

North American Seasonal Fire Assessment and Outlook

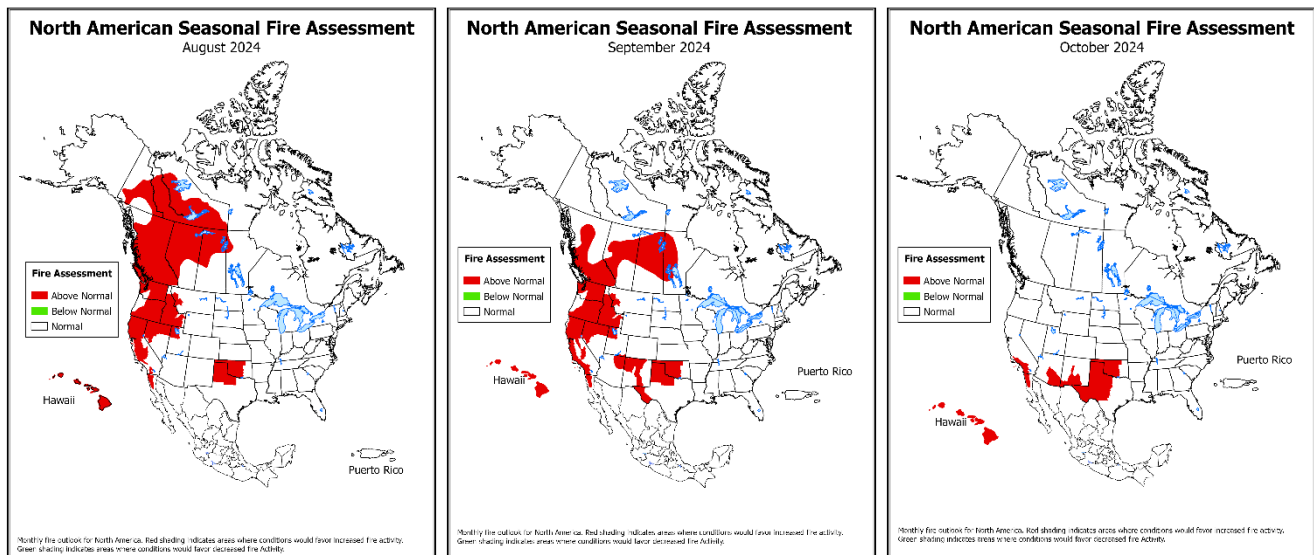
National Interagency Fire Center • Natural Resources Canada • Servicio Meteorológico Nacional
United States Canada Mexico

Outlook Period August through October 2024
Issued 12 August 2024

Executive Summary

July was a hot month in most of Canada, with only the eastern side of Hudson Bay and some of the Arctic islands showing temperatures slightly below normal. Many record highs were set in western Canada in the first half of the month, with values up to about 37 C (99°F) in Alberta and 42 C (108°F) in British Columbia. Some locales in Alberta recorded their warmest month on record. Hot weather continued beyond in the last week of July and into early August in southern portions of the western provinces.

Temperatures were also hot in much of eastern Canada. Many locations in the Atlantic region had one of their top 5 warmest Julys, with some locations recording the warmest July on record. The heat was especially notable in eastern Newfoundland and Labrador, where westerly winds advected heat from the interior, preventing ocean breezes from cooling the landmass. In Quebec, the province's highest positive temperature anomalies occurred in the eastern St Lawrence valley and Gaspé Peninsula, where some records were set. While temperatures in southern Ontario were close to normal, greater temperature anomalies occurred in the north.



Monthly fire outlook for North America for August 2024 (left), September 2024 (middle), and October 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.*

Dry conditions also prevailed across much of Canada. A few spots recorded above average monthly rainfall, such as northwestern British Columbia, north-central and northeastern Alberta, southern Ontario, and few strips in the southern Atlantic Provinces. Some regions elsewhere in eastern Canada received above normal July rainfall but these totals were primarily from local thunderstorms. In the southern Atlantic Provinces, high humidity combined with very warm temperatures to create high humidex values, possibly helping keep fire activity low. Despite the precipitation deficit in much of eastern Canada, rain that fell may have been timely enough to prevent prolonged wildfire activity.

Extreme rainfall in southern Ontario resulted in monthly records; this was mainly due to the remnants of Hurricane Beryl merging with a mid-latitude system. For example, the Greater Toronto area reported a record July rainfall of close to 300% of normal. This combined system also resulted in high rainfall totals in parts of southern Quebec and in thin strips through New Brunswick and Nova Scotia.

