

# National Significant Wildland Fire Potential Outlook



## Predictive Services National Interagency Fire Center

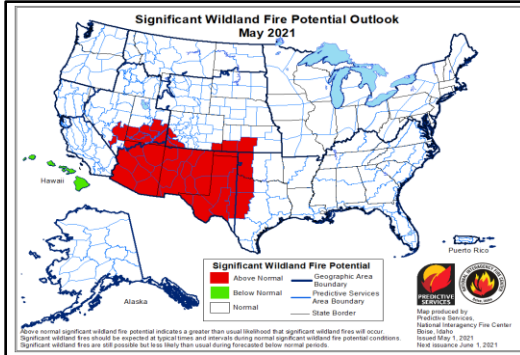


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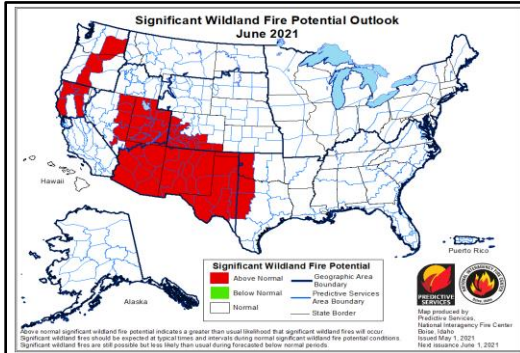
Outlook Period – May 2021 through August 2021

### Executive Summary

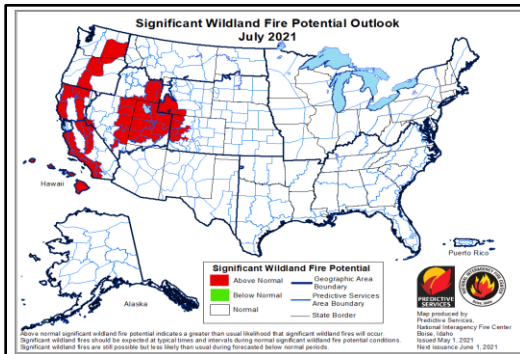
The significant wildland fire potential forecasts included in this outlook represent the cumulative forecasts of the ten Geographic Area Predictive Services units and the National Predictive Services unit.



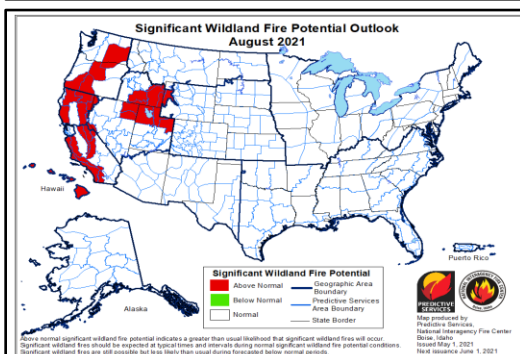
While the year-to-date acres burned remains well below the 10-year average, there were notable large fires in April. This included two Type 1 Incident Management Teams being assigned to large fires in the Southwest during the last ten days of April.



Warmer and drier than normal conditions continued across the West Coast and into the Southwest in April with warm and dry conditions also observed in New England. According to the National Centers for Environmental Information (NCEI), Arizona, New Mexico, Nevada, and Utah had their driest April – March period in 126 years with California and Colorado having their third and fourth driest April – March period, respectively. As such, snowpack is well below average across the Southwest, Utah, California, and portions of Nevada and Colorado with large expanses of severe to exceptional drought across these areas.



Climate outlooks indicate warmer and drier than normal conditions are likely for much of the Plains and West into summer continuing and exacerbating drought there. A Fuels and Fire Behavior Advisory is in effect for North Dakota, eastern Montana, and northwest South Dakota due to drought and continuous fine fuels. Near normal timing and precipitation are expected with the Southwest Monsoon in July, which will help alleviate drought and significant fire activity.



Near normal significant fire potential is forecast across the northern Plains into the Great Lakes for May, but dry periods followed by strong winds could increase fire activity above normal. Outside of increased fire potential in western Oklahoma and west Texas, Southern area is likely to have near normal fire potential with elevated activity possible in and around northern Florida in May.

The Southwest is forecast to have above normal significant fire potential through June before the Southwest Monsoon arrives. Above normal significant fire potential will expand northward into the Great Basin and Rocky Mountain Geographic Areas through August with areas closer to the monsoon likely returning to near normal significant fire potential in July and August. Central Oregon into southeast Washington are likely to have above normal significant fire potential beginning in June with portions of the Coast Ranges, Sierra, and Cascades in California increasing to above normal in June and July and continuing through August. Leaside locations of Hawaii are likely to have above normal significant fire potential in July and August due to heavier fuel loading and forecast warm and dry conditions, while

Alaska should have near normal significant fire potential through summer.

