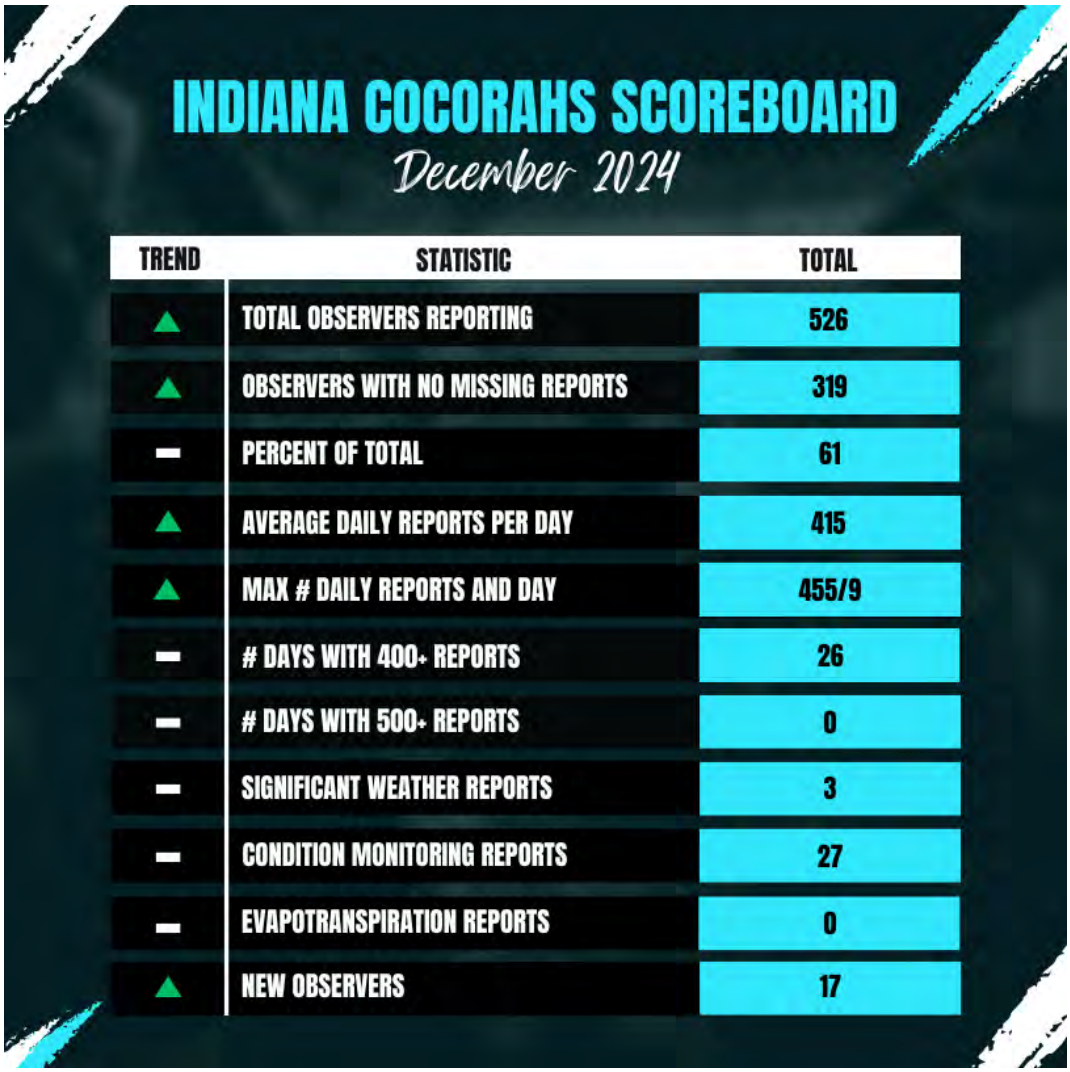
The Hoosier Observer

Indiana CoCoRaHS monthly e-newsletter

January 2025



The trend section in the graphic above compares this month's data to the same month from the previous year. A change of 10 or more is necessary for a trend arrow to be displayed as either pointing up or down. If the change is less than 10, a white dash is used to indicate that the data is similar to that of the previous year.

