National Significant Wildland Fire Potential Outlook



Predictive Services National Interagency Fire Center

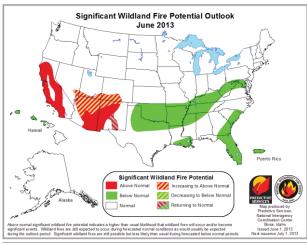
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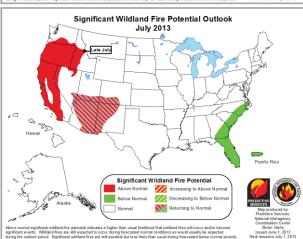


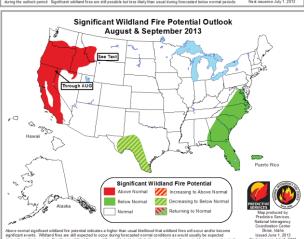
Outlook Period - June, July and August through September

Executive Summary

The June, July and August through September 2013 significant wildland fire potential forecasts included in this outlook represent the cumulative forecasts of the eleven Geographic Area Predictive Services Units and the National Predictive Services Unit.







June

- Significant fire potential will be above normal for much of the interior mountains and foothills of California, the Sacramento Valley, and adjacent lower foothills as well as the coastal areas.
- Significant fire potential will increase to above normal in Arizona, western New Mexico, and far southern areas of Utah and Colorado.
- Significant fire potential will be below normal from Oklahoma and North Texas to Maryland, the south Atlantic States and Puerto Rico.

July

- Significant fire potential will be above normal over much of California, Oregon, south central Washington, western Idaho, and far northern Nevada. Fire potential will return to normal over Arizona, western New Mexico, and far southern areas of Utah and Colorado by mid July.
- Significant fire potential will remain below normal for the south Atlantic states and Puerto Rico.

August and September

- Above normal significant fire potential will continue in California, Oregon, southern Washington, western and central Idaho and northern Nevada, and expand into southwestern Montana.
- Significant fire potential will be below normal along the mid and south Atlantic states and Puerto Rico, and become below normal in southwest Texas.

Past Weather and Drought

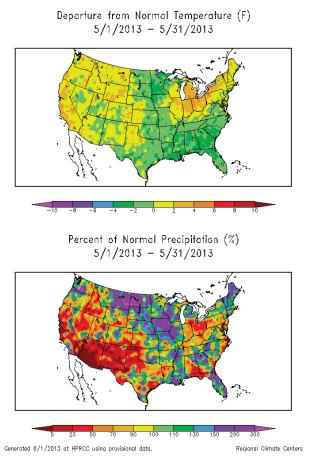
A progressive weather pattern across the U.S. kept much of the country in very active weather for most of May. A deep trough in the central U.S. at the start of the month produced very warm and windy conditions for southern California, triggering a brief but active fire period in the dry fuels. Soon after, a series of troughs crossed the country and produced showery and mild conditions across much of the North and West, and stormy and cool weather over most of the East and South.

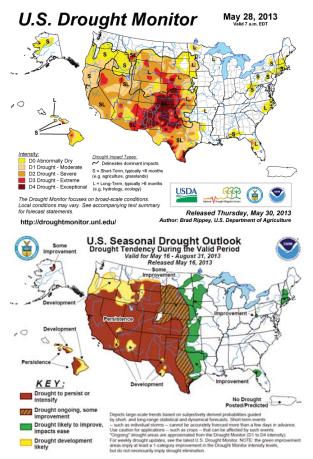
Several strong Canadian fronts dropped through the Plains and the East, keeping below normal temperatures for most of the region. The Great Lakes and New England, however, were warm with readings two to four degrees above normal around the Ohio Valley. In the West, conditions were on the warm side of normal with a few areas experiencing temperatures two to four degrees above normal. Higher terrain from southern New Mexico to central Nevada was slightly cooler than normal. Alaska was much colder than normal with parts of the Interior eight to ten degrees below normal.

