

April 2023

Total observers reporting	457
Observers with no missing reports	288
Percent of total	63
Average Daily Reports per Day	364
Max # of Daily Reports and Day	396/23
Significant Weather Reports	5
Condition Monitoring Reports	15
E-T Reports	0

It's been a back and forth spring so far, so we'd like to thank all of our observers that have either restarted their warm season observations or have been reporting through the winter. We've also got a lot of new folks that we'd like to welcome as they get their stations started.

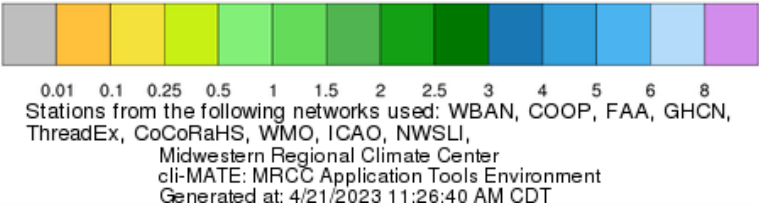
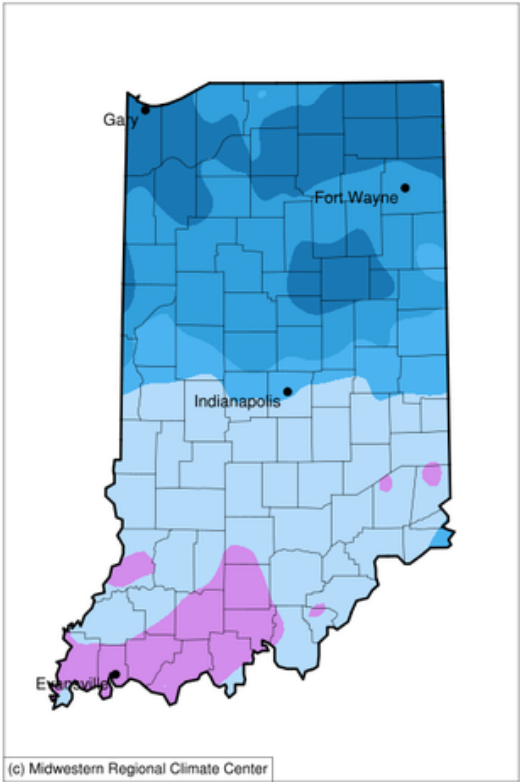
The folks at the NWS also want to thank all of the extra observations that were sent in during the period of the Indianapolis radar outage last month. They reached out and many of you provided valuable information to help make up for the other missing data.

Finally we'd also like to recognize the 35 new Indiana observers (Carroll, Clay, De Kalb, Dearborn, Delaware, Floyd, Hamilton(2), Hendricks, Jennings, Kosciusko, La Porte, Lake, Marion, Miami, Monroe(4), Orange, Ripley, St. Joseph, Tippecanoe, Vermillion, Vigo(2), Wabash, Warrick, White) that joined CoCoRaHS in the last month. Thanks for joining the team!

Statewide, March 2023 precipitation ran 2.19 inches above normal (166 percent of normal). Heaviest precipitation fell in the southern half of the state where totals ranged from 4 to over 9 inches (shown below). The northern half received 3-4 inches of precipitation. Abnormally dry conditions were eradicated from the March 7 US Drought Monitor as a result of the continued above-normal precipitation.

Data from stations that had 100% reporting for March are as follows:
The highest precipitation total in Indiana (9.38 inches) was measured at (WD8NMZ) BRIGHT 3.5 NNW, located in Dearborn County. This observer measured 2.85 inches on March 24. ORLAND 6.6 SSW, located in LaGrange County, measured the least precipitation in the state (2.46 inches).

Accumulated Precipitation (in)
March 01, 2023 to March 31, 2023



Archived Newsletters

If you are ever interested in viewing past issues of *The Hoosier Observer*, go to the CoCoRaHS.org home page and then find "State Newsletters" among links within the left-side Resources list.

