



# National Significant Wildland Fire Potential Outlook

Predictive Services  
National Interagency Fire Center

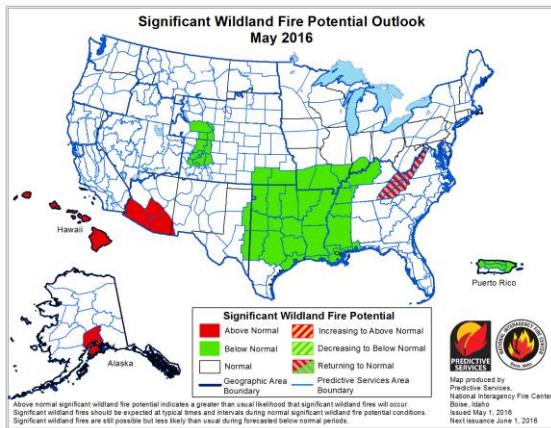


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## Outlook Period – May, June and July through August, 2016

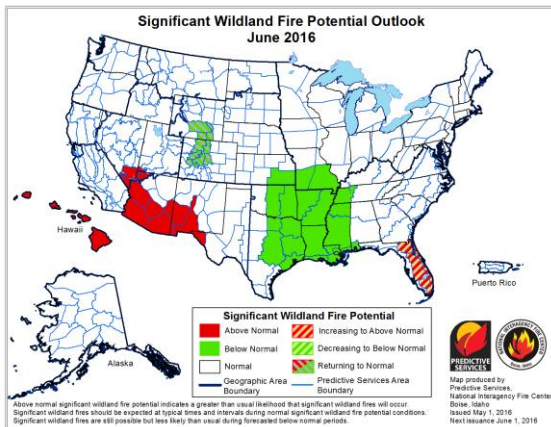
### Executive Summary

The May, June and July through August 2016 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.



Conditions in the mid-Atlantic and Appalachian region were dry enough through April to see increased fire activity at the end of the month. Greenup and increases in precipitation will decrease much potential through May.

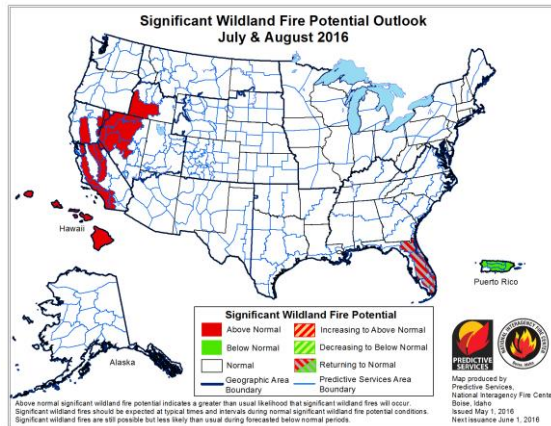
Heavy fine fuel loadings are expected across the Southwest and Great Basin, and lower elevation areas of southern and central California. This will likely increase fire activity in these areas throughout fire season especially when associated with dry and windy periods. Fire activity will begin in May and June across the Southwest and transition northward as usual throughout the June and July.



Warm April conditions depleted some of the mountain snowpack. Remaining snowpack should continue to melt off but remain long enough for a normal to slightly delayed onset of higher elevation fire activity. Nearly all higher elevation timbered areas are expected to see normal fire activity throughout the Outlook period.

Poor seasonal snowpack and early snowmelt in South Central Alaska will likely to lead to above normal conditions in May, especially in the populated corridors.

Significant moisture across the Central U.S. is expected to produce below normal significant fire potential, especially coupled with green-up occurring throughout this area.



Most other areas of the U.S. are expected to see normal significant fire potential throughout the summer fire season. It is important to note that normal fire activity still represents a number of significant fires occurring and acres burned.