Coordinator Update

Andrew White, NWS Indianapolis

This month, we'd like to extend our gratitude to everyone for their hard work during the recent weeks of frequent winter weather. We appreciate the numerous snowfall reports and would like to thank observers for conducting snow core measurements. These efforts are invaluable for the River Forecast Centers as they help track the amount of liquid above the surface that could drain into rivers and streams once it fully melts.

We also want to address an ongoing issue: many Snowpack Depth reports are not being rounded to the nearest half-inch. Please ensure that you follow the rounding guidelines provided in blue when submitting your reports. This is crucial for maintaining the accuracy and usability of the data shared with the scientific community.

Additionally, we would like to welcome the 17 new observers from Indiana (Bartholomew, Brown [2], Clay, Daviess, Hendricks [2], Huntington, Johnson, Kosciusko, Marion, Martin [2], Montgomery, Tippecanoe, Tipton, and Wayne Counties) who joined CoCoRaHS in the past month. Thank you for being a part of the team!

Indiana's Precipitation Report

Austin Pearson, Indiana State Climate Office

In December, Indiana received 4.07 inches of precipitation, which was 1.06 inches above normal, or 135 percent of normal. This precipitation was greatly appreciated as the state continued to recover from a very dry fall. The heaviest precipitation occurred in southwestern Indiana, where totals ranged from 6 to just over 8 inches (Figure 1). Most of the state experienced 3 to 4 inches of precipitation, with locations in northern Indiana receiving less than 3 inches for the month. The addition of CoCoRaHS stations fills the precipitation measurement gap between NWS COOP stations, providing a much more representative map of actual precipitation (also featured in Figure 1).

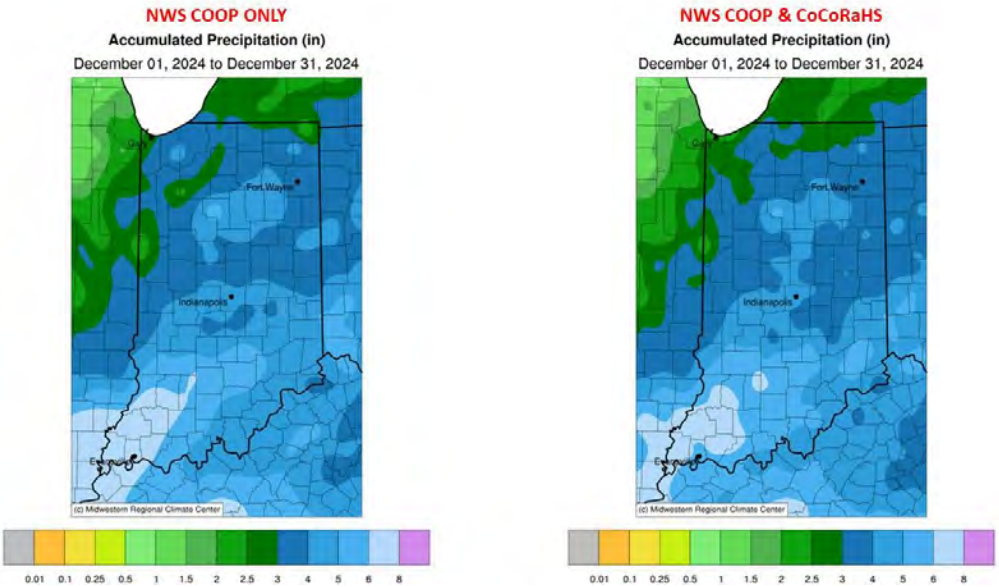


Figure 1: Left - December 2024 accumulated precipitation from NWS COOP network only. Right - December 2024 accumulated precipitation including both NWS COOP and CoCoRaHS.

The entire state experienced above-normal precipitation for the month (Figure 2). In southwestern Indiana, precipitation was 2 to 4 inches above normal, exceeding 150 percent of the 1991-2020 climatological normal. Additionally, a significant area in the central part of the state received precipitation that was up to 2 inches above normal.

