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# The Dakota Thunder

## Welcome Message

By: Tony Merriman

It is with great excitement that we introduce the Winter 2012-2013 edition of the CoCoRaHS newsletter! The purpose of this publication is to keep North Dakota residents informed about the latest weather events in the state and how observers like you assist the National Weather Service (NWS) create better river and weather forecasts.

This newsletter is issued twice a year, one in the summer and one in the winter. The content is truly a team effort as it is produced by a team of North Dakota and Canadian

CoCoRaHS coordinators.

If you have any requests for information you would like to see in the summer edition of this newsletter, please email me at

Tony.Merriman@noaa.gov.

Thanks again for being great weather observers!



The 4-inch rain gauge required to participate in the program

## Snow Training - Shorts

By: Tony Merriman

If someone is new to CoCoRaHS or a seasoned veteran, observers still need a reminder from time to time on how to measure snow, which is THE most difficult precipitation type to measure. The following are the five snow-related measurements.

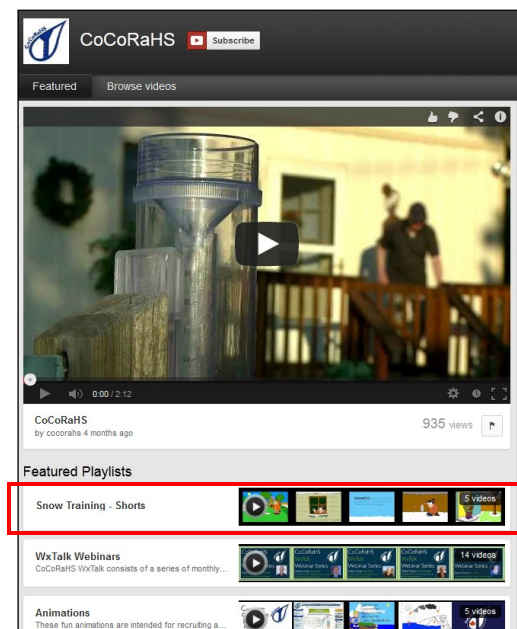
- Rain/Melted snow that fell in the gauge in the last 24 hours.
- Accumulation of **new** snow in the last 24 hours.
- Melted value from a snow core sample of the **new** snow on your snowboard.
- Depth of **total** snow and ice on the ground.
- Melted value from a snow core sample of the **total** snow and ice on the ground.

If you are pressed for time and would like a quick refresher on how to take these measurements, short snow training animations are available on the CoCoRaHS YouTube website. These videos can be found by navigating to <http://www.youtube.com/user/cocorahs> and clicking on the "Snow Training - Shorts" featured playlist (see image to the right).

Another brief CoCoRaHS training video for measuring snow can be found by clicking on the following link:

<https://www.youtube.com/watch?v=4WtCMHJ97e4>

Happy measuring!



## Significant Event Reporting - Snow

By: Mark Ewens

**"If you observe something out of the ordinary, please pass it along. CoCoRaHS can help!"**



(Source: Tony Merriman)

One of the many dedicated CoCoRaHS observers taking a heavy snow measurement.



Reporting snow is arguably the most difficult weather element to record. Blowing and drifting snow, even "light" amounts, can create blizzard conditions that can choke roadways, ground airlines, and disrupt daily plans. Depending on where you live, even a 2 inch snow driven by 35 or 40 mph wind can create white out conditions.

The CoCoRaHS web site says it best: *Winter measurements are a little harder and take a little more time, but they are well worth it. Scientists are just as interested in variations of snow-fall as they are rain and hail, and the water supply we get from melting snow is extremely valuable.* (**CoCoRaHS in the Cold: Measuring in Snowy Weather**)

What about heavy snow fall? While relatively rare in North Dakota, storm systems can produce significant amounts of snow in relatively short periods of time with little wind. These storms can be as disruptive to our lives as a good old fashioned blizzard. But what exactly is heavy snow?

The National Weather Service in Grand Forks and Bismarck defines heavy snow as 6 or more inches of snow in 12 hours, or 8 inches or more in 24 hours. Depending on the conditions accompanying the snow-fall (bitter cold, moderate winds, etc.), the NWS may issue a Winter Storm Warning or Advisory.

What do we ask of our faithful CoCoRaHS observers? While the newer RADAR technologies allow the NWS to better estimate snowfall, it is still just that – an estimate. And while wind driven snow can be difficult to measure, we all rely on the reports from our observers to help us keep tabs on the storm. Everyone has a life outside of

weather – Business men and women, farmers, truck drivers, Domestic Engineers playing taxi driver – it keeps us all busy. What happens when heavy snow falls, causing travel problems? We need to get the word out!

