National Significant Wildland Fire Potential Outlook

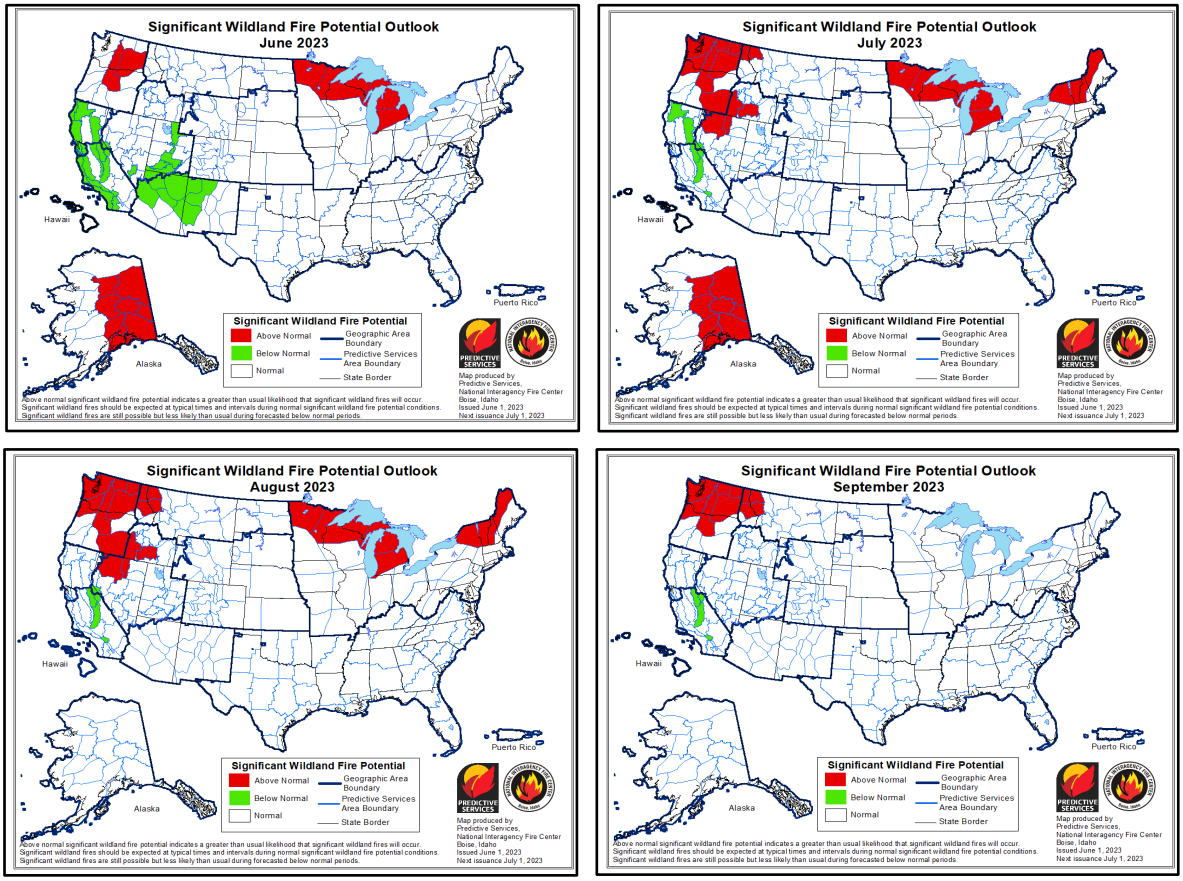
Predictive Services
National Interagency Fire Center

Issued: June 1, 2023
Next Issuance: July 1, 2023

Outlook Period – June through September 2023

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.



Significant fire activity remained muted across the US during May. Wildfire activity decreased in the Southern Area, especially towards the end of the month, while the Southwest Area continued with below normal fire activity. Alaska had its first large fire of the year and multiple large rangeland fires ignited in the Inland Pacific Northwest during late May. Year-to-date acres burned for the US is 51% of the 10-year average, with a below average number of fires, about 82% of average.

Well above normal temperatures stretched across the northern tier of the West leading to rapid snow melt. Much of the eastern US experienced near to below normal temperatures, but the Great Lakes, Midwest, Mississippi Valley, and into the Northeast and Mid-Atlantic received below normal rainfall. The High Plains into much of Texas and parts of the Southwest received above normal rainfall, while Florida, the southeast Atlantic Coast, and coastal New England mostly had above normal rainfall as well. The Drought Severity and Coverage Index (DSCI) is now at 74

(scale 0 to 500), which is the lowest value since June 2020 and down from a 10-year peak of 202 on November 1, 2022. More than 59% of the country has no drought and less than 20% of it is in moderate to exceptional drought.

Climate Prediction Center and Predictive Services monthly and seasonal outlooks depict likely above normal temperatures for the West, South, and East Coast through summer. Below normal precipitation is likely for the Southwest and possibly into the broader Four Corners region as the North American Monsoon is expected to be below average this summer. Below normal precipitation is also forecast along and west of the Cascades. Areas of above normal precipitation are likely in parts of the Southeast, Midwest, and Plains during the summer, but below normal precipitation is possible in the Great Lakes during June and in the Northeast later this summer. As a rapid transition to El Niño is likely, parts of the Southeast may receive below normal precipitation due to El Niño's usually negative impact on tropical cyclone development in the Atlantic.

Rangeland areas from central and eastern Washington into central Oregon are expected to have above normal significant fire potential in June. In July, above normal potential will expand through rangeland areas in southeast Oregon, southwest Idaho, and northwest Nevada due to above normal fine fuel loading. Due to recent and forecast warmer and drier than normal conditions, above normal potential is expected to encompass Washington July into September. Above normal potential will likely emerge by July in far northern Idaho and northwest Montana and expand to include all northern Idaho and northwest Montana during August and likely continuing into September.

Below normal significant fire potential continues for the mountains and foothills of California during June before retreating to the Sierra in July and just the southern Sierra during August and September. Higher elevations in the southern Great Basin through the mountains of Utah and much of the Southwest, west of the Continental Divide, are likely to have below normal significant fire potential in June. These areas will return to near normal significant fire potential in July and may continue near normal through summer depending on the strength of the monsoon.

