

Spring 2016 in Review

With June 1 comes the end of meteorological spring, a period defined as covering the months of March through May. The spring of 2016 saw the warmest March since 2012 across central Indiana as high temperatures frequently rose into the 60s and 70s during the second half of the month. April and May followed similar patterns, with cooler weather during the first half of each month being offset by much warmer conditions during the second part of each month. The result was generally near normal temperatures from April 1 through the end of the spring. Average temperatures generally ended up 2 to 3 degrees above normal for the spring, largely due to the warm weather enjoyed during March.

The first half of the spring was wetter than normal in most parts of central Indiana, with progressively drier conditions developing from late April into May. As a result, the spring season precipitation averaged near to just below normal for many locations across the region. One exception was at Indianapolis where rainfall was over an inch above normal for the spring.

The following is a review of weather conditions experienced in central Indiana during the 2016 spring season.

Temperatures

MARCH

March definitely arrived in the form of a lion, as chilly temperatures and occasional snow and rain showers were common through the first few days of the month. Highs largely remained under 50 through the 5th, but as it turned out, this would be the coolest stretch of weather for the entire month. A transition to southerly winds brought much warmer air into the Ohio Valley beginning on the 6th and continuing through most of the following two weeks. Highs throughout this period were primarily in the 60s and 70s with lows in the 40s and 50s. This extended stretch of temperatures above freezing prompted an early start to the growing season in many parts of the southern half of central Indiana, as budding and flowering of trees and plants were common by the third week of March. Many locations saw their warmest temperature during this period on the afternoon of the 15th as highs soared into the middle and upper 70s.

Cooler and more typical temperatures for March returned for a few days beginning on the 18th and 19th. Most of central Indiana experienced one or two mornings with

subfreezing temperatures during this timeframe. However, the cooldown was brief with a return to the 60s for the 22nd through 24th. After a brief one day cooldown in the wake of a frontal passage that included morning lows near to just below freezing, temperatures once again rose over the Easter weekend, culminating with many areas enjoying highs in the middle and upper 70s on the 27th. Highs fell back into the 50s for the 28th and 29th after a cold front came through before returning to the upper 60s and lower 70s to end the month on a mild note.

Average temperatures for March were near 10 degrees warmer than March 2015 averages, making this the warmest March since the record breaking one experienced in 2012. 16 of the 31 days in March were at or above 60 in Indianapolis, which ended up more than the combined 60 degree days from March 2013, 2014 and 2015. The 5 days at or above 70 were the most in Indianapolis since the 14 70+ days from March 2012.

APRIL

After the warm finish to March, the weather started out much cooler across not only central Indiana and the Ohio Valley, but much of the country east of the Mississippi River to begin April. With the exception of three days, the 3rd, 5th and 10th where high temperatures rose in the lower to mid 60s in some areas, highs remained in the 40s and 50s throughout most of the first half of April. Lows routinely fell into the upper 20s and lower 30s, with a few nights where temperatures fell into the middle 20s. The coldest day was the 9th as highs struggled to rise into the upper 30s and lower 40s.

With an earlier start to the growing season courtesy of the warmer March, the cold temperatures resulted in a number of nights and early mornings where hard freezes occurred. By the middle of the month, many parts of central Indiana were running several degrees below normal.

However, as chilly as the first half of April was across central Indiana, the second half of the month was much warmer than normal as highs in the 70s and 80s became more common. Many locations experienced an extended stretch of highs in the lower 80s from the 17th through the 20th, then again rose into the lower 80s on the 25th and 26th.

Low temperatures throughout the last two weeks of the month were often warmer than highs had been during the first two weeks of April. As a result of the much warmer weather during the second half of the month, average temperatures recovered in most locations to finish slightly above normal for April.

MAY

A warm start on the 1st immediately transitioned to cooler than normal conditions in the wake of a cold front as highs struggled to get into the 60s from the 2nd through the 5th. Highs rose back into the 70s briefly ahead of a frontal passage on the 7th, then rose to the highest temperatures of the first half of the month on the 11th in advance of another cold front as highs made it into the upper 70s and lower 80s.

A persistent upper level trough developed over the region in the wake of the frontal passage on the 11th, resulting in an extended stretch of cool and at times chilly weather that would last for about a week. Highs were commonly in the 50s and lower 60s through this period, with lows in the 30s and 40s. Patchy frost occurred on the mornings of the 15th and 16th as much of the region experienced lows in the mid to upper 30s.

More typical late May weather finally returned for the last third of the month as the upper trough departed off to the northeast. Many locations experienced a prolonged period of highs in the 80s over the last 10 days of May and the arrival of higher levels of humidity gave central Indiana the first taste of summer over the last week of the month. Mid and upper 80s were common through the Memorial Day weekend with a few locations making it to 90 degrees for the first time in 2016. While temperatures averaged near to slightly below normal in May for most areas, the warm finish to the month eliminated the large departures present over the region after the cooler weather experienced through the middle of the month.

