

WATER AVAILABILITY AND DROUGHT CONDITIONS REPORT

Issued on April 27, 2010

Synopsis/Overview

Outlook

Precipitation has been below average across Manitoba during the last three months. Except for the Red, Souris and Pembina rivers, stream and river flows in southern Manitoba are below average. Flows in northern rivers are average to above average except for the Saskatchewan River. Wetlands and potholes are drying up. Fortunately, most dugouts in southwestern Manitoba are three quarters to completely full. Water supplies are adequate with all provincial reservoirs full or close to full.

The drought indices demonstrate moderately dry conditions for southern Manitoba and for the Swan River area. Environment Canada's three month forecast predicts below normal precipitation with above normal temperatures for the entire province.

The Palmer Drought Index (PDI) and Standard Precipitation Index (SPI)

The Palmer Drought and Standard Precipitation indices for March (most up-to-date available) indicate moderately dry conditions for southern Manitoba and Swan River (Table 1 and Attachment 1). The drought indices will be updated in early May and will be included in the next water availability and drought conditions report.

Precipitation

Over the last 30 days, average to below average precipitation was received across the province. Over the last 90 days, below average precipitation was received with the exception of the Flin Flon to Lynn Lake areas where precipitation was average. The three month precipitation indicator indicates moderately dry conditions for southern Manitoba and for the Swan River area (Table 1 and Attachment 2).

Stream and River Flows

For April, flows are below average on most streams and rivers in the Assiniboine, Saskatchewan and Winnipeg rivers basins, and the Lake Winnipeg local tributary drainage area. River flows are average to above average for other basins across the province (Table 1 and Attachment 3).

On-Farm Water Supply

Manitoba Agriculture, Food and Rural Initiatives reports that most dugouts are three quarters to completely full. However, sloughs are drying up which is a potential concern for some producers who pasture cattle in southwest Manitoba. In central Manitoba, most potholes and lower areas of fields have no standing water but the soils are still wet.

Reservoirs

With the exception of Shellmouth Reservoir, all reservoirs operated by the province are either full or close to full at this time. Shellmouth Reservoir is about four feet below the summer target water level of 1402.4 feet. All reservoirs, including Shellmouth Reservoir, contain enough water to last through the remainder of 2010.

Aquifers

Water levels in most major aquifers are currently above or close to average levels for this time of year. Water level responses to seasonal or yearly precipitation fluctuations in most aquifers lag considerably behind surface water responses, so even prolonged periods of below normal precipitation may not have a significant deleterious effect on groundwater levels. Most aquifers also retain very large amounts of groundwater in storage and can continue to provide water during extended periods of dry weather. Consequently, the major concern regarding groundwater and dry periods relates to shallow sand aquifers and large-diameter wells constructed into these aquifers. Many of these areas are serviced by water supply pipelines.

Soil Moisture

An aerial soil moisture survey conducted in early November 2009 showed that moisture in the top 20 cm of the soil ranged from below average to somewhat above average in southern Manitoba. Fall soil moisture in the root zone (up to 120 cm depth) was above average in the Red River Valley based on a field survey conducted in November 2009 by Manitoba Water Stewardship with assistance from Manitoba Infrastructure and Transportation and Manitoba Agriculture, Food and Rural Initiatives. Soil moisture was average to below average in most other areas. A Soil Moisture Index at Freeze-Up (SMI) based on weighted precipitation from May to October is commonly computed by Manitoba's Hydrologic Forecast Centre. A map showing the Soil Moisture Index as a percentage of normal for early November 2009 suggests that the soil moisture at freeze-up was near normal in most areas but well above average in parts of eastern Manitoba (Attachment 4). Manitoba Agriculture, Food and Rural Initiatives reported that spring soil moisture capacity is slightly lower in all areas in northwest Manitoba.

Environment Canada's Three Month Outlook (April-May-June 2010)

The three month Environment Canada forecast is for above normal temperatures and below normal precipitation for the entire province (Attachment 5).

Table 1: Detail by Drainage Basin (Attachments: 1, 2, 3, and 6)

Basin	Indicators				
	1 month Precipitation (March 21 to April 19 2010)	3 month Precipitation (January 13 -April 19 2010)	Major River Flow Conditions (Figure 3)	Palmer Drought Index (March 2010)	Standard Precipitation Index (March 2010)
Red River	Below average	Below average	Average to above average except below average for Roseau River	Dry spell with mild drought conditions for Pilot Mound	Moderately dry
Winnipeg River	Below average	Below average	Below average	Near normal to dry spell	Moderately dry
Assiniboine River- Souris River	Average to below average	Below average	Below average except above average for the Qu'Appelle and Souris rivers	Dry spell	Moderately dry
Lake Manitoba	Average to below above average	Below average	Average to above average	Dry spell	Moderately dry
Lake Winnipeg	Below average	Below average	Below average	Dry spell except mild drought for the Arborg area	Moderately dry
Saskatchewan River	Below average	Below average	Below average	Dry spell	Near normal
Nelson River	Average to below average	Average to below above average	Average	Slightly wet	-
Hayes River	Average	Average	-	-	-
Churchill River	Below average	Below average	Above average	-	Near normal
Seal River	Below average	-	-	-	-