A pattern change is likely to bring slightly above normal significant fire potential in eastern and central portions of the Interior and south-central Alaska during the latter half of June and likely extending into July. Above normal potential is expected to emerge in parts of the Great Lakes in June due to recent drying and forecast dry conditions. Above normal potential is likely to continue for the Great Lakes into August and expand into portions of the Northeast by July. Southern Area is forecast to have near normal significant fire potential for the outlook period.

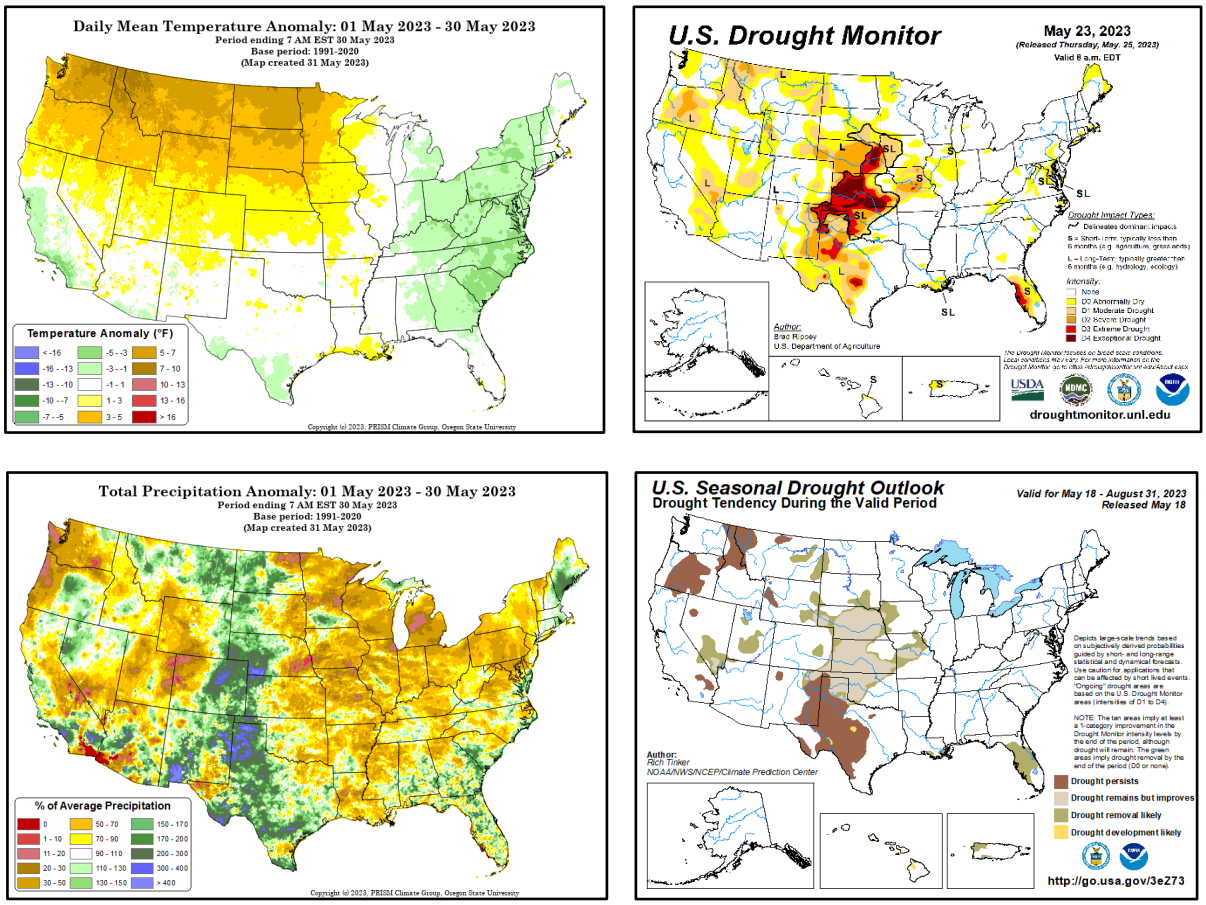
Past Weather and Drought

Moisture moved into the Southwest during the middle of May resulting in widespread showers, thunderstorms, and higher humidity. While drier and breezy conditions bookended this period, prolonged above normal temperatures were not widespread and slowed fuel curing. The High Plains had mostly well above normal rainfall extending across much of Texas as near daily showers and thunderstorms continued during the last half of May. Scattered to widespread showers and thunderstorms in parts of the northern and central Intermountain West led to patchwork above normal rainfall, but along and west of the Cascades had a dry May. Much of the Midwest, Great Lakes, Mississippi Valley, Mid-Atlantic, and Northeast had below normal rainfall, but heavy rain did occur during the latter part of May in coastal New England and from the coastal Carolinas into the Deep South through Florida. Temperatures were well above normal across the northern half to two-thirds of the West, with near to below normal temperatures across the eastern US and much of California.

Snowpack and snow water equivalent remain well above average across the southern half to two-thirds of the West. Basins in the Sierra, Nevada, and Utah still have a lot of snow to melt, but well above normal temperatures and below normal precipitation caused a precipitous decline in

snowpack across Washington, northern Idaho, western Montana, and parts of Wyoming to well below normal. Drought improved across the Plains, especially the High Plains, and along the Colorado Rockies. Parts of Florida, the Mid-Atlantic, and Intermountain West also observed drought improvement, but drought worsened in central and northern Missouri and in areas of the northern Rockies.

Fire activity remained below normal across the US in May, with year-to-date number of fires and acres burned well below normal. Above normal cool season precipitation and snowpack helped slow fuel curing across southern California, the Southwest, and southern Great Basin, while consistent moisture intrusions and the absence of heat waves also contributed to the below normal fire activity. Increased moisture across Florida decreased fire activity, and timely rainfall in New England slowed fire activity later in May. Well above normal temperatures are accelerating snow melt and fuel curing across the northern tier of the West despite some areas of above normal rainfall in May. Widespread and in some areas well below normal rainfall across the Great Lakes into the Northeast is quicky curing fuels despite mostly near to below normal temperatures. The multiple heatwaves over Canada mostly missed Alaska, which had above normal snowpack and snow cover through spring and ample precipitation over the southern tier of the state during May.