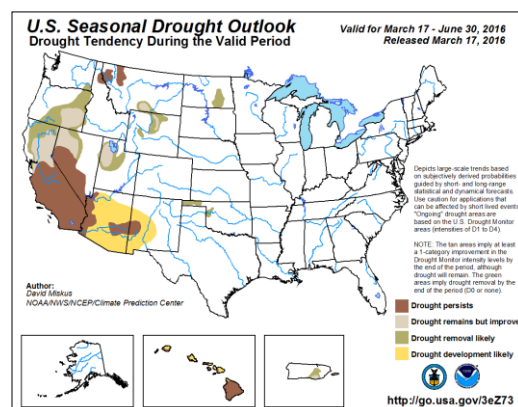
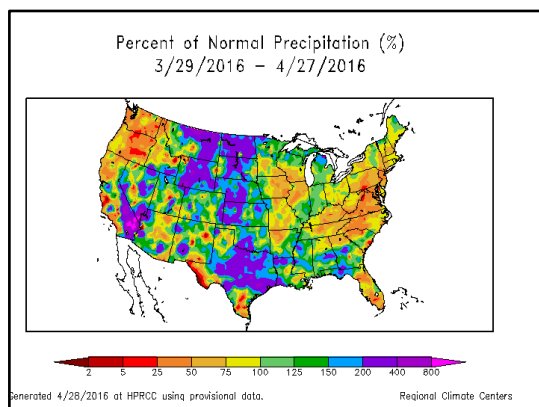
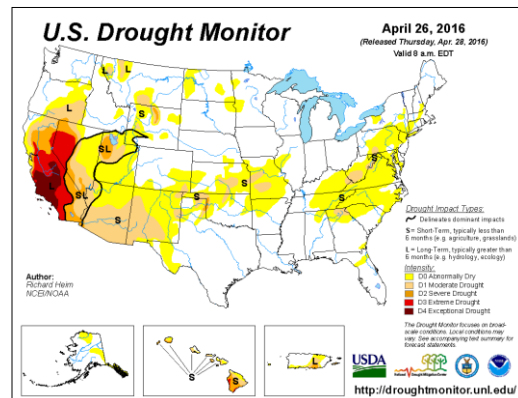
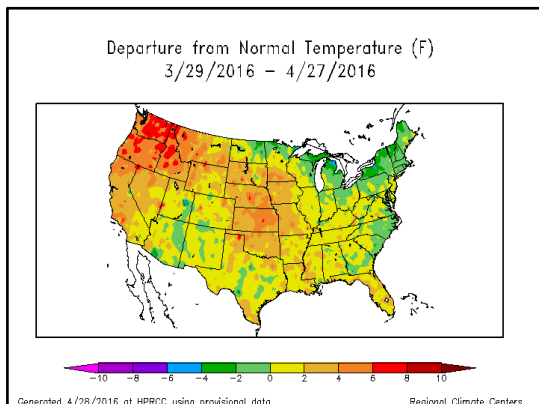
## Past Weather and Drought

A very moist westerly flow brought several storms to the West during March, producing significant mountain snowfall. Flooding was a recurring concern for parts of the southern Plains and the Gulf Coast region. A strong storm complex affected much of the eastern half of the U.S. during the third week of March, developing over the central Rockies and the High Plains with blizzard conditions before moving east through the Great Lakes. The Southwest and central Plains remained relatively warm, dry and windy through the month. Southern Alaska saw a few systems that brought snowfall, but overall it was dry.

Temperatures for March were above normal West and the Plains. The greatest temperatures anomalies were in the Pacific Northwest where temperatures were six to eight degrees above normal. On the other extreme, below normal temperatures occurred around the Great Lakes, New England, and along the East Coast.

Precipitation from several spring storms left most of the Interior West and the Plains with much above normal conditions, as much as 400 percent of normal across the northern Rockies, the northern Plains and south to the Texas Coast. The deserts of southern California and western Arizona also received much above normal precipitation. Warm conditions in March depleted some of the western snowpack in the Northwest and northern Rockies where basin snow water equivalent was about 60 to 80 percent of normal. In the central Rockies and western parts of the Great Basin, snow pack was at or above normal.

Extreme to exceptional drought conditions remained across southern California and western Nevada. Continued improvement is expected across most of the West going into the spring growing season. Drought is expected to develop or intensify over parts of the Southwest U.S. and Hawaii.



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 conditions remain in place across the equatorial Pacific but continue to weaken. The latest model projections continue this trend with neutral conditions expected by summer and an increasing chance of La Niña conditions developing by fall.

Temperatures will remain warmer across the northern tier of states and down the eastern third of the country in April. Temperatures will remain above normal east of the Mississippi into mid-summer while cooler conditions take hold in parts of the Interior West. Alaska will remain warm in the south into mid-summer.

Precipitation will remain low across the northern states and down the Mid-Mississippi Valley into late spring. A wetter pattern over the West will transition to dry conditions in the Southwest and West Coast as summer arrives. Pockets of wetter than normal conditions will return to the Great Lakes region and Interior West, the latter possibly tied to the Southwest monsoon.

