



National Significant Wildland Fire Potential Outlook

Predictive Services
National Interagency Fire Center

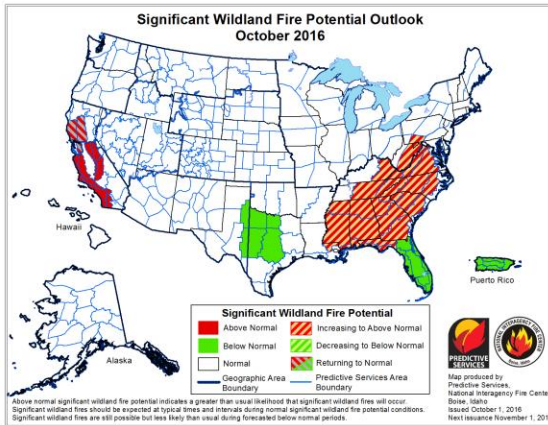


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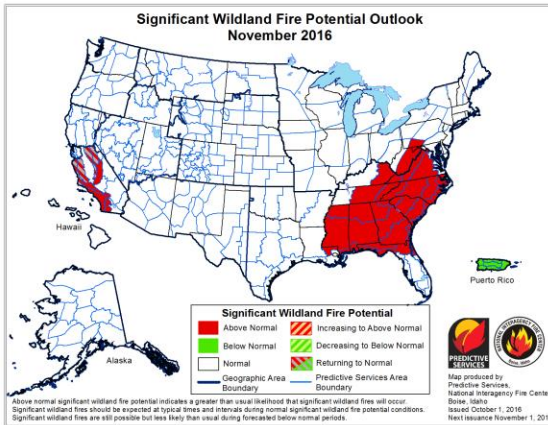
Outlook Period – October, November and December 2016 through January, 2017

Executive Summary

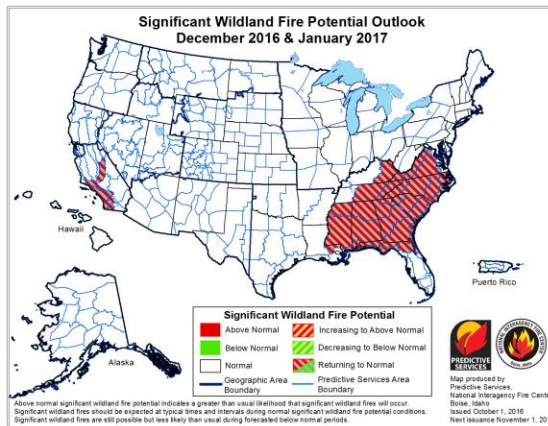
The significant wildland fire potential forecasts included in this outlook represent the cumulative forecasts of the ten Geographic Area Predictive Services units and the National Predictive Services unit.



October represents a significant shift in fire activity in the United States. Shorter days, cooler nights and generally moister conditions reduce wildfire activity across the northern tier of the U.S., taking much of this area out of season or at least to very low fire activity conditions.



October does represent the beginning of the primary time of concern for offshore flow across California. These dry windy conditions can lead to very significant fire events in areas with high populations. This year the forecasts indicate that offshore wind events may be less frequent than usual. However during even light wind periods fires will occur and they will have the potential to spread extremely quickly with extreme fire behavior. Fuels continue to be very dry in California due to long term drought and increased vegetation stress and mortality. Under windy conditions these fuels will become extremely volatile and can support extreme fire behavior.



