



# Counting Drops

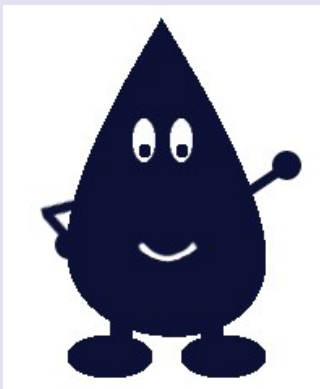
The Indiana CoCoRaHS Newsletter

Newsletter

Winter 2010-11

## Meet Rainy and the New Rain Game!

A new CoCoRaHS mascot has been created to help promote the program in schools and to a younger audience across Indiana - meet Rainy!



This was the design of Sara Weisser and Sam Lashley from the Northern Indiana NWS Forecast Office. The goal is to develop educational materials and programs using Rainy as a focal point to help raise interest in weather observing among young people. There are also plans to include Rainy in the presentation of a program to the Hoosier Association of Science Teachers, Inc. (HASTI) in February on how CoCoRaHS fits with the new science education standards in the state. Such standards focus on inquiry-based teaching and hands-on projects, which would be a perfect fit for CoCoRaHS in the classroom! Hopefully this will lead to more school classes willing to take daily measurements and report their data while in session. CoCoRaHS can be fun for all ages!

Another way for Indiana CoCoRaHS to target the interest of the younger generation has been with the development of a fun and exciting "Make it Rain" game. Sam Lashley from the Northern Indiana NWS Forecast Office also created this, which serves as a great addition to CoCoRaHS education efforts.



The above picture was taken at the Elkhart County Fair and set up for kids to compete against each other to see who could fill up the gauge the most by shooting water at drainage holes near the base of the illustrated thunderstorm. The "Make it Rain" game was put together with simple materials and can be easily replicated. It even utilizes a snowboard for the storm cloud display!



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### Featured Daily Report Comment:

IN-GR-12, (10/27/2010)  
In response to severe thunderstorms that brought extensive wind damage across Indiana: "Wind damage was done to an out building at the location during the storm yesterday. The roof was lifted and the cement block building twisted on the foundation. I also lost the funnel for my rain gauge."

## Snowy December after Drought

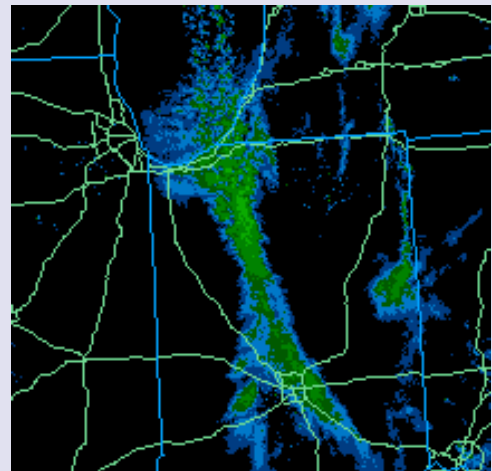
Following such a warm and dry start to Fall with much of the Hoosier State under moderate to extreme drought conditions (thank you for submitting Drought Impact Reports!), this December proved to be quite cold and snowy. Indianapolis had the 3rd snowiest and 19th coldest December on record. The airport received 16.6 inches of snow, which was more than 10 inches above normal! The average temperature of 25.4°F was more than 6 degrees below normal. A series of storm systems tracked across the Ohio Valley region throughout the month bringing round after round of widespread precipitation to the area. This is a typical scenario during La Niña seasons. Your snow reports (both 24-hr new snowfall and total snow depth) have been very helpful in assessing the impacts of the storms! A particular snow event on December 12-14 brought large lake effect snow totals across northwestern Indiana. The following 24-hr snowfall and total snow depth reports were among the highest across northwestern Indiana on the morning of December 14th:

18.0" new, 33.0" ground: IN-LP-2, La Porte Co.

12.0" new, 29.0" ground: IN-LP-18, La Porte Co.

11.2" new, 27.5" ground: IN-LP-7, La Porte Co.

Strong winds ushering cold air over the warmer waters of Lake Michigan allowed for a rather extensive band of lake effect snow to develop. This can be seen in the radar reflectivity image below extending from the southern shore of Lake Michigan southeastward across central Indiana.



The Climate Prediction Center indicates a 50% chance for above normal precipitation from January through March across nearly the entire state of Indiana, so it may be quite a while before we dry back out.

## Ken's Question Korner

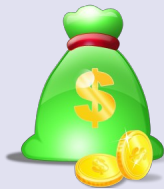
*The brains behind Indiana CoCoRaHS, Ken Scheeringa of the Indiana State Climate Office at Purdue, will answer your tough questions. Submit a question to Ken at [cocorahs@purdue.edu](mailto:cocorahs@purdue.edu)*

**Question:** Fact or Fiction: Does 10" of snow really yield 1" of water?

**Answer:** Many of us have learned this "rule of thumb" since our childhood, but is it really true? Rarely! The water content of snow is much more variable than most people realize. CoCoRaHS observers who measure snow water content likely knew the correct answer through experience. Actual water content of 10" of snow can range from as low as 0.10" of water (0.01 ratio) to as high as 4" of water (0.40 ratio)! Factors such as snow crystal structure, wind speed, and air temperature at the time of snowfall are important. We usually see "fluffy" snow (up to 0.05 ratio) when winds are light and temperatures are colder, such as 15° F. "Packing" snows occur most often at temperatures near freezing with stronger winds and produce ratios above 0.10, since warmer air has a higher capacity to hold moisture. Take a look at the CoCoRaHS data during snow events to see just how much the ratios can vary!