### ***Fuel Conditions and Fire Season Timing***

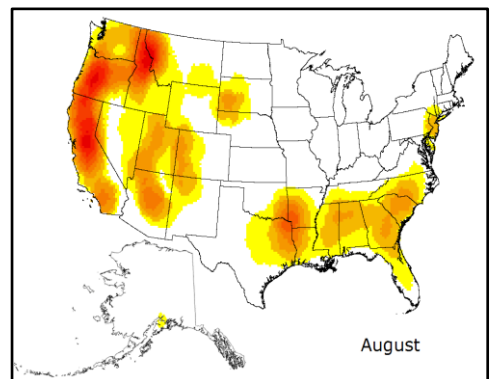
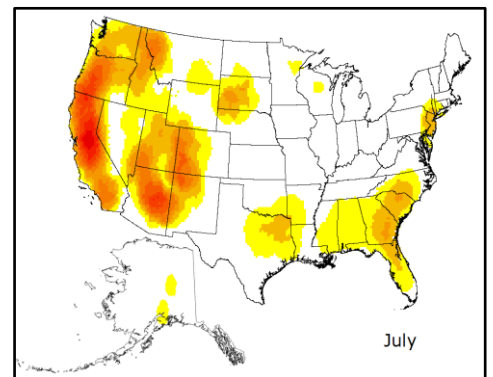
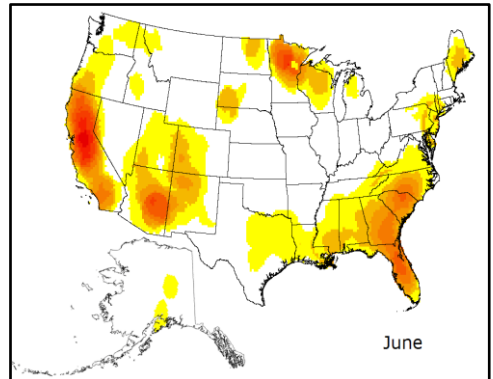
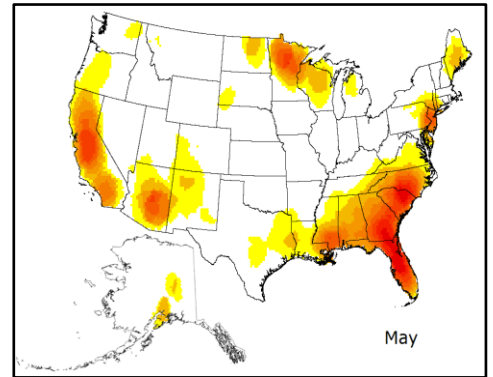
Fuel conditions in the mid-Atlantic and Appalachian region were extremely dry through April leading to an active end of the month. Recent precipitation coupled with increasing green-up will serve to increase both live and dead fuel moistures mitigating some of fire potential.

The next area of concern will likely be south-central Alaska where snowpack is somewhat below normal and in some areas non-existent. Snowmelt is likely to lead to above normal conditions in May, especially in the populated corridors as fuels become available to burn and human use of the environment becomes more prevalent.

Concurrently with Alaska's increasing fire danger robust fine fuel crops are expected across the Southwest and Great Basin, as well as some lower elevation areas of California. These fine fuel crops are likely to lead to periods of increased fire activity in these areas throughout fire season especially when associated with dry and windy periods. Fire activity will begin in May and June across the southwest and transition northward as usual throughout the June and July.

Mountain snowpacks are diminished in some areas after a warm beginning of April. Snowpack in these areas is still enough to produce a normal to somewhat delayed onset of fire activity in the higher elevations. Thanks in large part to the normal to delayed timing of fire activity and the release of moisture from the snowpack nearly all higher elevation timbered areas are expected to see normal fire activity throughout the Outlook period.

Generally speaking the remainder of the U.S. is normal to below normal fuel conditions which indicates normal increases in fire activity should be expected throughout the fire season in these areas



**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)**

## **Geographic Area Forecasts**

**Alaska:** Above normal significant wildland fire potential is expected for May South Central Alaska. Significant wildland fire potential is expected to return to normal through the remainder of the Outlook period.

