



North American Seasonal Assessment Workshop

Canada, United States and Mexico

Boulder, CO
April 14-16, 2009

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North American Seasonal Assessment Workshop (NASAW) Canada, México, and Western United States Outlook: 2009

On April 14-16, 2009 fire, weather, and climate specialists convened at the National Oceanic and Atmospheric Administration Earth Sciences Research Laboratory in Boulder, Colorado for the fourth annual North American Seasonal Assessment Workshop. Participants produced a fire potential outlook for Canada, México, and the United States. This briefing document includes a description of observed conditions, climate forecasts, fuel conditions, and potential resource requirements.

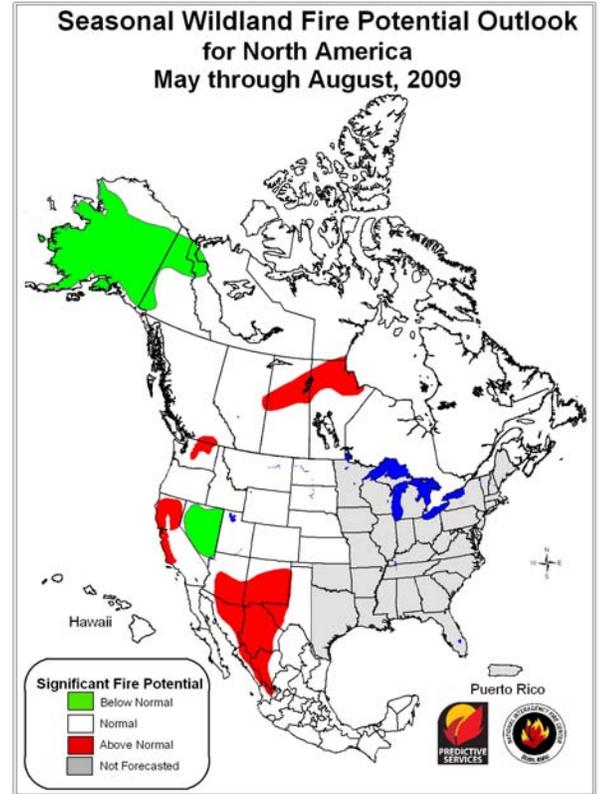
Fire Potential Forecast (May - August, 2009)

The map at right shows the fire potential forecast for May through August 2009 across North America (Note: any areas not included in this forecast are grayed out on the map). Fire potential for this product is defined as the likelihood that an area will see an above normal number of wildland fires or large wildland fire events. Areas highlighted as "Above Normal" are expected to experience above normal fire activity during the forecast period, which will likely demand increased resource utilization as well.

Workshop participants forecast above normal fire potential across portions of Canada, Mexico and the western United States. Below normal fire potential is forecast for much of Alaska, Nevada and portions of northwest Canada. Elsewhere, fire potential is expected to be normal through August.

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

- **Drought:** Drought conditions continue to persist or intensify over portions of the western U.S., especially in California, Nevada, and portions of Texas and New Mexico. Significant improvement has occurred over the north-central Great Plains since last summer. Drought Code values were high (dry) throughout much of Western Canada and the Territories last fall with the highest values in and adjacent to Alberta. This spring, high Drought Code values persist across south-central BC and the Prairies. Eastern Canada, northern BC, and the Yukon received near total recharge of deep fuel moistures over the winter. Mexico has seen recent expansion and intensification of drought across large portions of Sonora and north of Sinaloa.
- **Snowpack:** Wet fall conditions and above normal snowpack in Alaska are expected to limit fire potential. Much of western Canada saw near-normal to slightly above normal amounts of snow over the winter. Below normal snowpack in north-central Washington and northern California along with warmer and drier than normal forecasted conditions will lead to an early snowmelt and rapid drying of fuels.
- **Grassland Fuels:** Abundant new and carryover fine fuels across southern and eastern portions of the Southwest along with much of Sonora, Chihuahua,



Note: The outlook map image above is embedded and hyper-linked in this document.