Despite frequent showery weather over the Northwest and northern Rockies, precipitation was mostly below normal in the West. Much of the Southwest, the Great Basin and California received less than half of normal. Isolated above normal precipitation occurred in western Washington, the Sierras, southwestern Montana and parts of Colorado and Utah. The northern Plains and the Upper Mississippi received two to three times the normal precipitation, as did parts of the Southeast and New England. However, much of the central Plains remained dry. Alaska received above normal precipitation across much of the South but below normal precipitation in the Interior. Hawaii also received above normal precipitation in May, especially the drought-stricken leeward side.

Most western snow quickly melted while Washington and western Montana were still at or above normal with cool conditions hanging on through late May. New snow in western Washington bumped snowpack to over 150 percent of normal. Severe to exceptional drought continued over most of the western half of the nation with the worst conditions in the Plains and parts of the Southwest.

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)





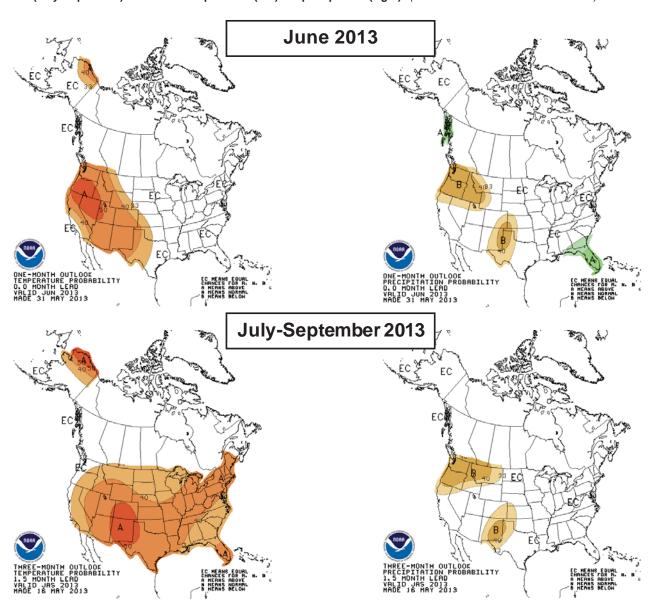
Weather and Climate Outlooks

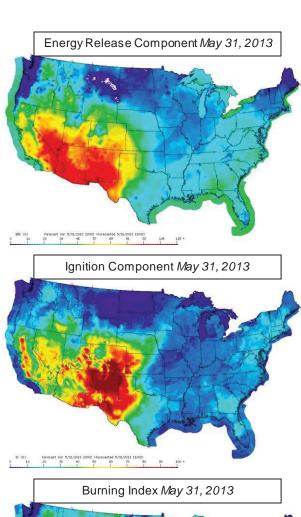
Sea surface temperatures over the equatorial Pacific cooled slightly in May. However, ENSO remains neutral and there is still no clear signal of how long-term weather patterns will evolve this summer. The latest guidance suggests a continued wet and cool pattern across most of the eastern U.S. from the Plains to the East Coast, especially the Southeast. The West will turn drier as the progressive pattern of the last several weeks comes to an end.

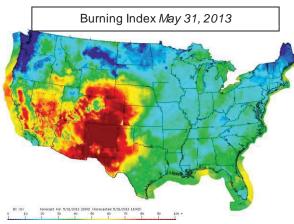
Current climate projections for June by the Climate Prediction Center (CPC) indicate higher probabilities of warmer than normal conditions for much of the West and central U.S. Precipitation is expected to be below median over the Northwest, the northern Rockies, and the southern Plains.

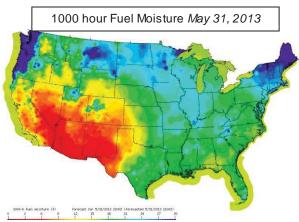
Temperatures for July through September are expected to be above normal for most of the U.S. Precipitation is expected to remain near median with pockets of below median precipitation over the Northwest and the southern Plains.

