

North American Seasonal Fire Assessment and Outlook

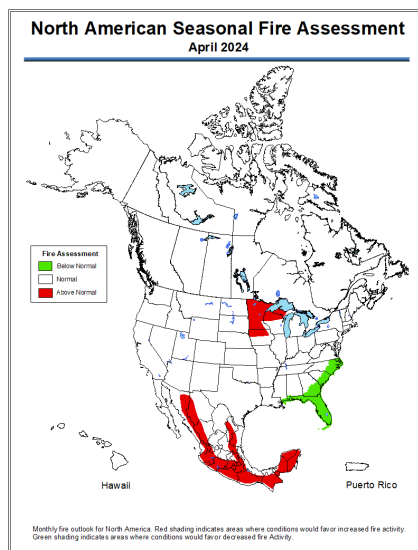
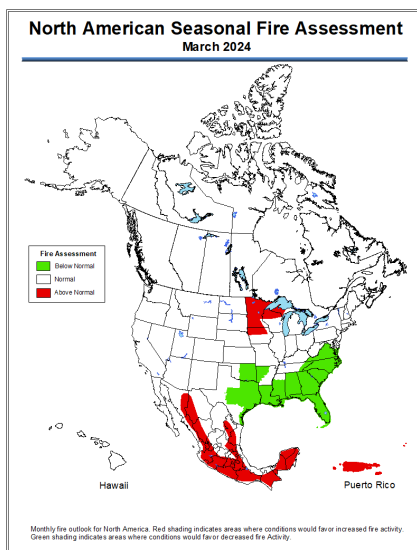
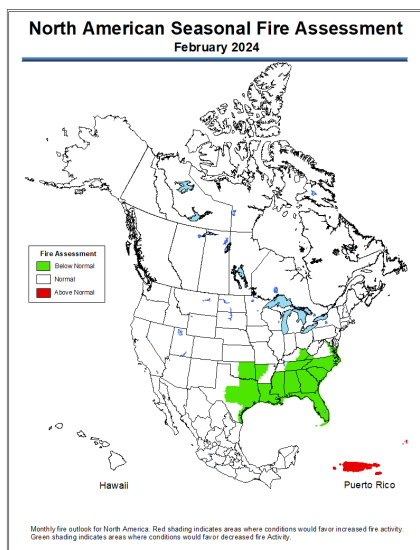
National Interagency Fire Center • Natural Resources Canada • Servicio Meteorológico Nacional
United States Canada Mexico

Outlook Period February through April 2024
Issued 14 February 2024

Executive Summary

Canada experienced seasonal temperatures as January began, with cold weather invading in the second week. Many Alberta locations reached record low temperatures during this cold event before the Arctic air outbreak eased after mid-month, with record high temperatures following in many regions in the Prairie Provinces, Yukon, and the Northwest Territories. Maple Creek in southwest Saskatchewan recorded the province's all-time high January temperature of 21.1 C (70.0° F) on January 30, marking an apparent increase of 63.7 C (114.7° F) from the location's coldest overnight minimum of -42.6 C (-44.7° F) on January 14. Even the Arctic islands had many locations with above normal temperatures in late January. Temperatures in much of eastern Canada remained above normal but lower than in the west, with cold air confined to northern Quebec and Labrador.

The very high temperatures in western Canada followed atmospheric rivers which inundated southern British Columbia with rain, and snow at higher elevations. Some snow fell periodically in southern British Columbia and Alberta, with heavier snow falling along the Alberta/Saskatchewan border in early February. In the east, snow squalls around the Great Lakes provided locally heavy amounts, although much of Canada had light January precipitation, extending drought and preventing formation of a normal snowpack. Very heavy snow fell in eastern Atlantic Canada February 3-5, with record snow depths and record 1- to 3-day snowfall totals recorded in some parts of Nova Scotia. Above normal snow depths are present in eastern Nova Scotia, a slice of central New Brunswick and parts of Newfoundland, but depths remain below normal in most of Atlantic Canada. Snow is also deeper than normal in northern and central Quebec, along the St Lawrence River, in the central and northern Northwest Territories, northern Yukon, and small sections of the Rocky Mountains.



