Central Indiana
February 2023
Climate Summary

5th Mildest February on record at Indianapolis

66th Wettest February on record at Indianapolis

****2nd Least Snowiest February on record at Indianapolis** *(Tied)*****

Temperatures

February 2023 was well above normal, continuing the anomalously mild trend of the preceding five weeks. Surface low pressure centers continually took a rather slow track northwest of the region, basking central Indiana in a prolonged passing of their warm sectors. Any colder air following these departing storm systems was brief before warm advective winds returned. The latter half of the month also featured a very stable upper level pattern across North America which persistently held much colder arctic air to near or north of the Canadian border. After a colder start to the month, only above normal daily averages were recorded at all of the region's seven first-order airports from the **5th** to the **16th**, the **18th**-**23rd**, and the **25th**-**28th**. Anomalously mild conditions were most consistent on the **13th**-**16th** and **19th**-**23rd**, with the overall warmest days being the **9th**, **15th**, **22nd**, and **27th**. The only record high at Indianapolis was the **22nd**'s maximum of **71F**.

February's first few days continued the (rather brief) generally colder trend that began on January 30th, and which would end up being the only organized near to below normal period within the first two months of 2023. Most locations observed their only sub-freezing days of

the month on the **1st** and **3rd**, while lows were mainly in the teens during the **1st–4th**. The **1st** brought February's coldest morning for northern and central counties, as lows ranged from **1F** at Rockville (Parke Co.) to several 14F observations across southeastern counties, including Shelbyville. **1st** daytime highs ranged from **18F** at Farmland 5 NNW (Randolph Co.) to 33F at Bloomington, with 29F at Indianapolis. The **3rd**'s morning lows were generally in the upper single digits to the lower teens, ranging from **3F** at Rockville to 19F at Shoals 8 S (Martin Co.), while Indianapolis dropped to 12F; the region's southern tier recorded their lowest marks of the month, including 9F at Washington 1 W (Daviess Co.) and 11F at Farmersburg TV-2 (Sullivan Co.), while 12F was a common minimum reading over these counties. The **3rd** had the month's coldest daytime for most locations with highs generally in the 20s, ranging from **18F** at both Kokomo 3 WSW (Howard Co.) and West Lafayette 6 NW (Tippecanoe Co.) to the low 30s across the far southern tier, while Indianapolis reached 25F.

The **4th** was a day of transition with diurnal ranges as great as +35 degrees at Shelbyville (from 14F to 49F) bringing a return to the 40s by afternoon. The remainder of the month, with two brief exceptions was consistently, and at times, exceedingly mild. The **9th** was exceptionally mild with daily lows in the upper 30s, closer to normal highs, while the observed maximums reached as high as **63F** at both the Oolitic Purdue Ex Farm (Lawrence Co.) and Spencer (Owen Co.), while low 60s reached as far north as Farmland 5 NNW, and Indianapolis also peaked at 60F. The **12th** started at least a 4-day streak of highs in the mid-50s to low 60s, while embedded anomalous warmth occurred on the **15th**: Shoals 8 S hit **75F** and Columbus (Bartholomew Co.) was boosted to 72F, Vincennes 5 NE (Knox Co.) reached 70F, Bloomington managed 67F, while Indianapolis only reached a comparatively mild 64F.

Rather cold mornings returned on the **17th**-**18th** as very amplified surface high pressure tracked from Texas to the Carolinas. Low to mid-20s were widespread both mornings, with lowest readings closest to the high pressure's center – across our region's southern tier: **19F** was observed from Vincennes 5 NE and Shakamak State Park (Sullivan Co.) to North Vernon 2 ESE (Jennings Co.). However the only day with widespread *overall* below normal temperatures was the **17th**, courtesy of daytime highs held in the 30s under overcast skies: lowest observed maximums were 27F at Jamestown 2 E (Boone Co.) and 28F at both Crawfordsville 6 SE (Montgomery Co.) and Lafayette 8 S (Tippecanoe Co.).