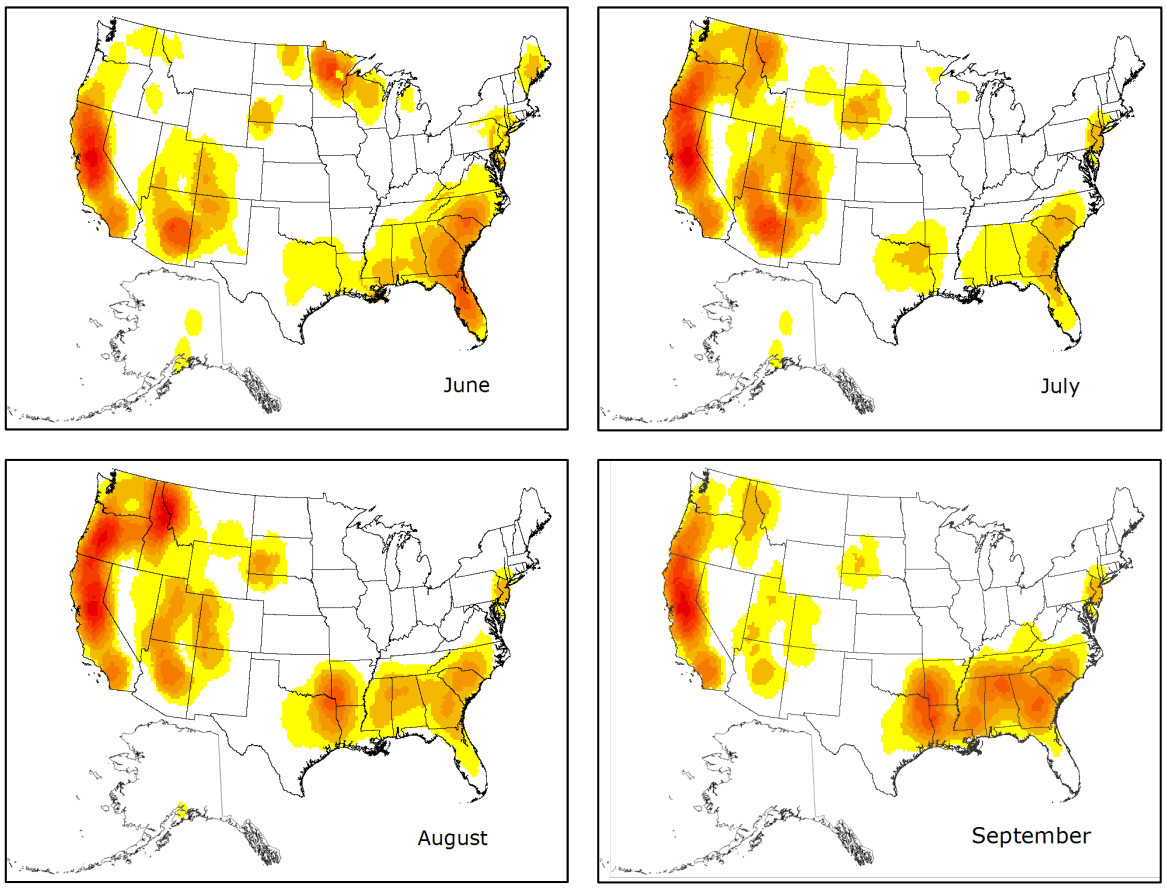
Left: Departure from Normal Temperature (top) and Percent of Normal Precipitation (bottom) *(from PRISM Climate Group, Oregon State University).* **Right: U.S. Drought Monitor (top) and Drought Outlook (bottom)** *(from National Drought Mitigation Center and the Climate Prediction Center).*

Weather and Climate Outlooks

El Niño Southern Oscillation (ENSO) neutral conditions continue in the equatorial Pacific Ocean. However, rapid warming continues in much of the ENSO region, especially in the central Pacific with continued anomalous warmth off the coast of South America, with above normal sea surface temperatures in all ENSO regions. Most forecast guidance depicts continued warming through summer, with El Niño conditions forecast by the end of July. The Climate Prediction Center forecasts a 90% chance of El Niño conditions continuing into winter. Other teleconnection patterns, such as the Madden Julian Oscillation (MJO), Pacific Decadal Oscillation, and Pacific-

North American Pattern are likely to influence weather and climate during the outlook period. The MJO has been very active over the winter into spring, with continued impacts over the western US.

Geographic Area Forecasts



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)

Alaska

Slightly above normal significant fire potential for portions of Interior and south-central Alaska is forecast for June and July, then wildfire potential is expected to exhibit typical behavior statewide in August and September.

No areas of Alaska are currently in drought status due to a substantial winter snowpack and ample rains in May. Rainfall in May was particularly heavy over the southern tier of Alaska. Alaska's wildfire season through the end of May has been remarkably quiet due to the ample rainfall and cool temperatures. Except for northwest Alaska and the North Slope, green-up has blossomed across Alaska at elevations below 2,000 ft. The seasonal emergence of living fuels slightly mitigates the threat of wind-driven surfaces fires that preferentially consume dead fuels. Extensive rainfall, especially across southern and southeast Alaska, has hindered the drying and warming of the subsurface duff layer.

The long-lived La Niña, which held for the last few years, is rapidly transitioning into El Niño, and increasing the likelihood for higher wildfire potential over the Interior and south-central Alaska in June and July. The signal is less clear in August and September, a period when wildfire activity across Alaska typically diminishes. The transition from La Niña to El Niño opens the opportunity for drier and warmer weather this summer. Alaska's Interior is typically the area most under

wildfire threat during the six weeks centered on the summer solstice, and the expected trend towards warmer and drier weather during this time increases the threat to a moderate, but not extreme, degree. At this time there is no signal suggesting the typical seasonal rains of late summer will not arrive. Overall, expect a chance for higher-than-normal wildfire potential over Interior and south-central Alaska in June and July before potential returns to typical values in August and September.

