Extreme Weather and Climate Services Roadshow – Northern Wisconsin

An initiative of the Rural Partnerships Institute at the University of Wisconsin-Madison

The Rural Partnerships Institute (RPI), in partnership with the Wisconsin State Climatology Office (SCO) and Wisconet at the University of Wisconsin-Madison, hosted an Extreme Weather and Climate Services Roadshow on Dec. 2nd in Newbold, Wisconsin. The event is part of an RPI project focused on improving extreme weather preparedness capacity in rural communities through education, engagement, and research. Approximately 40 people attended, representing local residents, Tribal representatives, local government officials, non-profit organizations, and others.

Presentation Summary

Wisconsin State Climatology Office (SCO)

The State Climatology Office (SCO) outlined its mission to offer climate services that help Wisconsinites use weather and climate information effectively. The SCO's work is organized around three pillars:

1. **Information:** Providing users with reliable weather and climate data, such as County Climate Profiles, reports on recent climate conditions, and historical analyses.
2. **Interpretation:** Helping stakeholders understand and apply climate information, such as analyzing what changes in Canada's wildfire season mean for Wisconsin.
3. **Investigation:** Conducting basic and applied research on Wisconsin's climate.

In addition to climate data services, the SCO produces educational resources like the *Wisconsin Climate Chronicles* blog and monthly climate summaries. They also collaborate on partner products, such as the National Weather Service Freeze Risk Tool and the Wisconsin Initiative on Climate Change Impacts (WICCI).

Wisconet – Wisconsin's Environmental Mesonet

Chris Vagasky, Program Manager of Wisconet, Wisconsin's Environmental Mesonet, then presented on "Wisconsin's One-Stop Weather Shop". A mesonet is a dense network of automated weather stations used to monitor detailed, real-time weather and soil conditions. Wisconet currently operates 78 weather stations across Wisconsin, with a hope to grow to approximately 120 stations. The system provides real-time, 5-minute interval data on variables like rainfall rates, wind speed and direction, temperature, soil moisture, and leaf wetness. Wisconet program staff are actively developing data tools to support informed weather-based decision-making.

Wisconet can provide weather and soil data support for:

- **Public Safety and Emergency Management:** Improving the accuracy of weather forecasts, assisting in warning issuance, and tracking essential conditions for first responders.
- **Agricultural Community:** Providing real-time data and decision-support tools for improved pest and disease management, irrigation scheduling, and drought monitoring.
- **Infrastructure:** Assisting the Department of Transportation in planning and decision-making, and supporting utility planning for electricity and natural gas demand.

Decision support dashboards include user-friendly maps and data of excessive rainfall, hazardous temperatures, active hazards and outlooks, winter storm severity, and more.

Breakout Groups and Participant Insights

The Roadshow featured breakout questions where participants could share their perspectives and experiences on extreme weather in Northern Wisconsin. They discussed the impact of weather and climate on their life and work, the extreme weather events that have had the greatest impact on their community, where they go to for weather and climate information, and what weather and climate information they wish was more readily available. Breakout discussions were praised by participants as the most valuable component of the event, providing an opportunity for interactive learning and hearing diverse local perspectives.

Impacts and Events

Participants highlighted how weather and climate critically affect outdoor-dependent activities, such as hunting, fishing, wild rice harvesting, maple syrup production, and outdoor recreation and school programs. These activities are increasingly being threatened by low-snow winters, the increasing abundance of ticks, algal blooms, and fluctuating lake levels.

Attendees cited ice storms and high wind events resulting in disruptive and dangerous power outages. These power outages can pose health risks to people dependent on electricity and other utilities for their healthcare needs. Northern Wisconsin has also experienced several major floods in the past 10 years, causing substantial damage to infrastructure.

In response to these events, communities stressed the urgent need for more proactive planning and reliable infrastructure and stronger, collaborative inter-community emergency coordination. The economic impact of reduced winter tourism and agricultural impacts from heavy rain was also raised.

Opportunities for Research

In addition to education and outreach, one goal of the Roadshows is for SCO, Wisconet, and RPI staff to better understand the extreme weather information needs and interests of communities to direct research efforts. Some research avenues identified in Northern Wisconsin include:

- Understanding the environmental and climatic conditions driving cyanobacteria and algal bloom formation in inland lakes.
- The extent to which warmer winters are contributing to increased forest pest and disease pressures, as well as winter recreational impacts on the regional economy.
- Examining long-term trends in frost depth using Wisconet's soil and temperature data to assess implications for drinking water main depth standards, septic system performance, and agriculture.
- The impact of continued warming and shifting precipitation on culturally significant species like wild rice and developing predictive tools to support Tribal resource management.

Future Events

RPI, the SCO, and Wisconet are hosting additional Extreme Weather and Climate Services Roadshows across the state to better understand the needs in different regions of Wisconsin. They include:

- **Driftless Region:** West Salem, January 21st (Download Event Flyer)
- **Central Sands Region:** Wisconsin Rapids, February, Date TBD

These future events will follow the successful Northern Wisconsin model to gather region-specific insights, share resources, educate, and build local capacity for climate hazard planning across the state. If you would like to bring a Roadshow to your community, contact Jackson Parr, Climate Hazards Planning Educator at the University of Wisconsin-Madison Division of Extension, at jgparr@wisc.edu.