

North American Seasonal Fire Assessment and Outlook

National Interagency Fire Center • Natural Resources Canada • Servicio Meteorológico Nacional
United States Canada Mexico

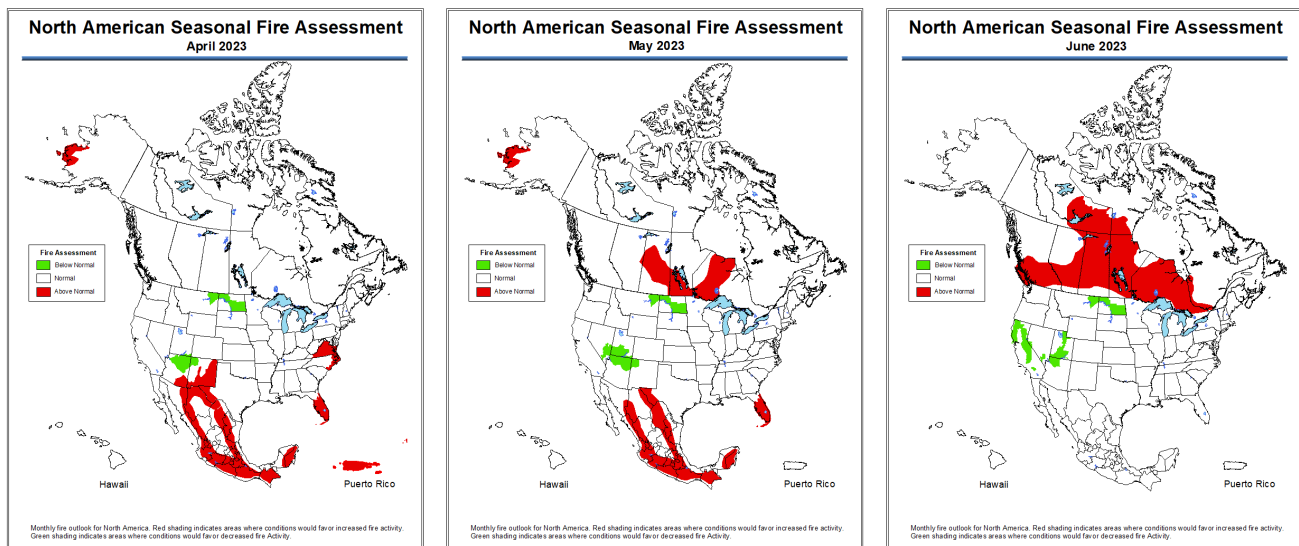
Outlook Period April through June 2023
Issued 14 April 2023

Executive Summary

Upper-level atmospheric blocking occurred in early March in the eastern Pacific and north Atlantic to eastern Arctic regions. The Pacific block allowed storm systems to track southward along the coast, keeping cold air and occasional snow locked into western Canada through most of March. This resulted in a cold month in most of western Canada, with only small pockets of the southern interior and coastal British Columbia, and northern Alberta warmer than normal. Above normal temperatures were also recorded in the Arctic, southern Ontario, all of Quebec away from the Hudson Bay coast, and across the Atlantic Provinces.

This pattern was also dry, which limited snow accumulation, although the snowpack remained deep in many regions, with areas of shallower snow in southern British Columbia through Manitoba, and in northwestern Alberta. Moist conditions occurred along the Rockies, which were often between Pacific and Arctic airmasses. Southern parts of the Prairie Provinces also received periodic precipitation as storms moving through the US occasionally brushed along the 49th parallel. Above normal precipitation fell in southern Ontario, western and central Quebec, and in pockets of Labrador and northern Newfoundland, while the southern Atlantic regions remained drier than normal.

The upcoming fire season in Canada may partly result from the transition speed of atmospheric/oceanic indexes and teleconnections. Currently the north Pacific Ocean surface temperatures reflect a negative Pacific Decadal Oscillation with cooler water along the coast. While this often occurs with a La Niña, the ENSO values have rapidly climbed into the neutral zone, but the North Pacific may take time to respond. This may help keep temperatures a bit cooler than normal in western Canada over the spring, but a change in north Pacific Ocean temperatures could moderate or overcome a cooling influence.