Return to Below-Normal Precipitation, Variable Temperatures, and Enhanced Freeze Risk

By Austin Pearson, Climatologist, Indiana State Climate Office

Through the first 18 days of April, temperatures ran 5.5F above normal statewide (Figure 1). The largest deviations occurred in central and northern Indiana. Despite the wet start to the month, wind, abundant sun, low humidity and reduced precipitation accounted for drying conditions across the state. Statewide, precipitation averaged 69 percent of normal. Surprisingly, tillage, fertilizer and herbicide applications, and planting kicked up a lot of dust and goes to show that it does not take a lot to dry out the upper soil profile. Through April 16, the USDA NASS reported 3 percent of corn and 2 percent of soybeans were planted statewide. Modified Growing Degree Days (MGDDs) continued to run above normal statewide (Figure 2) as a result of the warm temperatures.

Climate Division Data by State between Two Dates
From Midwestern Regional Climate Center

Indiana 4/ 1/2023 to 4/18/2023							
cd	Temperature			prcp	Precipitation		
	temp	norm	dev		norm	dev	percent
1	52.7	46.9	5.8	1.41	2.16	-0.75	65
2	52.8	46.3	6.4	1.41	2.19	-0.77	65
3	52.6	45.8	6.7	1.23	2.10	-0.87	59
4	54.3	49.0	5.3	1.34	2.27	-0.94	59
5	53.8	48.3	5.5	1.32	2.35	-1.03	56
6	52.8	47.3	5.5	1.32	2.28	-0.96	58
7	57.3	52.6	4.7	2.22	2.49	-0.27	89
8	57.0	51.9	5.1	2.07	2.56	-0.50	81
9	55.4	50.8	4.6	2.03	2.48	-0.46	82
State	54.4	48.9	5.5	1.59	2.32	-0.73	69



Midwestern Regional Climate Center
MRCC Applied Climate System
Generated at:
Wed Apr 19 09:48:36 CDT 2023

Figure 1: Indiana climate division and state temperature, normal temperature, temperature departure from normal, precipitation, normal precipitation, precipitation departure from normal, and percent of mean precipitation for April 1-18, 2023.

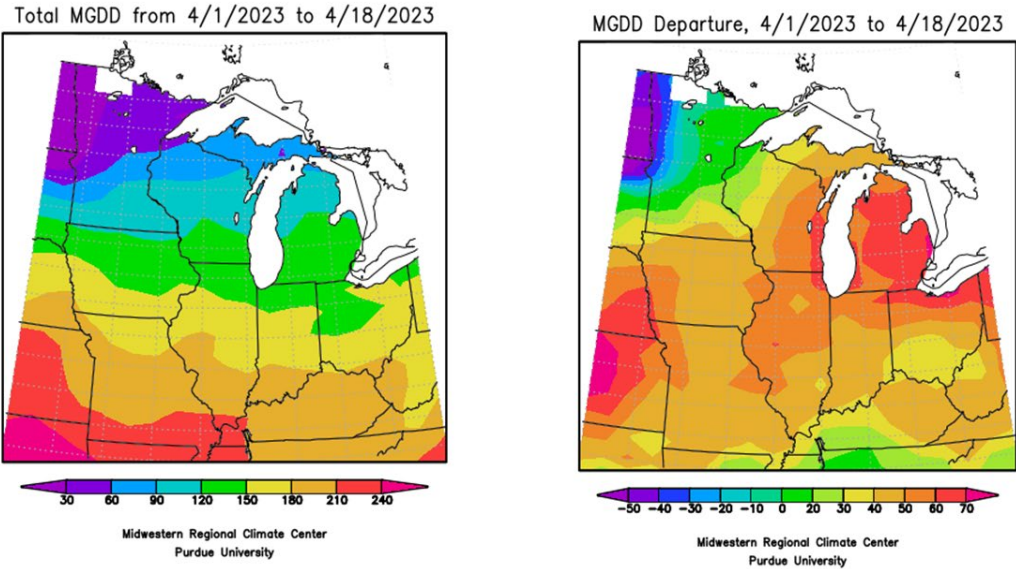


Figure 2: Total Accumulated Midwest Modified Growing Degree Days (MGDDs) April 1-18, 2023 (left) and Total Accumulated MGDDs represented as the departure from the 1991-2020 climatological normal (right).