Acknowledgements

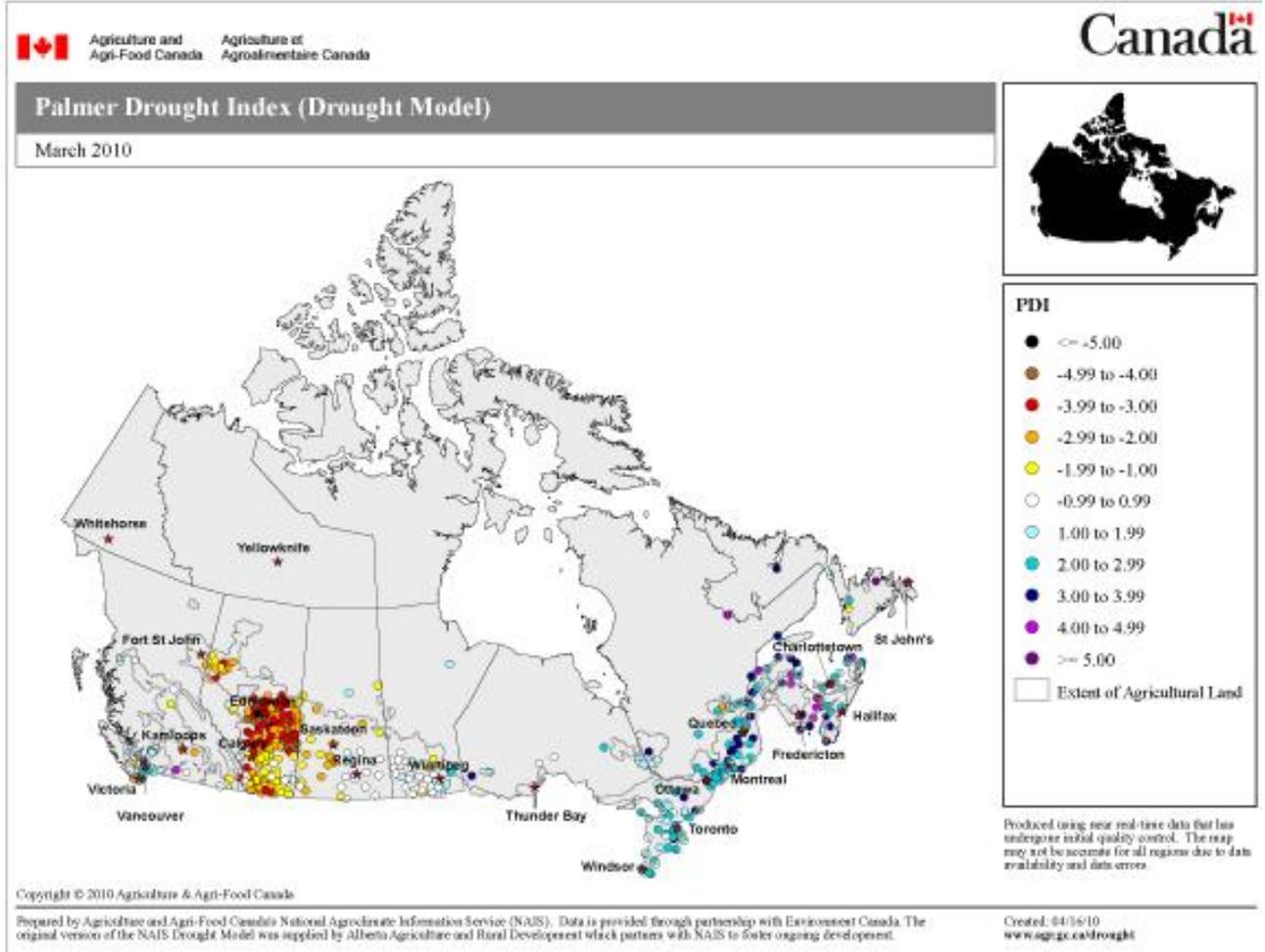
This report was prepared with information from the following sources and which are gratefully acknowledged:

