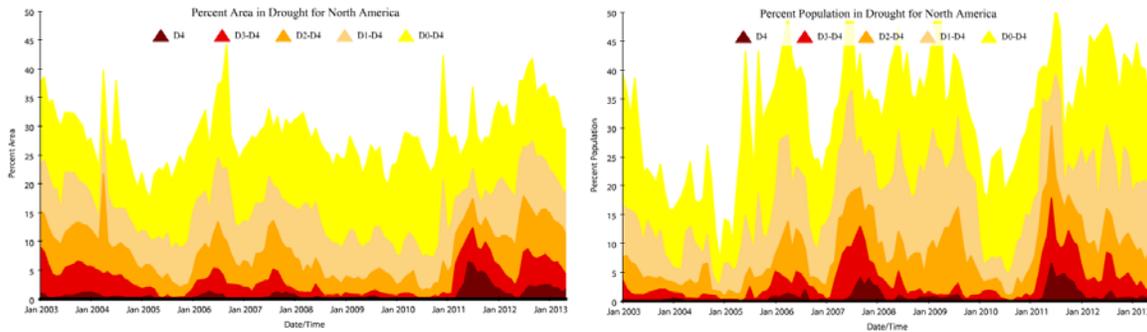


North American Drought Monitor - May 2013

At the end of May 2013, moderate to exceptional drought (D1-D4) affected approximately 18.4% of the area and 18.8% of the population of North America. These percentages are a decrease of 0.6% for area and an increase of 1.2% for population compared to the values for the end of April.



CANADA: The extent and severity of drought across Canada remained low for the month of May with few occurrences of abnormally dry (D0) areas throughout the country. All drought areas were located in Western Canada, primarily in northern forested regions which raised concern for forest fires.

May brought cooler than normal temperatures throughout the Atlantic Provinces. Frost events occurred throughout southern Quebec and Ontario which resulted in localized damage to early-emerged crops and necessitated some re-planting. Above normal temperatures occurred throughout Canada, particularly in British Columbia and Northern Quebec, but extended across the Prairies as well. Warmer-than-normal temperatures and wind throughout the Prairie region decreased soil moisture in agricultural regions.

Below-average precipitation occurred in the Prairies which helped to further alleviate the impacts from record high snow pack and resultant spring flooding. Southern Manitoba received above average precipitation, but there was no concern for excessive soil moisture and flooding. Below average precipitation was also received throughout the majority of Southern Ontario and British Columbia, while the interior of British Columbia received above average rainfall. Several large storm events produced localized precipitation along the Alberta-British Columbia border and southern Manitoba. Quebec and Atlantic Canada also received above average precipitation.

As a result of below normal rainfall and warmer temperatures, soils began drying out in western Saskatchewan and eastern Alberta which led to the D0 classification; since April 1 rainfall remained below 60 percent of normal for these areas. The lack of rainfall in north-central Saskatchewan increased concern for drought and forest fires, and across the boreal forest region from northeast British Columbia to northwest Manitoba. As a result this wide area was classified D0. East of Edmonton, a large area in east-central Alberta was classified D0 where spring precipitation was also less than 60 percent of normal since April 1.

Coastal BC, including the Queen Charlotte Islands, interior regions east of the Islands, and the northern portion of Vancouver Island remained classified D0 where rainfall was less than 60 percent of normal over the past six months. Impacts however were minor.

The heavy rain that occurred in parts of British Columbia, Quebec and eastern Canada decreased the risk for drought and resulted in high river levels, localized flooding and flood risks. As a result all D0 areas were removed from these regions.

