Central Indiana Summer 2020 Summary

The following is a summary of weather conditions experienced in Central Indiana during the months of June, July, and August 2020.

Temperatures

The summer of 2020 was tied for the **30th warmest summer on record at Indianapolis**, with an average temperature of 75.4 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 1 to 3 degrees above normal.

June

June started warm and grew progressively warmer through the month to produce temperatures that generally averaged 1 to 3° above normal. After a mild first day of June and for many the coolest morning of the entire month, highs surged into the mid and upper 80s with lows in the 60s over the next 10 days or so with relatively dry conditions. Several locations would warm into the 90s on a few days during this period as well. Humidity levels would from the 8th through the 10th as the remnants of Cristobal passed to the west of the area but enabled tropical moisture to lift into the Ohio Valley and produce oppressively humid conditions.

Highs would slide back into the mid and upper 70s in the wake of a frontal passage and with an upper low positioned off to the northeast of the area. The cooler northeast winds would usher in lower humidities and provide a nice reprieve from the sultry conditions as Cristobal passes by. Beginning on the 16th, southerly flow would reestablish with the departure of the upper low and a return of warmer temperatures and higher humidity that would peak on the 19th and 20th with highs in the low 90s. A few cooler days in the upper 70s and lower 80s would provide brief breaks to an otherwise typical early summer regime with highs ranging from the mid 80s to lower 90s and lows in the mid 60s to lower 70s. One big exception was the 27th as thick cloud cover and periodic storms as a frontal boundary drifted into the region. Temperatures were kept down in the 70s in most places all day.

Indianapolis would get to 90° or warmer on 3 days during the month with the first occurrence on the 19th. The hottest temperatures recorded in June would be across western and northern sections of central Indiana, with 94° at Lafayette, Muncie and

Terre Haute and 95° occurring in Vincennes. The coolest morning for much of the area occurred on the 1st with mid and upper 40s common across much of the rural portions of central Indiana.

July

July would be a hot month across central Indiana, with many locations rising above 90° on 10 to 15 days during the month. The first 10 days of July saw the most sustained heat through the entire month, with nearly every day at or above 90° in the low to mid 90s. With a humid airmass as well, low temperatures fell only into the low to mid 70s through the period. Temperatures would slip back into the 80s beginning on the 10th with the passage of a cold front. An additional cold front that produced severe weather on the afternoon and evening of the 11th would reinforce the cooler temperatures, keeping daytime highs largely in the 80s through the 17th. The coolest overnight lows would occur during this stretch as well, dropping into the upper 50s and lower 60s.

The rest of the month would see a return to a warmer and more humid airmass, but higher heat would be largely held in check to the west of the region. Mid 80s to lower 90s were common from the 18th through the 25th with lows predominantly in the mid and upper 60s. A return to much more humid conditions arrived on the last weekend of the month as highs rose into the lower 90s. The final day of the month to produce 90°+ temperatures occurred on the 27th in advance of a strong cold front that passed during the afternoon and evening and produced severe weather across the region. The coolest day of the month would come just a few days later on the 30th, as persistent clouds and showers kept many areas in the 70s.

Average temperatures for the month generally ran 3 to 5° above normal with many locations experiencing their warmest July since 2012. Indianapolis would rise to 90° or higher on 11 days during the month, the third consecutive year with at least 10 days in July at or above 90°.

August

August started out cool as high pressure and northerly flow brought comfortable weather to the Ohio Valley with highs in the upper 70s and lower 80s and lows in the 50s and 60s. Many locations across central Indiana experienced their coolest morning of the entire month on the 5th as lows fell into the lower and middle 50s. Temperatures would begin to warm on the 7th and eventually return to early August normal levels by the 9th and 10th as highs rose into the middle and upper 80s. With the exception of the impacts of the derecho that tracked across the Midwest and into the region on the evening of the 10th, conditions would remain generally dry across the area with seasonable temperatures through the middle of the month.

A frontal boundary would track through the area on the 18th producing showers and thunderstorms and triggering a brief cooldown that would last through the 20th. Highs in

the upper 70s and lower 80s were common. Beginning on the 21st, temperatures would rise, peaking on the 24th through the 26th in the lower and middle 90s as a hot and humid airmass settled across the Ohio Valley. The combination of the remnants of Hurricane Laura passing to the south of the region and a cold front passing through would sweep the heat and humidity away from central Indiana during the last weekend of August.

Overall, the combination of the cooler first part of the month with the warmer temperatures later in the month would produce average temperatures largely within a degree of normal for August.

Temperature Data for Other Sites in Central Indiana

Site	Summer 2020 Temperature	Normal Temperature	Diff. From Normal
Indianapolis Int'l Arpt	75.4	73.9	**+1.5**
Lafayette (*)	76.1	73.1	**+3.0**
Muncie	75.1	72.8	**+2.3**
Terre Haute	74.9	73.4	**+1.5**
Bloomington	75.2	72.8	**+2.4**
Shelbyville	76.3	72.7	**+3.6**
Indianapolis – Eagle Creek	75.1	73.9	**+1.2**

(*) – Lafayette temperature data missing 6/17 through 6/19 and on 6/23.

