

Central Indiana

June 2023 Climate Summary

66th Mildest June on record at Indianapolis (Tied)

12th Driest June on record at Indianapolis

Temperatures

June 2023's milder than normal start to summer contrasted both the subtle above normal temperatures of May 2023, and the, at times, record-setting heat seen in June 2022. Indianapolis finished within ~1 degree of normal for now the ninth of the last 11 months. Following a hot start to meteorological summer through the 3rd, June's overall cooler trend was then led by two weeks of often northerly flow during the 5th-18th. Clouds and occasional rain following frontal passages held several daytime highs to 10-15 degrees below normal. Worsening drought conditions fostered several unseasonably large diurnal temperature variations; Indianapolis recorded 11 days with a spread of 25 to 30 degrees, including 5 of the 6 days within the 5th-10th. June's final 11 days were more summer-like, with three tandems of very warm to marginally hot days during the 20th-30th finishing the month closer to normal.

June started on a summery note during the 1st-3rd when rather large diurnal temperature ranges were led by very warm to hot afternoons. Temperatures on the 1st reached **93F** at both Shelbyville and the Tipton 5 SW (Tipton Co.) COOP station, **92F** at the Vincennes 5 NE (Knox Co.) COOP site, 91F at both Lafayette and Muncie, and 90F at Terre Haute and the Rockville (Parke Co.) and Farmersburg TV-2 (Sullivan Co.) COOP sites. The 2nd brought more widespread low 90s to the region, with readings peaking at **93F** in Rockville, **92F** at Lafayette, Muncie, Tipton 5 SW, and the Beck Purdue Ag Center at West Lafayette 6 NW (Tippecanoe Co.); meanwhile first-90F's were reported at the three remaining 1st-order airports – 91F at

Bloomington and 90F at both Indianapolis and Eagle Creek Airpark. Readings rose by 25 to 35 degrees at most sites, with Rockville rebounding a whopping **+41** degrees (from 52F to 93F). The hot pattern continued into the **3rd**, with most locations observing their hottest day of the month: **94F** at Muncie, **93F** at Lafayette, Terre Haute, Rockville, Tipton 5 SW and the Columbus (Bartholomew Co.) COOP site, while Indianapolis reached 90F once again. Mild temperatures continued over southern counties through at least the early morning of the **4th** with minimums as high as **70F** at Farmersburg TV-2, **69F** at Vincennes 5 NE, 66F at Shelbyville and the Washington 1 W (Daviess Co.) COOP station, and 65F at Indianapolis; although the **4th**'s afternoon highs then showed moderation following a weak cold front, with 88F being the region's highest mark at both the Shoals 8 S (Martin Co.) and Elnora (Daviess Co.) COOP stations, while Indianapolis reached a more-seasonable 82F.

The pattern trended much cooler into June's second week, as the dry ground promoted cool mornings under Canadian high pressure, and therefore again impressive diurnal ranges through the **5th-6th** and the **8th-10th**. The morning of the **5th** found lows in the upper 40s to mid-50s, with **46F** the lowest reading at both the Crawfordsville 6 SE (Montgomery Co.) and New Castle 3 SW (Henry Co.) COOP sites, while Indianapolis fell to 54F. The **6th** was a few degrees cooler for most locations, with **47F** at the North Vernon 2 ESE (Jennings Co.) COOP site; before the month's overall most impressive daily diurnal trend boosted temperatures 30-35 degrees for most, including +38 degrees to 85F at North Vernon 2 ESE. Following a more seasonable morning on the **7th**, reinforcing air from the north brought June's coolest overnights. The **8th**'s morning lows were around 50F, with **42F** at Rockville and **44F** at the Kokomo 3 WSW (Howard Co.) COOP site, with 53F at Indianapolis. The **9th** was the month's coolest morning for most reporting stations, with many counties falling into the 40s, and lowest readings of **40F** at Rockville, **41F** at Kokomo 3 WSW, and 43F at New Castle 3 SW; temperatures rebounded by 30-40 degrees across much of the region, as by as much as **+42** degrees (to 82F) at Rockville. The **10th** had the last chillier morning with the Perrysville 4 WNW (Vermillion Co.) COOP station observing **46F** for the second consecutive day; another 30-35 degree boost was in order for central Indiana, with Lafayette's +36 (from 49F to 85F) leading this daytime trend.

