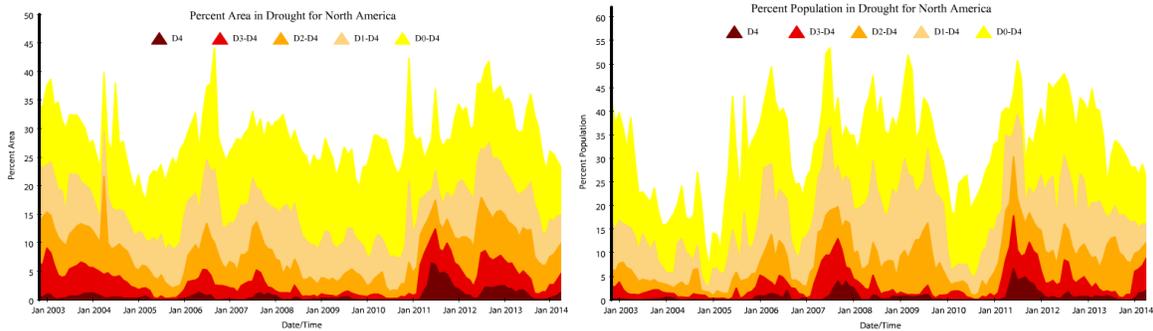


North American Drought Monitor – April 2014

At the end of April 2014, moderate to exceptional drought (D1-D4) affected approximately 14.8% of the area and 16.1% of the population of North America. These percentages are an increase of 0.1% for area and 0.1% for population compared to the values for the end of March 2014. For the worst drought categories (extreme to exceptional drought, D3-D4), the percent area and percent population have steadily increased during the last three months.



CANADA: Cold spring conditions carried on into the month of April, where the monthly mean temperature was below-average across much of the country. Snow cover and frozen ground remained in many areas, resulting in minimal change in drought conditions. Some new abnormally dry areas were identified in central and the northwestern coast of British Columbia, and also in northern Ontario around James Bay, and the area of dryness in northern Saskatchewan expanded into Manitoba. The area of moderate drought in eastern Alberta expanded due to long term accumulative dry conditions within the region, as well as short term below-average precipitation and below-average temperatures of -6 to -4 degrees Celsius during the last three months, which further delayed soil moisture recharge. The area classified as moderate drought south of Winnipeg, Manitoba decreased in extent but was still dry due to continued low moisture as well as below-average precipitation over the fall and winter months. Some abnormally dry areas, including Vancouver Island, the Queen Charlotte Islands, northwestern Alberta, northwestern Ontario and southern Quebec, returned to normal. Moderate and severe drought in southern British Columbia was downgraded to abnormally dry.

After the long, cold winter conditions that created a significant snowpack in many regions, the spring melt has begun across the country due to warming temperatures. As the ground begins to thaw and the snowpack melts, spring runoff will likely recharge soil moisture in some of the dry areas. Above-average spring precipitation is required in order to relieve the drought conditions in Alberta and Manitoba. Snow cover remains in areas of the Canadian Rocky Mountains, as well as in patches in the northern prairie region, but snow cover has dramatically decreased since the end of April and the remaining snowpack should melt in the near future.

UNITED STATES: During the 4-week period ending April 29, drought coverage across the contiguous United States remained virtually unchanged (up 0.06 percentage point) at

38.43%. Nevertheless, U.S. drought coverage was at its highest point since October 8, 2013, and was up 7.48 percentage points from the beginning of the year. In April, dry, dusty, windy conditions on the southern Great Plains fueled concerns of a “New Dust Bowl.” The drought, which began in the fall of 2010 and has lasted for more than 3½ years, continued to take a severe toll on rangeland, pastures, and winter wheat. During the 4 weeks ending April 29, coverage of extreme drought (D3) climbed from 14 to 25% in Kansas, while extreme to exceptional drought (D3/D4) coverage rose from 24 to 39% in Oklahoma; 27 to 38% in Texas; and 25 to 33% in New Mexico.

Periodic April storms provided temporary relief to drought-stricken areas from California into the Southwest. April precipitation briefly eased irrigation requirements and aided rain-fed rangeland, pastures, and crops across the nation’s southwestern quadrant, but water-supply prospects for the summer remained bleak. California’s coverage of extreme to exceptional drought (D3/D4) rose from 69 to 77% during the four weeks ending April 29, while Nevada’s coverage climbed from 34 to 39%.

With the agricultural focus turning toward spring planting—more than one-quarter (29%) of the intended U.S. corn acreage was planted by May 4—it is worth noting that drought lingers in portions of the western Corn Belt. By April 29, about one-quarter (26%) of the U.S. corn production area was in drought, down 5 percentage points from 4 weeks ago. Similarly, 19% of the soybean production area was in drought on April 29, down 5 points from April 1.

There was no dryness or drought depicted in Alaska during April, while coverage of abnormal dryness (D0) increased slightly in Puerto Rico from 45 to 48%. In Hawaii, drought was nearly eradicated during April, with statewide coverage shrinking from 14 to 1%. There was, however, a late-month increase in Hawaii’s coverage of abnormal dryness due to short-term precipitation deficits in leeward locations.

Historical Perspective: According to preliminary information provided by the NOAA National Climatic Data Center, the contiguous U.S. experienced its 30th wettest April in the 1895-2014 record. Eight states (in the West, Southern Plains, and Central Appalachian Mountains) had April precipitation ranks in the dry third of the historical record. Three states in the Southern Plains had the tenth driest, or drier, February-April (Oklahoma at third driest, Texas at fifth driest, and Kansas at ninth driest). Five states in the Southern Plains and Southwest had the tenth driest, or drier, year-to-date (January-April): Oklahoma at second driest, Kansas and Texas at fifth driest, Arizona at sixth driest, and New Mexico at seventh driest. For the last twelve months (May 2013-April 2014), California ranked third driest, but California had the hottest May-April on record.

