Central Indiana
November 2022
Climate Summary

***45th Warmest November on record at Indianapolis** (Tied)*

***19th Driest November on record at Indianapolis** (Tied)*

Temperatures

November 2022's temperatures were overall slightly above normal. However, the frequent occurrence of unseasonably warm and cold days seen since mid-September was amplified with more than half of November's days at least 10 degrees above or below normal. Unlike mid-autumn, longer-duration pattern regimes dominated November. Seasonably cool readings were observed on both the **11th** and **22nd**; yet the month's first three weeks were otherwise led by very mild to near-record warmth through the **10th**, and anomalous cold during the **12th**-**21st**. More reasonable late-autumn conditions then prevailed through November's final 8 days amid near to above normal readings. This late-month mild trend was the difference that placed the slightly above normal accent on what was an distinctively extreme month.

Through November's first ten days, broad, often stagnant high pressure along eastern North America coupled with storm systems tracking through the Plains to promote often warm-advective winds and large diurnal spreads. Daytime highs frequently in the upper 60s to mid-70s led this warm pattern. The **4th** was the warmest day, with lows mainly in the 50s, and many locations peaking in the upper 70s: **78F** was reached at several COOP stations, Perrysville 4 WNW (Vermillion Co.), Shoals 8 S (Martin Co.), Tipton 5 SW (Tipton Co.), and Vincennes 5 NE (Knox Co.), while the **4th'**s observed morning lows were as high as 62F at North Vernon 2 ESE (Jennings Co.). Following more modest warmth on the **7th**-**8th**, anomalously high readings returned with mid-70s common on the **9th**, and Shoals 8 S peaking at **79F**, while Indianapolis only managed 71F. On the **10th**, Tipton 5 SW led the region with **78F** while Indianapolis reached

73F. Even typical cool spots like the Jamestown 2 E COOP station (Boone Co.) saw several days with September-like readings, reaching 75F and 72F on the **4th** and **9th**, respectively. Washington 1 W (Daviess Co.) led the count of 70F+ days with 8, including **79F** on the **9th**.

A strong cold front crossed Indiana on the morning of the **11th**, ushering in a noticeably colder pattern that would last through the **21st**. The quick transition was marked by a ~33-hour temperature change (from the afternoon of the **10th** to midnight ending the **11th**) of greater than **-40 degrees** for most locations, with the Davis Purdue AG Center at Farmland 5 NNW (Randolph Co.) dropping from 75F to 26F (**-49**). Just as noteworthy was the 2-day difference in high temperatures from the **10th** to the **12th**, which was greatest at the Franklin WWTP (Johnson Co.) where the trend was from 74F to 30F (**-44**), while Indianapolis went from 73F to 32F (**-41**). This, **12th** maximum at Indianapolis, tied 2019 for the earliest first 32F-or-lower maximum since 1995 (11/5); and also tied for the 15th-earliest freezing max temp in the 152-year record, or roughly a ~10-year return period. The normal first freezing-high at Indianapolis is November 30th.

The cold, mid-November period consisted of the initial polar air mass on the **12th**-**14th**, where cold days in the 30s to near 40F marked the trend, with nights dropping into the 20s to near 30F. More moderated readings occurred on the **15th**, before reinforcing arctic high pressure on the **16th**-**20th** brought highs in generally the low to mid-30s and overnights into the teens on 2-3 mornings for most counties. The **12th** was quite cold, with highs of **30F** or **31F** also observed at several COOP stations: New Castle 3 SW (Henry Co.), Oolitic Purdue Ex Farm (Lawrence Co.), and Greenfield (Hancock Co.); six additional sites, including Shelbyville Sewage and Rushville, only reached 32F. The **14th** then had the coldest morning seen so far this autumn, with observations ranging from **16F** at the Crawfordsville 6 SE (Montgomery Co.) and Rockville (Parke Co.) COOP stations to 29F at North Vernon 2 ESE, while 19F was recorded at Lafayette and Terre Haute; Indianapolis was 25F.

