

# *The North American Drought Monitor: A Continental Approach*

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National Drought Mitigation Center  
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US Drought Monitor Forum

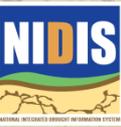
April 16-18 2013

West Palm Beach, FL



# History of the North American Drought Monitor (NADM)

- The concept for the NADM was developed and discussed in 2002
- The first NADM map was released in March 2003
- The first NADM map in all three languages (English, Spanish, and French) was released in October 2003



# History of the NADM

- The United States started off as the only country to author and organize the map
- Canada began authoring in January 2006
- Mexico began authoring in October 2008



# North American Drought Monitor Partners

## ➤ Canada

- Agriculture and Agrifood Canada
- Environment Canada
- Meteorological Service of Canada

## ➤ Mexico

- National Meteorological Service of Mexico (SMN-Servicio Meteorologico Nacional)
- CONAGUA (Comision Nacional del Agua)

## ➤ United States

- National Drought Mitigation Center
- National Climatic Data Center
- Climate Prediction Center
- United States Department of Agriculture

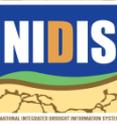


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Agri-Food Canada

Environment  
Canada

Agriculture et  
Agroalimentaire Canada

Environnement  
Canada



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**Nebraska**  
Lincoln



# North American Drought Monitor

June 30, 2009

Released: Monday July 20, 2009

<http://www.ncdc.noaa.gov/nadm.html>

Analysts:

Canada - Trevor Hadwen  
Dwayne Chobanik  
Richard Rieger  
Mexico - Valentina Davydova  
Adelina Encarnación  
Elvia Delgado  
Reynaldo Pascual  
Fernando Romero  
U.S.A. - Brian Fuchs\*  
Rich Tinker