Monthly fire outlook for North America for February 2024 (left), March 2024 (middle), and April 2024 (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.](#)

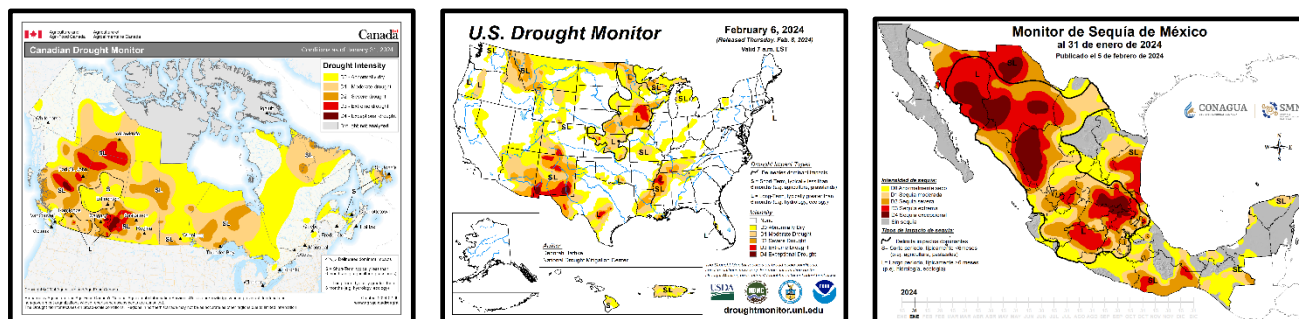
Fire activity was at very low levels across the US to start the year, with a few short-lived significant fires in the Southern Area thus far. Precipitation across the CONUS varied, especially across the West, while much of the eastern US received above normal precipitation. Above normal precipitation was widespread from the central and southern Plains to the East Coast, while the northern Plains and western Great Lakes received below normal precipitation. Temperatures were below normal from the northern Rockies into much of the Plains and Lower Mississippi Valley, while above normal temperatures were most widespread in the Great Lakes and Northeast.

Most climate outlooks depict an El Niño like pattern for the next three months, with generally near to above normal temperatures and near to below normal precipitation across the northern tier of the CONUS and the opposite across the southern tier. Above normal significant fire potential is forecast for Puerto Rico and the US Virgin Islands in February and March, while below normal fire potential is forecast for much of the rest of the Southern Area. Much of the Southern Area will return to normal potential for April, except for areas along the northeast Gulf and Southeast Coasts which will remain below normal. Above normal significant fire potential is forecast across the Upper Mississippi Valley in March and April following what has been a mild and dry winter thus far.

From preliminary data as of February 1, wildfire activity has remained below normal across much of Mexico. Precipitation was above normal in November and December 2023 in central and eastern portions of Mexico, while in January precipitation was below normal across much of the country, which has resulted in severe to extreme drought persisting with some expansion. The weather outlook for February through March is forecast to be warm and dry. Therefore, after a quiet start, fire activity is expected to be above normal in the center, west, south, southeast, northeast, and northwest Mexico during March and April.

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 continues in the equatorial Pacific Ocean, with the warmest sea surface temperature (SST) anomalies migrating from the eastern Pacific to the central Pacific Ocean during the past month. The Madden Julian Oscillation (MJO) has been unusually strong for an El Niño the past month as well. El Niño has also been weakening during January, with current forecast guidance showing a rapid weakening of El Niño into spring. The Climate Prediction Center (CPC) forecasts El Niño will weaken rapidly into early spring, with a 73% chance of El Niño-Southern Oscillation (ENSO) neutral conditions for the April – June period. A lack of previous analogs exists due to this El Niño occurring coincident with other teleconnection patterns that do not normally happen. The MJO, Pacific Decadal Oscillation, Pacific-North American Pattern, and Arctic Oscillation are likely to influence weather and climate during the outlook period, but El Niño will be the main driver.

Drought:

Although most of Canada remains very dry, two large areas of minimal or absent drought were present at the end of January. One area continues to lie between the southern Great Lakes, where drought has

vanished from the northern shores of Lakes Erie and Ontario, and the Atlantic Provinces. A second drought-free area continues to extend from northwestern British Columbia through Yukon and the northern portion of the Northwest Territories, but a small area north of the St. Elias Mountains is still abnormally dry. A drought-free patch in the western portion of Quebec's Ungava Peninsula has expanded to cover the eastern Hudson Bay shore as far south as James Bay. Recent atmospheric rivers driving moisture into south coastal British Columbia have reduced drought levels there.

