

Northern Exposure



National Weather Service
Grand Forks, ND

Summer 2011

NWS and Partners Collaborate at Workshop by Peter Rogers and Mark Frazier



The attendees of the IWT Workshop broke up into small groups for further discussion. Above is one of those small groups.

The National Weather Service (NWS) Forecast Office in Grand Forks, ND hosted a first of its kind flood-focused Integrated Warning Team (IWT) Workshop on June 1-2 in Fargo. Red River Valley and Devils Lake Basin flooding pose unique challenges that require cooperation between multiple agencies and organizations. Representatives of the team include the NWS, US Corps of Engineers, US Geological Survey, MN Homeland Security and Emergency Management, MN Department of Natural Resources, MN VOAD (Volunteer Organizations Active in Disaster), ND Department of Emergency Services, ND State Water Commission, ND VOAD, local county emergency managers and city officials, media, North Dakota State University (NDSU), and University of North Dakota (UND).

The first day of the workshop focused on team building. During three discussion panels, experts from the different components of the team described how his or her organization

provides services and communicates prior to and during flood emergencies. How the public responds to those messages was also discussed. Workshop participants had the opportunity to learn about other agency missions and how each part of the team can help integrate those missions to more effectively

ARTICLES INSIDE

NWS and Partners Collaborate at Workshop	1-2
Cooperative Weather Observers: Our Database Backbone	3-4
We Want You to be a Cooperate Weather Observer	5
Supporting the Mission	6-7

serve the public. Small group breakout sessions built upon this concept and encouraged attendees to explore new ways to collaborate with each other for future flood events.

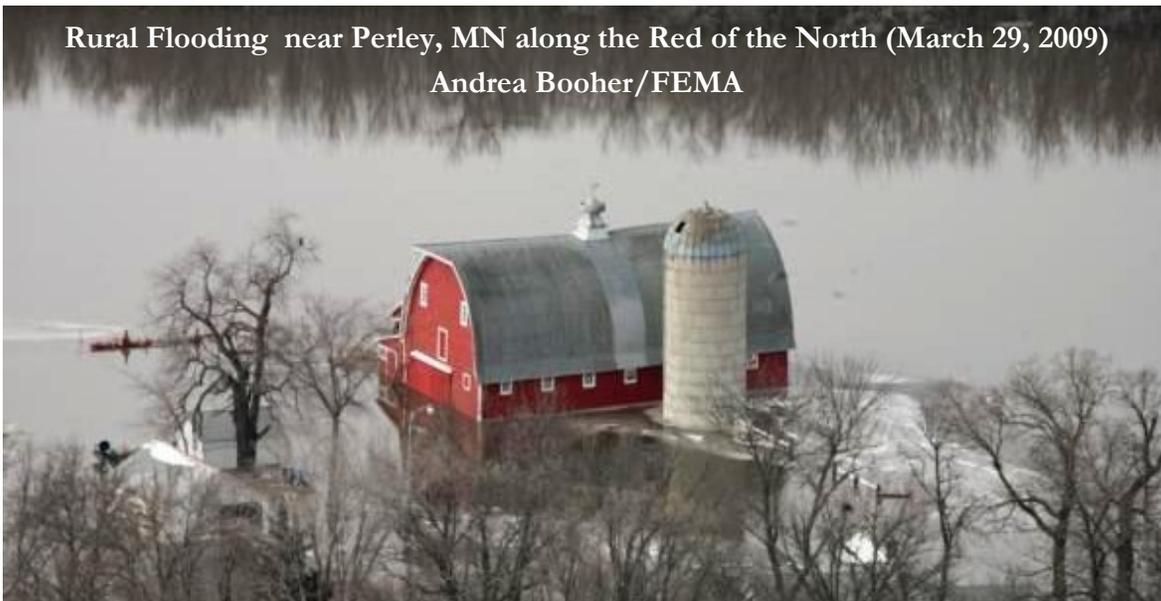
The second day of the workshop examined the social science component of flooding. Presentations given by Dr. Jeff Lazo, National Center for Atmospheric Research Societal Impacts Program, and Dr. George Youngs, NDSU Department of Emergency Management, challenged workshop participants to consider how human attitudes/behaviors and past experience affects response. For example, some of the hypotheses that were discussed included the idea that frequent experience with flooding leads to fatigue, which leads to poor response or that frequent experience with flooding leads to knowledge which leads to better response. It was agreed that further research was needed in the social science realm.

