Central Indiana August 2022 Climate Summary

46th Warmest August on record at Indianapolis (Tied) 39th Wettest August on record at Indianapolis

Temperatures

August 2022's warmth was overall slightly above normal. The prevailing synoptic pattern through the month found the summer's hot subtropical ridge staying mainly west of Indiana, while moderating upper troughs were generally east or northeast of the region, with their associated areas of cooler surface high pressure often crossing the Great Lakes or setting up near the central Appalachians. Situated between these features, central Indiana's resulting temperatures were often near normal, although the month's warm trend was set by several hot days during the **3**rd-**8**th; robust southwesterly flow courtesy of cyclones crossing the central/ northern Plains brought the western ridge's warmth into the Midwest. Through August, greater departures above normal were observed across southern counties that only caught the periphery of cooler high pressure, as well as the upper Wabash Valley whose antecedently dry soils promoted hotter daytimes. For the second consecutive month, Muncie was the relative cool spot, where 11 mornings in the 50s led near-normal readings.

August started on a hot note. Essentially all sites reported above normal temperatures through the 1st-8th, although only noticeably so on the 3rd, 6th, 7th, and 8th. Persistent drought over the Upper Wabash Valley promoted temperatures farther above normal at Lafayette. Very warm levels were recorded on the month's first two days, with mid to upper 80s common on the 1st, and 90F reached at both Lafayette and Rockville (Parke Co.); and a warm morning on the 2nd led by 72F at Shoals 8 S and 70F at Eagle Creek Airpark. On the 3rd, all 1st-order airports reached at least 92F, with 95F at Lafayette and 93F at Indianapolis; Farmersburg TV-2 (Sullivan Co.) saw the muggiest morning with a low of 71F. High humidity then continued to promote warm overnights, with the highest observations being 74F at Muncie on the 4th and 73F at Terre Haute on the 5th. The strongest push of daytime heat then followed: upper 80s to low 90s, along with lows in the low to mid 70s were common during the 6th-8th. On the 6th, Shoals 8 S hit 94F again while Bloomington topped out at 92F, and Shelbyville only dropped to 75F. The 7th brought 93F at Shoals 8 S, while 92F was common across 1st-order airports and several COOP sites, including Perrysville 4 WNW (Vermillion Co.); Lafayette had the highest low at 74F. The 8th had the overall warmest morning, with 75F recorded at most 1st-order sites, including Indianapolis, while Rockville only dropped to a sultry 78F; highest afternoon maximums included yet another 94F at Shoals 8 S, and several 93F marks south of I-74, including the Southwest Purdue Ag Center's Vincennes 5 NE COOP station (Knox Co.). Indianapolis observed five consecutive mornings of 70F+ over the 4th-8th, and low 90s through the 6th-8th.

Relief came amid near normal temperatures on the **10**th-**11**th. Central Indiana then caught the southern side of a cooler bubble of Canadian high pressure crossing the Great Lakes on the **12**th-**13**th. Afternoon highs in the upper 70s to around 80F were common both days, with the **12**th only reaching 77F at Muncie as well as the NWS Indianapolis office, and even points as far south as North Vernon 2 ESE (Jennings Co.); the **13**th's lowest maximum was 74F at the New Castle 3 SW (Henry Co.), Carmel 3 E (Hamilton Co.), and West Lafayette 6 NW (Tippecanoe Co.) COOP stations. Overnight temperatures dropped into the 50s at essentially all sites both days, with the **12**th finding 54F at Muncie and **51F** at Farmland 5 NNW (Randolph Co.), and the **13**th bringing 51F to New Castle 3 SW and an autumnal **49F** at the Tipton 5 SW (Tipton Co.) COOP station. More summer-like air returned to Indiana on the **14**th, although clouds kept high temperatures in the 70s at most locations, and as low as 72F at the Jamestown 2 E (Boone Co.) COOP station. Indianapolis' maximums through this cooler spell were 78F, 79F, and 75F, respectively.