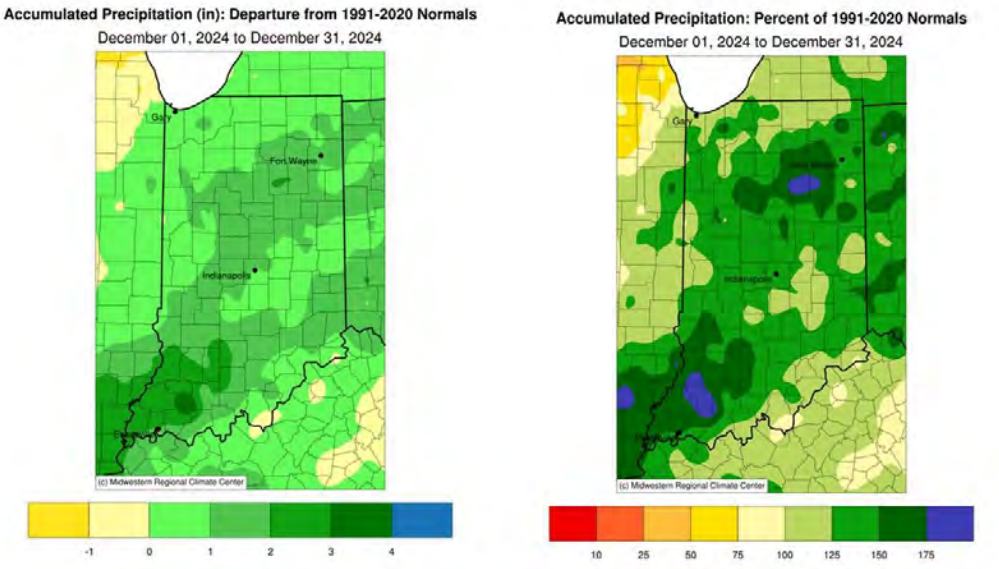


Figure 2: Left - December 2024 accumulated precipitation represented as the departure from the 1991-2020 climatological normal. Right - December 2024 accumulated precipitation represented as the percent of the 1991-2020 climatological normal.

Snowfall was below normal for most of the state; however, some areas did experience decent accumulations. Lake effect snowfall resulted in more than 4 inches of accumulation in far northern Indiana, with the highest measurement of 10.3 inches recorded in Elkhart County. A band of snowfall accumulations extending from west-central to east-central Indiana ranged

from 2 to 4 inches. Additionally, another area in southern Indiana saw between 1 and 3 inches of snow in December.