Many thunderstorms occurred in western and central regions with lightning strikes increasing fire activity. The weather systems generating these storms generally did not bring widespread steady rainfall. While Canada's cloud-to-ground lightning to date as of July 31 is at its lowest recorded level (77% of normal), Newfoundland/Labrador has recorded just under 300% of normal July strikes and has surpassed its annual average (120% of annual total thus far).

Fire activity increased significantly across the western US in the first half of July and remained at extreme levels through early August. With the increase in activity through the first half of July, the National Preparedness Level was increased to four (on a scale of 1-5) on July 10 and five on July 18, where it remains.

Temperatures across much of the West were above normal July into early August, with a historic, long-lasting heat wave July 4-22. Temperatures across the West have cooled the past week but remain near to above normal. Temperatures farther east were near to below normal across much of the Plains and Mississippi Valley, while near to above normal temperatures were observed from the Appalachians to the East Coast. Below normal temperatures were recorded in much of Alaska, except for the southeast Interior, which was above normal. Below normal precipitation was observed across much of the West in July, with precipitation well below normal across much of California, the Great Basin, and Northwest. Well above normal precipitation was observed in south and east Texas, mainly due to Hurricane Beryl. Above normal precipitation was also observed across much of the Mississippi Valley and Southeast. However, much of the central Appalachians, centered on West Virginia, was drier than normal. Precipitation was below normal for Hawai'i, while Alaska recorded above normal precipitation except for the southeast Interior.

Climate Prediction Center outlooks issued in late July depict above normal temperatures are likely across much of the US through October. Precipitation is likely to be above normal along the Gulf and East Coasts through October, but below normal precipitation is likely for much of the southern Intermountain West into the Plains. The areas with the greatest significant fire potential will be across much of the northwestern US and California through September, with above normal potential forecast across portions of the southern Plains through October. Areas of above normal potential are also forecast across portions of Arizona and New Mexico in September and October.

Forest fire activity across Mexico has been slightly below average with respect to the number of fires, while the area burned continues to be well above average for the second consecutive year. In fact, this year now ranks first in hectares burned.

During May, precipitation was below normal nationally. However, in June, precipitation was above normal in eastern Mexico due to the onset of the rainy season. These positive anomalies extended westward during July, which helped to reduce forest fire activity in most of the country. The rain also reduced drought levels, mainly in western and central Mexico. Nevertheless, temperatures remained above normal during the May through July quarter, with temperatures above 45 C (113°F) in several regions of the country. The extreme heat contributed to maintaining some areas with severe to exceptional drought, mainly in northwestern Mexico.

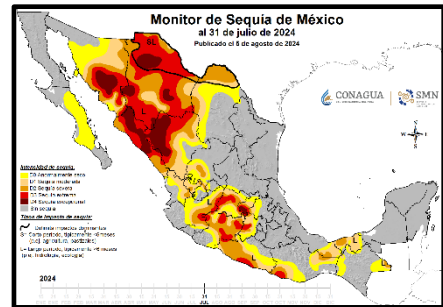
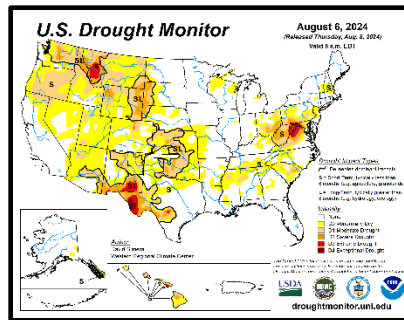
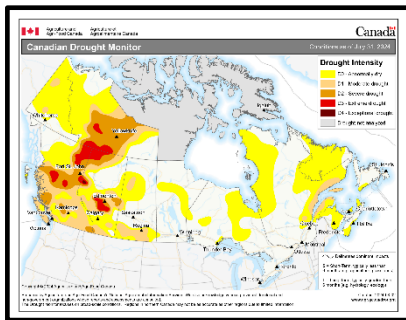
Given the current temperature and precipitation conditions, drought status in the country, and the climatological forecasts, the August to October quarter is expected to remain warm, with above-normal precipitation during August and September. However, a considerable decrease in rainfall is expected in October. As for fire potential, it will remain at near-normal levels in most of Mexico, except for northern Baja California, where above normal fire potential is expected.

