



Drought Monitoring Activities in Minnesota & Minnesota State Drought Plan Update

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Minnesota State Climatologist

Presentation Overview

- Background on MN SCO
- Drought Monitoring
- Current Drought Plan
- Proposed Plan Update



Minnesota State Climatology Office

- We are a program within the Minnesota Department of Natural Resources in the Division of Ecological and Water Resources
- Our Office is located at the University of Minnesota, St. Paul Campus
- Including myself we have three full time climatologists
 - Mr. Pete Boulay : Assistant State Climatologist
 - Dr. Kenny Blumenfeld : Senior Climatologist
 - Greg Spoden : Part-Time (former State Climatologist)
 - DNR Volunteers

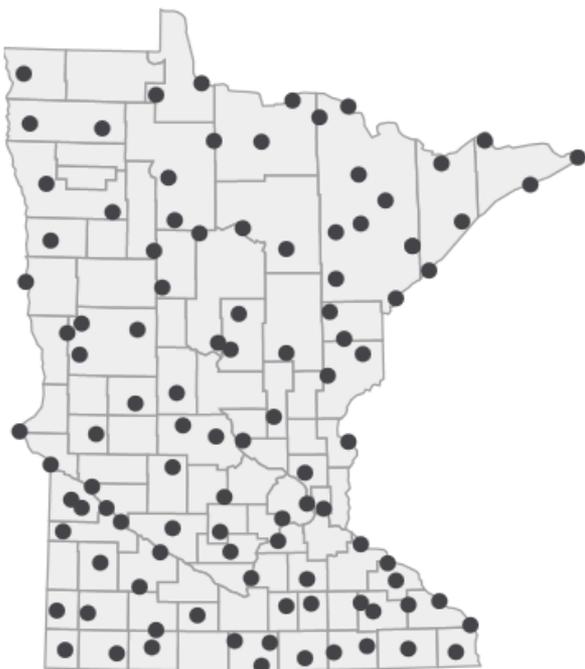
Service:

- Many Requests are served through the use of SC-ACIS and/or Cli-MATE.
- We have many web-based climate products that utilize ACIS web services.
- Approximately 50 presentations to various agencies and organizations.
- Roughly 150-200 Media Contacts per year.
- Monitor drought weekly, providing advice to the NDMC/USDM

Service: ACIS Web Services

Year to Date Precipitation Chart

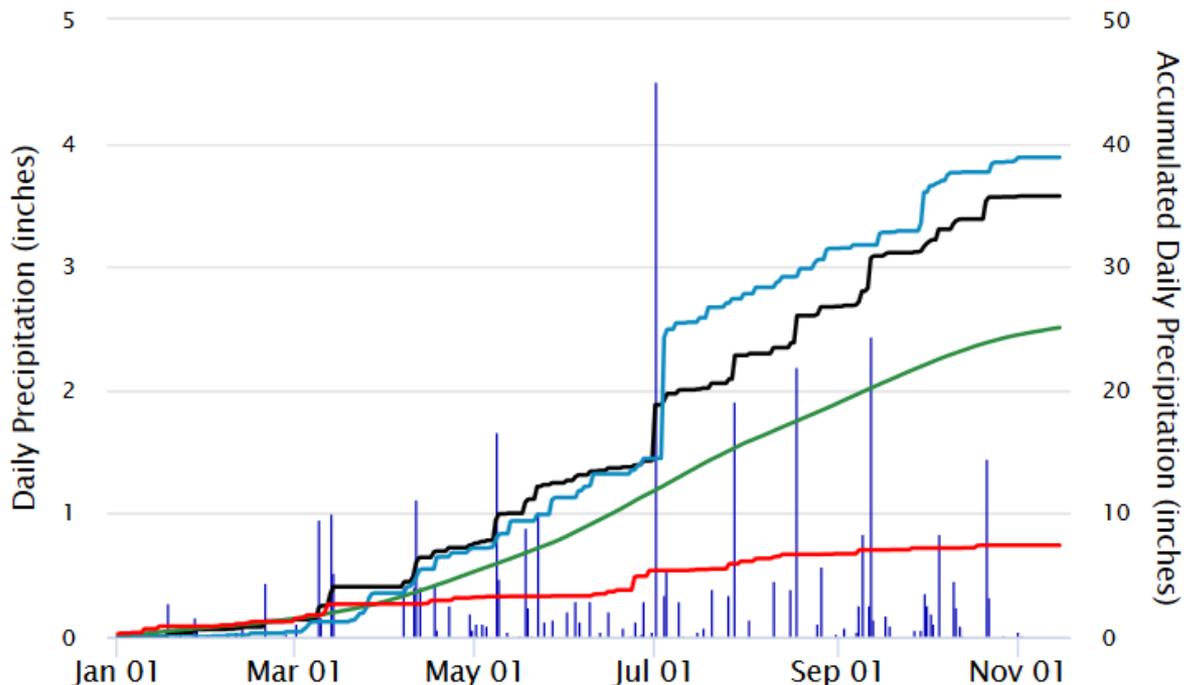
Click a Station to view a Year-To-Date Precipitation Chart