Much of Indiana has been subjected to frost/freeze advisories over the last few days as well. Temperatures fell below freezing in many spots and can confirm that we had patchy frost on multiple occasions. All Indiana vegetation is now susceptible to freeze damage, which has triggered National Weather Service frost/freeze alerts this last week. Most plants are okay for light frosts, but damage can result from prolonged exposure to 28F or colder temperatures. Parke and Tippecanoe Counties recorded 26F and 27F, respectively, on April 18; many other locations experienced lower than 30F (Figure 3). Rush County recorded a minimum temperature of 27F on the morning of April 19. Warm temperatures resurged during the afternoon on April 19, but are not expected to last long as cooler temperatures are forecasted to return by the weekend.

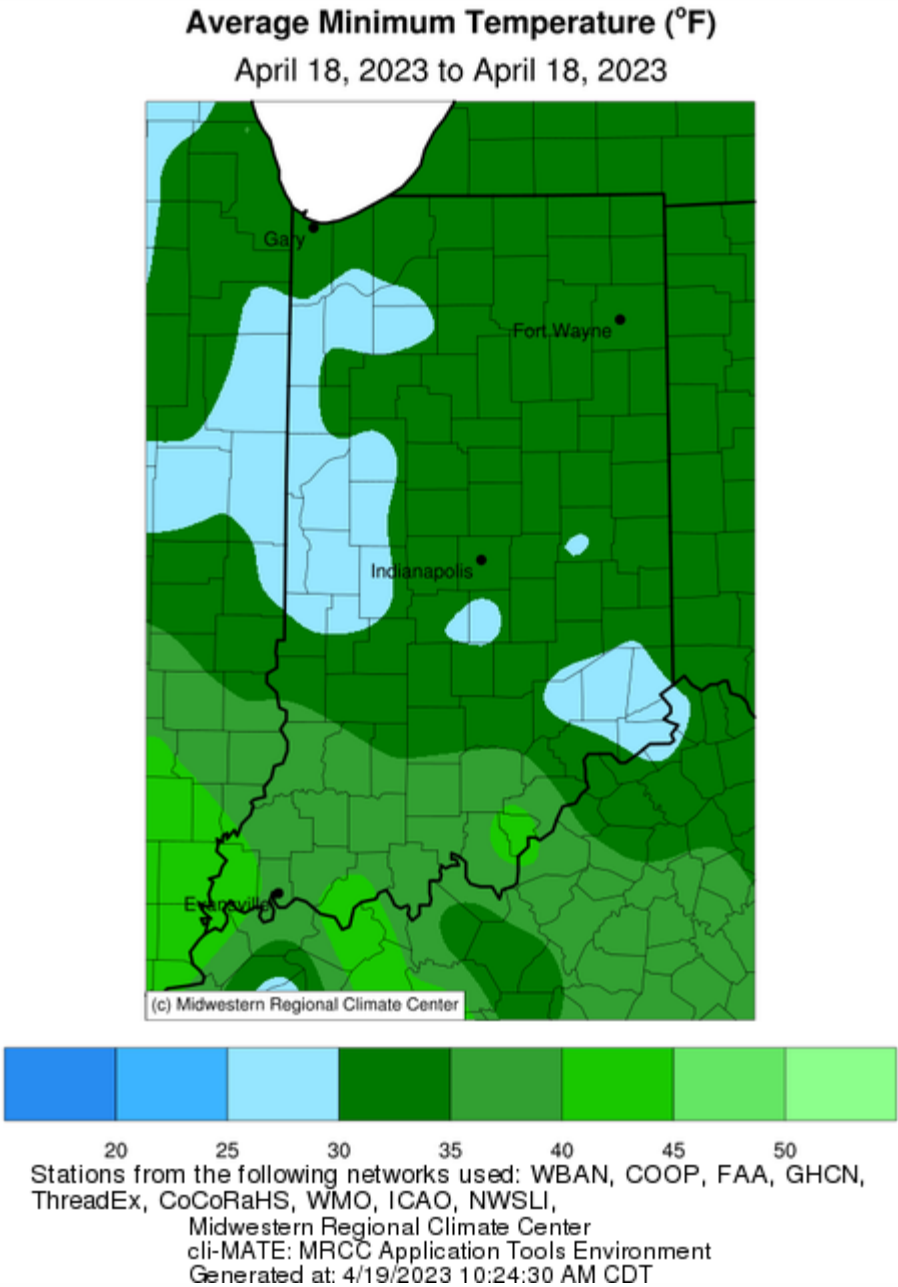


Figure 3: Average minimum temperatures for Indiana on the morning of April 18, 2023.