Monthly fire outlook for North America for April 2023 (left), May 2023 (middle), and June 2023 (right). Red shading indicates areas where conditions would favor increased fire activity. Green shading indicates areas where conditions would favor decreased fire activity. *Click on each image to see larger versions.*

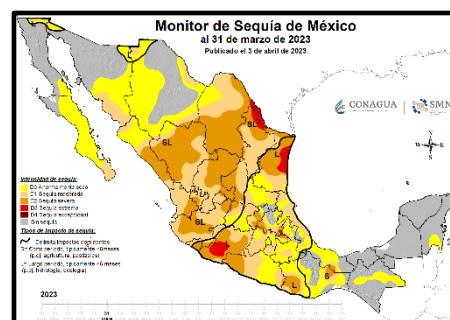
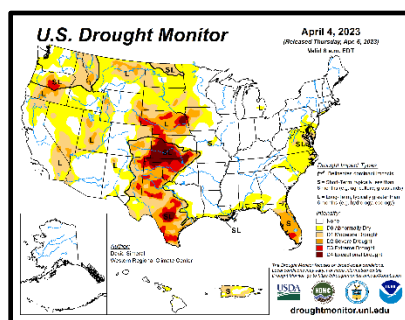
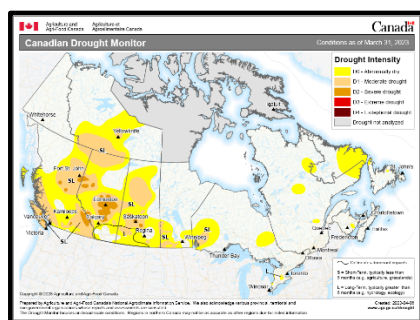
Significant fire activity remained minimal across the West Coast into the Great Basin and northern Rockies March into early April, but increased in the Southwest, Rocky Mountain, and Southern Areas. Wet storms continued to impact the West Coast into much of the Rockies and northern Plains through early April, but the southern Plains, Gulf Coast, Florida, and Mid-Atlantic had precipitation deficits. The driest fuels continued across much of the southern High Plains into the Rio Grande Valley, with rapidly drying fuels in Florida and the Mid-Atlantic states. Drought reduction continued through March across much of California into the Great Basin. However, drought continues across nearly 30% of the country, with the most intense drought continuing on portions of the southern and central Plains.

Above normal significant fire potential is forecast across the Florida Peninsula, far west Texas, and southwest Alaska through May, with above normal potential also expected in southeast Arizona, southern New Mexico, eastern North Carolina, and much of Virginia in April. Below normal potential is expected across portions of the Four Corners area in April, expanding into the higher elevations of the Great Basin in May and June. Below normal potential is forecast across portions of the northern Plains April through June, and across most mountain ranges in California in June.

Fire activity typically increases during April and May for almost all of Mexico, which is the period that high pressure tends to be dominant over central Mexico. So far this fire season, activity has remained near normal, and it is expected to be slightly above climatology during April into May. In June, with the beginning of the wet season, the number of fires decreases, except for some western and central states where the activity continues.

Critical Factors

The critical factors influencing significant fire potential for this outlook period are:



Left: Canadian Drought Monitor from *Agriculture and Agri-Food Canada*. **Middle:** United States Drought Monitor. **Right:** Mexican Drought Monitor from *CONAGUA-Servicio Meteorológico Nacional*.

El Niño-Southern Oscillation (ENSO):

El Niño Southern Oscillation (ENSO) neutral conditions are now observed in the equatorial Pacific Ocean, ending the nearly three-year long, triple dip La Niña. However, the tropical Pacific atmosphere is still consistent with a weak La Niña. Rapid warming has been observed in portions of the ENSO region, especially just off the northwest coast of South America, leading to above normal sea surface temperatures in the ENSO 3 and 1+2 regions. Most forecast guidance depicts continued warming through spring into summer, with El Niño conditions possible if not likely by the end of summer. While some climate models forecast El Niño conditions by the end of spring, the Climate Prediction Center (CPC) and most models forecast neutral conditions to continue through early summer. 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. Multiple active phases of the MJO this winter into spring, including a very strong MJO in March, have significantly affected weather and climate, especially the western US.