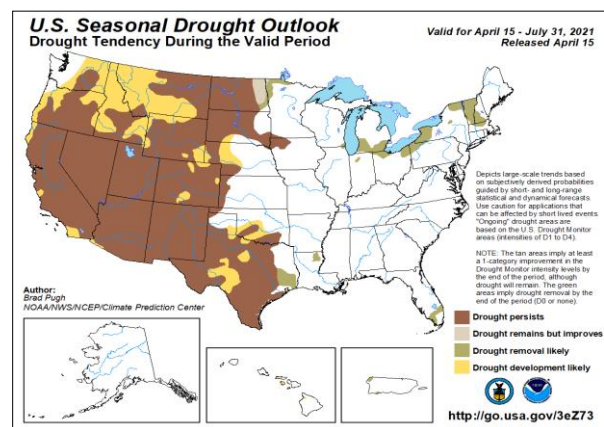
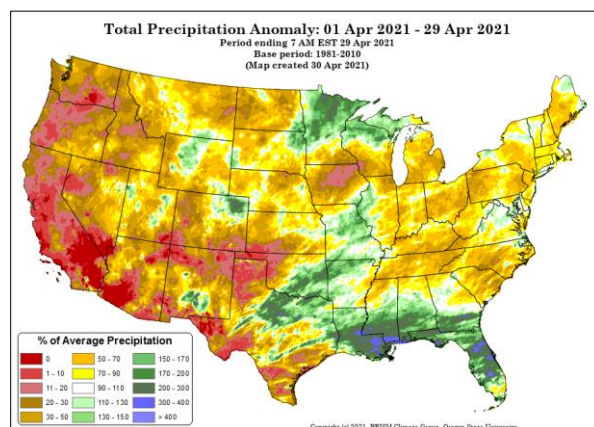
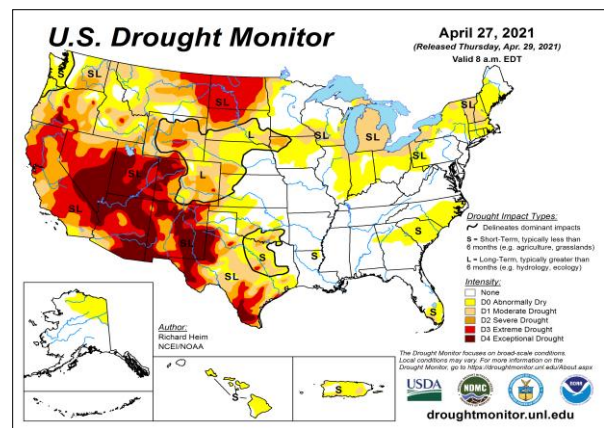
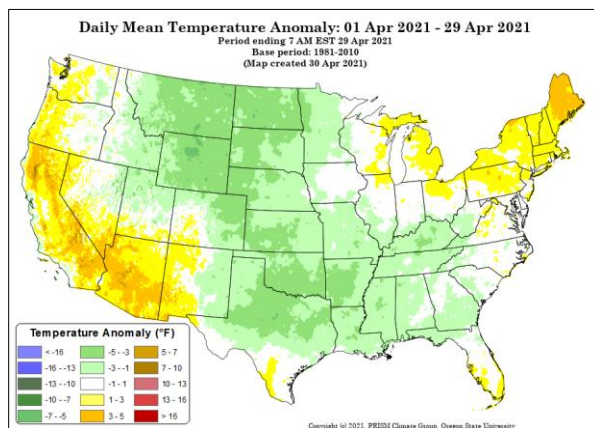
### Past Weather and Drought

After a dry April with mostly above average temperatures west of the Continental Divide, snow water equivalent (SWE) has dropped to below normal across much of the West according to latest data from the National Resources Conservation Service (NRCS). The Southwest and much of the Sierra have well below average SWE, but above average SWE is noted in parts of Washington and Alaska.

Above average precipitation in northern Minnesota into the western Great Lakes helped improve fuel conditions enough to rescind the Fuels and Fire Behavior Advisory issued last month. Additionally, well above average rainfall along the central Gulf Coast and in Florida eased concerns for above normal significant fire potential May into June. Below average temperatures were observed across the central US with above normal temperatures and below average precipitation noted in the Northeast and West Coast.

Drought continues for much of the West with large swaths of extreme to exceptional drought in the Southwest, Great Basin, and on the West Slope. Portions of the Plains, especially the northern Plains and southern High Plains remain in drought. Drought also expanded and intensified in California and southern and central Oregon. Drought is expected to persist if not worsen and expand across the West and the northern and southern Plains into summer.

The Flag and Three Rivers Fires grew quickly under dry and windy conditions near Kingman, AZ and Ruidoso, NM, respectively. However, timely precipitation and cool weather halted fire activity within 48 hours of ignition. Timely precipitation also reduced record high ERCs across portions of California and Oregon late in April. A Fuels and Fire Behavior Advisory is in effect for North Dakota, eastern Montana, and northwest South Dakota due to the potential for rapid fire spread as drought and continuous fine fuels are present in these areas.



