

Central Indiana Summer 2019 Summary

The following is a summary of weather conditions experienced in Central Indiana during the months of June, July, and August 2019.

Temperatures

The summer of 2019 was tied for the **54th warmest summer on record at Indianapolis**, with an average temperature of 74.7 degrees. The normal summer average temperature is 73.9 degrees, making this summer warmer than normal. Average temperatures across central Indiana for the summer generally ranged from near normal to around 2 degrees above normal.

June

June started out warm across central Indiana, with the region enjoying highs in the 80s through the first week of the month. Beginning on the 8th, highs slipped back into the 70s as the weather turned more wet and unsettled. The arrival and passage of an upper level low pressure system on the 13th brought an unusually cool day to the region with clouds and scattered showers. Many locations did not climb out of the 60s on the 13th. As skies cleared that evening, temperatures bottomed out in the mid and upper 40s in much of central Indiana early on the 14th, the coolest morning of the month for most.

The most unsettled part of the month followed beginning on the 15th continuing through the 24th, leading to a wide variation in temperatures. Highs were only in the upper 60s and lower 70s over much of the region on the 15th as thunderstorms impacted central Indiana for much of the day. Highs would bounce between the 70s and 80s over the following week as rain and clouds influenced temperatures. With the humid airmass, lows remained in the 60s throughout this period.

A drier stretch of weather developed on the 25th and lasted through the end of June. Coincidentally, the warmest temperatures of the month, and the year to date, would come during these last few days of the month, finally signaling the arrival of summer. Many locations experienced their hottest weather on the last day of the month as temperatures surged into the lower and middle 90s in some locations. The first 70°+ nights of 2019 also came towards the end of the month. Despite the heat to end the month, much of the area ended up slightly below normal with temperatures for June.

July

It was a hot start to July as temperatures rose into the lower and mid 90s on multiple days through the first week of the month. With a humid airmass over the Ohio Valley, lows frequently fell only into the low 70s. More days in the 90s came from the 10th through the 15th. After a brief cool down that lasted just a day or two as the remnants of Hurricane Barry passed through the region, the hottest, most humid weather of the month arrived over a five day stretch that lasted through the 21st. A deep tropical airmass was left in the wake of Barry's remnants, resulting in dewpoints that soared into the mid and upper 70s. A few locations were even able to reach an 80° dewpoint for a short time, a rare occurrence in central Indiana. While high temperatures themselves were primarily in the lower 90s, the addition of such high dewpoints produced heat indices peaking at levels not seen in several years, at 105° to 110°. Lows remained above 70° for 6 to 7 days straight and in some areas, never dropped any lower than the mid and upper 70s. Indianapolis fell only to 79° on the morning of the 19th, tying a record warmest minimum temperature for the date originally set in 2011.

A cold front swept through the area late on the 21st with a line of strong thunderstorms. The front also pushed the hot and humid air well south of the region, ushering in a stretch of multiple days with highs in the upper 70s and lower 80s and lows in the upper 50s and lower 60s along with much more tolerable humidity levels. Over the last several days of July, temperatures rose back up into the upper 80s but without the excessive humidity levels experienced earlier in the month.

Average temperatures were generally about 2 to 4° above normal at all of the primary climate stations across central Indiana. Indianapolis would finish with 13 days at or above 90° for the month, the most in July since 2012 when a whopping 28 days were at or above 90°.

August

August began warm with high temperatures primarily in the upper 80s and lower 90s through the first week of the month. Highs slipped back into the mid 80s in the wake of a frontal passage on the 8th, and would remain near normal levels for August through the middle of the month. Lows throughout the first half of August were predominantly in the 60s with a few nights as warm as the lower 70s.

Much of central Indiana experienced the warmest temperatures of the month on the 18th and 19th as highs rose into the lower 90s. Severe thunderstorms ahead of a cold front kept highs mainly in the mid and upper 80s on the 20th before as more noticeable cooldown with lower humidity levels began on the 22nd and would largely continue through the end of the month. Highs through the last 10 days of August typically ranged from the mid 70s to the lower 80s with the coolest days coming on the 26th and the 31st

as clouds and rain kept temperatures in the lower and mid 70s. Lows during the last week of August dropped as low as the mid 50s on a few nights.

Overall, temperatures ended up near normal across central Indiana for the month, running up to a degree above average.

Temperature Data for Other Sites in Central Indiana

Site	Summer 2019 Temperature	Normal Temperature	Diff. From Normal
Indianapolis Int'l Arpt	74.7	73.9	+0.8
Lafayette	72.9	73.1	-0.2
Muncie (*)	75.1	72.8	+2.3
Terre Haute	73.7	73.4	+0.3
Bloomington	73.7	72.8	+0.9
Shelbyville	74.7	72.7	+2.0
Indianapolis – Eagle Creek (**)	74.7	73.9	+0.8

(*) – Muncie temperature data missing 6/ 28 and 6/29.

(**) – Eagle Creek Airpark temperature data missing 6/19 and 6/20.