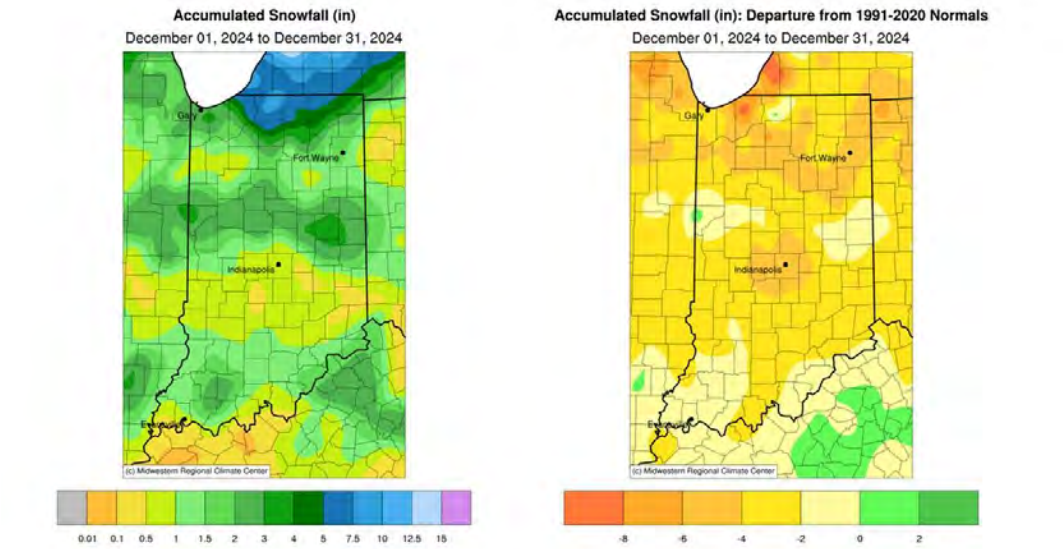
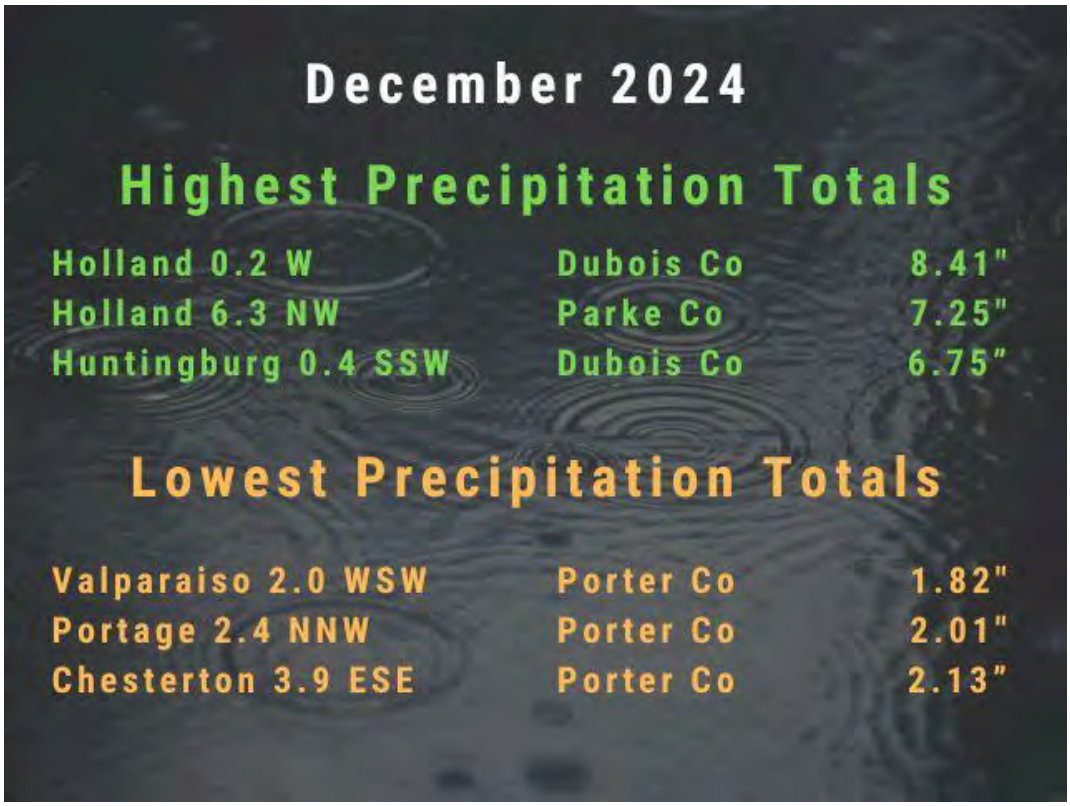


Figure 3: Left - December 2024 accumulated snowfall. Right - December 2024 accumulated snowfall represented as the departure from the 1991-2020 climatological normal.



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New Mobile App Opens Up the World of CoCoRaHS

