

Spring 2021 Review

of Weather Conditions Experienced In Central Indiana

Temperatures

MARCH 2021

The extended period of chilly temperatures that dominated central Indiana for much of February transitioned rather quickly as the calendar turned to March. Near normal high temperatures in the mid and upper 40s were common throughout the first week of the month. An early taste of spring came on the 3rd with many locations warming into the lower 60s for the first time this year. An unprecedented stretch of dry, tranquil weather lasted through the first 10 days of March with southerly winds pumped temperatures to their warmest levels since early November for multiple days beginning on the 8th. Highs soared into the upper 60s and lower 70s across the area with low temperatures much closer to the average highs.

Even after rain on the 11th, temperatures remained into the 60s before slipping backwards to near normal levels through the middle part of March. A briefly wetter stretch of days accompanied the cooler temperatures from the 15th through the 18th with daytime temperatures varying from the mid 40s to near 60. Beginning on the 19th, the remainder of the month would see extended periods of warmer than normal temperatures with briefly cooler surges of air in the wake of cold frontal passages. High temperatures would return to the lower and mid 70s on a few additional days, the 24th, the 27th and 30th. The passage of cold fronts late on the 27th and again on the 30th would bring 20°+ temperature drops on the following days, along with temperatures near to slightly below freezing at night.

March would end up roughly 5 to 8 degrees above normal at all of the main climate sites across central Indiana with no substantial stretch of colder than normal temperatures.

APRIL 2021

As can be typical in early spring, temperatures bounced around quite a bit during the month of April across central Indiana. The very beginning of the month was much colder than normal, but that quickly gave way to about a week of much above normal temperatures. Highs reached as warm as the upper 70s to around 80, marking the first 80 degree day of the year for some areas.

Much of the rest of the month had more days below average for most central Indiana locations. There were some extremes during that time though. Very cold air moved in around the 20th of the month, with highs only in the 40s and lows in the 20s. Indianapolis set a new record low of 26 degrees on April 21st. The old record was 28 degrees set in 1907. Some locations reached slightly colder temperatures in April than was seen in March.

Nearly a week later, the other extreme arrived with highs in the 80s on the 27th. Thanks in part to dry soil conditions, Lafayette reached 89 degrees on the 27th . More seasonable air returned to end the month.

At many sites, the extremes balanced each other out, with monthly temperatures ending up less than a degree above normal. Other sites ended up a few degrees above normal.

MAY 2021 TEMPERATURES

The month featured several periods of anomalous temperatures as the seven 1st-order airports tallied 15–19 days that averaged either 8+ degrees above or 8+ degrees below normal.

The generally chilly pattern of mid to late April 2021 continued through the first half of May, as highlighted by an unseasonably cold period during **May 5th–15th**. An anomalously deep and broad upper-level trough, a couple strong ridges of Canadian high pressure, and a generally northwest flow all contributed to readings consistently 10-20F below normal. The coldest mornings were the 8th and the 10th, with Terre Haute reporting a late freeze (31F on 5/8); as did many COOP sites, mainly north of I-70 (including Rockville on 6 mornings), as well as sites as far south as Bloomington Indiana University (28F on 5/7), and Carmel 3E (31F on 5/10). Frost accrual was a concern for several nights during this period: Frost Advisories were issued for all but southwestern and/or southern counties for the overnights of the 7th-8th and 9th-10th, with a third and final Frost Advisory issued for the entire region for the overnight of the 11th-12th.

Very warm conditions then occurred **May 19th–26th** as a broad upper ridge built over the Ohio Valley. Widespread mid to upper 80s were seen across the region, including the year's first 90F+ readings in several locations, especially far southwestern counties. Temperatures were generally ~10F above normal for 3-4 days, with May 24th through the morning of the 26th being the warmest period. The highest morning lows were generally in the upper 50s to upper 60s, although a daily minimum of 70F was recorded on 5/26 at both Shelbyville and the Purdue Ag Center north of Vincennes.

A rather quick, yet potent blast of cool air graced central Indiana on **May 28th–31st** as an amplified, yet positively-tilted trough combined with yet another mass of Canadian high pressure to provide 2-3 days of chilly northeasterly flow. The 29th afternoon maximum only reached the mid 60s; while lows all three mornings dropped to the 40s to near 50F; as well as 39F at Bloomington IU and 37F at the Purdue Agronomy Center northwest of West Lafayette (both on 5/29). The eight other days outside of these three anomalous periods included rather mild readings during May 1st–4th; and a generally near-normal period for May 16th–18th.