Highcharts.com © USA Census Bureau

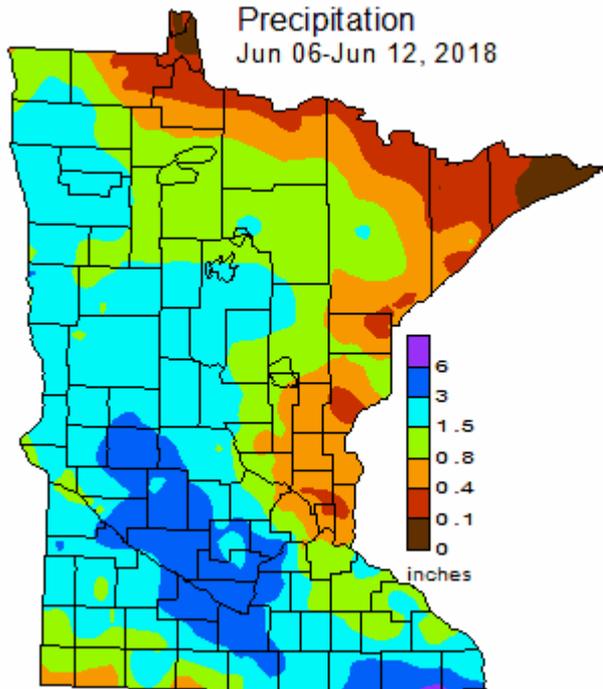
Year To Date Precipitation

MILAN 1NW (MN)

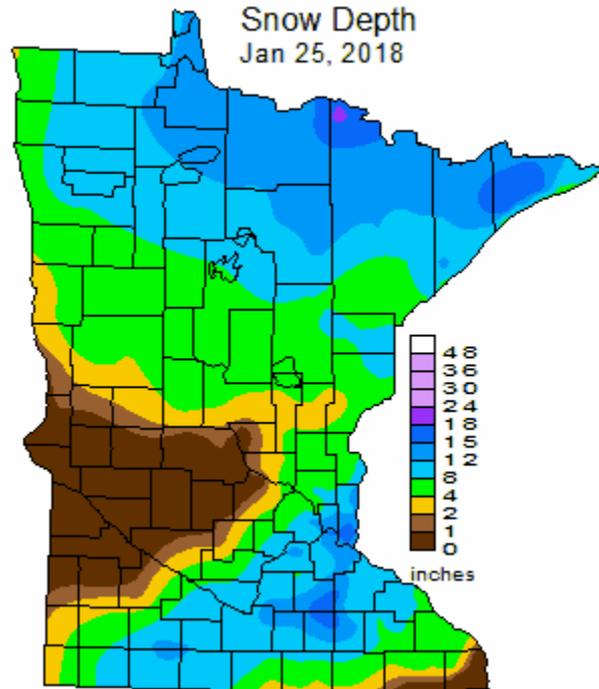


- Daily Precipitation (2019)
- Current Year-To-Date (2019)
- Accumulated Daily Normal Precipitation
- Wettest Year-To-Date (1995)
- Driest Year-To-Date (1976)