The overarching themes of the workshop was to better understand how all of these elements are integrated and strive to more effec-

tively serve the public and communicate a unified message. The workshop has been a springboard to partner with NDSU faculty to study public response to warning messages, examine the development of a regional Joint Information Center that crosses organizational and political boundaries, and integrate MN and ND VOAD into pre-flood preparedness/education campaigns.

The consensus of the participants was to continue further dialogue and work toward future “Basin Coordination” workshops on an annual or perhaps semi-annual basis. Team members can also discuss other ideas and collaborate through an online forum using Google Groups. “The workshop provided an excellent opportunity for regional flood fighting partners to share with each other and find new ways to work together as we strive to enhance public services before, during, and after flood emergencies,” said Peter Rogers, Grand Forks General Forecaster and organizer of the workshop. For more information, please contact Mark Frazier at the NWS office in Grand Forks at 701-795-5198.

Rural Flooding near Perley, MN along the Red of the North (March 29, 2009)
Andrea Booher/FEMA



Cooperative Weather Observers: Our Database Backbone

by Mark Ewens

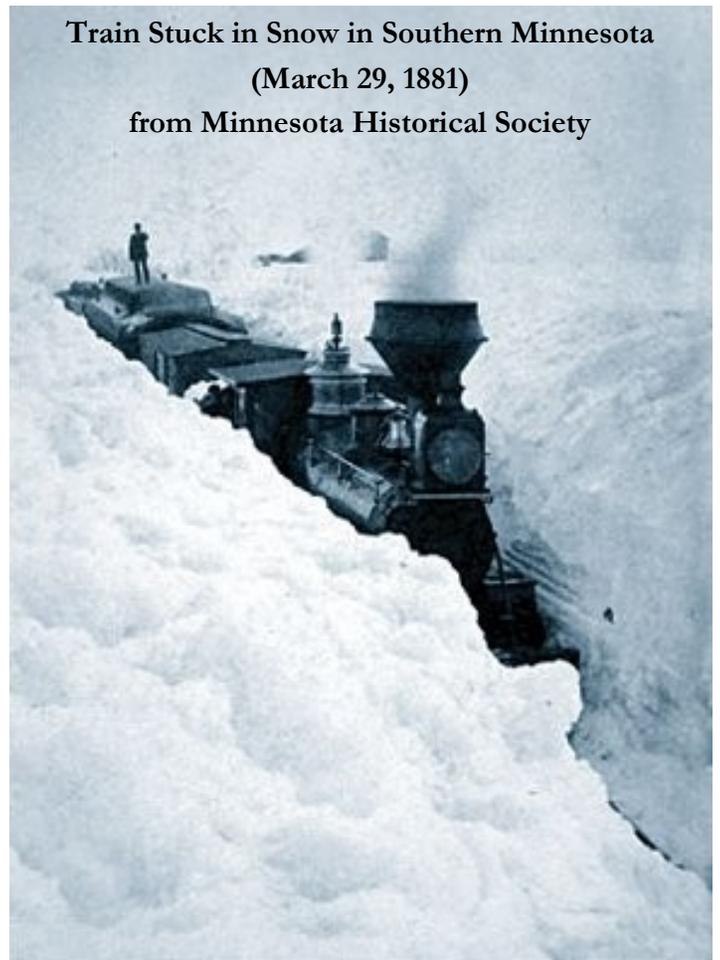
Over the course of human history, recording the weather has been at the forefront of our collective conscience. Whether it is a fixed recording of the weather - such as Benjamin Franklin and many others did centuries ago, or a more accidental record of history - such as the *Little House* series, weather impacts humanity in ways few other events do.

