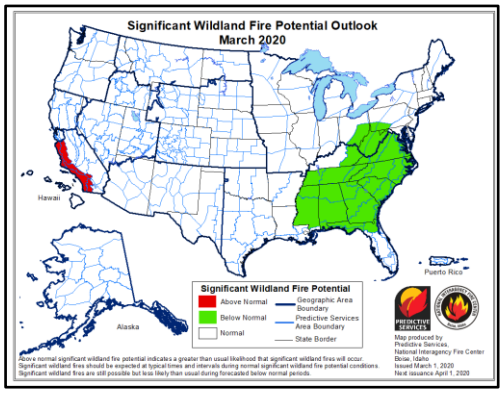
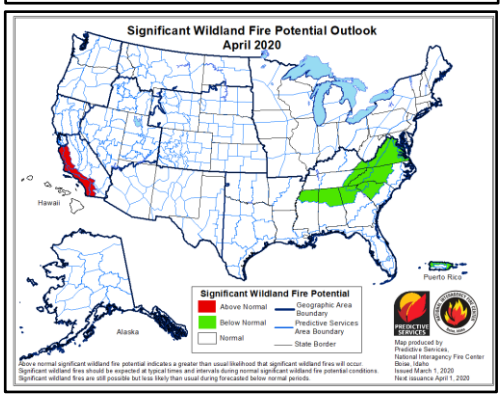
National Significant Wildland Fire Potential Outlook

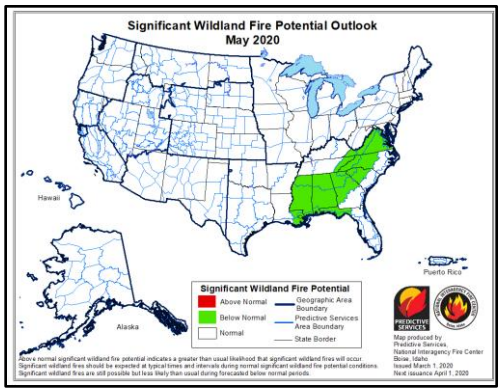
Predictive Services
National Interagency Fire Center

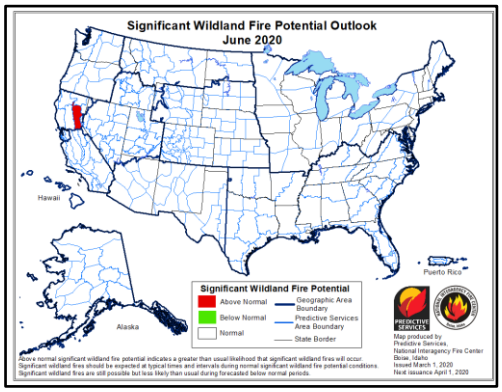
Issued: March 1, 2020
Next Issuance: April 1, 2020

Outlook Period – March, April and May through June 2020









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.

National fire activity remained low in February as most of the country remained out of season. The previous month's progressive weather patterns stabilized as most locations along the West Coast became increasingly impacted by persistent high pressure ridges that promoted very dry conditions across California, northern Arizona, and the western Great Basin. Many locations across these areas received less than 25% of average precipitation for the month. Further inland, persistent troughs of low pressure promoted generally cooler than average conditions with above average precipitation along the Continental Divide. In the East, the presence of persistent troughs over the Great Plains promoted a warm and very moist southwesterly flow pattern. Most locations away from coastal areas received between 200% and 400% of average precipitation. Temperatures were nearly 6 degrees above average region-wide.

Mountain snowpack remained near to above average along the Canadian Border and Continental Divide. While the higher elevations across the northern Great Basin and eastern Oregon generally fared well, there were some areas that remained below average across southwestern Oregon and the Sawtooth Mountains of Idaho. The central and southern Sierra Nevada Mountains of California and Nevada continued to lose ground under very dry conditions. By month's end, several basins were reporting between 45% and 55% of average snowpack. In Alaska, the snowpack across the Interior was well above average while on the Kenai Peninsula and across the Chugach Mountains it improved to be between 57% and 100% of average.

Entering March and continuing through April, the prolonged periods of dry conditions across Southern California may lead to periods of elevated fire potential during days experiencing offshore winds. However, a muted greenup should initially limit activity. Normal to Below Normal significant large fire potential is expected along the Rocky Mountain Front during the pre-greenup period due to sufficiently wet or snowy conditions experienced during late winter.