Summer Extremes Across Central Indiana

Site	Warmest Temperature	Coldest Temperature
Indianapolis Int'l Airport	94 on 7/5 and 7/8	50 on 6/15
Lafayette	95 on 7/8, 7/26, 8/24 and 8/25	50 on 6/1
Muncie	94 on 6/20	48 on 6/1
Terre Haute	94 on 6/20, 7/5 and 7/8	49 on 6/1
Bloomington	96 on 7/5	47 on 6/1
Shelbyville	95 on 7/8	50 on 6/1
Indianapolis-Eagle Creek	93 on 7/6 and 7/8	48 on 6/1

Rainfall

Overall this was the **69th wettest summer on record at Indianapolis**. The total rainfall for Indianapolis this summer was 11.43 inches. The normal rainfall total for summer is 11.93 inches, which made this summer in Indianapolis below normal by 0.50 inches. Precipitation amounts varied widely at the main climate stations across central Indiana, but most locations overall experienced a drier than normal summer. Shelbyville was the only primary climate site in central Indiana that ended up finishing above normal for the June-August period and that was largely due to a wet last month of the summer.

June

Overall June was a dry month for much of central Indiana, and this led to the designation of D0 drought across most of the state by the middle of the month. This was the first designation of any drought in the state since December. After very dry conditions for much of the month, June ended on a wet note with several rounds of showers and thunderstorms impacting the area, with the first round on June 21st – 23rd and then again June 27th through the 30th. Coverage was spotty, however, and some locations missed out altogether. The highest monthly observed amounts in excess of 5 inches occurred northeast of the Indianapolis metro over Madison and northern Hamilton Counties, near Rockville in Parke County and across parts of Knox County. An observer just northwest of Anderson measured 7.28 inches for the month, with over 5inches of that occurring from the 27th through the 29th.

For the month, from north of Indianapolis to around Kokomo/Lafayette/Muncie, generally saw three to six inches of rain. A drier area stretching from Sullivan through Bloomfield and Bloomington to the south side of Indianapolis missed out on most of the rain in the month, with only one to just over two inches in that swath. South of there, generally saw about three to six inches from there to the Ohio River. These amounts, however, were still running dry compared to normal for the month, with the aforementioned area from Sullivan to the south side of Indianapolis ending June one to four inches below normal, and most of the area half an inch to two inches below normal.

On June 3rd and 4th, a couple of upper level disturbances moving through a northwest flow pattern interacted with a frontal boundary that moved back and forth across central Indiana. This prompted the development of scattered showers and thunderstorms with locally heavy rainfall. There were a few flash flood warnings over western parts of central Indiana near the Illinois border where 2 to over 3 inches of rain fell over a short period of time.

A couple of upper short waves moved through cyclonic upper flow June 21st – 23rd to produce rainfall amounts of one to two inches across western and eastern parts of central Indiana, with only a quarter inch or so across middle parts of the area. Another

frontal system set up to end the month, with a front meandering through central Indiana and a series of upper waves interacting with it, along with warm and humid air off the Gulf providing plenty of instability and sunshine helping to realize that potential. Several areal flood warnings and advisories were issued at times from June 27th through the 30th. Amounts of half an inch to an inch during this timeframe were common south of I-70, with one and a half to three inches spread across the area north of I-70.

Despite running a precipitation deficit for much of the month, a persistent and nearly stationary thunderstorm on the early morning of the 30th that dumped over an inch in about an hour and a half wound up pushing the monthly total at the Indianapolis International Airport with 4.44 inches, or 0.19 inches above normal. Interestingly, the rain gage at NWS Indianapolis which is just a mile or two from the airport gage measured almost 2 inches more in the same timeframe with the early morning thunderstorm on the 30th, highlighting the wide variations in totals over very short distances common with the late month storms.

July

The month of July was generally wetter than normal for much of the state with portions of southwestern Indiana receiving 2 to 6 inches of rain higher than normal. Portions of northern Indiana on the other hand ended the month at 1 to 2 inches below normal. Some locations in western and southern Indiana saw over 10 inches of rain while points only a county away saw less than 4 which characterized the spotty nature of precipitation through the month.

The first week of the month was hot and dry for much of central Indiana with most of the state receiving less than an inch of rain outside of the Indianapolis area which had over 2 inches in spots from the 6th to the 7th. A more widespread rain and severe weather event on the 11th brought several inches of rain to western and southwestern parts of the state.

