The Hoosier Observer

Indiana CoCoRaHS monthly e-newsletter

January 2020

December Statistics

Total observers reporting	361
Observers with no missing reports	203
Percent of total	56
Average Daily Reports per Day	273
Max # of Daily Reports and Day	296/09
Significant Weather Reports	3
Condition Monitoring Reports	21
E-T Reports	0
Max Daily Rainfall (County)	3.1" (Vanderburgh

We would like to thank all of our observers for continuing to report daily precipitation into the winter. Your snowfall reports during the winter event from December 16th and 17th were extremely valuable to the NWS and other partners, as well as the other rain events at the beginning and the end of the month.

For those interested in getting a refresher on how to measure snow for CoCoRaHS, please see the following web page.

https://www.cocorahs.org/Content.aspx?page=snow

We also wish to acknowledge the 2 new observers that joined CoCoRaHS in December from Hamilton and Howard counties. Thanks for joining the team!

December Precipitation in Indiana

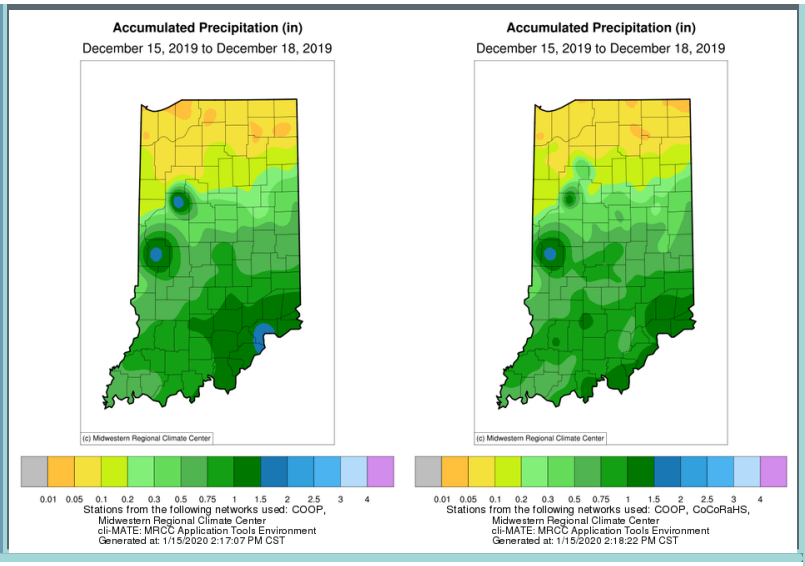
The December 2019 statewide precipitation was 3.15 inches, just 0.02 inches above the 1981-2010 average. In the southern half of the state precipitation ranged from 100 percent to 150 percent of normal with the wettest counties in the west-central and east-central part of the state. The northern half (with the exception around Allen County) saw less precipitation with ranges from 50% to 100% percent of normal. Of the observers that provided data every day, 1 observer (Evansville 5.9 WNW [Vanderburgh County]) saw 5.83 inches for December with a one-day maximum of 3.10 inches on December 12th! The lowest December total was observed in Newton County (Kentland 0.3 ENE) with only 0.47 inches.

Your CoCoRaHS Observations Matter!

A monthly tradition has been to show how the inclusion of your observations make a difference when understanding where precipitation occurred across the state. Note the 2 maps below for a rain even that occurred around the middle of December. The map that just shows data from the NWS CoOp network (left) is a bit different from the map on the right that includes your CoCoRaHS observations. The 2 data bullseyes in the CoOp-only map raises some suspicion about possible erroneous data. However, the map on the right that includes CoCoRaHS observations suggest that perhaps the southernmost bullseye "may" be accurate since CoCoRaHS reports nearby were also indicating high amounts. The northernmost bullseye from the CoOp network may be real, but nearby CoCoRaHS observations have minimized its likelihood. Human error can always creep in. So can isolated, extreme events. Your CoCoRaHS observations help scientists and forecasters better understand if an observation may be erroneous or real!