Critical Factors

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

El Niño-Southern Oscillation:

El Niño-Southern Oscillation (ENSO) neutral conditions are present in the equatorial Pacific Ocean. Sea surface temperature (SST) anomalies in the central equatorial Pacific are near average, while cooler than average SST anomalies are found off the South America coast. A transition to La Niña is forecast into the fall, with the Climate Prediction Center forecasting a 70% chance of La Niña developing in the August through October period, and 79% chance of La Niña persisting into the winter. A negative phase of the Pacific Decadal Oscillation (PDO) is also expected to persist into the fall. Other climate oscillations like the madden-Julian Oscillation and the weakening easterly phase of the Quasi-Biennial Oscillation are expected to have little impact, leaving the developing La Niña and negative PDO as the main drivers.



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

Drought:

Canada's overall drought area once again expanded during July. About 59% of Canada outside Nunavut, where drought is not assessed, is experiencing some level of dryness, from abnormally dry to exceptional drought. This marks an increase of about 20% from the end of June.

Intense drought persists along a line through central and northeast British Columbia, northwestern Alberta, and southwest regions of the Northwest Territories. This extended drought is having a major effect on the Mackenzie River, which remains at its lowest recorded level, although recent increased flows in parts of the watershed have been noted.

While the patches of exceptional drought stretching across the Alberta/British Columbia border in the Peace River region have vanished, the overall large expanse of serious drought persists. A patch of extreme drought has developed in central Alberta between the Edson and Stettler regions. A few small areas of moderate to severe drought exist in southern Alberta and British Columbia. Lesser drought levels surround these most-impacted areas. Abnormally dry conditions continue in Yukon with patches of moderate drought between Haines Junction and Carmacks, and north of Dawson.

Abnormally dry conditions are also present on the south and east sides of Hudson Bay, and near Quebec City eastward to the Atlantic Ocean, north through Labrador, and in scattered patches in the southern Atlantic Provinces. Moderate drought is present along the Gulf of St Lawrence.

Temperatures were above normal for much of the western US in July. The first half of July was very hot in the West as a strong and long-lasting heat dome developed over California then spread north and east July 4-22. Several all-time record high temperatures were set in the West, including Palm Springs, California, at 51.1 C (124°F), Las Vegas, Nevada, at 48.9 C (120°F), and Redding, California, at 48.3 C (119°F). Widespread monthly and daily records were set across the rest of the West during the period as well. Temperatures farther east were near to below normal across much of the Plains and Mississippi Valley, while near to above normal temperatures were observed from the Appalachians to the East Coast. Below normal temperatures were recorded in much of Alaska, except for the southeast Interior

which was above normal. Temperatures across Hawai'i were generally near normal, although temperatures were above normal for the Big Island.

Below normal precipitation was observed across much of the West in July, with a few areas in California and the Columbia Basin recording no precipitation during the month. Precipitation was well below normal across much of California, the Great Basin, and Northwest, coinciding with the heat dome. However, localized areas of above normal precipitation were observed in portions of eastern California, northern Nevada, northern Utah, southern Wyoming, eastern Colorado, and central New Mexico. Well above normal precipitation was observed in south and east Texas, with much of the rain due to Hurricane Beryl, which made landfall early in July. Above normal precipitation also spread across much of the Mississippi Valley and Southeast, while precipitation anomalies across the Plains, Great Lakes, and Northeast were mixed. However, much of the central Appalachians, centered on West Virginia, was drier than normal. Precipitation was below normal for Hawai'i, while Alaska recorded above normal precipitation except for the southeast Interior.

Drought expanded and worsened across much of the Northwest into the northern Rockies and portions of northern California. Abnormally dry conditions expanded across much of the northern Great Basin, with drought development in portions of northwest Utah. Drought also developed and intensified in the central and southern Appalachians and west Texas, while drought improved in Florida, the Lower Ohio Valley, and portions of the central Plains. In early August, small areas of extreme to exceptional drought are present in portions of southern New Mexico, west Texas, northern Virginia, eastern West Virginia, and western Montana. Very small areas of extreme drought are also noted in Tennessee, Alabama, and South Carolina. Extreme drought persists in much of southern New Mexico and portions of southwest Texas.