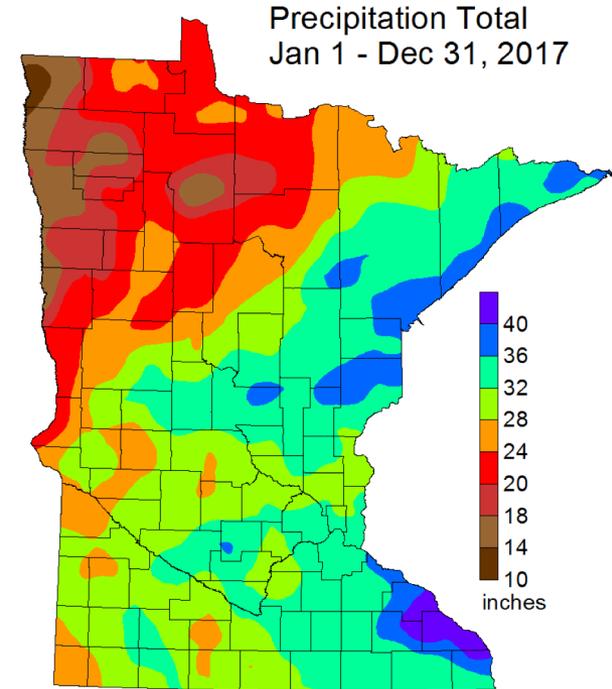
Monitoring: Maps



DNR EcoWat - State Climatology Office, 06-12-2018

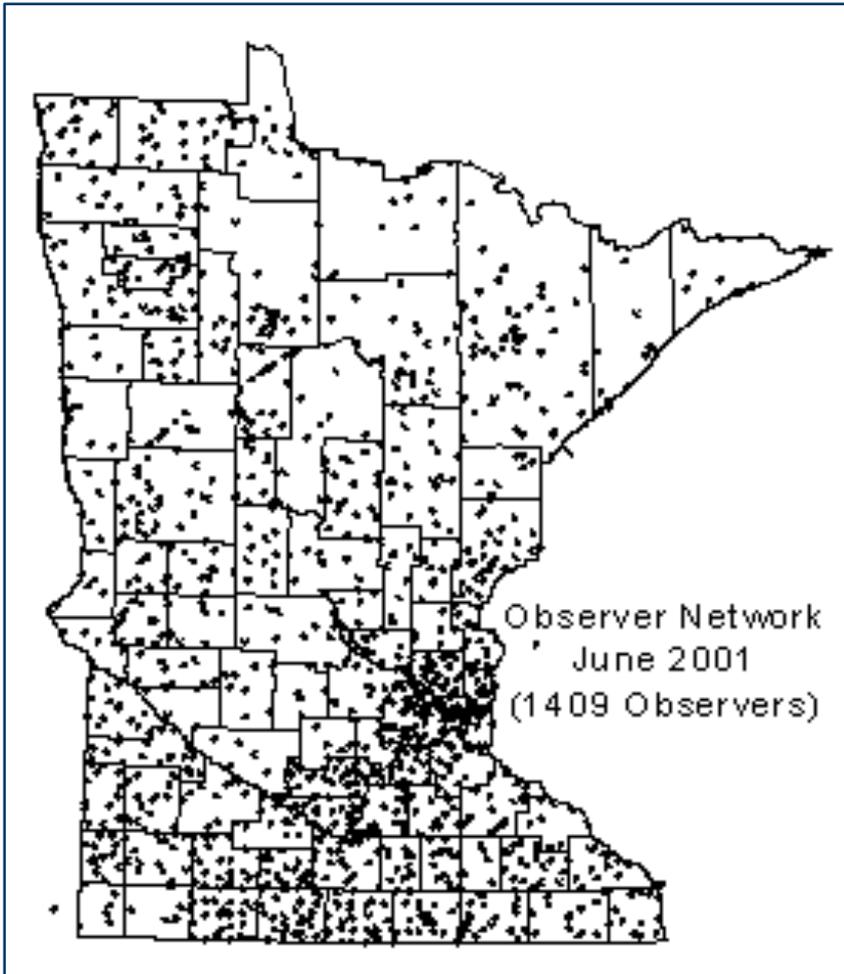


DNR EcoWat - State Climatology Office, 01-25-2018



