State of Ohio Monthly Climate Update

THE OHIO STATE UNIVERSITY

Review – March 2025

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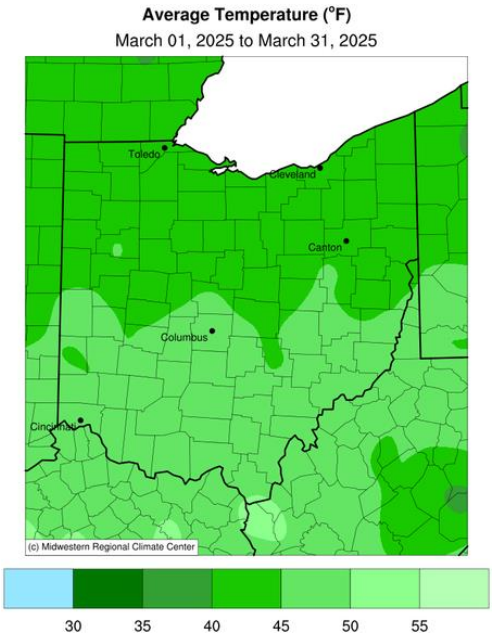

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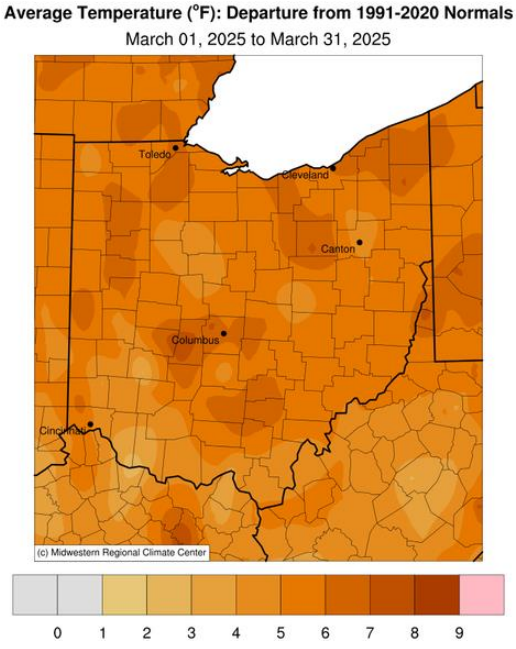

Figure 1a: Average temperature and 1b: Departure from Normal for the month of March 2025. Data courtesy of the Midwestern Regional Climate Center (http://mrcc.purdue.edu).

Temperature

In March, temperatures across Ohio were warmer than usual. Average temperatures in the northern half of the state ranged from 40 to 45°F, while the southern half experienced slightly warmer conditions between 45 and 50°F (Fig. 1a). Compared to normal, temperature departures varied significantly across the state, with most areas reporting values between 3 and 8°F above average (Fig. 1b).

At the county level, every part of the state recorded above-average temperatures. Of Ohio's 88 counties, 74 ranked within the warmest tenth of their 131-year records, while the remaining 14 counties ranked within the warmest third (Fig. 2). Overall, March 2025 ranked as the 9th warmest March on record for the state.

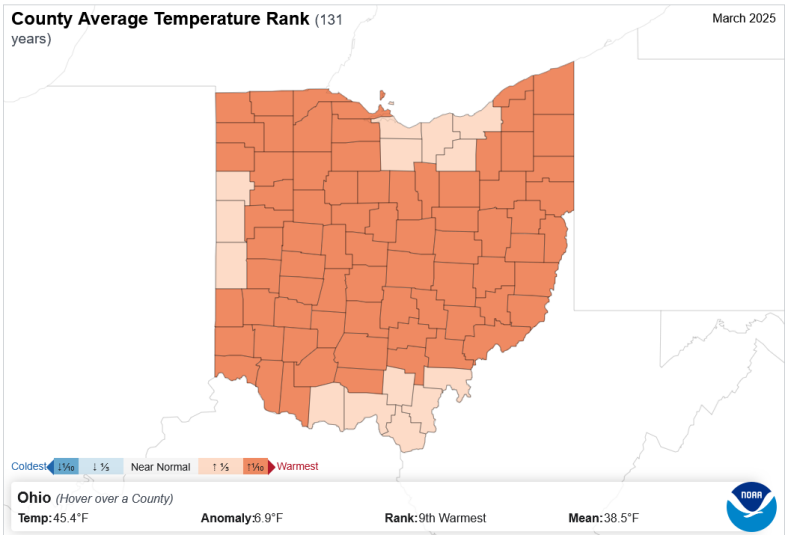

Figure 2: State of Ohio average temperature ranks by county for March 2025. Courtesy of the National Centers for Environmental Information (https://www.ncdc.noaa.gov/sotc/).