Another unseasonably mild period over the **19th**-**23rd** brought five consecutive days of temperatures 10-20 degrees above normal at Indianapolis. The **19th** and **20th** saw lows across the region mainly in the mid-30s to around 40F and highs in the 50s to around 60F, with Shoals leading the way again with daily maximums and minimums as high as 69F and 47F. The **22nd** was the month's warmest day following a high morning low (around midnight) near 40F, with 45F observed at Bloomington; southwesterly afternoon gusts as high as ~40 mph boosted readings into the low to mid-70s over most central/southern county locales, with **77F** at Shoals 8 S, 75F at Washington 1 W, and several reports of 74F. A strong warm front stretched across the region failed to pass northern zones, leaving noticeably chillier air over these counties; Kokomo 3 WSW and Tipton 5 SW (Tipton Co.) only managed highs of 44F and 47F, respectively. Several central/northern stations reported their monthly maximum on the **23rd** after the boundary passed northward, with these readings ranging from 57F at Lafayette 8S to 69F at Greenfield (Hancock Co.).

The only other (brief) cool down after February's initial cold period was the **24th** where temperatures ranged from generally the 20s to around 40F; Rockville was the coldest at **16F**, and Perrysville 4 WNW (Vermillion Co.) and Whitestown (Boone Co.) were two of several sites to drop to 21F, while the lowest max - 34F was measured at West Lafayette 6 NW. Not to be outdone, February 2023 brought one final breath of very mild air on the **27th**, led by what was the month's warmest morning for the majority of the region – **52F** at Washington 1 W, and 49F at all three southern 1st-order airports, Shoals 8S and Elnora (Davies Co.), while Indianapolis was held to 46F. The **27th**'s afternoon highs found widespread 60s across the region, led by **72F** at Shoals 8 S, and 70F at Washington 1 W, Vincennes 5 NE, and Columbus, with Indianapolis peaking at a more modest 63F.

February 2023 continued the anomalously mild pattern established in January 2023, both in overall departure from normal and the nearly persistent above normal trend. Despite overall departures from normal about one degree lower than January, February's warmth was technically rarer as the month finished the **5th warmest on record** at Indianapolis (a 30-year return). This was only the third February so mild **since 1930**, following the near-record readings of February 1998 and February 2017. Greater anomalies were found at southern tier sites: Washington 1 W recorded their third warmest February (behind 2017 and 1976) in 124 years, or a 41-year return period; while Shoals 8 S was only warmer in 1938 – making a **~50-year return**! Central Indiana's far northern tier saw the opposite effect – with the highest temperatures not always reaching these locations: Farmland 5 NNW only saw the station's 10th mildest February (a ~11-year return), while Kokomo 3 WSW recorded their 19th mildest February (a 6-year return). A distinct feature of the month's anomalously mild pattern was a consistently broad diurnal spread, that was led by daily maximums. While much of the above normal warmth seen over recent years has been driven by minimum temperatures – the opposite was true throughout February 2023 with highs ~10 degrees above normal and lows ~5 degrees above seasonable levels. Driving this notable spread was the storm track from the central Plains through the upper Midwest, whose corresponding southwesterly winds often brought dry air off of the Mexican Highlands which was easier to heat and cool than the northwestern Canadian flow more typically seen through the late winter.

Site	February 2023 Average Temp	February 2023 Dep from Nml	Highest Temperature	Lowest Temperature
Indianapolis Int'l Airport	40.2	+7.7	**71** on 22rd	10 on 1st
Lafayette	37.0	+7.3	58 on 23rd	**5 on 1st**
Muncie	40.1	**+8.2**	67 on 23rd	10 on 1st
Terre Haute	40.4	+7.5	**71** on 22rd	11 on 1st
Bloomington	41.3	+7.5	**74 on 22rd**	12 on 1st
Shelbyville	42.1	**+8.5**	**73** on 22rd	13 on 3rd
Eagle Creek Airpark	39.9	+7.4	**71** on 22rd	10 on 1st

At Indianapolis, February 2023's daily average temperatures were above normal on 23 days, at normal on 1 day and below normal on 4 days. It was the **5th mildest** February for the Indianapolis Area since weather records began in 1872, placing it in the **97th percentile**.