Only using observations from the NWS COOP Network

Observations that include CoCoRaHS data

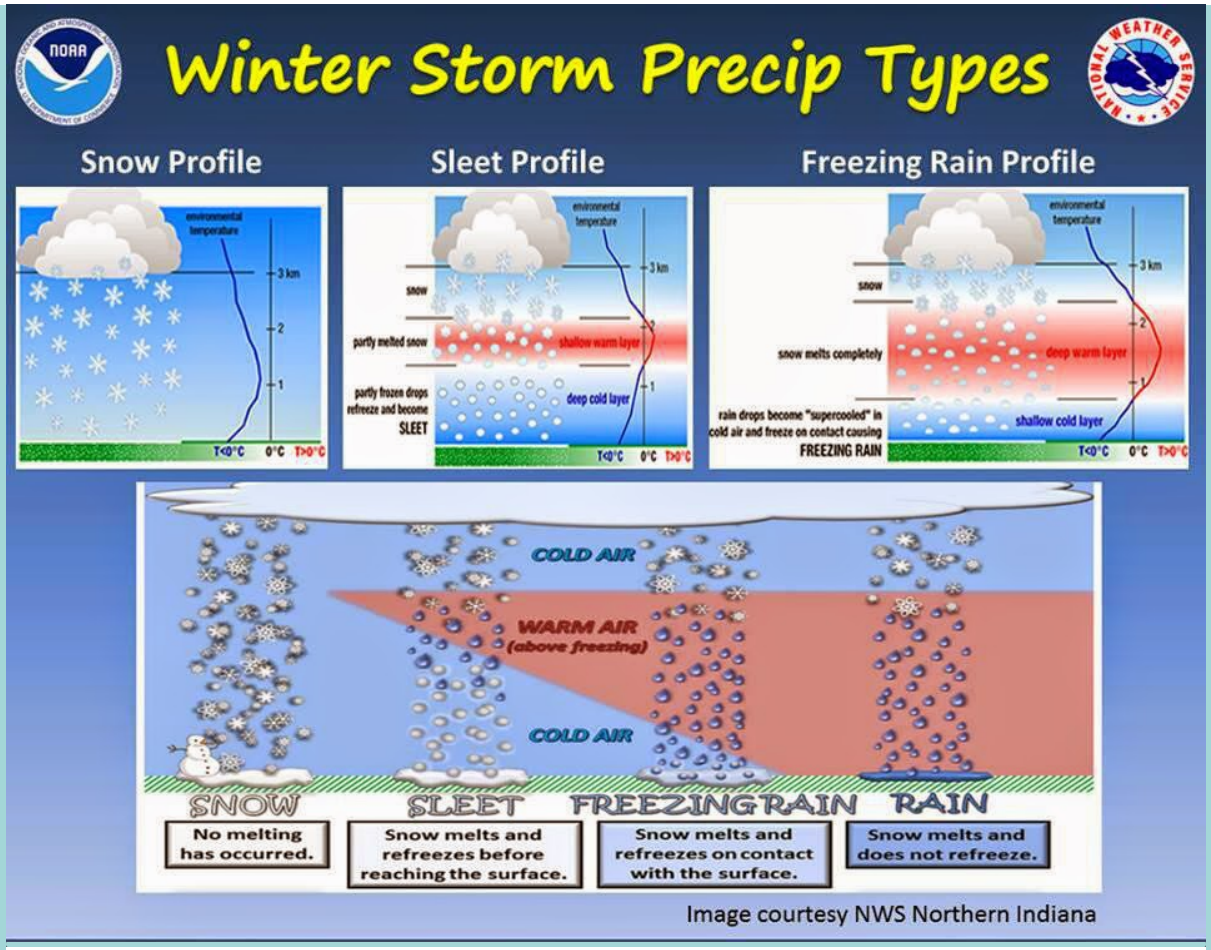


Weighing Your Precipitation

The "melt and measure" method of dealing with snow and ice in the gauge in the winter is sometimes time-consuming, and there's always a chance that you could spill the contents as you pour from outer cylinder into the inner measuring tube. There is a much easier way to deal with snow and ice in the rain gauge and the snow collected in snow cores that involves no melting and is very quick to do. The alternative is to weigh your outer cylinder and the contents, and convert that measurement into inches of precipitation. You can view the two-minute CoCoRaHS training animations on how to do this (https://www.youtube.com/watch?v=OMBcOO4VTtY&t=2s), but here's a quick description on how to accomplish this. You will need a decent kitchen scale that measures to the nearest gram. The first step is to weigh your empty, dry outer cylinder without the inner tube or funnel. Write down the weight. It might also be helpful to write the weight on the bottom of the cylinder with a permanent marker. The next time it rains or snows, bring in your outer cylinder. Be sure to wipe off the outside of the cylinder to remove any excess water. Then, weigh the cylinder and its contents. Subtract the weight of the cylinder from the total weight. Divide the result by 201, and you will have the amount of precipitation in inches. (An inch of water weighs 200.8 grams).

Here is an example: An outer cylinder plus the snow in it weighs a total of 510 grams. The outer cylinder weighs 445 grams. The weight of the snow in the gauge is 510-445 = 65 grams. 65 g divided by 201 g/inch = 0.32 inch of precipitation.

Not only is this great during the winter, but you can also use this for any heavy precipitation you receive where the inner cylinder overflows. Pour the contents of the inner cylinder into the outer cylinder, and then weigh the outer cylinder plus the precipitation. Be sure the outside of the cylinder is dry before you weigh.



Winter Precipitation Types

Do you remember the difference between the various types of winter precipitation? Here's a review.

Snow is small white ice crystals formed when supercooled cloud droplets freeze. Snow crystals can have different shapes usually dictated by the temperature at which they form.

Snow pellets, also called graupel, are white, opaque ice particles 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 even "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 the snow measurement procedure should be followed.

Freezing rain occurs when rain occurs and the surface temperature is below freezing. The raindrops become supercooled as they fall through the layer of cold air near the surface and freeze upon impact with surfaces below freezing. 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 are increased by their continuity at that location, so consider suggesting to the buy**er** 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 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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