

Winter 2019-2020 in Review

With March comes the end of meteorological winter, a period defined as covering the months of December through February. The following is a review of weather conditions experienced in central Indiana during the winter season of 2019-2020.

Temperatures

DECEMBER

Much of the month of December was warmer than normal across central Indiana as intrusions of Arctic air were largely bottled up to the north of the region. The month started mild with highs mainly in the upper 40s and lower 50s and lows in the 20s and 30s through the 9th. Beginning on the 10th, the pattern shifted to a colder regime in the wake of a frontal passage with highs falling back into the 30s. After a brief recovery from the 12th to 14th with near normal temperatures, the coldest weather of the month would follow the two part snowstorm that impacted much of the area on the 15th and 16th. The coldest daytime temperatures of December would come on the 18th as much of the region remained in the 20s with single digit lows following the morning of the 19th with clear skies and light winds over a fresh snowpack.

The last third of the month would see the weather pattern transition back to a warmer and much drier pattern with every day from the 22nd through the 30th experiencing daytime highs above 50°. Temperatures surged to near record levels from the 25th and 26th with low to mid 60s common over central Indiana. The high of 62° in Indianapolis on the 25th was the fourth warmest Christmas Day on record and for the entire region, the warmest Christmas in 37 years. Temperatures would remain well above normal until a strong cold front passed through the region late on the 29th and early on the 30th. Temperatures would fall back into the 30s to wrap up the end of the month and year.

Much of central Indiana ended up with average temperatures of 5 to 7° above normal for December. Indianapolis would experience 3 days with temperatures of 60° or warmer, the most in December since 2015. Despite the warmer than normal temperatures, much of the area did very well with snowfall for the month as well courtesy of the two part system that dropped several inches of snow on the 15th and 16th.

JANUARY

Typical winter temperatures were hard to find throughout much of January as most of the cold air remained well north of the region. Highs were primarily in the 40s through the first week of the month with lows in the 20s and 30s. Beginning on the 9th, a surge of warmer air into the Ohio Valley pumped high temperatures into the 50s and in the lower and middle 60s early on the 11th, the warmest day of the month.

Colder temperatures returned through the middle of the month but in general, remained above normal in the 40s. The passage of a strong cold front on the 18th ushered in the coldest temperatures of January as an Arctic airmass briefly expanded across the region. Highs on the 19th were only in the teens and 20s, with low temperatures in the single digits and teens. Only modest recovery occurred on the 20th and 21st before temperatures recovered back to near normal levels. With the exception of temperatures mainly in the 40s on the 23rd and 24th, highs were largely near normal and in the 30s for the rest of the month with lows ranging from the middle 20s to lower 30s. The warmer lows at night over the last several days of the month were due in large part to an extended stretch of cloudy skies.

January temperatures ended up averaging roughly from 6 to 9° above normal across Central Indiana, producing the warmest January for many since 2017 and for Indianapolis, only the 3rd January since 2008 that experienced a monthly average above 30°. The monthly average low temperature of 28.3° in Indianapolis, was the warmest January average minimum temperature since 2006.

FEBRUARY

February experienced plenty of temperature swings with highs as warm as the 60s and lows dropping to the single digits on one or two mornings. Warmth started quickly with 60s on Groundhog Day, the 3rd and even on the 4th over much of the region and even a few locations reaching the lower 70s on the 3rd. Indianapolis established new record highs for both the 2nd and 3rd, reaching 63° and 67° respectively.

The passage of a cold front brought temperatures back closer to normal beginning on the 5th as highs would remain largely in the 30s to lower 40s through the middle of the month. Lows were in the 20s and lower 30s through the 12th. The passage of an Arctic front on the 13th would usher in the coldest temperatures of the month and one of the colder Valentine's Days on record. The high of 19° at Indianapolis marked the fifth coldest February 14th on record, tied with Valentine's Day 2007. Lows began in the single digits that morning with a few spots in northern parts of central Indiana beginning below zero.

The cold temperatures were brief, with mid and upper 40s returning as soon as the 15th and persisting through the 18th. A few spots warmed into the lower 50s during this period of days as well. The passage of another cold front would transition back to colder temperatures beginning on the 19th and continuing through much of the rest of the

month. A brief warmup on the 22nd and 23rd brought highs up into the 50s, otherwise temperatures remained below 50° over the last 10 days of the month with the last few days remaining in the 30s during the day.