Northwest

Central Oregon, Predictive Services Area (PSA) NW06, and central Washington, PSAs NW05 and NW10, are expected to have above normal significant fire potential. The rest of the Northwest Geographic Area is expected to have near normal significant fire potential for June.

A succession of cut-off weather systems centered near northern California kept conditions over the geographic area cooler than normal for the first ten days of May, especially Oregon. Precipitation was greater than normal for much of eastern Oregon. In the middle of May, the weather pattern changed, and the geographic area underwent a period of temperatures that were well above normal with frequent showers or wet thundershowers mainly over central and eastern Oregon and Washington. Towards the end of the month, a cooling trend brought temperatures back closer to normal with a drying trend. Overall, the geographic area ended May with above normal temperatures, especially over eastern Washington. Precipitation was above average over most of eastern Oregon and the highlands of eastern Washington.

May began with snow water equivalent (SWE) at the upper elevation snow reporting basins near average for Washington and well above average for Oregon. Snowmelt accelerated during the onset of warming temperatures in the middle of the month. By the end of May, SWE values were above average in Oregon and below average in Washington. Extreme drought designations over central Oregon were removed during May, otherwise drought areas remained unchanged.

A 2700-acre fire was reported in the Columbia Basin in fine fuels during strong winds on May 21. A timber fire in south-central Oregon exhibited moderate fire behavior and is currently 3100 acres. Dead fuel moisture is falling in all PSAs as snow melts and fuels dry, and fire danger indices are increasing in response to recent warmer and drier weather. Most fuels remain too moist to support any elevated risk of significant fires. However, in some areas limited NFDRS reports and drought maps suggest drier-than-typical conditions for late May, mainly in central Oregon.

Outlooks for June suggest that temperatures will most likely be warmer than normal for the Northwest Geographic Area. Precipitation will most likely be lower than typical for western Washington in June, with no anomaly forecast elsewhere. For July and beyond, temperatures are most likely to be warmer than normal and precipitation lower than normal for the entire geographic area.

For June, normal (i.e., low) risk of significant fires is expected over the Northwest Geographic Area except for sections of central Washington and central Oregon (PSAs NW05, NW06, and NW10) where risk will be elevated. From July onwards, all of Washington is expected to at elevated risk of significant fires as well as PSAs NW02, NW06, and NW12 in Oregon. Elsewhere in Oregon, normal significant fire risk is anticipated.

Northern California and Hawai'i

Significant fire potential is projected to be near to below normal for June and July. Historically during June, between one to two large fires occur per Predictive Services Area (PSA). During July, one to three large fires occur per PSA although the Bay Area is usually less than one. The August and September outlooks forecast near normal significant fire potential. During August, two to six large fires typically occur per PSA then lowers to one to three large fires during September except the Bay Area PSAs where less than one large fire typically occurs. Hawaii's significant fire

potential is forecast to be normal June through September.

The weather pattern during May was mixed with extended cool and wet periods associated with low pressure systems and periods of warm and dry conditions due to near West Coast ridging. Precipitation anomalies were generally near to above normal with average temperatures near to below normal, although some smaller scale dry-warm anomalies occurred. Lightning was observed during more than half of the days with nearly 6700 strikes recorded through May 25. The average total for May is nearly 5400 cloud to ground lightning strikes based on the 2012 to 2022 period. Dry and breezy northerly and easterly winds were observed across portions of northern California during five separate days of the month, otherwise onshore flow was the dominant wind flow.

Noticeable fluctuations in dead fuel moisture occurred with near normal values on average by the end of the month, and no critically dry values were observed during the month. Transitional herbaceous green-up continued to move up the slopes with an expansion of curing across the lowlands, generally below 2000 to 2500 feet and dependent on species type and location such as exposure levels and type of soil regime. Green-up was noticeable in unsheltered areas as high 5500 to 6000 feet towards the end of May. The lowlands produced near to above normal herbaceous growth during the growing season with peak growth occurring from mid-April to mid-May. Moisture found within the snowpack is well above normal for late May and is consistently found in large patches above 5000 to 6000 feet, especially in sheltered areas. Shrub fuels are also rapidly taking on moisture and becoming less flammable across the low and mid elevations and served as a barrier to significant fire spread during May. There were a handful of heightened fire business days based on double-digit initial attack numbers but none of the fires were large. Fire sizes did creep up some towards the end of the month with 20 to 50 acres being reported for a few of the incidents. Prescribed burning was active, with several broadcast and pile burns conducted.

The weather outlook for June is for cool and moist intrusions in areas due to the combination of deeper onshore flow periods and low-pressure impacts. Some positive heat anomalies should begin to influence the area later in June, and temperature and precipitation should be near normal, with the better possibility for wetting precipitation across the eastern PSAs. Temperatures from July through September are expected to be near to above normal, and precipitation is likely to be near normal although thunderstorm activity should provide mixed anomaly signals likely favoring eastern PSAs. The North American Monsoon is not expected to be as robust compared to the past two summers, therefore weaker, less moist intrusions are anticipated from that source region. However, tropical cyclone activity is expected to be more robust across the eastern Pacific and could lead to periods of heightened lightning. August is also likely to be the favored lightning month versus the normal peak month of July. Lightning will also be associated with the cut-off lows that occur, especially during June. Onshore flow should be the dominant wind flow during the outlook period, especially June through August with less certainty for September.