DNR State Climatology Office, May 14, 2018

Data: MN Gage

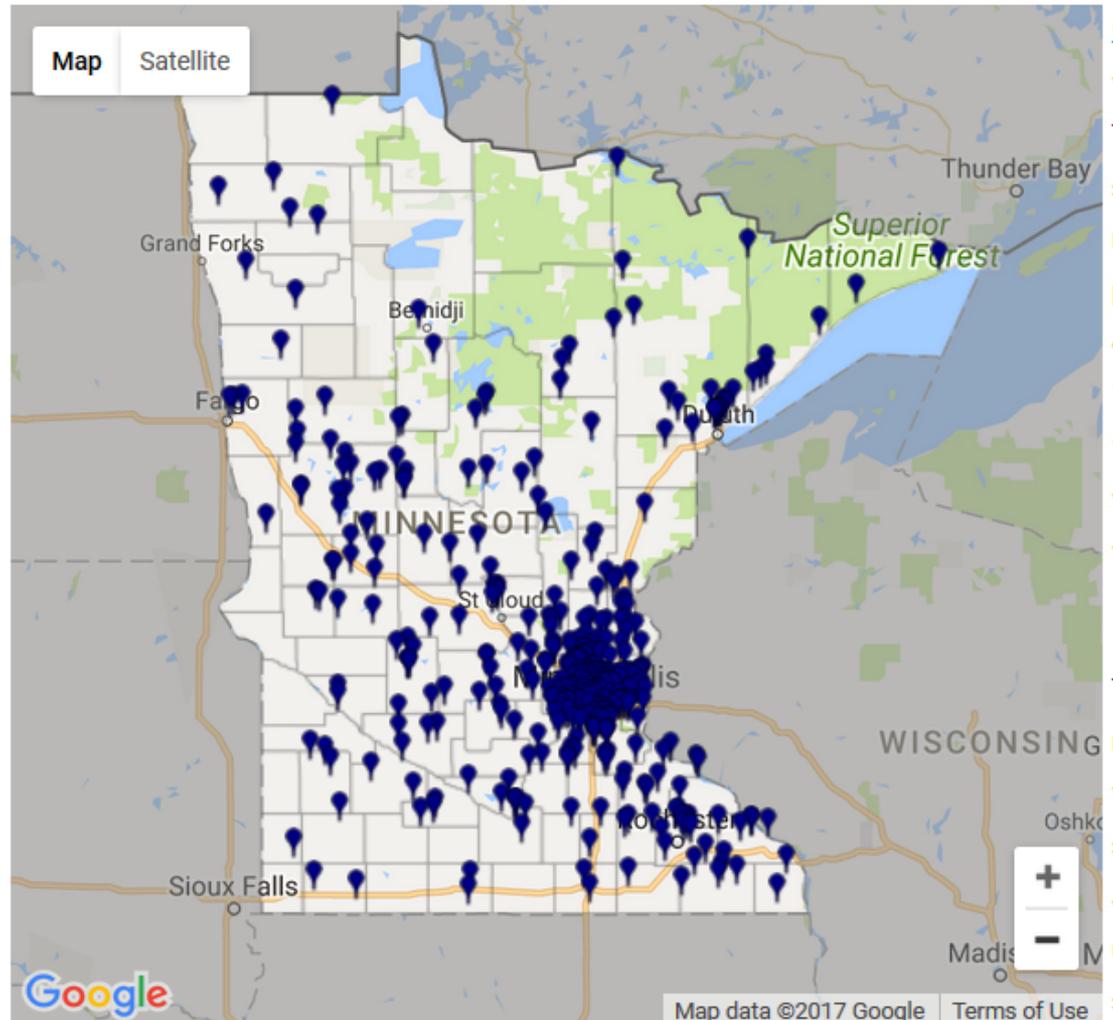


***“We were
CoCoRaHS before
CoCoRaHS was
cool !”***

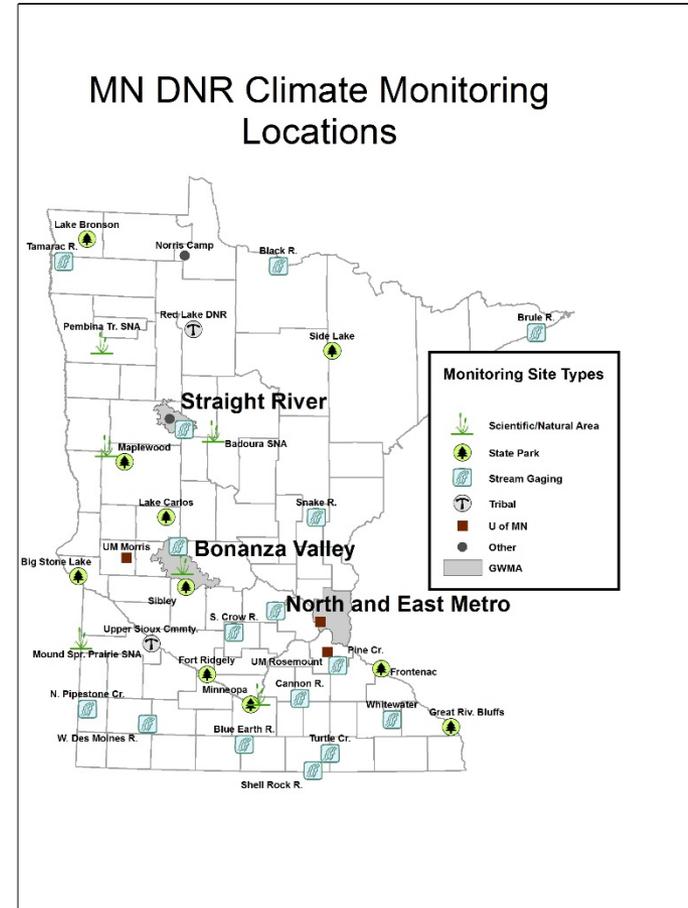
**– Greg Spoden (Former
MN State Climatologist)**