- Agriculture and Agri-food Canada (Drought watch); North America Drought Monitor:
http://www.agr.gc.ca/pfra/drought/mapscc_e.htm
http://www.agr.gc.ca/pfra/drought/pr_e.htm
 - Regional site: 30 and 90 precipitation
 - National Site: Palmer Drought and Standard Precipitation Indices
- Manitoba Water Stewardship: Flow and Precipitation information:
http://www.gov.mb.ca/waterstewardship/floodinfo/forecasts/river_report2008-18-12.html); http://www.gov.mb.ca/waterstewardship/floodinfo/forecasts/Weekly_Flows_2010.pdf). <http://www.gov.mb.ca/waterstewardship/floodinfo/maps.html>
- Fire Hazard: <http://www.gov.mb.ca/conservation/fire/>
- Environment Canada 3 month climatic outlook:
http://weatheroffice.gc.ca/saisons/index_e.html
- Manitoba Crop Weather Report, Manitoba Agriculture, Food and Rural Initiatives (MAFRI): <http://www.gov.mb.ca/agriculture/climate/wad00s00/cropwxrep.pdf>;
<http://web2.gov.mb.ca/agriculture/mwcr/index.php>

For further information, please contact: Abul Kashem, Surface Water Management Section, Manitoba Water Stewardship, 945-6397

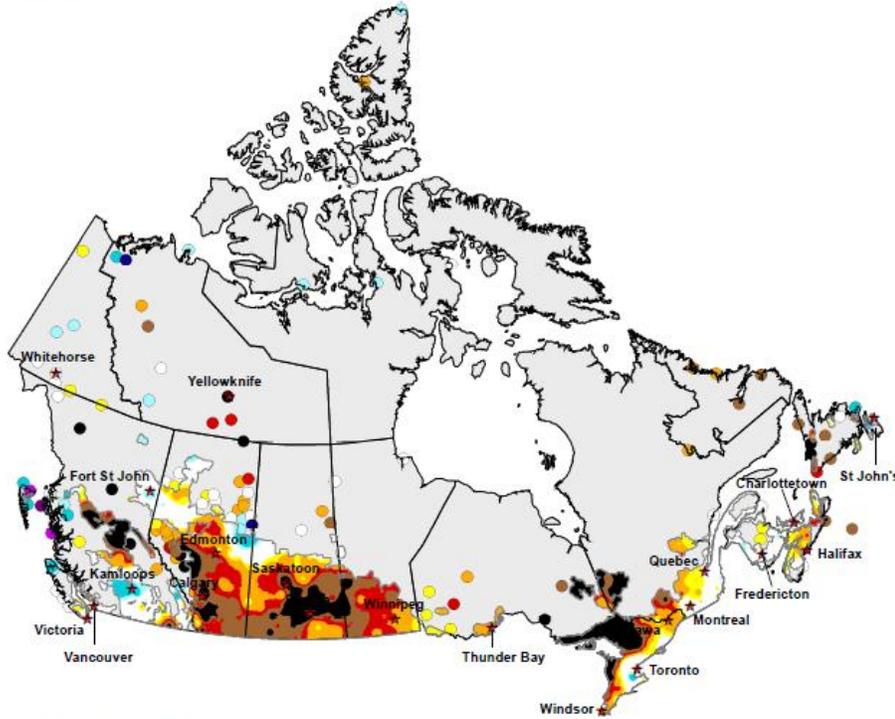
Attachments

1. Palmer Drought Index(PDI) and Standard Precipitation Index (SPI)



1 - Month Standardized Precipitation Index (SPI)

March 2010



SPI

- ≤ -2.00
- -1.99 - -1.60
- -1.59 - -1.30
- -1.29 - -0.80
- -0.79 - -0.51
- -0.50 - 0.50
- 0.51 - 0.79
- 0.80 - 1.29
- 1.30 - 1.59
- 1.60 - 1.99
- > 2.00

□ Extent of Agricultural Land

Produced using near real-time data that has undergone initial quality control. The map may not be accurate for all regions due to data availability and data errors.