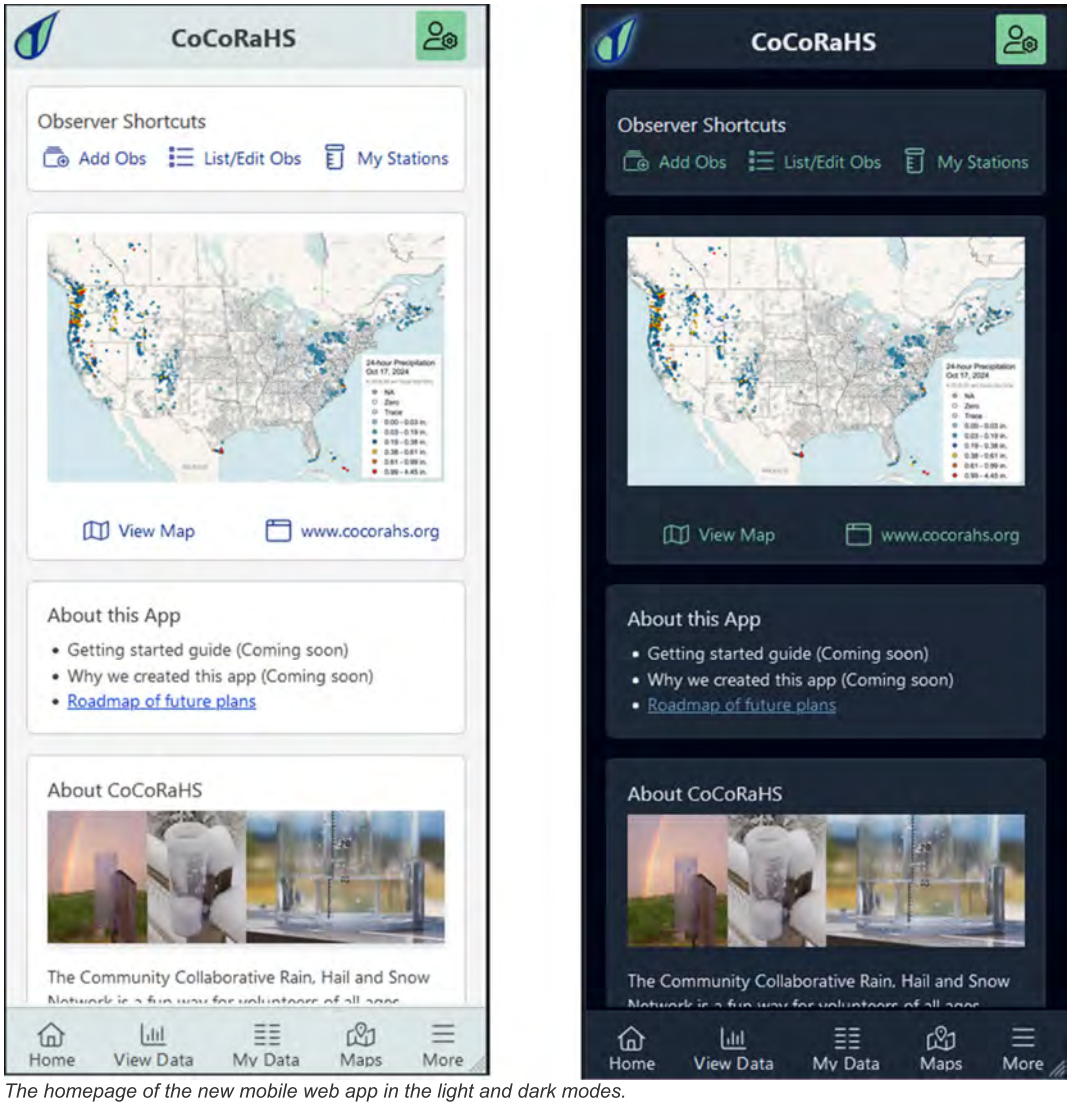
CoCoRaHS Headquarters

CoCoRaHS has utilized a mobile app for a number of years now, both Android and iOS versions. They were developed and maintained by a volunteer who at the time was working on mobile app development. The volunteer's career moved on in a different direction and they no longer have the time to keep up with maintaining the mobile app. We were in a position that, if significant changes to either Android or iOS requirements were made and the mobile app no longer worked, mobile app users would be dead in the water.

The current mobile app has served us well. However, it was mostly a one trick pony. It was limited to entering, listing, and editing daily precipitation data. Some of the error checks that we use on the web site were not utilized in the app. If you want to report hail, significant weather, or condition monitoring you need to use the web site. In addition, observers who exclusively use the current mobile app are less likely to visit the website and take advantage of all the additional information available to observers.