Data: We're also Cuckoo for CoCoRaHS

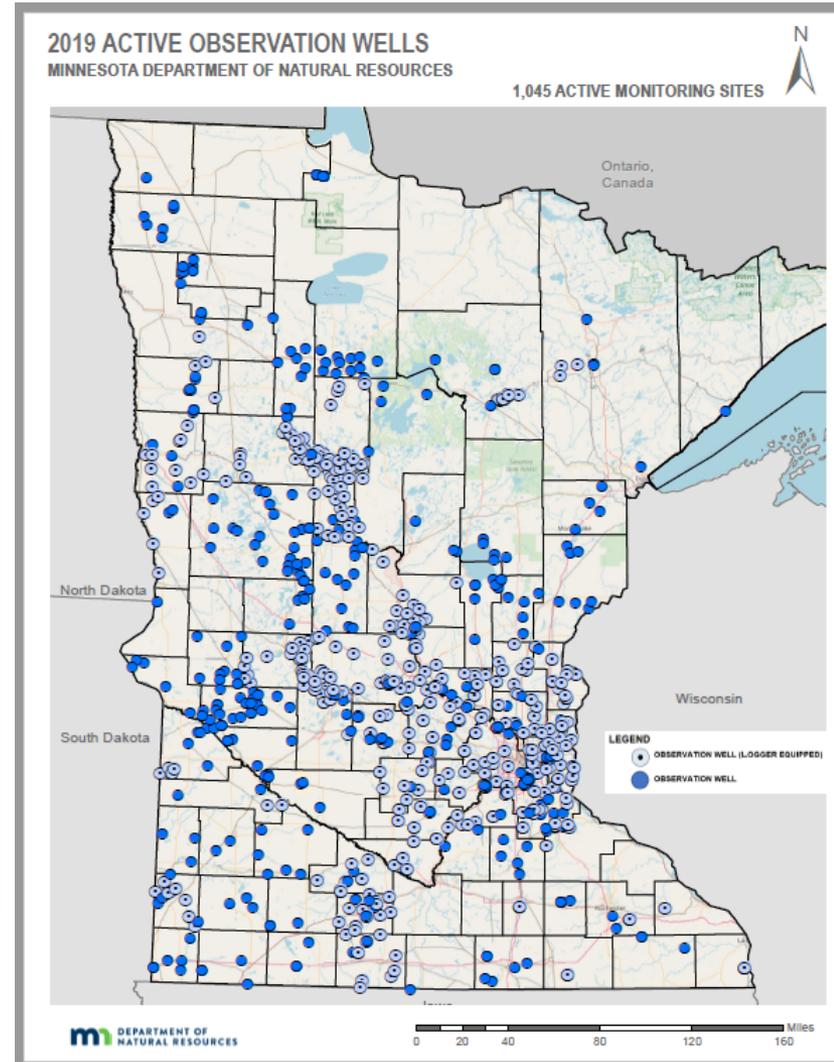
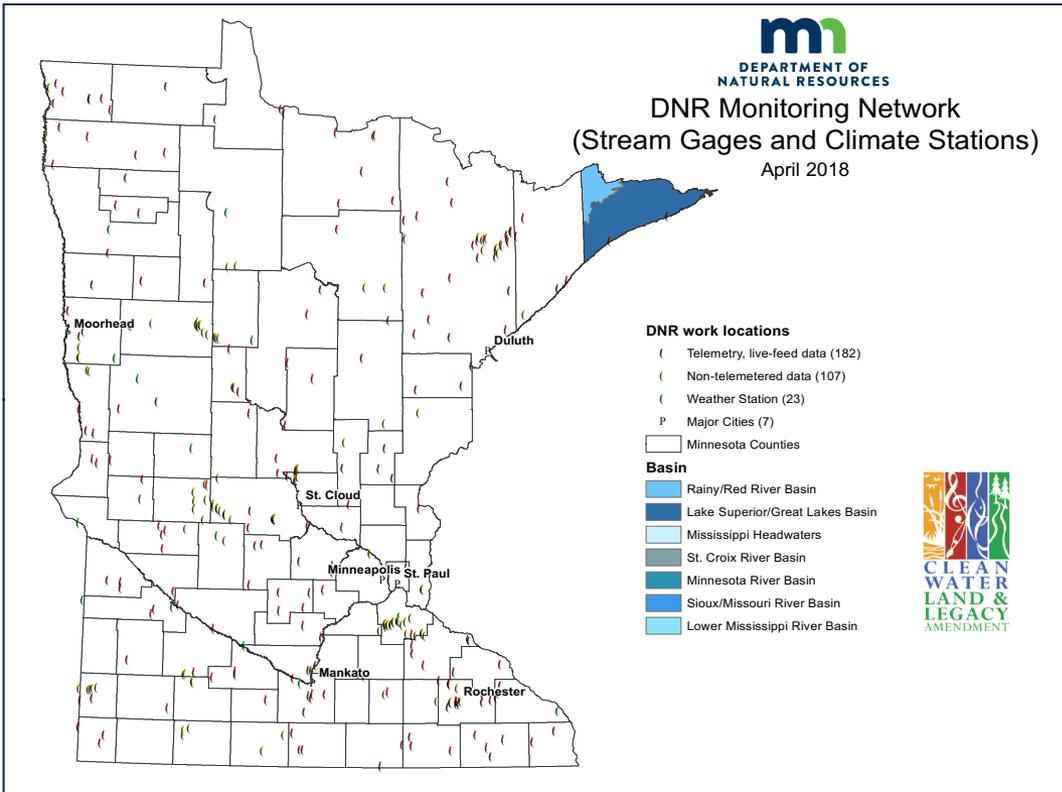
- Just over 400 observers
- Approx. 190 report consistently
- Uneven distribution of observers



Data: MN DNR Mesonet

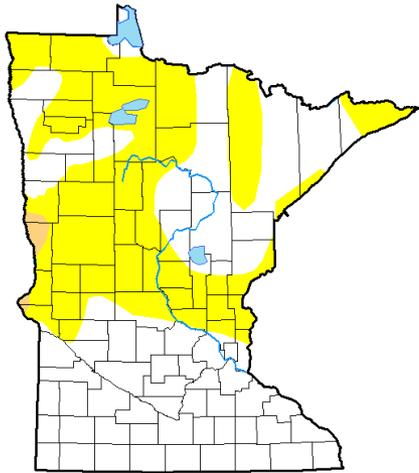


Data: Cooperative Stream Gaging Sites & Observation Wells



Monitoring

U.S. Drought Monitor Minnesota



June 12, 2018
(Released Thursday, Jun. 14, 2018)
Valid 8 a.m. EDT

Intensity:

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

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

Author:

Brian Fuchs
National Drought Mitigation Center



<http://droughtmonitor.unl.edu/>

Climate Journal

This page offers a running account of significant Minnesota weather events or sustained weather features. See our [legacy climate journal](#) Older journal articles will appear as we continue to back-fill this page.

