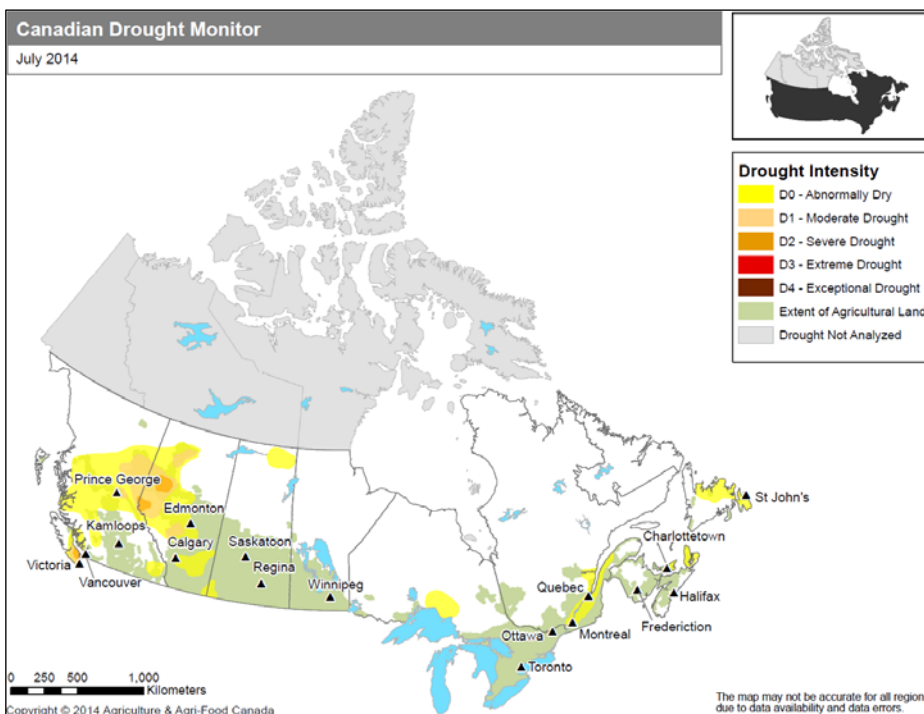




# The Canadian Drought Monitor

Agriculture and Agri-Food Canada's (AAFC) Canadian Drought Monitor (CDM) monitors and reports on drought across Canada. The CDM uses a wide variety of federal, provincial and regional data sources to establish a single drought rating in a five category system and to produce monthly maps showing the extent and intensity of drought across Canada. Development of the CDM originates from Canada's participation in the North American Drought Monitor (NADM), a cooperative effort between Canada, the U.S. and Mexico to provide monthly assessments of drought across the continent.

Droughts are detrimental to agricultural producers and often result in major negative economic impacts. Since 2002, AAFC has accepted the lead role in providing monthly assessments of drought for Canada that feed directly into the NADM. Both the CDM and the NADM use a unique methodology to analyze and illustrate drought. Tracking drought on a national scale is challenging as there are varying definitions and indicators to measure and define extent and severity, none of which are appropriate to use in all circumstances. Both the CDM and NADM address this challenge by synthesizing multiple indicators and impacts based on discussion between federal, provincial, regional and academic scientists.



The CDM is a composite product developed from a wide assortment of information such as the Normalized Difference Vegetation Index (NDVI), streamflow values, Palmer Drought Index, and drought indicators used by the agriculture, forest and water management sectors.

CDM map products are currently used by AAFC to assess drought conditions across Canada. This map shows moderate and severe drought conditions affecting the Peace River region of Alberta and southern Vancouver Island in July 2014.

Drought prone regions are analyzed based on precipitation, temperature, drought model index maps, and climate data and are interpreted by federal, provincial and academic scientists. Once a consensus is reached, a monthly map showing drought designations for Canada is produced and is used by AAFC to assess the current drought risk to agriculture.

The CDM uses an easily understood five-class system to define the severity, spatial extent and impacts of drought. Drought classes in the CDM range from D0 to D4, with D1 to D4 indicating moderate to exceptional drought and D0 indicating abnormally dry conditions. Each category is based on the percentile chance of those conditions occurring. An exceptional drought (D4), for example, represents conditions that historically only appear less than two years in one hundred. Currently the spatial extent of the CDM maps encompasses these five categories across all of Canada except the Yukon, Northwest Territories and Nunavut.

The CDM has undergone significant improvement in design since 2009. Future potential improvements and activities are expected to include:

- Adding new data sources to increase the quality of the CDM drought designations, including a relative drought indicator developed by the Canadian Forest Service;
- Exploring the potential to expand the CDM to northern Canada, based on new data acquisition;
- Continuing development of two additional products, VegDri and Blended Indices, to add additional spatial details during designation of drought categories; and
- Increasing the CDM online presence on the Drought Watch website, including an interactive map, time series information and associated drought statistics.

The ongoing development of the CDM and NADM is led by AAFC's National Agroclimate Information Service (NAIS) of the Agro-Climatic, Geomatics and Earth Observations (ACGEO) Division, Science and Technology Branch. A number of provincial and federal organizations are consulted to produce the CDM including, Environment Canada (EC), Natural Resources Canada (NRCAN) and provincial water, forestry and resource ministries in British Columbia, Alberta, Saskatchewan, Manitoba, Ontario, Quebec, New Brunswick and Nova Scotia. NAIS also communicates regularly with partners in the U.S. and Mexico including the National Oceanic and Atmospheric Administration's National Climatic Data Center (NCDC) and the National Meteorological Service of Mexico (Servicio Meteorológico Nacional – SMN).

**For more information** please contact AAFC's **National Agroclimate Information Service** at [nais-snia@agr.gc.ca](mailto:nais-snia@agr.gc.ca) or visit AAFC's **Drought Watch** website at [www.agr.gc.ca/drought](http://www.agr.gc.ca/drought).

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