Critical flammable alignments in the live and dead fuels are not likely to occur for an extended period across larger portions of North Ops until possibly August or September. Therefore, the fire season should start out slower than normal with transitional green-up, near to above normal shrub moisture, and abundant snowpack providing resistance barriers for significant fire spread across large portions North Ops during June and July. Large fire activity during June and July should mainly be found across the lowland areas that contain abundant cured or curing herbaceous fuels as well as the possibility of lightning fires in the mid and upper elevations that are managed under multiple objective strategies. Fuels found across the highest elevations are likely to remain less flammable during August and potentially September. Drought is not expected to return until later in the summer and most likely affect far northern areas initially. Pockets or areas of extra laddering or fuel flammability will be found due to blow-down and shrub snow crush as a result from the longer duration heavy snow load from the many atmospheric river events. Tree mortality was also found across North Ops during 2021 and 2022 because of the significant drought conditions. Barriers to significant fire spread will be associated with many of the large fire footprints that

occurred during the past three to five years, although fast moving, slope-wind aligned fires could occur in these footprint areas due to the extra grass and shrub growth during the past few years. Considering all the current and anticipated fire environment conditions, significant fire potential is projected to be near to below normal for June and July and near normal for August and September.

Sea surface temperature (SST) anomalies surrounding the Hawai'ian Islands are near to a little above normal. Average temperatures during May were mixed but generally near to below normal, with the strongest cool anomalies found across large portions of the Big Island. There were mixed precipitation anomalies during May, with above normal precipitation centered across the northern and southern tier of the island chain. ENSO neutral conditions are found across the eastern equatorial Pacific but are likely to transition to El Niño during the next one to two months and will be a major contributor to the weather pattern during the rest of the outlook period. There are mixed precipitation signals for June through August, but drier than normal conditions are anticipated by late in the forecast period. The four-month weather outlook calls for near to above normal temperatures, with the better chance for near normal temperatures across the Big Island. As of the third week of May, there was no drought designation across the islands, but drought is likely to redevelop sometime during the outlook period. Critical fuel alignments, both live and dead, could come into play by late summer or early fall, with heightened westerly wind bursts providing elevated fire danger at times. However, due to the lack of consensus for the precipitation forecast during the next few months, near normal significant fire potential is forecast.

Southern California

Significant fire potential will be below normal across the region in June, except near normal potential across the San Joaquin Valley and the deserts. Significant fire potential will remain below normal across the higher elevations and become near to a little below normal across the lower elevations July through September.

A series of deep low-pressure areas dropped down the West Coast through May 11 bringing scattered showers to the area at times and well below normal temperatures. The snow level was around 6000 feet with several inches of new snow over both the Sierra and the southern California mountains. The marine layer was deep during this period, with low clouds and fog making it over the lower coastal mountain slopes and only limited afternoon clearing. High pressure set up over the Great Basin causing temperatures to warm to a little above normal from May 12-22. Southeast to east flow around this area of high pressure brought isolated to scattered showers and thunderstorms to the Sierra and to the mountains and deserts of southern California May 16-22. Morning low clouds and fog made it over most coastal valley locations most days. A Pacific trough moved over the West Coast May 23 through the end of the month causing temperatures to return to below normal and the marine layer to deepen once again. Scattered afternoon and evening showers and thunderstorms continued over the Sierra and northern deserts through the end of the month. Overall, for the month, temperatures were below normal across the coastal areas and near normal inland. Precipitation was above normal over most of South Ops, but it was below normal over the Sierra. The snowpack in the Sierra is currently between 300% and 400% of normal. There were strong southwest to west winds over the mountains and deserts with the Pacific troughs both at the beginning and at the end of the month. There were no significant offshore wind events during the month.

There continues to be no drought over most of South Ops, except for abnormally dry to moderate drought conditions over the deserts. Moderate amounts of rainfall caused both the 1000-hour and 100-hour dead fuel moistures to start the month well above normal. This dead fuel moisture dropped to near or below normal during the middle of the month as above normal temperatures commenced. The dead fuel moisture was near to above normal at the end of May due to cool and humid conditions. Lighter fuels at the lower elevations continue to cure, but there is still quite a bit of green brush. Live fuel moistures have mostly peaked, but they remain mainly between 80% and 150%.

Sea surface temperatures (SSTs) over the Gulf of Alaska have warmed to a little above normal, while SSTs off the West Coast remain well below normal. The below normal SSTs off the West Coast will likely cause Pacific troughs to be the dominant weather feature affecting the region into early July. Thus, temperatures will remain below normal and the marine layer over the coastal areas will be deeper than normal into early July. Models show that the SSTs off the West Coast will warm later in July and be near to a little below normal through September. High pressure will likely become the dominant weather feature by the end of July. Due to current and projected well above normal SSTs over the subtropical Pacific and Gulf of Mexico, there will be more moisture than normal likely resulting in above normal shower and thunderstorm activity through September. Large fire activity will be below normal over the higher elevations through September as the well above normal snowpack melts and keeps soil moisture high. Significant fire potential will be below normal across the lower elevations in June as the marine layer remains deep. The lower elevations are expected to have near to a little below normal significant fire potential July through September as the marine layer becomes shallow and the fine fuels become fully cured.

Northern Rockies

Significant wildland fire potential in the Northern Rockies Geographic Area (NRGA) June through September is expected to be normal except for portions of northern Idaho and northwest Montana where activity will be above normal starting in July and August. The area of forecast above normal potential is where moderate to severe drought is expected to persist into the summer and mountain snowpack is dissipating ahead of schedule. The remainder of the NRGA does not have strong signals to support a deviation from normal fire season forecasts.

Compared to last month's drought monitor, the most recent drought monitor shows a decrease in drought severity over northeast Montana, an increase in drought severity over northwest Montana, and removal of drought over northern North Dakota. As a result of those changes, there are currently areas of moderate drought over northeast Montana and the western edge of North Dakota, and moderate to severe drought over northern Idaho and northwest Montana.

For the month of May, three locations showed significant precipitation deficits: the northeast corner of North Dakota, Yellowstone National Park and the surrounding area, and a strip of northwest Montana along the Canadian border. Parts of northwest and west-central Montana received above normal May precipitation, along with much of central and western North Dakota. Temperatures were uniformly above normal across the NRGA in May, slightly above normal in North Dakota and eastern Montana, and well above normal in northern Idaho and western Montana. These high temperatures have significantly contributed to the earlier than normal melting of the snowpack in northern Idaho and northwest Montana.