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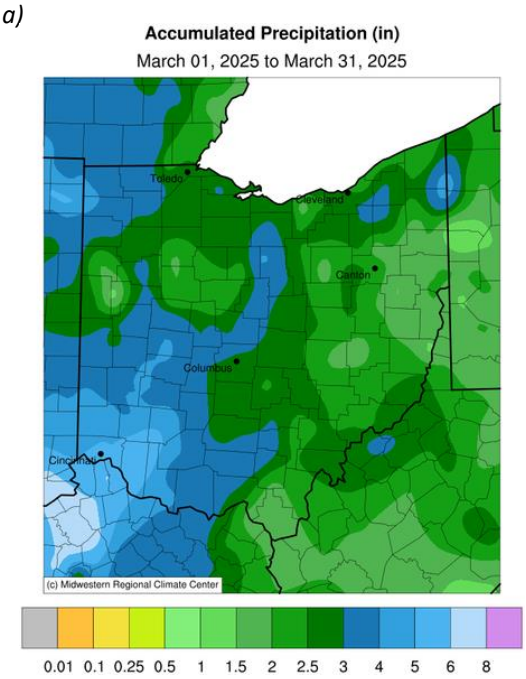

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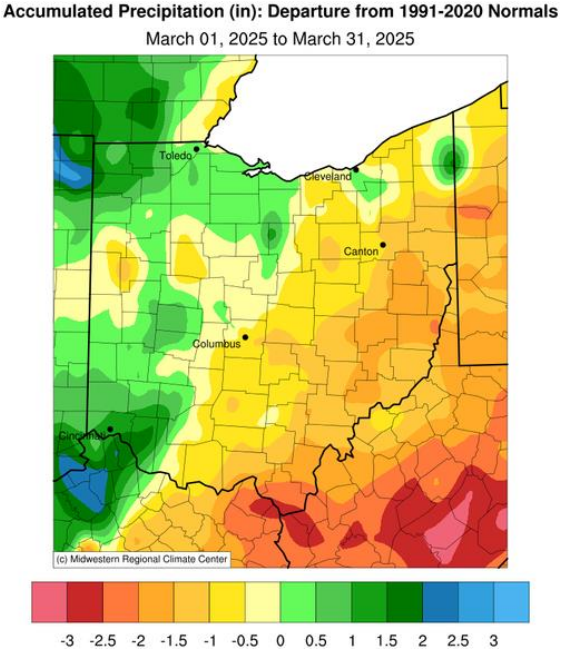

Figure 3a: Accumulated precipitation and 3b: Departures from Normal for the month of March 2025. Data courtesy of the Midwestern Regional Climate Center (http://mrcc.purdue.edu).

Precipitation

Precipitation across Ohio varied widely during March. Western Ohio received between 1.5 and 3 inches of precipitation, while higher amounts ranging from 3 to 6 inches were observed in the southwest and northwest regions (Fig. 3a). Compared to normal, eastern Ohio recorded deficits of 0.5 to 2.5 inches, central Ohio was near normal with a slight below-normal tendency, and western Ohio experienced totals 0 to 2 inches above normal (Fig. 3b). At the county level, eastern counties generally ranked drier than normal, while western counties were near to above normal. Of Ohio's 88 counties, 46 ranked near normal, 34 ranked in the driest third, and 8 ranked in the wettest third of their respective 131-year records (Fig. 4). Overall, March 2025 ranked as the 48th driest March on record for the state.