Seven-day precipitation forecasts, as of April 19th (Figure 4), blanket the entire state with at least 0.5 inches of precipitation with heaviest amounts in southern Indiana (1.25-2.50 inches). The Climate Prediction Center has high confidence in below-normal temperatures and near-normal precipitation through the end of April. What could this mean for frost/freeze risk? The Climate Prediction Center has already issued a slight risk of much below normal temperatures from April 26-May 2, 2023 (Figure 5), which is indicative of increased freeze risk over. Purdue Extension has a helpful article titled “[Effects of Cold Weather on Horticultural Plants in Indiana](#)” that discusses impact of freeze events on these crops.

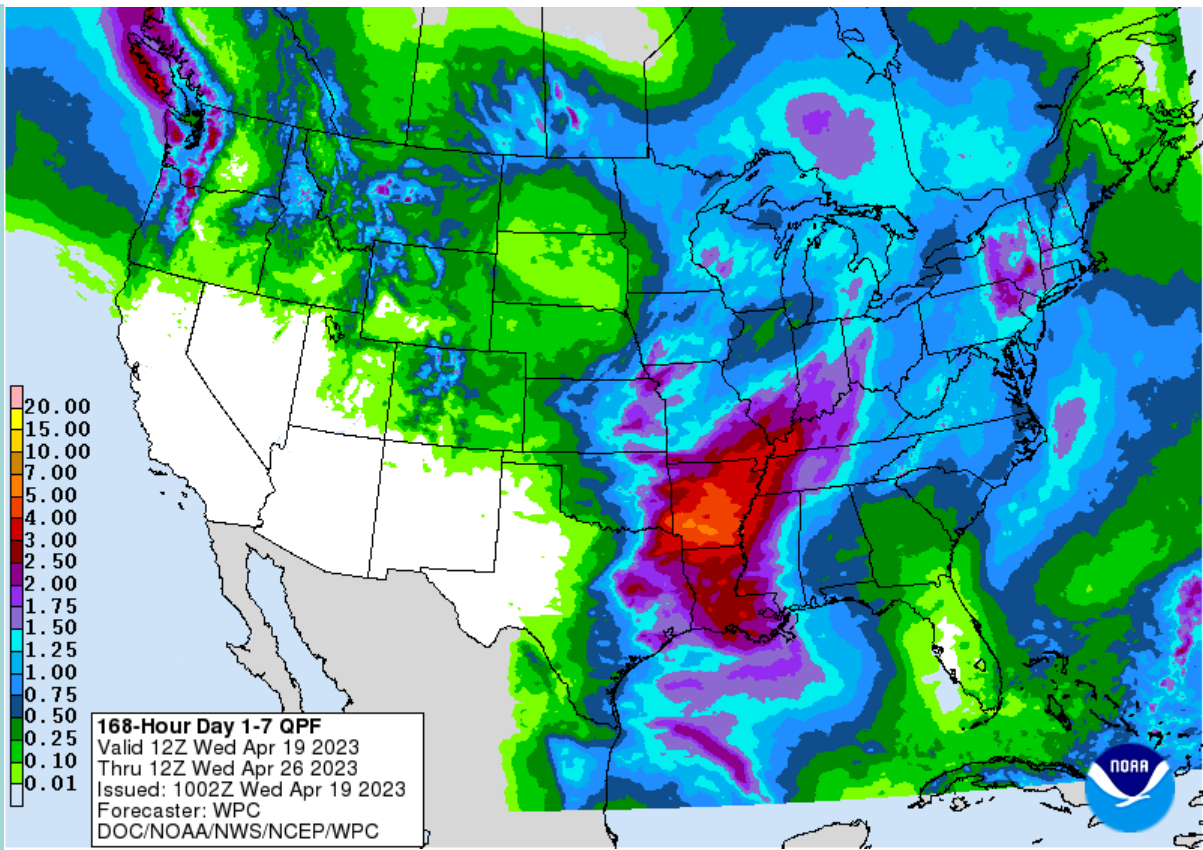


Figure 4: NWS Weather Prediction Center 7-day quantitative precipitation forecasts for the continental United States.

