the Very High to Extreme range. Other parts of northern Alaska are also showing elevated dryness and potential. Alaska is in the middle of its fire season, which typically peaks just after the summer solstice due to the convergence of long daylight hours, high sun angle, and maximum lightning activity. By mid-July, decreases in all of these factors take the edge off fire potential, though it's not till end-of-summer rains come in August that the fire season truly settles down.

**Northwest:** Normal significant wildland fire potential is expected for the Northwest through the outlook period.

Temperatures for June ended up above normal for nearly the entire geographic area. Throughout June temperatures varied with several peaks of unusually high temperatures occurring, including a record setting heat wave at the end of the month. Rainfall gradually fell below average for the region by the end of the month despite several outbreaks of wet thunderstorms. The latest climate outlooks indicate no unusual extremes of either temperatures or precipitation through July. For August and September, however, warmer and drier than typical conditions are the most likely scenario for the northwest geographic area.

1000 hour fuel moisture values varied through June but fell to average or slightly below average by the end of the month. Energy Release Component values also varied by week but finished the month trending above average. Current projections indicate Normal significant large fire potential into July and August followed by the typical decline in fire potential in September and October.

**Northern California and Hawaii:** Significant large fire potential will be Below Normal in July and August in the Northern Sierra followed by Normal conditions. Normal significant large fire potential is expected on the far east side in July, followed by Above Normal large fire potential in August before a return to Normal for September and October. Above normal large fire potential is expected for the entire outlook period for the mountains surrounding the San Francisco Bay area and the mountains surrounding the San Joaquin Valley and also for the western portion of the Big Island in Hawaii. Elsewhere expect Normal significant large fire potential.

The Northern California region received well above normal precipitation during the rainy season. This resulted in a robust fine fuel crop and brush growth at middle and lower elevations, and a heavy snowpack at upper elevations. Fine fuels at elevations below 3500 feet elevation have mostly cured, due in part to a period of intense dry and hot weather during the second half of June. 100-hour dead fuel moisture readings below 3500 ft are below normal for the date, and near the 90<sup>th</sup> percentile level in some of the drier inland areas. Live fuel moisture readings are also dropping at lower elevations. Areas between 3500 feet and 6500 feet elevation are also drying out, with curing of the fine fuel crop well underway, but these areas are not at critical levels like the lower elevations are. Areas above 6500 feet elevation remain fairly wet and/or snow-covered. Fuel moisture readings, both dead and live fuels of all size classes, and soil moisture readings are still above normal for this time of year.

The outlook for the North Ops region is for normal to below normal precipitation and near to above normal temperatures through October. Fire activity and behavior has recently increased in lower inland areas, and several fires have approached "Large Fire" criteria. This is one month earlier than previously thought. At mid elevations and valleys east of the crest it will take a bit longer, most likely in August, before the threat of large grass and brush fires increases significantly. Large live and dead fuels in the middle and upper elevations will be very slow to dry out this summer and may never dry to critical levels.

Sea surface temperatures in the vicinity of Hawaii are expected to remain above normal through October. Therefore, temperatures throughout the islands are expected to remain above normal. With sea surface temperatures along the equator continuing to be ENSO neutral, this pattern will likely lead to near to above normal rainfall patterns throughout the region through October, which includes much of Hawaii's dry season and the early part of the rainy season. Although lighter than normal rainfall in June



has allowed drought conditions to spread across the Big Island and in Maui, normal rainfall patterns are now expected during the outlook period, and the most critical drought conditions are only expected to persist on the lee side of the Big Island of Hawaii.

**Southern California:** Above Normal significant large fire potential is expected across the Sierra foothills and inland valley areas through the outlook period. Below Normal large fire potential is expected in the higher elevations of the Sierras in July and August. Elsewhere, expect Normal large fire potential during the outlook period.

The longwave and sea-surface temperature profile across the Pacific continues to support a prevailing south or southwesterly flow. This orientation of the upper level winds should steer the bulk of “monsoonal” moisture east of the region. Such a pattern was prevalent last summer which resulted in the fewest number of thunderstorms in years. While the high country and the rest of the district may see more lightning activity than last year, a below normal level of convection is expected again this year. Long range models also depict a ridge centered near the West Coast during the majority of the next months, so it is assumed that temperatures will continue to remain above (and in some cases, well above) normal through the summer and into fall. At this time, it is too early to place a prediction on the number and strength of offshore wind events in September and October.

An extended period of record, or near record, maximum temperatures during the last two weeks of June markedly changed fuel conditions across the region. Whereas small diameter dead fuels were showing below normal amounts of moisture in Southern California, dead fuels across the rest of the area, and all live fuels, were sufficiently moist enough to preclude significant fire activity. But two weeks of strong sunshine and hot weather has resulted in all but the highest elevations seeing dead fuels of all diameters drying enough to support fire. Live fuel moisture also dropped, but is still well above the critical threshold. However, if the warm and dry summer materializes as expected, critical dryness may be reached by late July or early August which would be a few weeks earlier than usual.