Summer Extremes Across Central Indiana

Site	Warmest Temperature	Coldest Temperature
Indianapolis Int'l Airport	94 on 6/30	47 on 6/14
Lafayette	94 on 7/10	43 on 6/14
Muncie	96 on 7/2	50 on 6/3 and 6/11
Terre Haute	95 on 7/10	46 on 6/14
Bloomington	93 on 6/30	46 on 6/14
Shelbyville	95 on 6/30 and 7/2	47 on 6/14
Indianapolis-Eagle Creek	94 on 7/10 and 7/18	46 on 6/14

Rainfall

Overall this was the **31st wettest summer on record at Indianapolis**. The total rainfall for Indianapolis this summer was 14.91 inches. The normal rainfall total for summer is 11.93 inches, which made this summer in Indianapolis above normal by 2.98 inches. Precipitation amounts varied widely at the main climate stations across central Indiana. Rain was most concentrated during the first half of the summer and especially during the month of June with much drier conditions the second half of the summer.

June

June was a very active month hydrologically with areas along and south of Interstate 70 seeing rainfall amounts of 5-8 inches above normal with most areas north of Interstate 70 seeing rainfall near normal to slightly below normal.

The first major rain event was on June 5th, as a frontal system interacting with leftover convective outflow boundaries brought several inches of rain to much of central Indiana. The heaviest rain with this system fell across southern portions of the area. The next major rainfall occurred on June 9th with an additional several inches in the same area that received rain on the 5th, as a surface low slowly moved north across central Indiana and then a cold front swung through.

A widespread area of rain occurred from June 15th through the 17th where pockets of south central Indiana saw 5-8 inches as a stalled front served as a focusing mechanism for several rounds of rain and storms. On June 15th, the addition of convective boundaries and an MCV also contributed to the formation of several tornadoes across the state. A record for the date was set at Indianapolis, where 3.85 inches fell. As more rounds of rain and storms developed on the 16th and 17th, amounts for the three day period combined with the rains from earlier in the month led to moderate flooding along the East Fork White River and lower portions of the White River along with numerous smaller streams in the basin. Thirteen Flash Flood Warnings were issued during this time with very significant flash flooding reported in Brown and Jackson counties. As a result of the flooding, Brown County State Park was forced to close from June 17th through June 24th due to flood damage to the water filtration system and a resultant absence of potable water, and did not fully reopen until June 27th, with some hiking trails still closed due to flood damage.

Rain returned to central Indiana on the 19th as an upper wave interacted with a relatively stationary front yet again. Rainfall amounts of 1.5 to near 4 inches of rain fell on parts of western and northern Indiana, including in the Wabash basin. One of the areas with totals on the higher end of the range was in Hamilton County. Several swift water rescues were necessary as well as other rescues for stalled cars. A drier pattern began to set up across central Indiana on the 25th. From then through the end of the month, only disorganized, isolated to widely scattered diurnal convection impacted the area, bringing a dry end to an otherwise wet month.

July

A rain event with scattered slow moving showers and thunderstorms ahead of a slowly approaching cold front on July 10th dropped a quick two to over four inches of rain in both the Muncie area as well as just east of Frankfort, prompting a few flash flood warnings and resulting in some water rescues in Muncie. Much of the rest of western Indiana and eastern Indiana saw one to two inches of rain with these storms, while several areas including much of the Indianapolis metro saw little to nothing.

Much of the area saw mostly dry weather for several days after that. There was a widespread rainfall event the 16th lasting into 17th, with one to three inches across much of central and southern Indiana, but the north and northwest parts of the area missed out.

The arrival of a cold front on July 21st brought rainfall and a few severe storms to the area. Rainfall amounts from the 21st across northern, southwestern, and southeastern Indiana were one to two inches, while much of the central part of the state saw less than half an inch.

The approach of a cold front on July 29th brought an end to the dry period across central Indiana. A line of showers and thunderstorms formed well ahead of the front and moved through the area, followed by some more widely scattered showers and thunderstorms that lasted through the night and into the day on the 30th. Rainfall amounts of 0.5 to 1.5 inches were common across Indiana, but there were also swaths that received less than a quarter inch.

August

While parts of the state remain in drought, August saw a few significant storm events.

August 6th, a slow moving storm developed over parts of Brown and Bartholomew counties and produced 1.5 to 2.5 inches of rain, prompting a flood advisory.

August 8th saw a swath of a quarter inch to around an inch over central portions of central Indiana ahead of a cold frontal passage, with dry conditions to the north and south.

On August 12th-13th, a couple of storm complexes moved across Indiana. This brought a quarter inch to upwards of two inches of rainfall to southwestern portions of the state.

August 17th-18th, a couple of upper waves interacting with a stationary boundary in a warm humid atmosphere brought a large area of one to over two inches of rain to central parts of the area and northeast parts of the state with a couple rounds of storms.