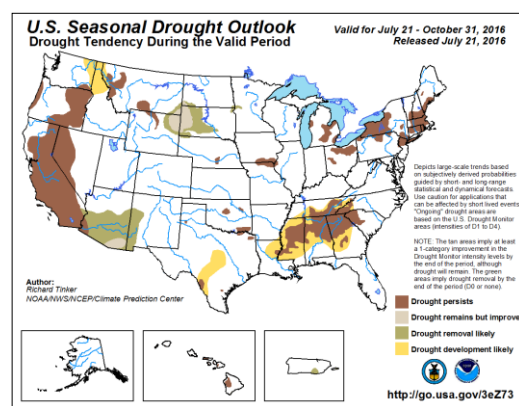
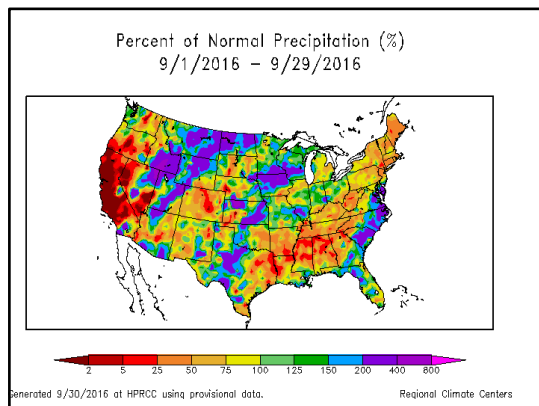
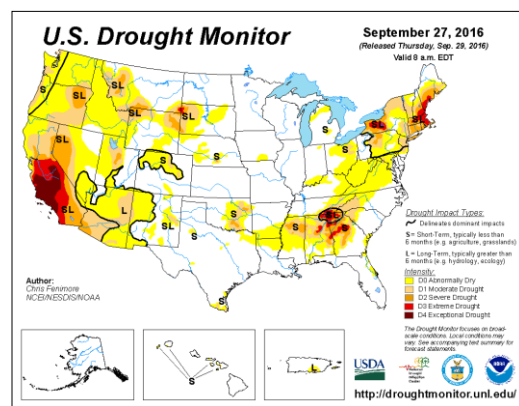
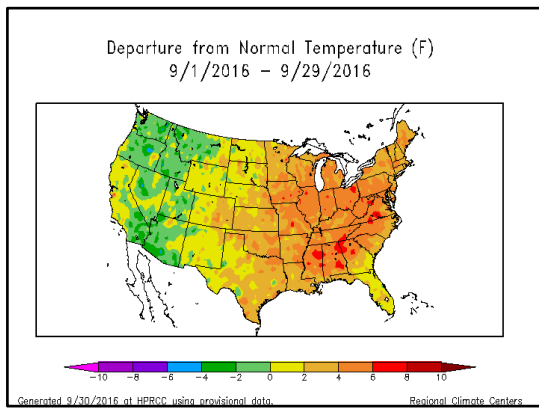
October also marks the start of the fall fire season across the eastern U.S. Leaf drop begins and adds a new dry layer of fuel. In seasons such as this one where leaf drop occurs on already dry fuels, fire activity can be amplified. Expect this to lead to increased initial attack activity and probably a slight increase in large fires. Fire activity occurs year round in the southeastern U.S. so the most likely scenario is to see an increase in frequency and the potential for more control problems than usual on fires this fall.

Through November, December and January fire concerns decrease gradually, eventually returning the entire country to normal conditions by mid-winter.

Past Weather and Drought

A series of broad troughs moved through the western U.S. while a strong ridge anchored over the eastern U.S. Early fall conditions established in the Intermountain West early and kept conditions relatively mild over the western half of the nation with only short periods of very warm to hot conditions developing over the West Coast. In the East, hot weather remained in place most of the month with cooler conditions taking over in the last week. Stalled fronts and one tropical system (Hurricane Hermine) brought several instances of heavy rain and flooding to parts of the East Coast and the Midwest.

Temperatures were generally a couple of degrees below normal for much of the Intermountain West while the Mississippi Valley eastward had temperatures four to eight degrees above normal. Heavy rainfall (150 to 400 percent of normal) fell along the East Coast from northern Florida to the Mid-Atlantic, a large portion of that from Hurricane Hermine the first three days of the month. Heavy precipitation also fell across the Plains and over the northern Rockies and the Great Basin. Very dry conditions continued along the West Coast and in across much of the South. Severe to exceptional drought conditions continue to affect California, Oregon, Nevada, and Arizona with the worst conditions in central and southern California. Pockets of severe or worse drought were also found in parts of the northern Rockies and Plains, the Southeast and New England.



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 hover around a weak La Niña. Latest model forecasts indicate conditions will remain near this level at least through the Northern Hemisphere winter.

Temperatures will generally be warmer-than-normal across the southern half of the U.S. with near normal to the north. Some cooler-than-normal trends are possible in the Northeast as the winter progresses. Precipitation will trend toward drier-than-normal across the southern states while much of the northern tier, especially the Northwest and Upper Midwest to New England, will trend wetter-than-normal.

Fuel Conditions and Fire Season Timing

Longer nights and generally cooler and wetter weather typically reduce wildfire activity in the U.S., especially the northern states which have very little fire activity as they transition to out of season conditions by early October. October does bring increased potential for offshore flow across California. These dry windy conditions can lead to significant fire events, often occurring in populated areas. Even in light wind periods fires will occur and will have the potential to spread quickly and present extreme fire behavior. Fuels continue to be very dry in California due to long term drought and vegetation stress and mortality. Under windy conditions these fuels will contribute to extreme fire behavior.

