



National Significant Wildland Fire Potential Outlook

Predictive Services
National Interagency Fire Center



Issued: November 1, 2018
Next Issuance: December 1, 2018

Outlook Period – November, December and January through February 2019

Executive Summary

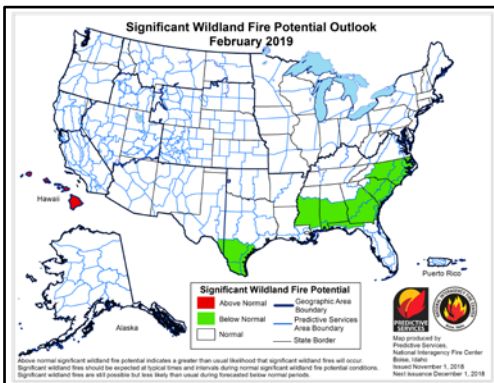
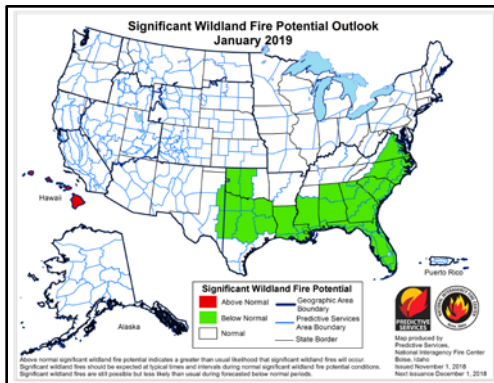
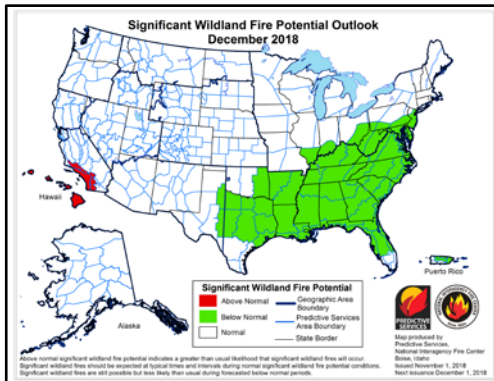
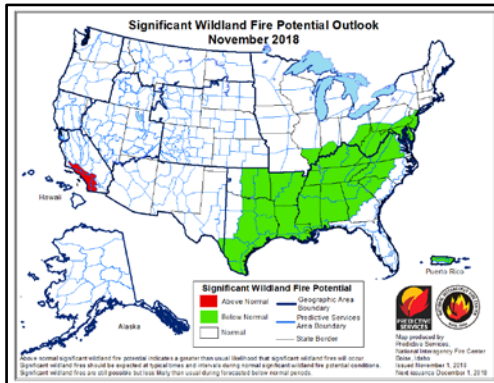
The significant wildland fire potential forecasts included in this outlook represent the cumulative forecasts of the ten Geographic Area Predictive Services units and the National Predictive Services unit.

Much of the West exited fire season by early October as the frequency of wet systems moving across the country increased. Cooler temperatures brought higher humidity levels and good overnight recoveries which also reduced large fire potential. As anticipated, the frequency of Santa Ana and North Wind events across California was lower than average, so critical fire weather periods were infrequent and of short duration. Nevertheless, fire activity was observed in isolated locations across the region in the remaining pockets where fuels remained critically dry. The Klondike fire made large runs mid-month. In the East, fire activity was also less active than average. This was due to the onset of a weak El Niño which promoted wetter than average conditions. The primary draw on resources was in response to Hurricane Michael which made landfall at Mexico Beach, Florida, with 155 mph winds.

While most regions of the country are out of fire season during November, varying levels of activity are observed across California and the Southeast. The onset of El Niño should allow for a continuance of wetter than average conditions across the Southeast which should limit fire activity. However, pockets of critically dry fuels will persist across California, especially along coastal areas and along the front of the Southern Sierra. These areas will remain susceptible during wind events.

Climatologically speaking, fire activity during the winter months, December through February, is at a minimum. Areas most susceptible to activity are generally restricted to the southeastern states where periodic increases in fire activity are possible during dry periods until spring greenup begins. However, current data and expected trends in precipitation suggest that large fire potential will be Below Normal in this region. The abundance of moisture should keep fuels in most areas from becoming critically dry. Drought forecasts project that the region should remain mostly free of drought.