Only two areas of abnormally dry conditions exist across Alaska: one in the eastern Interior along the upper Tanana Valley and the other in the central North Slope extending into the central Brooks Range. The rest of the state is considered normal. The snowpack is rapidly melting. Below normal snowpack was observed across most of the Anchorage Bowl and Kenai Peninsula, where much of the winter precipitation fell as rain, particularly at low elevations. This will likely lead to very dry fine fuels as the remainder of the snowpack disappears.

Warmer-than-normal conditions are forecast for the entire state through the summer. Precipitation forecasts have been highly variable from month to month. Currently the forecast indicates higher than normal precipitation in western Alaska in May and shifting to northern Alaska through the bulk of the summer. The southern half of the state is snow-free and the snow free areas are expanding northward rapidly. Alaska is quickly coming into fire season. As areas become snow free and dry out human-caused ignitions are possible along the populated corridors. Expect fire season to start about one to two weeks early.

**Northwest:** Normal significant wildland fire potential is expected for the Northwest Geographic Area for the Outlook period.

April started off warm and dry with record high temperatures recorded at a number of locations across the Area by mid-month. The latter half of the month turned cooler and wetter. Overall, April was warmer and drier than average. Snow melt accelerated in April due to the warm conditions in the first half of the month. Despite the return of some cooler, wetter weather in the latter half of April snowpack fell to below average across much of the Area. This is a significant reversal from previous months where snowpack was above average. Climate outlooks suggest that generally warmer-than-usual conditions are likely to continue; however, precipitation outlooks are uncertain. Fire danger is historically too low during May for noteworthy risk of large fires. In June fire danger will likely rise and we will see the onset of typical seasonal fire activity. Risk of large fires is not expected until late June. Large, costly fires are more likely in July and August but at this point there is no reason to believe that the risk of them is above normal.

**Northern California and Hawaii:** Above normal significant wildland fire potential is expected in Hawaii for the period. Normal significant wildland fire potential is expected in Northern California through June. Significant wildland fire potential will begin to move to above normal across the lower elevations of the Sacramento Valley and the Far Eastside of the Area in July and August.

Most areas in Northern California have received below normal precipitation in April but are still at or above normal for the season. Precipitation is expected to be near to slightly above normal through May and possibly into early June. After early June, there is typically little to no rainfall in the Area. There is an above normal crop of annual grasses and other perennial vegetation at lower elevations. These fine fuels are beginning to cure in some of the drier areas in the southern end of the Sacramento Valley and surrounding foothills and in the eastern Bay Area. Soils are still moist in these areas, and additional fine fuel growth is expected and will need to cure before these areas see fire potential increase. These areas are expected to have above normal fire potential in August. Valleys and foothills east of the Cascade-Sierra crest are expected to have an above normal fine fuel crop as well, and these fine fuels will cure out in July. Significant fire potential will begin to move to above normal there in July, and remain above normal in August. West of the crest, green-up is underway at mid elevations and many areas above 5500 feet have snow-covered fuels. Due to occasional precipitation through May and into early June, mid and upper elevations are expected to have normal fire potential through August.



Rainfall was below normal across much of Hawaii in April. Where the exceptions occurred, the rainfall came quickly. Drought conditions have intensified across the islands in April. As the El Niño continues to weaken precipitation is expected to return closer to normal. However, Hawaii is entering its typical dry phase of the year so even normal precipitation will allow drought conditions to continue and possibly worsen. Drought will likely peak during the early fall at much drier conditions than usual. Therefore, significant fire potential is expected to be above normal for Hawai'i from May through August.

**Southern California:** Normal significant wildland fire potential is expected for the May and June. An increase to above normal potential is expected for some of the Area by July and into August.

While the northern half of California generally experienced near to above normal precipitation, the southern part of the state did not fare well during the past rain season. Most places south of San Luis Obispo and Kern Counties experienced less than 75 percent of normal precipitation. The rainfall across the state heavily favored the higher terrain. Precipitation in these areas was closer to normal. In Southern California, only the highest terrain of the Sierras and coastal areas of Monterey and northwest San Luis Obispo experienced above normal precipitation. Long range models indicate sea surface temperatures are rapidly falling along the equatorial Pacific and most available model guidance points toward the likelihood of a La Nina weather pattern developing by fall. This, along with lingering warm water off the Mexican Coast, may result in an above normal monsoon season once again. While many of the storms may be wet, lightning-generated fires are always a possibility in the summer.