The **11th** and **12th** brought June's lowest maximums to a solid majority of the region as a cyclone slowly crossed the Midwest. On the **11th**, West Lafayette 6 NW reached only **65F** while 66F was reported at both Castleton 2 S (Marion Co.) and Lafayette 8 S (Tippecanoe Co.), the **12th** then followed with only **65F** at Bloomington Indiana U. (Monroe Co.), Jamestown 2 E (Boone Co.), Rushville (Rush Co.), and the NWS Indianapolis office (Marion Co.). Several 1st-order airports actually observed the same high on both days, with 67F at both Indianapolis and Eagle Creek Airpark, 69F at Lafayette and 70F at Terre Haute; this was the **latest summertime tandem of 67F-or-lower** maximums at Indianapolis since June 1992, yet the 18th such occurrence on record, or an overall ~8.5-year return period. Several northern and northeastern sites reported their lowest maximums of the month on the **13th**, including **61F** at Farmland 5 NNW (Randolph Co.), 62F at Kokomo 3 WSW, and 64F at both Muncie and New Castle 3 SW. Near normal readings followed through the **14th-15th** at most sites, a far cry from the year before when Indianapolis recorded the first two of three consecutive record high minimums in the mid to upper 70s. Another passing blob of Canadian high pressure made for one more cooler morning on the **16th**, with low 50s across the colder half of the region, and observations of **48F** and **49F**

at West Lafayette 6 NW and Lafayette, respectively, while Indianapolis even dropped to 52F. Clouds through the **16th** brought a cooler daytime, with several locations, including the Franklin WWTP (Johnson Co.) COOP station, only reaching **70F**.

Late June exhibited temperatures more typical of early summer, with several very warm to marginally hot days (focused along the dry soils of the Wabash Valley) on the **20th-21st**, **24th-25th**, and **29th-30th**, and overnights dropping into the 60s to around 70F, which all provided generally near to slightly above normal readings. The **20th** was the warmest morning of the month for several central to southern sites, including **68F** at the Martinsville 2 SW (Morgan Co.) COOP station; a very warm afternoon was led by **91F** at Terre Haute and Lafayette, while **90F** was recorded at both West Lafayette 6 NW and Vincennes 5 NE, and Indianapolis peaked at 88F. The **21st** saw highs up to 90F at both Lafayette and West Lafayette 6 NW while Indianapolis reached 88F again. A more summer-like pattern began to creep into the Midwest from the southern Plains on the **24th**, with Vincennes 5 NE boosted to **95F**, low 90s over western counties, and Indianapolis recording its third 90F. The morning of the **25th** found the month's highest minimum across northern and western counties, with readings only falling to **71F** at both Indianapolis and Washington 1 W, while Farmersburg TV-2 and Rockville were held to **70F**. Very hot conditions built into Knox County on the **25th**, with a high of **98F** at Vincennes 5 NE, Farmersburg TV-2 and Washington 1 W both followed at **94F**, meanwhile Indianapolis peaked at only 89F. Milder conditions followed for the **26th-27th** before a cooler morning on the **28th** when Kokomo 3 WSW dropped to **48F**, while Indianapolis' minimum was 58F. Noticeably warmer conditions returned for the **29th** with Tipton 5 SW the lone reporting station to hit **90F**. Morning lows on the **30th** were the highest of the month for a few southern to east-central stations, including **71F** at Shoals 8 S. June then ended with another very warm day, as readings peaked at **91F** at Shelbyville, Shoals 8 S and Indianapolis, while **90F** was reached at Columbus, Washington 1 W, and Bloomington.

June 2023 temperatures displayed a broad see-saw pattern where marginally hot very early and late month days were bisected by a consistently mild, if not chilly two-week, early to mid-month period. Deviations from normal ranged from slightly so (-0.7F) at Lafayette and Shelbyville to an outlying -3.0F at Muncie. An intensifying drought promoted several days with large temperature spreads, especially through the cooler early to mid-month. These spreads brought a near to slightly above normal frequency of 90F+ days despite the overall milder pattern: 9 days at Vincennes 5 NE and 7 days at both Rockville and Washington 1 W were all at normal, while the 7 90F+ days in Tippecanoe County were 2-3 days above normal, and Indianapolis' 4 90F+ days were one above normal. The region's only two reporting sites yet to hit 90F at month's end were the Indianapolis NWS office and the Oolitic Purdue Ex Farm (Lawrence Co.). The first half of 2023 finished 2.8 degrees above normal at Indianapolis – while this is the third warmest January-June period since 1998, it was guided by the anomalously mild January-February; readings at Indianapolis since March have averaged less than 0.1 degree above normal. June recorded the lowest temperatures relative to normal at Indianapolis since October 2022.

At Indianapolis, June 2023's daily average temperatures were above normal on 12 days, below normal on 15 days and at normal on 3 days. It was the **54th mildest** June for the Indianapolis Area since weather records began in 1871, placing it in the **43rd percentile**.