Precipitation

February 2023 continued the winter's overall trend of near to slightly above normal precipitation, while having a downward trend from the wetter pattern seen in January. Almost all of the month's liquid fell on only a few days – the **8th-9th** which was a soaking rain for all but northwestern counties, the **16th** which produced moderate rainfall over several south-central zones, and the **22nd** when appreciable rains contained to the region's northern tier more than made up for any early-month dryness here, with upwards of three inches over the Upper Wabash Valley. An active weather day on the **27th** (see severe section below) brought another light to moderate rainfall, with embedded, locally heavy rains north of Interstate 70. Drought conditions continued the steady improving trend that began in January, with early month "Abnormally Dry" (**D0**) conditions finally ending across nearly the entire region in the **7th**'s update. The **22nd**'s northern deluge quickly led to minor river and stream flooding, with much of the Wabash River still in flood at month's end. February 2023's most noteworthy feature was the almost complete lack of frozen precipitation – with only scattered flurries on the **16th-17th** and a brief pre-dawn mix over a few central counties on the **25th**; Indianapolis recorded the first February without measurable snow since 1949.

The January 31st U.S. Drought Monitor update (released February **2nd**) showed **D0** conditions remaining across the region's southern tier and points north/east of the Indy Metro, while a lone patch of **Moderate Drought** (**D1**) included roughly the eastern half of Randolph County. The February **7th** drought update brought the vast majority of central Indiana out of any drought intensity for the first time since late September 2022; although isolated **D0** did remain over Carroll County, the eastern half of Randolph County, and portions of Jackson and Jennings Counties.

After a mainly dry first week, a soaking rain fell on most locations during the night of the **8th**. Rainfall reports through dawn on the **9th** were generally 0.60-**1.60"**, with upwards of **2.00"** southwest of Bloomington, including **2.94"** at the Vincennes 4 E (Knox Co.) COOP site and **2.54"** at Washington 1 W; and lesser amounts across northwest counties. Additional light rains through the **9th** yielded storm totals of **1.00-1.80"** over most central/southern counties, and several **2.00"+** reports in Knox and Daviess Counties; **1.80"** was recorded as far north as southeastern Owen County. Sixteen of the region's ~130 river gages reached action stage within the **9th-13th**, including sites on each of the three main stem rivers. Durations in action

stage were mainly under 24 hours, although a few sites crested close to bankfull. Most notable was Youngs Creek at Amity (Johnson Co.) which remained within a half foot of flood stage for 8 hours on the **10th**.

The February **14th** drought update maintained status quo from the previous week with isolated **D0** continuing in pockets around the region's periphery. Light rainfall returned through PM hours on the **14th**, with most locations recording less than 0.10". Another, better-organized batch of rain again focused on the southeastern two-thirds of the region on the **16th**, bringing mainly 0.75-**1.25"** across the southern tier, with greater observations near and east of Lawrence County, including **1.48"** south of Harrodsburg (Lawrence Co.) and **1.33"** in Owensburg (Greene Co.). Harrodsburg also reported a grand total of **1.59"** from both the **14th** and **16th** rains. The East Fork of the White River at Seymour then reached Action Stage through most of the **17th**. Scattered flurries of snow/graupel and a few embedded snow showers fell over mainly central and northern counties from the evening on the **16th** through the **17th**, with a lone report of measurable snow – **0.1"** east of Stone Head (Brown Co.).

The February **21st** drought update showed isolated **D0** persisting over the region's farthest northern, eastern and southeastern corners. The **22nd** brought very heavy rainfall fell across the region's northern tier: greatest reports of **2.00-2.60"** were focused along a rather narrow corridor from far northern Warren County, through the Lafayette area and into Howard County, with highest observations coming from Kokomo 3 WSW (**2.87"**) and West Lafayette 6 NW (**2.64"**). Isolated **1.00"** reports occurred as far south as Carmel and Fishers (Hamilton Co.), with otherwise more moderate rainfall southward towards the I-70 corridor, while less than 0.50" fell across the region's southern half.

These heavy rains quickly led to river flooding on the **23rd** in and near Lafayette. Both Wildcat Creek at Lafayette and the Tippecanoe River near Delphi (Carroll Co.) held near bankfull or briefly into minor flood for ~6-12 hours during the **23rd** daytime. More notable was Big Pine Creek at Pine Village (Warren Co.) which was in flood from the afternoon on the **23rd** through the evening of the **24th**. More prolonged flooding occurred along the Wabash River, with several of its gage sites flooding for the first time since at least 5/14/2022. Lafayette entered minor flood midday on the **23rd**, before Covington (Fountain Co.) and Montezuma (Parke Co.) followed suit pre-dawn on the **24th**. Lafayette's 15.8' crest early afternoon on the **24th** was almost 4 feet above flood stage. The Wabash's flood waters then reached Terre Haute on the late evening of the **25th**, and Riverton (Sullivan Co.) on the afternoon of the **26th** ... as the crest slowly crossed Covington on the morning of the **26th**.

