

North American Drought Monitor - June 2008

CANADA: While timely rains in June alleviated dry conditions across the Prairies, water supply, crop and forage growth may still be affected as the growing season progresses. Precipitation monitoring indicates several areas with lower than average precipitation amounts including the northern Prairie's agricultural zone, particularly around the Alberta Peace District and northeast of Saskatoon, Southeast Saskatchewan and Atlantic Canada. As conditions continue to improve, there are no major concerns for drought; however, some regions are being closely monitored.

Mountain snowpack melt throughout British Columbia is proceeding with most basins reporting above normal levels for the date and no water supply concerns at this time. Recent warmer temperatures will help mature crops but may also eventually create a higher water demand for irrigated crops. Southern portions of the interior and north central regions have seen very low precipitation this spring resulting in abnormally dry conditions. Northern regions are less of a concern due to well above normal winter precipitation and abundant water supplies, however the southern interior had near normal or below normal winter precipitation and below normal spring and early summer precipitation. This area will need to be closely monitored over the coming months.

While timely rains in June alleviated dry conditions across the Prairies, water supply, crop and forage growth may still be affected due to large moisture deficits from previous long term drought conditions. Timely precipitation in June has greatly improved soil moisture levels across much of Alberta. However additional precipitation is still needed in the northwest, the Peace District, and east of Edmonton where levels since April 1 are between 60 and 85 percent of average. Timely precipitation in June alleviated dry conditions in most of the southern part of Saskatchewan as well. Soil moisture levels have improved and crop development and growth is proceeding well. Water supplies, due to long term dry conditions, are still a concern over much of this region however conditions have improved considerably in the past few months. Dry conditions remain a concern northeast of Saskatoon, where precipitation is 40 to 60 percent of average with some areas reporting less than 40 percent of average. Above normal forest fires have resulted from extremely dry conditions in the eastern portion of the province. Similar to Alberta and Saskatchewan, precipitation in Manitoba during June alleviated dry conditions, especially in the southwest part of the province where well above normal precipitation was recorded for the month of June. As conditions throughout this region improve the drought classification continues to be lowered. If conditions continue to improve the remaining area under a Moderate Drought (D1) classification will be removed for the next reporting period. The west central portion of Manitoba remains dry with three month precipitation being between 40-60 percent of normal in some regions.

Near normal to above normal precipitation continues throughout Ontario and Quebec with no concerns for drought at this time. Areas that had gone through drought during the 2007 growing season have fully recovered. The Great Lakes basin precipitation for June was 142% of average. Lake Superior, Michigan-Huron, Erie, and Ontario basins received an estimated 155%, 142%, 130%, and 123% of average precipitation in June,

respectively. Levels of the Great Lakes have risen and are now significantly above the level of a year ago.

Dry, cool conditions have prevailed across much of Atlantic Canada. The area around Fredericton, New Brunswick continues to be dry and is being closely monitored. The area designated as Abnormally Dry (D0) has expanded to now include all of Nova Scotia, and Prince Edward Island as well as much of New Brunswick. Precipitation since April 1 is 40 to 60 percent of average with some parts receiving 120 mm below their average values for this time of year. At this time there are no major concerns for this region, however conditions are being closely monitored.

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- Saskatchewan Watershed Authority
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UNITED STATES: The weather pattern during June was a continuation of the pattern of the last several months. A series of cold upper troughs over the northwestern U.S. at the jet stream level propagated low pressure systems and cold fronts, with heavy rain and severe weather, across the Midwest to Northeast. Dry, warm high pressure dominated at the upper levels across the southern states. The result was wet weather and flooding from the central Plains to the Great Lakes, with drought conditions improving in the northern Plains. Dry weather prevailed in the south, especially over the Southwest, southern Plains, and Southeast, where drought conditions deteriorated this month. June was generally drier than average across much of Puerto Rico and Hawaii and across southern Alaska.

Agricultural and Hydrological Highlights: Another month of wet conditions in the Midwest kept the planting pace in the Corn Belt behind normal with rivers and streams well above normal. Significant flooding occurred along the Cedar River in Iowa, in the many tributaries to the Mississippi River in eastern Iowa and southern Wisconsin, and along the Mississippi River in parts of western Illinois and eastern Missouri. By the end of June, 26 percent of the contiguous U.S. was classified in moderate-to-extreme "wet spell" conditions, based on the Palmer Index.

Meanwhile, the lack of rain contributed to persistently low streams and deficient groundwater in the Southeast and rapid drying of topsoils across the mid-Atlantic states, the Southeast and southern Plains, and the central Rockies to Pacific Northwest. According to National Agricultural Statistics Service (NASS) reports, as of June 29, 66 percent of the pasture and range land in South Carolina, 44 percent in Georgia, and 37 percent in North Carolina was classified as “poor” to “very poor” condition. In the southern Plains and Southwest, 48 percent of the pasture and range land in Texas was “poor” to “very poor”, with 68 percent in New Mexico and 97 percent in California. Pockets of rain late in the month brought relief to parts of Texas, but crop conditions continued to suffer. June 29 reports had 22 percent of the state’s corn crop in poor to very poor condition, 39 percent for cotton, 24 percent for sorghum, and 45 percent for winter wheat. The persistent dryness has resulted in reduced streamflow in Hawaii and Puerto Rico and contributed to 6-month precipitation deficits in Hawaii.