Left: Departure from Normal Temperature (top) and Percent of Normal Precipitation (bottom) (from PRISM Climate Group, Oregon State University). Right: U.S. Drought Monitor (top) and Drought Outlook (bottom) (from National Drought Mitigation Center and the Climate Prediction Center)

## Weather and Climate Outlooks

La Niña continues with below average sea surface temperatures (SSTs) from the west-central to eastern Equatorial Pacific Ocean. However, La Niña has weakened, and by some metrics, ENSO neutral conditions are in place. The Climate Prediction Center (CPC) forecasts an 80% chance that ENSO neutral conditions emerge during the May – July period with the transition likely occurring in the next month or two. Long-range forecast guidance indicates ENSO neutral conditions are likely through fall with slightly below average SSTs in the Equatorial Pacific Ocean. A return to La Niña later this year is possible, but there remains forecast uncertainty with this scenario.

## Geographic Area Forecasts

**Alaska:** Normal fire potential is expected across Alaska for the remainder of spring and through summer.

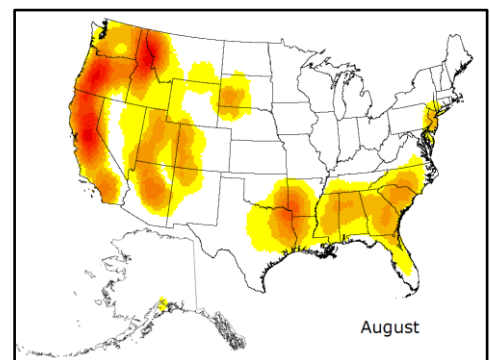
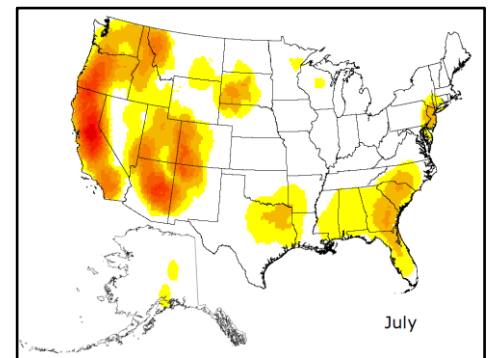
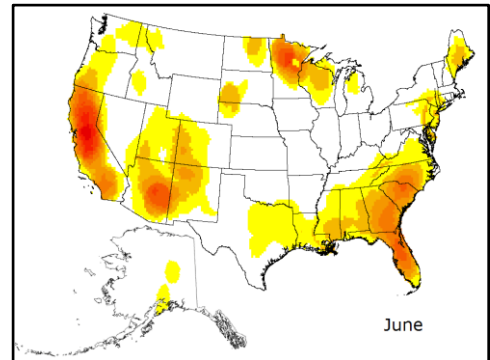
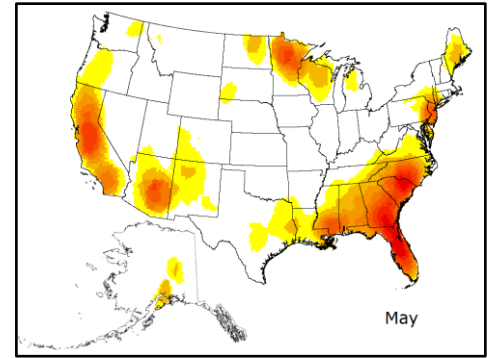
Winter snowfall was not particularly heavy across Alaska, and while the US Drought Monitor shows no areas of drought in Alaska, the Brooks Range and northeast interior of Alaska are categorized as abnormally dry as of late April. Wildfire activity is minimal at this time; the only potential is for small, human-caused ignitions that are easily suppressed. The winter snowpack is melting at lower elevations and revealing cured grasses and leaves remaining from the fall. While surface fine fuels are becoming burnable, the deeper duff layers remain too cold and moist to carry fire.

The Climate Prediction Center (CPC) calls for temperatures in May to be above normal along the North Slope and below normal over the southern half of mainland Alaska and the Panhandle. As spring advances into summer, temperatures are expected to become more uniformly warm across Alaska with the strongest likelihood of warm temperatures over northern Alaska. No strong signal in the precipitation forecast exists for much of Alaska, apart from an enhanced chance for above average precipitation over northwest Alaska through the period. The current La Niña is expected to be neutral by summer and by some metrics, the equatorial Pacific is already ENSO neutral.

Normal conditions are expected across Alaska through the remainder of the spring into summer. By May, wildfires become possible at higher elevations with the continued melting of the snowpack, and thunderstorms becoming a factor in ignitions. The deeper fuels typically dry and contribute to wildfire behavior in June and July before the seasonal rains of late summer typically bring an end to the fire season in August.

**Northwest:** Significant fire potential is expected to increase to above average in June across central Oregon into southeast Washington and continue through August. Southwest Oregon is forecast to have above normal significant fire potential by August.

April was unusually dry across Oregon and Washington. Large areas of both states experienced precipitation totals less than a third of normal monthly rainfall and only a few areas exceeded half of the normal amount for the month. Temperatures for the month were slightly above average west of the Cascades and at or slightly below average east of the Cascades.



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)

Despite little new snow accumulation in April, snowpack measured at higher elevations late in the month remained well above average over much of Washington. In Oregon, snowpack is near average around Mt. Hood and northeastern Oregon. Elsewhere in Oregon, snowpack has fallen well below average. Snowmelt is underway due to the dry weather and lengthening days.