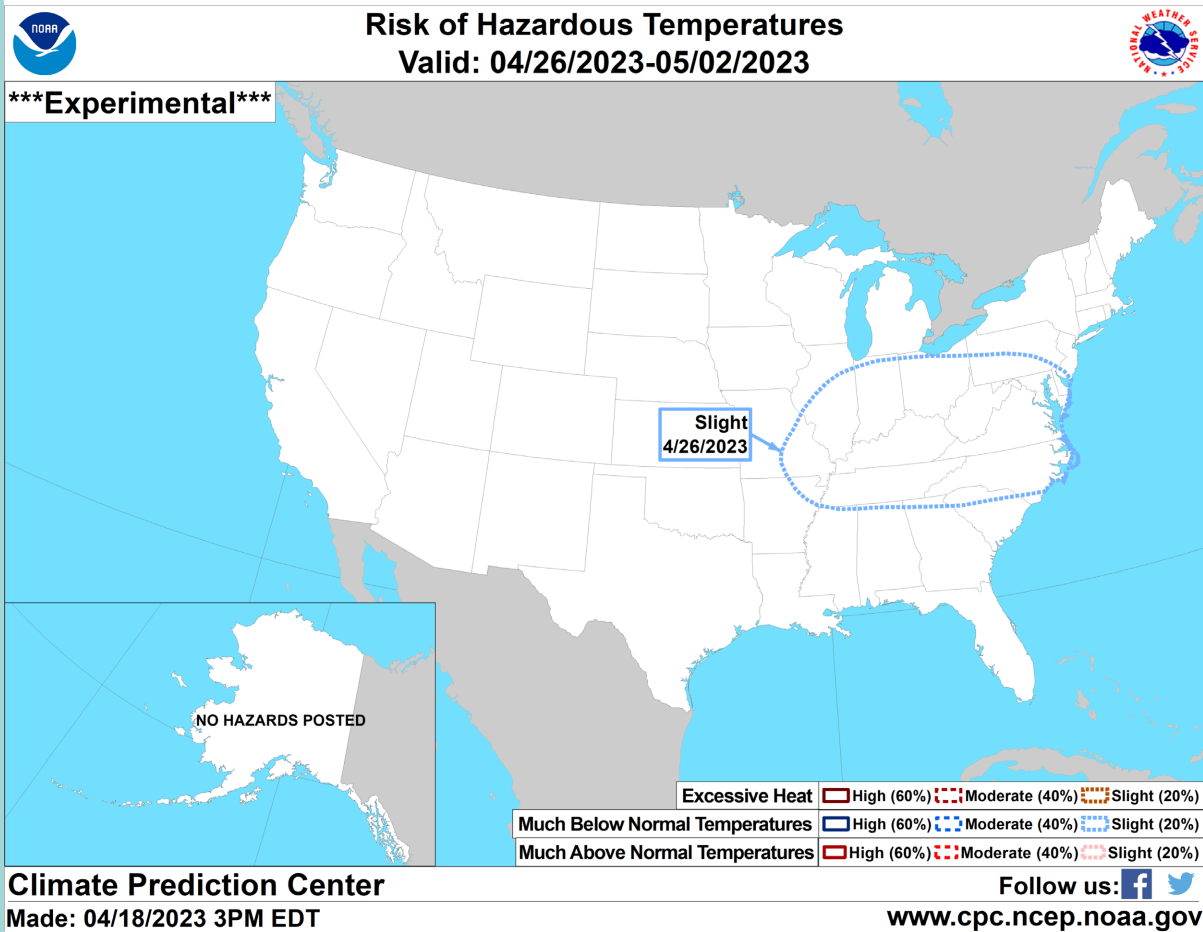
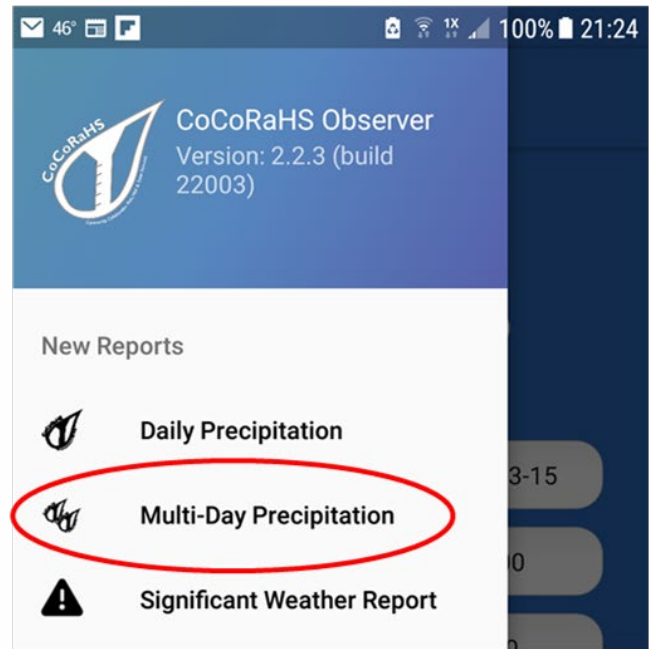
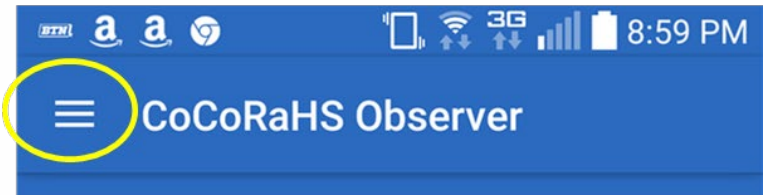