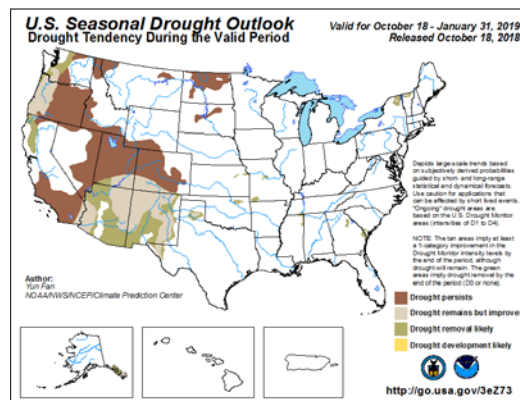
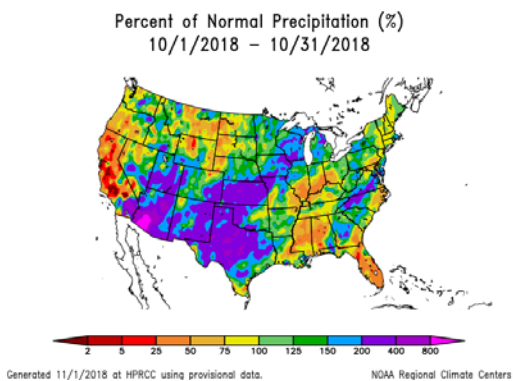
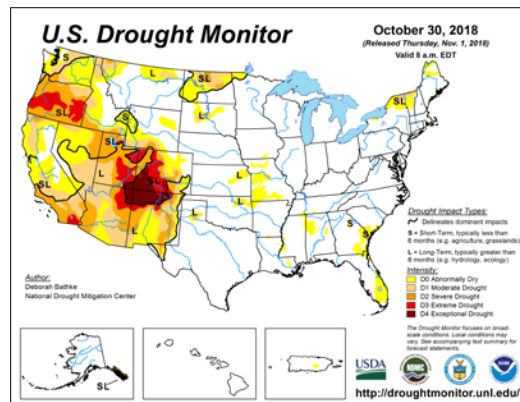
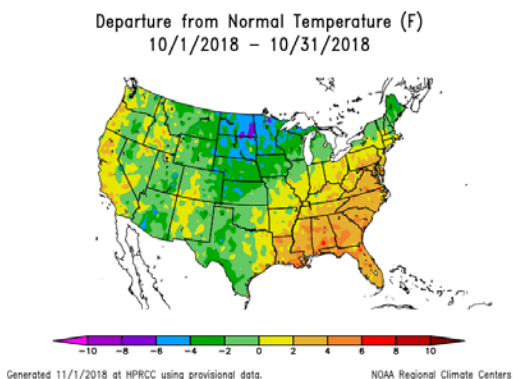
Across the West, overall warmer and drier than average conditions are expected. This should lead to below average snowpack in most mountain locations across the northern tier of the country. Snowpack should trend toward average levels moving south along the Continental Divide as the impacts of the El Niño begin to produce a positive effect on precipitation amounts received.



Past Weather and Drought

Temperatures across the Intermountain West and along the West Coast were generally near average to 3 to 6 degrees above average during October as a series of high pressure ridge events proved to be the dominant features. Across the central portion of the country, the Great Plains and Great Lakes regions, temperatures were generally 9 to 12 degrees below average early in the month but recovered to be just slightly below average by month's end. This was in response to a persistent trough of low pressure that continually pulled colder air down from Canada. In the Southeast, temperatures were generally 2 to 6 degrees above average with some warmer spots as was the Northeast until the third week of the month when some cooling occurred due to an eastward migration of the upper level trough and pushed temperatures down to be below average. Precipitation amounts were generally above average across most of the country. Exceptions to this were across the northern two thirds of California, southern-western Oregon, and along the Canadian Border between Washington and North Dakota where precipitation amounts received were generally less than 50% of average. The Floridian Peninsula also experienced below average precipitation as well as did Mississippi and Alabama.

The western drought persisted during October, but there were signs of improvement. Texas and Arizona saw the most improvement as did portions of Montana, the Dakotas, and Utah. Some deepening of drought conditions was observed along the state lines of Nevada, Utah, and Idaho. Looking forward, some improvement in preexisting drought conditions are expected across the southern half of the Four Corners region and west of the Cascade Crest through January. A persistence of drought conditions are forecasted across Southern California, most of the Great Basin, eastern Oregon, and portions of Montana and the Dakotas.