Since the late 19th century there has been a concerted effort to track and record the daily weather. Records of high and low temperature, precipitation, snowfall and much more are available at many locations in our region as far back as the 1880's. Information along the eastern third of our nation dates back another century or more. In Europe, weather data goes back to the 16th century.

Even where hard data has not been recorded, literature fills many gaps in the historic record. Examples include *A Tale of Two Cities* (1859) by Charles Dickens or *The Long Winter* (1940) by Laura Ingalls Wilder. Both of these, and many others, record information about the weather as a part of the story; how it influenced events or impacted the characters, plot and story. This information can be used to fill in gaps or verify significant events in human history.

In *A Tale of Two Cities* Dickens writes of ice skating on the Thames River, indicating extremely cold weather conditions in England that have not been realized since. Similarly, Laura Ingalls Wilder describes in stark detail the harrowing *Long Winter* of 1880-1881, when residents of De Smit, South Dakota were relentlessly hammered by blizzard after blizzard, and faced temperatures to near -50°F. These stories, when placed in the context of history, are proven accurate by the records of weather observers.

Train Stuck in Snow in Southern Minnesota
(March 29, 1881)
from Minnesota Historical Society



At the time of *Little House* the Army Signal Corp was taking weather observations at “nearby” Army forts. The information contained in these observations authenticates the stark realities of Mrs. Wilders’ books. More



An example of basic equipment provided to observers to measure precipitation and temperatures placed in an observer's backyard.

regionally, the Pierre Bottineau Journals talk about extremely wet conditions in the 1860s, what is now the Devils Lake area. This suggests that the current high water impacting the Basin has occurred in “recent” history.

Today, there are various agencies that use *Weather Observers* to record data. Some are specialized, as in the case of the Atmospheric Resource Board (ARB). Their observers typically report only during the growing season. The Community Collaborative Rain, Hail and Snow (CoCoRaHS) network is designed as a “Citizen Weather Observer” program, getting those interested in weather to report not just rain, but hail and snowfall.

The National Weather Service (NWS) operates the “official” Climate and Weather Net-

work. This network varies from CoCoRaHS or ARB in that the data collected by NWS Observers become part of the official climate database. When a rainstorm floods a town, FEMA and other emergency response agencies look first to the NWS network. When a state government wishes to declare a ‘State of Emergency’ due to record snowfall, they turn first to the NWS network. Increasingly, these agencies are not only looking at NWS Official Weather Records, but at ARB, CoCoRaHS and other networks to clarify the severity of a storm.

Because of this, all those who are Weather Observers are the backbone of our national database. It is as Benjamin Franklin envisioned it – citizen observers making a difference.

We Want You to Be a Cooperative Weather Observer

by Geoff Grochocinski



The National Weather Service (NWS) cannot do its job without the help of thousands of volunteers across the country. Personnel at the NWS take daily weather measurements at the more than 122 offices across the

United States and its territories, but citizen volunteers brave the elements to maintain vital weather data across the vast expanses between NWS offices. These volunteers are part of various observer networks, including the NWS sponsored Cooperative Observer Program (COOP), a program that has a history of more than 120 years.

Volunteers within the COOP are trained and given equipment by the NWS in order to establish and maintain weather data records at their local locations. These welcome volunteers range from institutions (such as schools and companies) to dedicated individuals and families. The observers typically record daily (24-hour) precipitation (rainfall and snowfall), snow depth, and daily high and low temperatures. This weather information not only helps establish climate records, but it also has a direct impact on the NWS's operations and its ability to serve the public. Daily precipitation and snow depth information is crucial in

our ability to forecast flooding, especially for your own Grand Forks NWS office's ability to forecast the annual spring thaw flooding across the Red River Basin and the surrounding region. Observers are not only helping the NWS, but they are helping the citizens who live in their region because the NWS can provide more accurate predictions.