## How do we get there ???

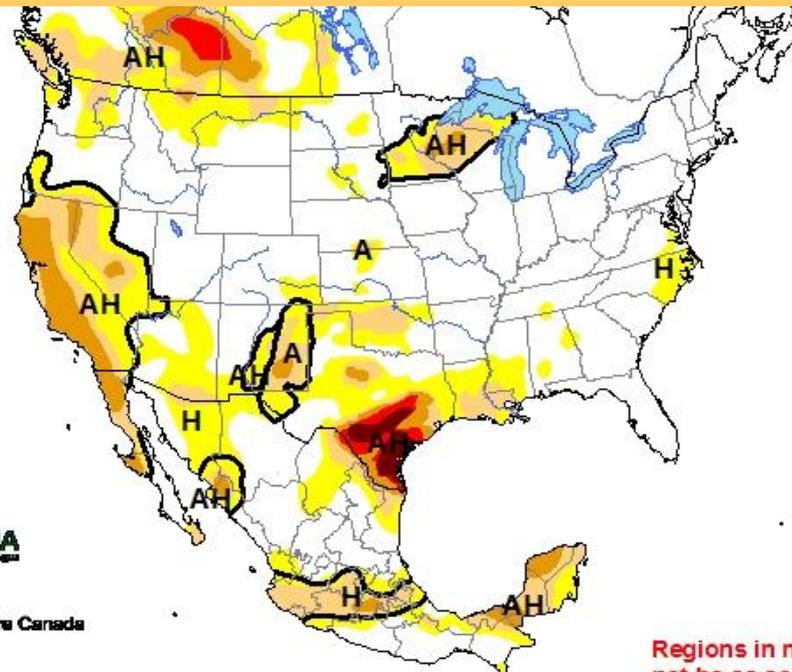
 D4 Drought - Exceptional

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.**



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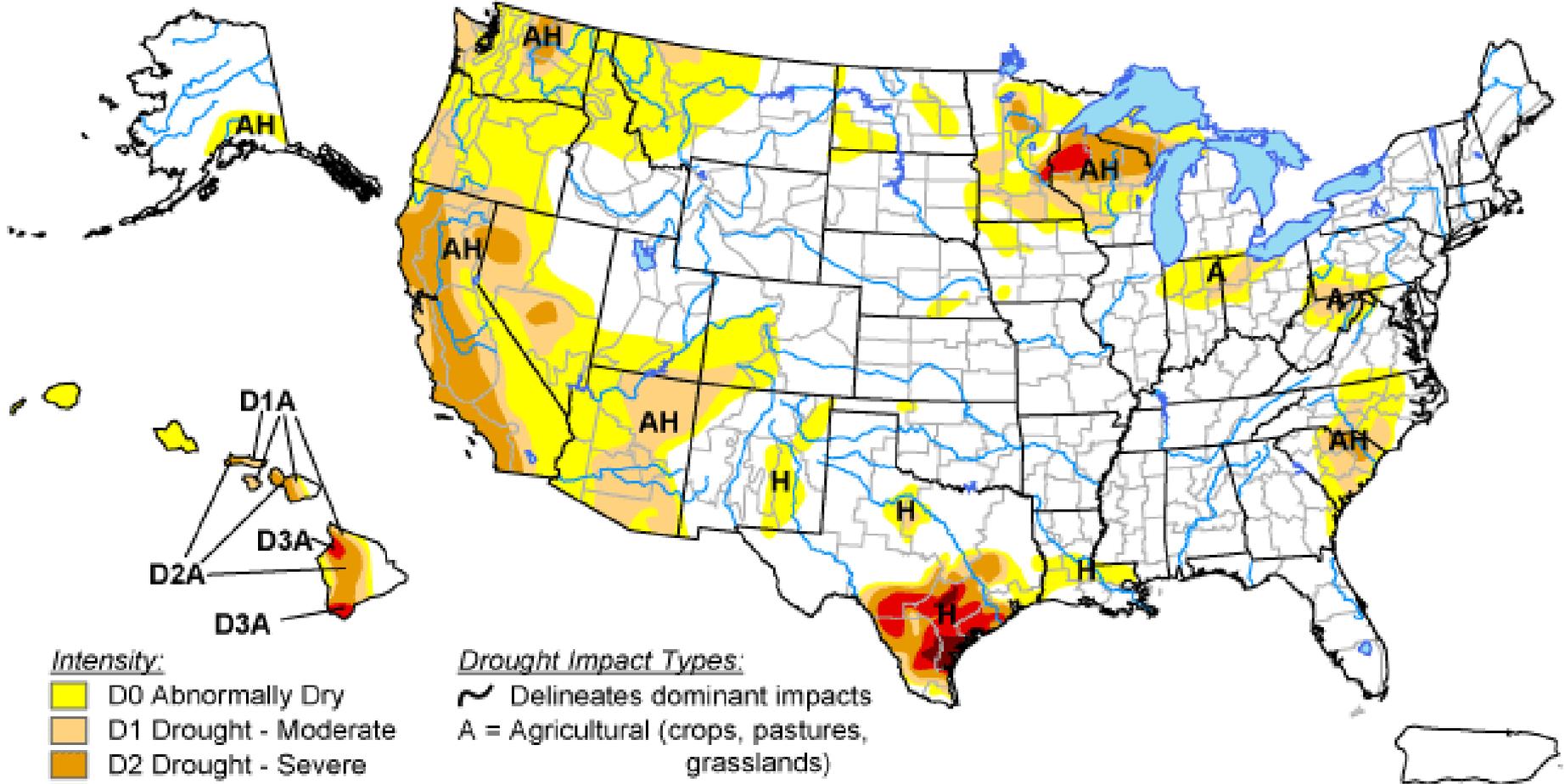
Environment  
Canada

Environnement  
Canada

# U.S. Drought Monitor

September 29, 2009

Valid 8 a.m. EDT



Intensity:

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

Drought Impact Types:

- Delineates dominant impacts
- A = Agricultural (crops, pastures, grasslands)
- H = Hydrological (water)