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- Agriculture and Agri-Food Canada
- Environment Canada
- Natural Resources Canada – Canadian Forest Service
- Alberta Environment and Sustainable Resource Development
- Alberta Agriculture and Rural Development
- B.C. Ministry of Forests, Lands, and Natural Resource Operations – River Forecast Centre
- B.C. Ministry of Forests & Range, Wildfire Management Branch
- B.C. Ministry of Agriculture
- Manitoba Agriculture, Food and Rural Initiatives
- Manitoba Water Stewardship
- Nova Scotia Department of Agriculture
- New Brunswick Ministry of Agriculture, Aquaculture, and Fisheries
- New Brunswick River Watch
- Ontario Ministry of Natural Resources – Surface Water Monitoring Centre
- Ontario Ministry of Natural Resources – Aviation, Forest Fire and Emergency Services
- Ontario Ministry of Agriculture, Food, and Rural Affairs
- Ontario Ministry of Environment
- Québec Société de protection des forêts contre le feu (SOPFEU)
- La Financière agricole (Québec)
- Saskatchewan Ministry of Agriculture
- Saskatchewan Water Security Agency
- Saskatchewan Ministry of Environment Wildfire Management

UNITED STATES: An active jet stream propagated several upper-level troughs and ridges across the U.S. during May. Frontal passages along these systems brought both cooler-than normal and warmer-than normal temperature to various parts of the country. Heavy rains were experienced in parts of the Plains and Midwest. The West, Ohio Valley, Mid-Atlantic, and Gulf of Mexico largely missed the rains and were drier than normal. By the end of the month, the core drought areas in the U.S. included:

- The West and into the Southern Plains. California had its driest year to date and New Mexico experienced its driest January – June on record; and
- much of Hawaii, where moderate to extreme (D3) drought persisted.

Monthly precipitation totals exceeded 7 inches (178 mm) across areas of the southern Midwest and the eastern Plains. Ninety-six precipitation records were exceeded in May and one was tied. This rainfall further reduced the drought areas in the Plains and provided the wettest January – May on record for many climate division in the Midwest. Conversely, the lack of precipitation through the course of the calendar year shows climate divisions in northern California and eastern Oregon as the driest January – May on record.

The May precipitation helped reduce the moderate-to-exceptional national (contiguous U.S.) drought footprint from 46.9 percent at the end of April to 44.1 percent at the end of May. According to the Palmer Drought Index, which goes back to the beginning of the 20th century, 38.0 percent of the contiguous U.S. was in moderate to extreme drought at the end of May, a decrease of about four percent compared to last month.

Historical Perspective: According to preliminary information provided by the NOAA National Climatic Data Center (NCDC), the contiguous U.S. experienced its 40th warmest and 17th wettest May on record (since 1895). The Nation's average temperature of 61.0°F (16.1°C) was 0.9°F (0.5°C) above the 1901-2000 mean, while the nationally-averaged precipitation of 3.34 inches (84.8 mm) was 0.47 inch (11.94 mm) below the long-term mean. Regionally, temperatures were below normal in the South and Southeast and above normal in the Northwest, Southwest, and Northeast. Precipitation was above normal in the North, the Ohio Valley and the Northeast and below normal in the Southwest. Iowa had its wettest May on record.

Values for climatological Spring, March – May shows below normal temperature and near normal precipitation for the contiguous U.S. in May. Much of the country west of the Rockies was cooler than normal while the West Coast and Southwest were warmer. Precipitation was above normal across much of the northern tier of the country, with the exception of New England and the Pacific Northwest, while below normal precipitation was experienced in the Southwest and New England.

Agricultural and Hydrological Highlights: As of June 4, 33% of hay, 47% of winter wheat, and 46% of cattle were in drought. With drought concentrated across the nation's West and Southern Plains, 43% of the winter wheat crop was rated poor to very poor. As of June 2, 25% of the nation's pasture and rangeland was in poor to very poor condition, a drop of 11% from April. State values of pasture and rangeland in poor to very poor condition varied with the highest percentages in New Mexico, at 92%, 75% in Arizona, and 65% in California

Monthly streamflow levels for April, monitored by the U.S. Geological Survey, were much below normal (in the lowest tenth percentile) for some basins in the Southern Plains and the West. The USDA Natural Resources Conservation Service reported that May 31st snowpack was below normal across much of the interior West. End-of-May USDA statewide summaries revealed significantly below-normal reservoir storage for this time of year in Arizona, Colorado, Nevada, New Mexico, Oregon, and Washington.