Site	June 2023 Average Temp	June 2023 Dep from Nml	Highest Temperature	Lowest Temperature
Indianapolis Int'l Airport	71.5	-1.0	91 on 31 st	50 on 9 th
Lafayette	70.0	-0.7	93 on 3 rd	41 on 9 th
Muncie	70.3	-3.0	94 on 3 rd	50 on 5 th , 8 th
Terre Haute	71.4	-1.3	93 on 3 rd , 25 th	46 on 9 th
Bloomington	70.5	-1.5	92 on 3 rd	47 on 9 th
Shelbyville	72.5	-0.7	95 on 2 nd , 3 rd	52 on 9 th
Eagle Creek Airpark	71.1*	-1.4	91 on 3 rd	52 on 8 th , 16 th

*Temperature data was missing at Eagle Creek Airpark on the 7th.

Precipitation

June 2023's unseasonably low precipitation intensified the dry trend that had begun in April. Despite being normally the region's wettest month, with around five inches of rainfall expected for most counties, June 2023 generally brought less than half of these seasonable levels. Southwestern and far northeastern zones did manage more adequate rains that totaled near 75% of normal, yet U.S Drought Monitor intensity steadily increased from northwest to southeast, by one to two levels, through June. The few rainier periods were confined to the 11th-13th when 1.00-2.00" fell over most of the region ... the 25th-26th when 0.25-0.75" was common, while areas of up to 2.00" fell from supercell thunderstorms (see Severe section below) ... and the 29th-30th when 0.75"+ was reported over the region's western third, mostly from a decaying derecho (see Severe section) that dumped over 3.00" from Vigo to Knox County. Essentially no river or stream flooding occurred from these few heavier rains given the very dry antecedent soils.

The May 30th drought update (released on June 1st) finally showed abnormally dry conditions (D0) expanding across almost all of central Indiana, although most of Henry and Randolph Counties and portions of several far south-central counties remained out of any drought intensity. D0 or greater had not covered this much of the region since the January 10th, 2023 update. The 1st saw a third consecutive afternoon of pop-up thunderstorms, which were limited to points north and especially west of central Indiana, as the dry pattern returned to the local region with the start of meteorological summer. Scattered thunder on the 3rd translated to only isolated measurable rainfall, although the strongest storms brought locally moderate rainfall along the Madison-Delaware County border and far northwestern Boone County, with otherwise scattered showers over northern portions of the Indianapolis Metro, resulting in a few reports under 0.20".

The June 6th Drought Monitor update found Moderate Drought (**D1**) expanding from east-central Illinois into roughly the northwestern quarter of central Indiana, while **D0** enveloped all of the region's other counties. A few light evening showers in mainly western counties on the 6th, expanded to numerous showers over southern zones during the 7th's AM hours; tapering off, isolated showers lingered around the Seymour area through the 7th's afternoon; greatest rainfall through dawn on the 7th was in a narrow band from Vermillion to Owen County, with 0.55" reported at Perrysville 4 WNW; while total rainfall through the 8th was as great as 0.52" at Shoals 8 S. On the 11th a line of AM thunderstorms slowly tracked northward through the region, diminishing after noon before a patch of heavier thunderstorms crossed central and southern counties later in the day. 22-hour rainfall totals ranged from under 0.50" over several far northwestern counties to generally **1.00-2.00"** observations south and east of the Indianapolis Metro, with a maximum band of mainly **2.00-2.60"** from eastern Greene County to southern Johnson County, and greatest reports of **2.64"** near Tulip (Greene Co.), **2.32"** west of Amity (Johnson Co.), and **2.19"** south of Needmore (Brown Co.).

The June 13th Drought Monitor update maintained **D0** over southern and east-central counties, while **D1** expanded further east -- to all points north/west of I-70/I-69, including the northwestern third of Marion County, as well as northwestern Delaware County. **D2** (Severe drought) that had developed over the northwestern Midwest also included far northwestern portions of Warren County. **D1** originally over Ohio and eastern Kentucky also expanded into far southeastern Indiana towards Jennings County. Rains on the 13th and through the overnight, over central and especially northern counties, brought reports of a much needed 0.50-0.99" to several northeastern zones, and greater reports in Randolph County as great as **1.32"** near Winchester. The Mississinewa River at Ridgeville reached minor flood for an hour and a half on the late morning of the 14th. Mainly dry conditions returned during the 14th-17th, except for scattered light rainfall northeast of Indianapolis on the 15th.

The 19th's showers brought isolated moderate rainfall to a few far southern counties, with 0.99" east of Mitchell (Lawrence Co.) being the greatest report through dawn on the 20th. The June 20th Drought Monitor update showed improvement over far northeastern counties with Randolph County out of any drought intensity; yet drought conditions worsened for most other areas, with **D1** expanding to south of I-70 from Hancock County, back through the northwestern half of Morgan County and into far northern Sullivan County, while **D2** spread southeastward, enveloping all of Warren and Fountain Counties, most of Tippecanoe and Vermillion Counties, and northwestern portions of both Montgomery and Parke Counties. Mainly dry conditions returned to central Indiana for several more days through the 24th, before an active last week of June finally brought heavier rains to much of the region.