The arctic reinforcement brought anomalously low maximum temperatures, with about half of the region not surpassing 32F on the **17th**, only **30F** at New Castle 3 SW and Rushville, and 31F at Lafayette. The **18th**'s daytime maximum came at dawn as cold advection overwhelmed the sun's heating, with only mid-20s across the northern tier: **24F** at the Beck Purdue Ag Center at West Lafayette 6 NW, 25F at Kokomo 3 WSW and Young America (both in Howard Co.), and 26F as far south as the Indianapolis Metro at Carmel 3 E (Hamilton Co.). The **19th**'s maximums recovered to mainly 30-35F, although Tipton 5 SW only managed **27F**; the **20th**'s daytime was coldest across northeast counties, with only **28F** at Kokomo 3 WSW and 31F at Muncie, although Jamestown 2 E rebounded to a balmy 43F. Indianapolis was held to 32F twice more on the **18th** and **20th**. Low temperatures were also anomalous. Lafayette dropped to **19F** at midnight ending the **18th**, before two very cold mornings followed across the region, with widespread 15-20F on the **19th**, and mainly 10-15F early on the **20th**. The **19th**'s lows ranged from **12F** at West Lafayette 6 NW and Washington 1W to 19F at both Marion County airports and Spencer (Owen Co.). The **20th** was the month's coldest morning, with lowest readings from **8F** at Rockville and **9F** at Crawfordsville 6 SE, to **10F** at Kokomo 3 WSW, Young America, and Perrysville 4 WNW; while 16F at Columbus was one of the higher observations. A transition to more seasonable weather began on the **21st**, with some locations' highs into the low 50s trending about 20 degrees warmer than the previous day.

The following, so-called "seasonable" conditions actually included several days through the **22nd-24th** with impressive diurnal spreads of about 25 to 35 degrees; Terre Haute, starting in the low 20s both days, climbed 36 degrees on the **22nd** and 38 on the **23rd**; Bloomington rose 38 degrees on the **23rd** and 36 on the **24th**, peaking in the low 60s both days; and Muncie, on the **24th**, jumped 34 degrees (from 28F to 62F).

November 2022's temperatures were noteworthy both for the prolonged January-like cold, and also the strong polarity, so to speak, found between the early-month unseasonable warmth and the subsequent Canadian blast. The longest duration held at/under 32F was found both over the typical Montgomery-Parke Counties cold spot, as well as Howard County, where at least a 4-day period (**17th-20th**) did not reach 33F; Rockville's inability to crack freezing early on the **16th** placed them with 5 consecutive sub-freezing days. Indianapolis neared record temperatures with both of the month's extremes: the **4th** maximum was 2 degrees shy, and the **20th** minimum was 5 degrees above a relatively weak record low (8F, 1914). This was the first month Indianapolis tallied eight days at least 10 degrees below normal since May 2021 (9 days). Historically, Indianapolis has been held to 32F or lower on at least 3 days in 28% of Novembers, although this year's was only the third occurrence since 1991. Indianapolis dropped to 25F or lower on 6 days, which has also occurred in 28% of Novembers on record. The only Novembers at Indianapolis with at least 8 highs above 65F and 11 lows under 30F were 2005, 2020 and 2022 – a 50-year return.

Site	November 2022 Average Temp	November 2022 Dep from Nml	Highest Temperature	Lowest Temperature
Indianapolis Int'l Airport	44.4	+1.1	76 on 4th	13 on 20th
Lafayette	42.6	+1.3	76 on 4th	**12** on 20th
Muncie	45.2	+1.3	77 on 4th	14 on 20th
Terre Haute	43.9	+0.8	76 on 4th	14 on 20th
Bloomington	44.8	+1.1	77 on 4th	15 on 20th
Shelbyville	45.8	**+1.8**	**78** on 4th	15 on 20th
Eagle Creek Airpark	43.9	+0.5	77 on 4th	15 on 20th

At Indianapolis, November 2022's daily average temperatures were above normal on 19 days, and below normal on 10 days. It was tied for the 45th warmest November for the Indianapolis Area since weather records began in 1871, placing it in the 70th percentile.

