North American Seasonal Fire Assessment and Outlook

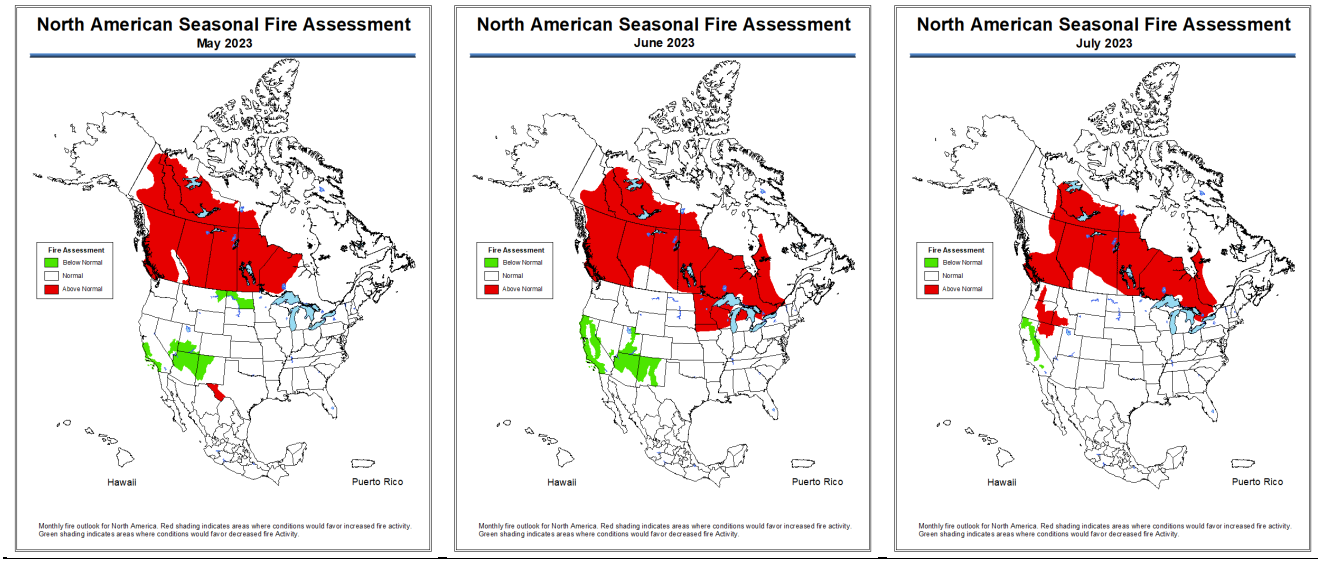
National Interagency Fire Center ● Natural Resources Canada ● Servicio Meteorológico Nacional
United States Canada Mexico

Outlook Period May through July 2023
Issued 11 May 2023

Executive Summary

Dry conditions continued in western and Atlantic Canada through early May, except Pacific coastal regions, southeast British Columbia, and parts of southern Saskatchewan and Manitoba where precipitation was normal or above normal. In early April, strong storm systems moved into southern Ontario and Quebec bringing rain and thunderstorms and heavy snow farther north. Although most of western Canada through northern Ontario was dry, temperatures were cool until late April with Arctic air dominant. Northern parts of the western provinces and most of Yukon and the Northwest Territories were often at temperatures above normal.

A large upper ridge began building into western Canada April 28, continuing into May, suddenly transforming coolish spring weather to summer. The resultant warm, dry, and windy weather in western Canada set many new record high temperatures. Many fire starts occurred in vegetation that had yet to green up in forest and the parkland belt, where prairie and agriculture transitions to forest. Some of these fires became very large and caused evacuations and/or alerts in British Columbia, Alberta, and Saskatchewan. From May 7-10, a trough brought showers and thundershowers into the region, helping reduce fire intensity.