During the second half of July, positive precipitation anomalies were observed in much of Mexico, particularly in the states of San Luis Potosí, Veracruz, and northern Oaxaca, the latter recording a rainfall accumulation of over 700 mm in 15 days. Several tropical waves, the passage of a cold front, the formation of Tropical Storm Carlotta, and the influx of moisture from the Pacific Ocean, Gulf of Mexico, and Caribbean Sea were responsible for the precipitation.

The rain associated with these phenomena resulted in the reduction of exceptional drought in Sonora, Chihuahua, Guanajuato, Hidalgo, and the State of Mexico. Additionally, there was a reduction in areas of severe and extreme drought in the northern, western, central, and southeastern states of Mexico. Meanwhile, the northeastern and eastern states of the country had drought removed.

Despite the rain, a strong area of high-pressure in northwest Mexico maintained a hot to very hot environment in the region, which resulted in maintaining areas of exceptional drought in Sonora, Chihuahua, Sinaloa, and Durango. As of July 31, the percentage of areas with moderate to exceptional drought is just over 40% of Mexico, which represents a reduction of almost 15% compared to June 30.

Fire Season Status:

Canada's National Preparedness Level (NPL) jumped from two on July 5 to the highest level of five by July 15 and has remained there since. Despite this, the increase in area burned has remained close to average for the time of year, although an upswing occurred in mid-July. The increase of the NPL has led to acquisition of international suppression crews, with people from Australia, New Zealand, South Africa, Mexico, and Costa Rica now engaged in British Columbia and Alberta. Liaison Officers from these nations are stationed at the Canadian Interagency Forest Fire Centre in Winnipeg.

While activity has been close to normal levels, fires in unfortunate locations has led to evacuations and damage to infrastructure and towns. In early July, rain ended the fire that started in June near Churchill Falls that threatened power infrastructure and led to evacuation of the generating station and nearby community. Fire also resulted in the evacuation of Labrador City on July 12, but subsequent rainfall helped reduce fire activity, and the evacuation order was rescinded on July 22.

The most serious event occurred late in the month in the mountain town of Jasper, Alberta, when lightning-caused fires started on July 22 after a prolonged record-setting hot and dry spell. The largest fire, which started south of Jasper, was driven by strong winds down the Athabasca River valley, destroying about one third of the town. Fuel treatment had been done in some of the forest around the community, but with the extreme weather conditions, rapid spread still occurred. This fire resulted in temporary highway and railroad closures, as well.

Numerous fires in British Columbia, Alberta, and Manitoba have also contributed to evacuation orders and work stoppages due to fire and/or smoke, along with loss of power. Total evacuees, excluding about 15,000 tourists evacuated from Jasper National Park, are estimated at over 45,000 to date, with about 25% of that number still unable to return to their homes as of early August.

Both fire numbers and area burned remain close to normal, with occasional fluctuations. The number of fires reported by August 6 was 4,134, about 95% of the 10-year average, and the area burned at about 2.9 million hectares, about 96% of the 10-year average. The area burned average has been skewed by the 2023 fire season total, so the 2024 value is trending above the August 6, 2022 ten-year average area burned to date of about 2.1 million hectares. Using that baseline, this year's total would be about 138% of the 10-year average. The number of fires would not be affected much by the 2023 total, with declining numbers over the years and 2023 did not have a huge number of fires, but several very large fires. Post-2023 numbers will be used in subsequent editions of this report as upcoming years should record less area burned than in 2023, slowly reducing the averages, while the number of fires has been affected little by 2023.

About half the Canadian jurisdictions have an above normal number of fires to date in 2024. British Columbia, Alberta, Yukon, Saskatchewan, New Brunswick, and Parks Canada have recorded more fires than the post-2023 ten-year average. British Columbia, Alberta, and Newfoundland have more burned area than the post-2023 ten-year average.

Fire activity increased significantly across the western US in the first half of July and remained at extreme levels through the end of the month. With the increase in activity through the first half of July, the National Preparedness Level was increased to four (on a scale of 1-5) on July 10 and five on July 18. The most significant increase in activity occurred in the Northwest Geographic Area which increased from Preparedness Level two to three July 10, to four July 16, and to five July 19. However, Alaska decreased in activity through the month, going from Preparedness Level five at the beginning of the month to one at the end of the month. California, Great Basin, Rocky Mountain, and Northern Rockies Geographic Areas also observed increases in activity while Southwest Area remained moderately active through the month.