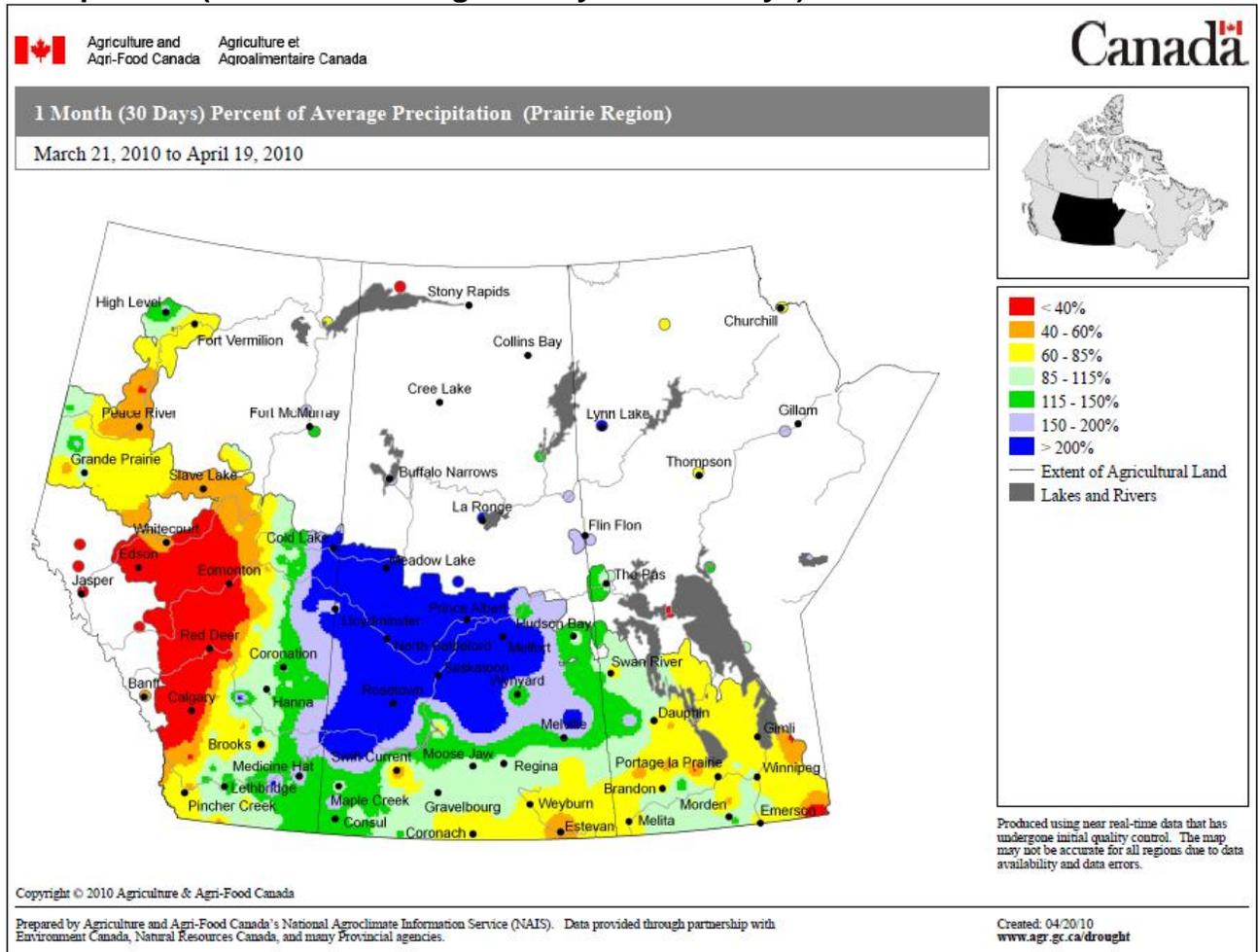
Copyright © 2010 Agriculture & Agri-Food Canada

Prepared by Agriculture and Agri-Food Canada's National Agroclimate Information Service (NAIS). Data is provided through partnership with Environment Canada. The original version of the NAIS Drought Model was supplied by Alberta Agriculture and Rural Development which partners with NAIS to foster ongoing development.

Created: 04/06/10
www.agr.gc.ca/drought

Note: Drought severity increases as the Palmer Drought and Standard Precipitation Indices decline to more negative values.

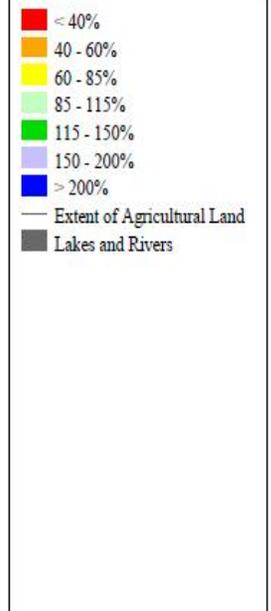
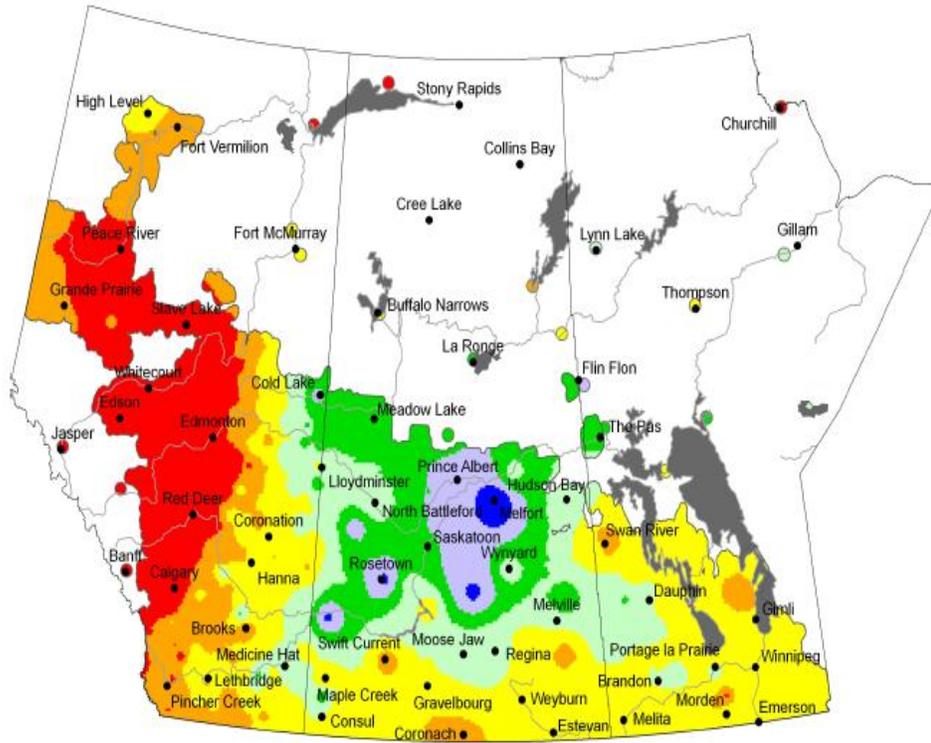
2. Precipitation (Percent of average:30 days and 90 days)