Temperature Data for Sites in Central Indiana

Site	Winter 2019-20 Temperature	Normal Temperature	Diff. From Normal
Indianapolis Int'l Airport	35.1	30.5	+4.6
Lafayette	33.2	29.1	+4.1
Muncie	35.8	28.9	+6.9
Terre Haute	35.6	30.7	+4.9
Bloomington	36.8	31.5	+5.3
Shelbyville	36.5	30.7	+5.8
Indianapolis – Eagle Creek	34.9	30.6	+4.3

Winter Extremes Across Central Indiana

Site	Warmest Temperature	Coldest Temperature
Indianapolis Int'l Airport	67 on 2/3	2 on 2/14
Lafayette	64 on 12/26	-4 on 2/14
Muncie	66 on 12/26	3 on 2/14
Terre Haute	69 on 2/3	3 on 2/14
Bloomington	71 on 2/3	6 on 2/14
Shelbyville	69 on 2/3	4 on 12/19
Indianapolis-Eagle Creek	66 on 2/3	2 on 2/14

Precipitation and Snowfall

DECEMBER

The month of December was a near normal month in terms of precipitation. Rainfall amounts generally ranged from 2 to 4 inches with the heaviest amounts across the eastern and southeastern portions of the state. Snowfall amounts were near to slightly above normal for the month with much of the snow occurring from the 15th to the 17th.

A widespread rain event occurred on December 8th and 9th as a result of warm advection ahead of a cold front. This brought rainfall amounts of a quarter to half an inch north, to half an inch to over an inch central and south, with a tapering down to a quarter inch or less right along the Ohio River. No flooding occurred as a result of this rainfall, but small streams did show pretty decent responses.

A significant snowfall occurred from December 15th into the morning of the 17th across much of central Indiana. The heaviest snow fell generally along the I-70 corridor with two day snowfall totals ranging from 4 to 7.5 inches. Further south, snow mixed with some freezing rain along with heavier rain. Total liquid amounted to between 0.75 and 1.5 inches with the highest amounts across south central Indiana.

From the 18th through the 28th, much of the state remained dry with much of the snow melting by Christmas. A widespread rain event moved through central Indiana between the 28th and 29th bringing 1 to 2 inches to central Indiana which led to minor flooding along portions of the lower White River, upper Wabash, and a few smaller streams.

Indianapolis ended up with 7.6 inches of snow for the month, the most in December since 2013.

JANUARY

Hydrologically, January was an active month with many area rivers at or above flood stage for much of the month.

Light precipitation fell across central Indiana from the 2nd to 5th of the month bringing around a half inch of rain to the state. A strong low pressure system moving from the Gulf northward through central Indiana combined with a powerful low level jet to bring the first period of heavy rain for the month from the 10th to the 12th. Three to five inches of rain fell across central Indiana with this system, which led to some of the highest flooding since last June. This flooding would continue into the end of the month across the lower White and Wabash basins. At Indianapolis, two daily rainfall records were set during this event. Saturday, January 11th saw 1.87 inches of rain, which broke the old record of 1.29 inches set in 1924. Sunday, January 12th 1.52 inches fell, breaking the previous record of 1.16 inches set in 2005.

The next big system to impact central Indiana arrived on the evening of January 17th. Initially this system brought a wintry mix that night, which transitioned to heavy rain on the 18th. Precipitation totals of another 1 to 1.5 inches fell across the area and led to

brief renewed flooding along smaller streams across Indiana and helped to prolong flooding in areas that were still flooding from the rains on the 10th to 12th.

Additional rain of less than a half inch fell from the 23rd to the 25th. During this event, the only measurable snow of January fell for much of central Indiana. Snowfall amounts were generally less than a half inch with slightly higher amounts in north central Indiana.

FEBRUARY

February was another hydrologically active month with widespread minor flooding along the East Fork White, White, and Wabash Rivers as well as a few smaller streams in central Indiana. Area rivers began the month high, but generally below active stage and fell for the first week of February. Periods of rain brought fairly widespread flooding back to central Indiana the second week of the month with many points reaching into minor flood stage. Flooding returned during the third week of the month for the Wabash River as additional rain fell on elevated river levels. Rainfall amounts for the month ranged from less than 2" in the northern portions of central Indiana to over 5" in the far south. Rainfall percent of normal was between 100 and 150% for much of the area with some higher amounts around the Indianapolis area and across the southern counties. Snowfall amounts were below normal with 4.3" in the Indianapolis area and slightly higher amounts further north and much lower amounts south.