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



Released Thursday, October 1, 2009

Author: David Miskus, JAWF/CPC/NOAA

<http://drought.unl.edu/dm>



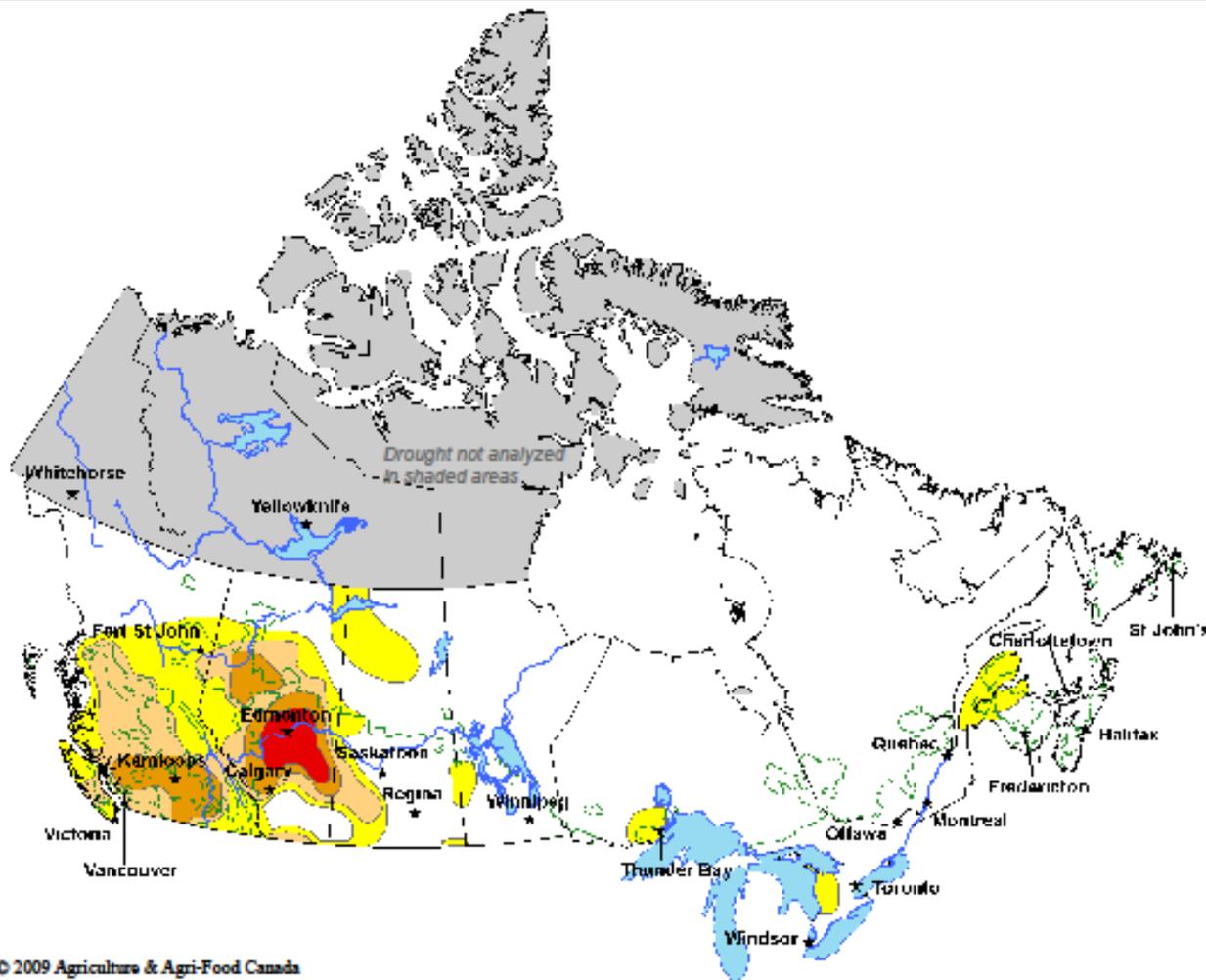
# Canadian Drought Monitor

September 30, 2009



### Drought Intensity

-  D0 - Abnormally Dry
-  D1 - Moderate Drought
-  D2 - Severe Drought
-  D3 - Extreme Drought
-  D4 - Exceptional Drought
-  Extent of Agricultural Land