Top row: One-month (June) outlook for temperature (left) and precipitation (right). Bottom row: Three month (July-September) outlook for temperatures (left) and precipitation (right). (from Climate Prediction Center/NOAA)









Energy Release Component, Ignition Component, Burning Index and 1000 hr Fuel Moisture as of 5/31/2013 (from Wildland Fire Assessment System)

Fuel Conditions

Very dry conditions continued across most of the West. except over the Northwest and northern Rockies where recent rains helped delay the onset of significant fire activity into late June or July. However, precipitation amounts were not enough to significantly raise fuel moistures and reduce drought conditions left from the very dry winter and early spring. Nearly all areas west of the Rocky Mountains, except the far northern reaches, had very low fuel moistures, raising the probability for severe fire activity in the summer. Fine fuels are sparse or nonexistent over much of the central and southern parts of the West. Even in areas of the Northwest that received rain in May, fine fuel growth has been limited and will likely be insufficient to significantly carry fire. Fine fuel loadings should limit rates of spread and fireline intensities in areas that otherwise would experience very active wildland fire behavior.

In early June expect fire danger indices, particularly Energy Release Component (ERC) to increase rapidly as warm and dry weather builds in across the western U.S. Short periods of cooler and wetter conditions likely associated with thunderstorm activity will slow increase in the short term but June should see the increase in fire danger across most of the western U.S. to levels required to sustain significant wildland fires.

East of the Rocky Mountains, storms produced periodic moisture influxes necessary to reduce drought and moisten fuels. In many of these areas much colder than normal temperatures have delayed green up and vegetation is reaching its mature state much later than normal, delaying fire season onset and potentially shortening it as well. Expected periodic moisture inputs will keep fuel conditions generally moist with limited ability to carry fire with a few exceptions for short term events.

In Alaska, fuels are emerging from being snow covered and can now begin to dry and become available to burn. As temperatures increase and dryness develops, especially in the interior, fuels will likely become available to burn in June.

Fire Season Timing

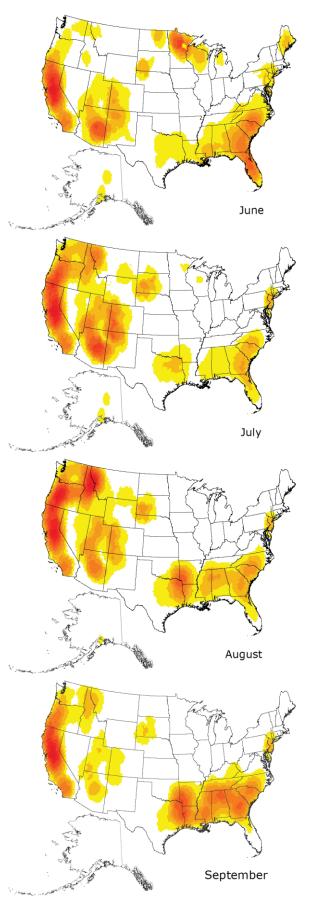
Late May precipitation across the western U.S. has delayed the early onset of fire season. It is now likely that fire season will occur on a much more normal time frame across the northern portions of the West while still being one to two weeks early across California and Nevada, especially in areas to the south where heavier fuel types coincide with worsening drought conditions.

Cooler and wetter weather across much of the Northwest and northern Rockies will allow a normal to possibly even later than normal onset of fire season.

In the Rocky Mountains and central Plains fire season should begin close to its normal time. Recent precipitation has reduced drought conditions and green up is occurring. However, southern Colorado remains extremely dry and could see earlier fire problems.

Across the eastern U.S. from the Mississippi Valley to the East coast, cooler temperatures and above normal precipitation prolonged green up. Fire season normally is well underway by early June and beginning to show a decrease heading into midsummer. However, wet conditions in the spring have limited fire activity. Expect fire activity to remain lower than normal especially as tropical activity beings to develop.

The Alaska fire season is delayed somewhat in the southern half to two thirds of the state due to ample snowpack and cooler temperatures. This has probably only abbreviated the beginning of the fire season as it will likely peak as usual in July and also end normally.



Normal fire season progression across the contiguous U.S. and Alaska for June, July, August and September as shown by monthly fire density (number of fires per unit area). Fire size and fire severity cannot be inferred from this data. (Based on 1999-2010 FPA Data)

Geographic Area Forecasts

<u>Alaska:</u> Normal significant wildland fire potential is forecast throughout the entire outlook period for Alaska.