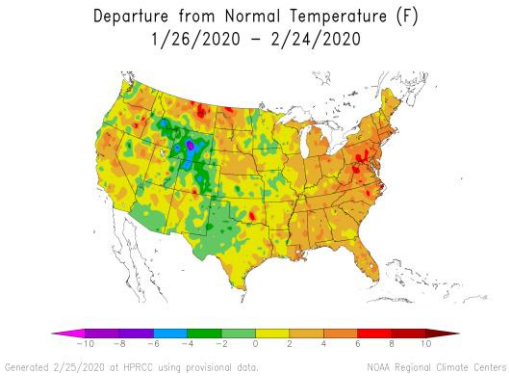
Both the Southwest and Alaska will gradually transition into fire season in May with both regions peaking in activity by late June. Overall Normal significant large fire potential is expected during the period except possibly across northern and western portions of Arizona and across portions of South Central Alaska including the Kenai Peninsula where conditions were drier than average over the past winter.

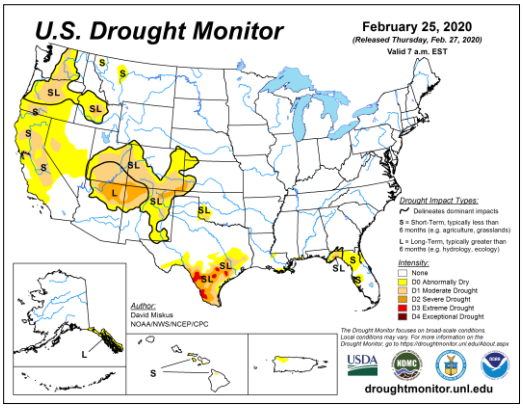
Past Weather and Drought

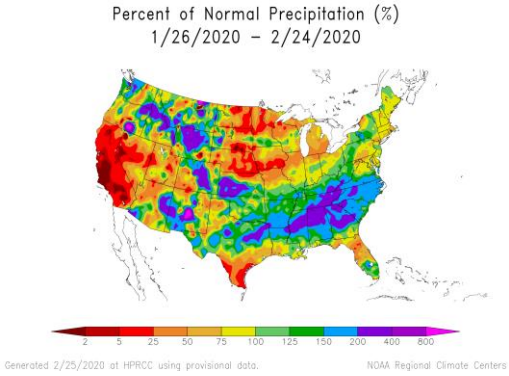
Despite the presence of persistent high pressure ridge events along the West Coast, temperatures generally remained within a couple degrees of average across the West in February. A northerly wind flow along the Continental Divide allowed for slightly colder temperatures across Wyoming and eastern Colorado. Near average temperatures were observed across the Great Plains, while in the East, an overall southwesterly flow led to temperatures that were 2 to 9 degrees above average. Temperatures across Alaska were colder than average, especially across the state's Interior where temperatures of -50 degrees or colder were observed several times.

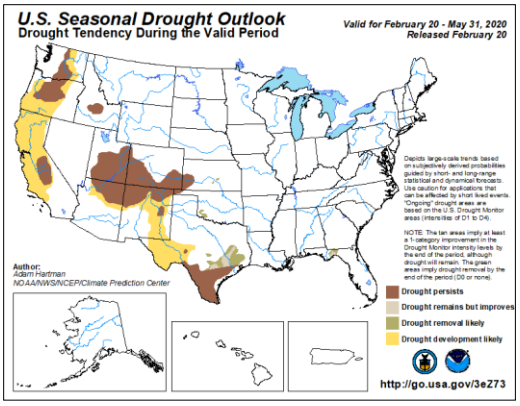
Precipitation received showed even greater contrasts that what was observed in January. Most of California, central-southern Nevada, and northwestern Arizona received less than 25% of average precipitation for the month. Similarly, a majority of the central through northern Great Plains through the upper Midwest received less than 50% of average precipitation. South Texas remained dry having received just 25% to 50% of average rainfall. Meanwhile areas along the Continental Divide received between 150% and 400% of average precipitation. Most of the Southeast received at least 150% of average precipitation. Strikingly, large portions of the Southeast received between 200% and 400% of average precipitation.