June 2018

- [June 11 Storms: Heavy Rain and Wind](#)
- [HydroClim Minnesota for Early June 2018](#)

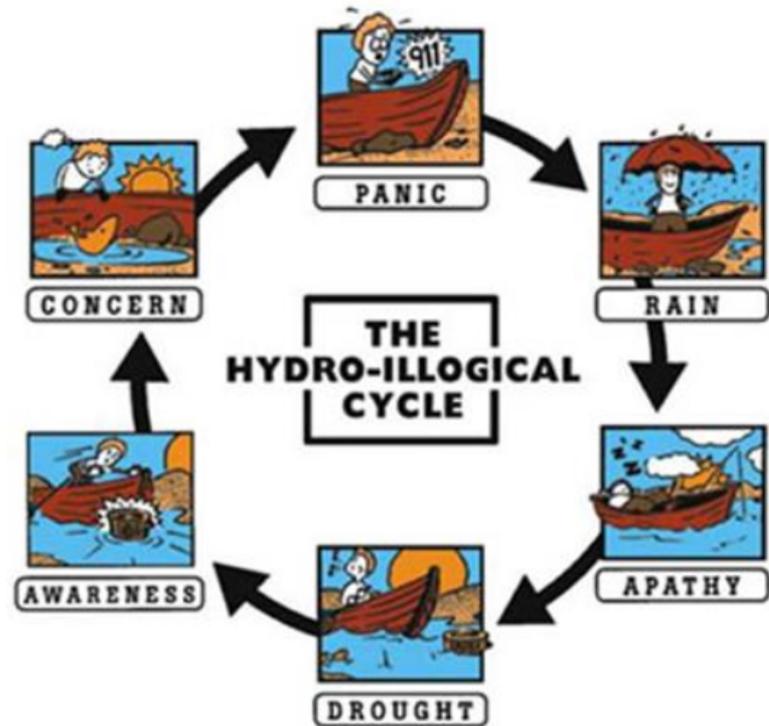
May 2018

- [May 2018 St. Cloud Weather Summary from SCSU](#)
- [Memorial Weekend Heat Wave: 2018](#)
- [Does 90 Degrees in May Equal a Hot Summer?](#)
- [May 29 Large Hail in Southeast Minnesota](#)
- [May 25 Storms in Southeast Minnesota](#)
- [2018 Fishing Opener Weather](#)
- [Lake Ice Out Table For Selected Lakes](#)
- [Lake Ice Out: 2018](#)
- [HydroClim Minnesota for Early May 2018](#)

- **Participate in Regional and National Calls/Webinars**
- **Provide support to DNR Hydrology Staff**
- **HydroClim Newsletter**

Current Drought Plan

- Existing Drought Plan
 - Crisis Management
 - Lacks Hazard Analysis
 - Lacks Risk Analysis
 - Missing most critical components of a good drought plan
 - Promotes questions, not answers



Minnesota Statutes 103G.293

The commissioner shall establish a plan to respond to drought-related emergencies and to prepare a statewide framework for drought response. The plan must consider metropolitan water supply plans of the Metropolitan Council prepared under section 473.1565. The plan must provide a framework for implementing drought response actions in a staged approach related to decreasing levels of flows. Permits issued under section [103G.271](#) must provide conditions on water appropriation consistent with the drought response plan established by this section.