3 Month (90 Days) Percent of Average Precipitation (Prairie Region)

January 20, 2010 to April 19, 2010



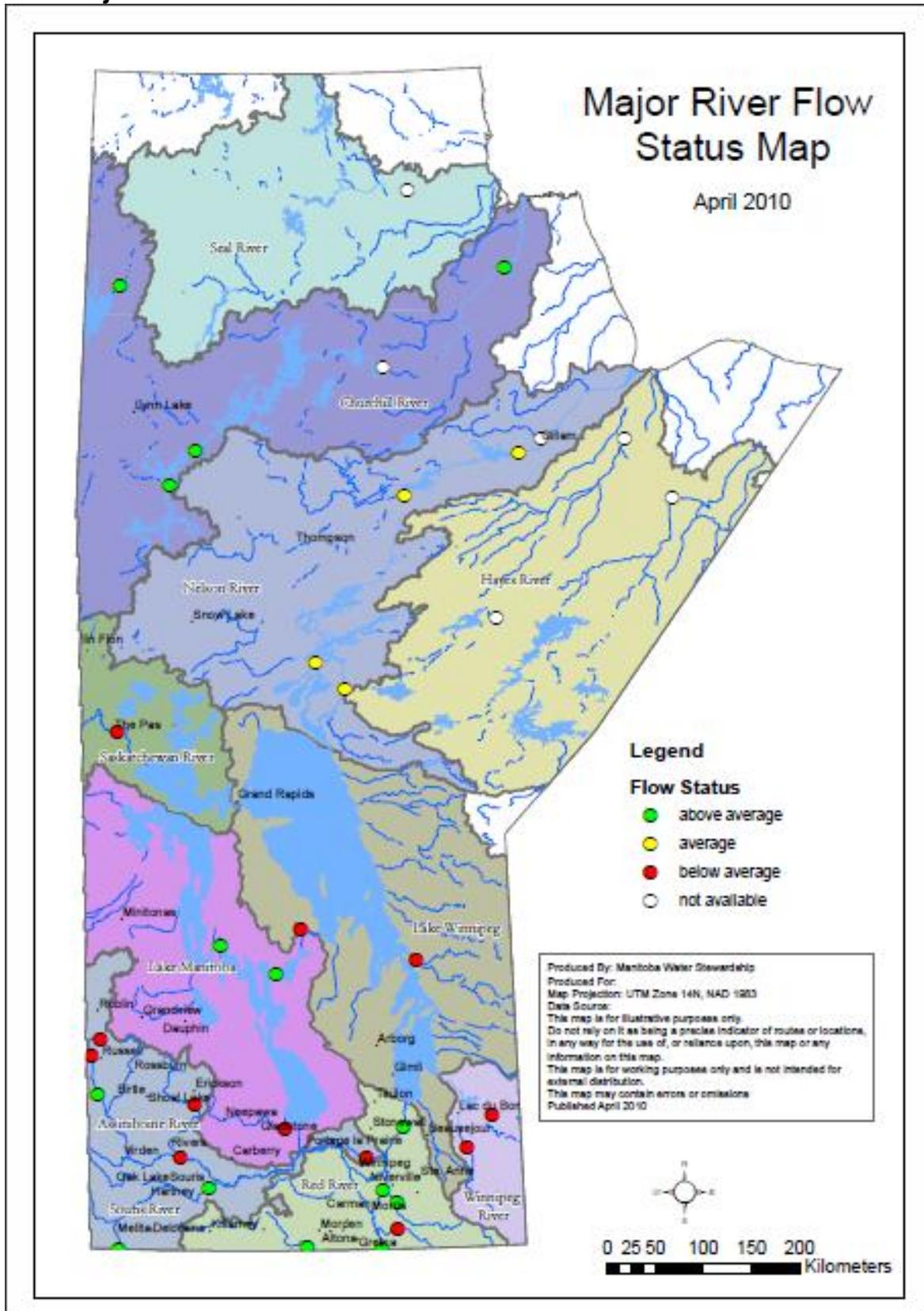
Produced using near real-time data that has undergone initial quality control. The map may not be accurate for all regions due to data availability and data errors.

