Outlook Period – July, August, September and October 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.

Abnormally dry conditions along the West Coast allowed for a northward expansion of drought into western Oregon and Washington in June. Some improvement was noted across the southern Great Plains while drought emergence was observed across the Lower Mississippi River Valley. Preexisting drought conditions and continued drier than average conditions across the Southwest allowed for a normal progression of the fire season across the Four Corners Region until mid-month when the remnants of Hurricane Bud moved north from Mexico and produced widespread wetting rainfall that reduced the elevated large fire potential in that area. While rainfall amounts that were greater than 200% of average were received across Arizona, New Mexico, and portions of southwestern Colorado, the Great Basin and California remained very dry receiving less than 10% of average precipitation. Temperatures across the West were near average for the month from the Pacific Coast east to the Continental Divide. East of the Divide, temperatures were near average.

The southwestern monsoon is expected to arrive in early July and should reduce fire activity across the Southwest. A normal refocusing of fire activity north into the Great Basin and west into California is expected. The existence of a continuous grass from this year along with carryover of fine fuels from 2017 should lead to Above Normal Significant Large Fire Potential in these areas. By late July, fire activity is expected to increase across Oregon and Washington. Entry into the Western Fire Season will be delayed slightly across most of the Northern Rockies due to the persistent wet systems that impacted the region through... However, precipitation data shows an area of below average precipitation for June across extreme northwestern Montana and northern Idaho. As a result, both areas could experience an early entry into the fire. In Alaska, the fire season will gradually come to an end in July as precipitation events become more frequent.

August is the peak of the Western fire season. Seasonal transitions focus the fire activity over the northwestern quarter of the country, though California also continues to experience significant activity. With significant carryover of fine fuels from last year and an average grass crop growth this year, elevated fire potential is expected August through early September in this region from California and the Central Great Basin north to the Canadian Border. Higher elevations in the mountains may also see elevated fire potential as well should warmer and drier than average conditions develop as expected.

Typically, a weather event occurs in mid-September that brings moisture to regions experiencing significant fire activity which allows for the western fire season to begin to decrease in activity. Anticipated trends in long range
weather data suggests this to be the case this September as ENSO Neutral conditions begin to shift toward El Niño for the fall and winter months. While fire activity is expected to diminish across most of the West, expect for only a brief lull to occur across California as the state begins to enter its fall season in October.

**Past Weather and Drought**

A large portion of the country experienced temperatures that were between two and six degrees above average in June as high pressure ridges strengthened over the Great Plains in June. Temperatures from the Continental Divide west to the coast were near average except across the Pacific Northwest where pockets of below average temperatures were observed and across the Four Corners Region and southern Nevada where slightly above average temperatures were observed. With exceptions, the West was drier than average while the East was wetter than average. Precipitation amounts received across California and the Great Basin were generally 25% or less than average. The Pacific Northwest fared slightly better with amounts generally between 25% and 75% of average. The exceptions were the Northern Rockies, which continued to receive abundant precipitation and the Southwest which experienced the passage of a tropical system mid-month.

The passage of the tropical system did little to alleviate the long-term drought across the Southwest. The Four Corners Region continued to experienced extreme to exceptional drought conditions. The ongoing moderate drought conditions across Oregon expanded westward and northward. By month’s end, much of Washington State was experiencing abnormally dry conditions. Another area of abnormally dry conditions emerged across the northern Idaho Panhandle and across the Kootenai Region of Montana. Elsewhere, western portions of the southern Great Plains experienced significant drought relief; however, eastern portions of the southern Great Plains observed drought emergence or intensification due to ongoing dry conditions.

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 to show a gradual warming of the preexisting ENSO Neutral conditions. Latest model forecasts continue show a weak El Niño developing by mid-fall. The atmospheric response to the recent La Niña transition to ENSO Neutral Conditions appears to be in sync with changes to the ocean’s sea surface temperature profile. The southern Great Plains has experienced a transition toward more frequent precipitation events. Only the Southwest continues to experience drier than average conditions in areas that typically experience very dry conditions during La Niña episodes.