May was much colder than normal until the last week. Along with the cold temperatures, additional snowfall added to the snowpack in the central and northern regions of the state. This delayed snowmelt significantly across Alaska. Forecasts indicate a warm start to June in the southeastern quarter of mainland Alaska with normal trending to cooler than normal in the west. Warmer than normal temperatures will continue to evolve on the North Slope through this spring and expand to the northern Interior later this summer and into fall. Precipitation for the beginning of June is expected to be above normal in the southeastern quarter and near normal from mid June through September. Fuels are or will be snow free very soon statewide. This is much later than normal across Alaska. A recent warm and dry spell dried the fine fuels significantly. The deeper drying of larger fuels is just now beginning in the southern Interior but is still lagging behind normal seasonal conditions. A significant wind event last fall resulted in extensive blow down of trees in a portion of the Upper Tanana Valley. These down and dead trees will be a problem fuel. Fire season is expected to be delayed somewhat across the state due to the late melting of the snowpack but this will likely just compress the early season. Expect a near normal timing of the peak in the second half of June and new starts tapering off through July.

Northwest: Normal significant wildland fire potential is expected through June for the Northwest. However, for July and August through September expect above normal significant wildland fire potential to develop across most of Oregon and southern Washington.

The first half of May was unusually warm and dry over the Pacific Northwest, continuing the precipitation deficit that began the first of the year. However, the last half of May turned out to be quite cool and wet as a series of Pacific frontal systems brought considerable rain to sections of the Area but not enough to overcome the dry conditions. Upper elevation snow amounts remain at or above average for late May over Washington but Oregon snow is diminishing rapidly. Snowmelt is expected to continue at a greater rate than normal through June. Bare soil conditions are expected earlier than usual in Oregon during the summer and near or later than normal for Washington. Climate outlooks suggest a warmer than normal summer. Lightning during a period of warm and dry conditions in early May started several fires in southern and central Oregon. This was short-lived as cool and wet weather at month's end pushed fire danger indices down to normal or below normal for most of the Area. As such, fire danger in early June is starting from generally near normal conditions for most of the Area. Fire Season typically begins in late June or early July for much of the Area. The late May rains will likely result in fire season beginning on time rather than in early June as had earlier been forecast. However, if June proves to be dry, above normal significant wildland fire potential is expected to develop quickly in July and continue into August extending west of the Cascades in Oregon.

<u>Northern California and Hawaii:</u> Above normal significant wildland fire potential is expected for much of Northern California in June, except for far northern California. For July and August through September above normal significant wildland fire potential will cover all of Northern California, except for a return to normal seasonal conditions in Northeastern California.

May was another drier than normal month for most areas, except for localized areas across the Sierra as well as parts of northeastern California, making May the fifth consecutive month of below normal precipitation across northern California. The first five months of this year were also the driest in at least the last half century. Moderate to locally extreme drought covered the entire Area. Below normal precipitation and near normal temperatures are expected for June. Despite normal conditions expected for the remainder of the summer, precipitation is typically very low this time of year and will have little to no effect on mitigating drought. This prolonged precipitation deficit will likely keep fuels above the 90th percentile for much of the summer, except for brief periods during and immediately after wet thunderstorm events. However, over far northeastern California, longer nights and a

statistical reduction in significant lightning events, plus normally weaker, thermally-induced southwest wind events should move the region back to normal in September. Fuels have moderated somewhat across the Sierra and northeastern California recently due to several days of showers and wet thunderstorms. Most other areas are seeing dead fuel moistures typically found about a month later and an earlier than average start to green up. Areas of below normal snowpack are expected to become much drier than normal, and prone to lightning ignitions and large fires toward the end of June through September. Fire Season in Northern California has already started at elevations below 4500 feet, with several large fires occurring in May. Upper elevations should come into fire season by late June, about a month ahead of normal.

For the Hawaiian Islands normal significant wildland fire potential is expected throughout the outlook period except for areas of below normal significant wildland fire potential across the northern most islands in June. May brought another month of much wetter than normal conditions to the Hawaiian Islands. Especially hard hit with rain were the normally drier leeward slopes, including the drought stricken areas of the Big Island.

<u>Southern California:</u> Significant wildland fire potential will continue to be above normal in all coastal, mountain, and inland valley areas for June, July and August through September across Southern California.