The remainder of Canada remains in some level of drought, with the most intense area, exceptional drought, still present in a broken area east of Calgary in southern Alberta. Extreme drought surrounds this region and extends into southwestern Saskatchewan. Extreme drought is also present in a broken band from central British Columbia to the Great Slave Lake area in the Northwest Territories with a small patch of exceptional drought developing in central British Columbia near Prince George. The remainder of the country consists of areas of abnormally dry through severe drought.

Temperatures were above normal across the Great Lakes into the Northeast and Mid-Atlantic for January, while temperatures were below normal from the Continental Divide into much of the Plains and Lower to Mid-Mississippi Valley. However, a late January warm spell across the northern Plains into the Great Lakes resulted in temperature anomalies up to 15 C (27°F) above normal. Temperatures in the western US were mixed, but below normal in Arizona and near the Canadian border to above normal in much of the Great Basin into the California Central Valley. Temperatures in Alaska were above normal on the West Coast to below normal across the central and eastern Interior, while Hawai'i was near to above normal. Above normal precipitation was recorded from the central and southern Plains through much of the Mississippi Valley and Appalachians to the to the East Coast, but slightly below normal precipitation was recorded along the Southeast Coast. Below normal precipitation fell across the northern Rockies into the northern Plains and western Great Lakes. Precipitation anomalies across the West were mixed, with above normal precipitation centered over Oregon, with the greatest concentration of below normal precipitation from the Sierra into southern California and central Arizona. Snowpack continued to be below normal across the northern half of the West and the Sierra, but the Great Basin snowpack is near normal, with the southern Rockies and Southwest snowpack above normal.

Drought improved in portions much of the Lower Mississippi Valley into the southern Appalachians and Lower Ohio Valley, with drought ending across portions of the southern Appalachians. Drought also improved across portions of the Northwest, Texas, Oklahoma, Kansas, Nebraska, and Iowa. However, drought worsened in the northern Rockies, particularly across north Idaho and western Montana, while drought persisted across portions of the northern Plains, and much of the Southwest. California remains drought free, and drought has improved across much of Hawai'i but persists on portions of Maui and the Big Island. Drought has developed and intensified across much of Puerto Rico and the US Virgin Islands as well.

Several weather systems affected Mexico during the second half of January. There were five cold fronts accompanied by cool temperatures, with high humidity also entering the country at times due to active polar and subtropical jet streams. Positive precipitation anomalies during this period were observed in the northwest, north, and northeast portions of Mexico, along with the Gulf of Mexico Coast, influenced by the aforementioned weather systems. This rainfall contributed to a slight decrease in areas with moderate to severe drought in portions of northern and southern Veracruz and in the Yucatán Peninsula. However, despite the inflow of moisture from the Pacific Ocean, the rainfall observed was not sufficient to mitigate the ongoing effects of the current drought conditions across the rest of the country. Drought areas increased in January for portions of Sonora, Sinaloa, Durango, San Luis Potosí, and Oaxaca, resulting in over 60% of the country being classified as having moderate to exceptional drought, albeit with 1% decrease in the overall drought area in comparison with the first half of January.

Fire Season Status:

Smoldering fires carrying over from Canada's record-breaking 2023 fire season continue to be monitored in Alberta, British Columbia, the Northwest Territories, and possibly other jurisdictions.

Occasional new fires have been reported in areas lacking snow cover, and while impacts have been minimal, the continuing drought and lingering fires are concerning with spring drawing near. Fire Weather Index calculations remain off in the majority of Canada, although the warm temperatures allowed calculations to restart in some areas of southern Alberta and Saskatchewan. Cooler and snowy conditions in these regions in early February will turn these calculations off after a few days of snow cover.

Fire activity remained at very low levels through early February across the US. A limited number of large fires have burned briefly across the country, mainly in the Southern Area. Year-to-date annual acres burned for the US as of February 9 is well below the 10-year average at just over 18%, with a below average number of fires as well, at 62%.

So far this year 152 forest fires have been registered in 17 Mexican states resulting in 2,597 hectares burned. The vegetation burned in grass and shrub layers was 99%, while timber represented only 1% of the area burned. States with the highest number of wildfires were State of Mexico, Puebla, Jalisco, Morelos, Veracruz, Chihuahua, Durango, Oaxaca, Michoacán, and Mexico City, representing nearly 79% of the total number of fires. States with the largest area burned were Chiapas, Jalisco, State of Mexico, Michoacán, Puebla, Chihuahua, Durango, Nuevo León, Morelos, and Oaxaca representing almost 96% of the national area burned. Out total number of fires, 30 (20%) occurred in fire-sensitive ecosystems, with a burned area of 447 hectares, representing 17% of the total area burned.

