Agriculture and Agri-Food Canada’s National Agroclimate Information Service’s Drought Monitoring

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WMO Inter-Regional Workshop on Indices and Early Warning Systems for Drought
Lincoln Nebraska, December 8-11, 2009
Canada is broken down into 5 regions
Time Specific Products

Deciles
Percent of normal
Accumulated PPT
Departure from average
National Drought Model: SPI

Calculated Monthly
**Drought – more than just lack of rainfall**

Drought can mean many different things to different people

- Depending on:
  - A region's normal climate
  - Specific needs of various sectors

- Main categories of drought are
  - meteorological
  - agricultural
  - hydrological
  - socioeconomic

The availability of water depends largely on rainfall, (but) the concept of drought cannot be divorced from the use to which water is put. Gibbs & Maher (1967):
The Drought model uses a simplified water balance approach (modified VSMB)
Difference in Normalized Difference Vegetation Index (NDVI) for July 27 to August 2, 2009 compared to Normal

Legend
- Greater than 13.5%
- 4.5% to 13.5%
- +/- 4.5%
- -4.5% to -13.5%
- Less than -13.5%

Satellite map
- Year: 2009
- Cover: Crop and pasture
- Method: Compared to normal
- Week: July 27

Update map
Advantages of the MODIS System

- National Coverage
- Better resolution
- Better analytical features

- Data is free of charge from USGS
- Data back-up system is incorporated
- Opportunity to use other Indices
Prairie Drought Impact Monitoring

On-Farm Surface Water Supply and Forage Monitoring Program

Forage Production

Forage Supplies

On-Farm Surface Water Supplies
Online Data Entry From Known Users
Quantifying the Impacts of Drought
International Collaboration and Drought Analysis

North American Drought Monitor
August 31, 2009
Released: Friday, September 18, 2009

Intensity:
- D0 Abnormally Dry
- D1 Drought - Moderate
- D2 Drought - Severe
- D3 Drought - Extreme
- D4 Drought - Exceptional

Drought Impact Types:
- Delineates dominant impacts
  - A = Agriculture
  - H = Hydrological (Water)

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text for a general summary.

Regions in northern Canada may not be as accurate as other regions due to limited information.

Analysis:
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  (* Responsible for collecting analyses input & assembling the NA-DM map)
Challenges for Drought Monitoring in Canada

• Canadian environment is complex and drought indices need to be utilized in a way that reflects this.
• Increased need for timeliness and accuracy in determining extent location and severity of climate impacts.
• Quality and quantity of data is incomplete. Data density and length of record are both significant challenges.
• Uncertainties exist in index calculation, mapping and interpretation. Testing and calibration should be encouraged.
• Winter (Snow) – Hard to measure, it tends to move around before the moisture is accessible (Blowing, runoff, sublimation). Indices do not account for this.
Thank You

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