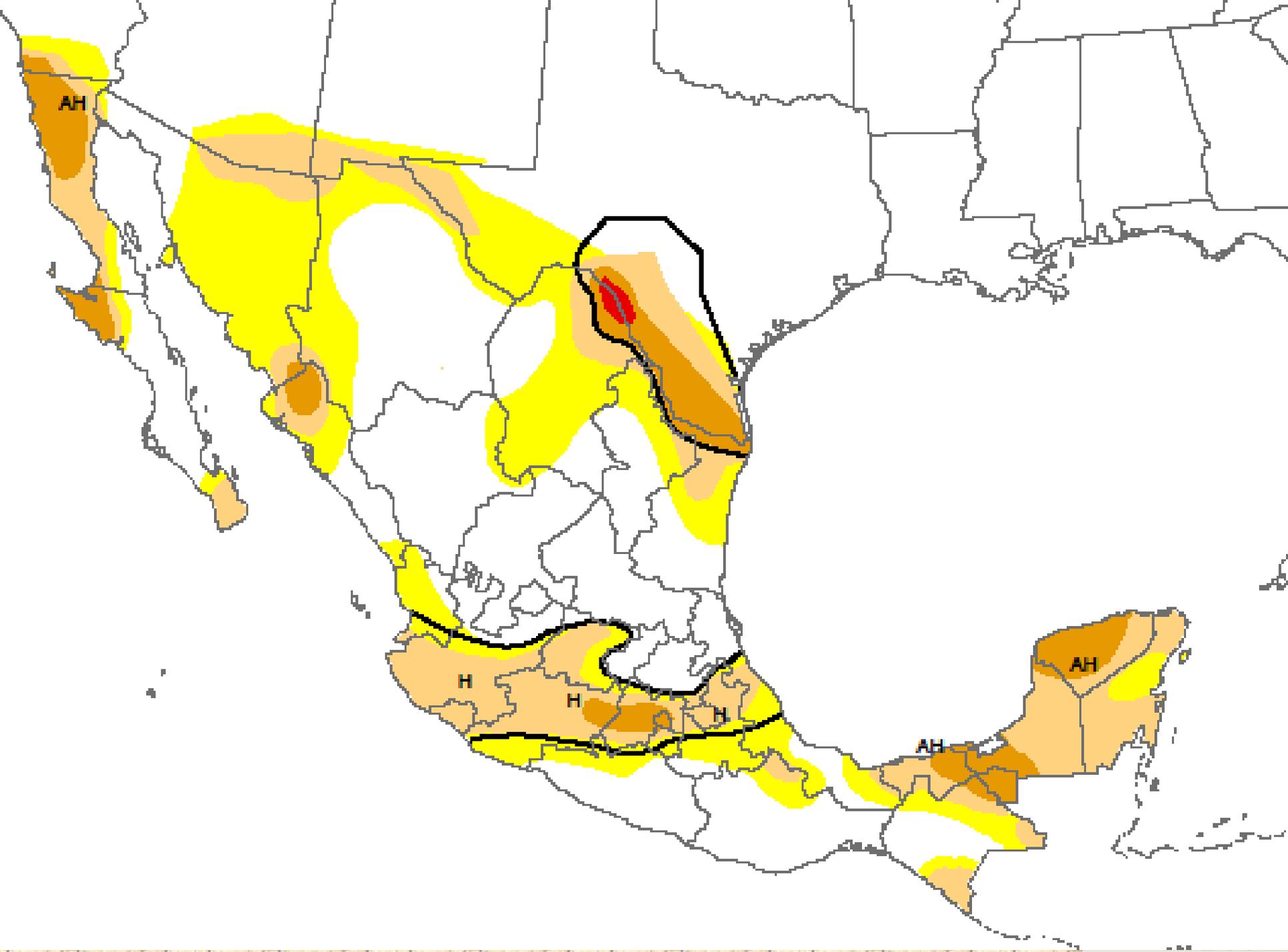
Regions in northern Canada may not be as accurate as other regions due to limited information

The Drought Monitor focuses on broad-scale conditions.

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Prepared by Agriculture and Agri-Food Canada's National Agroclimate Information Service (NAIS). We also acknowledge the following organizations whose reports and assessments are consulted: AAFC-AESB District and Regional Offices, Alberta Environment, Alberta Agriculture, Food and Rural Development, B.C. Ministry of Environment, Environment Canada, Manitoba Water Stewardship Hydrologic Forecast Centre, Natural Resources Canada - Canadian Forest Service, Ontario Ministry of Natural Resources, Saskatchewan Ministry of Agriculture, Saskatchewan Watershed Authority, Saskatchewan Environment Fire Management & Protection Branch.

Created: 14/10/09  
[www.agr.gc.ca/drought](http://www.agr.gc.ca/drought)

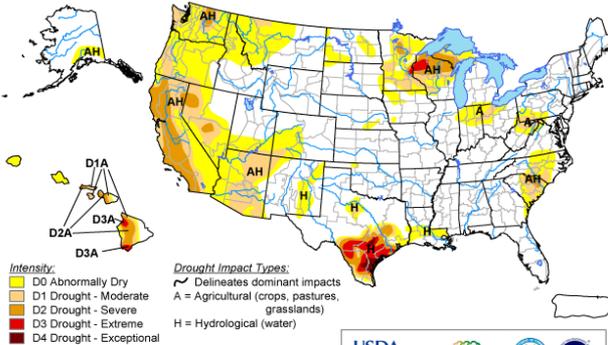


# North American Drought Monitor

September 30, 2009  
Released: Tuesday, October 20, 2009

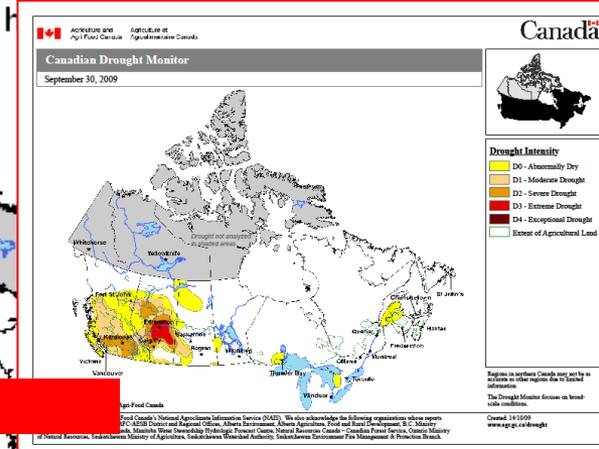
## U.S. Drought Monitor September 29, 2009