The remainder of the month was overall seasonable, with Indiana often situated between the hot western ridge and deeper troughs to the northeast; several days of near to slightly below normal readings over the **15**th-**27**th were offset by two hot days on the **28**th-**29**th. Despite August's hot start, after the **9**th no 1st-order site reached 90F+ past the **28**th-**29**th, nor had a daily minimum held to 70F+ (excepting Bloomington and Shelbyville's lows in the low-70s on the **29**th). High temperatures on the **28**th reached the low 90s at most locations, with the highest readings of **95F** at Tipton 5 SW and 94F at Bloomington, Shoals 8 S, and Vincennes 5 NE. Heat continued for the **29**th, with many spots peaking near 90F, while Rockville reached **93F** both days. Indianapolis hit 92F and 90F, respectively. August returned to moderation for the month's end, with a cooler morning on the **31**st: mid to upper 50s were common, with 58F at Indianapolis, 54F at Lafayette and **51F** observed at Crawfordsville 6 SE.

Frequency of 90F+ maximums was 5-6 days across 1st-order stations, while frequency of 70F+ minimums was 5-7; both ranges were near normal. Indianapolis finished the month having totaled 22 90F-days for the year, which was slightly above normal (17) following notable hot periods during both mid June and early July. Indianapolis had also tallied 26 70F+ daily lows for the year, which is also slightly above normal (23) courtesy a consistently humid July. August's last three week's of high temperatures consistently in the 80s and low temperatures often near 60F led a more modest above-normal trend than the more distinctive warmth found during both July 2022 and August 2021.

	August 2022	August 2022	Highest	Lowest
Site	Average Temp	Dep from Nml	Temperature	Temperature
Indianapolis Int'l Airport	75.0	+0.3	93 on 3 rd	58 on 13 th , 31 st
Lafayette	74.0	+1.8	95 on 3 rd	54 on 31 st
Muncie	73.6	-0.1	92 on 3 rd	53 on 13 th
Terre Haute	74.3	+0.7	93 on 8 th	55 on 31 st
Bloomington	75.3	+2.0	94 on 28 th	55 on 31 st
Shelbyville	75.2	+1.4	92 on 3 rd , 28 th	55 on 13 th
Eagle Creek Airpark	75.1	+0.7	93 on 3 rd	55 on 13 th

At Indianapolis, August 2022's daily average temperatures were above normal on 16 days and below normal on 14 days. It tied for the 46th warmest August for the Indianapolis Area since weather records began in 1871, placing it in the 70th percentile of all recorded Augusts.

Precipitation

Following the release of the new 30-year climatological normals (1991-2020), August has overall trended slightly drier than during the previous 30 years (1981-2010). Greatest downward trends have occurred along the Wabash Valley between Lafayette (-0.34") and Terre Haute (-0.62"), while more modest decreases have occurred farther southeast between Bloomington (-0.18") and Shelbyville (-0.20"); subtle upward trends of +0.10" or less took place within Marion County and at Muncie. The new normals for August rainfall are rather uniform, ranging from 2.99" at Terre Haute to 3.38" at Muncie. Relative to other months, August is normally noticeably drier than April-July as it falls within the transition to a relative minimum in precipitation during September; while August's normal rainfall is comparable to March, October and November, and slightly drier than these autumn months along and south of I-70. Normally collecting more precipitation than the winter months, August ranges from the year's 8th driest month in Marion County and at Shelbyville, to the 5th wettest across the region's northern tier.

On August 1st, a collapsing, yet still-severe squall line crossed the region after dawn, before lateday cells impacted southeastern counties, and occasional showers and thunderstorms then flowed over southwestern zones through the night. Rainfall totals by the following morning included scattered 0.50-1.00" amounts over central counties and reports as great as 1.35" east of Martinsville (Morgan Co.). The gradual improvement in local drought conditions seen in the U.S. drought monitor's July 26th update continued into the first days of August. The 2nd's drought monitor update showed moderate drought (D1) had retreated north of Interstate 70 along southern portions of the Indianapolis Metro, while abnormally dry conditions (D0) were removed south and east of roughly a Nashville to Rushville line, although D0 did expand slightly eastward along I-70 from Greenfield (Hancock Co.) to Lewisville (Henry Co.). D1 continued to prevail across the northwestern quarter of the region.