A heavy grass crop from last winter’s rains will continue to keep the large fire threat elevated over many areas. These cured fine fuels would provide an ideal transition material to the large stand of dead fuels which covers much of the state due the previous drought. Active burning and aggressive fire behavior may result in the foothill region, in particular, during hot or windy periods. The high Sierra still has a deep cover of snow in places, which should last through the end of July. “Snow off” for these elevations above 9,000 feet is a few weeks away, and large fire potential should remain below normal until later this summer.

**Northern Rockies:** Above Normal significant large fire potential is expected across portions of central and eastern Montana through the outlook period while Normal potential is expected elsewhere.

Other than a small area in Western Montana from Missoula south and east along the Continental Divide, precipitation in June was well below-average region-wide. Unfortunately, the critically dry areas in central-eastern Montana and western North Dakota only received less than fifty percent of their average June amounts. Temperatures across the region were above average as well, but not greatly so. As a result, drought severity and extent has increased across the eastern half of the region. Drought conditions still remain absent in northern Idaho and western Montana, due partially to the abundant fall-early spring precipitation, and healthy mountain snowpacks that melted slowly this year.

Latest long-range outlooks are suggesting near to slightly above-average temperatures will persist through July and August into September, along with a likelihood of near to above-average precipitation. The highest probabilities of moister conditions in the outlooks are over central Montana east into North Dakota, which would help to at least keep drought conditions from further intensifying there.

The warm dry conditions in June over most of North Idaho and Western Montana have allowed fine fuels at the lower elevations to cure rapidly. Larger fuels have also dried quickly, and are drier than average for this time of year. Lower elevation live fuel moistures are still at healthy levels though, due to the abundant water-year precipitation. Middle and higher elevations in the western areas are still at normal

levels and should continue to show a typical seasonal progression. The critically dry areas of north central and northeastern Montana, which received less than fifty percent of their April-June precipitation failed to fully green-up. They have fine fuels that are already cured and unhealthily dry live fuel moistures. Conditions in North Dakota are not quite as extreme, especially over the eastern half of the state, but live and dead fuel moistures are well below average.

Fire potential is at normal levels over the lower elevations in the western areas, and will reach normal levels in the middle and higher elevations as well within a few weeks. With near to slightly above average temperatures but near average precipitation expected through the outlook period, Normal fire potential is expected for the western areas through summer, and into fall. Above Normal fire potential due to drought conditions and a resultantly compromised green up in north central/northeast Montana and portions of western North Dakota will likely persist through July and August, into September and October.

**Great Basin:** Below Normal significant large fire potential is expected across the higher terrain of Idaho and Wyoming for July followed by Normal conditions for the remainder of the outlook period. Further south, above normal fire potential is expected across the northern half of Nevada and the southern two thirds of Utah for July and August followed by Normal conditions for Utah. Elsewhere expect Normal significant large fire potential for the outlook period.

The Great Basin saw some very dramatic extremes in the weather during the month of June with temperatures more than fifteen degrees below normal during the first half of the month, then rapidly swinging in the other direction with highs more than twenty degrees above normal a week later. Many high temperature records were set across the area during the middle of June. The entire area saw below normal precipitation with the exception of far southwestern Nevada and southern Utah.

Snowpack in the higher elevations of Idaho and Wyoming is finally diminishing, and fuels are in the curing process. Higher than normal fuel loading and continuity exist over the northern half of the Great Basin where winter and spring precipitation was heavier than normal. With the recent hot and dry weather during the second half of June, fuels have quickly dried, particularly across the southern two thirds of the Great Basin where temperatures have been the most anomalously warm. Lower elevation grasses have cured over the southern two thirds of the Great Basin and are in various states of curing across Idaho and Wyoming.

**Southwest:** Above Normal significant wildland fire potential is expected to linger across the northern half of Arizona into the Four Corners region in July. Elsewhere, expect Normal significant fire potential in July. Normal significant fire potential is expected in all areas August through October.

Over the past thirty days temperatures have been generally above average across much of the region. The warmest areas were across much of the western half of Arizona and the far northeastern plains of New Mexico into adjacent northwest Texas. Over the past thirty days, southwestern New Mexico received above average rainfall while most of the rest of the region experienced either below normal to no precipitation.

