



## The Hoosier Observer

Indiana CoCoRaHS monthly e-newsletter

December 2020

### November 2020 Statistics

Total observers reporting	518
Observers with no missing reports	324
Percent of total	63
Average Daily Reports per Day	423
Max # of Daily Reports and Day	464 / 11
Significant Weather Reports	6
Condition Monitoring Reports	45
E-T Reports	31
Max Daily Rainfall (County)	2.30" / (Vigo)

With snow in the forecast tomorrow, the winter reporting season will be arriving for many of us. I'd like to thank all of you that have gotten your snowboards ready. If you haven't already removed your inner cylinder, you'll want to get that done before the snow begins to arrive. Your snow reports are so helpful to NWS folks as we go back and see what went well and what didn't with the forecast.

I'd also like to highlight the comments that many of you put into your observation. Whether it is your daily highs and lows or when you see an interesting weather phenomenon. We do read those comments and you help NWS forecasters after the fact as we review events. Just last month, a comment regarding hail was the only confirmation we had that large hail impacted an area. In the winter, those comments become all the more important with multiple precipitation types.

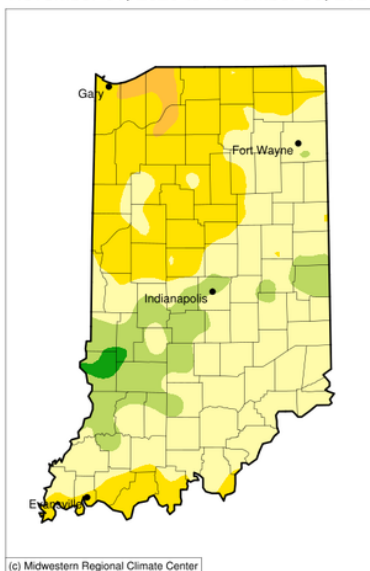
To the 5 new observers (Bartholomew, Boone, De Kalb, Johnson, Vanderburgh), thanks for joining the team!

### November Precipitation in Indiana

The November 2020 statewide precipitation was 2.94 inches -- 0.68 inches below the 1981-2010 average. The map shown illustrates the percentage of the 1981-2010 normal precipitation for November 2020. Of the observers that provided data every day, the greatest precipitation total for the month was 5.81 inches at HYMERA 0.4 W (Sullivan County), whereas the lowest monthly precipitation total was only 1.32 inches at (KD9LWR) TRAIL CREEK 1.0 NNW (LaPorte County). Of those with complete monthly records, the maximum 1-day total was 2.30 inches on November 22 at TERRE HAUTE 10.8 S (Vigo County).

### Accumulated Precipitation (in): Percent of 1981-2010 Normals

November 01, 2020 to November 30, 2020



(c) Midwestern Regional Climate Center



10 25 50 75 100 125  
Stations from the following networks used: WBAN, COOP, FAA, GHNC, ThreadEx, CoCoRaHS, WMO, ICAO, NWSLI,  
Midwestern Regional Climate Center  
cli-MATE: MRCC Application Tools Environment  
Generated at: 12/14/2020 9:44:03 AM CST

### Gift Ideas for the CoCoRaHS Observer

If you are looking for last-minute gift ideas for yourself, a friend, or family member who is a CoCoRaHS observer, here are a few ideas. All of these can be purchased at [www.weatheryourway.com](http://www.weatheryourway.com), and there are lots of other weather-related items on their web site, as well.

An extra outer cylinder is a good idea not only for winter measurements, but measurements all year around. It's a lot easier to swap out cylinders if it's raining or snowing at observation time, then bring in the cylinder with precipitation inside to measure. Plus, you always have one handy in case one is damaged and can't be used.

For those who get into measuring snow, a snow measuring ruler, graduated in tenths of an inch is a great idea. It saves having to convert the eighth-inch measurements on a standard ruler into tenths.

CoCoRaHS apparel is also available - t-shirts, sweat shirts, polo shirts, and caps -- with the CoCoRaHS logo.

### Snowboards

By Steve Hilberg

While we haven't had a statewide snowfall event yet this season, it's never too late to be thinking about the snowboard. In general, it's a good idea to have a snowboard on which you can measure the depth of new snow. This can be as simple as a 24" x 16" piece of 1/2" or 3/4" plywood, painted white. I have a 24" x 18" piece of 1/4" sheet PVC that I've used for many years, and it never needs painting. Other observers have used plastic cutting boards of various types (as long as they are large and heavy enough). One of our observers sent me a link to this [cutting board](#) which is about perfect for a snowboard, though it might be a little pricey for some. If you use a snowboard, be sure to mark its location!