Precipitation

November 2022 featured the third consecutive dry month for most of central Indiana, and continued the overall very dry conditions observed in October. The limited precipitation followed a similar pattern to October, with a few light rain and snowfalls gracing the region over the month's first half (totaling 0.25-0.50" for most locations, with greater totals over far western counties, and less to the east); before a rainier final week that was led by appreciable rain on mainly the **28th**. Weekly U.S. Drought Monitor updates maintained Abnormally Dry to Moderate Drought conditions across all of central Indiana through the entire month.

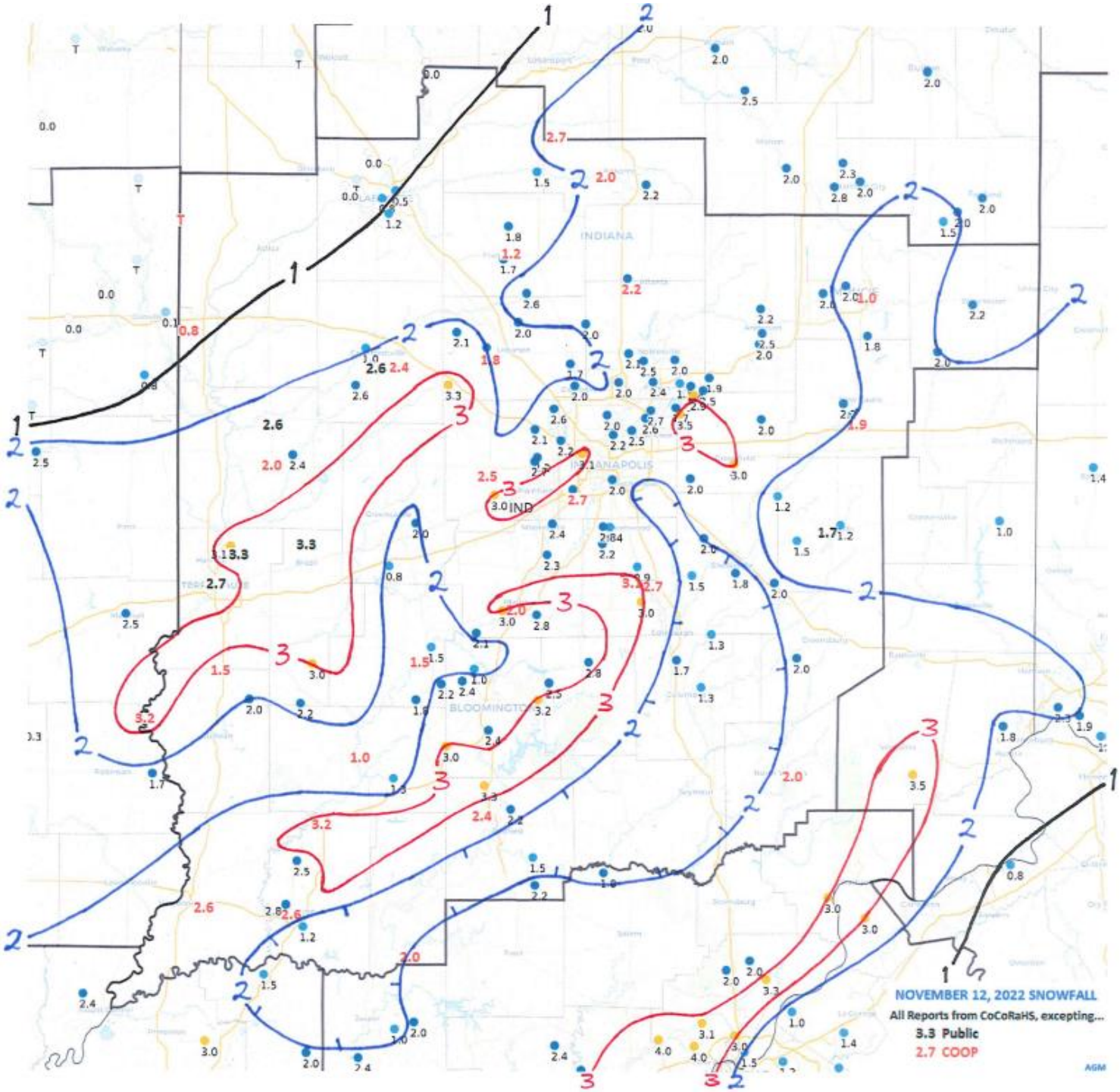
The November **1st** Drought Monitor update (released on November 3rd) showed little change from late October: **Moderate Drought** (**D1**) enveloped most of Indiana, although about half of the central Indiana region remained within only **Abnormally Dry** conditions (**D0**) -- around the Indianapolis Metro and west-northwestward in between corridors to Lafayette and Terre Haute. The only change was a small improvement in drought conditions from **D1** to **D0** in portions of Tippecanoe and Carroll Counties.