Snow cover has melted for all but high elevations, allowing drying of dead fuels to begin. Most PSAs show dryness near normal levels, but eastern North Dakota shows some dryness values below the 10th percentile. Melting snow and above normal temperatures have also supported the greening up of live fuels across the area, which should decrease fire potential for now. However, it is likely that the unseasonable heat in northern Idaho and western Montana has pushed green-up ahead of schedule, which will allow live fuels to start curing earlier in the summer.

Light initial attack was reported for most days, although a 200-acre fire was reported in North Dakota. Prescribed fire has been ongoing though precipitation events and high humidity have limited burning opportunities. A mid-month window for prescribed burning was disrupted by an intrusion of Canadian wildfire smoke into the area.

The June outlook shows normal precipitation for the NRGA and above normal temperatures across the area, with highest confidence for northern Idaho and northwest Montana. The July through September outlook is similar to the June outlook. Precipitation is expected to be normal across most of Montana and North Dakota, but below normal in northern Idaho and northwest

Montana. Temperatures are forecast to be near normal in eastern Montana and North Dakota, but above normal in western Montana and northern Idaho.

Due to this forecast, normal fire potential is expected for most of the NRGA June through September with two exceptions. Predictive Services Areas (PSAs) 1 and 2 (i.e., far northern Idaho and northwest Montana) are expected to have above normal significant fire potential starting in July continuing through September, and above normal significant fire potential will expand in northern Idaho and northwest Montana in August and continuing through September. If June conditions follow the pattern outlined in the monthly outlook, and the trend towards faster maturation and curing of live fuels continues, it may become necessary to add more PSAs in northern Idaho and northwest Montana to the above normal significant fire potential outlook for next month.

Great Basin

A record snowpack across the southern two-thirds of the Great Basin along with above normal winter precipitation will significantly delay fire season in the higher elevations of the southern Great Basin, as well as across the High Sierra. Above normal carry-over fuels across southwest Idaho into far northwest Nevada will allow for late spring and early summer fires before surrounding fuels cure, but curing of new fine fuel growth will likely be delayed due to forecast wetter weather in June. Drier conditions over southern areas of the Great Basin recently may allow for an uptick in fires early in June, however, that would be considered normal for the time of year. By July and August, above normal fire potential is possible over northwest Nevada into southern Idaho due to carryover fine fuels combined with cured new growth. Above normal significant fire potential may need to be expanded farther south into Nevada and Utah, depending on the weather pattern heading into July and August due to expected fine fuel growth. We are still monitoring southern areas of the Great Basin for July and August closely due to concerns of a weak or delayed monsoon.

Temperatures over the last 30 days have been above normal across the Great Basin, while precipitation has generally been drier than normal except for portions of Idaho and northern Nevada. The snowpack, which set new records across much of Nevada, Utah, and Arizona throughout the winter and spring, has continued to decrease from the April peak due to the drier and warmer weather, along with the recent uptick in showery weather heading into early June. However, the snowpack remains above 200-300% of normal across Nevada, Utah, and Arizona and 90-130% farther north into Idaho and Wyoming. Flood concerns will continue across the Great Basin through June due to the wetter pattern and snowmelt before fire season becomes more active. The wetter conditions over the last six to nine months have improved drought conditions significantly, with most areas improving by a drought category or more in the past several months. The drought is expected to continue improving through the spring over the northern half of the Great Basin and will likely persist at current levels over the southern half.

Fuel moisture is above normal across the northern half of the Great Basin due to consistent storms and precipitation, which is prolonging green-up and delaying the curing process. Curing is at least two to three weeks behind schedule in most areas. Sagebrush is also out of dormancy; therefore, fuel moisture is naturally increasing, albeit behind schedule. Fine fuel growth and loading were above normal last year across the Snake River Plain and far northwest Nevada but were near or below normal elsewhere. The snowfall earlier this winter down to valley floors in much of Nevada and Utah compacted carryover fine fuels due to the extended period the snow remained on the ground. However, significant new fine fuel growth is ongoing this year due to winter and spring precipitation resulting in above normal fuel loading, despite the carryover component being lower in most areas. The only exceptions are over far northwest Nevada into southwest Idaho, where above normal carryover may still exist as the lower elevation snowfall in these locations was not as significant as areas farther south. There are also multiple crops of cheat grass being reported in parts of Nevada and possibly into Utah with the return to wetter weather in late May and June.

Soil moisture is well above normal in southern areas of the Great Basin due to snowmelt and runoff, despite the recent drier weather in the south. Farther north, soil moisture has decreased but will likely increase again throughout June due to precipitation and increased snowmelt and runoff. These soil moistures, along with the drought improvements or removal across the Great Basin will continue to lay the groundwork for significant fine fuel growth through the growing season. Fine fuels have already started to cure out over southern areas of the Great Basin due to the warmer and drier weather heading into June. Farther north in Utah and Nevada, cheat grass is in various states of growing and purpling at the same time.

Fire activity remains low across the Great Basin. However, we are starting to get more small fires emerge in the lower elevations, due to the uptick in lightning, which is normal for the time of year. There was a larger fire in southern Idaho in the carryover grasses but was easily controlled due to higher surrounding fuel moisture and continued higher humidity and showers. Fire activity will likely gradually increase throughout June, but significant fire potential will likely remain low until at least July and August.

Below normal fire potential is expected in most higher elevations of the southern Great Basin into central and northern Utah during June due to high snowpack, as well as across the High Sierra June through August. Some areas of the southern Ely District in Nevada or near Cedar City may have more significant grass growth at lower elevations where higher precipitation occurred, and that will continue to be monitored for increased fire potential by July or August. The weather pattern heading through June or even July still looks to allow more low-pressure troughs to periodically move through the Great Basin likely providing periodic chances of wind, cooler temperatures, higher humidity, and showers. This could also delay the start of the monsoon or reduce precipitation to lower than normal, which could allow the fire season to continue longer in southern areas or start and peak later.

With new grass growth curing as fire season begins, windy days will be of particular concern. Above average carryover fuels across parts of southern Idaho into far northwest Nevada along with new growth raises the threat of above normal fire potential by July and August when the weather pattern becomes drier and fuels cure. This area of above normal fire potential may be expanded farther south and east by July or August depending on the summer weather pattern, and this will continue to be monitored. Above normal fire potential may also extend into September, but confidence is low.