Valid 8 a.m. EDT



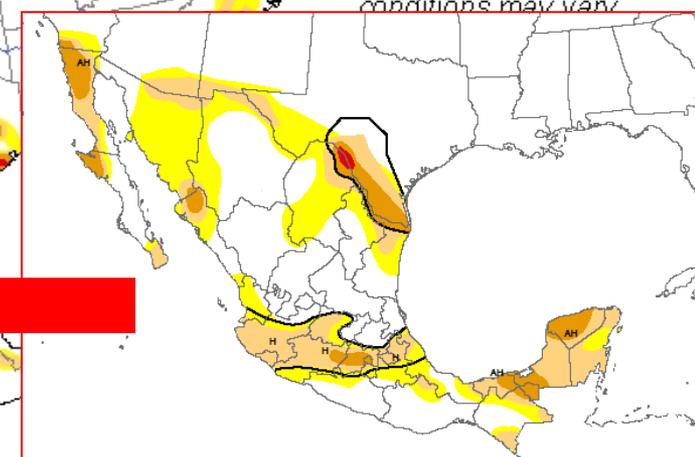
The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

<http://drought.unl.edu/dm>

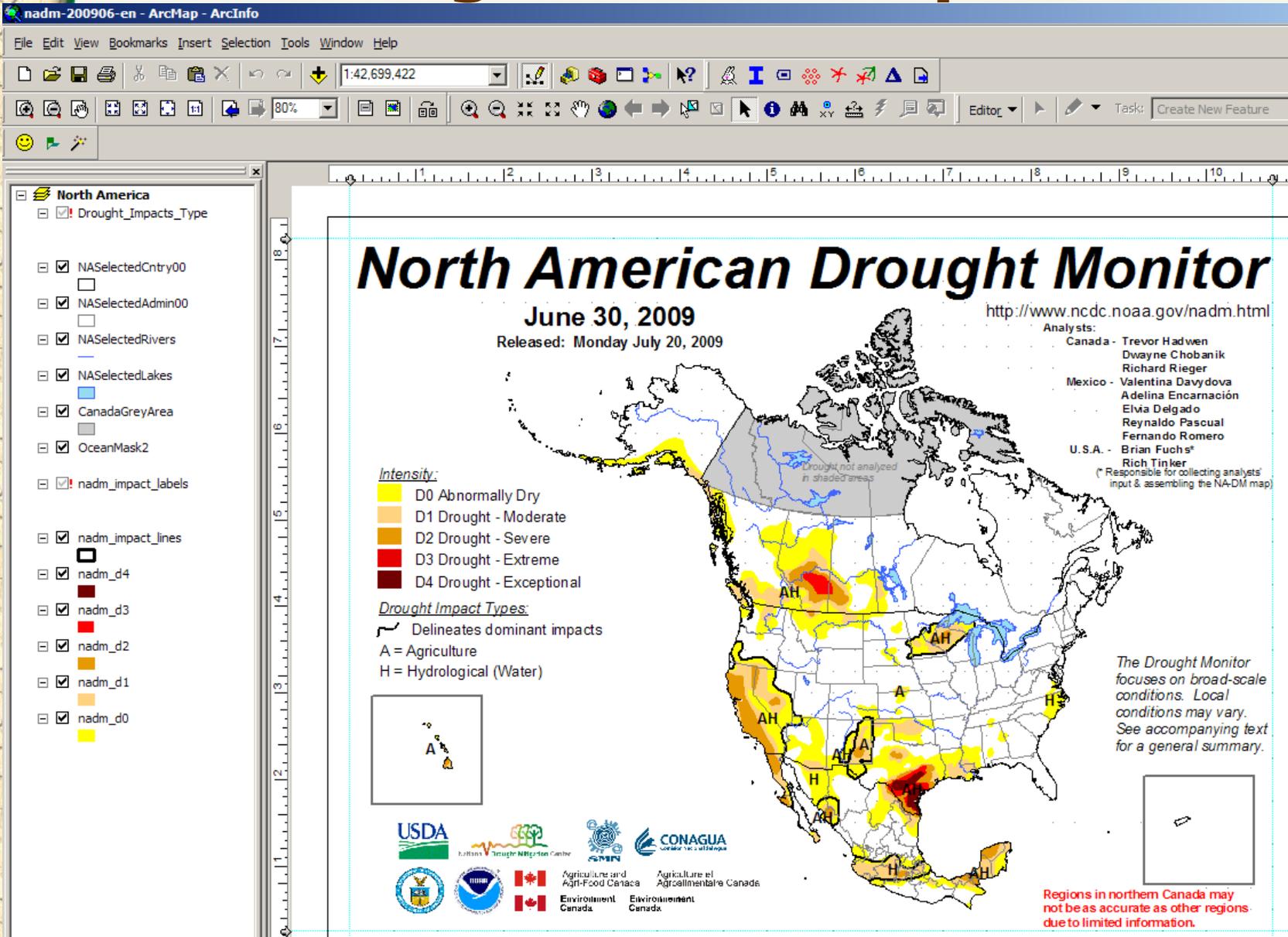


Drought not analyzed in shaded areas

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary.