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

Latest sea surface temperature anomalies across the equatorial Pacific Ocean indicate that a weak El Niño event has begun. Temperature depth profiles and upwelling of warmer waters from beneath suggest that further warming is expected. Latest forecast data strongly indicate that the event should last through the winter months and into the spring before slight cooling of ocean water temperatures begins to occur.

Weather patterns in association with the event are expected to follow climatological trends. Wetter than average conditions are expected across the south central and southeastern states. Overall warmer and drier than average conditions are expected across the northwestern quarter of the country while a trend towards average conditions is expected across the southwestern quarter of the nation except California where drier than average conditions are expected. Mountain snowpack accrual should be below average across the northwest and near average across the southwest.

Geographic Area Forecasts

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

Abnormally Dry conditions in the northern Alaska Panhandle and severe drought conditions in the southern Panhandle persist while the rest of the state has received ample precipitation this fall, with heavy rains in parts of the Interior and the Gulf Coast.

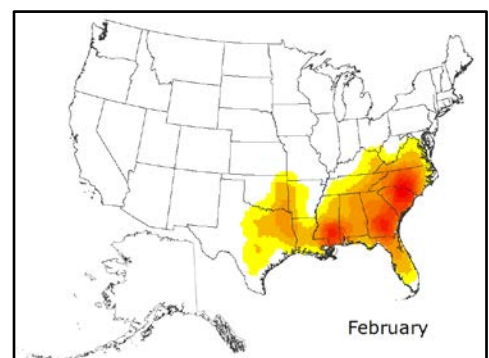
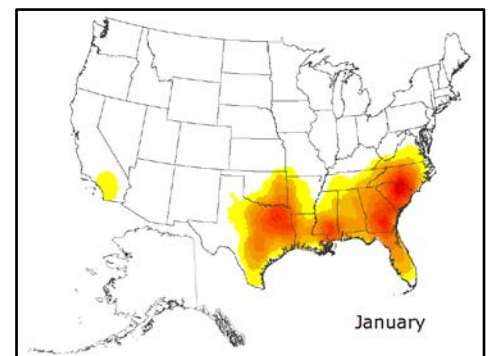
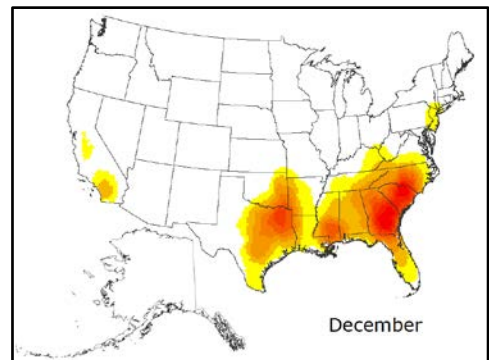
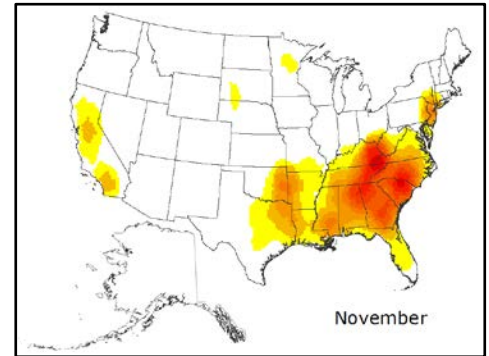
Warmer than average conditions are expected in November for all of Alaska this winter, with a focus in western and northwestern Alaska, particularly along the coast. This is likely due to the extremely low sea ice content of the Chukchi Sea this fall. Wetter than average conditions are expected to occur in the west and south, with the focus shifting to southeast by December. This should moderate the drought in the Panhandle this winter.

Calculations of the Canadian Forest Fire Danger Rating System have all been turned off for the season as temperatures are mainly in the 30s and 40s, the ground is frozen or even snow-covered in most areas, and ignitions are unlikely.

Alaska is out of fire season with little to no fire activity expected through the winter, which is normal.

Northwest: Normal significant large fire potential is expected across the region during the outlook period.

After an unusually warm and dry summer, the first month of autumn brought more seasonable weather to the east side of the region, while the Cascades and western areas remained a bit warmer and significantly drier than average. Most of the Pacific Northwest continued to see Abnormally Dry to Extreme drought conditions, with only the northwestern corner of the region recovering with the rainfall that was received in August and September.