Durango, Coahuila and North of Jalisco are expected to lead to an active grassland fire season. Continued moisture deficits in Nevada are expected to limit fine fuel production and associated fire spread.

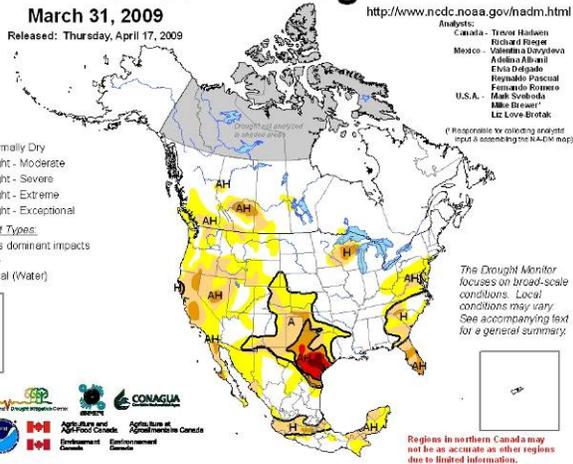
- **Fire Season Onset:** Dry spring conditions in northern California should cause annual grasses to cure three to five weeks early. Above normal snow-pack and cooler than average temperatures this spring are expected to delay snow melt over higher elevation areas across portions of the northern Rocky Mountains, especially in northern Idaho and Montana. This will help keep fuels moist and delay the onset of fire season in these higher elevation areas. A normal onset to the Canadian fire season is expected.
- **Southwest Monsoon:** A robust monsoon in the Southwest should help mitigate fire potential by early July.

Climate Conditions and Drought

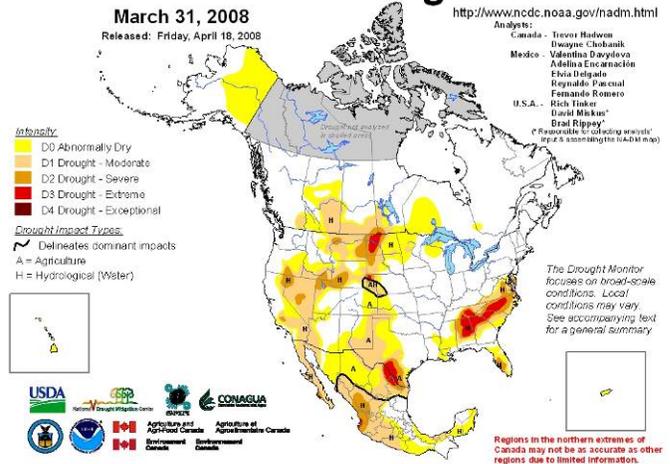
The current La Niña event is expected to continue to fade with neutral to weak La Niña conditions expected by summer. Climate outlooks for May through August are consistent with historic fading La Niña events and suggest warmer than normal conditions over the much of western and northern Canada, western U.S. and northern México. Dryness is favored in the northwest U.S. and Hudson's Bay area. A robust monsoon is expected for México and the southwest U.S.

Drought conditions on March 31, 2009 (left graphic) show drought stretching from western Canada to México with the driest areas in portions of Alberta, California, Nevada, Texas, the Baja peninsula and southern México. Compared to March 2008 (right graphic), drought severity has intensified in central Alberta, California, Texas, Oklahoma and over México's Baja peninsula.