April fire activity remained light overall. However, there was an abrupt increase in the number of fires earlier in the month as drier than normal conditions set in. The dryness contributed to a number of human-caused starts from debris burning and agricultural burning. Ten to 15 fires were reported daily, on average, for a total of approximately 400 fires and roughly 2,000 acres burned.

The largest incident burned over 1,600 acres in south-central Oregon (Predictive Service Area (PSA) NW07) in grass, brush, and light timber, which required a Type 3 Incident Management Team. Prescribed burning activities are on schedule with some units reporting earlier access into areas from a quicker snow melt. Units anticipate a vigorous jump in prescribed acre accomplishments at the end of the month due to the brief warm-up.

With the very dry weather, fuel moistures fell to unusually low values through much of April. Record low 100-hour and 1000-hour dead fuel moisture values for April were equaled or exceeded in several PSAs on both sides of the Cascades. Some relief arrived in the last week of the month when light precipitation returned. Central Cascades and lower valleys had early snow melt allowing for prescribed fire opportunities in lower to middle elevation conifer stands. Brush and juniper moistures are reported as problematic on wildfires with concurrent winds as well as along control lines of some prescribed fires.

Brush fuel moisture is very low in PSAs NW06 and NW07. Some units in PSAs NW06 and NW07 report sage is still dormant at lower elevations causing fire behavior concerns where the sage and previous year fine fuel growth align. PSAs NW08 and NW09 have been drying out quicker at lower elevations as well. Pile burns in some areas have claimed extra acres due to winds and conditions drying quickly on the ground. Columbia Basin (NW10) fuel reports indicate green-up has started. However, brush is burning more readily than in past seasons with the dryness stunting or preventing a good crop of cheatgrass from developing. An earlier start to fire season is anticipated due to the dryness. In PSA NW11, higher elevations are retaining snow and moisture with lower elevations drier than usual and brush in some areas still dormant. In PSA NW12, recent rains have improved fuel moisture at lower elevations while upper elevations are still holding snow.

May is most likely to be slightly warmer than typical with near normal amounts of rain. For June, July, and August, outlooks indicate conditions will most likely be warmer and drier than typical over Oregon and Washington. Fire danger is expected to rise above normal for most of the PSAs. An elevated threat for significant fires appears most likely in PSAs NW06, NW07, and NW10 starting in June and continuing through July. Elevated threat for large, costly fires will expand to include southwest Oregon in August.

**Northern California and Hawai'i:** For the North Ops region in May, significant fire potential is forecast to be normal in all areas. Normal is defined as less than one large fire per PSA in May. Above normal significant fire potential is forecast for most mid and upper elevation areas June through August with normal defined as one to three large fires per PSA in June and July, and two to six large fires per PSA in August, except near 1 in the Bay Area PSAs. For Hawai'i in May, significant fire potential is below normal, although some local lee side locations may see closer to normal fire activity. For June, significant fire potential is forecast to be near normal, although some local lee side locations may see higher fire potential. In July and August, lee side areas are forecast to have above normal significant fire potential while the remainder of the islands likely remaining near normal.

Precipitation in April was below normal, and this continues the trend of mostly below average precipitation for the 2020-2021 rainy season. Temperatures were above average in April. The low elevation grass crop began to rapidly cure in April, and fuel loading among low elevation brush and grasses appears to be lighter than average. The northern high elevation snowpack peaked at 72% of the average seasonal maximum in late March and has since dropped to 20-30% of average for early May. The overall outlook for the North Ops region is for drier and warmer than average conditions from May through August. On a

local scale, some middle elevation spots (i.e., between 3000 and 5000 feet) will have higher fire potential during any extended dry spell when low humidity and windy weather develop prior to green-up, which typically occurs in late April and May at those elevations. Fire activity is expected to increase within the normal range at lower and middle elevations in mid- to late May. The snowpack is expected to be completely gone by late May, and middle- and upper-elevation fuels will dry to critical values in June due to expected snow melt and green-up, several weeks ahead of normal.

Most mid- and upper elevations are forecast to have above normal significant fire potential from June through July. Lower elevations will remain near normal because strong downslope wind patterns are unusual during summer months and fuel loading is light. The far eastside PSA will likely remain at normal mainly due to a light and less continuous fuel bed. Mountainous areas near the coast are likely to remain at normal because cooler than average sea surface temperatures (SSTs) and more onshore flow is expected.

SSTs surrounding the Hawai'ian Islands range from slightly warmer than normal in the northwest to slightly cooler than normal near the Big Island. Temperatures throughout the region are expected to reflect these SST trends through August. The wet weather from March did not continue in April, which ended up quite a bit drier than average. However, only a very small portion on the west side of the Big Island is listed as abnormally dry or in moderate drought according to the US Drought Monitor. The four-month outlook calls for below average precipitation with drier conditions later in the summer. Fuel loading increased due to the heavy rainfall in March, and these fuels will dry out and become vulnerable to fire spread if the expected weather patterns develop.