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 latest climate outlooks suggest temperatures will be above average for the region through the winter. Precipitation shows a below average bias for November, but no clear signal for the December–February period. The outlook is based in part on the expectation for development of a weak El Niño, which would suggest a mild winter in all areas. The US Drought Outlook projects persistent drought conditions for eastern Oregon and small parts of eastern Washington, while conditions across the rest of the region are expected to improve.

After remaining at or near record levels for much of July and August, ERC and 100-hour fuel moisture levels finally dropped to seasonal levels under the influence of marine air in September. A two week stretch of warm, dry weather in the middle of October reduced 100-hour fuel moisture to new record lows for several PSAs, but significant precipitation over the next week returned all fire danger indices to average levels at the beginning of November.

Cooler, moister conditions reduced fire behavior during September with less than a dozen new large fires and generally low growth on existing incidents. October saw only two new large fires as the combination of fire danger and weather was no longer favorable to development of new significant fires.

Northern California and Hawaii: Normal significant large fire potential is expected across mainland portions of the region and Hawaii during the outlook period except across Hawaii after November when Above Normal potential will exist.

The great majority of rainfall that occurred in October did so during the first week. Other than small areas in the northeastern and southwestern portions of the region, most areas received less than 75% of average amounts. The U.S. Drought Monitor shows a large portion of the region in the Abnormally Dry category with a growing area of Moderate Drought conditions west of the Sacramento River and a small area of Severe Drought conditions near the Oregon state line. While only light rainfall amounts are expected in early November, precipitation amounts and frequency should pick up by mid-month. Fuels remain at or near record dryness levels entering the outlook period, and local areas with dry and breezy conditions will still have a moderate risk of significant fires during the first few days of the month. Although the outlook calls for drier than average conditions in November, cool and damp conditions will bring significant fire potential down to average levels by the middle of the month. Occasional rainfall and mountain snow events through February, along with the long cool nights, will keep evaporation and evapotranspiration rates low. Therefore, all areas have Normal Significant Fire Potential from November through February.

Sea surface temperatures surrounding the Hawaiian Islands are above average to the south and near average on the north side of the region. Average temperatures throughout the region are expected to continue to remain so through February. Rainfall in October was above average from the central islands east to the Big Island, and below average at the western end. The potential of El Niño conditions in the equatorial Pacific beginning this winter is more than 70%, and this pattern tends to produce drier than normal conditions during the Hawaiian rainy season. The official outlook for Hawaii calls for near average rainfall in November, then trending to below normal rainfall from December through the winter and spring months. The Large Fire Potential for Hawaii is Normal in November. Fuel loading has been above average since the spring, and fire activity was above average during the drier stretches of the summer. Therefore, the Large Fire Potential for Hawaii is Above Normal from December 2018 through February 2019 as a drier than average rainy season evolves.

Southern California: Above Normal significant wildland fire potential is expected along the coast and foothills across Southern California in November and December. For January and February, Normal significant large fire potential is expected in all areas. Areas not mentioned above can expect Normal significant large fire potential in November and December.

A few periods of warm and dry weather occurred during the past month, but overall, the severity of October 2018's fire weather pales in comparison to the past several years. Often, October is the one of the hottest, driest months of the year. While some 100 degree readings occurred across inland areas, the average daily temperature for the past 30 days was just a bit above average. There were two storms which brought

widespread and significant rainfall, both of which occurred during the 2nd week of the month. Southern California, in particular, saw sizeable rainfall totals as a weak low steered remnant tropical moisture into the area.

The rainfall did cause a pause in wildfire activity across the area as fuel moisture climbed to above average levels. But since these rains occurred much earlier than usual, several days of dry, offshore flow followed, causing fire danger to climb back to high levels. Dead fuel moisture dropped rapidly and critical fire weather conditions occurred scarcely a week after the rainfall due to a strong Santa Ana wind event. There is an historical precedent for fire weather conditions closely following wetting rains in the fall as the Freeway Fire in 2008 occurred only a few days after a wetting rain.