Of note, years coming out of drought tend to lead to an increase of fires and acres burned in the lower elevations of Nevada and western Utah, especially when a very wet year follows an average or a wet winter the year before. The fall and winter of 2021-2022 had a wet October and December that resulted in near normal winter precipitation across the northern two-thirds of the Great Basin. Above normal potential will exist this year, but if the summer weather pattern is wet, then fire season will be later and shorter than normal.

Southwest

Below normal to normal significant fire potential is anticipated for most of the geographic area for summer. Areas of above normal significant fire potential will likely be rather short-lived and localized overall. However, they could arise for periods in areas where fine fuel loading and continuity are significant and are combined with above normal temperatures and a prolonged period of dryness. Areas of below normal significant fire potential are anticipated across portions of the Southwest Area (SWA) in June.

The overall trend for much of the late fall through spring has been for cooler than normal temperatures and above normal precipitation focused along and west of Continental Divide and drier and milder conditions generally focused along and east of the New Mexico central mountain chain. This pattern has changed some over the last month or so, but the ramifications from the

persistent previous weather pattern will continue to shape the significant fire potential forecast through summer as does the evolving El Niño Southern Oscillation (ENSO) situation.

Mountain snowpack has melted substantially over the past month, but snow water equivalent values are still above to well above normal across the northwestern half of the SWA, with below normal snow water equivalent values primarily limited to the south-central mountains of New Mexico. Last summer's above normal monsoon contributed to an abundance of fine fuel buildup across many areas of the SWA. Despite an unusually moist May for portions of the geographic area and the continuation of near to slightly below normal temperatures into June focused along and west of the Divide, these dead fuels will be available to burn this summer. The recent anomalous precipitation adds another complex element to the evolving situation with the re-greening of various fuel types.

The recent arrival of ENSO-neutral conditions and likely tilt into at least weak El Niño conditions over the next few months will likely have a big influence on the weather and climate for the forecast period. Historically, this points towards the setup of weather systems arriving and digging unusually far south near the southern California or Baja California region. Many of these systems tend to slow down or become cut off from the main jet stream, with negative upper-level height anomalies over the SWA. This will be the story through at least mid-June this year, perhaps longer. This type of pattern keeps temperatures near to slightly below normal west of the Divide and tends to pull moisture into New Mexico from the Gulf of Mexico. This pattern has been ongoing for a while now and will continue to limit significant fire potential for many parts of the SWA through early summer. Along with the increased moisture will be an increasing likelihood of areas of lightning across the region earlier than usual. This could lead to ignitions, but with periods of elevated relative humidity values, areas of rainfall, and a tilt towards normal to slightly below normal temperatures, this could point more towards managed fire opportunities.

As the latter half of June arrives, the subtropical high will attempt to build northward over eastern to southeast portions of the SWA and eventually likely settle over Texas by late June or early July. Upper-level troughing over the southwest US and Baja California will shift farther north by this time likely shifting onshore flow farther north into California and the Great Basin. Above normal precipitation and higher humidity are likely across the Great Basin and central Rockies, with near to slightly below normal temperatures. The SWA will shift to normal to above normal temperatures, with a poor monsoonal setup as the subtropical high will struggle to move northward over the central and western US this summer. Areas of normal to locally above normal significant fire potential could result during the second half of the summer due to the weak monsoonal flow and prolonged heat. Large fire season could be prolonged until late summer or early fall when moisture from the Gulf of Mexico arrives in eastern sections of the SWA as the upper-level high shifts southward over Mexico.

Rocky Mountain

Normal fire potential is expected across all Predictive Service Areas (PSAs) in the Rocky Mountain Area (RMA) for the outlook period. Historically, fire activity during this period shifts into higher elevations of Colorado and Wyoming along with the Black Hills. The high elevations of Colorado and Wyoming benefited from strong snowpack for most of the winter and spring and year over year drought conditions show significant improvement. This will provide a buffer against the summer forecasts of above normal temperatures across western Colorado and Wyoming. The remainder of the geographic area is not showing any forecast anomalies during the summer, which supports normal fire season activity projections.

The general weather pattern shifted southwest flow aloft to more southerly supporting moisture traveling north from the Gulf of Mexico versus dry air moving into the geographic area from the southwest US. The resultant shower and thunderstorm activity resulted in drought index reductions for Nebraska, eastern Colorado and Wyoming and western South Dakota. Nearly no location in the Rocky Mountain Area saw a drought index increase during the month.

Temperatures were near normal for Kansas and Colorado and three to five degrees above normal for South Dakota and Wyoming. The decrease in warmer than normal temperatures combined with periods of moisture allowed the critical area in southwest Kansas and southeast Colorado to moderate in terms of fire activity. The warm temperatures in Wyoming facilitated a rapid snowmelt and snowpack fell to 50 to 70% of normal through the month after starting above normal. Colorado continues to retain above normal snowpack. Current Colorado snowmelt trends indicate the snowpack will melt out near expected times during the early summer. Wyoming will likely see snowmelt occur earlier than normal. In both areas, the moisture from the snowmelt is helping reverse the drought trends that were present going into the water year.

The better moisture in May helped most areas trend to low to moderate fire danger except for central and eastern South Dakota. The weather pattern into early June maintains a favorable moisture flow into the RMA supporting persistence in current low to moderate fire danger. Seasonal trend analysis fire danger charts show most stations are near or slightly below normal for this time of year. Seasonal outlooks indicate above normal temperatures but near normal moisture, so a rapid change to critical dryness is not expected, though pockets of dryness could develop. Large fire activity has not been reported in May. Prescribed fire activity has continued in areas where fuels support burning.

Seasonal precipitation outlooks are normal for most of the RMA. There is a small area of southwest Colorado that may have below normal moisture as the monsoon is expected to be weaker. Temperature forecasts are trending above normal for Colorado and Wyoming and normal for the rest of the geographic area. These trends are consistent with the expected development of El Niño.