A rather wet early August continued. The 3rd's evening squall line was followed by additional overnight rains across western counties, before further showers developed along I-70 during the late night. Widely scattered totals of 0.50-1.10" resulted, with 1.32" west of West Lafayette (Tippecanoe Co.), and 1.08" at both the Franklin 1 W COOP site (Johnson Co.) and south of Reelsville (Putnam Co.). Rains continued through the morning of the 4th over many central Indiana counties before scattered afternoon storms formed over southern zones; 1-dav observations as great as 0.50-1.20" were scattered over central and southern areas, with 1.92" measured at Crawfordsville 6 SE, and 1.47" more collected south of Reelsville. Then, a spinning cluster of mainly isolated showers slowly crossed the region during the afternoon of the 5th, before late-night showers and thunderstorms fell over the Indianapolis Metro and to the south and east; 1-day rainfall was generally lighter than previous days, however areas of isolated 0.90"+ amounts included a 1.99" report in west-central Jennings County. 5-day precipitation totals for the 1st-5th were encouraging towards drought relief: 0.50-2.00" fell over a solid majority of the region, with lesser amounts around Muncie and immediately west of Bloomington; 2.34" was collected at Crawfordsville 6 SE, while 2.38" fell near Hayden (Jennings Co.), and as much as 1.49" fell near West Lafayette; Indianapolis officially picked-up 0.53" at the International Airport, although around 1.50" was measured in both Southport (Marion Co.) and Cumberland (Hancock Co.). The 6th found mainly isolated showers and embedded thunder, along and east of the I-69 corridor through the afternoon and evening; heaviest downpours lasted the longest over parts of Henry and Madison counties, although 1.29" was the greatest observation, southwest of Columbus (Bartholomew Co.). The 7th was mainly dry between isolated light rainfall; reports over 0.50" were limited to Henry County where New Castle 3 SW collected 1.58".

August 8th was the wettest day-and-overnight of the month's first four weeks, with many locations recording more rainfall than they had in the preceding week. Several rounds of showers and thunderstorms from mid-afternoon through overnight, including a complex of cells over many central counties during several overnight hours, contributed to a general 1-2" of rain in most of Marion County, as well as into east-central areas and along the I-69 corridor. Greatest 1-day totals ranged from 3.32" on the north side of Columbus to numerous heavy rain reports across the Indianapolis Metro: 3.20" southwest of McCordsville (Marion Co.), 3.02" in Cumberland (Marion Co.), 2.65" in New Palestine (Hancock Co.), 2.16" north of Franklin, 2.00" in Plainfield (Hendricks Co.), and 1.94" east of Westfield (Hamilton Co.). Several reports around 1.00" were received between Lafayette and Indianapolis.

The **9**th drought update indicated significant improvement as **D1** shrunk to only portions of Fountain, Parke and Vermillion counties as well as smaller, neighboring portions of Montgomery and Warren counties. Meanwhile there was an overall noticeable improvement to **D0**, as it was essentially removed from south of I-70 and east-central zones, while remaining across most of Hendricks and Marion counties, and actually expanding slightly across northern Delaware County.

As for precipitation on the **9**th, a broad swath of rain continued across the I-70 corridor until dissipating midday; late-day thunderstorms then tracked across southern counties. Numerous reports of an additional 0.50-**1.30**" were found along I-70 and south to Bloomington, with **1.33**" in Clayton (Hendricks Co.), while **1.28**" was observed in Buddha (Lawrence Co.). 2-day totals from this slowly-passing front's combination of diurnal and nocturnal rains included widespread **1-3**"

observations, although under 0.25" was prominent along southern-most and a few far northern zones, with **3.76**" and **3.46**" at Columbus and McCordsville, respectively, while Jamestown 2 E and Hymera (Sullivan Co.) picked up **2.53**" and **2.26**", respectively. The remainder of the month's second week featured several days with light rainfall, whose coverage was scattered on the **11**th and **14**th, but more widespread on the **13**th when **1.10**" was recorded west of Battle Ground (Tippecanoe Co.) and as much as 0.90" was reported around Frankfort (Clinton Co.). Indianapolis picked up another **1.51**" through August's second week. The **16**th drought update found improvement continuing into mid-August with **D1** along the Wabash River transitioning to **D0**, as well as **D0** removed from the Indianapolis Metro. **D0** remained for most northwestern counties, and north-central zones north of a line from Lebanon (Boone Co.) to Alexandria (Madison Co.), which included about 25% of the region.