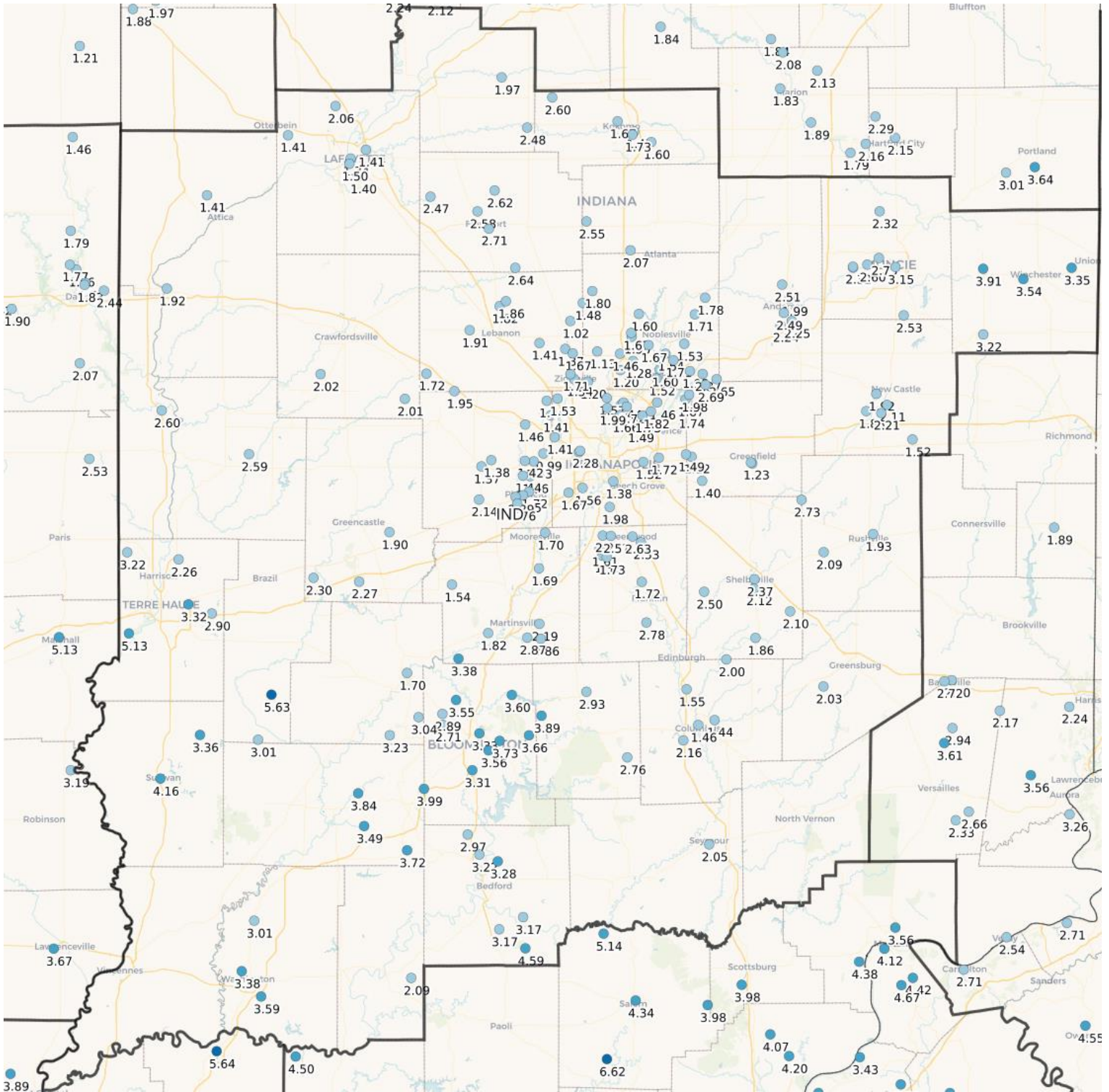
The 25th saw pre-dawn showers and thunderstorms along the Wabash Valley that then progressed across both the northern and southern tiers, while weakening through the morning; locally heavy totals through morning observations were as great as **1.45"** in Clay City (Clay Co.) and **1.15"** in Mulberry (Clinton Co.). The afternoon then brought several rotating supercell thunderstorms that tracked across central and southern counties, dropping locally large hail and additional heavy rainfall; rainfall totals for both rounds of storms through early on the 26th included **1.50"** in Owensburg (Greene Co.), **1.49"** in Buddha (Lawrence Co.), and **1.47"** in northwestern Tippecanoe County; yet many spots between these intense storms reported