Gradually increasing areas of Drought intensification were observed across California, Nevada, and South Texas. Drought reduction was observed across portions of the Pacific Northwest, southwestern Wyoming, and along the eastern coastal areas of the Carolinas. There was a small area of drought intensification observed across the Ochoco Mountains in Oregon. Latest drought outlooks suggest that drought intensification and expansion is expected to occur across Northern California and Oregon possibly reaching into southwestern Idaho. Drought reduction is expected across Texas and along the eastern slopes of the Washington Cascades.









Left: Departure from Normal Temperature (top) and Percent of Normal Precipitation (bottom) *(from High Plains Regional Climate Center).* **Right: U.S. Drought Monitor (top) and Drought Outlook (bottom)** *(from National Drought Mitigation Center and the Climate Prediction Center)*

Weather and Climate Outlooks

Sea surface temperature (SST) anomalies along the equator indicate that warmer than average but still ENSO Neutral conditions continue across the equatorial Pacific Ocean. A very slight, barely discernable cooling trend appears to be beginning east of region 4.0. Overall, little change in temperatures has been observed since last month's outlook. Temperatures in region 4 are in line with previous months' values and not showing an upward or downward trend.

The outlook for ENSO calls for a continuance of neutral conditions through the spring of 2020. In comparison with previous months' forecasts, the expected gradual cooling of the surface waters is slightly more accelerated. Overall impacts of this on weather patterns are minimal during the outlook period, but could become significant if a weak La Niña were to begin developing by late summer or early fall by allowing for warmer and drier than average conditions to develop across the Pacific Northwest and Northern Rockies during the climatological peak of the fire season. Current model runs do not suggest the development of a La Niña.

Geographic Area Forecasts

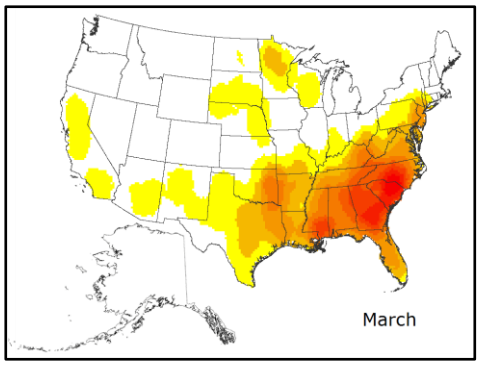
Alaska: Normal significant large fire potential is expected during the outlook period.

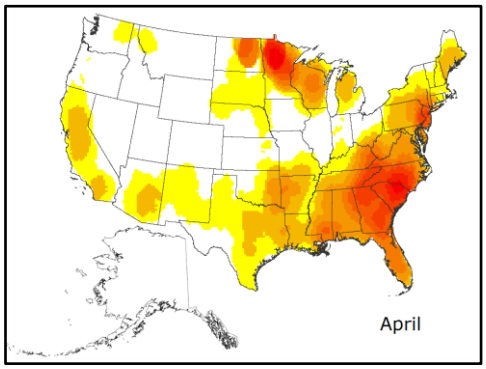
Through most of March, Alaska will be blanketed with snow and out of fire season. Melting of the snowpack typically begins in late March to early April, starting at lower elevations of the Interior and southern Alaska before spreading towards higher elevations. As snow melts, there is an increased risk for fire starts along the road system, with cured grasses from last season being a primary source of fuel for wind-driven fires. By late May and into June, green-up ensures fine fuels become less of a problem, while the boreal spruce forest will dry enough to support more persistent fires on a larger part of the landscape. June holds the heart of Alaska's fire season with larger lightning-start fires in more remote areas quickly racking up the acreage.

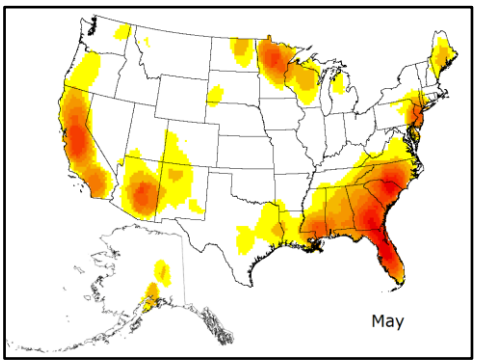
The Drought Monitor shows Abnormally Dry conditions persisting over the Southeast Panhandle and into South Central Alaska. The Panhandle has had decreasing drought conditions as they continue to receive above average snowfall this winter. Most of the rest of the state has had a fair amount of snowfall this winter, and with cold temperatures, is holding a good snowpack.