The month's third week, however, saw a transition to mainly dry conditions; excepting the **20**th, where several rounds of scattered/numerous showers/thunderstorms crossed the region from morning to overnight hours, focusing along and especially north of the I-70 corridor. 1-day totals by dawn on the **21**st included scattered 0.50-**1.10**" reports along and west of I-69, with isolated heavier rainfall: **2.35**" in Mulberry (Clinton Co.), and a band from **1.78**" in Farmersburg to as much as **2.30**" in Bowling Green (Clay Co.). The **23**rd drought update showed **D0** expanding to all northwestern portions of the state, although for central Indiana specifically, this translated to a modest increase in **D0** coverage – with only a slight southerly expansion across Boone, Hamilton, Madison, and Delaware Counties. Another rather dry week followed across the region, with widespread rainfall totals under 0.20"; the 0.74" collected west of Cloverdale (Putnam Co.), which fell almost entirely on the **25**th, was the only report over 0.40".

August's precipitation ended on an active note, with appreciable rains for much of the region on the 28th and/or 29th. The 28th's few afternoon cells were followed by several lines of storms that tracked mainly along and north of the I-70 corridor from the late evening through the overnight. 1-day rainfall by dawn on the 29th included a broad swath of 0.70-1.30" from Terre Haute to Muncie, although lesser amounts fell over the Indianapolis Metro, with 1.51" east of Rockville and 1.37" south of Anderson (Madison Co.). The 30th then featured afternoon storms over southeast counties before a late-day squall line slowly crossed northern and central portions of the region; as the evening wore on, a complex of moderate to heavy showers and thunderstorms continued along and north of the I-70 corridor, before finally tapering off late at night. 1-day totals through dawn on the 30th showed a local 2-3" maximum over the Indianapolis Metro and through points to the north-northwest, as well as several 2-4" reports over west-central zones; greatest observations included 2.89" in Lawrence (Marion Co.), 3.10" near Pike (Boone Co.), and 3.39" on the north side of Carmel (Hamilton Co.); as well as 4.96" south of Reelsville and 3.39" southwest of Universal (Vigo Co.). Impressive 2-day totals were led by 3.68" on the north side of Carmel, 4.45" southeast of Shepardsville (Vigo Co.), and 6.16" south of Reelsville (not 20 miles north of parts of Clay County and Owen County that reported 0.30" and less). No river gages reached minor flooding, although Pleasant Run at Arlington Avenue (about 1 mile east of Fountain Square in Marion Co.) crested just below flood at 145 am on August **30th**. Flash flooding was, however, reported 11 miles to the north-northeast on 86th street in Castleton (Marion Co.), as well as across several roads across Vigo County.