Isolated frozen precipitation (a rarity for central Indiana in February 2023...) fell within a patch of scattered precipitation that crossed several counties along the I-70 corridor, pre-dawn on the **25th** as light rain mixed with and/or changed to brief wet snow. The lone measurable snowfall reading was **0.1"** in northern Vigo County. Temperatures near 32F would have promoted isolated freezing rain if not for antecedent ground warmth. Weather then turned active on the **27th**: after light early morning warm frontal rain, fast-paced showers/thunderstorms, including rotating supercells, brought narrow streaks of briefly heavy rain between 1100A and 300P. Greatest observations included **1.40"** on the west side of McCordsville (Marion Co.), **1.15"** in Kempton (Tipton Co.), **1.07"** near downtown Muncie, and a couple **1.00-1.03"** reports across

central/northern Tippecanoe County. Most rainfall totals were closer to 0.50" across the region's northern zones, with only half again as much for most spots south of Interstate 70.

The February **28th** drought monitor update showed further improvement as **D0** was removed the northern most and eastern most counties, while the only drought intensity remaining across the Midwest/Ohio Valley was the small patch that included most of Jennings County and southeastern portions of Jackson County. As February ended, northern portions of the Wabash were rising slowly in minor flood.

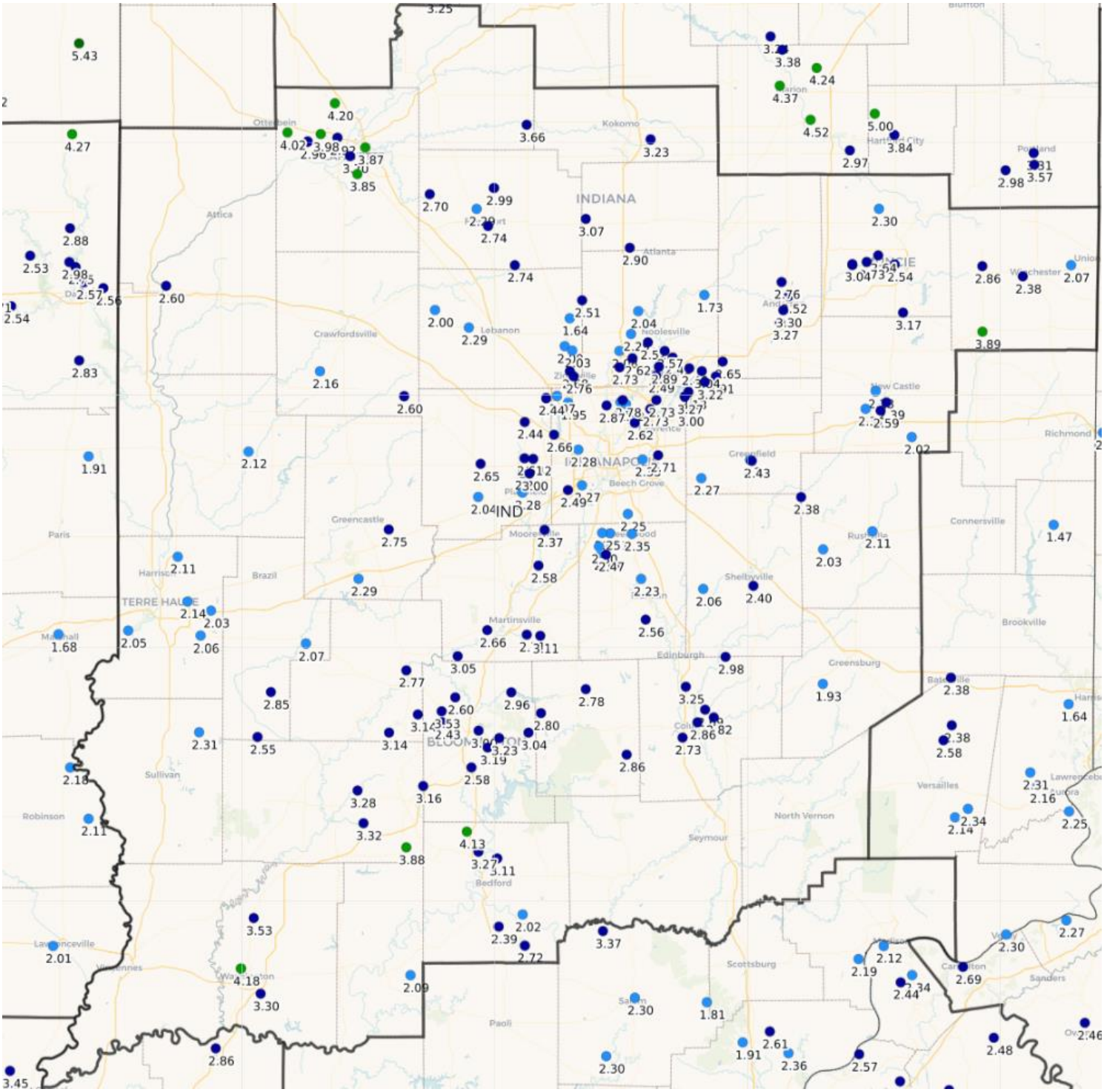
Overall, February 2023's precipitation was near to slightly above normal, with monthly totals of 2.00-3.50" prevailing over most counties. Heavier rains totaled around 4.00" along a west-east band that included the Lafayette and Kokomo areas, as well as southwestern Randolph County, and isolated areas south and west of Bloomington. While drought conditions had improved since late 2022, Indianapolis' precipitation over the last 12 months was still only 35.69" (7.94" below normal, and ~15" below the preceding March-February); while Indianapolis' water year to date (October 