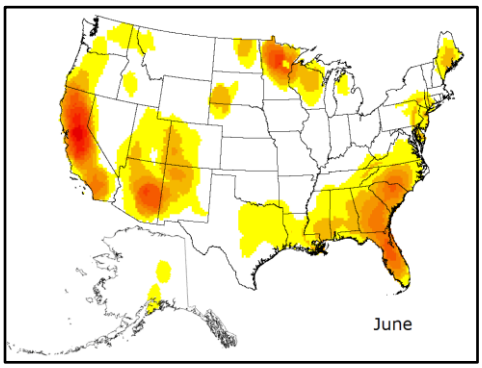
Alaska is generally out of fire season through March. Throughout April, snow will begin melting across larger areas, bringing parts of the Interior and southern Alaska into early fire season. At this time, the beginning of fire season is expected to be normal.

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









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)

Precipitation totals were less impressive over most of the region in February 2020 than what was observed in January. Western Washington along with the higher elevations of southeastern Washington and northeastern Oregon recorded above average precipitation during

February. However, the rest of the region recorded drier than average conditions. The dryness for February was particularly evident across central Washington, central Oregon, and along Oregon's border with California and Nevada. Temperatures were mixed during February. Near to slightly below average temperatures were observed across much of western Oregon and Washington. Northeastern Oregon also experienced cooler than average conditions.
Snow continues to accumulate in the higher elevations of Oregon and Washington, especially in the Washington Cascades and across northeastern Oregon. The Oregon Cascades are not doing as well as the northern portion of the mountain chain located in Washington. Most basins continue to experience below-average snowfall, especially across southwestern Oregon.

Fire danger indices remain too low for noteworthy risk of naturally ignited wildfires. However, precipitation received in March is expected to be less than average across Oregon and Washington. This could prove problematic during dry and breezy conditions that may develop prior to greenup. Units planning broadcast burns should stay aware. There is no discernible tendency for temperatures in March. Dry and warm conditions are expected to be the most likely scenario for the period April through June as well.

Burning opportunities may become available at low and middle elevations earlier than usual in March 2020, particularly in southern Oregon.

Northern California and Hawaii: Normal significant large fire potential is expected across the region through May except across the lee sides of the central Hawaiian Islands where Above Normal Significant Large Fire Potential is expected. Above Normal significant large fire potential is expected in the Northern Sierra PSA below 6000 feet in June while Normal potential is expected elsewhere.

Precipitation in February was well below average. In many areas it was the driest February on record. Seasonal precipitation and the mountain snowpack across the region are now well below average seasonal values for March 1. The precipitation that occurred from late November through January has led to a new crop of green grass to the west of the Cascade-Sierra crest at elevations below 2500 feet in the north and 3500 feet in the south. Snow coverage is fairly continuous above 6500 feet, even though the depth and water content are well below average. The outlook calls for warmer and drier than average weather through June, although brief periods of cool, wet weather are still expected into early June. New ignitions are expected to occur more frequently than usual during the outlook period. But, at lower elevations the new green grass crop will aid fire fighters in quickly gaining control of any new ignitions. It is the middle elevations (3000-6000 feet), especially east of the Cascade-Sierra crest, that will continue to be the most vulnerable to fire spread. This elevation range is generally free of snow cover and a new green grass crop, and the dead and dormant fuels there will be sufficiently dry to carry fire any time 1-2 precipitation-free weeks pass. Significant fire potential will be slightly higher in these areas, but still at the upper end of the Normal range.

Significant Fire Potential remains Normal in all areas through May. In June it is likely that the snowpack will have completely melted off, a full month earlier than usual. Also, the first precipitation of the 2019-2020 rainy season had very low snow levels, so dry fuels and soils can be found under the blanket of the snowpack. This means that there will be even less beneficial runoff in the late spring and early summer, which will lead to an earlier date of critical fuel dryness at middle and high elevations. Typically, the Northern Sierra PSA remains quiet fire-wise in June, but areas below 6000 feet in that PSA have Above Normal significant large fire potential in June, and higher elevations will follow in July. The dry outlook means that the low elevation fine fuel crop will likely be lighter than average. Even if these fuels cure out earlier than usual in May and early June, new ignitions will be easier to control compared to the recent 4 years with above normal annual grass crops. Significant Fire Potential remains Normal for all other areas in June.