After mainly dry conditions prevailed through the **4th**, November **5th** featured a generally light rainfall through the morning hours. Total observations were greatest near Terre Haute, with 0.70" near Prairieton (Vigo Co.), and around to just over 0.50" from Rockville down into Knox County; meanwhile observations varied across the Indianapolis Metro from up to 0.25" in western Hendricks County to no precipitation in parts of Hancock and Shelby Counties. The November **8th** drought update showed **D1** conditions expanding westward through central counties, although **D0** remained along the Wabash Valley from far western Tippecanoe County to the northwestern half of Vigo County.

Rain-free conditions then prevailed for essentially the entire region during the **6th–11th**, although light rainfall returned on the **11th** for several far-southeastern zones. An over-performing disturbance then followed on the **12th**, bringing a general **1-3"** snowfall to the region, with **3.3"** reported in a heavier band from northern portions of Vigo and Clay Counties to far southwestern Boone County, while at least **3.0"** also accumulated on the west and east sides of downtown Indianapolis, as well as in an elongated band from northern Daviess County, east of Bloomington, and to the Franklin (Johnson Co.) and Martinsville (Morgan Co.) areas. The official Indianapolis observation at the NWS office was **2.7"**, a daily record (old 0.9", 1991), and only the second time a 1-day snowfall so great had occurred so early in the season since 10/19/1989's **7.5"** (the other occasion being **2.8"** on Veteran Day 2019). Historically at Indianapolis (since 1884) , 2.8"+ snows this early in the season have only occurred 9 times; and only 6 times since 1900, or a ~20-year return period. Corresponding reported liquid equivalents were 0.10-0.25" for most locations. The November **15th** drought update found the expanding-**D1** trend continuing with all of the region reaching **moderate drought**, excepting the northwestern half of Warren County which remained in **D0**.

The anomalous upper trough that brought unseasonable cold through much of the month's third week also promoted several consecutive days of snow showers -- a pattern more often seen during the mid-winter. Snow and/or rain showers/drizzle fell on the **15th**, with northern counties seeing steadier precipitation, and more often snow; despite snow generally melting as

November 12th, 2022 Total Snowfall
As Reported By Central Indiana Volunteer Observers



For the period 700 AM EDT 11/11/2022 -to- 700 AM EST 11/13/2022. Data is unofficial.

An over-performing snowfall spread from southeastern Missouri and southern Illinois into central Indiana, with mainly **1-3”** reported across the region. Indianapolis’ official observation of **2.7”** was a daily record (old 0.8”, 1991).

it fell on the warm ground, isolated measurable snowfall was reported across northern zones, with **0.2"** west of New Market (Montgomery Co.). The **16th** brought all-snow showers, and particularly north of I-70 where snow continued through the afternoon and evening, accumulating a thin coating on the (now-colder) ground, with an embedded heavier **~1.0"** band across the northern counties, and **1.1"** measured at both Tipton 5 SW and in Frankfort, while Indianapolis official picked up another 0.1". Further snow showers on the **18th** between midnight and dawn, were again focused on northern counties, with several reports of 0.2" to 0.5", and a small band of 0.6" from southwest of Thorntown (Boone Co.) to west of Kirklin (Clinton Co.). Flurries then followed, mainly over the northern half of the region, both pre-dawn on the **18th**, and late day on the **19th**, with the only noteworthy additional accumulation being 0.3" in Modoc (Randolph Co.) on the **19th**; Indianapolis recorded a trace both days. The November **21st** drought update showed no changes since the previous week, with **D1** prevailing aside from the far northwestern corner of the realm's **D0**.