May 2021's widespread overall below average temperatures continued May 2020's trend of near to below normal readings. However, May 2021 reversed April 2021's trend of near to above normal temperatures. And when considering the spring 2021 season, May 2021 continued the relative downward trend in temperatures – following a very warm March, and the near normal to slightly warm April.

Given the month's several strong regime changes, Indianapolis' high and low temperatures were not held above or below any threshold for long durations. The closest such distinction

was high temperatures remaining below 70F for 11 consecutive days (3rd–13th) ... and also above 75F for 9 consecutive days (19th–27th). Indianapolis' 7 days with highs at or above 80F tied May 2020's tally for the least amount in any May since 2009. Indy's 6 days with lows at or below 40F was the second-most since 2002 (May 2020 holds the greatest recent total with 8).

Spring 2021 Temperature Data for Central Indiana Sites

Site	Spring 2021 Av Temperature	Spring Season Normal Temp	Difference From Normal
Indianapolis Int'l Airport	53.7	53.2	+0.5
Lafayette	56.2	50.9	+5.3
Bloomington	54.4	53.6	+0.8
Muncie	54.4	53.8	+0.6
Terre Haute	54.3	53.2	+1.1
Shelbyville	55.2	54.3	+0.9
Indianapolis Eagle Creek AP	53.6	53.3	+0.3

Spring 2021 Temperature Extremes Across Central Indiana

Site	Highest Temperature	Lowest Temperature
Indianapolis Int'l Airport	87 on 5/24/2021	21 on 3/2/2021
Lafayette	93 on 5/24	21 on 4/2
Bloomington	90 on 5/25	20 on 4/2
Muncie	91 on 5/26	22 on 3/5, 3/7 and 4/2
Terre Haute	87 on 5/25	20 on 4/2
Shelbyville	91 on 5/26	23 on 4/2
Indianapolis Eagle Creek AP	88 on 5/25	21 on 3/2

Precipitation

MARCH 2021

March was generally near normal for the IND HSA with pockets of above normal precipitation across the Wabash and White River basins with lower than normal across the East Fork White River basin. Rainfall amounted to generally 3 to 5 inches of rain with amounts closer to 2 inches across eastern and southeastern portions of central Indiana. Flooding occurred several times over the month with rivers generally near normal for the month. With these conditions across most of the HSA, by the end of the month, abnormally dry and moderate drought conditions were confined to the northern third of the state and out of central Indiana.

Dry weather was in place for much of the early portions of the month with the first major rain event occurring on the 11th. This dry stretch allowed for the flooding that began at the very end of February and the first of March to come to an end. The generally 1 to 2 inches of rain that fell on the 11th caused the river falls to come to an end, but was not enough for renewed flooding even with the high levels that were ongoing across the southern Wabash and White rivers where flooding had just ended.

Another wet period occurred from the 15th to the 18th with several days of precipitation across the area. With cold temperatures in place at the surface, precipitation on the 15th fell largely as freezing rain for much of the area, with a little sleet and snow mixed in. This light icing (generally around 0.1 to 0.2 of accretion) combined with wind gusts of 35 to around 50 mph produced several power outages across the area. Later that night, temperatures warmed enough for melting, and subsequent precipitation arrived as rain in the morning. After a lull, rain picked back up late on the 17th and through the 18th as a low level jet brought ample moisture up into the area. This multi-day event hit the western and northern portions of the state harder than the east and led to a renewed period of flooding for much of the Wabash basin along with the lower White basin and many smaller streams. Rain was heaviest on the 18th with smaller streams climbing well into flood stage and resulted in numerous areal flood warnings and advisories across central Indiana.

Strong storms moved across central Indiana on the 25th with large hail and isolated strong winds noted with the storms. The convective nature of the rainfall led to widely varying rain totals, but for most of the area amounts were less than a half inch. One big exception was across northwest parts of the area, where 1.5 to 2 inches was seen in and around the Lafayette area. In the wake of these storms, strong low pressure moved through the state late the night of the 25th into early on the 26th bringing strong to severe non-thunderstorm wind gusts, with gusts of 45 to 60 mph common across most of central Indiana. This was the third wind headline event for the month of March, with a wind advisory or high wind warning in place across at least parts of central Indiana on March 10th, 18th, and the 25th.

Another round of storms passed through on the evening of the 27th with heavy rain continuing through the overnight hours. This more widespread rain caused more significant rises on area rivers and streams and resulted in a flood advisory in portions of Montgomery and Boone counties where an isolated area of 1.5 to over 2 inches of rain fell.

At the end of the month, flooding was ongoing across the middle sections of the Wabash River as a result of a combination of rains from the 25th and late 27th -early 28th . Areas further downstream had a larger capacity to hold the water from recent rains without leading to flooding.

