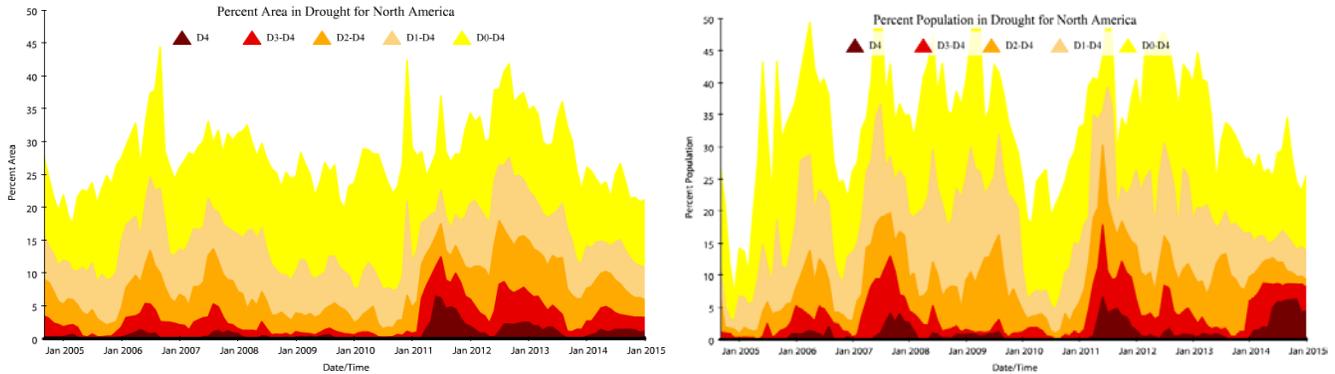


## North American Drought Monitor – January 2015

At the end of January 2015, moderate to exceptional drought (D1-D4) affected approximately 10.9% of the area and 13.8% of the population of North America. These percentages are a decrease of 0.2% for area and a decrease of 0.6% for population compared to the values for the end of December 2014.



**CANADA:** Drought conditions across Canada remained fairly static through January as frozen ground and snow accumulation prevented any significant changes in soil moisture. Nevertheless, British Columbia experienced a significant amount of precipitation and temperatures 2 to 5 degrees C above the monthly mean. These conditions alleviated some of the abnormally dry (D0) pockets in the province's interior. On the other side of the Rocky Mountains, Alberta reported more than 15 cm of new snow along its western half and into its northern regions. While the snowfall alleviated some abnormally dry (D0) areas that had developed through December, a pocket of long-term moderate drought lingers in the Peace River Region of the province. This is the result of long-term accumulative dry conditions which will take considerable precipitation to resolve.

The rest of the Prairies experienced a much drier month, with precipitation 10 to 20 mm below the monthly average. Drought conditions in Saskatchewan were largely unaffected by the dry weather as their soils remain saturated from a wet fall. Southern Manitoba entered the winter with far drier conditions, leaving the area susceptible to drought. As a result of this vulnerability, a pocket of moderate drought (D1) extended northward from the upper Midwest (United States) through the beginning of this winter. With much of Manitoba recording less than 10 mm of precipitation during January, this area has continued to degrade, and the moderate drought has reached as far north as Manitoba's Interlake region. Considerable snowfall throughout the rest of the winter will be needed to recharge soil moisture with spring run-off.

Conditions in Ontario and Quebec were for the most part moderate through January. The region experienced precipitation levels which were 60 to 85 percent of normal and temperatures 2 to 3 degrees C below the monthly mean. While these conditions did not exacerbate the abnormally dry (D0) patch along the Quebec City-Windsor corridor, they were also not significant enough to alleviate it. Snowfall in the coming months will likely be sufficient to recharge the area's soil-moisture.

**UNITED STATES:** According to the U.S. Drought Monitor (USDM), the portion of the contiguous United States in drought (D1 to D4) on February 3, 2015 was 28.44 percent, a slight 0.24 percent decrease from 28.68 percent coverage on December 30, 2014. This value had dropped to 27.97 percent

on January 13, 2015 following a wet December in the West, but a complete reversal of conditions (e.g. near-record dryness) during January in the West, especially California, caused drought to increase during the latter half of the month. California's U.S.-leading coverage of exceptional drought (D4) rose to 40 percent on February 3, up from 32 percent on Dec. 30. In contrast, January storms provided local drought relief across the southern Plains and Southwest. Arizona's coverage of severe to extreme drought (D2 to D3) fell to 28 percent, down from 39 percent on Jan. 20.

Drought, however, still covered a substantial portion of the southern Plains and western U.S. On Feb. 3, exceptional drought (D4) was noted in California (40 percent), Nevada (17 percent), Oklahoma (6 percent), and Texas (3 percent). One of the biggest concerns facing California is the lack of high-elevation snowpack in major watersheds. By early February, the Sierra Nevada snowpack contained an average of only 4 inches of liquid, only about one-fifth of normal for this time of the year. Concern about meager snowpack extends beyond California, stretching eastward into Arizona and New Mexico and the western Great Basin, and northward into the Cascades.