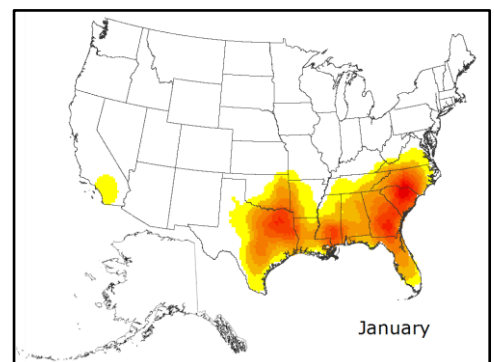
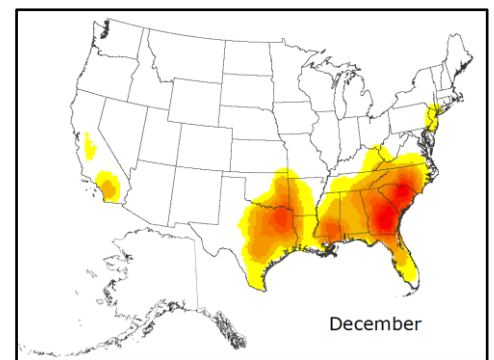
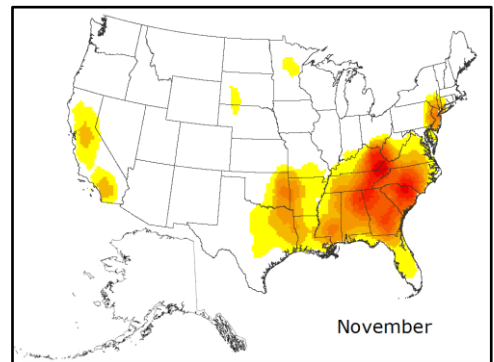
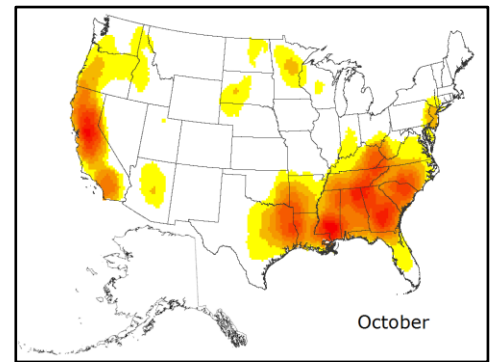
October also represents the beginning of the fall fire season across the eastern U.S. Expect leaf litter to fall on top of already dry fuels and add fuel that will amplify fire activity. Expect increased initial attack activity and probably a slight increase in large fires. Fire activity occurs year round in especially the southeastern U.S.

Fire concerns will largely be mitigated slowly, eventually returning to normal conditions by mid-winter for most of the U.S.

Geographic Area Forecasts

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

Above normal precipitation fell across much of the state for the last few weeks and temperatures were mild. Warmer-than-normal conditions are expected well into the winter. Some surface fuels in the eastern Interior are fairly dry. The deeper layers are fairly wet for most of the state except the Upper Tanana Valley and south of Northway along the ALCAN border, where indices are in the High to Very High range. Light snow in early October generally marks the absolute end of fire season. Shorter daylight hours and lower sun angle prevent relative humidity from dropping much below 40 percent which is critical to carry fire in boreal forest fuels. A few grass fires are possible but spread will be limited to what local winds will carry in surface fuels. Snowpack will soon prevent most ignitions.



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)

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

September was generally cooler-than-normal for the region except for a brief period where temperatures soared for a few days under a strong West Coast ridge. Substantial rain fell in western Washington and northwestern Oregon while elsewhere conditions remained generally dry. Climate outlooks are non-committal for October and through the end of the year. The consensus is that October is likely to be slightly warmer with precipitation near or slightly below average. La Niña conditions have been slow to develop and are now expected to be weaker than previously believed. Little overall effect from La Niña can be expected during the autumn of 2016. Fire danger indices climbed above normal in mid-September but then declined to normal or below late in the month with the onset of wetter weather. Fire activity is effectively finished for the 2016 fire season in the Northwest Geographic Area.

Northern California and Hawaii: Above normal significant wildland fire potential is expected to return to normal for the southwestern portions of the Northern California Area through October and remain normal through the Outlook period.

Normal significant wildland fire potential is expected in Hawaii for the Outlook period.