2022–February 2023) precipitation, 11.99", was 79% of normal. The 2023 year-to-date total at Indianapolis rose to **6.52"**, **0.54"** above normal. Frozen precipitation totaled a mere trace for most locations, with isolated **0.1"** reports in both Brown and Vigo counties; yet no snow fell over many southern counties, south/east of Indianapolis, nor even Carroll County. Several sites recorded their least snowiest February since 1998, while the trace of snow was the least at Farmersburg TV-2 since 1992, and at the Oolitic Purdue Ex Farm since 1990. Shoals 8 S' 0.0" made for the first February without snow since 1959, while Indianapolis' trace was the least of any February since 1949.

Site	February 2023 Precipitation	February 2023 Dep from Nml	Wettest Day	Longest Dry Stretch
Indianapolis Intl AP	2.55	+0.12	0.91 on 9th	7 days, 1st–7th
Lafayette	2.97INC	M	**2.10 on 22nd**	7 days, 1st–7th
Muncie	2.73	+0.40	1.01 on 9th	6 days, 1st–6th
Terre Haute	2.07	−0.05	0.51 on 9th	7 days, 1st–7th
Bloomington	2.94	+0.27	1.09 on 8th	6 days, 1st–6th
Shelbyville	2.11	−0.23	0.64 on 8th	7 days, 1st–7th
Eagle Creek Airpark	2.53	+0.23	0.82 on 9th	6 days, 1st–6th

Precipitation was incomplete at Lafayette on the **8th**.

February 2023 was the **66th Wettest** February in the Indianapolis Area since weather records began in 1872, placing it in the 57th percentile for precipitation of all recorded Februarys. This essentially followed the near to above normal trend seen since December 2022, although with noticeably less precipitation than January 2023. Three of the preceding five Februarys recorded about 2.00 inches more precipitation at Indianapolis than this year's total.

February 2023 Total Precipitation, Through the Morning of 3/1/2023
As Reported By Central Indiana CoCoRaHS Observers



For the period 700 AM EST 2/1/2023 -to- 700 AM EST 3/1/2023. Data is unofficial.

February 2023's mainly near normal monthly totals surrounded areas of locally heavier rains (**3.00**-**4.20"**) across both the Upper Wabash Valley and to the southwest of Bloomington.

