

Spring 2020 in Review

The following is a review of weather conditions experienced in central Indiana during the 2020 spring season.

Temperatures

MARCH

March began on a mild note with highs in the 50s and 60s over the first 5 days of the month. Temperatures briefly dipped back into the 40s in many areas on the 6th and 7th before much warmer air returned with highs in the 60s for much of central Indiana from the 8th through the 10th. The passage of a frontal boundary brought temperatures back to seasonable levels over the following week with highs in the 40s and 50s. The coldest day during this period came on the 14th as temperatures struggled to climb out of the 30s and into the lower 40s with snow falling at times across the northern half of central Indiana.

Temperatures briefly turned warmer again on the 19th into the morning of the 20th ahead of a strong cold front before the coldest daytime highs of the entire month on the 21st and 22nd with many locations remaining in the 30s with damp, cloudy weather. Temperatures would gradually warm beginning on the 23rd, culminating in the warmest stretch of March coming from the 25th through the 30th as high temperatures were generally above 60°. As a warm front slowly drifted north through the area on the 27th and 28th, temperatures rose into the 70s and across southern counties, approached 80°. The month ended on a chilly note with highs largely in the 40s as a cool northerly flow with scattered light showers developed as an upper level disturbance passed through the Ohio Valley.

Temperatures averaged 4 to 6° above normal across central Indiana for March and for much of the area, it was the warmest March since 2016. At Indianapolis, the temperature never fell to 20° or lower, the first time that had happened in March since 2012 and only the 4th March that had happened since 1985.

APRIL

After the relative warmth of the late winter and early spring through March, an overall cooler pattern took hold for stretches of April as consistent warmth remained a challenge all month.

April began cool with highs primarily in the 50s and lower 60s through four of the first five days of the month. Temperatures turned warmer as strongly southerly flow developed beginning on the 6th with highs topping out in the upper 70s and in some spots, the lower 80s on the 7th and 8th. These two days would be the warmest of the entire month. A strong cold front brought a line of severe storms through the region on the evening of the 8th, with a return to much cooler temperatures on the 9th and 10th that saw highs fall back into the lower and middle 50s with the first of what would become multiple days through the month with lows near or just below freezing.

Temperatures briefly rebounded on the 11th and 12th before the coldest weather of the month arrived with several days of highs in the middle 40s to middle 50s. With the growing season already far enough along by the middle of April, a hard freeze occurred for much of the area on the mornings of the 15th and 16th as lows fell into the 20s. Warmer weather would return beginning on the 19th with most days rising into the 60s and 70s for much of the rest of the month. April would end on a cool note as clouds and light rain in the wake of a cold frontal passage would keep daytime temperatures largely in the 40s over much of the area on the 30th.

Temperatures averaged up to 2 degrees below normal for the month across central Indiana during April. The 5 days during the month with highs at or above 70° at Indianapolis tied 2018 for the least amount of April days to reach 70° since 2000.

MAY

After an overall cooler April, the unseasonably cool weather continued through much of the first half of May before more typical temperatures for late spring finally settled in for the last 10 or so days of the month.

A brief but notable warmup greeted the month's beginning as highs peaked in the lower 80s on the 2nd. The warmth was short-lived however as a cold front would pass on the 3rd with a persistent upper level trough then setting up over much of the eastern United States for the better part of the next two weeks. This would bring consistently cooler than normal temperatures, with most locations not making it to 70° for 10 consecutive days beginning on the 4th. Through that stretch, there were several days where highs were unable to even make it to 60°. Frost accrual became an increasing concern throughout this period as well with overnight lows repeatedly falling into the 30s. An unusual late season hard freeze occurred across much of central Indiana on the morning of the 9th as temperatures fell into the mid and upper 20s. Indianapolis would set an all-time record for the coldest temperature ever recorded in the month of May with a low on the 9th of 27°. After another surge of cool air in wake of a front, high temperatures on the 11th struggled to get out of the 40s, a solid 20-25° below average.

Beginning on the 14th, the pattern would shift to a much more typical regime for May as temperatures recovered back into the 70s and even a few spots rising into the lower 80s. A brief cooldown with highs in the upper 50s to mid 60s would return from the 18th to the 21st courtesy of a slow moving upper level low pressure system that kept cool and damp conditions across the region. Then on the 22nd, a much warmer and more humid airmass would finally make an appearance across the Ohio Valley and remain for much of the rest of the month. Highs would rise consistently into the mid and upper 80s with a few spots recording their first day above 90° over the Memorial Day weekend. A cold front would bring cooler and drier air for the last two days of the month in the 70s.