Monthly fire outlook for North America for May 2023 (left), June 2023 (middle), and July 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 continued to increase across the Southwest, Rocky Mountain, and Eastern Areas, but much of the Southern Areas saw decreasing activity the past month except Florida, which continues to be active. Significant fire activity remained minimal elsewhere across the West and Alaska. The driest fuels were in Florida and portions of southeast Arizona into the lower elevations of New Mexico, with drier conditions also developing across the northern Great Lakes and Northeast. Drought reduction continued across portions of the West in April, but drought continues across Florida, the Mid-

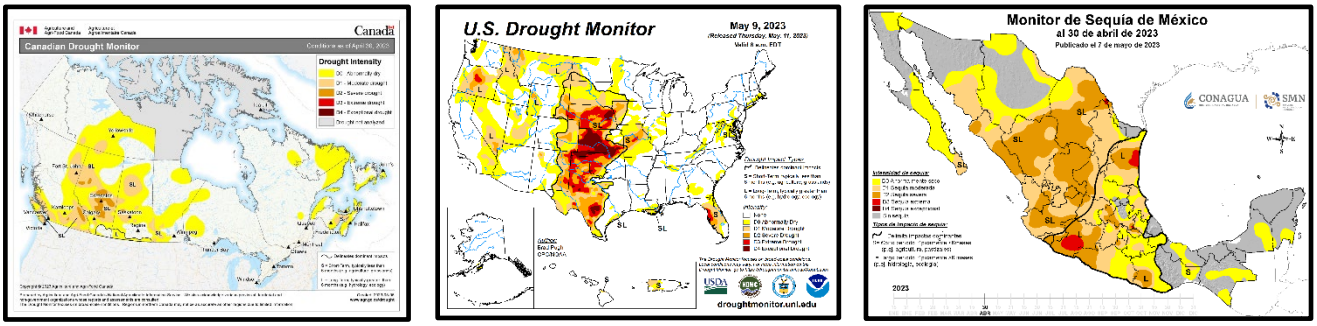
Atlantic, and southern New England, while the most intense drought continues on portions of the southern and central Plains.

Below normal significant fire potential is forecast across portions of the northern Plains in May, with below normal potential across much of the southwestern US in May and June. Below normal potential is forecast to continue across the Sierra and northwest California mountains in July. Above normal potential is forecast across far west Texas in May, the Upper Midwest in June, and rangeland areas of central Washington, central and southeast Oregon, southwest Idaho, and northwest Nevada in July.

So far this year, fire activity has remained below normal across Mexico, and it is expected to continue the same trend for this quarter. During May, the number of fires starts to decrease due to the increase in convective activity and the beginning of the wet season. The climate outlook is warm, with moisture and precipitation likely to be within the normal range and fire activity is forecast to be slightly below normal.

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):
ENSO neutral conditions continue in the equatorial Pacific Ocean. However, rapid warming continues in much 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. The Climate Prediction Center (CPC) has issued an El Niño Watch, with a 90% chance of El Niño developing by July and continuing through the winter. Other teleconnection patterns, such as the Madden Julian Oscillation (MJO), Pacific Decadal Oscillation, and Pacific-North American Pattern are likely to influence weather and climate during the outlook period. The MJO has been very active over the winter into spring, including a very strong MJO in March, with another significant event ongoing. The MJO has significantly affected weather and climate across the US, especially the western US.

Drought:
A large expanse of abnormally dry to severe drought remains in western Canada, although the abnormally dry region in British Columbia that was between the coast and Rocky Mountains is much smaller. Drought intensity lessened in the northeastern part of the province and some of Vancouver Island. The overall prairie drought region has not changed much since the end of February, with various intensities still existing across most of Alberta and Saskatchewan. An area of abnormally dry conditions is north of Lake of the Woods, and abnormally dry conditions also extend eastward across the Manitoba-Ontario border south of Hudson Bay. A broadening northern extension of the western Canadian drought area stretches across the central Northwest Territories to the Nunavut border southeast of Great Bear Lake.

Abnormally dry areas that were present in eastern and southern Ontario are now gone. Abnormally dry regions in eastern Quebec have changed but grown little, with abnormally dry conditions covering far eastern Quebec and parts of the Atlantic Provinces, including eastern Labrador. A patch of moderate

drought has developed in eastern New Brunswick, west-central Nova Scotia, and much of Prince Edward Island.