Large fire potential is expected to drop from north to south across the district as long nighttime hours, cooler temperatures and a low solar angle collude to lower the fire danger despite the dryness of the fuels. Most fire activity going forward will be limited to periods of prolonged, and at least, moderate, offshore flow. There are, on average, 3 moderate to strong offshore wind events in both November and December and this year, an average number of events is expected. Long range models indicate a drier than normal November may be on tap which means a few more offshore wind events will likely precede the next period of significant wetting rains. But there are indications a cooler, wetter pattern may develop in December which should result in large fire potential returning to near normal across the entire region. A normal number of large fires (i.e. zero) are expected in January and February.

Northern Rockies: Normal significant large fire potential is expected across the region during the outlook period.

In October, areas along and east of the Continental Divide received slightly above average precipitation, but generally speaking, the early fall brought a persisting trend of dry conditions to the region. Western Montana, along the Continental Divide, saw a few rounds of accumulating snow, but the highest precipitation amounts observed were in eastern North Dakota with an early-season snow storm from October 9th – 11th. Temperatures in October were much below average in North Dakota and Montana east of the Continental Divide, and slightly below average across western Montana and Idaho. This was due to a very cold, Canadian weather system that moved into the northern Great Plains mid-month. This was followed by a strong ridge of high pressure over the entire northwest US with warm days but a continuation of cold, dry nights.

Moderate to severe drought continued along the Canadian border in the Idaho Panhandle, northwest Montana, and the northern half of North Dakota, with Abnormally Dry conditions across much of the Idaho panhandle and north central Montana. Drought is expected to continue or worsen in the Idaho Panhandle and northwestern Montana and the northern half of North Dakota through the winter.

Last winter's abundant precipitation led to a heavy fine fuel load of grass in the eastern PSAs. Considering the strong climate signal for a weak El Niño event and the resulting drier than average conditions in the Northern Rockies, these fuels may still be available to burn for the remainder of the Fall season until there is sufficient rain and/or snow cover. Current fire danger indices remain low and there is an expectation of getting moisture during the first week of November.

Increasingly longer nights, cold night-time temperatures, and shorter daily burn periods have led to strong inversions and overall fuel conditions are not critically dry. These trends are expected to continue a Normal significant large fire potential for all areas of the Northern Rockies through the outlook period.

Great Basin: Normal significant large fire potential is expected across the region during the outlook period.

Over the last 30 days precipitation has been above average across most of the the Great Basin. The only areas that have seen below normal precipitation are along the Sierra Front into northwestern Nevada and across parts of eastern Idaho into Wyoming. Temperatures have been several degrees below average across the entire Great Basin. Severe to extreme drought persists across the eastern half of Utah, with severe drought observed further north into Utah and far southern Idaho and northeastern Nevada.

Moderate drought to abnormally dry conditions continue farther west across much of Nevada and Idaho into Wyoming. Exceptional drought has developed due to prolonged recent dry and warm weather across parts of southeast Utah. Wet and cooler weather should return to Utah, Wyoming and parts of Idaho in November, however much less precipitation is expected across western and northern Nevada into far southwestern Idaho.

Significant Large Fire activity decreased rapidly by early to mid-October after significant wet and cool weather moved across the region. Although fire activity has decreased, there still may be some areas of concern heading into November across western and northwestern Nevada into southwestern Idaho. These areas did not see as much wetting rain as areas further east. There is also a well above average fine fuel crop that could quickly dry out during long periods of dry and warm weather. This grass crop will continue to elevate the potential for fire activity for a burning period or two after dry periods and on windy days. However, on most days, fire potential will be normal.

Normal significance large fire potential is expected across the Great Basin from November through February with low fire activity due to cooler temperatures and longer nighttime periods, despite any precipitation. However, after dry periods even throughout the fall and winter, brief increased fire potential or even large fires are possible on windy days for a burning period or two due to the above average fine fuel load after periods of very dry weather.

Southwest: Normal significant large fire potential is expected across the region during the outlook period.

Given the ongoing onset of an El Niño state in the eastern-central Pacific Ocean this fall the overall expectation is for average to above average precipitation to occur for the region through the forecast time frame. Confidence in this overall outlook is above average as the expected wet trend for the coming winter months is already developing. In addition, overall temperatures are expected to be below average as well during the outlook period though a few warm and dry periods may be observed here and there. Mountain snowpack is expected to be at least average if not above average given the expected wetter than average conditions this winter.

Rocky Mountain: Normal significant large fire potential is expected across the region during the outlook period.