The outlook for the Northern California Area for October is for above normal temperatures and below normal precipitation. A typical October starts out dry and warm, but precipitation-producing weather systems tend to increase in intensity and frequency during the second half of the month. The regular increase of precipitation events is expected to be delayed until very late in the month. Areas west of the Cascade-Sierra crest, below 3500 feet and from Mendocino and Shasta Counties south, excluding the Bay Area Marine PSA, will continue to have above normal fire potential until late October, then trend toward normal early November through January. These are the areas that have an abundant cured fine fuel crop and are expected to be impacted by cool humid fall conditions. Also, large-scale moderate to strong northerly wind events tend to increase in frequency in these areas during October. These events produce a significant drop in humidity and fuel moisture in the absence of precipitation, and this is the situation expected this October. All other areas are expected to have normal significant fire activity through January.

Sea surface temperatures in the vicinity of Hawai'i are expected to remain slightly above normal through January and will keep the islands warmer-than-normal. The recent above normal rainfall trend is expected to continue through January as the rainy season gets underway. The Keetch-Byram Drought Index is below normal for this time of year. Very little fire activity occurs in a typical fall and winter. So, a projection of normal fire activity from October through January means little to no significant fire activity.

Southern California: Above normal potential is expected for much of Southern California through October. Some portions of central and southern California will return to normal in November, while the remainder of the Area will return to normal in December and January.

Highly variable weather has occurred during the past month, but overall, temperatures since mid-August have been slightly below normal compared to the past few years. Several troughs moved into the Pacific Northwest during the last few weeks which kept the Area under a prevailing southwesterly flow aloft with onshore flow near the surface. A few hot periods occurred but were not long-lived. A decaying tropical storm brought significant rainfall to San Diego County and the desert during the third week of September. A few wet thunderstorms also occurred in the Sierras, but precipitation was scant.

The near to below normal temperatures did little to change fuel moisture in any appreciable way. Both live and dead fuels continued drying with only small fluctuations in fine fuel moisture as the marine layer ebbed and flowed across the coastal plains. All areas of Southern California outside San Diego County and a few locations in the desert are currently reporting record low dead fuel moisture. Live fuel moisture is critically low over most areas. The high Sierras have fuel moisture readings a bit closer to normal, but the overall picture is one of extreme dryness covering most of the district.

Long range models offer little hope of seeing a return of near or above normal precipitation during the upcoming winter rainy season. A weak La Niña would yield less wintertime precipitation than a strong one. However, a positive Pacific Decadal Oscillation sometimes trends toward wetter-than-normal conditions. Long-range models seem to support the idea of drier-than-normal conditions this winter and it seems increasingly likely that central and southern California will experience a sixth consecutive year of drought.

Significant fire potential is therefore expected to be well above normal across much of the Area through the fall. Longer nighttime hours, a lower sun angle and cooler temperatures may lead to large fire potential returning to normal from north to south late this fall into the winter. This is several weeks later than usual and resource demand is expected to remain well above normal for many more weeks to come.

Northern Rockies: Normal significant wildland fire potential is expected for the Northern Rockies through the Outlook period.

The Northern Rockies Area continued to receive timely precipitation events through September but amounts across western Montana and northern Idaho were mainly below average. Eastern Montana and the Dakotas fared better with significantly above-average precipitation in most locations. The latest drought outlook suggests slight improvement in the existing drought conditions through the winter months. Live fuels across western Montana and northern Idaho will enter dormancy in October under varying degrees of drought stress. While not severe stress, this could have some impact on next year's fire season depending on spring precipitation. East of the divide, live fuels, will enter winter having received adequate fall moisture except in portions of western and south-central Montana where pockets of severe drought conditions currently exist.

Long range trends suggest that October should generally be near to slightly warmer-than-normal across the Area as low pressure troughs move through in a westerly flow, separated by several days of strong high pressure ridging. Precipitation amounts will likely remain near average. At month's end a shift to an alternating cold trough and northwesterly flow pattern may occur. Both flow patterns are productive for snow production and are typical for November. There is some thought that high pressure ridging could become more prevalent in January which would lead to overall warmer and drier-than-normal conditions in the mountains. Confidence in that scenario, however, remains low due to lack of consistency in the long range model data.

The Northern Rockies Area is mostly out of season. There remains a slight possibility that under the right conditions a large fire could develop across the Plains of eastern Montana and the Dakotas until winter snow falls.

Great Basin: Normal significant wildland fire potential is expected for the Great Basin through the Outlook period.

A series of storms brought widespread gusty winds and significant wetting rains across the northern and eastern parts of the Area. Much of the Great Basin received well above normal precipitation in September. ERCs dropped below the 70th percentile for most of the Area. Fuels continue to dry through October, especially in warm, windy periods. October typically marks the end of fire season, even in the drier areas as fuels transition into dormancy. Moisture will mainly affect the eastern and northern half of the Great Basin through October. Therefore, little fire is expected through January.