Hot and dry conditions expanded drought in the southern Plains, with the hardest-hit areas being southern Texas and the area centered around the western part of the Oklahoma panhandle. Drought was having some severe localized impacts in the Oklahoma panhandle. According to media reports, impacts included large-scale livestock sell-offs, wildfires, and growing risk of significant dust storms. In Cimarron County, Oklahoma, the wheat crop was nonexistent this year, pastures were dormant or dead, and wind erosion of the soil was occurring – according to old-timers in the area – like back in the Dust Bowl days. Governor Henry requested federal disaster aid in June for Oklahoma farmers and ranchers who have been hit by drought and extreme weather conditions in nine northwest counties.

Dry conditions set the stage for increased fire potential across the western U.S. By the end of June, many large wildfires were raging in northern California and Arizona, largely due to lightning strikes. As of June 30, more than 2.1 million acres had burned so far this year in the United States, according to the National Interagency Fire Center. January-June 2008 ranked third behind the same periods for 2006 and 2002 in the amount of burnt acreage.

Historical Perspective: June was exceptionally dry in parts of the West and southern Plains. California had the fourth driest June and driest March-June in the 1895-2008 record. The California dryness was so severe that Governor Schwarzenegger declared the first statewide drought in 17 years. According to media reports, the last time a statewide drought was declared in California was 1991. June 2008 was the eighth driest June for North Carolina, ninth driest for South Carolina, tenth driest for Tennessee, and eleventh driest for Georgia. July-June 2007-2008 ranked as the third driest July-June on record for North Carolina. Southern Texas (climate division 9) experienced the driest October-June in the 114-year record.

Changes to Drought Depiction: Compared to the end of May, conditions by the end of June improved in the northern Plains and northern Rockies with D0-D2 (abnormally dry to severe drought) shrinking and D3 (extreme drought) disappearing in North Dakota. D0 disappeared in the Northeast and also in Alaska, but expanded slightly in the Pacific

Northwest. Moderate to severe drought (D1-D2) expanded in California and also in Hawaii. All categories of drought expanded in the southern Plains and Lower Mississippi Valley, with spots of D4 (exceptional drought) being introduced in southern Texas and in the border area around the western Oklahoma panhandle. Extreme drought (D3) was added in the border area of western Texas, southern New Mexico, and (by SMN) to adjoining Mexico. There were areas of drought contraction and drought expansion in the Southeast U.S., with a spot of D4 added to the southern Appalachian region of western North Carolina and Upstate South Carolina.

By the end of June, 28 percent of the contiguous U.S. was classified as experiencing moderate to exceptional (D1-D4) drought according to the U.S. Drought Monitor (USDM). USDM statistics indicated about 59% of the Southeast under moderate to exceptional drought and 35% of the West under moderate to extreme drought.

MÉXICO: During June, accumulated precipitation at the national level was 125.4 mm, which is 21% above the climatology of 104.0 mm, calculated for the period 1941-2007. SMN (National Meteorological Service) ranked the month as the 15th wettest for that period.

Most of the precipitation was associated to the remains of Tropical Storm “Arthur” as well as the passing of seven tropical waves and transitory low pressure systems. By the end of the month, a cold front in the southern U.S. had some effects on the northeast region of Mexico. There were two other tropical storms (Boris and Cristina) in the Pacific Ocean, but they had no influence over the country.

Distribution of the rain was in the lower half of Mexico. In this latter area the most significant observed anomalies were in the states of Puebla (166.9% above normal), Campeche (164.1%), Oaxaca (162.6%), Chiapas (157.8%), Veracruz (147.1%), Morelos (142.1%) and San Luis Potosí (135.8%). By contrast, most of the northern states had negative anomalies – all of the Peninsula of Baja California had inappreciable precipitation, while Nuevo León registered only 77.4% of normal, Sinaloa 70.5%, Coahuila 49.1% and Durango 40.2%.

Temperatures between 40 to 45°C (104-113°F) and poor rain during most of the month resulted in the development of two new areas with extreme drought condition (D3) – the first in northern Chihuahua and the second in Nuevo León – near the border with the U.S. and part of Tamaulipas. Despite the rainy conditions registered by the end of the month in that region, drought conditions remained. The water level in nearby dams continued low.

In western Mexico, high temperatures (almost 40°C [104°F]) by mid June and lack of rain resulted in extreme drought (D3) changing to exceptional (D4) in the central and southern parts of Durango. Water levels in the dams of that region reached their minimum value during the year.

Severe drought (D2) and extreme drought (D3), both present during some months now, remained unchanged in southeastern Jalisco and northwestern Michoacán.

Most of the peninsula of Baja California continued with condition D1. There were two small regions with D2 – one in the northern part of the peninsula (border with the U.S.) and the other in the middle part of Baja California Sur.

Along the Gulf of Mexico coast, in the southern areas and the peninsula de Yucatan, precipitation allowed improving drought conditions and there are some changes to the drought depiction. In southern Veracruz, Yucatán and Quintana Roo, conditions were normal. Conditions improved from D1 to D0 in Chiapas.

CONAFOR (National Forrestral Commission) reported that from May 30th to June 26th there were 627 fires which affected an estimated area of 73,087 acres (29,235 ha), mostly covered by scrubs and grass and some wooded areas. The states affected by the fires include: Baja California, Sonora, Chihuahua, Coahuila, Sinaloa, Durango, Jalisco, Colima, Michoacán, Guerrero and Quintana Roo.

CONAGUA (National Water Commission) reported a decrease in the water level for most of the dams in northern Mexico. In the northwestern region, the dam levels decreased from 42% to 39.6%, in the central-north from 55.8% to 48.8% and in the northeastern from 43.2% to 41.8%. By contrast, the central and southern regions increased from 45.1% to 46% and 24.8% to 48.2%, respectively.