The CoCoRaHS web site has a form that allows observers to quickly alert the NWS and other users that you have experienced heavy snows that have caused travel problems or visibility restrictions and more. A wealth of information can be relayed to the NWS and other entities as soon as you report them. The form (image below) allows you to

report the facts as you see them. Did 6 inches of snow fall on your community in the past 2 hours? There is a comment block that allows you to detail the impacts. This information is priceless to the NWS and helps us verify our warnings or adjust forecasts to account for the changes that occur during storms.

So as you go through your day and observe significant changes in the weather since your morning report, think "Do folks need to know what's happening?" If you observe something out of the ordinary, please pass it along. CoCoRaHS can help!

### My Data Entry : Significant Weather Report Form

Significant Weather Report		Submit Data	Reset
Station Number : ND-BH-20			
Station Name : Menoken 3.4 WSW			
* Denotes Required Field			
1/20/2013	*Observation Date		
PM	*Observation Time		
Minutes	Time duration that the report covers		
Rain			
<input type="checkbox"/>	New Rain and Melted Snow that has fallen during the report duration, in inches to the nearest <b>hundredth</b>		
<input type="checkbox"/>	Total Precipitation, rain and melted snow, since storm began, in inches to the nearest <b>hundredth</b>		
Snow			
<input type="checkbox"/>	Depth of New Snow that has fallen during the report duration, in inches to the nearest <b>tenth</b>		
<input type="checkbox"/>	Total depth of snow and ice on ground at the time of this observation to nearest <b>half inch</b>		
Additional Information			
<input checked="" type="radio"/> Yes <input type="radio"/> No Report was taken at registered location?			
Was There Flooding?			
<input type="radio"/> No			
If Yes, how severe?			
<input type="radio"/> Minor (typical). Street or field flooding.			
<input type="radio"/> Unusual street or field flooding (only see this every few years)			
<input type="radio"/> Severe Flooding			
<input type="radio"/> Extreme (never seen it this bad before)			
Observation Notes (This will be available to the public)			
<div></div>			
			Submit Data
			Reset

## Climate Outlook for February - April

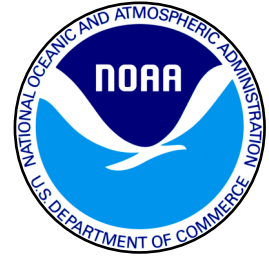
By: Lindsay Tardif-Huber

Old man winter has returned with a vengeance this year after a mild and dry winter last year. Colder than normal conditions have plagued much of North Dakota during the last few months and it looks like it may continue. Many locations across the state have exceeded their snowfall totals from last winter season and the latest seasonal outlook hints at a continuation. For

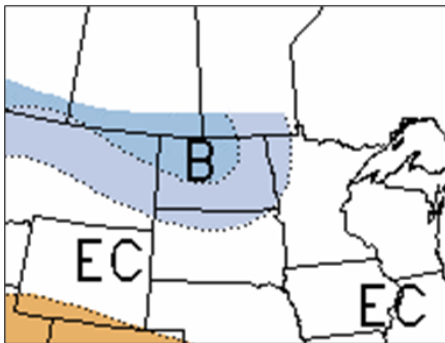
example, Bismarck's snowfall total for last year was 13.6 inches. As of January 21, Bismarck has received 24.9 inches of snow this winter season. What a difference a year can make! What can we expect for the rest of the winter and early spring?

The latest seasonal outlook issued by the Climate Prediction Center on January 17 has

North Dakota remaining in cold and wet conditions through early spring. North Dakota is favored for below normal temperatures and wetter than normal conditions, except for the west where normal precipitation is favored. For the time being, it looks like old man winter will be sticking around well through at least April!

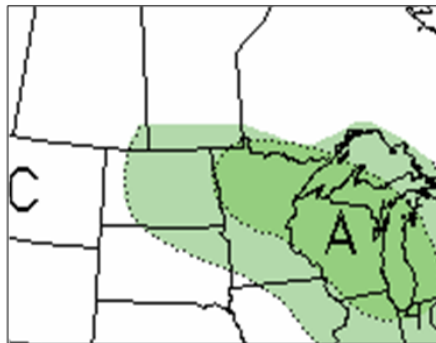


February-April Temperature Outlook



(Source: NOAA)

February-April Precipitation Outlook



(Source: NOAA)

The official February through April climate outlook suggests colder than normal temperatures continuing through early spring. Wetter than normal conditions are also favored, except across western North Dakota where near normal precipitation is forecast.