Overall warmer than average conditions are expected to develop along the West Coast and spread inland during August and possibly September. A strong southwestern monsoon should lead to a pocket of over average to below average temperatures along the Continental Divide in July and parts of August. By October, the southwestern portion of the country will begin to show a trend toward below average temperatures.

Precipitation outlooks paint a grim picture for the West Coast States in July and August. Data suggests that precipitation amounts received should be well below average. By August, the below average anomalies will spread inland into northern Idaho and Montana. Further inland a strong monsoon is expected, so a potential for above average precipitation exists from the eastern Great Basin to the Continental Divide in both July and August. For September and October, the drier than average conditions are expected to continue across California while a brief period of above average precipitation received is expected across the Pacific Northwest in September (only.) Further inland, wetter than average conditions are expected across the Four Corners Region in September and October. The drier than average conditions across the Northern Rockies will continue through September into October as El Niño conditions take hold. In the East, overall wetter than average conditions are expected except across New England and the Mid-Atlantic States in October when below average precipitation is expected. Looking north to Alaska, overall average conditions are expected with both temperatures and precipitation during the outlook period. A slight trend toward warmer and wetter than average conditions may be observed periodically over the next four months.

Geographic Area Forecasts

Alaska: Below Normal significant wildland fire potential is expected across the western Interior and southwestern Alaska and Normal fire potential expected elsewhere in July. For the period August through October, Normal significant wildland fire potential is expect as the region enters its offseason.

The U.S. Drought Monitor shows an area of Abnormally Dry (D0) on the western Kenai Peninsula and through the Alaska Panhandle. Both of these areas are expected to receive precipitation through the coming week. Recent rainfall and a wet weather pattern has brought damp fuels conditions through most of southwestern and western Alaska. There

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)
have been very few days with well above normal temperatures in Alaska this June.

Long range outlook maps are forecasting warmer than normal conditions for western and southwestern Alaska in July and over the entire state through the summer. Wetter conditions are also expected to be likely for much of Alaska, with an emphasis on western Alaska and the exception being the Panhandle. These forecasts seem likely since many different forecast models have been indicating these same trends. Given this and the persistence of this forecast we can expect a slower than normal 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 later than normal snow-free, precipitation and cool temperatures particularly in the west. Going by the Canadian Forest Fire Danger Rating System indices, the Alaskan fire season continues about 1-2 weeks behind. Alaska is just passing the normal peak of fire season and the long daylight hours and high sun angle contribute to maximum solar heating. July is typically the wind down month with fire activity significantly decreasing in the last week as sunlight decreases and weather patterns shift. However, this year the later start to the season and lack of dry periods so far have brought little fire activity and with less than average fire on the landscape July is likely to continue slower than normal.

Alaska is in the heart of fire season, and lightning ignitions are playing a role. However the slow season so far and the current forecasts of wetter than normal lead to a forecast with a significant portion of the state in Below Normal potential in July and then Normal for the remainder of the period as fire activity usually decreases rapidly after July.

**Northwest:** Above Normal significant wildland fire potential is expected for the region through September except for northwestern Washington in July and southeastern Oregon in September when Normal significant wildland fire potential is expected. Normal significant wildland fire potential is expected in October.

In contrast to a very warm and dry May, the first three weeks of June brought cooler temperatures and sporadic precipitation to the geographic area. Regions west of the Cascades received occasional rain from several frontal systems, while east of the Cascades were doused with showers with passing thunderstorms--especially sections of eastern Oregon. However, for many areas rainfall was still less than average for June. Cumulatively, since the start of the water year, Oregon remains drier than average, while northern and eastern Washington has been a bit wetter than average. Snowpack is receding rapidly to nil at higher elevations but remains a bit above normal along the Canadian border.

Outlooks for the region for July through September have consistently been calling for excellent chances of temperatures being above average and precipitation below average. Beyond September, the outlook is unclear. The prevailing thought is that the summer of 2018 will be another hot and dry one.