Sea surface temperatures (SSTs) surrounding the Hawaiian Islands are warmer than average, and the warm SSTs are expected to continue through June, leading to above average temperatures in the region. Rainfall has been mixed in recent months, but generally below average on the leeward sides of the central islands and closer to average elsewhere. The Drought Monitor for Hawai'i shows a similar pattern. The exception is that local reports indicate wetter conditions across the Big Island while the Drought Monitor

continues to show dry/drought areas in the north and northwest portions of the Big Island. Rainfall is expected to be near to above average across the region through June, but the lee sides may not receive enough to reduce the fire potential there. From March through June Significant Fire Potential is Above Normal on the lee sides of the central islands and Normal throughout the remainder of Hawaii.

Southern California: Normal significant large fire potential is expected across the region during the outlook period except across the coastal areas and adjacent ranges in March and April when Above Normal significant large fire potential is expected.

A ridge of high pressure off the California Coast has been the dominant weather feature since the beginning of January. Storms have been moving up and over this ridge into the Pacific Northwest and then either off to the east over the northern tier of States or down into the Great Basin and Desert Southwest. Very little precipitation has fallen across Central and Southern California since the beginning of January. Most locations have received less than 30% of their average rainfall. The snowpack in the Sierra is around 50% of average for this time of year, and almost all of this snow occurred between Thanksgiving and Christmas. Maximum temperatures were well above average over the last 30 days. The lack of precipitation during the two wettest months of the year has caused moderate drought over the Sierra and abnormally dry conditions across most of the rest of Central California and the northern portions of Southern California. The dead fuel moisture levels are well below average across the entire region with many areas reporting record or near record low values.

Expect very little change in conditions through April. The above average sea surface temperatures in the Gulf of Alaska will most likely cause the blocking high off the California Coast to remain in place. Very few storms will be able to penetrate the ridge and those that do will have less moisture to work with. Therefore, well below average rainfall and above average temperatures are expected to continue through April. Due to the lack of significant rainfall, fine fuels are curing rapidly across the lower elevations and will be completely cured by the middle or end of March. There will be an above average potential for large fires across the lower elevations of the Central Coast and Southern California due to the early curing of fine fuels. A near average amount of offshore wind events will most likely continue to occur through April. These winds will fan any new ignitions and rapid rates of spread and long range spotting will be likely in continuous dead fuel beds. The potential for large fire development will become Normal across all of Central and Southern California May and June as the interior warms up and the offshore wind season comes to an end. The below average sea surface temperatures off the California Coast will cause the marine layer to be deeper than average. This ocean cooled air will be forced inland and below average temperatures are expected in May and June.

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

Overall the preceding month brought warmer than average conditions across the entire region, most strongly along and east of the Continental Divide in Montana. This was caused by the passage of several strong upper troughs from the west and northwest, which pushed fairly mild maritime air from the Pacific eastward. However, behind these systems, colder air and some snowfall helped to replenish snow cover over most of the Plains region, though it remained thin at the lower elevations of central Montana, and over most of eastern Montana and western North Dakota. Snow cover remained thick and persistent over eastern northern Dakota, carrying over from much colder periods earlier this winter. Northern Idaho and western Montana experienced near to slightly above-average precipitation, and snowpacks in the western areas continued to accumulate, and are solidly above-normal in basin-average SWE. Northern through central Montana and most of North Dakota were substantially drier than average during the past month, but the southern half of central Montana, and most of eastern Montana received near to above-average precipitation. The latest NWS Climate Prediction Center Drought Monitor depicts a small area of Abnormally Dry conditions across central Montana, but the monthly and seasonal drought outlooks remove this, suggesting the region will remain drought-free through May.