Significant fire potential is forecast as below normal throughout the islands in May, although some lee side locations may see closer to normal fire activity. As the rainy season and the La Niña pattern come to an end late in the spring, drier conditions will lead to more normal fire activity in June, although some lee side locations may see slightly more than typical fire activity as the above normal fuel loading dries out. In July and August, above normal conditions will become more widespread on lee sides, while the remainder of Hawai'i is likely to remain at near normal significant fire potential.

**Southern California:** Significant fire potential will be above normal across South Ops away from the deserts and San Joaquin Valleys in July and August. Otherwise, expect near normal large fire potential across the region through August.

The eastern Pacific high remained the dominant weather feature for April. Periodically, the area of high pressure shifted inland over California to generate temperatures that were well above normal across the interior sections for most of the month. Coastal areas remained somewhat cooler than normal in April due to a couple areas of low pressure that transitioned across the region along with the presence of an enhanced marine layer.

Most of central and southern California received little or no rainfall for the month. Scattered light afternoon showers and isolated thunderstorms occurred over the Sierra with low pressure systems that developed over the Pacific Northwest and moved through the Great Basin. A few locations west of the mountains in southern California received light rainfall amounts at times due to a deeper marine layer. The snowpack in the Sierra dwindled down with the onset of warm temperatures and it is currently 20% to 40% of normal. Outside of one weak offshore wind event on April 18, the winds remained onshore (i.e., westerly) for most of the month, becoming strong and gusty with the passage of a low-pressure system through the region.

The warmer and drier conditions in April intensified the drought across the region with significant increases in severe to extreme drought conditions. The 1000-hour dead fuel moisture values were well below normal with most of the area exhibiting brief periods of record dryness, especially across the deserts. The 100-hour dead fuel moisture values were also well below normal away from the coastal areas, hitting record low values across southern California. Live fuel moisture decreased during the monthly period and is now between 80% and 100% across most of the area. The warm and dry conditions caused the grasses across the lower elevations to become fully cured by the end of April.

Climate models continue to suggest cooler than normal sea surface temperatures (SSTs) for both the Gulf of Alaska and West Coast. These SSTs will likely give rise to a dominant upper-level trough pattern over the western states into early summer. This trough pattern may cause temperatures to remain a little below normal through May into June. It will also cause the marine layer to be somewhat deeper than normal along the coastal areas through June. Even though central and southern California will likely be under this trough type pattern with below average precipitation likely in May and June for the region. Scattered afternoon showers and isolated thunderstorms will likely occur over the Sierra with deeper troughs, and light rainfall amounts will occur across southern California west of the mountains when the marine layer becomes very deep.

The projected trough pattern may also facilitate the development of a persistent, yet weak upper-level trough over the northern tier of the US during the summer months. This weak upper-level trough may have the potential to occasionally shift the subtropical high positioned over the Four Corners area further south, in effect changing the coverage of the monsoon circulation to where showers and thunderstorms would be less prevalent during July and August. Temperatures will likely warm to near normal in July and August as the subtropical high center drifts back and forth over the Desert Southwest.

**Northern Rockies:** Significant wildland fire potential for the Northern Rockies Geographical Area is expected to be normal through August with elevated potential in the eastern PSAs until green-up occurs.

According to the latest US Drought Monitor, nearly all of North Dakota and eastern Montana are in severe to extreme drought and this is anticipated to persist through July according to NOAA's Seasonal Drought Outlook from the Climate Prediction Center (CPC). During the last half of April, there were several weak Canadian weather systems in central and southeast Montana and North Dakota that brought light precipitation amounts of a tenth to a one-third of an inch. Though this falls short of climatological normals, it was just enough to help mitigate some of the dryness. It also stimulated some of the annual vegetation to start greening up.

West of the Continental Divide, it has been abnormally dry in the northern Idaho Panhandle and northwest Montana. The only parts of the Northern Rockies Geographic Area that are not highlighted on the drought monitor map are from central Idaho-Bitterroot Divide through the Missoula and Bitterroot Valleys of western Montana where timely and frequent storm systems have continued to provide adequate precipitation and cool enough weather in the mountains to preserve the mid-elevation snowpack.

The Northern Rockies Geographical Area remains at Preparedness Level 1. Notable large fire incidents for this calendar year include the Windy Fire (North and South Dakota) at 15,000 acres, the Greenhouse Fire (west-central Montana's Rocky Mountain Front) at 25,000 acres, and the Horse Pasture Fire (southwest North Dakota) at 5,000 acres.

The snow water equivalent within the high elevation spring snowpack is still running between 85 to 100 percent of average and mid-to-lower elevations are ripening and flushing out with near-normal streamflow. There is considerable snowpack in the mountains of central and southern Montana from a series of events in mid-April, including the Upper Yellowstone basin, Missouri-Musselshell basin, and the Powder-Tongue basin, which straddles southeast Montana and northwest Wyoming. The exposed grasses in central and eastern Montana and North Dakota are extremely dry and are vertically arranged, standing upright as there was not enough snowpack to compress the carryover fine fuels. Most fuels are in pre-green-up stage, but some of the low elevation annual grasses are starting to come out of dormancy. Prescribed burning has been more active than normal, especially in the western PSAs when conditions have been favorable for smoke dispersion and sufficiently dry fuels.