North American Drought Monitor



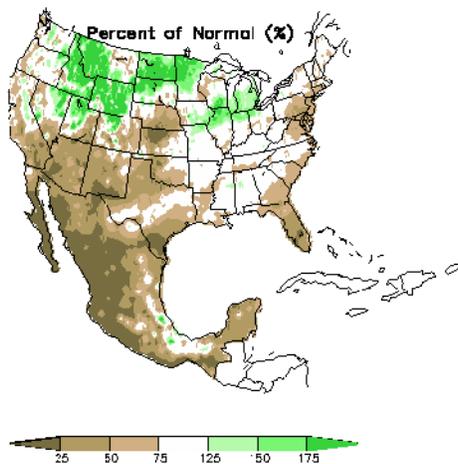
North American Drought Monitor



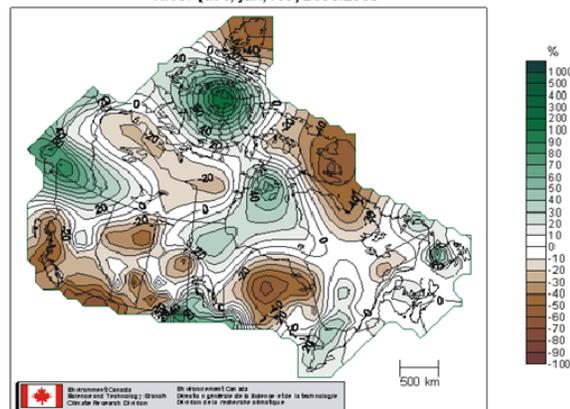
Temperature and Precipitation

Precipitation for the U.S. and México (90-day period ending March 31, 2009) and Canada (December 2008 – February 2009) are shown below.

90-day accumulation ending 20090331



PRECIPITATION DEPARTURES FROM NORMAL
Winter (Dec, Jan, Feb) 2008/2009
ANOMALIES DES PRECIPITATIONS PAR RAPPORT A LA NORMALE
Hiver (dec, jan, fev) 2008/2009



The outlook for May through August favors generally warmer than normal temperatures for much of Canada and the western U.S. It is expected to be cooler than normal in British Columbia and west of the Cascades in Oregon and Washington. Drier than normal weather is expected in the following areas:

- **Canada** – Most of the country except for western British Columbia, northern Manitoba and central Quebec
- **United States** – The Pacific Northwest, Northern Rockies and the Great Basin
- **México** – Portions of north and northwest México during May

Contributing Factors

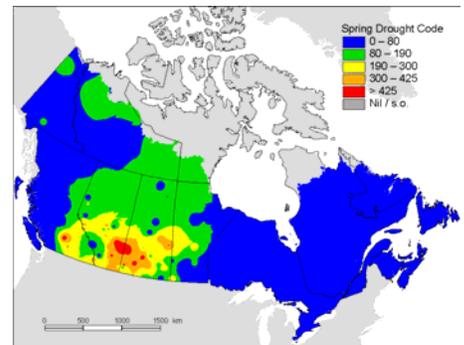
Canada: Above-average fire potential is predicted for northern Manitoba, central Saskatchewan and a small portion of southern British Columbia. Below normal fire potential is forecast for a portion of northwest Canada. Normal fire potential is expected elsewhere. The forecast is based on a combination of observed and predicted climate factors along with other fire danger and fuel information. Climate analogues were also consulted.

Key *observed* factors contributing to the fire potential portrayed on the summary map include:

- High fall drought code values throughout much of western Canada and the Territories, with the highest values in Alberta
- Below normal winter precipitation in most of western Canada with persisting high drought code values across south-central BC and the Prairies this spring (see image at right)
- Near total recharge of deep fuel moistures from winter precipitation across eastern Canada, northern British Columbia and the Yukon

Key *forecasted* factors contributing to the fire potential portrayed on the summary map include:

- Below normal precipitation predicted for most of Canada except for western British Columbia, northern Manitoba and central Quebec
- Above normal early summer temperatures throughout most of Canada with the exception of British Columbia



Western United States: Above average fire potential is predicted across portions of California, the Southwest, and a small portion of the Northwest. Below normal significant fire potential is forecast for most of Alaska and Nevada. Normal fire potential is expected elsewhere. Forecast confidence is moderate-to-high for California, Northern Rockies, Rocky Mountain, and the Southwest. Forecast confidence is moderate elsewhere. The forecast is based on a combination of observed and predicted climate factors along with other fire danger and fuel information. Climate analogues were also consulted.