**"It looks like old man winter will be sticking around well through at least April!"**

## Meet a Stark County Observer

By: Rick Krolak



Jackie Hope is a recent observer from Dickinson, ND. Jackie joined the program just this past fall after enrolling in the Master Gardener program through the NDSU Extension Service. One of the lecturers talked about CoCoRaHS, and it sounded like an exciting volunteer organization. She claims that there was an ulte-

rior motive to her joining. Her husband has had a rain gauge for nearly 20 years. Whenever it rained, he would send her out to read it and then would promptly tell her, "That can't be right. The rain gauge must be off." He would then call his secretary, who lives about three miles from their house, and would believe her rain gauge. Of course, her reading would sometimes be different from the Hope's because she lives about three miles away. Jackie signed up to do rain gauge readings with the CoCoRaHS "official" rain gauge. Now her husband HAS to believe her!

Jackie is a professional musician and music director for First Congregational Church in Dickinson. She completed her undergrad at Knox College in Galesburg, Illinois, and received a master's from the University of Illinois.



Stark County was created by the 1879 territorial legislature and named for George Stark, vice president of the Northern Pacific Railroad, 1875-1879. Its government was organized on May 30, 1883. Dickinson has been the county seat since 1883.

(Source: [www.nd.gov](http://www.nd.gov))



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## COCORAHS NATIONAL HEADQUARTERS

1371 Campus Delivery  
Fort Collins, CO 80523-1371  
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### National Weather Service Mission Statement:

The National Weather Service (NWS) provides weather, hydrologic, and climate forecasts and warnings for the United States, its territories, and adjacent waters and ocean areas, for the protection of life and property and the enhancement of the national economy. NWS data and products form a national information database and infrastructure which can be used by other governmental agencies, the private sector, the public, and the global community.



### CoCoRaHS Mission Statement:

CoCoRaHS is a unique, non-profit, community-based network of volunteers of all ages and backgrounds working together to measure and map precipitation (rain, hail and snow). By using low-cost measurement tools, stressing training and education, and utilizing an interactive website, our aim is to provide the highest quality data for natural resource, education and research applications.



### Winter 2012-2013 Dakota Thunder Team:

**Tony Merriman (editor)** - Western & Central North Dakota Regional CoCoRaHS Coordinator / Lead Forecaster (NWS Bismarck)  
**Alison Sass** - CoCoRaHS Canada National Volunteer Coordinator / Western Canada Client Services Coordinator (Weather INnovations, Inc.)  
**Mark Ewens** - Eastern North Dakota Regional CoCoRaHS Coordinator / Data Acquisition Program Manager (NWS Grand Forks)  
**Rick Krolak** - Northwestern North Dakota Regional CoCoRaHS Coordinator / Observation Program Leader (NWS Bismarck)  
**Lindsay Tardif-Huber** - Meteorologist Intern (NWS Bismarck)

## Meet a Manitoba Observer

By: Alison Sass



Scott Kehler from Steinbach, MB was one of the first observers to sign up with CoCoRaHS Canada in March 2012. His interest in weather started at a young age, especially following a tornado that touched down in Elie, MB in June 2007. He is most interested in high impact storms such as severe thunderstorms and strong winter storms.

As a result of his growing interest in weather, Scott started a website called [steinbachweather.ca](http://steinbachweather.ca) in 2007. The website featured three-day

weather forecasts for several cities in southern Manitoba including Steinbach, Winnipeg, and Brandon. This gave readers an alternate source for human-based local weather forecasts. After enrolling at the University of Manitoba to study meteorology in the fall of 2011, Scott closed down his Steinbach weather website. He has since joined another website called A Weather Moment ([aweathermoment.tumblr.com](http://aweathermoment.tumblr.com)) for which he writes a weekly post about current weather.

After observing weather on his own for years, Scott felt that joining CoCoRaHS was a great way to share his observations with the public. In fact, during a severe thunderstorm event in Steinbach in July, 2012, Scott observed 4.37 inches of rain which caused flash flooding in parts of the city. Rainfall measurements from other CoCoRaHS observers and automated stations in the area measured amounts ranging from 1.78 inches to 3.15 inches. Scott was able to capture the highest rainfall, highlighting the importance of every observation over a small area!

Scott recently moved to Winnipeg where he continues to observe weather and study meteorology at the University of Manitoba. He looks forward to continuing his work as a weather forecaster and CoCoRaHS observer.



**Manitoba is the easternmost of the Prairie Provinces. Fur traders first arrived during the late 17th century. It was officially recognized by the Federal Government in 1870 as separate from the Northwest Territories. The name Manitoba (meaning "strait of the spirit" or "lake of the prairies") is believed to be derived from the Cree, Ojibwe, or Assiniboine language. (Source: Wikipedia)**