The 7 days with highs at or above 80° at Indianapolis was the least amount in May since 2009. On the flip side, nearly half of the month's days saw highs remain below 70°, the most in the month of May since 2008. For lows in Indianapolis, 8 mornings saw lows fall to 40° or colder, the most in May since 2002.

Temperature Data for Sites in Central Indiana

Site	Spring 2020 Temperature	Normal Temperature	Diff. From Normal
Indianapolis Int'l Airport	52.6	52.6	0.0
Lafayette	53.5	51.5	+2.0
Muncie	53.0	50.9	+2.1
Terre Haute (*)	53.3	53.0	+0.3
Bloomington	53.8	53.0	+0.8
Shelbyville	54.2	52.5	+1.7
Indianapolis – Eagle Creek	52.5	52.8	-0.3

(*) – Temperature data missing for Terre Haute on April 9.

Spring Extremes Across Central Indiana

Site	Warmest Temperature	Coldest Temperature
Indianapolis Int'l Airport	88 on 5/25	21 on 3/7
Lafayette	91 on 5/24 and 5/25	18 on 3/7
Muncie	90 on 5/25 and 5/26	23 on 3/7
Terre Haute	88 on 5/25	20 on 3/7
Bloomington	89 on 5/25	20 on 3/7
Shelbyville	90 on 5/25 and 5/26	23 on 3/7

Indianapolis-Eagle Creek	88 on 5/25	21 on 3/7
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Precipitation

MARCH

March was an active month hydrologically for central Indiana, but not unusually so. Several rain events impacted the area at different times through the month, generally keeping rivers high for most of the month and producing minor flooding from near the middle of the month through the end of the month in some places.

Rainfall totals set up in a northwest to southeast gradient across central Indiana. Northwestern portions saw 2 to 4 inches, while central and southern portions saw 4 to 6 inches, with additional areas of 6 to 8 inches over south central and southeastern parts of central Indiana. Thus rainfall across the HSA ranged from near normal in the northwest to 150 to over 200% of normal around the southern half or so of the area.

Several significant rain events occurred during the month of March and led to periods of minor flooding. The first event occurred on the first of the month across southern Indiana where 1 to 2 inches of rain fell. This led to the falling river levels on the East Fork White briefly rising, but led to no new flooding. Flooding would return after a series of rainy days (along with the only measurable snow for the month for Indianapolis on the 14th) from March 13th to the 15th where 2 to 3 inches of rain fell. This led to widespread minor flooding along the main stem rivers which would continue through the end of the month across the southern White and Wabash basins.

Conditions were seasonably dry for much of the latter half of March with rain amounts generally less than an inch except for a locally heavy area of rain across southeastern Indiana on March 20th which brought flash flooding to portions of the upper East Fork White basin and some moderate flooding along several of the East Fork White tributaries. Mostly dry conditions prevailed afterwards until a heavy rain and severe weather event on March 28th brought locally heavy rain and renewed flooding for portions of the White and Wabash Rivers. Significant flash flooding occurred in the headwaters of the White River where a series of thunderstorms brought repeated heavy rain to the area.

APRIL

The first two thirds of the month of April were drier than normal, with only small rainfall amounts and below normal temperatures across the area. This initially allowed any ongoing flooding at the beginning of the month to subside, and then as it continued brought streamflow levels to well below normal for this time of year. A more active and

wetter pattern arrived for the last week to bring multiple rainfall events back to back and bring some minor flooding to a spot on the Wabash to end April. Northeastern portions of central Indiana saw one to two inch rainfall totals for the month, with central portions seeing two to three inches and southern and western counties receiving three to four inches. While the northern Wabash Valley was near normal in rainfall for the month, the rest of central Indiana was one to three inches below normal.

A line of severe thunderstorms moved through central Indiana on the evening of April 8th. The storms moved quickly at speeds of over 55 mph, and this helped to keep total rainfall amounts from getting too high. Most of the area received around a quarter of an inch to half an inch, with higher amounts approaching an inch. A weak system moving through on April 11th brought around a quarter inch of rain to much of the area. Another system on the 17th brought a quarter inch to half an inch with it. For the Indianapolis area, the 0.67 inches of rain the first 22 days of April this year tied for the 6th driest since records began in 1871.