A strong long-lived heat wave affected the western US the first three weeks of July, which ran concurrently with a dry lightning event July 16-17 in the Northwest. Two more dry lightning events affected the northwest and Idaho July 22-23, and August 4-5 resulting in dozens of large fires. Some of the notable fires ignited by the lightning include the Durkee, Crazy Creek, and Battle Mountain Complex Fires in eastern Oregon, Williams Mine in southwest Washington, and the Middle Fork Complex in southwest Idaho. The Park Fire, a human start outside Chico, California that began July 24, rapidly grew to over 140,000 hectares (350,000 acres) in the first 72 hours after ignition and has burned over 173,000 hectares (429,000 acres) to date. It illustrates the extreme condition of the fuels along the West Coast. Year-to-date annual acres burned for the US is above the 10-year average at 125% of normal, but the national year-to-date tally of wildfires remains below average, near 79%.

So far this year 7,627 forest fires have been registered in 32 states resulting in 1,269,858 hectares burned. The vegetation corresponding to grass and brush was 94%, while timber was 6% of the total burned. States with the highest number of wildfires were State of Mexico, Mexico City, Jalisco, Michoacán, Chihuahua, Puebla, Chiapas, Durango, Oaxaca, and Veracruz, representing nearly 81% of the total fires. States with the largest area burned were Guerrero, Chiapas, Oaxaca, Chihuahua, Jalisco, Michoacán, Durango, Quintana Roo, Sinaloa, and Nayarit, representing almost 83% of the national

area burned. Out of the total fires, 1,097 (14%) occurred in fire-sensitive ecosystems, with a burned area of 166,424 hectares, representing 13% of the total area burned.

Forest fire activity has remained above normal throughout the Gulf of Mexico states, as well as in the Pacific coastal states from Jalisco to Chiapas. The state of Jalisco and Mexico City stand out, with anomalies above 250 fires. In terms of burned area, most states presented above-average values, with Guerrero, Oaxaca, and Chiapas being the most affected states, with anomalies above 118,000 hectares.

Canada Discussion

August/September/October: British Columbia and southern Yukon, eastward through the Northwest Territories, and into northern Saskatchewan and extreme western Manitoba appear likely to have above normal fire activity in August. While dry conditions will cover other regions at times, occasional rainfall will likely help prevent sustained fire activity.

With cooler and moister weather pushing into northern Canada during September, the area at highest risk remains in the south. The area expected to have above normal fire activity is confined to central and southern British Columbia eastward to western Manitoba.

No current signs point to significant fire activity in October. Some current large fires will likely continue smoldering over the fall, but activity should have dropped substantially in most regions, especially in the north.

United States Discussion

July/August/September: Climate Prediction Center and Predictive Services outlooks issued in late July depict above normal temperatures are likely across much of the US in August that will continue through October. Precipitation is likely to be above normal along the Gulf and East Coasts into the Upper Midwest through October, while precipitation is likely to be below normal for much of the Plains into the southern Intermountain West.

In comparison to the outlook issued a month ago, larger areas of the West are expected to experience above normal significant fire potential in August and September. Above normal significant fire potential is forecast for much of the Northwest, northern Great Basin, and northern California through September. Above normal significant fire potential is also forecast for portions of the Idaho Panhandle, southwest Montana, and central and southern California in August and September. Most areas of California and the northwestern US will return to normal potential in October, but the southern California coast and mountains will have above normal potential through November. Normal significant fire potential is forecast for the Southwest in August, with portions of New Mexico and Arizona forecast to have above normal potential in September and October. Above normal potential is forecast for north Texas and western Oklahoma in August and September, expanding to much of central and west Texas by October. Above normal potential is forecast for Hawai'i through October, especially for the lee sides.

Mexico Discussion

August/September/October: For the August through October quarter, mainly wet conditions are expected in Mexico. During August and September, positive precipitation anomalies will dominate, mainly in the western part of the country. As we move into October, a decrease in rainfall is anticipated in Mexico, favoring dry conditions especially along the Gulf of Mexico slope. Above-average maximum temperatures are forecast for most of the country through October, with the largest anomalies forecast in the northern and southern portions of the country, up to 3 C above normal.

Given the current temperature and precipitation conditions, as well as the character of drought in the country, and the climatological forecast, Mexico is expected to remain warm through October, with

above normal precipitation during August and September. However, a considerable decrease in rainfall is expected in October. As for fire potential, near normal fire potential is forecast in most of the country, with the exception of northern Baja California, where above normal fire potential is expected.

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.

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