Drought improved across most of the West and portions of the northern Plains, with drought removal across much of California, the Great Basin, and Southwest. Drought also improved across Lower Michigan and along much of the Texas coast. However, drought expanded and intensified in much of Florida and the Mid-Atlantic, with most of the central and southern Plains continuing in drought, including areas of extreme to exceptional drought. Drought improvement is expected in May across the central and southern Plains due to above normal precipitation the next two weeks.

In the first half of April, above normal rainfall was observed over the northern, eastern, and southern regions of Mexico, due to the passage of six cold fronts and its interaction with the subtropical jet stream. This helped to reduce drought from extreme to moderate category in Coahuila, Nuevo León, and Tamaulipas. Drought conditions also improved in Veracruz, with the reduction of moderate drought and abnormal dryness areas. However, portions the country were also affected high-pressure aloft that generated warm conditions and low precipitation, with the western, northern, and southern portions of the country most affected. As a result, severe drought in Sinaloa, Durango, Zacatecas, San Luis Potosí, Aguascalientes, Jalisco, Michoacán, and Guerrero continued while the abnormally dry conditions slightly increased in Chiapas and Campeche. As of April 30, moderate to extreme drought covered almost 48% of Mexico, a slightly more than 1% increase from the end of March.

Fire Season Status:
Fire weather index calculations are coming online quickly due to the warm weather at the end of April and early May. Fire activity has increased rapidly during this period in British Columbia and the western Prairie Provinces. A few fires have also occurred in other jurisdictions. The number of fires for the time of year is above the 10-year normal in Yukon, British Columbia, Alberta, Saskatchewan, Nova Scotia, Prince Edward Island, Newfoundland, and Parks Canada. Area burned is above the 10-year normal in Yukon, British Columbia, Alberta, the Northwest Territories, Saskatchewan, Quebec, New Brunswick, Nova Scotia, Prince Edward Island, and Newfoundland. The national reported total number of fires was 910 and area burned over 450,000 hectares as of May 9.

Numerous fires are occurring in forest and the parkland zone, where grassland and agricultural land transitions to forest, and populations are divided between rural properties and towns or small cities, resulting in evacuations and/or alerts in British Columbia, Alberta, and Saskatchewan. The number of evacuees likely peaked at about 45,000 but not concurrently, and this figure includes those that were evacuated more than once. The size of the largest fire in Alberta appears to be over 75,000 hectares, and in Saskatchewan, at about 12,000 hectares. Many of these fires grew rapidly with incessant dry southeast winds that rarely abated overnight. Several of these large fires, including the largest as of May 9, have occurred in the broad foothills band west of Drayton Valley, Alberta, where the history of recent very large fires is almost absent.

Significant fire activity gradually increased across portions of the US, particularly in the Southwest, Rocky Mountain, and Eastern Areas, through April into early May. Much of Southern Area's fire activity peaked in early April, with a decline in activity the latter half of the month into early May. However, Florida continues to have significant fires. The driest fuels are in the central and southern High Plains, but improvement is expected there, while drying is noted in the northern tier of the Eastern Area. Through May 11, 14,799 fires have burned a total of 185,374 hectares (458,078 acres), 81% of average for fires and 55% of the average area burned.

So far this year 3,448 forest fires have occurred in 32 states resulting in 150,652 hectares burned. The vegetation corresponding to grass and brush fuel types was 95%, while 5% occurred in timber. States with the greatest number of fires were State of Mexico, Jalisco, Mexico City, Puebla, Michoacán, Tlaxcala, Chiapas, Durango, Chihuahua, and Veracruz, representing nearly 85% of the total number of fires. States with the largest area burned were Jalisco, Oaxaca, Guerrero, Chihuahua, Durango, Nayarit, State of Mexico, Chiapas, Sonora, and Puebla, representing almost 82% of the national area

burned. Of the total fires, 475 (14%) occurred in fire-sensitive ecosystems, with a burned area of 30,852 hectares, representing 21% of the total area burned.