Copyright © 2010 Agriculture & Agri-Food Canada

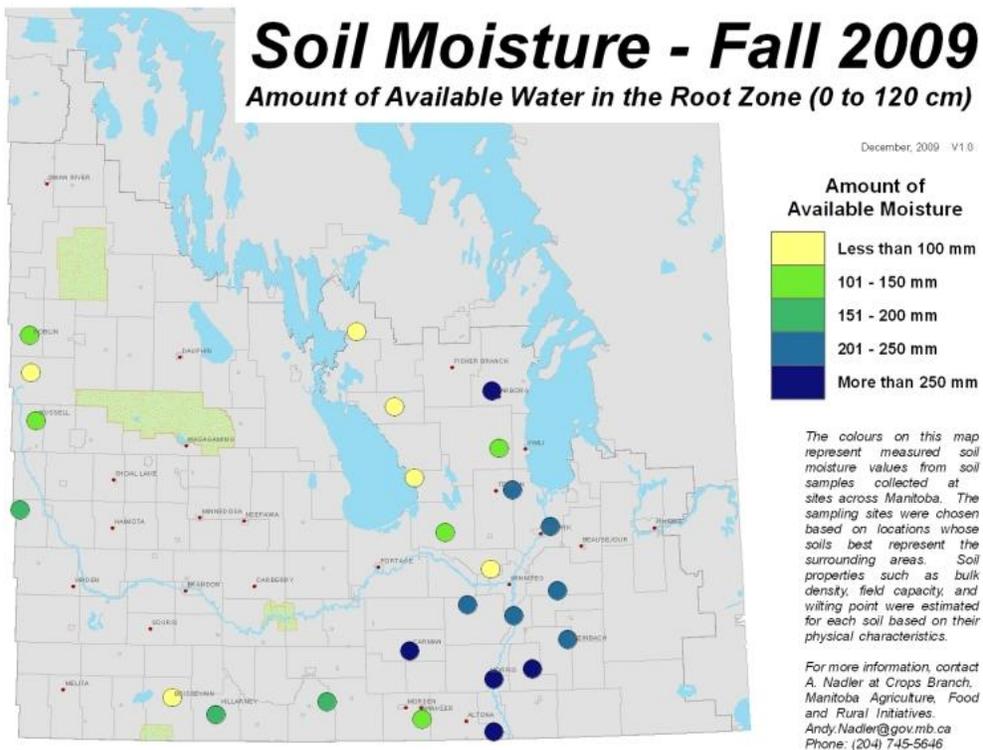
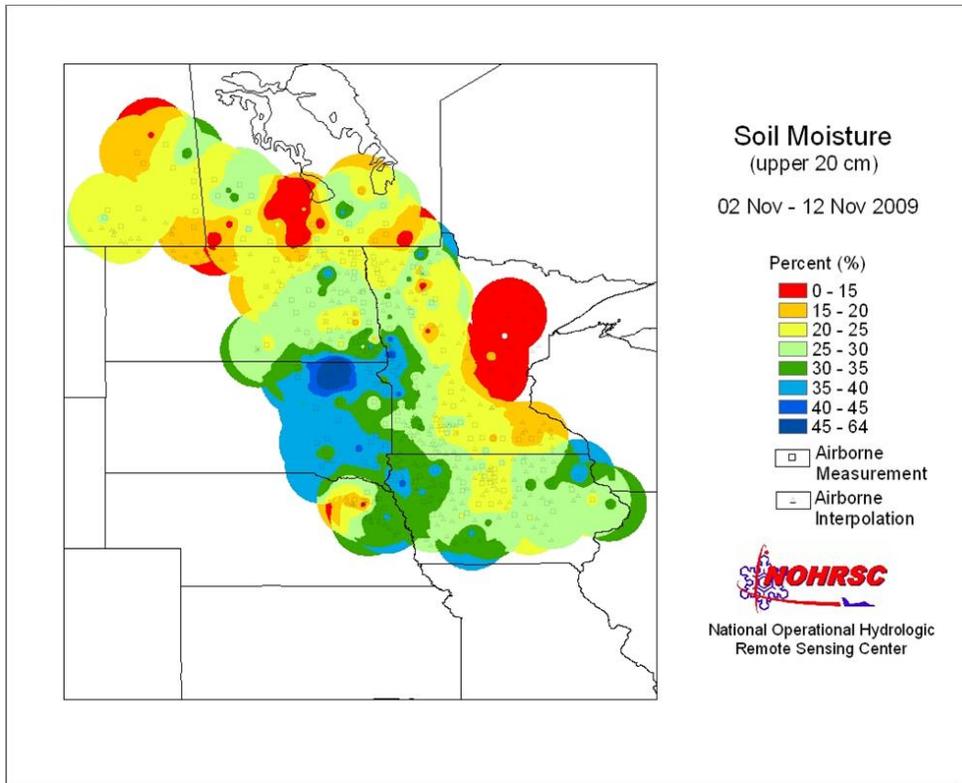
Prepared by Agriculture and Agri-Food Canada's National Agroclimate Information Service (NAIS). Data provided through partnership with Environment Canada, Natural Resources Canada, and many Provincial agencies.