under 0.25". Additional rainfall on the **26th** focused yet again over northeastern counties during the evening, with as much as 0.75" recorded near Young America (Howard Co.) while several reports in southern Hamilton County approached 0.70". 50-hour rain totals through pre-dawn on the **27th** showed scattered reports of **1.00-1.50"** across north-central and northeastern zones, and to a lesser extent from near Terre Haute to Lawrence County; the Indianapolis Metros' moderated rainfall totals were more indicative of the rest of the region - with observations ranging from around 0.20" over northwestern Marion County to ~0.90" from Plainfield (Hendricks Co.) to west of Greenwood (Johnson Co.).

Despite recent widespread moderate rainfall, the June **27th** drought update showed significant degradation with most locations' intensity increasing by one level: drought intensity had returned to nearly all but far south-central Indiana, the only portions of the region still in **D0** were east of Muncie and New Castle, along with most of Martin, Daviess and Lawrence Counties; Meanwhile **D2** had overspread roughly half of central Indiana - all points along and north of I-70 that were west of a line from Kokomo to Alexandria to far eastern Hancock County, while **D1** prevailed in between, meaning most territory south of I-70. Morning thunderstorms on the **29th** dropped large hail and very heavy rain on Vigo, Sullivan and Knox Counties, with **1.10"** measured at Vincennes 5 NE through 800 AM. Hours later, a collapsing derecho crossed the southwestern two-thirds of the region, bringing additional moderate rainfall to most areas west of I-65. Grand totals through dawn on the **30th** displayed the region's **greatest 24-hour event in just over 3 months:** with **3.64"** at the Vincennes 4 E (Knox Co.) COOP site, **2.85"** southwest of Terre Haute (Vigo Co.), **2.49"** in Sullivan (Sullivan Co.), **1.80"** at Washington 1 W, and **1.03"** as far north as Covington (Fountain Co.). June closed as a few thunderstorms slowly tracked across central counties on the evening of the **30th**, with radar estimates noting locally **1.00"+** over portions of central Johnson and southern Shelby Counties.

June 2023's unseasonably low precipitation from mainly infrequent and/or limited rainfall events resulted in generally 1.50-4.00" precipitation totals across central Indiana, which were about 30-80 percent of normal. Overall spatial trends included from lesser amounts around the Indianapolis Metro and to points north/west, to greater totals near and south/west of Bloomington as well as in Randolph County. Extremes ranged from several ~1.20-1.40" totals across Warren and Tippecanoe Counties to lone higher reports of **4.63"** east of Mitchell, **5.13"** southwest of Terre Haute, and **5.63"** in Clay City. Most 1st-order/COOP sites recorded their driest, 2nd-driest, or 3rd-driest June since the anomalously dry June 2012; although it was the driest June since 1992 at both Pence 1 SW in Warren Co. (1.17") and at West Lafayette 6 NW (1.25"), while the West Lafayette Wastewater site observed their **driest June since 1997** (1.39"). Indianapolis' precipitation over the last 12 months increased slightly to 34.22", although this is still 9.41" below normal, over 12" below the preceding July-June's total, and continues to yield the driest such period in 23 years. Indianapolis' water year to date (October 2022-June 2023) precipitation, 24.56", continued to decrease to only 75% of normal. The 2023 year-to-date total at Indianapolis (led by the very wet March) rose to **19.09"** while falling below normal by **-3.54"**. Drought Monitor levels intensified from widespread **D0** on June 1st to 90 percent of the region in **D1/D2** (with worst conditions over northwestern counties) by month's end. The only observation of river flooding was the Mississinewa River on the **14th**, with the dry ground preventing all main stem river sites from ever reaching Action Stage.

June 2023 Total Precipitation, Through the Afternoon of 6/30/2023 As Reported by Central Indiana CoCoRaHS Observers



For the period 1200 AM EDT 6/1/2023 -to- 300 PM EDT 6/30/2023, data is unofficial**

June 2023's totals were only 30-80% of normal for most locations, although a few patches of more adequate rains (mainly **3.50-5.00"**) were found over several southwestern counties and east of Muncie.

**On previous page's map: areas within a band from Crawfordsville, through patches of the Indianapolis Metro, and then especially across much of Johnson, Shelby and Decatur Counties received an additional ~0.50-1.00" of precipitation on the evening of the 30th.