A persistent trough offshore may cause temperatures to remain a bit below normal through early June along the coastal and immediate valley areas. Areas farther inland and in areas above 3,000 feet, above normal temperatures will be possible. Low daytime humidity will continue over the valley and foothill areas below 5,000 feet. No significant rainfall is expected in June. Rainfall over Central and Southern California was below 25 percent of normal in April and was typically low during May. But precipitation did climb to slightly above normal over the central part of the state east of the Sierra Crest, which may help keep fire activity closer to normal across the eastern Owens Valley to the Inyo National Forest in the short term. Elsewhere, two years of drought has left fuels highly receptive to ignition and capable of carrying fire several weeks early this year. Numerous significant fires developed during May, even during periods of moderate humidity, clearly illustrating how dry fuels are. Thousand- and hundred-hour fuels are all near record low levels for June and reflecting conditions more typical of late July or August. Long range models continue to indicate a trough may linger offshore through June and perhaps July. This pattern may cause monsoonal moisture associated with summertime convective activity to remain east of the area. Fewer thunderstorms may result this summer compared to the active thunderstorm season of last summer. While the lack of thunderstorms may result in fewer ignitions, below average summer thunderstorm precipitation would push the Area further into drought.

<u>Northern Rockies:</u> The Northern Rockies will see normal significant wildland fire potential across most of the Area throughout the outlook period. In late July expect an area of above normal significant wildland fire potential to develop in central Idaho with above normal potential expanding to include much of southwestern Montana in August.

Despite intermittently cool conditions, mountain snowpack has come off at a slightly faster than normal rate this year. Studies show that this factor increases the probability for more and larger fires on the mountain slopes during the fire season. Also, when average summertime temperatures are just 0.3 degrees Celsius above normal, data shows a one-in-two chance for an above normal season. Those factors along with ongoing drought increase the likelihood for an above normal fire season across the Southwestern portion of the Northern Rockies region. May was a variable month across the Northern Rockies Area. Unusually warm and dry conditions developed early in the month across Montana. The combination of the July-like weather conditions along with ongoing drought lead to the development of several wildfires across Western portions of the state. The pattern shifted mid-month to wet and cool conditions. Areas experiencing drought conditions received beneficial rainfall which began to lessen drought severity across south central and southeastern Montana. The extreme drought conditions decreased across southwestern Montana late in the month as the Area began to approach its climatological maximum for precipitation. The best available data suggests a pattern

change should occur by mid-June as the active, wet pattern transitions to a warm and dry pattern with the development and eventual intensification of the ridge over central Montana and the Northern Plains. Forecasts suggest that the frequency of the passage of wetting systems will decrease as the ridge becomes established by mid-June. This may lead to an intensification and expansion of the drought conditions across southwestern Montana. Some drought development is possible along the Salmon River Corridor. Long range forecasts suggest that July will be warmer and drier than normal as the ridge develops over the eastern half of the Area. Southwest flow along the back side of the ridge should promote at least a typical amount of convective activity during the month. A particular area of concern for ignitions is southwest Montana which is experiencing severe to extreme drought and atypically low soil moisture levels. Expect a normal start to the main fire season in all areas beginning first across southeastern and south central Montana in early July and then spreading west northwest though the month reaching a peak in August. The core of fire season across western Montana and northern Idaho should begin in mid to late July and peak in August. Some, isolated portions of southwest Montana and central Idaho may enter the peak of fire season a little early, possibly the last week of July. August and early September are expected to be more active than normal as the Area alternates between hot and dry ridges and dry cold fronts periodically sweeping in from the west or northwest. Summers with similar conditions typically bring a higher than normal number of dry fronts across the Area. This year should be no different. Such scenarios could increase the number of critical fire weather days from what is normally experienced. Cooler and wetter conditions will develop by mid-September. This would suggest a typical transition out of fire season. The fire season should draw to a close in mid-September.

<u>Eastern Great Basin</u>: For June, much of the Eastern Great Basin will experience normal significant wildland fire potential with the exception of southern Utah which will become above normal. Southern Utah will return to normal in July, while above normal significant wildland fire potential develops in western and central Idaho through July, August and September.