An active spring weather season has turned hot and dry for much of the Southwest Area with areas of near record heat. The monsoonal season is expected to arrive on-time or slightly late. In the interim, backdoor cold fronts have begun to impact eastern portions of the region and have provided temporary relief to areas along and east of the Continental Divide. On the western fringe of the moisture provided by these systems, areas of increased lightning will continue to occur. It is anticipated that the areas of Above Normal significant fire potential will continue across the northern half of Arizona into the Four Corners region into July.

The monsoonal timeframe is more than likely to begin on-time or a tad late and will drop significant fire potential regionally as July progresses. It is anticipated that the focus of the monsoonal plume will likely oscillate around the region but could begin to become focused more along/west of the divide region as the summer moves on. Confidence in this overall outlook is slightly Above Average. Areas across the eastern half of New Mexico into west Texas could go from moist to drier by mid-summer.

**Rocky Mountain:** Above Normal significant fire potential has developed across the far western portions of Colorado and in parts of the Dakotas. Below Normal significant fire potential is expected across the mountains of Wyoming and through July followed by Normal potential for the remainder of the outlook period. Elsewhere, expect Normal significant large fire potential July through October

After a considerably cooler than average weather regime during the spring, temperatures during June have exhibited much warmer trends across the Area, especially in western Colorado. Long range precipitation deficits for the last 90 days were most prevalent in western Colorado and southwest Wyoming. Green-up conditions in fine fuels are reaching their curing phase for much of the Area, with green-up still developing in the higher elevations. Frost kill is significant across western Colorado in many brush fuel regimes below 9000 feet. ERC's are near to above 90<sup>th</sup> percentiles in western Colorado, significantly above average in the Black Hills, and near average values elsewhere.

Short to medium range precipitation forecasts in July reflect an unusually active northerly jet-stream with associated scattered shower and thunderstorm coverage focused across locations east of the continental divide. Otherwise, the trend for the first half of the month is for an increasing influence from subtropical monsoonal moisture and associated thunderstorms in west-southwest Colorado as well, and to a lesser extent across northwest Colorado, Wyoming, and western South Dakota. Long range forecast models show an upper ridge of high pressure stretching from the southwest U.S. into the Rockies, which is not unusual for this time of year implying average temperatures and precipitation overall from mid-July through early August. However, the passage of an unusually strong upper trough indicated during the latter portion of July implies suppression of the monsoon moisture, and at least several days of hot, dry, and windy conditions exacerbating any starts from thunderstorms associated with the southwest monsoon.

Below average significant fire potential is anticipated in July across the northern Wyoming mountains can be attributed primarily to recent and forecast precipitation, and above median value mountain snowpack during the spring. Recent warm and dry trends has brought significant fire risk upward to at least back into the average range elsewhere across the Area. Significant fire potential is greatest west of the divide early in July due to drought and associated dry fuels; however, a more persistent flux of monsoon moisture throughout the month into the southwest portion of Colorado is expected to constrain the above normal significant fire risk to the northwest portion of the state into southwest Wyoming. Across north-central portions of the Area the increased significant fire risk is the result of recent precipitation deficits and predicted dry and warm conditions becoming more prevalent during the middle portion of the month of July. Predictions of an average monsoon implies less numerous long duration dry and hot periods across the Area, but with considerable initial attack from lightning starts, especially in western portions of Wyoming and Colorado.

**Eastern Area:** Normal significant fire potential is expected across the Eastern Area July through October except along the southern border of the region with the Southern Area where Below Normal significant fire potential is expected.

Soil moisture and precipitation anomalies were below normal across northwestern Minnesota, Iowa and the Lower Peninsula of Michigan at the end of June. Well above normal precipitation and soil moisture anomalies were observed over much of the north central and northeastern Great Lakes. Near normal precipitation and soil moisture anomalies were in place over the rest of the Eastern Area at month's end.

Wetter than normal conditions are expected across much of the Eastern Area for the rest of the summer and early fall. A trend towards drier conditions may develop over the Upper Mississippi Valley in September. Warmer than normal temperatures are forecast to develop over the majority of the Eastern Area in July and August followed by cooler than normal temperatures for early fall.

**Southern Area:** Below Normal significant large fire potential is expected across a majority of the region in July and August except eastern Texas and Oklahoma and portions of Virginia, the Carolinas, Georgia,

and northern-central Florida. For September and October, Normal significant large fire potential is expected except across Kentucky, Tennessee, Northern Mississippi, and Southern Texas.

Drought conditions significantly improved in May and June and are not an issue any longer east of the Mississippi River Valley. Light to moderate levels of drought remain in the map for generally west Texas. With the abundant and frequent rain activity, Florida and the central Gulf Coast have above average fuel moisture levels. Humid conditions are expected for the South for the next four months along with a more active storm pattern. With elevated moisture available for fuels, the risks for large fire activity should be minimized. Initial attack should be effective when weather events in areas with receptive fuels arise.

### ***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>