Key *observed* factors contributing to the fire potential portrayed on the summary map include:

- Persistent drought conditions in California, Nevada, and portions of the Southwest
- Below normal snowpack in north-central Washington and California
- Early green-up of herbaceous fuels in California
- Abundant new and carryover fine fuels across southern and eastern portions of the Southwest
- Winter and spring moisture deficits in Nevada (which are expected to limit fine fuel production)
- Above normal snowpack in Alaska and northern Rocky Mountains

Key *forecasted* factors contributing to the fire potential portrayed on the summary map include:

- Drought is forecast to persist or intensify across portions of California and north-central Washington through July
- An early snowmelt is expected in California and Washington
- Snow-free dates across the Northern Rockies are expected to be later than normal
- Warmer than normal conditions are expected across much of the West this summer
- Drier than normal conditions are expected for the Northwest quarter of the country late spring and summer
- A robust monsoon is predicted in the Southwest by early July

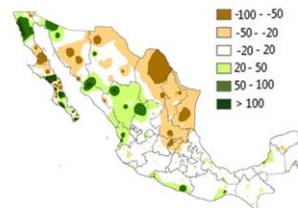
México: Above average fire potential is predicted across northwestern México extending southward from the U.S. border through the states of Sonora, Chihuahua, Durango and Sinaloa. Fire activity typically peaks during April and early May, tapering off by June and ending by August. The forecast is based on a combination of observed climate and predicted climate factors. Climate analogues were also consulted.

Key *observed* factors contributing to the fire potential portrayed on the summary map include:

- Expansion and intensification of drought across large portions of Sonora and north of Sinaloa
- Abundant new and carryover (from 2008) fine fuels across much of Sonora, Chihuahua, Durango, Coahuila, and north of Jalisco
- Dry winter and spring across western, central and southern areas
- High amounts of biomass in the temperate forest of the Sierra Madre Occidental due to an abundant 2008 monsoon rain season in Durango, Chihuahua, Nayarit, and north of Jalisco

Key *forecasted* factors contributing to the fire potential portrayed on the summary map include:

- Warm and dry conditions across north and northeast México through May due to continuing La Niña conditions
- Normal to above normal precipitation is expected in north and northwest México during the early summer due to a robust monsoon



Statistical forecasts predict drier than normal conditions in eastern and northeastern Mexico through June.

2009 North American Seasonal Assessment Workshop Summary

The main objective of the North American Seasonal Assessment Workshop is to improve information available to fire management decision makers. Other objectives include:

- Improving communication and cooperation between fire professionals and climate scientists
- Improving international information flow
- Fostering the exchange of ideas and techniques for assessing fire potential and applying climate forecasts and products to meet fire management needs

These annual assessments are designed to inform decision makers for proactive wildland and prescribed fire management, thus better protecting lives and property, reducing firefighting costs and improving firefighting efficiency.

Workshop participants, in consultation with other specialists unable to attend the workshop, considered a variety of factors when making their assessments. Fire potential outlooks are primarily based on interactions between climate factors, fuel types and conditions, long-range predictions for climate and fire, and the persistence of disturbance factors, such as drought and insect-induced forest mortality.

The North American Seasonal Assessment Workshop was organized by the National Predictive Services Group (NPSG), the Climate Assessment for the Southwest (CLIMAS) at the University of Arizona, and the Program for Climate, Ecosystem and Fire Applications (CEFA) at the Desert Research Institute. Workshop funding was provided by the National Predictive Services Group (NPSG) and the National Oceanic and Atmospheric Administration (NOAA). Participating organizations are listed below.

| Participating Organizations | |
|---|---|
| Bureau of Indian Affairs | NOAA Cooperative Institute for Research in Environmental Sciences |
| Bureau of Land Management | NOAA Earth Systems Research Laboratory |
| California Department of Forestry & Natural Resources | NOAA National Weather Service |
| CAP/Scripps Institution of Oceanography | Pacific NW Research Forestry Sciences Lab |
| CLIMAS / University of Arizona | Predictive Services |
| Desert Research Institute | Rocky Mountain Research Station |
| IBM Global Services | Servicio Meteorológico Nacional |
| National Association of State Foresters | State of Alaska Division of Forestry |
| National Park Service | USDA Forest Service |
| Natural Resources Canada | U.S. Fish and Wildlife Service |
| Neptune and Company, Inc. | U.S. Northern Command |
| NOAA Climate Prediction Center | Washington Department of Natural Resources |