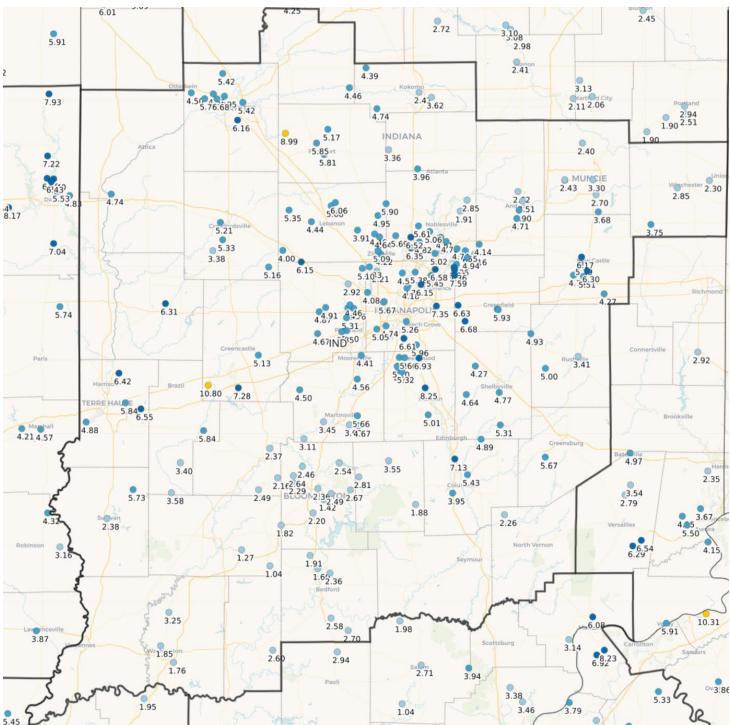
The **30**th drought update exhibited a shift in **abnormally dry** conditions from the region's northern to southern counties: northwestern central Indiana finally returned to no drought intensity, although **D0** continued farther east (across Howard County and northern portions of Tipton, Madison, and Delaware Counties). Meanwhile **D0** appeared over roughly the southern 25% of the region: along the US-50 corridor from just east of Vincennes, and essentially all of Greene, Monroe, Brown and Bartholomew counties.

Overall, August precipitation was above normal across central Indiana, with the main patterns of distribution being generally above normal rainfall for many central to northwestern counties, and below normal totals across several southern and far northeastern zones. The 9th and 29th combined to hold 55-75% of the month's rain at most sites, with exceptions to this pattern seen at Terre Haute which collected 197% of normal precipitation throughout the month, for the 7th wettest August of the 85 recorded years...and at Bloomington which observed only a combined 0.18" on these two dates, and finished with only 43% of normal. Muncie also finished the month with sub-normal rainfall, which was led by a meager 0.88" through the **19th**. Precipitation totals varied by a factor of 5 across the region's COOP sites. Reelsville 4 SW (Putnam Co.)'s 9.29" made for the wettest August in the site's short record (since 1995), while Rockville's 8.01" was the 5th wettest of their record's 128 Augusts, and the wettest since 1993; Franklin 1 W's 7.35" was also its wettest August on record (since 2000). Meanwhile, despite anomalously high July rainfall, the driest August since 2017 occurred at both Williams 3 SW (Martin Co.) (1.76") and Vincennes 4 E (1.82"). The spatial distribution of rainfall was nearly a exact reverse from July 2022 regarding drought concerns: as trends here were strong enough to both restore the northwestern quadrant of counties from moderate drought while bringing abnormally dry conditions to several southern counties that had seen widespread 8-14" in the previous month. August 2022's above normal precipitation at Indianapolis contrasted below normal rainfall trends seen in the modest totals of both July 2022 and August 2021. The year-to-date total at Indianapolis rose to 27.29", decreasing the year's deficit to **3.61**" below normal.

Site	August 2022	August 2022	Wettest Day	Longest Dry Stretch
	Precipitation	Dep from Nml		
Indianapolis Intl AP	4.44	+1.24	1.99 on 29 th	3 days, 22 nd -24 th
Lafayette (*)	3.93INC	М	M on 29 th	5 days, 15 th -19 th
Muncie	2.32	-1.06	1.08 on 29 th	7 days, 22 nd -28 th
Terre Haute	5.90	+2.91	1.25 on 29 th	5 days, 15 th -19 th
Bloomington	1.42	-1.92	0.64 on 21 st	6 days, 22 nd -27 th
Shelbyville	4.83	+1.64	2.29 on 29 th	5 days, 15 th -19 th
Eagle Creek Airpark	3.60	+0.36	1.61 on 29 th	5 days, 15 th -19 th

(*) Lafayette's observed precipitation was incomplete

August 2022 was the **40th wettest** in the Indianapolis Area since weather records began in 1871, placing it in the 74th percentile of all recorded Augusts.