APRIL 2021 PRECIPITATION

Rainfall amounts varied across the state during the month of April with total accumulation varying from between 1 and 1.5 inches in the north central and west central portions of the state to between 4 and 5 inches across the south. Those heavier amounts of rain across the south led to elevated river levels in the lower portions of the White and East Fork White river basins, but no flooding. Those rain amounts were below to much below normal with most locations running between 50 and 75% of normal amounts.

The first 7 days of April were either completely dry or mostly dry temperatures initially well below normal before becoming above normal. Some light rain fell on the 8th and 9th with widespread heavier rain starting on the 10th. Between the 10th and the 12th, rainfall amounts between 1 and 2 inches fell across the Indy metro area with another area of heavy rain across south central Indiana near Bedford.

Another period of quiet and cooler weather returned from the 12th to the 19th before an extremely abnormal snow event occurred across most of central Indiana on April 20th . Snowfall amounts ranged from 1 to 4 inches with most areas seeing around 2 inches snow. The heaviest amounts of snow were located in points north and east of Indianapolis.

The 2" of snow that fell at Indianapolis on the 20th set a record snowfall for the date. This was the most snowfall so late in the season at Indianapolis since snow fell in May, 1989. During the afternoon hours, snow generally melted as it landed due to the warm ground temperatures, but by the evening and early overnight hours, the snow was able to accumulate on grassy and elevated areas with roads generally remaining clear. The snow depth of 1" on the 21st set a record for snow depth for that date at Indianapolis. The total amount of rain and melted snow generally amounts to around a half inch of precipitation. The snow event was followed by several nights of sub-freezing temperatures.

The final heavy rain event of the month occurred from the 28th to 29th of April with locally heavy amounts of rain across south central Indiana adding up to between 2 and 3 inches. This rain led to some localized flooding in Martin and Daviess counties with near moderate flooding occurring along Beaver Creek near Shoals. With the generally dry conditions across the rest of the month, no flooding occurred along the East Fork White or White rivers, but levels came within about a foot of minor flood stage along the White River between Petersburg and Hazleton.

MAY 2021 PRECIPITATION

Rainfall for the month of May was generally below normal for much of central Indiana with amounts only reaching to around 50% of normal across the southern portions of the state. Amounts were near to slightly above normal across north central Indiana where some spots received over 5 inches of rain.

The first period of heavy rain for the month occurred from May 3rd to May 4th. During the afternoon and evening hours of May 3rd, scattered thunderstorms moved across much of central Indiana with rain amounts of around an inch across the Indianapolis area. The following day, heavy rain moved through the southeastern counties of central Indiana with amounts up to 1.25 inches near Columbus.

Flooding began to impact north central Indiana after heavy rains from May 8th to the 9th with rain amounts of 2 to 3 inches across the Upper Wabash Valley. Minor flooding occurred along smaller streams across north central Indiana with brief moderate flooding along the Mississinewa River near Ridgeville. Flooding almost reached moderate along the Wabash River near Lafayette with those higher river levels extending down to Riverton by the middle of the month.

The next major rain event of the month occurred on the 17th when widespread light to moderate rain fell across much of Indiana with the heaviest amounts located in a line stretching from Terre Haute to Columbus where 1.5 to 2.5 inches of rain fell. Elsewhere, rain amounts generally were about a half inch to an inch. With the week of generally dry conditions before that, there were little impacts to the major rivers across the area with some smaller streams rising into action stage.

Sporadic rainfall continued into the last week of May with generally dry conditions most of the time. From the 26th to the 28th, the heaviest rain fell across the north central Indiana and the upper Wabash basin with a 3-day total of almost 2 inches near Lafayette.

Spring 2021 Precipitation Data for Central Indiana Sites

Site	Spring 2021 Precipitation	Spring Season Normal Precip	Difference From Normal
Indianapolis Int'l Airport	11.24	12.28	-1.54
Lafayette	12.28	10.61	+1.67
Bloomington*	7.50*	13.23	M
Muncie	8.43	11.33	-2.90
Terre Haute	11.45	12.34	-0.89
Shelbyville	9.63	12.61	-2.98
Indianapolis Eagle Creek AP	11.84	11.68	+0.16

*Precipitation data missing at Bloomington, April 28–May 5

Severe Weather

March 2021 was mostly quiet but a few small severe weather events occurred during the final week of the month. An intensifying low pressure system tracked across the region on the evening of the 25th, with hail producing thunderstorms lifting into southern portions of central Indiana from the southwest. Multiple occurrences of quarter size hail were reported from Greene County to near Paragon (Morgan Co.).