October was cooler and wetter than the average over a large portion of the region. Drier areas were constrained to northwestern Wyoming and south-central Colorado, along with average to slightly above average temperatures observed across southwestern Colorado. Long range drought trends have abated somewhat across the region. That said, Exceptional drought conditions linger across southern Colorado.

Late October ERC reports show stations average to below average across the region. Abundant fine fuel loading over the lower elevations in northern portions of the geographic area has been mitigated by a relatively wet pattern during the late summer and early fall. Mountain locations are showing snow cover over the higher elevations which is above average for this time of year. Values are closer to average in the mountains of northwestern Wyoming.

Short term forecast precipitation for early November indicates a trend toward below average precipitation. Temperatures should be near average with occasional breezy conditions developing with frontal passages and/or downslope wind events. Consensus long term forecasts for fall and winter lean toward an average to warmer than average period for northern portions of the area along with average to below average precipitation. Southern areas can expect near average temperatures and precipitation during the outlook period.

Critically dry fuel moistures and associated large fire risk in late September across north-central and northwestern Colorado into south-central to southwestern Wyoming moderated significantly during October. Abundant fine fuel loading over the lower elevations in northern portions of the geographic area has been mitigated by a relatively wet pattern during the late summer and early fall. Long range outlooks

for the remainder of fall into the winter point toward an average/out of season fire regime for the Rocky Mountain Area. Fire history for the geographic area shows a continued drop-off in large fires from November-January especially after the first week of November, with the primary focus (short duration wind driven) over the lower elevations and grasslands, especially east of the divide.

Eastern Area: Near to Below Normal significant large fire potential is expected over the majority of the Eastern Area during the outlook period.

Thirty-day soil moisture and precipitation anomalies were slightly below average across parts of the Ohio Valley and New England in late October. Well above average precipitation and soil moisture anomalies were in place over Iowa, Wisconsin, southeastern Minnesota, parts of the Mid-Atlantic States and southern New York.

Drier than average conditions overall are forecast across the Upper Mississippi Valley in November. Wetter trends are expected to continue across the Ohio Valley into the Mid-Atlantic States November into December. Below average temperatures are forecast across much of the Eastern Area in November. Above average temperatures trends are expected to develop over the western Great Lakes December into January. Cooler than average conditions may develop over the eastern states January and February.

Hundred- and thousand-hour fuel moistures were near or above seasonal averages and Energy Release Components or Canadian Build-Up Indices were near below seasonal average levels toward the end of October over the majority of the Eastern Area. The late fall 2018 fire season will likely continue to be diminished over much of the Eastern Area where wetter than average conditions develop and/or persist.

Southern Area: Below Normal significant wildland fire potential is expected throughout the outlook period except in areas shown on the maps above where Normal significant wildland fire potential is expected.

While the winter outlooks indicate temperatures to be average to above average for the region, there are other considerations that point toward a possibility that a cooler than average trend could develop. The possibility for cooler than average conditions suggests a higher potential for southern/eastern snow events this winter. Forecast weather patterns should be closely monitored for the development of high latitude blocking patterns and for the potential development a strong high pressure ridge in the West this early this winter. The development of either will yield clues to whether or not the cooler than average conditions will develop.

The presence of a subtropical Atlantic high pressure area will likely continue to reduce the potential for higher amounts of recurring rainfall across Florida early on. However, some rainfall and higher humidity are still expected which should keep large fire potential from exceeding normal thresholds. Across Puerto Rico, a declining but still somewhat active tropical pattern should keep seasonal rainfall on track through November before the dry, post tropical season develops during the later periods of the outlook.

There are currently two areas, eastern North Carolina and the Florida peninsula, where short term rain deficits have emerged. Drier than average rain anomalies continue to build across the Floridian peninsula with 30 day deficits ranging from one to three inches below average with embedded areas along the eastern coast reaching into the three to five inch range. Observed rain fall has been in the one to two and a half inch range. For eastern North Carolina, October rainfall amounts were in the one half to two inch range which were 75% or less of average. A few locations within this area received just 10% of average for the month. Despite these deficits, the region remains mostly drought-free.

Fire activity across the region has been minimal and much below average due to prior heavy rainfall activity from the recent major hurricanes that made landfall on the Atlantic and Gulf Coasts. Fire danger is expected to remain low during the outlook period. For Puerto Rico, areas along the southern coast could see some elevated potential evolve through and the outlook period. This will need to be monitored as the normally seasonally dry months approach.

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>