Canada Discussion

May/June/July: Forecast guidance has changed dramatically recently, leading to a drastically different forecast compared to the March and April outlooks for May and June in Canada. To lend credence to the model forecasts, a rapid change from a cool spring to summerlike conditions occurred at the end of April, before much vegetation had greened up. Hot, dry, and windy conditions in western Canada contributed to many active fires. This pattern appears to be a hybrid of influences of La Niña (i.e., arctic air masses in central Canada bringing cool weather, but warmer in the west with significant southeast winds) and El Niño (i.e., broader Pacific winter or spring ridges bringing warm and dry weather with prevailing westerly winds).

After a few cooler days with lighter winds and scattered showers, a second ridge appears poised to build into western Canada during mid-May, returning hot and dry weather to much of the west. Winds with this pattern should remain lighter and more variable in direction than during the early part of the month. High elevations should be spared fire activity until snow and residual moisture are gone – unlikely during May. Cooler but generally dry conditions will affect central and eastern regions, where fire activity may increase, but at a slower pace, over the next few weeks. The Canadian seasonal forecast produced by Natural Resources Canada is for above normal fire potential between British Columbia and western Ontario in May.

Most regions from the Pacific coast to western Quebec are expected to have higher than normal fire potential during June, appearing to continue the active trend that started in May. By June, growth of crops and greening of grasslands should prevent most fire in grassland and agricultural regions of the southern Prairies. High elevations are normally excluded as lingering moisture from snow melt reduces chances of fire, although the dry conditions thus far in the spring and expected in June may leave these areas prone to fire.

El Niño is forecast to develop during the summer, suggesting a possible return to regular rainfall in western Canada. This may reduce the area subject to fire slightly, with areas in northwest Canada getting more rain and sustaining normal levels of fire potential. Although the size reduction in the above normal area is slight, the portion with the greatest expected intensity (not depicted in the maps) is substantially smaller than during May and June.

United States Discussion

May/June/July: Above normal temperatures are forecast from the Southwest through the Gulf Coast to the Appalachians and East Coast through July. Above normal temperatures are also forecast for the Northwest, Alaska, and portions of the northern Rockies through June as well. Equal chance of above or below normal temperatures are forecast elsewhere. Of note, a strong early season heat wave is forecast for much of the Northwest and northern Rockies during mid to late May. Above normal precipitation is most likely from the Mid to Lower Mississippi Valley through the southern Appalachians to the Mid-Atlantic and Southeast coasts. Below normal precipitation is most likely across portions of the Southwest and much of the Northwest and northern Rockies. Drought is anticipated to expand into portions of Missouri, Iowa, Kansas, New Mexico, far west Texas, and eastern Washington, but drought conditions will likely improve across much of the High Plains from central Texas into eastern Montana. Drought removal is likely in several portions of the improvement area as well.

Above normal significant fire potential is expected across far southwest Texas in May before returning to normal in June. Above normal potential is also forecast across portions of the Upper Midwest and western Great Lakes in June, with above normal potential across portions of northwest Nevada, southwest Idaho, eastern Oregon, and central Washington for July. Below normal significant fire

potential is expected across portions of the northern Plains in May before returning to normal in June. Below normal potential is also forecast near the southern California coast and much of northern New Mexico and Arizona into the southern Great Basin. In June, below normal potential is expected to expand into most mountains in California, the Wasatch Mountains of Utah, and the New Mexico central mountain chain, but a small area of east-central Nevada and west-central Utah will return to normal. For July, below normal potential will continue in the Sierra and northwest California mountains.

Mexico Discussion

May/June/July: During February, March, and April, precipitation was near normal across Mexico, except for Chiapas and the Yucatan Peninsula, where precipitation was below normal. However, maximum temperature was above average during the last quarter across almost the entire country except for Baja California and Sonora, regions where temperature was below average and resulted in a lower number of fires.

The probability of precipitation is forecast to be below normal in Chiapas, Tabasco, Nayarit, and Yucatan Peninsula May through July, with portions of Sonora, Chihuahua, and Jalisco below normal as well. Equal chances of above, below, or normal precipitation is forecast for the remainder of the country. Temperatures are likely to remain above normal nationally, except for the Baja Peninsula and Tabasco, where near normal temperatures are likely. Given the recent temperature, precipitation, and drought trend across the country, along with the precipitation and temperature forecasts, fire potential is expected to be slightly below to near normal May through July across almost all of Mexico.

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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