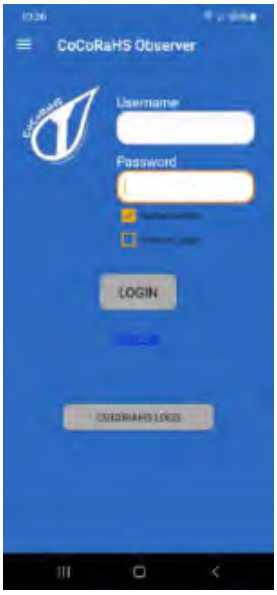
We realized that the situation with the "CoCoRaHS Observer" mobile app was potentially a disaster waiting to happen. We needed to come up with something that could replace the current mobile app in case changes in operating systems or other issues rendered it unusable. This was a huge challenge. We could not afford to hire someone to develop a new mobile app and then monitor and maintain it. Dealing with the app stores and their requirements was a hassle at times. So, last fall we decided that we needed to come up with an alternative in case things with the current app went irreversibly south.

So here we are. The new mobile app is a mobile-enabled web application. It looks like an app, acts like an app, and you can download it from either Google Play or the Apple store as an app. Our app will work across platforms (Android and iOS phones, tablets, computers) and browsers. This new app is full featured, allowing observers to enter data for any of our data types (Significant Weather, hail, etc.) and provides easy access to our current website.



The homepage of the new mobile web app in the light and dark modes.

The development of this mobile app has been an iterative process with a great deal of input from hundreds of observers. When the basic app was ready, we released it to a small group of current and new mobile app users for testing and feedback. Bugs were found and fixed and usability issues addressed. Periodically we released it to additional groups of users for testing and feedback, and the process was repeated. So far, over 600 CoCoRaHS observers have tested this new mobile app. The new mobile app is now available for everyone to use.



What will become of the old app, "CoCoRaHS Observer"? Both the iOS and Android versions will continue to be available as long as they work. They are no longer supported, i.e. there will be no bugs fixed or improvements made. If there are changes to the Android or iOS operating systems that render the app unusable, it will be removed from the Google Play and Apple stores. That will likely happen at some point - we just don't know when. We strongly encourage you to use the new mobile app.

This new mobile app is a significant achievement for CoCoRaHS, thanks to the imagination, knowledge, and skills of our very own Julian Turner. Julian's vision was for a mobile-enabled website that would have the features of the website (and then some), be easy to make changes to (no more having to update separate Android and iOS versions of apps), and be the foundation of a new website structure for CoCoRaHS. We also want to thank the hundreds of observers who tested the mobile app and provided feedback to help improve it. Without you we would not be where we are today.

Here are some of the features of the new mobile app (CoCoRaHS HQ). Note that you can also use this in your computer's web browser.

- Enter, list, and enter date for daily precipitation, hail, significant weather, and condition monitoring (E-T will be added in the future)
- A Monthly Zeros form
- A button to set all snow values to zero
- Buttons to quickly enter Trace and NA/Missing
- Quick link to the Data Explorer in the View Data menu
- Station specific Data Explorer shortcuts in the My Data / My Stations view
- Links to the Precipitation map and the Condition Monitoring map
- User settings to choose preferred
    - Units display
    - Light or Dark mode
    - Mobile, Tablet, or Desktop layout
- Easy access to the primary CoCoRaHS web site through the More menu

To install the app, follow this link for complete instructions:

Installation Guide - CoCoRaHS Mobile App
CoCoRaHS Mobile App

Answers to frequently asked questions about the mobile app be found at:
CoCoRaHS Mobile App FAQ

This new mobile app is still a work in progress, and we welcome your feedback. Questions and/or feedback can be directed to Noah Newman (**noah.newman@colostate.edu**) or Steve Hilberg (**hberg@cocorahs.org**).

It's Official: 2024 was Indiana's warmest year on record

Austin Pearson, Indiana State Climate Office

The 2024 final temperature data were released on January 10th, revealing Indiana had its hottest year since record keeping began in 1895. The average temperature for the year was 55.2°F, which was 0.1°F higher than the previous record set in 2012 (55.1°F). The top five warmest years on record are now 2024, followed by 2012, 1998 (54.9°F), 1921 (54.9°F), and 2023 (54.3°F). The warmth of 2024 was felt not only in Indiana but also in Kentucky, Michigan, Minnesota, Ohio, and Wisconsin, all of which recorded their warmest annual average temperature. Illinois and Missouri had their second warmest year, while Iowa recorded its third warmest year. Since 1991, Indiana has had temperature anomalies more than 1°F above the long-term average (1901-2000) in 20 out of 34 years. Notable outliers were 2014 and 1996, which recorded anomalies of 1.9°F and 1.2°F below the long-term average, respectively (Figure 1).