Spring temperature and precipitation trends resulted in a cool and wet April in Utah and closer to normal conditions in May. These late spring storms allowed for a prolonged green up period. Across Idaho the spring has been fairly dry and warm. Drought conditions continue Area wide with Utah showing moderate to severe drought and Idaho showing only abnormally dry conditions. A robust green up in both grasses and shrubs has occurred across much of the Area and will continue into early June. Live fuel moisture in the sagebrush has peaked across the south and is near its peak across the north. These values are above normal for this time of year for virtually all sample sites. The weather pattern for the first few weeks of June is expected to be somewhat progressive, which means a series of low pressure systems will track across mainly the northern half of the Area. Southern Utah will remain on the warm, dry side; while Idaho will be closer to normal. June is typically a dry month for the entire Area and this year should be no different. By the end of the month very warm and dry weather will spread across much of the Area. Occasional windy periods are expected across Utah which will temporarily increase fire potential. Overall significant wildland fire potential is expected to be close to normal across much of the Area for June, which is typically a busy month across Utah and southern Idaho with some large fire activity anticipated. Across far southern Utah, where conditions have been warmer and drier, above normal significant wildland fire potential is expected for the month. Going into July significant wildland fire potential will be on the upswing across the north. Western Idaho has been especially dry this spring and will likely see above normal significant wildland fire potential. This increased potential will continue into August as warm and dry conditions settle into the area. Central and portions of eastern Idaho may also see increased significant wildland fire potential during this time. While above normal fire activity is expected across the mountains of central Idaho, fire activity similar to that of the 2012 fire season is not likely. At this time it appears that a typically fall-like pattern will move into the Area by mid to late September decreasing overall fire potential.

<u>Western Great Basin:</u> Above normal significant wildland fire potential is expected for parts of the Arizona Strip and southeast Nevada for June. These areas should return to normal by mid-July. Parts of the Sierra Front into western Nevada, as well as part of the northern mountains and the Ruby

Mountains will develop above normal significant wildland fire potential in July and continue into August and early September.

Warmer and mostly dry conditions occurred in May. Although there were some cooler than normal periods during May, temperatures averaged just above normal across the entire Area. Some areas along the Sierra Front and over southeast Nevada saw above normal precipitation earlier in May, but most areas remained well below normal until the last week in May, where northern areas saw increased precipitation. The snowpack continues to decrease to below half of normal in all areas. Severe to extreme drought conditions continued across the northern half of Nevada, with moderate to severe long term drought over the southern half of the state and along the Sierra Front. Temperatures are expected to be above normal across the Area through June with short periods of cooler or some wet weather, but generally below normal precipitation with occasional breezy winds across the Area at times through the summer as troughs move through. July may see longer periods of hotter weather with increasing thunderstorms. Fuels were very dry earlier in the month across the Area due to low amounts of winter and spring precipitation. However, sagebrush fuel moistures in many areas have increased over the last 2 weeks due to periods of wet and cooler weather. Green up continues over the northern half of the Area with lower elevation fuels cured over southern Nevada and gradual curing in the south at the higher elevations. Fine fuel growth has increased somewhat over western and northern Nevada due to precipitation over the last few weeks, but is still near normal at best and short and discontinuous in many areas. Soil moistures are expected to be the lowest over western Nevada and along the Sierra Front through June, with some improvement possible later in the summer. ERCs have been fluctuating up and down through May due to alternating weather patterns, but in most cases remained above normal. Carryover fuels from the last two years have dissipated in most areas and are not expected to greatly increase fuel loading due to early winter compaction. The only areas seeing above normal fine fuel growth and carryover present are along the Arizona Strip and over parts of southeast Nevada, with near to below normal fine fuel growth elsewhere. Another local area of concern may be the Mt. Charleston area due to below normal fuel moisture and not as much compaction of fuels. Fire season should begin typically in June across the Area and increase to a peak through July and August. Fire season may begin slightly early over southern Nevada, but looks to remain on schedule or slightly delayed further north.

<u>Southwest:</u> Above normal significant wildland fire potential is already present across portions of southern and central Arizona and western New Mexico stretching toward northern New Mexico. Through June expect these conditions to push northward and encompass most of Arizona and all of western and northern New Mexico. As the monsoon develops in July significant wildland fire potential should return to normal and remain there for the rest of the outlook period.