Heavy dead fuel moisture values west of the Cascades improved during June after a record dry May but are still well below average in late June. East of the Cascades, the situation varies. For central and eastern Oregon heavy dead fuel moisture is at or above average. For eastern Washington heavy day fuel moisture is tracking below average. Live fuels across the region are curing rapidly and are likely to be completely available by early July.

An escaped slash burn in northwestern Oregon was the only noteworthy fire early in June. Cooler, wetter weather followed and reduced fire activity. However, thousands of lightning strikes on the solstice triggered several large fires in central Oregon which resulted in at least two IMT deployments.

**Northern California and Hawaii:** Above Normal significant wildland fire potential is expected across the Sacramento Valley and Foothills, eastern Bay Area, northern Sierra Mountains, northeastern California, and the Far East Side in July and August. Above Normal significant large fire potential is expected for the Sacramento Valley and Foothills, the entire Bay Area, Mid Coast, northwestern mountains, and the Northern Sierra Mountains. Across Hawaii, Normal significant wildland fire potential is expected for the
entire outlook period. Areas not mentioned above can expect Normal significant wildland fire potential during the outlook period.

The regional outlook for the July through October is for warmer and drier than average weather conditions. A semi-persistent low pressure trough is expected to develop along the West Coast this summer which may lead to less than average lightning in western areas. Lightning activity in eastern areas is expected to be closer to average. The wetter than average spring has led to an above average grass crop at lower to middle elevations which has since cured in most areas. Overall, the majority of the region has recorded a significant precipitation and snow pack deficit since the beginning of the rain year on October 1, 2017.

Dead and live fuel moisture values at all elevations are declining rapidly due to the hot and dry weather that arrived in late June, and fuels are available for wildfire at all elevations earlier than average this year. Several large grass and brush fires occurred at lower elevations in June, and initial attack will increase in the middle and upper elevations in July. Any lightning could cause new ignitions, and spread rates, which were low in June, will increase in July. Cold weather in late February and early March produced areas of frost kill in the lower elevations. This is something else to consider that could add to significant fire potential. The areas with Above Normal significant large fire potential in July and August are the Sacramento Valley and nearby foothills, the eastern Bay Area, the Far East Side, northeastern California, and the Northern Sierras due to the potential of dry fuels combining with wind and occasional lightning events. In September and October, when “offshore wind season” begins and lightning becomes less frequent, the Above Normal area will include the entire Bay Area, the Mid Coast, northwestern mountains, Sacramento Valley and Foothills, and the Northern Sierra Predictive Service Areas.

Sea surface temperatures (SSTs) surrounding the Hawaiian Islands continue to be slightly above average as they were in June. Warm SSTs and above average temperatures are expected to continue through October. Rainfall decreased to well below average in June, but the outlook calls for wetter than average conditions at least through the middle of summer, followed by near average rainfall during late summer and early fall. The significant large fire potential for Hawaii is Normal from July through October.

**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 in July. For the period August through October, all area can expect Above Normal significant wildland fire potential except for the desert and the irrigated farmlands in the central valley.

A longwave trough over the Pacific Northwest kept temperatures across the region moderate during June. Daily high temperatures were near to just a bit above average the past 30 days with the largest departure from average in temperatures occurring across Southern California. There were periods of very warm temperatures, but they were usually short in duration and limited to 2-3 days before cooler weather returned. June weather has been very hot the past few years, but in 2018, 100 degree readings were the exception rather than the rule in the valleys and foothills. While well above average precipitation occurred over Northern California and portions of the Great Basin, most of the rain remained north of the region.

Fuel moisture continued to drop at a steady pace in June due to the moderate temperatures. But the lack of rain and long daylight hours did result in dead fuel moisture drooping to below average levels once again over all areas except the highest elevations of the Sierras. Southern California, especially south and east of Los Angeles County, saw near-record low dead fuel moisture in the 100 hour fuels. Live fuels; however, are still not at critically dry levels and recent starts indicate that fire growth has only been moderate in the absence of wind. This stands in contrast to nearly every year since 2011 when live fuels were critically dry in most areas before July 4th.