The wetter pattern to end the month began on April 23rd as a low pressure system tracking through the Ohio Valley brought around a tenth to a quarter inch of rain to the northeast counties, with a quarter to half an inch across central counties, and up to an inch and a half to the southern counties as well as a swath in the west over the Wabash Valley. On the 25th, a tenth to a half inch across central and eastern counties, with half an inch to an inch across western counties (with a few locally higher amounts) and an inch to two inches south along the Ohio River.

The slow movement of another low pressure system through the Great Lakes brought rainfall to the area near the end of the month. On the 28th, most of the area didn't see much measurable rain, but an area northwest of a line from Terre Haute to Lafayette saw from half an inch to over an inch. Then on the 29th, most of central Indiana saw a quarter inch to half an inch. With all the rain events over the last week of April bringing some rain into parts of the Wabash basin, minor flooding developed at Montezuma on the Wabash, with a few sites downstream still rising at the end of the month and likely to get near or just below flood stage to start May.

MAY

Rainfall amounts for the month of May varied across central Indiana with the northeastern portions of the area receiving 50 to 75% of normal precipitation to over 150% across some sections of the I-70 corridor. Much of this rainfall fell during the middle portion of the month and would lead to fairly widespread minor flooding along the White and Wabash Rivers along with several smaller streams. Some of the highest rainfall amounts for the month occurred in an axis from the southern Indianapolis metro area south-southeast along the I-65 corridor to near Seymour. Several cooperative observer sites within this area received in excess of 7" for the month, including Indianapolis International Airport which received 7.13". An additional axis of heavier rainfall observed near and above 6" for the month extended from Martin County north

through Greene and Clay Counties.

A rain event on the 2nd brought a swath of half an inch to over two inches across a strip from north of Terre Haute to Franklin to Columbus. Rainfall amounts over 1.5 inches were confined mainly to east of I-65. On the 3rd, there was another swath of rain from a quarter inch to over an inch across the southern counties, from north of Vincennes to Bloomington to Seymour. The 4th brought more widespread rain of 0.25 to 0.75 inch south of I-74. Mainly dry weather then ensued for the next week and a half.

The 13th brought rain amounts of a quarter inch to an inch along lower portions of the Wabash and White basins. The 14th saw half an inch to 1.5 inches across central parts of the state, with widespread rains of over an inch over northern Indiana, including an area of heavy rain of 2 to 3 inches over far northwestern Indiana. The 15th saw half an inch to 1.5 inches along the Ohio River. The 16th saw half an inch to around two inches over western Indiana, with the highest amounts south of Terre Haute. The 17th saw heavy rain across nearly all of central Indiana, with the highest amounts of 2 to 4 inches across an area from Kokomo to Indianapolis to Bloomington to Vincennes. On the 18th this system moved off to the east and produced even higher rainfall amounts over western Ohio.

A break in the rain over central Indiana from the 18th through the 22nd allowed some recovery in area streams and allowed the ground to dry some as well. Off and on thunderstorms arrived for the holiday weekend, with the most coverage on Saturday the 23rd. Even then, due to the convective nature of the rainfall, there were swaths of half an inch of rain, with embedded portions of over 1.5 inches, as well as several dry areas. Pop up storms on the 24th brought a quarter to half an inch wherever they occurred. On the 25th most storms occurred outside of the forecast area. The 26th saw rainfall of a quarter inch to over an inch over the eastern half or so of central Indiana. Additional rainfall of around an inch on the 28th and 29th allowed for brief minor flooding to return at the East Fork White River near Seymour.

Spring Precipitation Data for Sites in Central Indiana

Site	Spring 2020 Precipitation	Normal Precipitation	Diff. From Normal
Indianapolis Int'l Airport	13.53	12.42	+1.11
Lafayette	8.90	10.40	-1.50
Muncie	8.82	11.03	-2.21
Terre Haute (*)	10.69	14.15	-3.46
Bloomington	14.31	13.82	+0.49
Shelbyville	13.03	13.03	0.00
Indianapolis – Eagle	6.61	12.47	-5.86

Creek			
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(*) – Precipitation data missing for Terre Haute on April 9.