August 2022 Total Precipitation, Through the Morning of 9/1/2022 As Reported By Central Indiana CoCoRaHS Observers

For the period 700 AM EDT 8/1/2022 -to- 700 AM EDT 9/1/2022. Data is unofficial.

Showers and thunderstorms during the month's first half and final days led to variations in distribution typical for August. Most locations reported **3-6**", with isolated **8-11"** observations over northwest and west-central zones, while lower values were common northeast of the Indianapolis Metro and across the region's southern tier.

Severe Weather

August 2022's severe weather was led by the **1**^{str}s squall line, which included essentially all of the month's non-tornadic wind damage reports. This organized west-to-east line of morning thunderstorms tracked from east-central Illinois, across Indiana counties that were parallel to and north of Interstate 70, with strongest winds across the Indianapolis metropolitan area and points east. Reports of downed trees stretched over several counties, including Avon (Hendricks Co.) into the Heatherwood Estates subdivision (west-central Marion Co.) where five homes were damaged by downed trees and limbs. Soon after, winds downed trees into power lines across Carmel (Hamilton Co.), before straight line winds estimated as high as **70 mph** downed trees into homes on the north side of Anderson. A brief gustnado formed over Aqua Gardens Lake (on the leading edge of these strongest winds), lifting a few boards from a pier before tracking roughly one mile over land. An isolated report of even stronger winds came later that evening when a severe cell's estimated **75 mph** gust in north-central Rush County downed multiple trees and also blew a shed into a nearby field.

August's remaining 30 days were nearly devoid of severe weather. The **20**th's strong afternoon thunderstorms led to a very brief **EFO landspout tornado** in north-central Randolph County, which blew out an outbuilding's roof. (See precipitation section above for details regarding isolated flash flooding on the night of the **29**th).

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

Miscellaneous – Winds, Thunder, Fog & More

August 2022's strongest observed wind gusts at the seven 1st-order airports only exceeded 45 mph on three occasions: **58 mph** at Shelbyville and 50 mph at Indianapolis (both on the **1**st), and then 47 mph at Lafayette on the **29**th. Stronger gusts of 25-40 mph were somewhat common in and near thunderstorms during both the **3**rd-**8**th as well as the **28**th-**30**th. In contrast, scattered throughout the month were 5 days when no 1st-order site gusted higher than 17 mph – the **10**th, **18**th, **23**rd, **24**th, and **27**th.

Fog occurred on 10 days at Eagle Creek Airpark and 14 days at Indianapolis Int'l; although fog was prevalent (occurring on 19+ days) through the month at all other 1st-order sites, , and as many as 23 days (at Lafayette and Shelbyville). All seven airports observed fog on the 1st, 14th, 21st, 22nd, 26th, and 30th, with fog also common on the 4th-6th, 9th-11th, 15th, 17th-19th, 23rd-25th, and 29th. Bloomington observed fog on 13 consecutive days during the 14th-26th, while 7-day consecutive streaks occurred at Lafayette on the 20th-26th, and both Muncie and Shelbyville on the 21st-27th. Dense fog was also rather frequent, especially during the month's fourth week: overall frequency was 2-6 days for most sites, although Lafayette observed dense fog on 9 days and Indianapolis' dense fog on the 1st was Marion County's only occurrence for the month. Dense fog was most common (observed at three 1st-order airports) on the 6th, 23rd, 24th, and 25th.

Thunder frequency of 10-11 days was common, with Muncie's 4 days and Bloomington's 5 days being the low outliers. Thunder was reported at all 1st-order sites on both the 1st and 8th, and most of these 7 locations on the 3rd, 9th, 14th, 20th, 21st, and 29th. Terre Haute observed thunder on three consecutive days twice, the 7th-9th and 28th-30th.

September 2022 Outlook

The official outlook for September 2022 from the Climate Prediction Center indicates above normal temperatures are slightly more likely than near or below normal temperatures across central Indiana. The normal September temperature at Indianapolis is **67.8** degrees.

The outlook also indicates equal chances exist for above, below, or near normal precipitation across the region. The normal September precipitation at Indianapolis is **3.14**".

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