Miscellaneous – Winds, Thunder, Fog & More

February 2023's strongest observed wind gusts at 1st-order sites occurred on the **9th**, **15th**, **22nd**, and **27th**. On the **9th**, all sites gusted to at least 48 mph, with Bloomington's 55 mph leading the pack, while Indianapolis recorded 54 mph. The **15th** brought peak gusts of 40+ mph to essentially all sites, with Indianapolis' 48 mph the greatest observation. Five of the seven sites gusted to 40 mph or higher on the **22nd**, with 47 mph at Bloomington and 46 mph at both Indianapolis and Shelbyville. The **27th**'s system brought peak gusts of 55+ mph to most 1st-order sites; Terre Haute's **58 mph** was the greatest report, followed by 57 mph at Shelbyville and 56 mph at Indianapolis. The remainder of the month was consistently breezy/windy, with the majority of sites peaking at 30+ mph on also the **2nd**, **4th**, **5th**, **14th**, **16th**, **17th**, **19th**, **21st**, **23rd**, and **28th**; Muncie and Indianapolis had the greatest frequency of 30+ mph gusts – 18 and 17 days, respectively. The only days with all 1st-order sites' peak gusts under 20 mph were the **1st**, **11th**, **12th**, and **26th**.

Fog frequency ranged from 7 days at Muncie to 10 days at Lafayette, with all other 1st-order sites observing fog on 9 days. All airports reported fog on the **8th**, **9th**, **16th**, **22nd**, and **27th**; while fog occurred at most sites on the **6th**, **10th**, **17th**, and **26th**. Dense fog was limited to Muncie on the **8th**, **22nd**, and **23rd**; Shelbyville on the **8th** and **23rd**; and Lafayette on the **23rd**.

Thunder was uncommon, with frequency ranging from 1 day at Bloomington and Shelbyville to 3 days at Indianapolis. Thunder occurred at five of the seven 1st-order sites on the **22nd**, and at four sites on both the **16th** and **27th**.

Relative humidity (RH) and dewpoint extremes across the 1st-order sites were uncommon, yet very dry conditions did occur on both the **12th** and **21st**. Excepting Muncie, on the **12th** every site recorded a minimum daily relative humidity under 20%, with 11% at Bloomington and 12% at Indianapolis the lowest readings. Minimums on the **21st** under 25% were confined to Bloomington (19%), Indianapolis (20%) and Shelbyville (22%). Anomalously high dewpoints of 60°F or greater were only observed at Terre Haute for a few midday hours on the **22nd**.

Severe Weather

February 2023's severe weather included a gradient wind event on the **9th** and an outbreak of mini supercell thunderstorms on the **27th**. The **9th**'s widespread strong winds contained several damaging gusts across the Indianapolis Metro; Hendricks County reports included a large tree snapped off above the base while a smaller tree was downed into a business in Avon causing significant roof damage; meanwhile downed trees and power lines in Marion County caused power outages to 5,000 homes; additional reports of downed trees and power poles were received from both Hamilton and Madison Counties.

The **27th**'s early afternoon, tiny, yet potent supercell thunderstorms spawned two **EF-1 tornadoes** in Hancock County and caused widely scattered straight line wind damage across mainly southern counties. The first tornado tracked parallel to, yet ~2 miles southeast of, US-36 for over 5 miles, from near McCordsville to near Fortville; estimated peak winds were **110 mph**, with the tornado knocking a historic barn off its foundation and downing many trees. The same thunderstorm spawned a second, brief tornado a few minutes later near the small community of Eden; estimated peak winds were **100 mph**, with the tornado damaging a barn and downing several trees. Straight line wind damage also downed trees and/or power lines in Hancock, Jennings, and Monroe Counties. Terre Haute recorded a peak wind gust of **58 mph**.

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

March 2023 Outlook

The official outlook for March 2023 from the Climate Prediction Center indicates slightly greater chances of below normal temperatures across central Indiana, although equal chances of above, below, or near normal temperatures exist along the Ohio Valley. Slightly greater chances of above normal precipitation exist for most of the region, with greater confidence in above normal precipitation south of a line from Terre Haute to North Vernon. The normal March temperature at Indianapolis is **42.4** degrees, while the normal March precipitation is **3.69**", and the normal March snowfall is **3.2"**.

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