# All 3 Countries merged together using ArcGIS shapefiles





**NOAA**

National Climatic Data Center  
National Oceanic And Atmospheric Administration



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## North American Drought Monitor

### National Oceanic and Atmospheric Administration

### National Climatic Data Center



[NADM Overview](#)

[NADM maps](#)

[Drought Monitoring Indices and Data](#)

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- [NESDIS Satellite VHI](#)
- [CPC Modeled Soil Moisture](#)
- [U.S. NWS Precipitation Analysis](#)

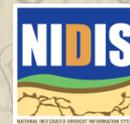
[Geographical Reference Maps](#)

[Climatology Maps](#)

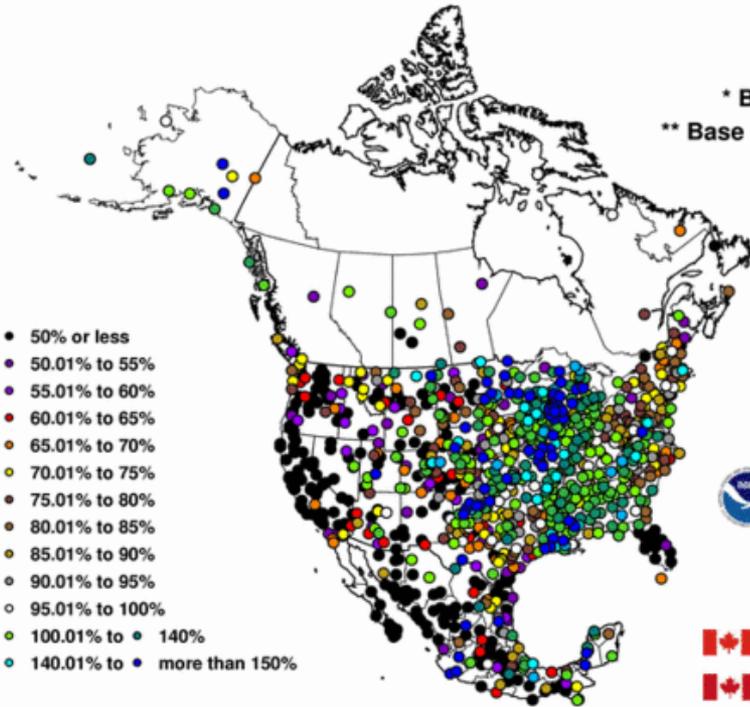
[Associated Links](#)

### North American Drought Monitor Overview

The North America Drought Monitor (NADM) is a cooperative effort between drought experts in Canada, Mexico and the United States to monitor drought across the continent on an ongoing basis. The program was initiated at a [three-day workshop](#) in late April 2002 and is part of a larger effort to improve the monitoring of climate extremes on the continent. The NADM (Lawrimore et al. 2002) is based on the highly successful U.S. Drought Monitor (USDM), and as such, is being developed to provide an ongoing comprehensive and integrated assessment of drought throughout all three countries.



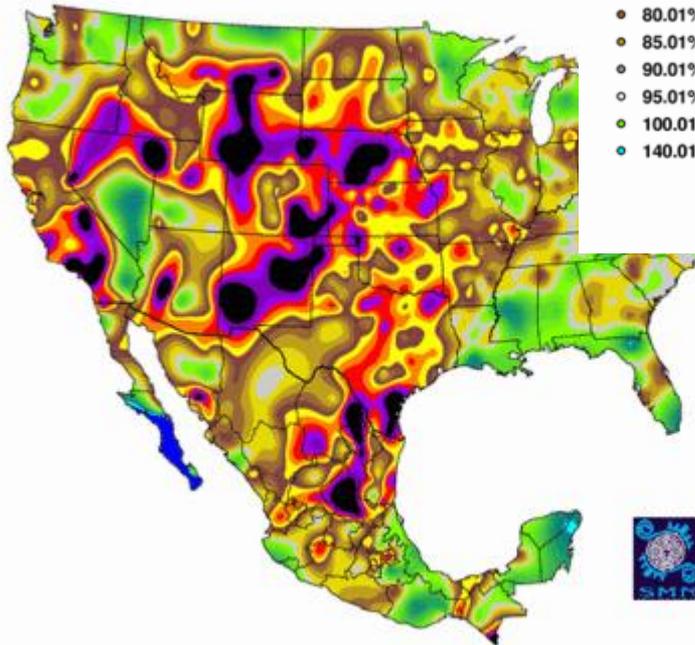
# Percent of Long-Term Average Precipitation, 3-Month January – March 2013