Site	June 2023 Precipitation	June 2023 Dep from Nml	Wettest Day	Longest Dry Stretch
Indianapolis Intl AP	1.41	-3.54	0.64 on 11 th	5 days: 1 st -5 th , 20 th -24 th
Lafayette (*)	1.04INC	M	0.48 on 25 th	9 days, 16 th -24 th
Muncie	2.48	-2.33	0.76 on 13 th , 25 th	5 days: 1 st -5 th , 16 th -20 th
Terre Haute	2.40	-2.24	1.13 on 29 th	11 days, 14 th -24 th
Bloomington	2.53	-2.56	1.09 on 11 th	5 days: 1 st -5 th , 14 th -18 th
Shelbyville	3.43	-1.73	1.31 on 11 th	4 days, 21 st -24 th
Eagle Creek Airpark	1.83	-3.23	0.67 on 11 th	5 days, 20 th -24 th

* Precipitation was incomplete at Lafayette on the 13th.

June 2023 was the **12th driest** June in the Indianapolis Area since weather records began in 1871, placing it in the **8th percentile** for precipitation of all recorded Junes. This continued the below normal rainfall trend seen in June 2022, as well as the dry trend that began in April 2023.

Severe Weather

The near lack of severe weather seen in both April and May continued through the first three weeks of June before the abrupt late-month transition to an active, if not deadly pattern. The afternoon of the 25th brought a line of rotating supercell thunderstorms that spawned **four tornadoes**, dropped large hail on 14 counties and caused scattered straight line wind damage. Within 22 minutes the four, generally east to east-southeasterly tracking tornadoes each dropped out of separate supercells, starting with an **EF2** in Johnson County, before an **EF1** over Daviess and Martin Counties, followed by an **EF1** in Monroe County, and lastly a deadly **EF2** that tracked across Martin and Dubois Counties. The first **EF2** in northern Johnson County tracked over 5 miles, passing south of the Center Grove High School towards New Whiteland, causing mainly EF1-EF2 intensity tree and roof damage through several communities, including ripping the entire roof off of an uncompleted apartment and impaling debris into the ground; estimated maximum winds and width were **115 mph** and 400 yards, respectively. The second, Daviess-Martin County **EF1** tornado tracked for almost 4 miles, crossing US-231 just south of the Crane community, snapping or topping scores of hardwood trees; estimated maximum

winds and width were **100 mph** and 100 yards. The third, Monroe County EF1 tornado tracked over more than 4 miles of the county's hilly, far southwestern corner, causing EF0-EF1 damage to primarily trees and farm outbuildings, as well as extensive roof damage to a home; estimated maximum values were **100 mph** and 100 yards. The fourth tornado, another **EF2**, tracked for over 9 miles across southern Martin County before ending in far northeastern Dubois County, with extensive tree damage, especially upon crossing both the East Fork White River and Lost River, before inflicting major damage to a home on Windom Road, with one person killed and another seriously injured; the tornado's maximum winds and width were estimated at **120 mph** and 565 yards.

The duration of the **25th**'s four tornadoes was only 33 minutes from start to finish, although the entire severe event lasted for several hours. Earlier in the afternoon **large hail** was the main offender, with several west to east streaks that were focused from Clinton and Boone Counties to south of Muncie; over the southern half of the Indianapolis Metro to in and east of Shelbyville; around Spencer and Bloomington and into southwestern Brown County; and to lesser extents along US-50 from Washington to Loogootee and also near Seymour. Several reports of very large hail were received across the region, from softball-sized (**4.00"**) hailstones both in Kirklint (Clinton Co.) and Spencer, hail measured larger than baseballs (**3.00"**) in Loogootee (Martin Co.), and tennis ball-sized (**2.50"**) hail both south of Ellettsville (Monroe Co.) and in and north of Sheridan (Hamilton Co.). Non-tornadic, yet widely scattered **straight line wind damage** was also reported across the region, from southeastern Tippecanoe County to the region's southern tier; consisting mainly of downed tree limbs and minor roof damage. More intense wind damage was isolated and into the early evening, from barn doors blown off in Cortland (Jackson Co.) to numerous trees downed and a barn roof blown off in southwestern Jennings County.

Pre-dawn thunderstorms on the **29th** brought more large hail, to southwestern counties, with golf ball sized hailstones (**1.75**) reported in both Youngstown (Vigo Co.) and south of Vincennes. Organized severe winds then returned on the *afternoon* of the **29th** when a decaying derecho produced widespread significant tree damage from west-central Indiana into the Indianapolis Metro, with noticeably less expansive damage continuing across the region's southern counties. Highest observed wind gusts were **74 mph** at the Crawfordsville Regional Airport and **70 mph** at Indianapolis Int'l. Less-intense severe gusts (**58-60 mph**) were also recorded at Bloomington, the Indianapolis Executive Airport north of Zionsville (Boone Co.) and in Columbus. More than 75 percent of Clay, Vermillion and Vigo Counties were each without power amid hundreds of downed trees; more than 250,000 power outages occurred across the state. Terre Haute was hardest hit where winds estimated to **70-80 mph** downed multiple trees and lines, with multiple trees also blown over in Lafayette, Brazil (Clay Co.), between Attica and Veedersburg (Fountain Co.), in Indianapolis' Brookside Park and across Greencastle (Putnam Co.) where half the city was left without power. Trees were downed into homes in Covington and Veedersburg (Fountain Co.), Terre Haute, Brazil, Ellettsville (Monroe Co.), Heritage Lake (Putnam Co.), with damage to several buildings in Parke County. Major thoroughfares were blocked by downed trees in Terre Haute, northwestern Marion County, and across Parke County, with a tree on I-65 in southern Bartholomew County. Trees were downed onto cars in Frankfort (Clinton Co.) and