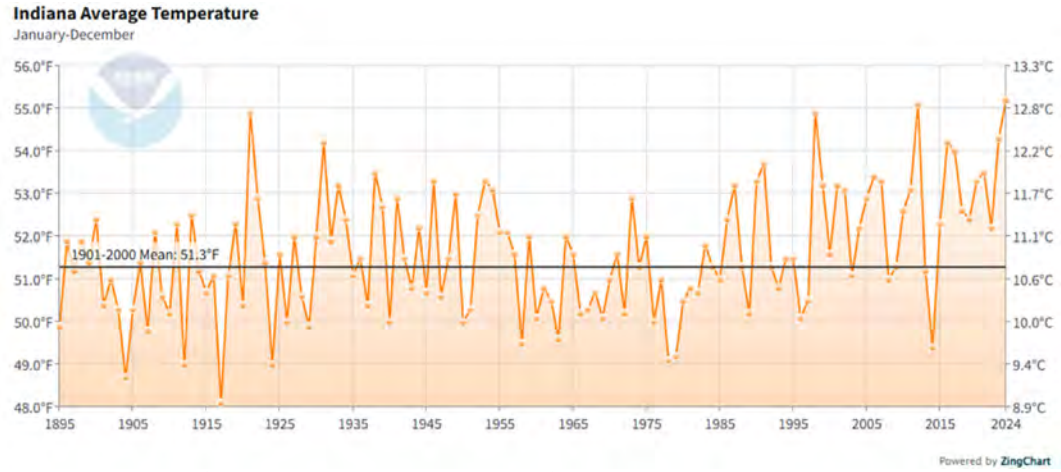


Figure 1: Time series of annual Indiana average temperatures from 1895-2024.

In 2024, consistent warmth defined the year. All months, except July (1.1°F below normal), had above-normal temperatures. The most notable anomalies occurred in February, March, and November, registering 8.2°F, 5.3°F, and 5.0°F above the 1991-2020 climatological average, respectively (Table 1).

Table 1: Indiana Average Temperatures (°F) Compared to the 1991-2020 Normal

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
2024	27.8	39.6	46.3	54.8	66.6	72.9	73.2	73.1	68.4	57.6	47.4	34.6	55.2
1991-2020 Normal	27.7	31.4	41.0	52.1	62.5	71.2	74.3	72.6	66.0	54.5	42.4	32.5	52.3
Departure	0.1	8.2	5.3	2.7	4.1	1.7	-1.1	0.5	2.4	3.1	5.0	2.1	2.9

In 2024, statewide precipitation was 0.9 inches below normal, or 98 percent of normal. The year exhibited significant variability, with the state experiencing both wet and dry months (Table 2). January and April were the wettest months, each seeing departures exceeding 2.00 inches above normal. In contrast, June and October had departures more than 1.50 inches below normal.