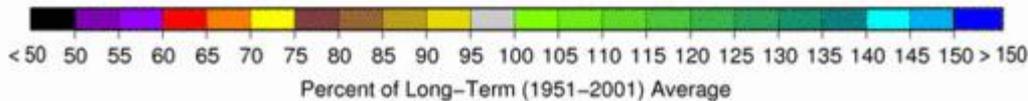
\* Based on Preliminary Data  
\*\* Base Period for Averages 1951–2001



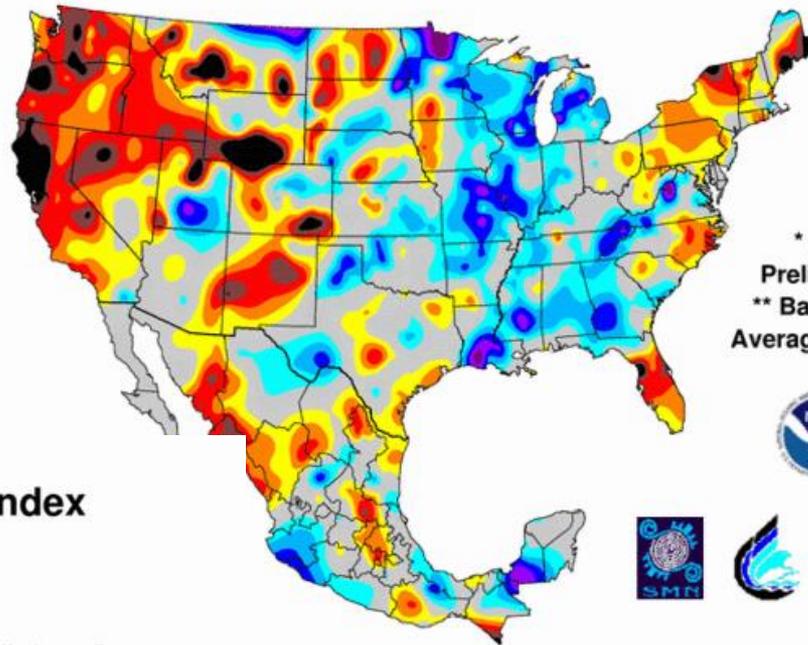
# Percent of Long-Term Average Precipitation April 2012 – March 2013



Preliminary Data  
\*\* Base Period for Averages 1951 – 2001



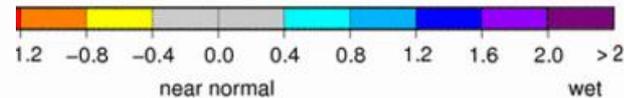
## 3-Month Standardized Precipitation Index January – March 2013



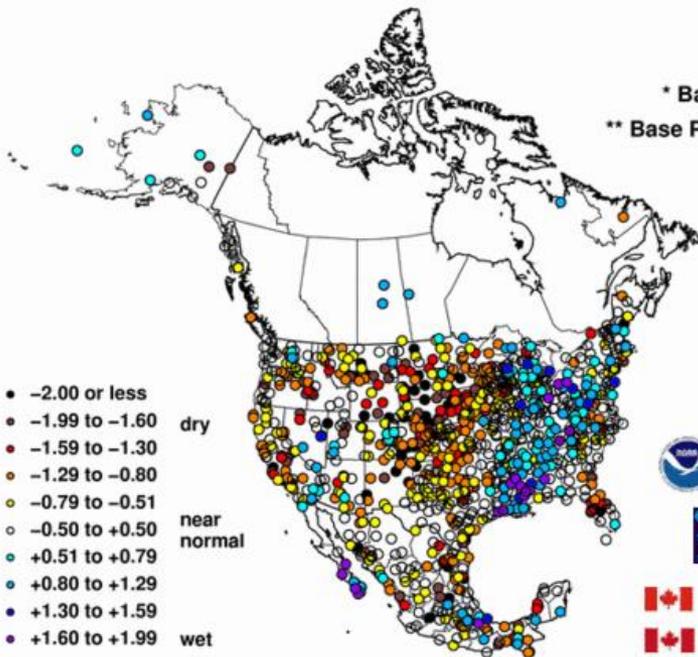
\* Based on Preliminary Data  
\*\* Base Period for Averages 1951 – 2001