## CoCoRaHS Awarded Massive Grant

CoCoRaHS headquarters in Colorado recently received some wonderful news; the program has been awarded grants from both the National Science Foundation Informal Science Education program and NOAA's Office of Education - totaling to more than \$1.2 million!



So what does this mean for the program's future? Well, the funding will allow for the advancement of multiple projects designed to improve training resources and data analysis.

There are plans to make more dynamic and engaging training resources such as training webinars with accessible archives and monthly seminars on various weather, climate, and water topics. Data analysis will be improved by allowing observer data to be viewed in geographical and historic perspectives with more of a hydrological context. There will also be more efforts made in the quality control of data.

Other advancements will be made by including evapotranspiration measurements and developing an education community for sharing ideas, lessons, and opportunities for grades K-12. Improvements in the computer system that handles the database of all your reports will be made as well!

## Observer of the Season

An observer who provided consistently good observations and reports during the previous months was chosen to be featured as the "Observer of the Season". The observers at station IN-EL-I did such and didn't miss one day of reporting during the months of July, August, September, October, and November! They also provided numerous Drought Impact Reports, which was a great addition of valuable information during the dry period this Fall. Here is an example of one of the Drought Impact Reports they provided during the drought:

*"We get small teaser rains from time to time but the August-September drought continues into September. 4.13 inches of rain fell in two months with the majority falling on September 2 and 3. Lawns are drying out to the point that the ground in many areas of my lawn is bare. Farmers are watering pastures and most crops are lower in yield than expected. It's a bad year for crops and growing things but great for outdoor activities with dry conditions and no mosquitoes."*

It is tradition to ask the observer several interview questions and feature the responses in the newsletter. The observers unfortunately were unable to provide responses. Another Observer of the Season will be chosen for the next newsletter, so keep on making the consistent quality measurements and reports, and you just may be featured in the next issue! The following questions will be asked:

- **What grabbed your interest in the program?**
- **What was the weirdest thing you've found in or near the gauge?**
- **What do you like or find most rewarding about the program?**
- **How does observing and reporting impact your day?**

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**CoCoRaHS -  
Because Every Drop Counts!**

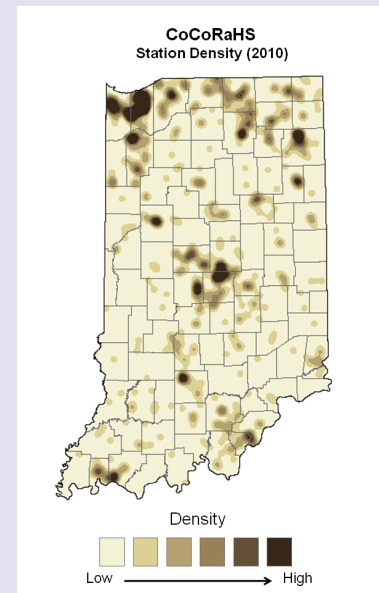
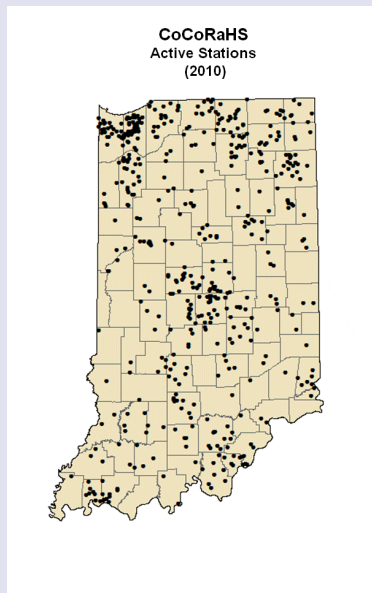
[www.cocorahs.org](http://www.cocorahs.org)

Thanks to Ken Scheeringa, Sam Lashley, Sara Weisser, Al Shipe, Mike Ryan, Souleymane Fall, and Dev Niyogi for newsletter contributions!

## More Observers Needed!

In order to get a good sample of precipitation reports across the entire state of Indiana, CoCoRaHS is in need of more observers to improve coverage across the counties listed to the right and others with low station density in the maps below. If you know of any family or friends that live in these areas and may be interested in joining the CoCoRaHS team, then please contact one of the coordinators!

- Adams
- Benton
- Clinton
- Delaware
- Franklin
- Greene
- Jackson
- Jennings
- Knox
- Madison
- Miami
- Montgomery
- Parke
- Pulaski
- Randolph
- Scott
- Spencer
- Switzerland
- Tipton
- Union
- Vermillion
- Vigo
- Wabash



## Coming Soon...



As we continue to look for ways to improve the Hoosier CoCoRaHS program, several new plans are in the works! We will soon

begin awarding recognition to current observers based on length of service and consistency of reporting. These observers serve as the heart and soul of the program and are great role models! Efforts will also be made in gathering more specific examples of how your report data are being used by various organizations and consumers. As always, we welcome your ideas on where you would like the program to go! Please send us any thoughts or ideas of ways to improve the Indiana CoCoRaHS program!

## Record Reports from August - October 2010

Below are some interesting record reports during a portion of the extended dry period across much of Indiana (August - October 2010):

### Lowest 3-month total precipitation:

1.66", IN-JH-12 (Johnson County, IN)

### Greatest 3-month total precipitation:

11.49", IN-LK-46 (Lake County, IN)

### Greatest 24-hr total precipitation:

3.52", IN-LK-29 on Aug. 3, 2010 (Lake County, IN)