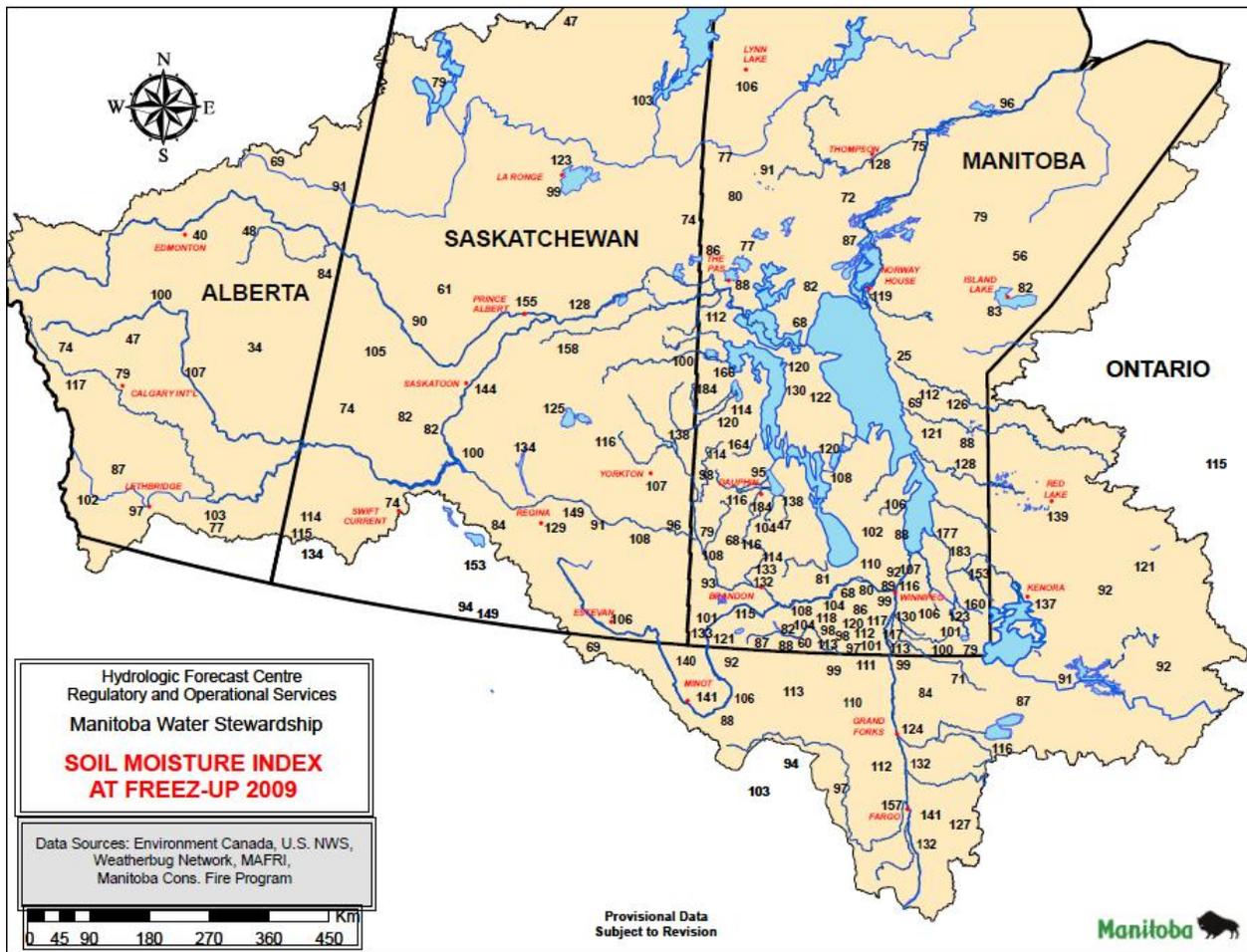
Created: 04/20/10
www.agr.gc.ca/drought

3. Major River Flow Status

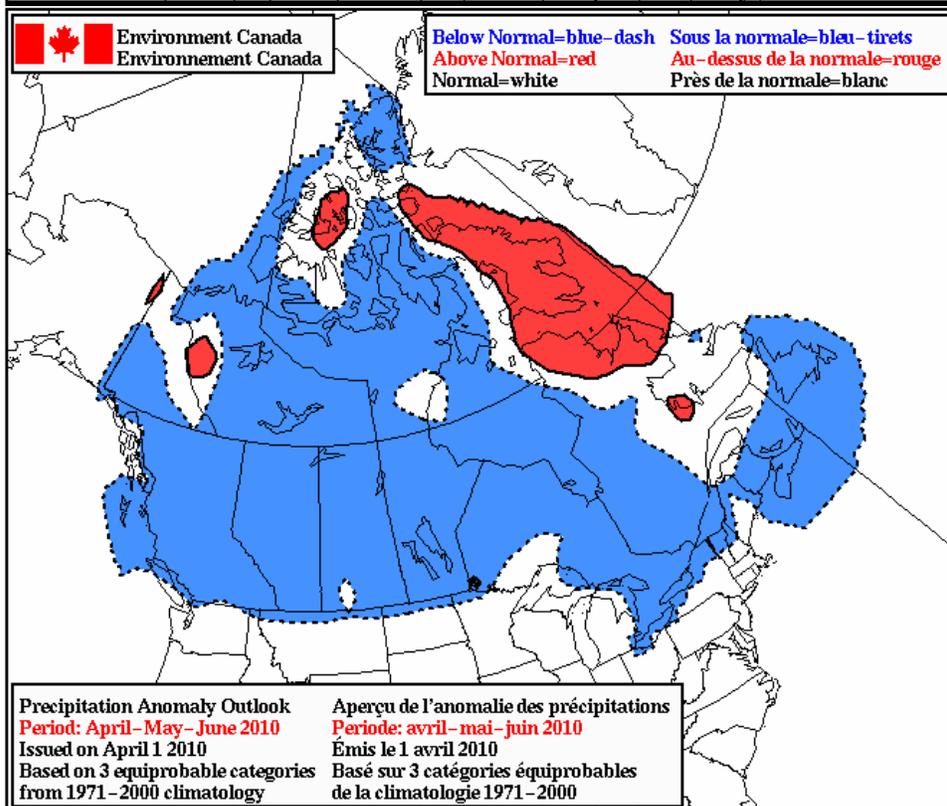