Agricultural and Hydrological Highlights: A mid-April cold snap further harmed drought-injured wheat on the southern Great Plains. Another cold wave in late April and early May possibly caused additional damage to the crop in beleaguered southern wheat production areas. By May 4, more than one-third (38%) of the U.S. winter wheat was rated in very poor to poor condition, according to the U.S. Department of Agriculture (USDA). Nearly three-quarters (73%) of the wheat was rated very poor to poor in Oklahoma, while almost two-thirds (64%) was rated very poor to poor in Texas. Kansas (47%) and Colorado

(37%) also had large amounts of wheat rated very poor to poor. The portion of the winter wheat production area in drought has been hovering just above the 50-percent mark in recent weeks and stood at 53% on April 29. This value is very similar to what was noted a year ago, on April 30, 2013, when 54% of the wheat crop was in drought. Conversely, nearly two-thirds of the winter wheat was rated in good to excellent condition on May 4, 2014, in several states, including South Dakota (64% good to excellent), Arkansas (64%), Montana (63%), Indiana (63%), and Illinois (60%).

By May 4, USDA was also reporting significant topsoil moisture shortages in several states—82% short in Texas, along with 78% in Oklahoma, 75% in California, 70% in Kansas, 66% in New Mexico, and 60% in Colorado and Nevada. Drought was also reflected in USDA's pasture and rangeland conditions, which on May 4 indicated very poor to poor ratings of 73% in New Mexico, 60% in California, 55% in Nevada, 52% in Arizona, 46% in Colorado, and 39% in Oklahoma and Texas. In contrast, rangeland and pastures were rated from 60 to 75% good to excellent conditions in Idaho, Indiana, Wyoming, and five Southeastern States.

April storms provided another slight boost in California's reservoir storage, although. By April 30, storage in California's 154 intrastate reservoirs was 69% of the historical average, up from 68% the previous month. However, California's water-supply prospects remained bleak, as the Sierra Nevada—a key watershed for the state's reservoirs—had only a small amount of snow remaining left to melt into rivers and reservoirs. By May 1, the average water content of the high-elevation Sierra Nevada snowpack stood at 4 inches (about 100 mm), less than one-fifth of average. Farther east, statewide reservoir storage was also quite low in Nevada (less than one-third of average) and New Mexico (just over one-half of average). Long-term water-supply issues also persisted on the southern Great Plains due to a drought that began in late 2010 and has lasted for 3½ years. For example, O.H. Ivie Reservoir east of San Angelo, Texas, was just 11.4% full at the end of April. Storage in O.H. Ivie Reservoir was frequently more than eight times greater than the present volume in the 1990s, but has been sharply reduced in the last 15 years by chronic drought and above-normal temperatures.

MEXICO: April 2014 had 13.8 mm of precipitation, 20% below normal, and was classified as the 25th driest April since 1941 at the national level. The above normal rains occurred in northern Chihuahua, Coahuila, and the Yucatan Peninsula, as well as over isolated areas in the central part of the country. The high pressure system over the North Atlantic favored warm and dry winds from the Yucatan Peninsula and the Gulf of Mexico slopes, allowing the extension of new abnormally dry (D0) conditions over the northeast and the Yucatan Peninsula. Another high pressure system in the western United States extended to the Baja California Peninsula and the Mexican Pacific side, blocking moisture and inhibiting rains, resulting in D0 to moderate drought (D1) in Sonora, Chihuahua, Zacatecas, Guanajuato and Oaxaca. April's low rainfall contributed very little, and the percent of the country from abnormally dry (D0) up to extreme drought (D3) increased from 28.8% last month to 37.9% in April.

The country has remained free of exceptional drought (D4) since November 2013. In April 2014, D0-D3 affected all states except Colima and Federal District. A slight increase of 0.1% in extreme drought (D3) was noted in northern Baja California, Chihuahua and Coahuila. It was favored by the displacement of high pressure from the Southeast U. S. which inhibited moisture to the frontal systems.

For the past three months (February-April), state-level precipitation ranks included Baja California and Jalisco at the 13th driest, Veracruz 11th driest, and Coahuila and Oaxaca at 8th driest in the 1941-2014 record. On the wet side, Campeche and Morelos had the highest ranks, placing at 14th and 13th wettest. The national mean temperature of 22.9 °C was 1.3 °C above the 1971-2000 normal and ranked as the 3rd warmest April since 1971. The mean and minimum temperatures were above normal, with a decreasing trend in maximum temperature. Five states (Baja California Sur, Campeche, Quintana Roo, Sinaloa, and Tlaxcala) had their second warmest April, and Baja California, Colima and Morelos experienced their warmest April since 1971.

The National Forestry Commission (CONAFOR) weekly report of forest fires, issued on May 1, 2014, identified ten states with the greatest surface burned for the year-to-date, including Oaxaca, Guerrero, Michoacan, Jalisco, Sonora, Puebla, Baja California Sur, Tabasco, Mexico and Durango. The total area burned in those states is 39,290 ha (0.02 % of the national area). These ten states are in D0, but Oaxaca Guerrero and Tabasco had moderate drought (D1) and Sonora is experiencing severe drought (D2). This is the fifth season with the lowest area burned by forest fires since 2001; a quarter burned in 2011, when 87% of the country was in D1-D4 conditions.