Drought:

A large dry expanse, composed of abnormally dry to severe drought conditions, remains in western Canada. The overall region displaying drought has not changed much since the end of February, with various drought categories still existing across most of British Columbia, Alberta, and Saskatchewan. A branch of drought now extends eastward across southern Manitoba and into western Ontario, joining

west and east areas that were separated at the end of February. In central British Columbia, the abnormally dry region shrank, while severe drought increased across southern Vancouver Island. A northern extension of the western Canadian drought area still reaches across the central Northwest Territories to the Nunavut border southeast of Great Bear Lake.

Patchy drought remains between western Ontario and the Atlantic Provinces. The largest area covers southeastern Labrador, extreme eastern Quebec, and the northern tip of Newfoundland. A small abnormally dry area has appeared in south central New Brunswick. Frequent precipitation has improved portions of the southern Ontario drought, with small abnormally dry patches remaining between Lakes Huron and Ontario and the most easterly region containing a small area of moderate drought.

Drought improved across most of the West, including two class improvements in most states, but drought did expand and intensify slightly in portions of northern Oregon and eastern Washington. Drought expanded and intensified in much of Texas, along the Gulf Coast, on the Florida Peninsula, and in portions of the Mid-Atlantic. Drought improved across the northern Plains and in Lower Michigan. Extreme to exceptional drought remains in portions of Texas, western Oklahoma, southern and western Kansas, and in portions of Nebraska.

In the first half of March, above average rainfall was observed over northwestern, eastern, central, and southern regions of Mexico, including the Yucatan Peninsula. The rain was from the passage of three cold fronts and a winter storm in northwest Mexico. This precipitation resulted in the reduction of abnormally dry conditions and moderate drought in Baja California, San Luis Potosí, Querétaro, Hidalgo, Puebla, southeast Veracruz, Oaxaca, Chiapas, and Quintana Roo. Otherwise, the presence of high pressure over most of the country, resulted in clear skies and temperatures warmer than normal. The moderate to extreme drought areas persisted on the southern and central portions of the country, and increased over the northern, northeast, and western states of Mexico. As of March 15, moderate to extreme drought extended across 51% of Mexico, slightly greater than observed February 28, 2023.

Fire Season Status:

Fire activity has been generally absent across Canada, with ample snow cover in most regions. Conditions are changing in British Columbia's southern interior and coastal regions, where fire weather index calculations are beginning in late March and early April. A few small fires are occurring in this region as April begins.

Significant fire activity gradually increased across portions of the US, particularly in the Southwest, Rocky Mountain, and Southern Areas, through March into early April. The greatest increase in significant fire activity was observed across portions of Oklahoma and Florida in late March. Consistent upper-level trough passages and precipitation kept fire activity minimal elsewhere, especially in the northwestern US. It remains dry across much of the central and southern High Plains into the Rio Grande Valley, with drying conditions along the Gulf Coast, Florida, and Mid-Atlantic. Through April 7, fire statistics showed 9,297 fires have burned a total of 87,752 hectares (217,153 acres), 81% of average for fires and 38% of the average area burned.

So far this year 1,963 forest fires have occurred in 31 states resulting in 47,346 hectares burned. Grass and shrub fires represent 96% of the total, while timber was 4%. States with the greatest number of fires were Mexico City, State of Mexico, Jalisco, Puebla, Veracruz, Tlaxcala, Michoacán, Chiapas, Morelos, and Durango, representing nearly 86% of the total fires. States with the largest area burned were Jalisco, Sonora, Guerrero, Chihuahua, State of Mexico, Puebla, Oaxaca, Nayarit, Chiapas, and Michoacán, representing almost 77% of the area burned. Out of the total fires, 16% occurred in fire-sensitive ecosystems, with a burned area of 16,261 hectares, representing 34% of the total area burned.

Canada Discussion

April/May/June: Seasonal fire weather index calculations are starting, and the number of reporting locations will gradually increase, first in British Columbia and Alberta where snow is gone. This trend will spread to other regions as April progresses. Due to the deep snow cover and late arrival of spring-like temperatures, all of Canada should have normal to below normal fire severity during April.

An area forecast to have above normal fire activity exists from east central Alberta, through central and southeast Saskatchewan, across southern Manitoba, then northeast through western Ontario to Hudson Bay. This area is showing slightly above normal activity in a narrow band, thus fire activity that occurs may not be dramatic. This forecast does not yet include wind influences, a factor in Alberta, the province with the most area normally burned in May. With this consideration, the Alberta area represented with above normal potential could extend farther west than indicated.