A Survey of The June 25th, 2023 Tornadoes Across Central Indiana & Vicinity

The region was impacted by 4 tornadoes between 412P and 446P EDT

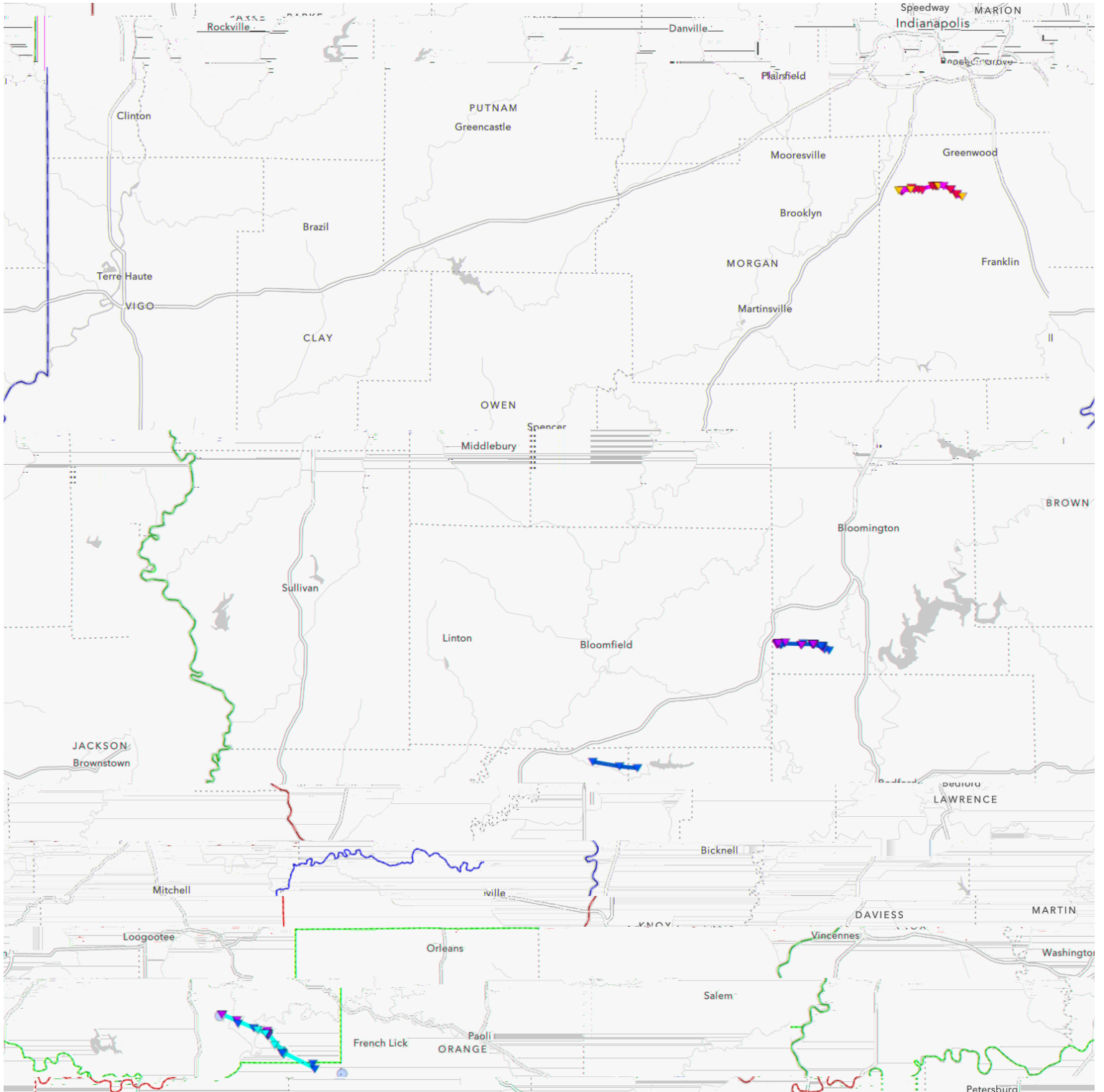


Image courtesy of the NOAA Damage Assessment Toolkit
<<https://apps.dat.noaa.gov/stormdamage/damageviewer>>

Bedford (Lawrence Co.), with reports of semi trucks impacted by the tree on I-65, and **one injury** south of Milroy (Rush Co.) where a tree fell onto a car with occupants.