Figure 5: Climate Prediction Center's 8-14-day hazard map depicting a slight risk for much below normal

temperatures on April 26, 2023.

How to Report When You are Gone or Miss a Day
By Steve Hilberg

While we do want you to report every day, that does not mean that you have to be home all of the time. We have separate report form, the Multi-Day Accumulation Report, that allows you to enter amounts that accumulated over a period of more than 24 hours. Remember, the Daily Report form that pops up when you login is ONLY for entering amounts that have accumulated over the past 24 hours. The Multi-Day Accumulation Form can be found in the left-hand menu after you log in. On the mobile app the option to enter a Multi-Day Report can be found in the "hamburger" menu at the top left after you login.



You should use the Multi-Day Accumulation report when you have an an accumulation that occurs over two or more days. There is one more instance where you should use it - when your daily observation is made four hours or more after your normal observation time, especially when there has been precipitation during that time. The reason for this is to keep comparable in increments of 24 hrs. i.e we are not comparing a 30-hour amount with a 24-hour amount.

Here is an example multi-day accumulation.

Let's say you leave on Friday morning, March 25 (after your 7:00 a.m. morning observation) for a long weekend away. You are gone for the mornings of March 26, 27, and 28. You return in the evening of Monday, March 28, and you notice there is water in your rain gauge. How do you handle this?

If you will be taking an observation the next morning, wait until then. On Tuesday morning (March 29), read your rain gauge at the usual time. Let's say there was 0.75 inches in the rain gauge. Do not report this using the Daily Precipitation form! Instead, fill out the Multi-Day Accumulation form. The form is easy to follow. Using our example:

- First day of accumulation period. This day should be one day after your last report (your last observation was the morning of March 25).
- **3/29**
 - Date the rain gauge was emptied (in our example this is your regular observation the morning after you returned 3/30)
 - 7:00 a.m. - Time the rain gauge was emptied (the regular time of your observation). If you empty at a different time, put that time in this field, but try and do this at your regular observation time.
 - 0.75 inches - Multi Day Precipitation (this is the total in your rain gauge).

<input type="text"/>	First day of accumulation period. This day should be one day after your last report.
<input type="text"/>	Date the rain gauge was emptied.
<input type="text" value="7:00"/> <input type="text" value="AM"/>	Time the rain gauge was emptied.
<input checked="" type="radio"/> Yes <input type="radio"/> No Report was taken at registered location?	
<input type="text"/> in.	Multi Day Precipitation (in inches), or T for trace, or NA for unknown.
<input type="text"/> in.	Total Depth of Snow on Ground (in inches)
<input type="text"/> in.	Core Precipitation (in inches)
Notes	
<div></div>	
<div>Submit Data Reset</div>	

Important points to remember:

1. If you mistakenly enter your multi-day accumulation using the Daily Report form and want to correct this, first edit your Daily Report and enter NA for the gauge catch. You will then be able to submit the Multi-Day Accumulation. If you don't set this to NA, then you will get an error trying to submit the Multi-Day Accumulation.
2. DO NOT go back and enter zero (or any other observation) for any of the days in the Multi-Day range. There should only be one report for each day, i.e. a day cannot be included in a Multi-Day accumulation and a Daily Accumulation.



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