Similar to October, the very dry month finally saw a widespread moderate-heavy rainfall event towards the end of the month. From late on the **26th** through the **27th**, mainly 0.50-**1.20"** fell across the region, with greater such reports in Marion County and to points north and west; while the Upper Wabash Valley picked-up as much as **1.50"** west of West Lafayette (Tippecanoe Co.). The greatest observation within the rest of the region was **1.22"** in Danville (Hendricks Co.). This single event drove November's overall precipitation trend and distribution, making up 60-70% of the month's total at most sites. Drought conditions finally showed signs of improvement in the November **29th** update, as **D1** transitioned to **D0** across the northwestern quadrant of the region, including nearly all of Putnam and Hendricks Counties and far northwestern portions of Marion County.

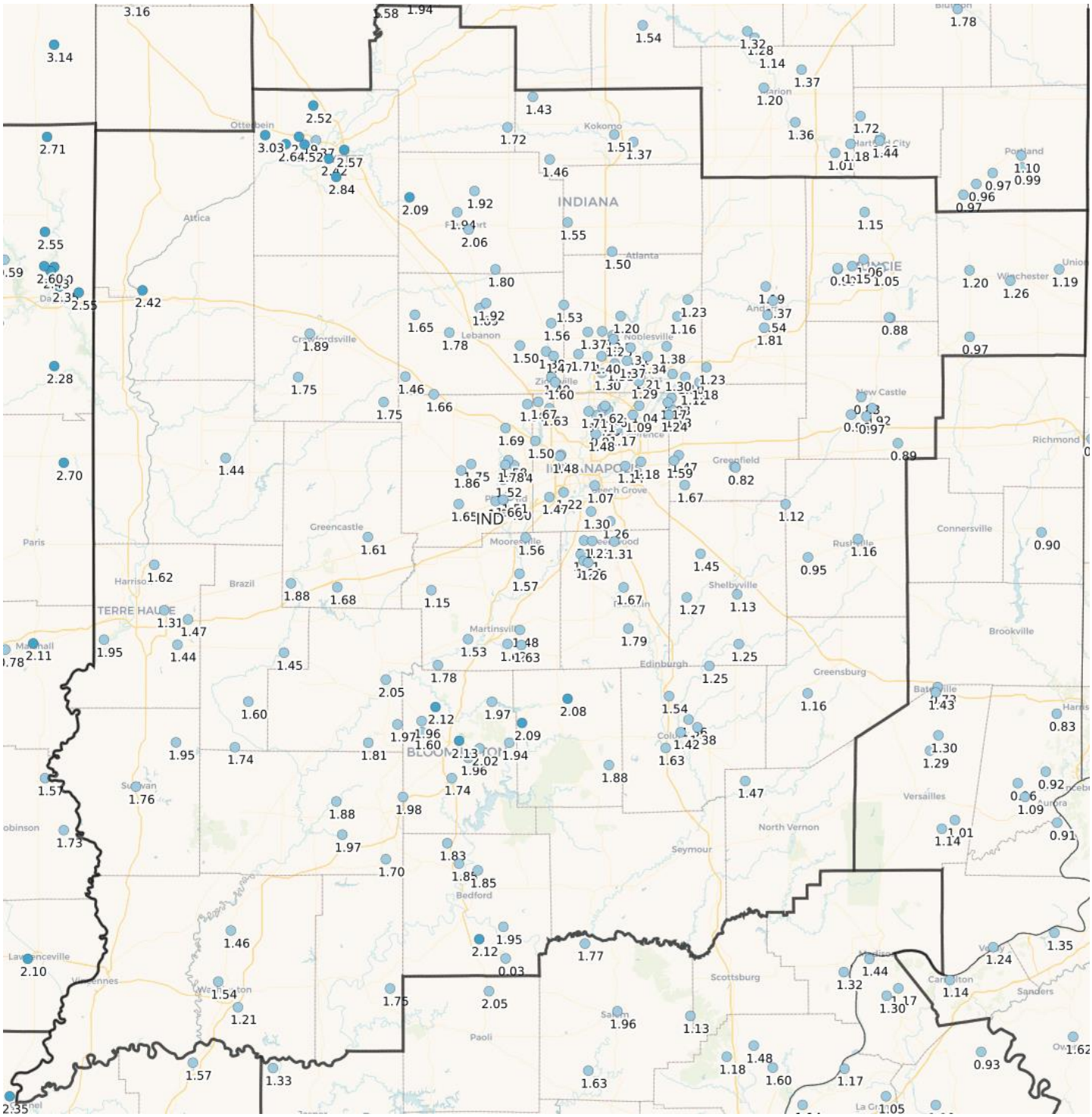
No flooding was observed in central Indiana during November 2022.