Temperature Data for Sites in Central Indiana

Site	Spring 2016 Temperature	Normal Temperature	Diff. From Normal
Indianapolis Int'l Airport	55.1	52.6	+2.5
Lafayette	52.3	51.5	+0.8
Muncie	54.5	50.9	+3.6
Terre Haute	55.3	53.0	+2.3
Bloomington (*)	55.3	53.0	+2.3
Shelbyville	56.3	52.5	+3.8
Indianapolis – Eagle Creek	55.1	52.8	+2.3

(*) – Bloomington temperature data not available on May 13.

Spring Extremes Across Central Indiana

Site	Warmest Temperature	Coldest Temperature
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Indianapolis Int'l Airport	87 on 5/31	18 on 3/2
Lafayette	88 on 5/31	16 on 3/2
Muncie	91 on 5/31	21 on 3/2
Terre Haute	88 on 5/31	24 on 3/2
Bloomington	86 on 5/27, 5/30 and 5/31	23 on 3/2
Shelbyville	91 on 5/31	22 on 3/2
Indianapolis-Eagle Creek	88 on 5/31	20 on 3/2

Precipitation

MARCH

Monthly rainfall and melted precipitation for March was normal to above normal. Totals ranged from 3 inches in portions of northern Indiana to over 7 inches in south central Indiana. Much of the state received between 3 and 6 inches for the month. Precipitation fell in the form of rain, snow and hail.

There were two significant rainfall periods during March. The first was during the 7-day period from the 9th through the 15th when 0.50 to 4 inches of fell across the state. The heaviest rainfall of 2 to 4 inches occurred along and east the I-69 corridor in southern and central Indiana. The second was during the 8-day period from the 24th through the 31st. Widespread rains totaled 1 to more than 3 inches across the state. The heaviest rainfall was in central and southern Indiana.

Lowland river flooding returned to portions of western and southern Indiana beginning on the 11th. A dry period extended from the 16th through the 23rd and allowed flooding to end. Minor river flooding returned again to western Indiana during the last hours of March and continued into early April.

Snowfall during March was confined to the first 5 days of the month. Monthly snowfall totals ranged from a trace in central Indiana to 8 inches in the South Bend area of northern Indiana. The most significant snow event for central Indiana occurred during the morning of the 3rd when 1 to 3 inches fell along and north of I-70 in central Indiana.

APRIL

Monthly rainfall and melted precipitation for April was below normal in portions of east central Indiana to above normal in much of central and southern Indiana. Totals ranged from slightly more than 2 inches in northeast Indiana to nearly 8 inches in south central Indiana. For the month, much of the state received between 3 and 6 inches. Precipitation fell in the form of rain, snow and hail.

Snow fell on several days in northern and central Indiana from the 2nd through the 10th. Most of this snow occurred late on the 8th and early on the 9th. Monthly snowfall totals in central Indiana ranged from a trace to an inch while those in northern Indiana ranged from 1 to as much as 4 inches in the South Bend area.

There were four rainy periods during April. The first was on the 6th and 7th when one-half to an inch of rain fell in northern Indiana. The second was on the 10th and 11th when central and southern Indiana received one to slightly more than 2 inches of rain.

One of the longest dry periods in April in recent memory prevailed from the 12th through the 19th before rains returned again. Rainfall from a few hundredths of an inch in eastern Indiana to over 2 inches in western Indiana occurred from the 20th through the 22nd. After nearly 3 days of dry weather, storms from late on the 25th through the end of April dumped from one-half inch of rain in northern Indiana to over 4 inches in southeast Indiana.

Minor river flooding followed the rainfall on the 10th and 11th and after the 25th. Flooding was confined to southern Indiana. High water in southwest Indiana continued into the first week of May.

MAY

May's rainfall was below normal for almost all of Indiana. Monthly totals ranged from around 1.5 in portions of northern Indiana to 7 inches in south central Indiana. For the month, much of the state received between 2 and 5 inches of rain.

Precipitation during May favored southern Indiana while northern Indiana remained on the dry side. The first half of May was considerably wetter than the second half of May. Rainfall during the first half of May ranged from less than an inch in northern Indiana to almost 5 inches in southern Indiana. During the second half of May, only a few hundredths of an inch fell in portions of northeast Indiana with up to 3 inches in small areas of south central Indiana.

Rainfall was also more frequent during the first half of May. Measurable rain fell on 7 to 8 consecutive days in central Indiana from the 7th through the 14th compared to 10 to 14 days without measurable precipitation in northeast Indiana from the 18th through the 31st. Central Indiana was in the transition zone as a few areas remained on the wet side and other locations dried out during May.

River flooding that began in portions of southern Indiana as the result of heavy rains at the close of April, ended by the 7th. Limited river flooding occurred in the headwaters of the upper Wabash River watershed following locally heavy rainfall of 2 to 4 inches on the 9th and 10th.