The drought across the state is about to enter its 5th year and the effect on vegetation has been severe. A massive die off of heavy timber is occurring in the high country, especially the Sierra Foothills where over 50 percent of the old growth long needle pines are dying or are dead. The rest of the Area continues to see a very high amount of dead fuel loading. The past winter did result in a few heavy rains and the grass crop is heavier in many areas compared to the last 3 years. Therefore, there is an increase in fine fuel loading this year and once these grasses cure, any new start could rapidly transition into the heavier dead fuels. Significant fire potential will be above normal in all areas outside the desert, except those areas which experienced above normal precipitation.

**Northern Rockies:** Normal significant wildland fire potential is expected for the Northern Rockies Geographic Area for the Outlook period.

Persistent warm and dry ridge events were quickly followed by abrupt shifts into cooler and wetter patterns in April. The alternating pattern proved beneficial for moisture east of the Continental Divide where, on average, precipitation amounts were above normal for the month. Across Western Montana and Northern Idaho, monthly precipitation amounts were generally less than normal. The overall warmer-than-average conditions allowed snowpack melt to begin a little ahead of normal. Drought signals continued to be observed along the Front Range, portions of south central Montana, and across most of North Dakota.

Expect generally warmer and drier than average conditions through mid-April that transition to average or even slightly wetter than average conditions from mid-spring into early summer. The first half of May will likely feature overall cooler and wetter than average conditions under the influence of a series of passing upper level troughs and low pressure areas. Two other potential transitions in the weather are likely throughout the period. The first of the two is expected in late May as the Area transitions to a convectively active southwesterly flow. By mid-July conditions will transition to a hot and dry ridge pattern. Greenup is currently occurring across the northern Rockies. Full green-up should occur by late May and early June in most areas followed by the curing and drying process of the live fuels from mid-June through July. The Northern Rockies is currently exiting the pre-green-up grassfire season east of the Continental Divide and largely remains out of season west of the Divide. Portions of the Area will begin fire season in late June as the grasses and other live fuels dry out across southeastern Montana and southwestern North Dakota. From there, a typical, gradual transition of the activity's focus will shift from these areas to western Montana and northern Idaho by mid-July.

**Great Basin:** Significant wildland fire potential is expected to be above normal for the southwestern portions of the Great Basin in June. While these areas will return to normal in July, northwestern portions of the Area will become above normal in July and August.

Weakening strong El Niño's can result in wet springs across northern Nevada and Utah. This should prevent most areas except the far south from rapidly transitioning to significant fire activity by June. Above normal precipitation across portions of Nevada into southern Idaho is expected to produce an above average grass crop, which should begin curing by June across southern area and by July farther north. A heavy grass crop should increase fire danger for areas of northern Nevada and southern Idaho by late summer.

**Southwest:** Above normal significant wildland fire potential is expected for the southern half of Arizona in May. Above normal potential will develop beneath the Mogollon Rim and into far southwestern New Mexico in June. Activity will return to normal with monsoonal onset in July.

A shift towards a predominantly cooler and wetter overall pattern occurred in April across the Southwest Area. This pattern helped ease the previous few months of growing concerns associated with mild and dry conditions as well as hampered fire activity. Areas east of the Continental Divide were by far the wettest areas. In addition, some areas across the eastern Plains also experienced impressive amounts of moisture. Farther west, much of Arizona saw very little moisture with the exception of the California border area. Cooler temperatures were also predominant across most areas along and east of the Divide during the month of April.

For May, the weather pattern is expected to remain quite active well into the month with frequent storm system passages to impact the Southwest Area. With this expected active pattern a definitive tilt towards cooler and wetter conditions east of the Divide is anticipated with a generally less wet and warmer tilt farther west. The above normal significant fire potential area for May is certainly within this drier and hotter zone. Complicating things further is the excessive amount of fine fuels with high continuity and heavy fuel loading almost Area-wide which is conducive to short term rapid fire growth. Presently green-up is impeding fire growth but as it heats up and dries out, the fine fuels are more than likely to play an increased role in this fire season. By later May into June, expect areas of above normal significant fire potential to expand farther north and east into the adjacent Mogollon rim region and eventually move from the finer fuel regimes into the heavier fuels as June arrives. Monsoonal onset should be on-time to somewhat delayed and could be focused west of the Divide with perhaps a significant drier regime gradually taking shapes across the eastern portions of the Area as the summer moves on. At present, normal significant fire potential is expected during both July and August Area-wide; however, there is at least some anticipation of a drier and hotter mid to late summer timeframe into next fall which could present some challenges.