The Southwest Area has already moved well into fire season and severe to extreme drought anomalies have not improved, fine herbaceous fuels have almost completely cured, and dryness from low winter and spring precipitation has left the heavier fuels in the Area dry. Somewhat frequent and timely precipitation and higher humidity events have eased fire conditions somewhat but significant fire potential persists above normal. In June the recent western trough pattern will gradually weaken with a subtropical ridge becoming more prominent. This will lead to the development of typically hot and dry conditions, with periodic moisture in the southeast to gradually lead to more lightning potential. For July, the upper level ridge will gradually head north and west with a likely on time or slightly delayed monsoon expected. As usual, the last holdout area of above normal significant wildland fire potential will be across northern and northwestern Arizona which should decrease in the last week or two of July. Elsewhere, potential should be decreasing to normal, although areas of dryness could continue across the east. Concern exists that even a few trough passages inland into the Great Basin could sweep moisture out of the Four Corners area from mid-August onward. Continued dryness and heat will likely be focused east of the New Mexico central mountain chain into west Texas. Potential certainly exists with drought and other factors to have continued above normal significant wildland fire potential but the current expectation is for timely precipitation to limit the threat.

Rocky Mountain: For June the Rocky Mountain Area will see a small area of south central and southwestern Colorado develop above normal significant wildland fire potential. This will be short

lived, however, as conditions should return to normal with monsoonal development in July and remain there through the outlook period.

A large portion of the Rocky Mountain Area has experienced some drought relief this spring in an overall weather regime of wetter and cooler than average conditions. However, the exception has been across southern Colorado and southwest Kansas with below average precipitation trends. Snowpack deficits during the early spring were prevalent across all of southern Colorado and most evident in the southwest portion of the state where high elevation heavy fuels could pose a greater risk for fire activity this year. Medium range forecasts for the early June indicate a pattern of near average precipitation across the Area, although southwest Colorado is expected to continue on a drier trend. Long range outlooks point toward a continued intensification of drought over southern portions of Colorado during the fire season. Overall, severity is nowhere near last year's conditions. Although the southeast portion of Colorado will likely see some opportunities for moisture in early June, an overall drier than average regime is anticipated across southern Colorado during much of the month. While a repeat of last year's fire activity is unlikely, average fire seasons in the Area are characterized by periods of increased fire potential and some significant fires.

<u>Eastern Area:</u> The Eastern Area will see generally normal significant wildland fire potential from June through September.

Long range drought was still in place across portions of the Upper Mississippi Valley at the end of May. However, widespread precipitation and below normal temperatures occurred from April through May across these areas. If below normal temperatures persist into June then fire potential will remain at or below normal. Short term drying occurred across portions of the mid-Atlantic and New England in May. If fairly regular rainfall events do not occur over these areas, periods of short term elevated fire potential are possible into early summer. The rest of the Eastern Area will experience near normal fire potential through the summer. As always, any areas which experience any dry, warm and windy periods of weather will see an increase of fire activity, especially prior to full green up across the northern tier.

<u>Southern Area:</u> Below normal significant wildland fire potential will continue across the southeastern Atlantic states throughout the outlook period, even though conditions in the central portion the U.S. east of the Mississippi will likely return to normal after June. In August and September it is possible that an area of below normal significant wildland fire potential will develop across south and west Texas. Additionally, Puerto Rico will continue to see below normal significant wildland fire potential throughout the outlook period.

The Southern Area continued to see significant and generally widespread rain activity with the exception of the dryness in West Texas and Oklahoma. Drought is minimal across the southeastern U.S. and Puerto Rico. Soil moistures are above average with the more central states at or above the 80th percentile. Expect a moist weather pattern to provide a significant break in fire activity, especially early in a swath from Oklahoma and Arkansas northeast to the Ohio Valley in June. With tropical activity both in the eastern Pacific and Caribbean continuing to mature expect much wetter conditions for Puerto Rico, Florida and other southeastern states up to the mid-Atlantic. Indicators suggest the summer will be wetter and more humid for the Deep South and coastal Atlantic. A return of Gulf moisture and thunderstorm activity will aid in keeping fire activity minimal.

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 your local Geographic Area Predictive Services Unit.

Note: Additional Geographic Area assessments maybe 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