Isolated to scattered rain and storms continued through the middle of the month before the pattern became more active from the 19th through the 22nd. Rain occurred in several waves during this time period with the initial round of rain on the 19th and 20th. The only flash flooding event of the month for central Indiana occurred in Sullivan County where estimates of 4 to 6 inches of rain fell in just a few hours and led to road closures across the county due to rapidly rising water. Rain and storms continued into the 21st and 22nd, impacting much of the rest of the state as well along with periods of severe weather. Generally dry conditions returned on the 23rd through the 26th. Rain and storms accompanied a cold front on the 27th, impacting counties across eastern Indiana which up to this point had not received as much rain as much of the rest of the state.

Overall, total rainfall amounts varied from 2 to 8 inches across the state with some locally higher and lower amounts. Most of the state spent the month highlighted in the

US Drought Monitor with D0 (Abnormally Dry) at the beginning of the month and spotty locations of D1 (Moderate Drought) popping up by the 2nd week of the month. No river forecast points reached flood stage in July, but several smaller gages reached flood stage during the month in periods of locally heavy rain. On average, rivers and streams were near normal for this time of the year with some lower than normal locations in north central Indiana where the least amount of rain fell. The addition of heavier rainfall by the end of the month led to improvements in the Drought Monitor with just D0 focused primarily over northern parts of the state by early August.

August

Precipitation varied widely across central Indiana during the month of August. An area from western Indiana through northeastern parts of the state saw the greatest precipitation deficits at one to three inches below normal, as only one to two inches of total rainfall fell in most spots. The heaviest rainfall for the month occurred in a swath from the eastern Indianapolis metro area southeast into southeastern Indiana. Many locations received 4 to 6 inches with locally higher amounts in these areas.

Rain fell the first few days of the month, followed by one of the biggest rain producing systems of the month on the 10th. Rainfall amounts across the forecast area with this system ranged from just over half an inch in some northwestern counties and southern counties, to two to three inches over central parts of the state. This also produced the only flash flooding of the month, which occurred over Jackson County. The rainfall was associated with the derecho that produced a path of widespread wind damage from Iowa through Illinois and across Indiana, with reports in Iowa of winds of over 120 mph.

On August 18th, a storm system brought half an inch to two inches to central portions of the state, with little falling elsewhere. Scattered showers wet a few spots from the 24th through the end of the month.

While the month began with an area of D0 drought across northeastern parts of the state stretching back to northern parts of central Indiana and a small patch of D0 in the southwest, the month ended with D1 over the northeast and D0 extending back through northern parts of central Indiana and no drought over the southwest.

Rainfall Data for Other Sites in Central Indiana

Site	Summer 2020 Rainfall	Normal Rainfall	Diff. From Normal
Indianapolis Int'l Arpt.	11.43	11.93	**-0.50**
Lafayette (*)	7.75	11.53	**-3.78**

Muncie	10.08	12.34	**-2.26**
Terre Haute	11.78	12.84	**-1.06**
Bloomington	9.53	13.30	**-3.77**
Shelbyville	14.46	12.50	**+1.96**
Indianapolis – Eagle Creek	10.00	11.84	**-1.84**

(*) – Lafayette precipitation data missing on 6/23.

Major Weather Events

June

Overall, it was another quieter month than normal for severe weather across central Indiana. Scattered severe thunderstorms occurred on multiple days through the month including June 3, 4, 10, 21, 22 and 27. Most of these storms produced wind damage. Additional strong storms occurred through much of the last several days in June as a boundary stalled out over the region.

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

The biggest severe weather event of the month occurred from the late afternoon of the 11th through the early morning of the 12th as a series of thunderstorms complexes produced severe weather across the region. A line of thunderstorms dropped southeast across central Indiana during the late afternoon and evening, downing trees and power lines along with a few occurrences of large hail as well. A second storm complex impacted the western portions of the area late in the evening of the 11th into the early morning of the 12th with additional wind damage occurring.

Thunderstorms producing damaging winds again impacted central Indiana on the afternoon and evening of the 21st and 27th. Strong winds caused large metal doors to blow away at the Toyota plant near Lafayette with the storms on the 21st. A building under construction near Brownsburg was toppled by strong winds, causing 3 injuries and a fatality.

Additional scattered severe storms occurred on the 7th, 8th and 19th.

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 weather was primarily confined to one event in August, occurring during the evening of the 10th as the destructive derecho over Iowa and northern Illinois tracked southeast into central Indiana before weakening. While the derecho had produced multiple wind gusts in excess of 100 mph and some as high as 120 to 140 mph over eastern Iowa, the storm complex had weakened by the time it impacted the area. Most of the gusts recorded were still at 60 to 70 mph, which caused widespread wind damage to structures, trees downed and power outages across central Indiana. For more information on this event, please visit this link:
http://www.weather.gov/ind/august102020severe

The only other occurrence of severe weather during the month occurred on the early morning of the 29th as scattered thunderstorms knocked a few tree limbs down in southwestern Tippecanoe County.

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 2020 Outlook for Central Indiana

The official outlook for the 2020 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
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