During the last part of April and into early May the synoptic weather pattern is anticipated to change. It has been persistent for the past month with cool, but relatively dry northwest flow due to a blocking ridge along the West Coast. A more progressive, westerly flow with embedded Pacific troughs is anticipated to focus most precipitation in the western PSAs of the Northern Rockies with additional snow accumulations in the higher elevations, but also provide precipitation inputs across even the driest areas of eastern Montana

and North Dakota into early May. The driest areas over the next several weeks are expected to include north-central and northeast Montana and northern North Dakota.

Seasonal outlooks from Predictive Services and NOAA's Climate Prediction Center for May through August project a trend toward warmer and drier conditions across the geographic area for late spring and summer "core" fire season months. One of the most significant factors in these outlooks is the current transition from La Niña to ENSO neutral that is currently underway. Considering the time of year that this is occurring, what is known as the "spring predictability barrier" by climatologists, this introduces more uncertainty than usual to this season outlook.

May is typically a transition month in the Northern Rockies during the pre-green-up period. This year is anticipated to be normal or even slightly delayed regarding the timing of snow melt-off in the mid-elevations before the early summer flush from the highest mountains ensues.

In contrast, the eastern PSAs from central Montana through North Dakota have received some limited precipitation and are expected to see additional benefits in late April and early May from somewhat less critical fire potential compared to March and early April. These areas may continue to see some elevated fire potential into May during warm, dry, and windy episodes between weather systems due to a delayed onset of green-up because of the underlying drought conditions and abnormally dry soil and fuel moistures. However, the expectation is that it will be closer to normal fire potential as green-up occurs.

Once green-up develops and fuels are growing in early summer, the expectation of a warmer and drier than normal period may be offset somewhat by an average monsoon pattern beginning in July. The past two seasons have been void of monsoon moisture and lightning, so more emphasis will be weighted on this factor in the June monthly seasonal outlook to assess its potential impacts and how it could affect live fuels curing.

**Great Basin:** Significant wildfire potential is expected to increase to above normal fire in mid to higher elevation areas of southern Utah, far southern Nevada, and the Arizona Strip by mid-late May and spread northward into central and northern Utah and eastern Nevada by June due to lower than normal snowpack and significant long-term drought. By July and August, above normal fire potential spreads north into Idaho and Wyoming with a decrease in fire potential in the south due to anticipated monsoon moisture. Above normal fire potential will also increase in late June and more so in July and August in the mid to higher elevations of the Sierra Front.

Recent weather patterns have brought frequent cold fronts and some precipitation events to the Great Basin during the month of April, especially across eastern and northern portions of the Great Basin. Most of western and southern Nevada, along with a few spots in Idaho and southeast Utah have been on the drier than average over the past 30 days. Temperatures have been 3-5°F below normal over the eastern half of the region and several degrees above normal over western and southern Nevada into the Arizona Strip.

Even with this recent active weather pattern the long-term drought situation has not improved. The drought remains extreme to exceptional over southern and eastern Nevada, Utah, and the Arizona Strip. Observed precipitation over the last two months has brought some much needed moisture to these areas, but they remain much below normal for the water year. Severe to extreme drought also continues over much of the rest of Nevada and over small parts of central Idaho, where winter time cold frontal precipitation has been lower. These drought areas are expected to persist through the spring with warm and dry weather forecast to return to much of the Great Basin in May, especially across Nevada into Utah and the Arizona Strip.

Overall fire activity remains low in 2021. There have been some larger fires in the last month driven mostly by wind over eastern Idaho, Utah, and eastern Nevada in the dormant carryover fuels, which is normal for the time of year. Full consumption of fuels has been reported on recent fires, which is a testament to the drought conditions. Great Basin remains at a PL1.

Fuels are in various stages of green-up across Nevada and Utah with green-up completed in the far south. Low elevation snowfall that remained on the ground for several days to over a week in late January into

February compacted much of the fine fuel carryover from recent years across western and northern Nevada and far northern Utah. This compaction, in combination with a less robust new grass crop due to the drought, should lessen the overall fuel loading and large fire potential threat in the lower elevations going into the summer months in much of Nevada. Some exceptions will be over parts of eastern Nevada into western Utah that did not see as much lower elevation snowfall. Where new grass growth will still be minimal in these areas, carryover is still present from recent years. April storms will likely push areas of Idaho and Utah further into green-up, and this moisture could bring new grass growth to parts of southern Idaho. Heavy dead fuel moisture is still quite low over the southern half of the Great Basin that have seen far less moisture. Due to the low soil moisture in Utah, expect sagebrush live fuel moisture to peak earlier than normal and at a lower value. These fuel moisture considerations combined with significant long-term drought will be a concern for mid to upper elevations across southern and eastern Nevada, Utah, and the Arizona Strip heading into fire season.