The effectiveness of the NWS can only improve with the addition of more COOP volunteer observers. Please consider becoming a volunteer observer. We would welcome more observers just about anywhere, especially in the very rural areas of eastern ND and northwestern MN. If you or someone you know would be interested in becoming an observer, we would be grateful if you contact Mark Ewens at our Grand Forks NWS office.

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Supporting the Mission

by Bradley Hopkins

During the normal course of operations, the local National Weather Service (NWS) forecast office is able to handle increased workloads. Short term events such as severe thunderstorms, tornadoes or severe winter weather sometimes require office staff to stay past their normal shift hours to handle issuance of various products and receive storm reports from spotters, cooperative observers, and the general public. Sometimes storm damage survey teams are formed to assess damage and, in the case of confirmed torna-

does, assign a rating based on damage indicators.

Flooding, on the other hand, is normally a long-term event. Depending upon the severity of the flooding, the office staff can be called upon to operate under an increased workload for an extended period of time, which can range from a few weeks to a few months. This year, the staff at the Bismarck NWS forecast office faced such a challenge.

An above average snowfall during the past winter and a higher than normal number of springtime rain events over western North Dakota, eastern Montana, and southern Saskatchewan caused the ground to saturate and rivers to fill up. For residents in western and central North Dakota, concerns about the



Highway 2 East of Minot, ND (June 25, 2011)
Andrea Booher/FEMA

Missouri and Souris rivers increased as reservoirs reached very high levels. The flooding in western and central North Dakota became a prolonged event, and the requirement to support multiple emergency operations centers created a need to augment NWS Bismarck meteorologists to handle day to day forecast responsibilities.

Since the forecast office in Grand Forks operates in a similar manner as the Bismarck office, I was selected to help with providing forecast services for several days early in July. While local meteorologists provided local expertise to assist decision makers in Bismarck and Minot, I was called upon to produce aviation forecasts and generate various forecast elements through a seven-day period, along with other miscellaneous forecast products.

With familiarity in NWS Bismarck's operations, I was able to make a seamless transition and function smoothly with the rest of the staff. Communication with others on shift was critical as it ensured the team provided the best support possible to the public, as well as those persons designated to assist local emergency managers.

As the Souris River in Minot crested and the immediate crisis passed, Bismarck personnel were able to wind down on-scene support to emergency managers and return to the office. With my brief tour of duty at Bismarck complete, it was satisfying knowing I was able to assist my fellow meteorologists in providing valuable services to the people of western and central North Dakota.



Parts of Minot, ND Under Water (July 3, 2011)
Patsy Lynch/FEMA

The Grand Forks NWS Staff

MIC (Meteorologist in Charge)
SOO (Science Operations Officer)
WCM (Warning Coordinator Meteorologist)
ESA (Electronic Systems Analyst)
DAPM (Data Acquisition Program Manager)

SH (Service Hydrologist)
ITO (Information Technology Officer)
ASA (Administrative Support Assistant)

Lead Forecaster
Lead Forecaster
Lead Forecaster
Lead Forecaster
Lead Forecaster

Forecaster
Forecaster
Forecaster
Forecaster

Intern Meteorologist
Intern Meteorologist
Intern Meteorologist

Hydrometeorological Technician

Electronic Technician
Electronic Technician

SCEP (Student Intern Meteorologist)
SCEP (Student Intern Meteorologist)

Mark Frazier
Bradley Bramer
Greg Gust
Michael Lukasz
Mark Ewens

Michael Lukes
Richard Hozak
Jeanette Ringuette

Jennifer Ritterling
Dan Riddle
Al Voelker
David Kellenbenz
Tommy Grafenauer

Vince Godon
John Hoppes
Peter Rogers
Peter Speicher

Geoffrey Grochocinski
Bradley Hopkins
Jim Kaiser

William Barrett

Ed Schulz
David Masterson

Ed Townsend
Scott Rowe

Feel free to make suggestions to Editor Geoffrey
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Theme Picture: Nice Color Gradient

Fargo, ND August 22, 2008

taken by S. Nazari



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