Severe Weather

A few strong thunderstorms produced small hail late in the evening of March 2nd and the early morning of the 3rd to the northwest of Indianapolis. Early in the morning of March 20th, strong storms produced gusty winds over southern portions of central Indiana ahead of a cold front. The first severe weather of the year came in multiple waves on March 28th. Thunderstorms developed in the vicinity of a warm front around midday throughout the afternoon and produced large hail across portions of central Indiana, including up to golf ball size hail in Shelbyville in Shelby County and Anderson in Madison County. Hail covered the ground in spots across the northern Indianapolis suburbs through Boone and Hamilton Counties. Another round of severe storms impacted the region during the late evening with wind gusts measured in excess of 65 mph. Microbursts were responsible for roof and shingle damage to homes in Mooresville in Morgan County and to the north of McCordsville in Hamilton County.

April was a month that saw very little severe weather. A strong cold front brought severe thunderstorms to central Indiana on April 8th. The storms first produced large hail, then transitioned into damaging winds and a tornado. An EF-1 tornado struck downtown Mooresville, damaging several buildings. Damaging winds elsewhere brought down trees and power lines. Details can be found at <https://www.weather.gov/ind/Apr082020SvWx>

May continued the trend of far less than normal severe weather impacting central Indiana in what is typically one of the busiest months for severe storms. There were several smaller events through the month that produced wind damage and hail, but nothing widespread. The largest event of the month occurred on the afternoon and evening of May 23rd as multiple lines and clusters of storms impacted the region. Indianapolis recorded a 55 mph gust as an intense storm tracked through the metro area during the afternoon. The most extensive damage from the 23rd occurred during the late afternoon in northwest Rush County as a bowing line of storms with an embedded microburst produced more extensive wind damage in a small area north of Arlington. Three barns sustained significant damage and multiple trees and power poles were knocked down.

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

Indianapolis Data

INDIANAPOLIS MARCH 2020 SUMMARY

	Average Temperature	Total Precipitation	Total Snowfall	Highs at or above 70°/80°
March 2020	46.2	4.68	1.2	1/0
Normal March	42.2	3.56	2.6	3/0
Difference from Normal	+4.0	+1.12	-1.4	-2/0

March 2020 All-Time Ranks:

Temperature: Tied for 23rd Warmest

Precipitation: 39th Wettest

Snowfall: Tied for 46th Least Snowiest

INDIANAPOLIS APRIL 2020 SUMMARY

	Average Temperature	Total Precipitation	Total Snowfall	Highs at or above 70°/80°
April 2020	50.8	1.72	Trace	5/0
Normal April	53.0	3.81	0.2	10/5
Difference from Normal	-2.2	-2.09	-0.2	-5/-5

April 2020 All-Time Ranks:

Temperature: Tied for 44th Coolest

Precipitation: 15th Driest

INDIANAPOLIS MAY 2020 SUMMARY

	Average Temperature	Total Precipitation	Total Snowfall	Highs at or above 70°/80°
May 2020	60.7	7.13	Trace	16/7
Normal May	62.7	5.05	Trace	20/8
Difference from Normal	-2.0	+2.08	0.0	-4/-1

May 2020 All-Time Ranks:

Temperature: 47th Coolest

Precipitation: 16th Wettest

INDIANAPOLIS SPRING 2020 SUMMARY

	Average	Total	Total Snowfall	Highs at or above
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	Temperature	Precipitation		70°/80°
Spring 2020	52.6	13.53	1.2	22/7
Normal Spring	52.6	12.42	2.8	33/13
Difference from Normal	0.0	+1.11	-1.6	-11/-6

Spring 2020 All-Time Ranks
Temperature: Tied for 59th Warmest
Precipitation: 45th Wettest
Snowfall: Tied for 47th Least Snowiest

Summer 2020 Outlook for Central Indiana

The official outlook for the 2020 summer season (June-August) from the Climate Prediction Center, indicates a slightly greater chance for above normal temperatures across central Indiana. At Indianapolis, the average temperature for the summer season is 73.9 degrees. The outlook also calls for a greater chance of above normal precipitation. The average precipitation at Indianapolis is 11.93”.

Data prepared by the NWS Indianapolis Climate Team
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