Light snow began on February 9th and transitioned to widespread rain which continued through the 10th. Upwards of 2" of rain fell which led to widespread minor flooding along the main stem rivers. A low pressure system moving through the Ohio valley then brought additional precipitation February 12th into early the 13th, with snowfall amounts of mainly 2 to 4" north of I-70, snow and sleet totals around an inch along the I-70 corridor, and rain south of there. This event prolonged the ongoing flooding which continued through the middle of the month. Another frontal system brought a moderate rain event to central Indiana on the 17th. The heaviest rainfall with this system, around 0.5 to 0.75", fell across northwestern parts of central Indiana. This brought renewed flooding to the Wabash River basin which had not recovered from the flooding earlier in the month.

Flooding ended along the Wabash River by the 21st. Rain fell from the 24th through the 26th as another low pressure system slowly moved through the area, with the rain again transitioning to snow on the 26th. This system brought around an inch of rain to central Indiana, with two to four inches of snow across northern central Indiana on the 26th. This brought rivers back into action stage, but was not enough to produce flooding on any of the mainstem rivers.

Snowfall was again below normal across central Indiana through February. Indianapolis finished with 4.3" which was a little over 4" below normal.

Winter Precipitation Data for Sites in Central Indiana

Site	Winter 2019-20 Precipitation	Normal Precipitation	Diff. From Normal
Indianapolis Int'l Airport	12.26	8.15	+4.11
Lafayette	8.37	6.13	+2.24
Muncie	6.64	7.42	-0.78
Terre Haute	11.24	7.34	+3.90
Bloomington	12.61	9.61	+3.00
Shelbyville	11.94	8.02	+3.92
Indianapolis – Eagle Creek	7.16	7.42	-0.28

Severe Weather

No severe weather occurred across central Indiana through the winter 2019-2020 season.

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

Indianapolis Data

INDIANAPOLIS DECEMBER 2019 SUMMARY

	Average Temperature	Total Precipitation	Total Snowfall	Highs below freezing
December 2019	37.0	3.05	7.6	3
Normal December	31.6	3.17	6.9	8
Difference from Normal	+5.4	-0.12	+0.7	-5

December 2019 All-Time Ranks:

Temperature: 23rd Warmest

Precipitation: Tied for 58th Wettest

Snowfall: 34th Snowiest

INDIANAPOLIS JANUARY 2020 SUMMARY

	Average Temperature	Total Precipitation	Total Snowfall	Highs below freezing
January 2020	35.0	5.32	0.3	3
Normal January	28.1	2.66	8.6	12
Difference from Normal	+6.9	+2.66	-8.3	-9

January 2020 All-time Ranks

Temperature: 16th Warmest

Precipitation: 18th Wettest

Snowfall: 8th Least Snowiest

INDIANAPOLIS FEBRUARY 2020 SUMMARY

	Average Temperature	Total Precipitation	Total Snowfall	Highs below freezing
February 2020	33.3	3.89	4.3	3
Normal February	32.1	2.32	6.5	7
Difference from Normal	+1.2	+1.57	-2.2	-4

February 2020 All-Time Ranks:

Temperature: 52nd Warmest

Precipitation: 26th Wettest

Snowfall: 64th Snowiest

INDIANAPOLIS 2019-2020 WINTER SEASON SUMMARY

	Average Temperature	Total Precipitation	Total Snowfall	Highs Below Freezing	Lows Below Zero
Winter 2019-2020	35.1	12.26	12.2	9	0
Normal Winter	30.5	8.15	22.0	27	6
Difference from Normal	+4.6	+4.11	-9.8	-18	-6

Winter 2019-2020 All-Time Ranks

Temperature: Tied for 15th Warmest

Precipitation: 13th Wettest
Snowfall: 61st Least Snowiest

Temperature and precipitation records at Indianapolis go back to 1871. Snowfall records go back to 1884.

Spring 2020 Outlook

The official outlook for meteorological spring (March-May 2020) from the Climate Prediction Center indicates a greater chance for above normal temperatures and precipitation. At Indianapolis, the average temperature for the spring season is 52.6 degrees. The average spring season precipitation is 12.42 inches along with 2.8 inches of snowfall, most of which typically falls during the month of March.

Data prepared by the NWS Indianapolis Forecast Office.