Step 1	Appoint a drought task force
Step 2	State the purpose and objectives of the drought preparedness plan
Step 3	Seek stakeholder participation and resolve conflict
Step 4	Inventory resources and identify groups at risk
Step 5	Prepare/write the drought preparedness plan
Step 6	Identify research needs and fill institutional gaps
Step 7	Integrate science and policy
Step 8	Publicize the drought preparedness plan and build public awareness
Step 9	Develop education programs
Step 10	Evaluate and revise drought preparedness plan

Figure 2 Ten-step planning process. (*Source:* National Drought Mitigation Center, University of Nebraska, Lincoln, Nebraska, USA.)

Strategy: Component 1: Drought Hazard Profile

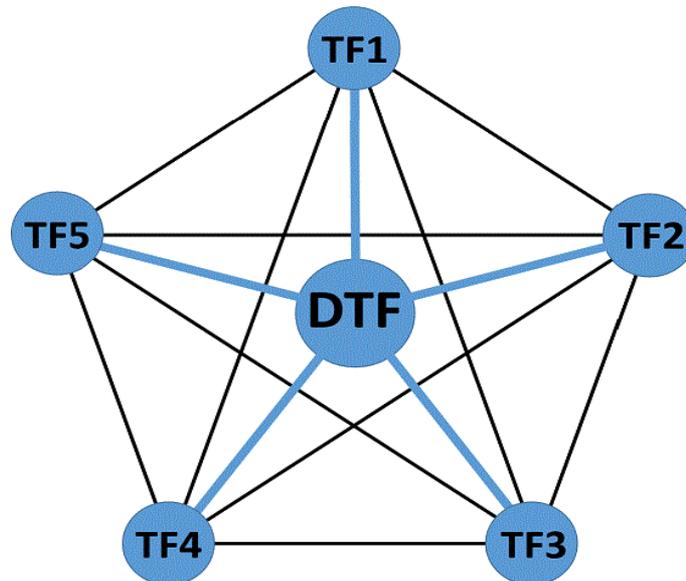
- Thorough and concise definition of drought and dialog of what drought means for Minnesota
- History of severe drought events in Minnesota
- Outline monitoring activities and monitoring networks
- Detail expansion of drought monitoring activities by utilizing existing resources and engaging citizen scientists
- Provide guidance on drought in the face of climate change
- Hazard Profile already started; aligned with State All Hazard Plan prepared by Dept. of Public Safety

Strategy: Component 2: Drought Vulnerability & Risk Assessment

- Comprehensive research study that identifies exhaustive list of all drought vulnerabilities and impacts for the state
- Develop a geography of vulnerabilities and risks
- Organize all vulnerabilities by impact sector
- Develop broad domain of mitigation goals and strategies for all impacts and vulnerabilities
- Engage stakeholders and potentially affected interests

Strategy: Component 3: Sector-Level Drought Task Forces

- Identify members on the Primary Drought Task Force that could lead Sectoral-Level Drought Task forces
- Establish a knowledge network to foster communication among all impact sectors



Strategy: Component 4: Drought Response Plan

- Develop clear descriptions of how drought is assessed and declared for the state of Minnesota
- Create well-defined drought warning phases
- Provide thorough and well defined list of response actions for each phase
- Ensure actions are oriented around list of vulnerabilities and impacts
- Establish responsibility assignments for the DNR and a list of recommended assignments for other involved agencies

Strategy: Component 5: Plan Maintenance

- Establish a plan maintenance committee
- Establish a schedule for evaluating the drought plan (i.e., after each event, annually, etc...)
- Assessments of the plan ought to address all achievements and all potential opportunities and challenges
- Conduct drought management exercises (Drought Tournaments, Workshops, Tabletop Exercises) to evaluate the state's coping capacity to drought events

Strategy: Component 6: State Drought Portal

- Creates an online home for living documents, including the drought plan itself
- Provide comprehensive, easy to use value-added climate products for drought monitoring and assessment
- Model this after what is produced by NIDIS, while drilling down to more detail.
- Utilize the portal for drought education and outreach activities, including drought awareness brochures, training videos, podcasts and information on drought relief and recovery

Summary

- Currently working to start the drought plan update
- Will be engaging other agencies once we finalize our strategy
- New plan should place Minnesota in a great position to deal with drought events and drought-related impacts



Photo Credit: Pete Boulay



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Minnesota**

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Thank You!