Just two evenings later, strong thunderstorms tracked into the Wabash Valley from the west ahead of a cold front. A severe thunderstorm developed east of Crawfordsville and would track E/NE into Hamilton and Madison Co., producing quarter size hail in multiple locations, and knocked trees and power lines down near North Salem (Hendricks Co.). The storm also knocked a large tree over in Carmel that cause a fatality.

April 2021 as a whole had very little severe weather. Anderson experienced a brief, but intense microburst on the 21st, which brought some trees down and damaged homes.

May 2021 was the first May (since present records began in 2005) with no severe events (winds 58+ mph, hail 1.00"+, tornadoes) reported across central Indiana. Strong thunderstorms did however cross the region on May 6th, 7th, and 9th; including ~0.50" hail near Gessie (Vermillion County) on the 6th, and penny hail (0.75") near Greensburg (Decatur County) on the 7th.

April-May 2021 was the first such period since at least 2005 with so few severe weather reports. *For info on severe weather in other areas during the spring season, visit the Storm Prediction Center "Severe Weather Event Summaries" website at spc.noaa.gov/climo/online*

Miscellaneous Weather

March 2021 at Indianapolis featured... a maximum wind gust of 57 mph from the southwest early on the morning of the 26th in the wake of a strong low pressure system. Fog/haze was reported on 11 days, with dense fog occurring on 2 days. Thunder occurred on 5 days, with ice pellets being reported on the 15th and 18th, and freezing drizzle occurring on the 15th.

April 2021 at Indianapolis featured... a maximum wind gust of 46 mph from the northwest on the 30th as a cold front passed through. Fog/haze was reported on 9 days, with dense fog occurring on 2 days. Thunder was reported on 3 days.

May 2021 at Indianapolis featured... a maximum wind gust of 45 mph, reached on both May 6th (from the northwest) and May 7th (from the west) as strong storms crossed the region under a broad, deep trough. Fog was reported on 11 days, with no dense fog. Thunder was reported at Indianapolis on 4 days. At other sites... fog was most frequent at Bloomington (15 days) and Terre Haute (13 days).

Indianapolis Spring 2021 Monthly Data

INDIANAPOLIS MARCH 2021 SUMMARY

	Average Temp	Precipitation	Snowfall	Highs $\geq 70^{\circ}/80^{\circ}$
March 2021	46.9	3.87	T	4/0
Normal March	42.4	3.69	3.2	3/0
Diff from Normal	+4.5	+0.18	-3.2	-1/0

March 2021 All-Time Ranks...

Precipitation: **64th Wettest**

Temperature: **20th Warmest**

Snowfall: **6th Least Snowiest** (Tied)

INDIANAPOLIS APRIL 2021 SUMMARY

	Average Temp	Precipitation	Snowfall	Highs $\geq 70^{\circ}/80^{\circ}$
April 2021	53.2	3.80	2.0	8/1
Normal April	53.6	4.34	0.2	10/2
Diff from Normal	-0.4	-0.54	+1.8	-2/-1

April 2021 All-Time Ranks...

Precipitation: **66th Wettest** (Tied)

Temperature: **62nd Warmest** (Tied)

Snowfall: **13th Snowiest** (Tied)

INDIANAPOLIS MAY 2021 SUMMARY

	Average Temp	Precipitation	Snowfall	Highs $\geq 70^{\circ}/80^{\circ}$
May 2021	60.9	3.57	0.0	18/7
Normal May	63.6	4.75	0.0	21/10
Diff from Normal	-2.7	-1.18	0	-3/-3

May 2021 All-Time Ranks...

Temperature: **50th Coolest**

Precipitation: **65th Driest**

INDIANAPOLIS SPRING 2021 SUMMARY

	Average Temp	Precipitation	Snowfall	Highs $\geq 70^{\circ}/80^{\circ}$
Spring 2021	53.7	11.24	2.0	30/8
Normal Spring	53.2	12.78	3.4	34/12
Diff from Normal	+0.5	-1.54	-1.4	-4/-4

Spring 2021 All-Time Ranks...

Precipitation: **75th Driest**

Temperature: **33rd Warmest** (Tied)

Snowfall: **66th Least Snowiest** (Tied)

Summer 2021 Outlook for Central Indiana

The official outlook for the 2021 summer season (June-August) from the Climate Prediction Center, indicates a slightly greater chance for above normal temperatures across central Indiana. The outlook also indicates equal chances of above, below or near normal summer precipitation for western central Indiana, and a slightly greater chance for above normal precipitation for eastern central Indiana.

At Indianapolis, the normal summer temperature is 74.3 degrees and the normal summer precipitation is 12.59”.

*Data prepared by the NWS Indianapolis Weather Forecast Office's Indiana State Climate Team
Questions should be referred to w-ind.webmaster@noaa.gov*