Overall, November 2022's precipitation was well below normal, with monthly totals of 1.00-2.00" common across central Indiana for the second consecutive month. The exceptions to this range also displayed an overall west-east gradient, with slightly more than 2.00" along the Wabash Valley, and sums under 1.00" across several southeastern counties. Extremes ranged from **2.45"** west of West Lafayette to **0.68"** west of Shelbyville (Shelby Co.). The Franklin WWTP's **0.70"** made for the driest November in the station's 30-year record (undercutting 1.04" from 1999). North Vernon 2 ESE's 0.86" was the station's third driest November over the 85-year record, with the least precipitation since 1963's 0.42". Across 1st-order airports, monthly totals (see below) ranged from only **19%** of normal at Shelbyville to 52% of normal at Lafayette. It was the driest November since 2012 at Bloomington, Shelbyville and Terre Haute; while total precipitation was slightly greater than November 2021 at Indianapolis, Muncie and Eagle Creek Airpark. This was the 2nd-driest November of the last 10 years at Indianapolis, although historically Novembers with 1.42" or less are an 8-year return. The year-to-date total at Indianapolis rose to only **32.25"**, increasing the year's deficit to **8.46"** below normal, continuing the lowest year to date total since 2010 (which was 31.99" through November).

Site	November 2022 Precipitation	November 2022 Dep from Nml	Wettest Day	Longest Dry Stretch
Indianapolis Intl AP	1.42	**−2.03**	0.98 on 27th	6 days, 6th–11th
Lafayette	1.48	−1.39	0.35 on 27th	6 days, 6th–11th
Muncie	0.88	**−2.35**	0.58 on 27th	6 days, 6th–11th
Terre Haute	1.46	−1.59	0.64 on 27th	6 days, 6th–11th
Bloomington	1.39	**−2.34**	0.66 on 27th	7 days, 17th–23rd
Shelbyville	0.70	**−2.91**	0.42 on 27th	6 days, 6th–11th
Eagle Creek Airpark	1.45	−1.80	**1.12** on 27th	6 days, 6th–11th

November 2022 tied for the **19th Driest** November in the Indianapolis Area since weather records began in 1871, placing it in the **13rd percentile** for precipitation of all recorded Novembers. This continued the dry trends seen both so far through autumn 2022, as well as from November 2021.

November 2022 Total Precipitation, Through the Morning of 12/1/2022
As Reported By Central Indiana CoCoRaHS Observers



For the period 700 AM EDT 11/1/2022 -to- 700 AM EST 12/1/2022. Data is unofficial.

Dry conditions continued for November, with mainly **1.00-2.00”** precipitation totals for the second month. Lower amounts were reported east of Indianapolis, yet **1.80-2.50”** totals were reported along the Upper Wabash Valley.