This active late month swing continued as calendars changed to July when a round of strong, slow-moving thunderstorms on the evening of the **30th** became marginally severe: a localized area of stronger winds on the northwest side of downtown Indianapolis damaged trees, a chimney and a car wash; estimated **1.00"** hail fell north of Waldron (Shelby Co.), and small trees were blown down in Saint Paul (Decatur Co.). June 2023 ended with **impressive year-to-date tornado totals**: 18 across *central* Indiana, which is the most since 2004 when 24 were recorded by late May; and 43 over *all* of Indiana, the most since 2011 when 69 were tallied through the year's first six months.

For further data, check out [Tornadoes and Severe Storms of June 25, 2023](#) and the [Brief Review of the June 29, 2023 Derecho](#).

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

Miscellaneous – Winds, Thunder, Fog & More

Stronger peak wind gusts continued their less frequent trend across central Indiana as summer began. Widespread windy conditions accompanied days with organized severe weather, occurring only on the **25th** and **29th**. Of 1st-order airports, only Shelbyville reached severe magnitude on the **25th** (**63 mph**), while Indianapolis recorded 49 mph and Bloomington and Muncie followed at both 46 mph. Overall strongest gusts were observed on the **29th**, with reporting stations ranging from **70 mph** at Indianapolis, 57 mph at Bloomington, and 54 mph at both Lafayette and Eagle Creek Airpark ... down to the lowest 1st-order reading on 43 mph at Terre Haute. Isolated strong gusts were also reported on the **13th** (48 mph at Shelbyville) and **26th** (47 mph at Muncie), while most locations gusted to 30+ mph on the **3rd**, **11th**, **13th**, **20th**, **21st**, **26th**, and **30th**. All 1st-order sites' gusts peaked under 25 mph on the **5th**, **8th–10th**, **16th–18th**, **23rd–24th**, and **28th**; with mainly lighter breezes also occurring on the **1st**, **2nd**, **7th**, **12th**, **14th** and **27th**.

Greater fog frequency returned, ranging from 10 days at Terre Haute and Shelbyville and 11 days at Indianapolis to 15 days at Bloomington. All airports reported fog on the **11th**, **17th**, **27th**, and **28th**; while fog occurred at most sites on the **6th**, **7th**, **12th–15th**, **18th**, **25th**, **26th**, **29th**, and **30th**. The dense fog reports at 1st-order airports were limited to Muncie on the **17th**, Lafayette, Muncie and Shelbyville on the **28th**, and Lafayette on the **30th**.

Thunder frequency followed the low levels from May, ranging from 2 days at Lafayette and Muncie to 6 days at Shelbyville, while Indianapolis observed thunder on 3 days. Thunder

occurred at all 1st-order sites on the **25th** and **29th** and most sites on the **30th**, while three of the seven sites reported thunder on the **3rd** and the **11th**.

Humidity levels were unseasonably low through much of the early month, especially on the **2nd**, **5th**, **7th**, and **8th**. The overall two driest days were the **2nd** and **8th** where all seven 1st-order sites recorded daily minimum relative humidity (RH) of 25% or less. Lowest RH values by day were 17% at Muncie (**2nd**), 19% at Terre Haute (**4th**), 15% at Shelbyville (**5th**), 16% at both Lafayette and Shelbyville (**7th**), and 19% at both Lafayette and Muncie (**8th**). Through the **8th**: Lafayette's RH dropped to 25% or less for 7 straight days and Muncie reported an RH of 20% or less on 5 of 7 days; additionally, Shelbyville measured an RH of 25% or less on 8 of 10 days through the **10th**. Corresponding dewpoints were often in the upper 30s to low 50s, and as low as 28F on the **5th** (At Lafayette), and 29F on the **8th** (at Lafayette and Shelbyville); the dewpoint at Muncie did not exceed 61F through June's first two weeks. Highest dewpoints occurred on both the **25th** and **30th**, with all 1st-order sites creeping into at least the low 70s on both days; the only observed oppressive humidity was Terre Haute's 75F dewpoint on the **25th**.

July 2023 Outlook

The official outlook for July 2023 from the Climate Prediction Center indicates equal chances of above, below, or near normal temperatures, with chances leaning towards above normal precipitation. The normal July temperature at Indianapolis is **75.8** degrees, while the normal July precipitation is **4.42"**.

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