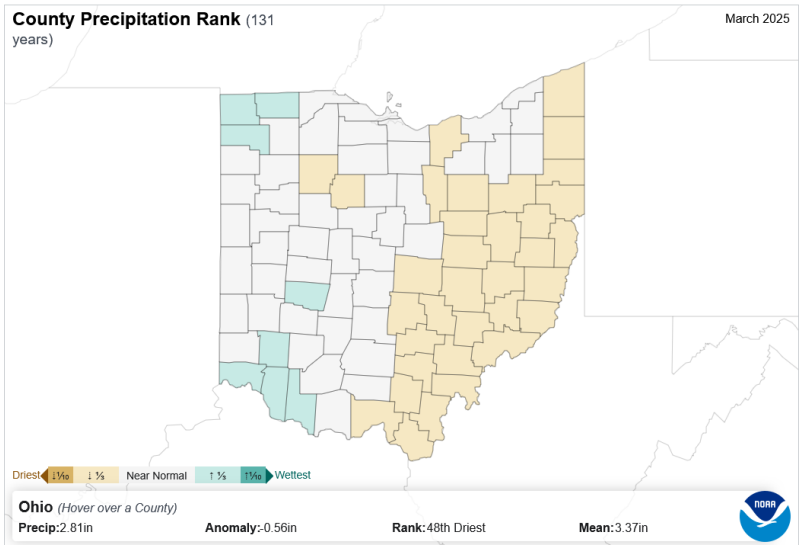

Figure 4: State of Ohio precipitation ranks by county for March 2025. Courtesy of the National Centers for Environmental Information (https://www.ncdc.noaa.gov/sotc/).

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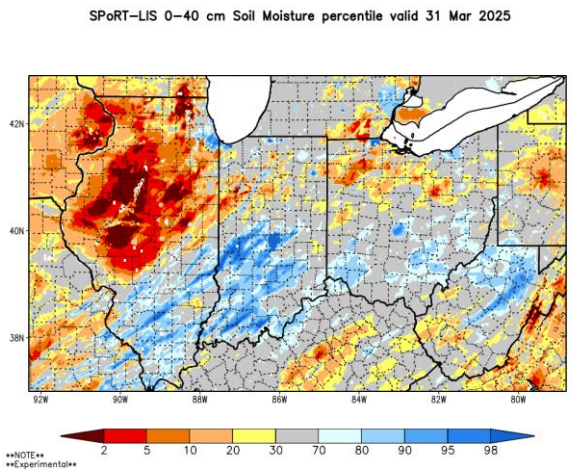

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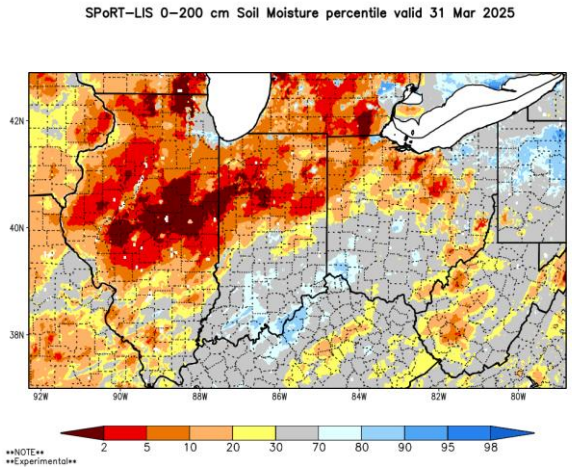

Figure 5a: 0-40 cm and 5b: 0-200 cm soil moisture percentile across the region at the end of March 2025. Courtesy of NASA SPoRTLIS (https://weather.msfc.nasa.gov/sport/case_studies/lis_IN.html).

Soil and Energy

By the end of March, soil moisture across most of Ohio was near normal, with the exception of the northwest, where below-normal levels were observed. The 0–40 cm soil moisture map shows near-normal conditions across the state, with isolated areas of below-normal moisture in the north and above-normal levels in the south (Fig. 5a). The 0–200 cm soil moisture map reflects a similar pattern, though the northwest region shows widespread below-normal values (Fig. 5b).

Due to the warmer-than-normal temperatures, the number of Heating Degree Days (HDDs) in March was well below average. As expected, Cooling Degree Days (CDDs) remained at zero for all climate divisions except Division 8 (Fig. 6). As we move further into spring, HDDs will decrease, and CDDs will begin to increase.

Product Note: Both NASA SPoRT LIS soil moisture products contain small pockets of inaccurate data indicating extremely wet or dry conditions. These small-scale errors can emerge in remote sensing products covering large areas or grid-spacings. For more information, please contact Geddy Davis (davis.5694@osu.edu).

Climate Division	Heating Degree Days	Normal	Departure	Cooling Degree Days	Normal	Departure
1	686	854	-169	0	1	-1
2	663	851	-188	0	1	-1
3	709	868	-159	0	1	-1
4	621	797	-176	0	1	-1
5	599	764	-165	0	1	-1
6	647	819	-172	0	1	-1
7	640	798	-157	0	0	0
8	578	724	-146	1	1	-1
9	548	684	-136	0	1	-1
10	584	738	-154	0	1	-1

Figure 6: (Left) March 2025 heating & cooling degree days. (Right) Corresponding Ohio Climate Divisions. Data courtesy of the Midwestern Regional Climate Center (http://mrcc.purdue.edu).