NWS Climate Prediction Center outlooks for March through May depict the likelihood of near-average temperatures and precipitation across northern Idaho and western through central Montana, and across

eastern North Dakota. Sandwiched between is an area of below average temperature probability and above average precipitation probability for eastern Montana and western North Dakota.
Live vegetation is dormant region-wide, as is typical for this time of year. Occasional short-term windy periods (1-3 days) have continued to keep fine dead fuel moisture and 100 and 1000 hour dead fuel moisture values generally below average east of the Continental Divide in central through eastern Montana. Larger areas of these fuels are exposed now due to recent snowmelt, and current short-term modeling suggests more melting will occur over larger areas of central through eastern Montana and western North Dakota through the first week of March. With the forecast outlooks of near average temperature and near to above average precipitation probabilities, there is moderate confidence that fuels conditions will not become extremely dry for extended periods during the Plains pre-greenup season in March and April. As well, a healthy green-up without extreme dryness and drought stress is expected in May and June. Currently, with near to above average water content exists in the mountain snowpack. Given the long range outlooks, spring melting should occur at an average rate in April and May, leading to typical seasonal dryness levels in June in dead fuel moistures, and healthy greenup and growth in the live fuels, given that drought stress is not forecast.

The timbered areas of northern Idaho and western Montana with their complex topography, and stable valley inversions are considered out of season during March, and April. Then by mid-April and May snowmelt timing and rate will largely determine the timing of fire season onset in those western areas in June. These are expected to occur at typical levels through the outlook period.

For the eastern areas on the plains of central Montana eastward into North Dakota some years have more frequent extended periods of warm dry and windy conditions and enhanced pre-greenup fire potential. This year, there appears to be adequate soil moisture levels. In addition, cool temperatures are expected. This should preclude any rapid drying of fuels.

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

Temperatures across the majority of the Great Basin have been above average over the past 30 days, with the exception of eastern Utah, and central through eastern Idaho into Wyoming, where temperatures have been below average. Precipitation has been less than 25%-50% of average across most of Nevada, Utah, and the Arizona Strip and up to 150%-200+% of average over central and eastern Idaho into Wyoming. Precipitation since October 1, 2019 has been below average across all but the far southern tip of the region accounting for wetter weather in November and December in that region. Moderate drought continues over the southern two thirds of Utah, with abnormally dry conditions observed further west across Nevada and into portions of central Idaho. Cold fronts that have moved through the region over the past month have brought cooler temperatures at times to most of the region but have only brought moisture to the northern one third of the region.

Fine fuel loading is still 100%-300% of average across the region, and most above average over parts of the lower elevations of the northern two thirds of Nevada and Utah. Higher fuel loadings have been patchier across southern areas. These fuels have transitioned to dormancy in most areas and will remain in dormancy for the next month or so over the northern two thirds of the region. In the far south, some greenup and germination has been observed.

The recent warm temperatures are expected to trend closer to average seasonal values, or even a little cooler than average toward May and June over the western and northern half of the region. Seasonal warm temperatures will likely continue over southern areas. The storm track is expected to dip further south in March with colder storms bring cooler temperatures and some moisture even to the southern areas of the region. Wetter weather may finally start to emerge by April and May across parts of the region, with the highest probability of impacts in April, then tapering from east to west through May and June. Low pressure systems and cold fronts are expected to continue to move through the region periodically through March into April bringing periods of breezy winds, cooler temperatures, and precipitation. There may be a better chance for wet weather to move into southern areas of the region more consistently through March and into April. When stronger pre and post frontal winds occur after periods of warm and dry weather, or when prolonged dry weather lingers, through the winter and spring, the winds may briefly increase fire

potential if there are ignitions in continuous beds of fine fuels across the lower elevations of Nevada and Utah. However, this would last for one or two burning periods, and would quickly subside when winds decrease and cooler/moist weather returns. Otherwise, Normal significant large fire potential is expected through May, meaning minimal fire activity.

From late May into June we may see fire potential start to increase across parts of southern Utah into the Arizona Strip, depending on how much moisture is received during April and May over those areas. The carryover fine fuels from 2019 will likely be a concern for fire starts, along with any new growth if we see some wetter conditions in April, then see a dry and warm pattern develop later in May and June. The above normal fine fuel beds from 2019 were variable over the southern region, so new growth will need to be monitored over the next two months.

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

as precipitation, the eastern half of the region has been wetter than average over the past two months with the wettest areas being along and near the Continental Divide region as well as across parts of central and eastern New Mexico. Northwestern and western Arizona have been drier than average over the past two months having generally received around 75% of average precipitation.