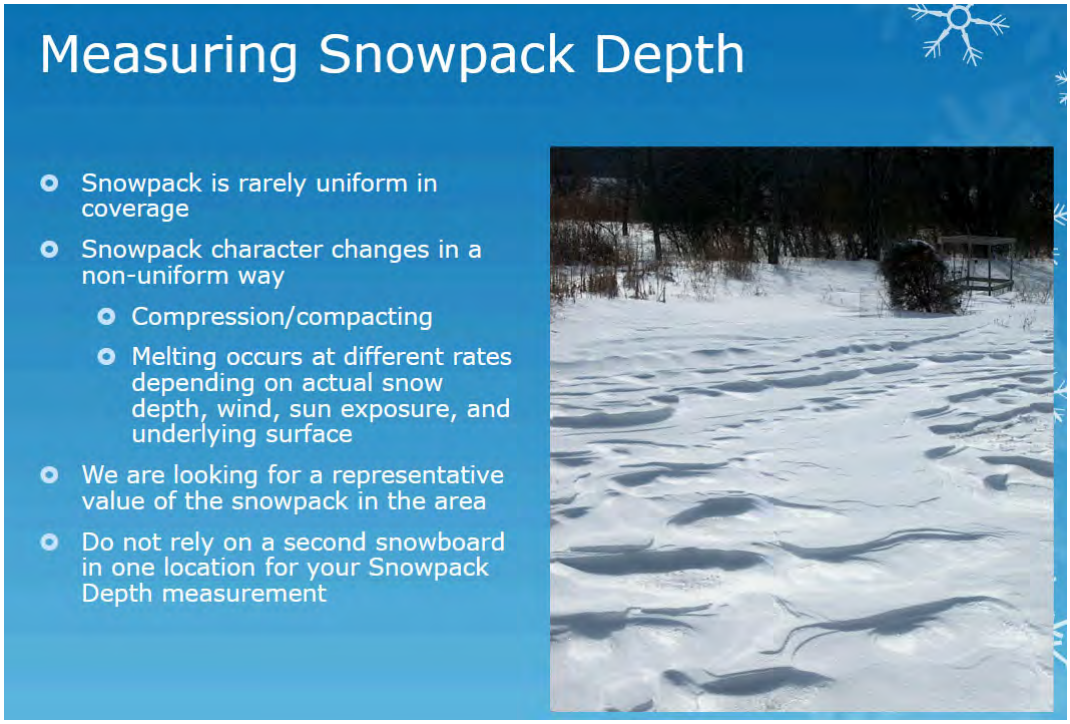
Table 2: Indiana Precipitation (inches) Compared to the 1991-2020 Normal

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
2024	5.11	1.12	2.78	6.67	4.77	2.81	5.17	2.65	3.19	0.34	4.05	4.07	42.73
1991-2020 Normal	2.95	2.48	3.33	4.39	4.78	4.80	4.29	3.60	3.29	3.33	3.38	3.01	43.63
Departure	2.16	-1.36	-0.55	2.28	-0.01	-1.99	0.88	-0.95	-0.10	-2.99	0.67	1.06	-0.90

How Many Snowboards Do I Need?

By Steve Hilberg, CoCoRaHS

Ideally, if you are measuring snow and snowpack you need only one snowboard. Your snowboard is used to measure your daily snowfall, and also for the snow core if you are going to measure snow water equivalent (SWE). "What about the snowpack depth?", you ask. You do not need a snowboard for snowpack depth, and in fact you should not use one. Your snowpack depth measurement should be a series of measurements (4-8 or so) from the representative snowpack in your area. Snow does not accumulate (or melt) the same in every spot in your yard or property. Some spots may have 2 inches of snow depth, while others may have 5 or 6 inches. The purpose of the snowpack depth measurement is to obtain a representative measurement of the snowpack, not a spot measurement. Your snowpack measurements should be made in undisturbed areas of your yard. You can find more details about this in our **Winter Precipitation Measurements** training on the website.



If You Move, or Change Your Email Address

If you're moving to a new home and want to keep participating in CoCoRaHS, please let us know as soon as possible. Your observations are tied to a specific location, so we want to make sure that your new observations are correctly associated with your new address. Observations are most valuable when they are consistent at one location, so you might also suggest to the new owner or tenant of your current home that they consider joining CoCoRaHS. We have a **brochure** available for download, print, and distribution.

Once you have your new address, inform **us** so we can close your old station and set up a new one at your new location. Please avoid signing up for CoCoRaHS again yourself. Once we've set up your new station, you can start entering observations from your new location. If you're moving to a different state, we can connect you with the state coordinator there to help you get started.

If you change your email address, please update your record in the CoCoRaHS database by logging in, selecting "My Account" from the top menu, and clicking "Edit" in the "My Information" section. Make your updates and click "Save."

Also, send a quick message to **in-sco@purdue.edu** with your new email address so we can update our newsletter mailing list, which is maintained separately from the main CoCoRaHS database.

CoCoRaHS Newsletter Archive

If you are interested in viewing past issues of The Hoosier Observer, visit the **Newsletter Archive** located on the Indiana State Climate Office Website.

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Indiana State Climate Office

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