Long range models indicate this may be a more active than usual Monsoon Season across the Southwest. But the cold pool of water over the southeastern Gulf of Alaska and off the British Columbian coast may keep troughs over areas to our north much of the summer. This would, in turn, lead to a prevailing southwesterly flow aloft which may keep most of the subtropical moisture associated with the Southwestern Monsoon well east of the state. Therefore near to slightly above average temperatures are expected this summer into fall along with below average precipitation. Large fire potential should climb to Above Normal
levels once again despite the expectation of moderate temperatures this summer. This is largely a consequence of the large stands of dead brush, shrubs and heavy timber which cover thousands of square miles. These dead fuels will again be the driver of large fire activity and once live fuels become critically dry in August, large fire potential will be Above Normal in all areas except for irrigated farmland and the desert.

**Northern Rockies:** Above Normal significant wildland fire potential is expected across the Kootenai Region and the Northern Idaho Panhandle in July. Above Normal significant wildland fire potential is expected for central and western Montana and northern Idaho in August and September (excluding southwestern Montana where Normal potential is expected.) All areas will return to Normal significant wildland fire potential by October. Areas not mentioned above can expect Normal significant wildland fire potential during the outlook period.

Most of the region experienced near to significantly above-average precipitation during the previous month. Especially in southwestern, central, and eastern Montana, and western North Dakota. Dry pockets of significantly below average precipitation occurred in far northern Idaho, northwestern Montana, and a small area of north central Montana. Befitting the fact that most of this precipitation was convective in nature, especially over the eastern half of the region, temperatures during the past month were warmer than average region-wide. With the greatest warm anomalies over eastern Montana and North Dakota. Given the moist conditions in most areas east of the Continental Divide over the past month, the latest Drought Monitor depicts only very small pockets of moderate to severe drought remaining over north central Montana, and central North Dakota.

ENSO Neutral conditions will lead to a seasonably drier pattern beginning in mid-July with near to above average temperatures, which is consistent with climate patterns from previous ENSO Neutral summers. Further into the summer, monthly and seasonal weather forecasts continue to depict anomalous high pressure ridging centered the Pacific Northwest, extending into northern Idaho and western Montana. This would lead to above average temperatures and below average precipitation for the western half to two thirds of the region by late July with a peak in August. Long range seasonal outlooks depict above average temperature likelihood region-wide in September and October, with drier than average potential confined to September in northern Idaho and western Montana.

With the absence of drought conditions except for the small pockets mentioned above, live fuel moistures are at healthy and typical levels currently in most areas. Dead fuel moistures are only at below-average levels currently in far northern Idaho, northwestern Montana, and pockets of far eastern Montana and North Dakota. With above average temperatures forecasted to develop over the western half of the region in July, even with average precipitation, fine-fuels curing and dead fuel moisture dryness will be accelerated in the already currently dry areas of northern Idaho and northwestern Montana. With above average temperatures and below average precipitation forecasted for the western half to two thirds of the region in August, heavy fine fuels loadings at lower elevations west of the Divide and over Central Montana will be fully available. Higher-elevation timbered regions east into central Montana would also then likely experience accelerated dryness moving through August, likely continuing into September.

“Normal” significant wildland fire potential is forecast across most of the NRGA in July due to the latest monthly outlooks depicting near average precipitation for the region. The exception is far northern Idaho and northwestern Montana. These areas have been drier than average in June, and are forecast to have above-average temperatures. Hence fine fuels curing will be accelerated there, and dead fuel moistures will remain below normal. For August and September, with above-average temperatures and below average precipitation forecast by the long-range outlooks for the western two thirds of the region, heavy fine-fuels loadings will be available in these areas, and live and dead fuel moistures at middle and higher elevations in timbered regions will become drier than average. Hence fire potential will depicted as Above Normal across northern Idaho and much western Montana...excluding southwest Montana where an anticipated active monsoon should provide periodic shots of moisture from wet storms. By late September and/or early October, passing weather events should bring the fire season to a close. In addition, better overnight humidity recoveries through the shortening of days will help as well.
**Great Basin:** Above Normal significant wildland fire potential is expected through July and August over much of northern Nevada, Utah, and southern and western Idaho. Above Normal significant wildland fire potential is expected across western Nevada in September. Areas not mentioned above can expect Normal significant wildland fire potential during the outlook period.