Southwest: Normal significant wildland fire potential is expected for the Southwest through the Outlook period.

Over the past 30 days temperatures have generally been near to slightly below normal Area-wide. Precipitation amounts have been quite varied but have been highest across western Arizona as well as much of the eastern half of New Mexico into adjacent West Texas. The summer monsoonal pattern recently ended and stronger westerlies will make more frequent visits to the Southwest Area in the

coming weeks. The recent above normal temperatures and seasonally humid conditions broke late in the month after a lengthy period which began during mid-summer.

As fall unfolds, much of the Southwest is expected to be warmer and drier, especially the northwestern half of the Area. Some brief periods of cooler-than-normal temperatures are likely as the westerlies will drop more regularly over the Southwest Area. Significant fire potential is not expected to increase in dramatic fashion given the cooler temperatures overnight although at least some areas of increasing drought are likely.

Rocky Mountain: Normal significant wildland fire potential is expected for the Rocky Mountain Area through the Outlook period.

Conditions in September were near to wetter than normal east of the Continental Divide while drier than normal west of the Divide. Longer term precipitation deficits are notable from northwestern Colorado through southwestern Wyoming with less than 50 percent of average. An abundant dead grass crop remains in place in the lower elevations and foothills of the Rocky Mountain Area. ERC's as of late September showed above average values across northern Colorado, but well below May through September historical 90th percentile thresholds; conversely the northern half of Wyoming recorded below average ERC's, with near to below average across the eastern plains.

Short to medium trends indicate an active polar jet with a progressive pattern across the Area during the early portion of October. This would bring occasional warm, dry, and breezy conditions, not unusual for this time of year. Long range forecasts are for near normal precipitation and temperatures during the fall and winter, except wetter-than-normal across far northern portions of the area and warmer-than-normal in the southern portion of the Area. Short duration, wind-driven fires in lower elevations and grasslands are typical in the fall. The primary fire carrier this time is year is dead grass which is abundant this year as a result of a wetter-than-normal spring and early summer east of the Continental Divide.

Eastern Area: Above normal potential is expected to develop across portion of West Virginia through October and remain above normal through November. This area will return to normal in December and January. The remainder of the Eastern Area will see normal significant wildland fire potential for the Outlook period.

Soil moisture and precipitation anomalies were below normal across the southeastern halves of New England and Mid-Atlantic States at the end of September. Near to above normal 30 day precipitation and soil moisture anomalies were in place over the rest of the Eastern Area. Fuel moistures were near to above normal over the majority of the Eastern Area towards the end of September. Warmer-than-normal conditions overall are forecast over the southern tier of the Eastern Area into October. Drier-than-normal precipitation trends are expected over south central portion of the Eastern Area into November. Wetter-than-normal conditions are expected across the Great Lakes through the fall. Colder-than-normal trends are expected to develop later this fall across the northern and eastern tiers of the Eastern Area. The fall fire season may begin earlier than normal across drier portions of the Northeast and the Mid-Atlantic States if drier-than-normal precipitation trends develop and persist into October. Near normal fire potential is expected over the majority of the Eastern Area through the fall fire season. Above normal temperatures and drying may create periods of above normal potential this fall across portions of the southern Mid-Atlantic States.

Southern Area: An area of above normal significant fire potential will develop in October across much of the Southern Area. This above normal region will continue through November and begin to return to normal in December and January.

Below normal significant wildland fire potential is expected in Puerto Rico for October and November and return to normal in December and January.

Persisting drought conditions and a continuing drier-than-normal rain pattern from September remain a dominant feature from Mississippi to the Ohio and Tennessee Valleys and southeast to the central Gulf

states and Georgia. Still lingering effects of summertime rain activity, including a tropical system, along with elevated minimum humidity has kept fuel moistures above critical thresholds. However, fuel moisture conditions are expected to gradually lower through October with a subsequent increase in ignition potential.

Typical and more robust drier conditions normally associated with La Niña will likely be muted. Still, the moisture situation from the fall rains and the strength of the drier pattern with a weaker La Niña will play a large part in what fire risks remain during the fall leaf drop period. Expected warmer-than-normal temperatures in the Southeast and East will accelerate fuels drying and keep the prospects for a return to at least an average type fall fire season in play for this outlook period. While weak to insignificant fall fire seasons have now been observed the last three years in the Southern Area, even a weak la Niña episode should produce drier weather patterns and a subsequent higher ignition, drier fuel environment.

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) 387-505 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>