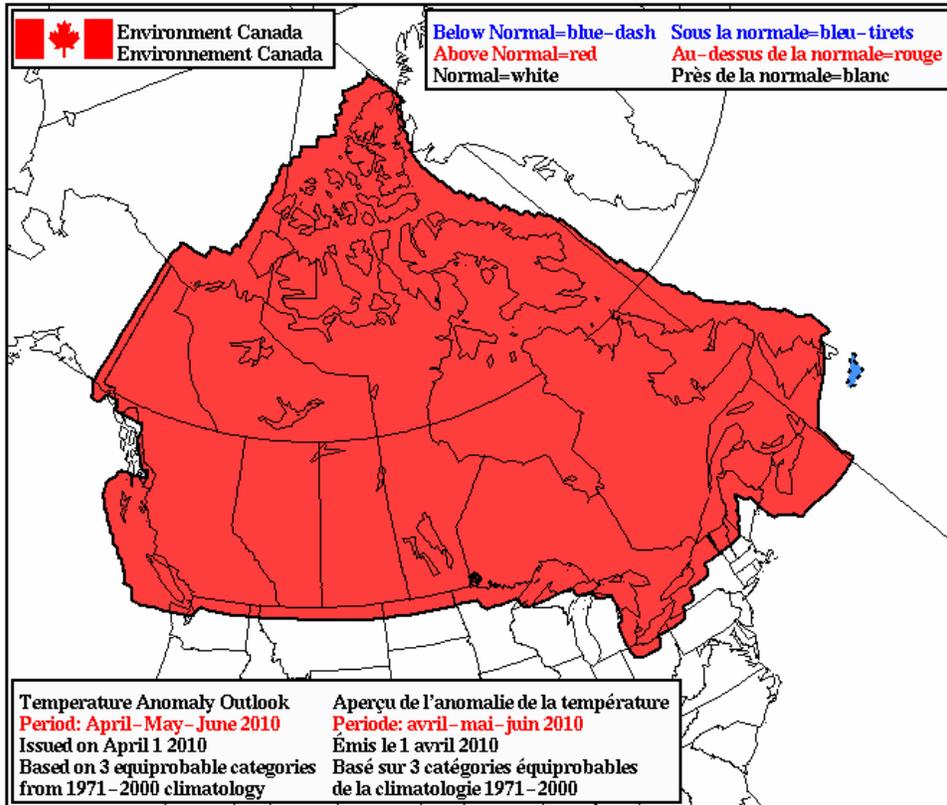


4. Soil Moisture





5. Environment Canada 3 Month Outlook



6. Major River Basins