Oceanic conditions will oscillate between neutral conditions and an El Nino Modoki event over the next few months before possibly turning into weak La Nina type conditions by the late summer months into the fall. Overall, this type of oceanic setup means that average high temperatures will generally be average to above average and precipitation near average through late spring with periods of significant variability across the region.

Although “variability” will be the key takeaway this spring, a West Coast ridge of high pressure is expected to be a mainstay this spring along with an active subtropical jet at times protruding into and out of the region. There are some indications that areas along and west of the Continental Divide will be wetter than normal during March and April. This could be followed by a period of drier than average conditions east of the Continental Divide in May and June.

Normal significant large fire potential is expected during the outlook period at this time, but there is some degree of uncertainty due to ambiguity in the long range data. However, a few areas of the region may be bumped up to Above Normal potential over the next month two as the models come into better focus. Areas that bear watching more closely are parts of the deserts of southern Arizona and parts of the northern tier of the region.

Long term forecast models suggest a likelihood that the summer monsoon may be stronger than normal across most of the region except possibly eastern New Mexico and West Texas where drier conditions may persist.

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

During February a colder and wetter than average pattern expanded across Wyoming and most of Colorado. Average temperatures were observed across southwestern Colorado and also the central to eastern portions of South Dakota and Nebraska, where it was also much dryer than average. Long range precipitation deficits (60 through 90 days) were most evident across western through southwestern and far southeastern Colorado. The Drought Mitigation Center portrays areas that have been in drought (western and southern Colorado, southwest Kansas) on an improving trend.

There is a robust grass crop in the lower elevations east of the Continental Divide with significant fuel loading; however, there has been compaction of these fuels due to snowfall at times, especially in the north and far east. These grass fuels across the plains typically become increasingly available to burn on average during March into early April when pregreen through green conditions coincide with a climatological increase in warm, dry, and windy periods. Otherwise, fuel indices across most measuring

sites in Colorado, Wyoming, and the Black Hills of South Dakota are out of season and/or under snow cover.

Short term weather models through early March indicate a shift into a variable weather pattern. Expect periods of warm and windy conditions interspersed between occasionally cool weather with opportunities for precipitation (mainly snow). Long range weather forecasts for March through June are in general agreement showing average temperatures and precipitation with a variable/shifting pattern and no sustained warm or dry pattern. The greatest consensus between statistical and computer model forecasts, driven in part by a neutral El through Nino/La through Nina cycle, show cooler and wetter than average conditions in the northeast portion of the geographic area and warmer and dryer than average in south, especially from late spring into early summer

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

30 day soil moisture and precipitation anomalies were near to above average across the majority of the Eastern Area towards the end of February. Some medium range drying developed through February across parts of the northwestern Great Lakes.

Warmer than average conditions are forecast across the southern tier of the Eastern Area in March. Wetter than average trends are forecast over portions of the western tier of the Eastern Area with drier than average conditions over parts of the eastern tier in March. A transition to a warmer than average weather pattern is forecast over parts of the northern tier with cooler temperatures over parts of the southern tier in April. Areas of wetter than average conditions are forecast April into June.

Near to above normal fuel moisture levels and fire danger indices were indicated over much of the Eastern Area towards the end of February. The spring fire season is may begin later than normal across portions of the region if forecast wetter than average conditions develop in the late winter and spring.

Southern Area: Normal to Below Normal significant large fire potential is expected across the region during the outlook period.

Ocean temperatures in the tropical Pacific continue to remain in a “neutral” ENSO state and is expected to remain in so through Spring and likely into early summer. This situation, along with other more intraseasonal and higher frequency varying atmospheric factors (like the Madden-Julian Oscillation), should result in average to above average precipitation trends in most areas. Episodic rain events lasting several days are expected to continue to impact central and eastern portions of the region through March. Exceptions to this may continue to be western Oklahoma and portions of Texas where conditions have been predominately drier than average through the winter.

With the continuing exception of persisting limited areas of persisting drier than average fuels in western Oklahoma and primarily West through South Texas, fuel moistures over winter through February have trended and remain well above critical thresholds and are very moist (FMs GTE 22-25 with some at/near 30%). The one exception is West and South Texas where seasonal patterns of dry and breezy conditions are likely to produce episodes of elevated to higher fire potential with an added potential for increased spread rates.

Fire activity again during February was minimal. Normal to Below Normal significant large fire potential is expected to continue into the spring across the region.

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**