Spring forecasts are calling for above normal temperatures and below normal precipitation for much of the Great Basin with the most extreme conditions expected over western and southern Nevada, Utah, and the Arizona Strip. Currently, a normal or slightly early monsoon season is expected, which could bring some relief to southeast Utah and the Arizona Strip by early to mid-July. However, an increase in lightning before deeper moisture arrives will be a major concern for southern and eastern Nevada and Utah in June and early July. As the monsoon hopefully becomes more established, moisture is expected to move into the southern half of the region later in July, pushing the increased threat of drier thunderstorms into northern Utah, northern and western Nevada, Idaho, and Wyoming. A possible return of La Niña later in the summer or fall could also bring an earlier end to monsoon moisture, but confidence remains low later in the fire season. Western Nevada will likely remain on the drier edge of monsoon moisture and could see more potential for dry thunderstorms along with breezier winds as low-pressure troughs move into the western Great Basin.

Fire activity typically is low through the spring as fuels begin green-up and periodic cold fronts pass through the region. Strong pre-frontal winds after a warm, dry period may result in occasional low to mid-elevation fire activity but that threat should decrease as green-up progresses through May from south to north. Grasses and shrubs should cure out earlier than normal this year due to the low soil moisture and warm, dry weather, especially over southern and eastern Nevada and southern and central Utah, which will likely result in an early start to the fire season at all elevations. Drier and breezier conditions along with potential dry lightning events in July and August on the western side of the Great Basin will also likely increase fire potential over mid-upper elevations of the Sierra Front due to low soil moisture and lower than average snowpack.

**Southwest:** Above normal significant fire potential is anticipated area-wide for both the months of May and June, given the present widespread drought conditions and the overall expected warmer and drier late spring early summer weather pattern. Significant fire potential is expected to drop back to normal area-wide by July with the onset of the summer monsoon.

Over the past two months, the drier than normal conditions have generally continued for the majority of the Southwest Area, although a few weather systems have yielded a few areas of above normal precipitation across the northern tier of the region. High temperatures over the past two months have ranged from about 2-4°F above normal across the southern half or so of Arizona to 1-3°F below average from the New Mexico central mountain chain eastward across the Plains.

The recent La Niña event has turned neutral, and these conditions are expected to continue through mid-summer. Overall, both temperature and precipitation outlooks are extending the forecast for warmer and drier than normal conditions for both May and June. As is typical for the Southwest, just one or two major storm systems in an otherwise dry period can have a substantial impact on fire potential, even amidst a drought, and this will be closely monitored even though it become less likely by mid-May onward. Most late spring storm systems are expected to track north of the region yielding primarily periods of strong winds with backdoor cold fronts bringing temporary relief to the eastern plains of the Southwest Area via elevated relative humidity values and some likely paltry dryline associated precipitation.



Concern will continue well into May for wind driven critical fire weather events. Above normal significant fire potential will expand northward and upward in elevation to include the heavier fuels by around mid-May and certainly by June. Monsoonal predictions are difficult, but some evidence indicates that it could be both timely and at least an average monsoon, which would likely bring a “normal” end to the large fire season in July. The monsoon could be focused more over the western half of the region with some potential for abnormally dry conditions from the New Mexico central mountains eastward into Texas. This possible development in July and August will be monitored.

**Rocky Mountain:** Above normal significant fire potential is forecast across southeast Colorado and southwest Kansas for the first half of May and expanding over west-southwest Colorado during the month. By late May through June, the above normal risk area is predicted to expand from southeast Colorado and the Sangre de Cristo Mountains through a large portion of western Colorado. Above normal fire potential is anticipated to diminish in southern Colorado as it expands northward by late June through July into northwest Colorado and southwest Wyoming. Expectations are for normal risk to return during August.

Temperatures were consistently near normal over locations west of the Continental Divide this winter into early spring, except warmer trends in southwest Colorado in April. Precipitation deficits in April intensified west of the Continental Divide into southern Colorado and southwest Kansas, and to a lesser degree over northwest South Dakota. Snowpack across the mountain areas west of the divide has begun its spring runoff earlier than normal with the most significant snowpack deficits developing mainly near the foothills away from the higher elevations. The US Drought Monitor portrays improving trends east of the Continental Divide except for drought intensification in northwest South Dakota. Otherwise, little change is depicted from last month west of the divide in Colorado where exceptional drought is depicted.

Normal significant fire activity in April is characterized by occasional wind driven large fires mainly across the Plains, which has been near to below normal this year overall. This time of year, the fuels most available to burn are in brush and grass regimes of the lower elevations where green-up has not fully developed. Higher elevation RAWS are still frozen or are just entering their green-up phase as of late April, but many sites are indicating drier than average values from Colorado into western Nebraska and South Dakota.

A west-northwesterly upper-level flow is forecast to keep a chance of precipitation mainly in locations east of the Continental Divide early in May with a better chance west of the divide by mid-month. Warm, dry, and windy conditions are most probable during the first half of the month over southern portions of the Rocky Mountain Area and west of the divide. The Climate Prediction Center longer range forecasts through the spring indicate warmer and drier than normal conditions across mainly central to southern Colorado through southwest Kansas, then shifting northward during the summer focused from northern Colorado through western portions of Nebraska and South Dakota. Otherwise, the seasonal summer monsoon moisture pattern is predicted to result in precipitation values closer to normal in Colorado, especially southern Colorado, during July and August.