Spring Precipitation Data for Sites in Central Indiana

Site	Spring 2016 Precipitation	Normal Precipitation	Diff. From Normal
Indianapolis Int'l Airport	13.80	12.42	+1.38
Lafayette	9.38	10.40	-1.02
Muncie	10.96	11.03	-0.07
Terre Haute	11.33	14.15	-2.82
Bloomington	13.39	13.82	-0.43
Shelbyville	11.90	13.03	-1.13
Indianapolis – Eagle Creek	9.55	12.47	-2.92

Severe Weather

The first significant severe weather event to impact central Indiana for 2016 came on the afternoon and evening of March 27th, Easter Sunday. While thunderstorms produced some localized wind damage, the bulk of the severe weather came in the form of large hail across central Indiana. Hail to the size of ping pong balls occurred with a storm that track across the southern Indianapolis metro area, impacting Southport and Beech Grove in particular. Ping pong ball size hail also fell in Randolph County near Parker City.

Additional strong thunderstorms developed during the afternoon and evening of March 31st ahead of a cold front. Most of the storms produced small hail, with one severe thunderstorm moving through southwestern Shelby County and producing strong wind gusts that knocked down a few trees.

April remained quiet with respect to severe weather until late in the month. Strong to severe thunderstorms developed across the southern half of central Indiana during the late afternoon and evening of the 26th. Storms produced large hail up to ping pong ball size. A brief tornado touched down four miles southwest of Worthington in Greene County, causing some damage to a few barns and producing EF0 damage with peak wind gusts of 85 mph.

Scattered strong to severe thunderstorms developed once again on the afternoon of April 28th. The most intense storm produced a brief tornado three miles northwest of Zionsville in southeast Boone County. EF1 damage occurred with peak wind gusts of 100 mph. Additional storms impacted areas east of Indianapolis, including a thunderstorm that produced golf ball size hail and funnel clouds in Rush County.

May started out active with severe thunderstorms producing large hail and a tornado on the evening of the 1st. Several locations experienced hail to golf ball size or greater, including a swath of large hail extending across the southern Indianapolis metro area and into western Hancock County. Piles of hail remained on city streets in Beech Grove more than 24 hours after the hail fell. A brief EF0 tornado touched down near Linden in Montgomery County as well.

Thunderstorms produced large hail and wind damage on the evening of May 7th in Daviess and Knox Counties, primarily impacting Washington, Monroe City and areas to the northeast of Vincennes. Scattered strong to severe thunderstorms developed on the evening of May 11th, primarily impacting areas west of Interstate 65. The storms primarily produced damaging winds with trees downed.

Indianapolis Data

INDIANAPOLIS MARCH 2016 SUMMARY

	Average Temperature	Total Precipitation	Total Snowfall	Highs at or above 70°/80°
March 2016	49.2	4.20	1.2	5/0
Normal March	42.2	3.56	2.6	3/0
Difference from Normal	+7.0	+0.64	-1.4	+2/0

March 2016 All-Time Ranks:
Temperature: 8th Warmest
Precipitation: Tied for 45th Wettest
Snowfall: Tied for 45th Least Snowiest

INDIANAPOLIS APRIL 2016 SUMMARY

	Average Temperature	Total Precipitation	Total Snowfall	Highs at or above 70°/80°
April 2016	53.7	5.86	Trace	10/1
Normal April	53.0	3.81	0.2	10/5
Difference from Normal	+0.7	+2.05	-0.2	0/+4

April 2016 All-Time Ranks:
Temperature: Tied for 49th Warmest
Precipitation: 17th Wettest

INDIANAPOLIS MAY 2016 SUMMARY

	Average Temperature	Total Precipitation	Total Snowfall	Highs at or above 70°/80°
May 2016	62.3	3.74	Trace	18/9
Normal May	62.7	5.05	Trace	20/8
Difference from Normal	-0.4	-1.31	0.0	-2/+1

May 2016 All-Time Ranks:
Temperature: 68th Coolest
Precipitation: 71st Driest

INDIANAPOLIS SPRING 2016 SUMMARY

	Average Temperature	Total Precipitation	Total Snowfall	Highs at or above 70°/80°
Spring 2016	55.1	13.80	1.2	33/10
Normal Spring	52.6	12.42	2.8	33/10
Difference from Normal	+2.5	+1.38	-1.6	0/0

Spring 2016 All-Time Ranks
Temperature: Tied for 12th Warmest
Precipitation: 40th Wettest
Snowfall: Tied for 46th Least Snowiest

Summer 2016 Outlook for Central Indiana

The official outlook for the 2016 summer season (June-August) from the Climate Prediction Center, indicates a greater chance of above normal temperatures across central Indiana. At Indianapolis, the average temperature for the summer season is 73.9 degrees. The outlook also calls for an equal chance of near, above or below normal precipitation. The average precipitation at Indianapolis is 11.93”.

Data prepared by the NWS Indianapolis Climate Team
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