The initial area of concern heading into July is Utah, northern Nevada, and the AZ Strip. After long periods of little rainfall and warm temperatures, the fuels are currently most critical over these areas. ERCs are well above average and near record highs for the time of year with near record low live sagebrush fuel moisture and very low 1000-hr fuel moisture. Any monsoonal moisture will likely not occur until the end of the first week in July, and will likely start on the dry side with the return of thunderstorms. Moisture may become more established by the middle of the month when fire activity is expected to begin a downward trend. While much of the month will be average, there may be a period of above average fire potential during the first 10 days of July.

The main areas of concern heading through the rest of July are across western and northern Nevada into parts of southern Idaho and northern Utah as warm and dry conditions are rapidly drying out the live and dead fuels. The significant grass crop from 2017 was not compacted by snow during the 2017-2018 winter in most areas, allowing for a significant carryover fine fuel crop. In addition to the carryover fuels, multiple crops of cheat grass have been growing this spring due to repeated periods of wetter weather. The carryover crop has largely been responsible for the larger fires on the northern and western side of the Great Basin so far this year, but as the grasses cure and live fuel moisture drops through July, fire activity will likely increase rapidly.

Elsewhere, heavier fuels are moist across the mountains of Central Idaho and especially into Western Wyoming, and will likely only be in the drying process through July before fire potential increases over central Idaho in August.

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

Above Normal significant large fire potential, which has existed for months across the Southwest, will diminish rather quickly early in July as the westerlies move over the northern tier of the United States and the subtropical ridge moves north into the region from Mexico. This will allow for the summer thunderstorm season to arrive across the region which will allow for increasing relative humidity values and gradually much needed precipitation to envelope the region. Following the onset of these events, all areas will return to Normal potential.

Confidence in this overall outlook is above average as ENSO Neutral conditions have developed in both the eastern and central tropical Pacific Ocean along with stronger signs of a return to an El Niño state by early-mid fall. A wetter than average fall is likely for the region due to the arrival of the aforementioned El Niño event. Many areas will more than likely return to a normal drought condition by early winter.

**Rocky Mountain:** Below Normal significant wildland fire potential is expected across northeastern Wyoming, central-western South Dakota, and extreme western Nebraska in July. Normal significant wildland fire potential is expected elsewhere in July. Normal significant wildland fire potential is expected in all areas during the remainder of the outlook period August through October.

Precipitation deficits are greatest across Colorado in the south-central, west-central, and northwestern portions of the state overall for the last few months with areas of less than 25% of average being reported. Temperatures have been above average mainly across southern and far eastern portions of the geographic area this spring. Extreme to exceptional drought exists across southern portions of Colorado, especially in the south-central and southwestern sections.

Greenup has shifted into northern portions of the region while to the south, fuels are transitioning or are cured. Wet conditions in northern portions of the geographic area may result in abundant fuel loading available to burn mainly during the late summer and fall. ERC values as of late June are greatest and near
the 90th percentiles across western-southwestern Colorado and to a lesser extent across south central portions of the state, and could be near 97th percentiles by early July.

Short term model forecast precipitation into early July are reflective of an active storm track across the northern and eastern portion of the geographic area (including the Colorado Front Range) generating showers and thunderstorms at times, with rainfall less prevalent west of the Continental Divide, although tropical moisture is predicted to gradually deepen over the southwestern portion of the state. Consensus long term forecasts for the summer and fall lean towards an average temperature regime for region, with average to wetter than average conditions focused across western Colorado into southwestern Wyoming and values closer to average over the remainder of the area.