August 20th, a line of thunderstorms that formed in Iowa during the early morning hours moved southeast into Indiana during the afternoon and brought half an inch to an inch of rain across much of Indiana south of I-70.

August 22nd saw storms move into Indiana after midnight, with around a quarter to half an inch of widespread rainfall. Southwestern parts of central Indiana saw 1.5 to over two inches, while a few northwestern counties saw half an inch to an inch.

August 26th-27th saw another couple of rounds of storms which brought a widespread half inch to upwards of two inches of rain to much of central Indiana.

Overall, rainfall amounts for August varied from less than an inch over an area of northwest Indiana, two to four inches over northern and eastern Indiana, and three to over 6 inches over central and southwestern parts of the state. This translated to over two inches below normal for northwest parts of the area, to over two inches above normal for western and central parts of the area.

Rainfall Data for Other Sites in Central Indiana

Site	Summer 2019 Rainfall	Normal Rainfall	Diff. From Normal
Indianapolis Int'l Arpt.	14.91	11.93	+2.98
Lafayette	10.94	11.53	-0.59
Muncie	14.89	12.34	+2.55
Terre Haute	15.45	12.84	+2.61
Bloomington	16.38	13.30	+3.08
Shelbyville (*)	10.18	12.50	-2.32
Indianapolis – Eagle Creek	10.93	11.84	-0.91

(*) – Shelbyville precipitation data missing on 6/17.

Major Weather Events

June

June was a stormy month across the Hoosier state with several notable days with severe thunderstorms.

A line of storms tracked across the region on the afternoon of the 5th, producing wind damage, large hail and heavy rainfall. Significant flooding occurred at the Tippecanoe Mall in Lafayette with parking lots covered to a depth of nearly 3 feet. Additional severe weather occurred from storms on the afternoon and evenings of the 23rd and 30th, focused especially across the western half of central Indiana. A microburst with peak winds to 70 mph damaged a pole barn and knocked over multiple trees and a dump truck in Smithville in Monroe County.

The most significant stretch of severe weather occurred on the 15th with additional rounds of severe storms on the 16th and 17th, as a warm front lifted into the area and became nearly stationary. After widespread thunderstorms and heavy rain over much of the area on the morning and afternoon of the 15th, severe thunderstorms producing tornadoes and wind damage impacted the southern half of central Indiana that evening. Seven tornadoes occurred, including two that produced EF2 damage near Ellettsville in Monroe County and across Rush County. An EF1 tornado in Owen County was notable for producing significant tree damage and crossing the White River five times. Straight-line winds with peak gusts to 100 mph caused damage to a few farms in western Decatur County. An additional area of straight-line winds with peak gusts to 80 mph produced roof and siding damage to nearly 15 homes in a neighborhood just southwest of Columbus. For more information on this event, click <https://www.weather.gov/ind/june1517severeweather>.

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

July

After the busy May and June that saw several bouts of severe storms, the pattern quieted in July. Scattered storms were a common occurrence on multiple days throughout the month but generally remained below severe levels. The biggest event of the month occurred on the afternoon and evening of the 10th as slow moving storms produced scattered wind damage and gusts in excess of 60 mph along with flash flooding focused across northern portions of central Indiana. Several water rescues took place in Muncie as thunderstorms dumped 3 to 4 inches of rain across Delaware County in a short time.

For information on severe weather in other areas during July, visit the Storm Prediction Center "Severe Weather Event Summaries" website at <http://www.spc.noaa.gov/climo/online/>.

August

Severe thunderstorms impacted parts of central Indiana on several days throughout the first 3 weeks of the month. On the late evening of the 12th and early morning of the 13th, severe storms tracked into the Wabash Valley and western Indiana before weakening. These storms produced wind damage and a small EF1 tornado in Sullivan County.

More substantial severe weather occurred on the evening of the 18th and the afternoon of the 20th as central Indiana was impacted by squall lines producing widespread wind damage. Storms were at their most intense across western portions of the area before weakening as they tracked through the Indianapolis area and into eastern portions of

the state. Large hail also occurred in a few locations. The squall line on the 20th produced a peak wind gust to 73 mph at Indianapolis International Airport with numerous reports of wind damage throughout central Indiana. For more information on both of these events, visit the links listed below:

<https://www.weather.gov/ind/august182019severe>

<https://www.weather.gov/ind/aug202019severe>

For information on severe weather in other areas during August, visit the Storm Prediction Center “Severe Weather Event Summaries” website at

<http://www.spc.noaa.gov/climo/online/>.

Fall 2019 Outlook for Central Indiana

The official outlook for the 2019 fall season (September-November) from the Climate Prediction Center indicates a greater chance of above normal temperatures and an equal chance of above, near or below normal precipitation across central Indiana. At Indianapolis, the average temperature for the fall season is 55.2 degrees. At Indianapolis, the average precipitation for the fall season is 9.94” and 1.1” of snowfall.

Data prepared by the NWS Indianapolis Climate Team

Questions should be referred to w-ind.webmaster@noaa.gov