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## 9-Month Standardized Precipitation Index July 2012 – March 2013



\* Based on Preliminary Data  
\*\* Base Period for Averages 1951–2001

- -2.00 or less
- -1.99 to -1.60 dry
- -1.59 to -1.30
- -1.29 to -0.80
- -0.79 to -0.51 near normal
- -0.50 to +0.50
- +0.51 to +0.79
- +0.80 to +1.29
- +1.30 to +1.59
- +1.60 to +1.99 wet
- +2.00 or greater



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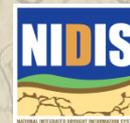
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Environment Canada

Environnement Canada

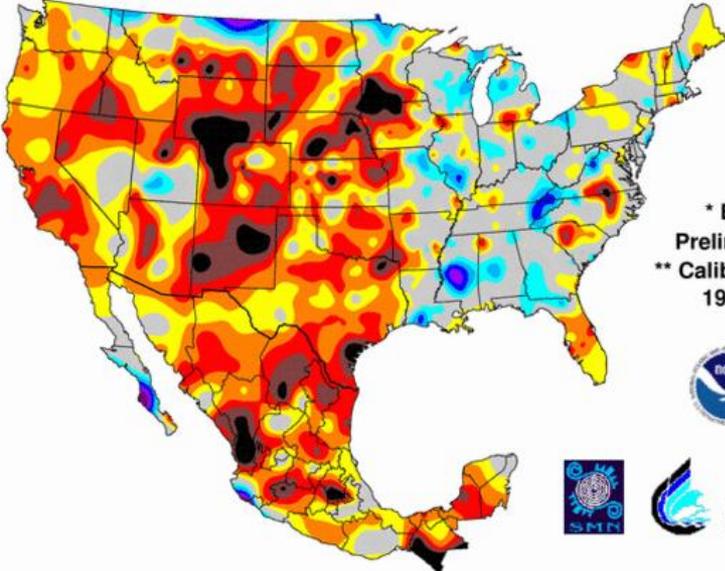


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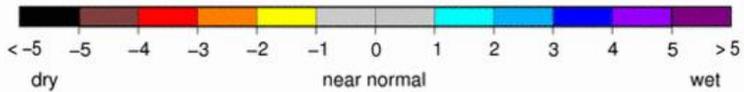




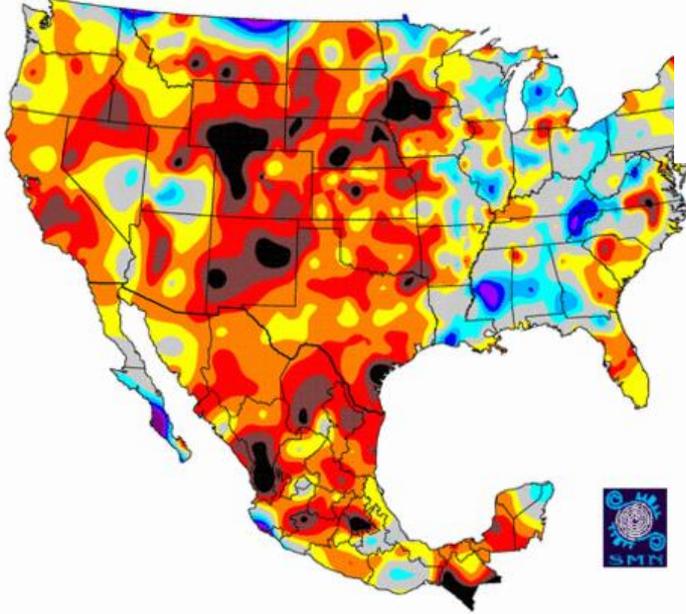
# Palmer Drought Index March 2013



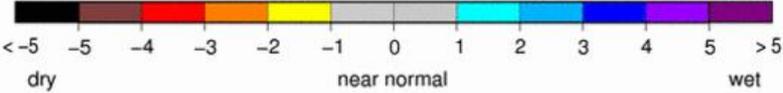
\* Based on Preliminary Data  
\*\* Calibration Period 1951 - 2001



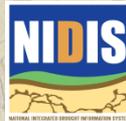
# Palmer Hydrological Drought Ind March 2013



\* Based on Preliminary Data  
\*\* Calibration Period 1951 - 2001



A collage of logos and a background image of cracked soil. The logos include NIDIS (National Integrated Drought Information System), the University of Nebraska-Lincoln, and the National Drought Mitigation Center. The background is a close-up of parched, cracked earth.



# Any Questions ?

**Thank you !**

**Brian Fuchs**

National Drought Mitigation Center



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