The eastern half of the Nation remained mostly drought-free, although a large area of abnormal dryness (D0) covered much of the upper Midwest and northern Great Plains. In late January and early February, a large winter storm dropped heavy snow from Nebraska into the Northeast, but bypassed the driest areas of the upper Midwest. In North Dakota's Red River Valley, less than 10 inches of snow has fallen this winter in places such as Grand Forks (9.6 inches, or 30 percent of normal) and Fargo (8.3 inches, or 26 percent of normal). Recent dryness and drought (D0 to D2) have expanded in parts of the Tennessee Valley (from eastern Arkansas northeastward into northern Kentucky) as significant precipitation from storms has bypassed this area to the north and south. Elsewhere, a few scattered areas of D0 lingered in parts of the Southeast and mid-Atlantic.

**Historical Perspective:** According to the National Climatic Data Center, the contiguous U.S. had a January average temperature of 33.0 degrees F, 2.9 degrees above the 20<sup>th</sup> century average. This was the 24<sup>th</sup> warmest January on record for the contiguous U.S. Regionally, temperatures averaged much above normal in the West, above average in the northern half of the Plains, and below average in the Northeast and southern Plains. The precipitation (1.75 inches) for the contiguous U.S. ranked as the 18<sup>th</sup> driest January in the 121-year period of record. Below to much below-average precipitation was observed across the Far West (4<sup>th</sup> driest in California, 5<sup>th</sup> driest in Oregon) and parts of the central Rockies (10<sup>th</sup> driest in Wyoming), Plains (8<sup>th</sup> driest in Nebraska), and Midwest (12<sup>th</sup> driest in Wisconsin), and above average precipitation in the Southwest, southern Plains, and mid-Atlantic.

For 2014, the contiguous U.S. temperature was 52.6 degrees F, 0.5 degrees F above the 20<sup>th</sup> century average, tied with 1977 as the 34<sup>th</sup> warmest year in the 120-year period of record. This marked the 18<sup>th</sup> consecutive year with an annual average temperature above the 20<sup>th</sup> century average for the CONUS (1996 was the last year below average). Precipitation was 30.76 inches, 0.82 inches above the 20<sup>th</sup> century average, or the 40<sup>th</sup> wettest year on record. Statewide, California, Arizona, and Nevada had the warmest year on record while the rest of the West was much above average. In contrast, states in the Nation's mid-section (from Wisconsin and Michigan southward to Louisiana and Mississippi) were much below average. 2014 precipitation was above average in the Northwest, Midwest, New England, and Florida, and below average in the southern Plains (Texas and Oklahoma) and West Virginia.

**Agricultural and Hydrological Highlights:** A low snowpack remained a major concern for the Sierra Nevada and Cascades where snow-water equivalent values were generally below the 10<sup>th</sup> percentile

during early February. The dry January combined with unseasonable warmth has greatly diminished snow packs across many sections of the West. According to the USDA fieldwork summary, winter wheat conditions declined in several states during January, in part due to drought and possibly due to the adverse effects of winter weather extremes. In Oklahoma, 41 percent of the winter wheat was rated good to excellent condition at the end of January, down from 54 percent a month earlier. Also on Jan. 31, more than one-tenth of the winter wheat was rated very poor to poor condition in several states, including Texas (16 percent), Colorado (14 percent), Oklahoma (13 percent), and Kansas (13 percent).

**MEXICO:** January's 2015 precipitation was above normal in Sonora, Chihuahua, Coahuila, Durango, Veracruz, Tabasco, Chiapas and Campeche. Four winter storms, supplemented by ample moisture from the Pacific Ocean carried by the jet stream, were the major weather systems that dropped surplus precipitation on northwest and northern Mexico. In eastern sections, two cold fronts that tracked across the western Gulf of Mexico produced most of the monthly rainfall.

Monthly national average precipitation of 37.5 mm was 12.3 mm greater than the January's long-term mean, and was ranked as the ninth wettest since 1941. By the end of the month 85.3% of the country was free of drought, an improvement of 2.8% over the previous month. Moderate to extreme drought (D1-D3) covered areas of Baja California, Sonora, Chihuahua, Coahuila, Guerrero, and Michoacan which together accounted for 3.3% of the country. In January, 11.3% of the country was affected by abnormal dryness (D0), with much of this located in the south and southeast. The long-term drought posted a slight improvement in Baja California where moderate drought (D1) decreased, but severe to extreme drought (D2-D3) persisted. Other states in drought were Sonora, Chihuahua and Durango. To the south, there was concern about the persistence of moderate drought in Michoacan (which covered 20.2%), Oaxaca (4.6%), Guerrero (10.4%) and southern Veracruz (0.9%), and water administrators have considered issuing some restrictions.

Three states recorded 2015 as one of the top ten wettest Januarys: Veracruz (sixth), Tabasco (fifth) and Campeche (second). Those who received minimal monthly rainfall were Guerrero and Morelos; both had their seventeenth driest January since 1941. Over the past three months (November 2014-January 2015), Nuevo León and Tamaulipas had their ninth wettest such period, followed by Nayarit (seventh), Colima (sixth), and Coahuila (fourth). In contrast, Oaxaca had its ninth driest November–January period on record.

Cold air masses behind frontal systems generated below normal January temperatures from the northeast (Coahuila, Nuevo Leon, and Tamaulipas) into the south and southeastern (Veracruz, Oaxaca, and Tabasco), with Tamaulipas experiencing its eighth coldest January, Veracruz its third coldest January, and Nuevo Leon the coldest January since 1971. Conversely, states located on the Pacific Coast (from Sonora to Michoacan) had above normal temperatures, with Baja California and Baja California Sur reporting their second warmest January on record, and Nayarit, Jalisco, and Michoacan having their warmest January since 1971.