The April 1 seasonal forecast predicts a large broken area of above normal activity from southern British Columbia to the Ontario-Quebec border and extending northward to Great Slave Lake in the Northwest Territories. The most intense areas appear to be British Columbia's south coast and interior, where drought has persisted or recently intensified. The remainder of the region is a broken patchwork of normal and above normal areas; thus, most of this region may not have dramatic fire activity. Mid-May to mid-July is normally the wettest period in much of Canada's inland region, so precipitation in this period often dictates how the remainder of the fire season unfolds. The rapid return to ENSO-neutral conditions in early spring may also play a part and if the index stays below El Niño thresholds over the early summer. June may be dry in western Canada, increasing fire potential.

United States Discussion

April/May/June: Below normal temperatures are likely across much of the northern Great Basin, southeast Oregon, and portions of the northern Plains through June. Above normal temperatures are forecast from the Southwest into the southern Plains, Appalachians, eastern Great Lakes, and Gulf and East Coasts, while equal chances of above or below normal temperatures are forecast along the West Coast and in portions of the Rockies, central Plains, and western Great Lakes. Above normal precipitation is most likely from the Tennessee and Mid to Upper Mississippi Valleys through the Great Lakes and central Appalachians to the Mid-Atlantic. Below normal precipitation is most likely across the Southwest into the southern High Plains and in portions of the Pacific Northwest. Drought is anticipated to expand into portions of Texas, New Mexico, and Washington, but drought conditions will likely improve across northern California, Oregon, Great Basin, eastern Montana, northern Plains, and Florida. Drought removal is likely in several portions of the improvement area as well.

Above normal significant fire potential is forecast across southeast Arizona, southern New Mexico, eastern North Carolina, and much of Virginia in April. Above normal fire potential is also expected in far west Texas and the Florida Peninsula in April and May. Below normal significant fire potential is expected across portions of the Four Corners area in April, expanding into the higher elevations of the Great Basin in May. Below normal potential is expected to continue in northwest Arizona and the mountains of the southern Great Basin in June, with expansion into the Wasatch Mountains of Utah and most mountain ranges of California. Below normal potential is also forecast across portions of the northern Plains April through June.

Mexico Discussion

April/May/June: Precipitation during January and February has been below normal across most of Mexico, while March was slightly above normal. The maximum temperature from January through March was above normal across most of the country, except for some regions of the Baja California Peninsula and Sonora, where temperature was below normal due to passage of several cold fronts.

It is expected that precipitation will probably be below normal in Baja California Peninsula, Sonora, Sinaloa, Nayarit, south Durango, Jalisco, Veracruz, Oaxaca, Chiapas, and Yucatan April through June, but above normal in western Chihuahua. For the states in central and southern Mexico, none of the categories will dominate. Temperatures are likely to remain above normal in almost all of Mexico, except

across the western coast of Baja California Peninsula, where below normal temperatures are most likely.

Given the recent temperature, precipitation, and drought trends across the country, along with the precipitation and temperature forecast, fire potential is expected to be near to slightly above normal from April through June in almost all of Mexico. Above normal fire potential would be most prevalent in April and May before the wet season commences.

Additional Information

Additional and supplemental information for this outlook can be obtained at:

United States:

National Significant Wildland Fire Potential Outlook

http://www.predictiveservices.nifc.gov/outlooks/monthly_seasonal_outlook.pdf

Canada:

Canadian Wildland Fire Information System

<http://cwfis.cfs.nrcan.gc.ca/home>

Mexico:

Servicio Meteorológico Nacional

<https://smn.conagua.gob.mx/es/observando-el-tiempo/monitoreo-atmosferico-ambiental>

Outlook Objective

The North American Seasonal Fire Assessment and Outlook is a general discussion of conditions that will affect the occurrence of wildland fires across Canada, the United States, and Mexico. Wildland fire is a natural part of many ecosystems across North America. This document provides a broad assessment of those factors that will contribute to an increase or decrease of seasonal fire activity. The objective is to assist wildland fire managers prepare for the potential variations in a typical fire season. It is not intended as a prediction of where and when wildland fires will occur nor is it intended to suggest any area is safe from the hazards of wildfire.

Acknowledgements

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Ginny Marshall, Natural Resources Canada

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