Miscellaneous – Winds, Thunder, Fog & More

November 2022's strongest observed wind gusts occurred on the **5th** (as highlighted in the Severe Weather section below), with other noteworthy observations including **55** and **54 mph** at Terre Haute and Muncie, respectively. Indianapolis observed strong wind gusts again on the **30th**, peaking at **46 mph**, while about half of the 1st-order sites' observed peak gusts of 40-43 mph on both the **19th** and **29th**. November was overall quite breezy at times, as additional days found the majority of 1st-order airports with peak wind gusts of 30+ mph, on the **4th**, **11th**, **16th**, **18th**, **21st** and **27th**. For the month, winds gusted to 30 mph or higher on 10 days at Lafayette and Muncie, and 7 or 8 days at the five other 1st-order sites. The only somewhat consistent respite from the month's winds came during the **23rd–26th**, when essentially all wind gusts peaked at 22 mph or less.

Fog was prominent at times – through mainly the very early month and again after Thanksgiving. Frequency across the month ranged from 10 days at Shelbyville to 16 days at Lafayette, although most sites observed fog on 11 or 12 days. All 1st-order airports reported fog on the **1st**, **2nd**, **3rd**, **12th**, **15th**, **25th**, **26th**, and **27th**; while fog occurred at most sites on the **16th** and **24th**. Lafayette reported fog on the **11th**-**13th** and **16th**-**18th**, while fog was reported on the last seven days of November at both Indianapolis and Eagle Creek Airpark. Dense fog was occurred at five or six of the seven 1st-order sites on the **3rd**, **12th**, and **26th**; and in total on 1 day at Muncie, 2 days at Terre Haute, and 3 days at all other 1st-order airports.

Thunder was observed on the **5th** at Lafayette and Terre Haute (which broke the 1st-order airport thunder-less streak going back to 9/22/2022), and on the **29th** at Lafayette.

Relative humidity (RH) across the 1st-order sites was quite low on the **7th** and **9th**, and consistently low during the **20th**-**22nd**. Daily minimum RH values on the **7th** ranged from 14% at Bloomington to 19% at Eagle Creek Airpark; while the **9th**'s lowest minimum was 15% at Muncie, with all other 1st-order sites 21-30%; most sites dropped to 20-21% on the **20th**, with daily minimum RH values of 24-30% common through the **22nd**. Less extreme dry conditions continued through the **24th**. The month's only noteworthy wildfire was an 110-acre brush fire through eastern portions of Brown County State Park, which occurred amid cold northwesterly gusts from the **20th** through the **22nd**.

Severe Weather

November 2022's severe weather was contained to a strong to marginally-severe gradient wind event on the **5th**, where maximum wind gusts (mainly from southwesterly directions) were measured as high as **65 mph** east of Fickle (Clinton Co.), while **64 mph** was recorded at Lafayette. Winds **downed 3 trees** at a residence east of Brazil (Clay Co.), although isolated to scattered damage was mainly across the northeastern half of the region, with multiple trees downed in Madison, Delaware and Decatur counties, with the latter including a report of a **tree blown onto a vehicle** on Interstate 74. **58 mph** winds were recorded at both the Frankfort airport (Clinton Co.) and in Loogootee (Martin Co.), while Bloomington and Indianapolis gusted as high as **57** and **55 mph**, respectively. This episode broke the 3+ month streak of no severe gusts at any central Indiana 1st-order airports (since Shelbyville's 58 mph gusts on 8/1/2022).

See the Miscellaneous section (above) for details regarding the month's rather breezy conditions and a rare cold-weather brushfire that began on the **20th**.

For info on severe weather in other areas during November, visit the Storm Prediction Center "Severe Weather Event Summaries" website at spc.noaa.gov/climo/online

December 2022 Outlook

The official outlook for December 2022 from the Climate Prediction Center indicated slightly greater chances of below normal temperatures across central Indiana, especially north of Interstate 70. Equal chances of above, below, or near normal precipitation exist for most of the region, with slightly greater chances of above normal precipitation across far southern counties. The normal December temperature at Indianapolis is **33.3** degrees. The normal December precipitation at Indianapolis is **2.92"**, and the normal December snowfall at Indianapolis is **6.4"**.

Data prepared by the Indianapolis Weather Forecast Office's State Climate Team
Questions should be referred to nws.indianapolis@noaa.gov