Another observer asked the following question about using a second snowboard to measure the *Total Depth of Snow and Ice on the Ground* at observations:

*"For the total snow on the ground, wouldn't it be acceptable to use a second snow board which is never cleared? Seems more accurate than trying to measure on grass."*

A second board is a good start, but you would likely not be able to rely on it for more than a few days. The purpose of the *Total Depth of Snow and Ice on the Ground* measurement is to provide a representative value for the "area". As snow starts to melt and/or compress, there will be variations in the depth of the snow across your yard or property. A number of measurements in different areas, averaged, provide a better representation of the snow cover than an exclusive single spot. What if, for example, you still had 2 inches of snow on the board but half of the area was bare? Two inches is not the correct measurement for the total snow and ice on the ground, in this case. There would likely be a range of depths due to the melting and settling of the snow. If 50 percent or more of the ground is bare, then a Trace should be reported, with the range of depths mentioned in the comment box. If more than 50 percent of the ground is covered, then you would need to take several representative measurements, average them, and then multiply by the percentage of ground that still had snow. If you made several measurements and they averaged 1.7", and your estimate is that 60 percent of the area was still snow-covered, the snow depth you would report is 1.7 x 0.6, or 1.0 inch. For more information, view [Measuring the Total Depth of Snow \(New and Old\) and LWI](#) on the [CoCoRaHS YouTube channel](#).

Finally, if you're expecting any snow, don't forget to remove your inner cylinder and funnel cap! Snow doesn't do well with these, so we want just the outer cylinder to try and catch as much as we can!

### Winter Precipitation Types

by Steve Hilberg and Beth Hall

Winter has generally been a "no-show" in Indiana so far (except for some northern and eastern counties). Measuring precipitation in a winter storm can be a challenge, especially in the transition areas from rain to frozen precipitation. It helps to know the difference between the different precipitation types. Here's a review:

**Snow** is small, white ice crystals formed when supercooled water vapor (gas) freezes (solid). Because this process skips the more common transitional liquid phase, the solid result is more crystalline in shape (rather than round, like a droplet). Snow crystals can have different shapes, usually dictated by the temperature at which they form in the cloud.

**Snow pellets**, also called **graupel**, are white, opaque ice particles that are round or conical in shape. They form when supercooled water collects on ice crystals or snowflakes. They typically bounce when they fall on a hard surface and often break apart.

**Snow grains** are very small, white opaque particles of ice, more flattened and elongated than snow pellets. Snow grains can be thought of as the solid equivalent of drizzle, or as I like to call it, "snizzle".

**Ice pellets**, or **sleet**, are small balls of ice. They form from the freezing of raindrops, or the refreezing of melting snowflakes when falling through a below-freezing layer of air near the earth's surface.

For measurement purposes, all four are treated as frozen precipitation and snow measurement procedures should be followed.

**Freezing rain** occurs when supercooled rain droplets comes in contact with a surface whose temperature is below freezing. The raindrops become supercooled as they fall through the layer of cold air near the surface and freeze upon contact with the below-freezing surface. Freezing rain is liquid precipitation and should be measured as you would measure rain, after you have melted the ice in your rain gauge (don't worry about any ice on the outside surface of the cylinder). You can report the thickness of ice on surfaces in your observation comments.

### If you Move or Change your Email Address

If you are moving to a new home and want to continue to participate in CoCoRaHS, please let us know as soon as possible. Your observations are tied to a specific location, so we don't want observations from your new location associated with your previous location. The value of the observations is increased by their continuity at that location, so consider suggesting to the buyer or new tenant of your home that they participate in CoCoRaHS! We have a brochure that you can download, print and give to them.

When you know your new address, let us know. When you are ready, we will close your old station and open a new station at your new address (DO NOT sign up for CoCoRaHS again). Once that's done, you can enter observations from your new location. If you are moving to a different state, we can help you get in touch with that state coordinator so you can get started there.

Let us know if you change your email address so that your record is up to date. You can update your email address in the CoCoRaHS database yourself by logging in and clicking on My Account in the top line menu. Click on Edit in the My Information box. Make any corrections, then click save.

Please also send a message to [andrew.j.white@noaa.gov](mailto:andrew.j.white@noaa.gov) with the email change as well, so we can update your address on our newsletter mailing list. This list is maintained separately from the main CoCoRaHS database.



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