Above average fire activity is expected to during the early portion of July across western Colorado as a result of recent and long term precipitation deficits coinciding with the pre-monsoon window during the early portion of the month. However, by mid-month predicted precipitation and humidity trends resulting from the Southwest Monsoon along with less frequent wind events are predicted drive large fire risk back into the average range. On average, large fire potential over southwestern Colorado shows a slight reduction in number and acres burned from large fires by the second half of July, with declining trends more widespread over western-northeastern Colorado mainly during August. Below Average significant large fire potential is still expected across northern Wyoming into northwestern Nebraska and all but the far eastern portion of South Dakota as a result of the wet spring, historically high snowpack in the late winter and spring over northwestern Wyoming, and continued opportunities for significant precipitation into early July. The wet spring in northern portions of the area necessitates the need for monitoring fuel loading later in the summer as curing occurs in combination with a late summer and fall seasonal increase in wind events.

**Eastern Area:** Normal significant wildland fire potential is expected across the majority of the region through the summer. Above Normal fire potential may persist across portions of the northern Great Lakes if the forecasted wetter trends do not materialize.

Monthly soil moisture and precipitation anomalies were below average across portions of the eastern Great Lakes, Missouri, New England, and the northeastern Mid-Atlantic States towards the end of June. Above average precipitation and soil moisture 30 day anomalies were in place over parts of the western Great Lakes, Lower Ohio River Valley and western and southern Mid-Atlantic States.

Above average temperatures are expected over much of the southern tier of the region in July. Wetter than average conditions are forecasted across the northern tier of the region in July but should shift south into the southern and eastern tiers of the region during August. Wetter trends return to the western half of the Eastern Area in September with drier than average conditions possibly developing over the eastern half in October.

100 and 1000 hour fuel moistures as well as Energy Release Components or Canadian Build-Up Indices were below/above seasonal normal levels respectively at the end of June over the portions of the eastern Great Lakes and New England where precipitation deficits were the greatest. The onset of the fall fire season may be delayed over parts of the Great Lakes and Mississippi Valley if wetter than average conditions develop in September.

**Southern Area:** Below Normal significant wildland fire potential is expected across most areas east of the Mississippi River during July and August and across areas east of the Appalachian Mountains and Florida in September. The areas of Below Normal significant wildland fire potential will expand to include areas along the Gulf Coast in October. Portions of northern Puerto Rico can expect Below Normal significant wildland fire potential through September. Areas not mentioned above can expect Normal significant wildland fire potential during the outlook period.

Preexisting ENSO neutral conditions in the equatorial Pacific Ocean are expected to continue to warm into an El Niño by fall. This condition, along with a significant arc of well below average water in the northern,
eastern, and southern North Atlantic that is likely to persist and should allow for a recurring flow of Atlantic and Gulf moisture into the southeastern states. With the Southwestern Monsoon developing in July, a humid weather pattern is expected to remain dominant and provide better rain chances for western Oklahoma and West Texas through most of the outlook period. Consequently, ignition potential and fire danger should overall remain at average to below average levels. In between the moist southeast and wetter/ humid west, a drier trend is seen to likely emerge this summer across eastern Oklahoma, eastern Texas, and Arkansas/northwestern Louisiana. While humid conditions are expected to mitigate significant fire occurrence though summer, a prominent continuation of the drier pattern into fall could be a reason for some concern. Currently, a wetter pattern is expected to return later this year. One exception to the overall lower fire threat outlook is likely to be southern and central Puerto Rico where the colder Atlantic water temperatures, if they persist, would be responsible for a fire environment to remain in place. Drought conditions would necessarily worsen. This area will need to be closely monitored through the summer.

At month’s end, the only drought observable is in states west of the Mississippi River and along southern coastal areas of Puerto Rico. The latest Seasonal Drought Outlook shows continuing and developing drought across central Texas. Southern Puerto Rico is forecasted to see drought developing.

**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](http://www.nifc.gov/nicc/predictive/outlooks/outlooks.htm)