**Rocky Mountain:** Below normal significant wildland fire potential is expected for southeastern portions of the Rocky Mountain Area as well as some of the mountain areas of Colorado and Wyoming for May and June. These areas should return to normal by July and August.

While average to above average precipitation has occurred this spring across central to northern portions of the Area, moisture deficits were notable though early April across southern portions of Colorado and Kansas. During the second half of the month moisture improved the precipitation deficits in the south, especially east of the Continental Divide. High elevation snowpack as of late April was near to slightly above average over northern Colorado into southern Wyoming, except well above average east of the Divide in these areas. Otherwise, snowpack was near to slightly below average in southern Colorado and northern Wyoming. The lowest snowpack values were over the Black Hills of western South Dakota; however, most of the snowpack is typically gone by May in this area. Drought indices improved from last month with moderate drought lingering in portions of southeastern Colorado and southeastern Kansas and moderate to severe drought over north central Wyoming. Temperatures during April were near to slightly above average in Colorado, and above average elsewhere.

Short term forecasts into early May indicate a wet pattern overall for the Area, with rain and higher elevation snowfall, especially near and east of the continental divide in Colorado into southeast Wyoming and a large portion of the eastern plains. Long range outlooks for the May into early June maintain an average to wetter and cooler than average environment, except near to slightly below average precipitation and near to above average temperatures across far northern and eastern sections of the Area. Average temperature and precipitation patterns are predicted for the late June through August period.

Lower elevation green-up is progressing across the Area, especially east of the Divide from Colorado into southeastern Wyoming and the eastern Plains. An abundant dead grass fuel component remains in place from previous growing seasons and is expected to persist this summer as grasses from recent spring moisture cure out in the lower elevations. Higher elevation fuel regimes are generally under snow cover. As a result of recent and forecast precipitation, an average progression of green-up is anticipated through May reducing the severity and threat of an earlier than average onset of wildfire season. Wildfire season typically begins late May over southern Colorado and progresses northward through the remainder of the summer months.

**Eastern Area:** Below normal significant wildland fire potential is expected over the Southwestern portions of the Area in May and June, while generally normal conditions will be present throughout the remainder of the Area through the Outlook period.

Soil moisture and precipitation anomalies were below normal across portions of the Mid-Atlantic and Northeast states at the end of April. Above normal precipitation and soil moisture anomalies were in place over the majority of the Great Lakes, western Iowa, Indiana, and Ohio. Drier than normal conditions overall are forecast over much of the western half of the Eastern Area into May and warmer than normal conditions are forecast over the majority of the Eastern Area through the summer. The exception is the eastern half of New England where cooler than normal temperature trends are expected. Fuel moistures were well below normal over portions of the Mid-Atlantic and Northeastern States at the end of April as short to medium range drying occurred through April along with periods of well below normal relative humidity. However, precipitation events forecast over these areas into early May are likely to increase fuel moistures. The spring fire season is forecast to end across much of the northern tier as green-up progresses through May. However, the spring fire season will likely persist into May over drier portions of New England until rainfall frequency and amounts increase and green-up is completed.

**Southern Area:** Significant wildland fire potential is expected to transition from above normal back to normal over the Appalachians in May due to increasing moisture and green-up. Below normal significant wildland fire potential will be widespread across the western portions of the Area, and Puerto Rico through June before returning to normal for the remainder of the Outlook period.

The fire environment continued to dry in the Northeast and mid-Atlantic in April and that's where fire activity occurred. Green-up continues to lag mostly in the mountains of Virginia with leaf out still not yet complete even farther south in the mountains of northern Georgia. Soil moisture anomalies remain lowest in the mountain region and while some rain is expected fuel moistures will continue to lag. Fuel moistures did show some improvement with the last rain event but are still somewhat dry.

A fading El Niño will still allow some moderate to locally heavy rain activity to develop across the Southern Area early in the period, primarily west of the Mississippi River Valley into early May. While moderate increases in rain fall activity are expected over the summer, it will likely be more isolated to scattered which will result in a mosaic of rainfall. Combined with the deficits now seen in the east and south it will likely produce periods of higher fire activity but still representing normal levels of activity. Below average rainfall is expected over southern Florida in May and June with a normal increase in wildfires. A return to the summer tropical humidity and rain pattern by July should result in fire activity within the seasonal normal range.

## ***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>