The outlook for the RMA depicts normal significant fire potential across the geographic area through September. The improvement in drought indices indicates there should be resiliency in the landscape even though above normal temperatures and below normal moisture are favored during the summer for the higher elevations. The above normal snowpack, which was present for most of the winter, is a major offset against the summer forecasts. There may be pockets of enhanced fire activity based on local fuel conditions, but the larger scale picture favors normal significant fire potential.

Eastern Area

Near normal significant fire potential is forecast across the majority of the Eastern Area June into September. Above normal fire potential is expected across the northern and eastern tiers of the Great Lakes in June and across much of the northern tier of the Eastern Area July into August.

Negative precipitation anomalies were indicated towards the end of May across the northern and eastern Great Lakes, northern Big Rivers, northeastern Mid-Atlantic States, and the western tier of New England. Longer term drought remained in place across the southeastern Mid-Atlantic States and western Iowa, with 30 to 90-day soil moisture and precipitation anomalies near to above normal across the remainder of the Eastern Area.

The Predictive Services weather and climate outlooks depict below normal precipitation across the Great Lakes in June and over the eastern tier of the Eastern Area July and September. According to the NOAA Climate Prediction Center long-term outlooks, near to above normal precipitation trends are forecast across the southern tier of the Eastern Area through summer. According to the Predictive Service outlooks, warmer than normal temperature trends are forecast over the far western tier of the Eastern Area in June, the northern and eastern tiers in July, and the eastern tier August into September. The Climate Prediction Center forecasts show above normal temperature trends across the western and northeastern tiers in June, and across the eastern tier through the remainder of the summer into the early fall.

Above normal significant fire potential is forecast over the northern tier of the Great Lakes and all of Michigan for June. Large surface fuels (i.e., 100-hour and 1000-hour fuels) currently have significantly below average fuel moistures and are trending towards historical lows for this time of year. The amount of consumption of these large fuels reported on fires and prescribed burns is not typical for the beginning of summer. The area experienced a short spring switching rapidly from winter conditions to summer-like conditions and although green-up has occurred, herbaceous fuels are already starting to dry out. Precipitation in the form of isolated showers and thunderstorms will increase chances for lightning caused fires and holdovers. Areas of sandy or rocky soils are drying out quickly and of concern. Areas with pine forests are still within the "spring dip" where live needle moisture is decreased, and new growth is extremely flammable. The potential exists for above normal fire activity for this time of year, with long-term or deep-burning fires not expected until later in the summer unless precipitation occurs at normal or above normal levels during June and July.

The northern interior of the Northeast has had similar trends as the Great Lake States, but recent precipitation events have alleviated conditions for now. Outlooks show chances of above normal temperatures for this area in June, July, and August. In the absence of normal precipitation through the summer, above normal significant fire potential is forecast in July and August. Near normal significant fire potential is expected across the majority of the Eastern Area through summer into early fall. Above normal significant fire potential is forecast over the northern and eastern tiers of the Great Lakes into June and across much of the northern tier of the Eastern Area July into August.

Southern Area

Widespread drought relief has been the main weather story across the Southern Area during May, with the U.S. Drought Monitor showing two to three category improvements across large parts of Texas, Oklahoma, Florida, and Virginia. Longer-term drought that led to some volatile pocosin fuels along the East Coast earlier this spring is all but gone after low pressure produced widespread heavy rain in the Carolinas during the last week of May. Some dryness lingers along the Gulf Coast, including the far western Florida peninsula where severe to extreme drought was still in place as of May 23.

With El Niño a near certainty this summer, confidence is increasing in normal significant fire potential throughout the Southern Area from June through September. Areas of concern could still emerge across the region later in the summer, especially if central and eastern Pacific waters become historically warm, resulting in a Super El Niño. If this were to occur as some guidance is explicitly forecasting, prior year analogs are suggestive of drought expansion along the Gulf Coast from Texas to Florida, to include the Lower Mississippi Valley, in addition to portions of the Southeast Coast and Texas mountains. While dry periods are likely to start the summer off farther north from Arkansas to the Appalachians, below normal temperatures may be prevalent into late summer in these areas, lowering the potential for significant, long-term drought and its associated fuel dryness.

Despite the significant drought relief across Texas and Oklahoma, where below normal fuel loading led to a below normal spring fire season, recent abundant rainfall is allowing for green-up to expand into the Plains and portions of the Texas mountains. This wet pattern may continue into mid-June before a drier period develops later in the month. Predictive Service's internal seasonal outlook generally agrees with the CPC's extended outlook, with a lackluster true monsoon perhaps leading to drought development or expansion into west Texas and Oklahoma later in the summer. Should this occur, drought-cured newer grasses could lead to some increase in significant fire potential for both states, especially if any longer-term drought stress persists in mixed fuels or triple-digit heat waves develop this summer. Confidence is too low to show anything other than normal potential there for now, especially given that some long-term tools suggest normal precipitation on average June through September.

Puerto Rico and the U.S. Virgin Islands continue to see areas of moderate or worse drought conditions now, and St. Croix has seen extreme drought materialize in recent weeks. Driven by the expected El Niño, seasonal outlooks from NOAA and Colorado State University are favoring near to below normal tropical cyclone activity across the Atlantic basin this season. This unfortunately does not guarantee that the islands or coastal areas of the mainland U.S. will miss out on impacts, and that adds a level of uncertainty to any extended outlooks such as this. The Caribbean's rainy season, which reaches its peak during the June-to-September period, typically sees below normal rainfall and above normal temperatures during El Niño conditions. Periods of abnormal fire activity and behavior are certainly possible there through the forecast period, but confidence is too low in timing out this potential, so normal conditions are forecast for now.

It is perhaps too early to speculate, but the upper-level pattern in early fall may lead to early-season freezes across parts of the geographic area, mainly from the Mid-Mississippi Valley to the Mid-Atlantic, due to a persistent and anomalous trough aloft over eastern North America. If this occurs, the associated leaf drop in hardwood-dominant areas has the potential to lead to an earlier than normal start to the fall fire season. It is far too early to have any confidence in this scenario, but if it were to occur, impacts would most likely be after this forecast period and will be addressed further on next month's outlook.

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