MEXICO: Hurricane Barbara, which occurred from the 28th to the 30th, was the most important weather event of the month. Since its formation as a low pressure system on May 26, this event brought enough rain that helped reduce the area in Chiapas from moderate drought (D1) to D0, and eliminated abnormally dry (D0) regions in southern Veracruz, Oaxaca and Tabasco. Additional rainfall was related to two frontal systems and a dry line stretched from southern Texas to Coahuila. Over the northeast and the Gulf of Mexico's States rainfall was produced by interactions of the jet stream, westerly winds and remaining cold fronts. Nationwide, the monthly rainfall of 39.8 mm was 10% above May's long-term mean.

The beneficial moisture received up to May decreased from exceptional (D4) to extreme drought (D3) in northern Coahuila, Nuevo Leon and Tamaulipas. These regions have suffered drought over the past six months, and main reservoirs “El Cuchillo” in Nuevo Leon and “Marte R. Gomez” in Tamaulipas were still at low levels by May 31 at 21% and 25% respectively. Drought intensities worsened over Durango and Nayarit (in central to western parts of the country). The total coverage at the end of May of moderate to exceptional drought (D1-D4) and from D0-D4 rose to 23.9% and to 58.2%, respectively. In late April, four states (Colima, Aguascalientes, Morelos and Guerrero) were not classified in drought, but by late May all federal states, except for Colima which received rain by westerly winds, were dry or in drought.

For May, the one-month statewide rainfall classification placed four states in the top ten wettest: this included Veracruz (9th), Campeche (7th), Baja California Sur (4th) and Morelos (3rd). From March to May (3-month) Morelos ranked the fourth wettest, but in contrast at least four states were in the top ten driest: San Luis Potosi (10th), while Baja California Sur, Durango and Hidalgo each had the ninth driest period. So far long-term dryness has persisted in most of the country for the past six to twelve months. Since December 2012 (6-month), four states remained in the top ten driest, including Puebla (8th), Hidalgo and San Luis Potosi (7th) and Durango (6th). From June last year to May (12-month) six states fell in the top ten driest: the Federal District (10th), the State of Mexico (9th), Hidalgo (8th), Tabasco (7th), and Jalisco and Yucatan were placed as the sixth driest. All calculations are based on records since 1941.

The country’s May mean temperature of 24.6 °C was 1.3 °C above the 1971-2010 normal, and placed as the sixth warmest since 1971. Baja California Sur, Guanajuato and Sonora had their tenth warmest on record; Tabasco and Tamaulipas were placed as the ninth, Chihuahua and Tlaxcala as the sixth, Aguascalientes had their third warmest and Colima experienced their warmest May. On the other hand, Campeche, Chiapas, the State of Mexico and Nuevo Leon had mean temperatures ranked as the twelfth coldest, and Zacatecas reached the eight coldest May based on statewide records since 1971.

The latest report of the Information System for Agri-Food and Fishing (SIAP) said that May was the sixth month harvesting crops for the autumn-winter season (AW) and the second for sowing in the spring-summer season (SS). The harvest for the season (AW) is at 57% of scheduled for all crops, but strawberry crops, sesame, tobacco, forage maize, potatoes, beans and chili are 80% completed. Eighty percent of all crop losses were to wheat, maize and sorghum crops; with sorghum reporting major losses by drought. The harvesting progress of main grains such as corn, wheat and sorghum were over 70% for Sinaloa, Sonora and Tamaulipas; meanwhile seeding for (SS) season were delayed by poor soil moisture. In late May only 19% of seeding for rain-fed crops such as maize, sorghum and beans was reported. For perennial crops 86% of the sugarcane harvest and 92% for coffee picking was completed. Livestock had minimal decreased production in the main state-producers such as Veracruz, Jalisco, Michoacán and Chihuahua. Highly technical farmers were able to increase pork production, which maintained a growth rate of over 3.5%; however, small and medium producers were most affected by drought.

According to reports from the National Forestry Commission (CONAFOR), from January 1 to May 30 about 9,353 wildfires were reported; nearly double the number reported for the same time one year ago. At least 278,330 hectares were burned, 84% of this which was reported in Jalisco, Oaxaca, Michoacán, Chiapas, Chihuahua, Mexico, Puebla, Hidalgo, Mexico City and Tlaxcala. These states are located in the central and northern regions of the country which have been suffering from dryness or drought. Most of the fires reported in the southern states were due to agricultural lands preparation which includes the traditional method of slash and burn.