Canada Discussion

February/March/April: Deep-burning fires from the 2023 season are continuing to smolder, and occasional new fires are being reported. Natural Resources Canada begins its seasonal forecasting process on March 1, so until then, no areas of expected above or below normal fire potential are forecast. Natural Resources Canada is also seeking guidance from provincial fire management agencies whether to classify smoldering fire areas as having above normal activity, as the number of these fires is much higher than in past winters.

February appears to favor varying temperature and precipitation trends in most of Canada. Due to the normal February dryness in western Canada, any above normal warmth may keep snow cover minimal in some areas, leading to continued smoldering of fires from 2023, and possible new starts. The expected variable weather trends do not suggest any areas will have above normal new fire activity, although the number of smoldering fires from 2023 is high. Deep snow cover and cool temperatures in parts of eastern Canada will likely prevent problems.

An inconsistent precipitation signal affects most of Canada in March, which will likely result in varied amounts in most regions. Due to the history of dry conditions through the past autumn and winter, a persistence solution supports continued dryness in parts of western Canada, which is plausible since March is still rather dry in the west. Temperature forecasts suggest warmth through most regions, although some models suggest cooler temperatures in the central and eastern Prairies. Early snow loss is likely in parts of British Columbia and Alberta, and a resurgence of 2023 fires and some new starts are possible.

Models are forecasting warm conditions for virtually all of Canada in April, and several models are forecasting dry conditions in parts of the Prairies. With current drought conditions, this could lead to above normal fire potential and severity. The Atlantic Provinces can sustain fire in April, but models suggest generous precipitation will limit fire activity.

United States Discussion

February/March/April: Climate Prediction Center and Predictive Services January outlooks depict above normal temperatures are likely for much of the northern half of the US and Alaska, while

temperatures are likely to be near to below normal across Texas into the Southeast. Precipitation is likely to be above normal across much of Arizona, southern California, and southern Nevada into early spring, with above normal precipitation also likely across much of the central and southern Plains into the Southeast. Meanwhile, below normal precipitation is likely across the Northwest and northern Rockies, as well as portions of the Great Lakes into the Ohio Valley. The temperature and precipitation forecasts are consistent with a mature El Niño.

Above normal significant fire potential is forecast for Puerto Rico and the US Virgin Islands for February and March. The Southern Area is forecast to have below normal significant fire potential across much of central and eastern Oklahoma and Texas eastward into much of the Carolinas and southeast Virginia, expanding to include all of Virginia as well in March. Below normal significant fire potential will continue across much of the northeast Gulf Coast, Florida, and Southeast Coast in April while the remainder of Southern Area returns to normal potential. Portions of the Upper Midwest are forecast to have above normal potential March and April. Areas of the US not mentioned thus far will have normal significant fire potential February through April.

Mexico Discussion

February/March/April: For the February through March quarter, precipitation is expected to continue to be below normal, beginning in west-central Mexico during February, extending into northern Mexico in March. After drier than normal conditions in February, above average precipitation is expected for southeast Mexico and the Yucatán peninsula; however, the drier than normal pattern will resume and expand along the Gulf of Mexico Coast during April. Above average temperatures are forecasted for February through March across much of the country, with the warmest anomalies over northern and southern Mexico, along with the Baja California and Yucatán peninsulas.

Given the current conditions of temperature, precipitation, and drought in the country, along with the climatological forecast of dry and warm conditions expected for the period, fire potential is expected to escalate to be above normal across central, western, southern, southeastern, northeastern, and northwestern Mexico. Forest fire activity for this period will begin with low potential nationwide in February, but will gradually increase in aforementioned areas, resulting in a large area of above average potential during March and April.

Additional Information

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

United States:

National Significant Wildland Fire Potential Outlook

https://www.nifc.gov/nicc-files/predictive/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

Contributions to this document were made by:

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Ginny Marshall, Natural Resources Canada

United States: Jim Wallmann, Predictive Services, US Forest Service
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Steve Larrabee, Fire Analyst, Bureau of Indian Affairs

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