Drought has continued to intensify during April in locations west of the divide in Colorado and to a lesser degree from southeast Colorado through southwest Kansas. These drought areas are predicted to remain drier than normal in May, especially in southwest Colorado resulting in a stunted green-up in conjunction with occasional warm, dry, and windy conditions. The seasonal spring snowmelt period has begun earlier than average in western Colorado, especially southwest Colorado, in combination with an already below normal snowpack.

For the first half of May, above normal significant fire risk is forecast across southeast Colorado and southwest Kansas and is expected to expand over west-southwest Colorado progressively during the month. By late May through June, the above normal fire risk area is predicted to progress from southeast Colorado and the southern Front Range and Sangre de Cristo Mountains through a large portion of western Colorado because of probable drought intensification. Above normal fire potential is anticipated to diminish in southern Colorado as it expands northward by late June through July into northwest Colorado and southwest Wyoming. As monsoon moisture is projected to moderate the fire risk in the southern Colorado during July, expectations are for normal risk to continue expanding northward during August as well.

**Eastern Area:** The last 30 to 90 day soil moisture and precipitation anomalies were below normal across far northwest Minnesota, the southern and eastern Great Lakes, northern Iowa, northern Pennsylvania, and portions of northern New England towards the end of April. Longer range drought conditions were indicated across northwest Iowa, the southern Lower Peninsula of Michigan, northeast Illinois, northwest Pennsylvania, and north-central New England.

Warmer than normal temperatures are forecast over the eastern Great Lakes into the Mid-Atlantic in May before shifting to the eastern tier of the Eastern Area during June. Much of the Eastern Area is expected to experience warmer than normal temperatures in July with a trend towards cooler than normal conditions heading into August.

Above normal precipitation is expected across much of the Midwest into May, shifting eastward to the Atlantic Coast and persisting over the eastern Great Lakes in June, and in portions of the eastern U.S. June into July. Some drying is possible across parts of the Mississippi Valley July into August.

Fuel moisture levels may remain below normal across portions of the southern and eastern Great Lakes, far northwest Minnesota, New England, northern Iowa, and the northern Mid-Atlantic States through the remainder of the spring fire season. Near normal fire danger indices and fuel moisture levels were indicated across the rest of the Eastern Area towards the end of April.

The spring fire season may persist longer than normal across drier portions of the northern tier of the Great Lakes if the forecast above normal precipitation does not develop heading into May. Near normal fire potential is forecast across the majority of the Eastern Area May into August. However, if the forecast wetter than normal conditions do not develop across drier portions of the Great Lakes and New England May into June, periods of above normal fire potential are likely over drier portions of these areas into the early summer. Drier than normal trends are possible over parts of the Mississippi Valley later this summer, which may create elevated fire potential.

**Southern Area:** A forecast neutral ENSO state combined with extended range model guidance and historical analog outlooks support a continued broader Southern Area rain pattern that should produce a rather muted fire danger outlook for the rest of spring and summer. A couple exceptions for elevated to above average fire potential exist for far western Oklahoma and Texas due to drought impacts through June with potential drying across north Florida in May. Drier and warmer than average weather is anticipated for the southern Plains mid to late summer could produce higher fire risks here and this potential will be monitored.

Like March, higher and broader coverage rain activity was observed in April with the highest and well above average totals (e.g., one to four inches above normal) across the South's south-central states and the Florida peninsula. Although there were relatively minor departures from average across Oklahoma and Texas and the Carolinas, observed rain totals were broadly greater than two-and-a-half inches. The driest conditions occurred across the Oklahoma and Texas Panhandles to the southern Texas Trans Pecos.

Similar to the previous month trends, April fire activity has been unremarkable with activity continuing to track at average to below average levels. Fuel moistures consistently and rather broadly continue to trend above average and above seasonal levels for most of the South – greater than 17% for 100-hour and 18% for 1000-hour fuels – except for portions of Oklahoma and Texas. Other than typical seasonal variations in humidity and temporary and short duration drier episodes, fuel moistures are likely to remain above critical fire threshold levels through this outlook period.

With ENSO now in a solid neutral condition and green-up and leaf-out entering their final stages in Kentucky, Virginia, and the Appalachian Mountains, future weather conditions will likely favor patterns that will continue to produce recurring and broader coverage episodes of rain muting fire risk. With the fine fuels now once again shaded by canopy and live fuel moistures likely remaining at or above seasonal averages, the expectation is that most of the Southern Area will remain in fire risk conditions that will trend at near average to below average levels.

There are a couple of exceptions in this outlook. The ongoing drier conditions extending from the Desert Southwest into far western Oklahoma and Texas should keep an above average fire potential trend in place through June as dryline induced windy and low relative humidity episodes amplify risk. A modeled and historical analog indicated drier conditions perhaps evolving in May could produce drier fine fuels and a higher ignition risk condition across northern Florida during May. Increasing moisture levels and the onset of the Atlantic tropical weather pattern should result in a return to at least an average or possibly above average rain and humidity, limiting fire activity for the summer. While there is some uncertainty further out for July and August, a warmer and drier trend may evolve across the southern Plains, which could produce some elevated fire potential for primarily Oklahoma.

### **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>