Notable Events

March marked an early start to the severe weather season in Ohio. The most significant event occurred between March 30 and March 31, when a strong low-pressure system moved across the Midwest, triggering a line of severe thunderstorms along its associated cold front. This system produced five tornadoes in Ohio: two EF0 tornadoes in Butler County, one EF0 in Warren County, and one EF1 in Fayette County. In addition to the tornadoes, the storm brought damaging straight-line winds, hail, and frequent lightning (Fig. 7). Wind gusts over 60 mph led to widespread power outages, with AEP reporting more than 4,000 customers affected. Fortunately, no injuries or fatalities were reported. This large-scale system also impacted areas beyond Ohio, extending across the Mississippi, Ohio, and Tennessee Valleys. Its timing and impacts underscore the importance of preparedness well before the climatological peak of the severe weather season.

This was not the only severe weather event in March. Similar storm systems impacted the state on March 14th and March 19th, bringing straight-line winds, hail, and lightning (Fig. 8). Unlike the March 30–31 system, these earlier events did not produce any tornadoes.

The severe-weather season in Ohio typically peaks between April and June. However, this year, like last year, saw an active start in March.

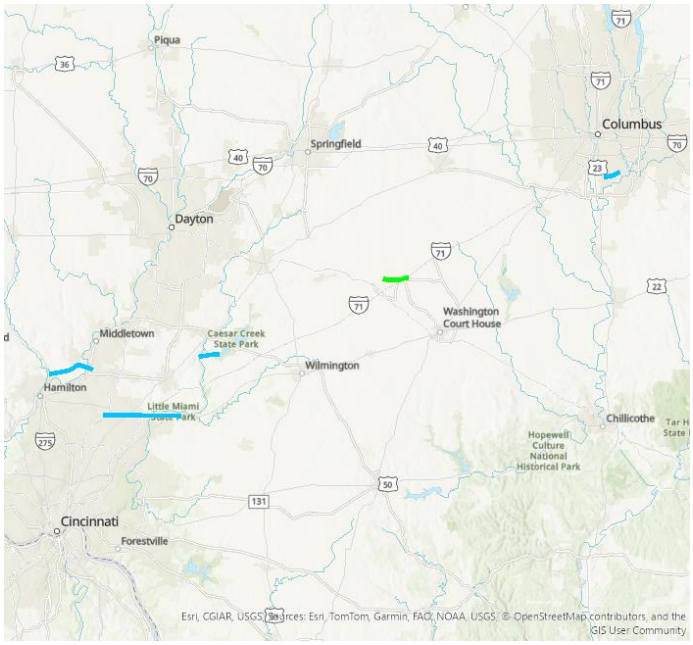

Figure 7: Tornado tracks from the March 30-31st in Ohio. Graphic created using NOAA Damage assessment toolkit. (https://apps.dat.noaa.gov/StormDamage/DamageViewer/).

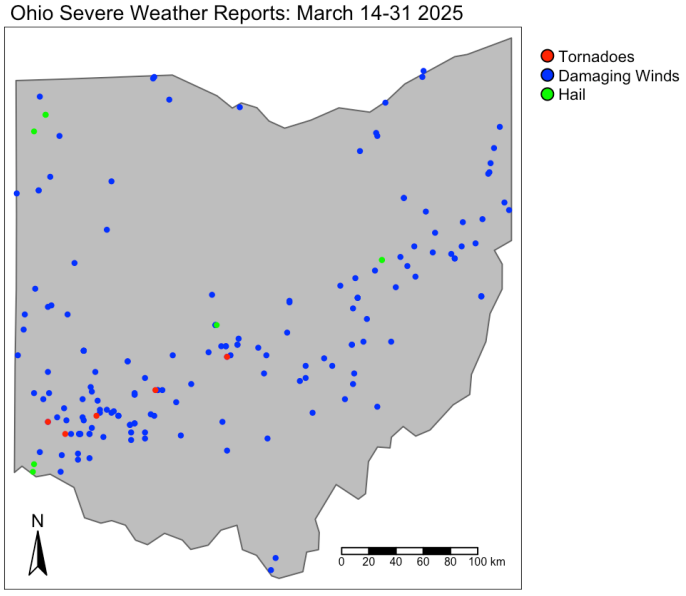

Figure 8: Local storm reports from March 14 - March 31, 2025, in Ohio. The graphic was created by Geddy Davis using SPC data.

Forecast: April – June 2025

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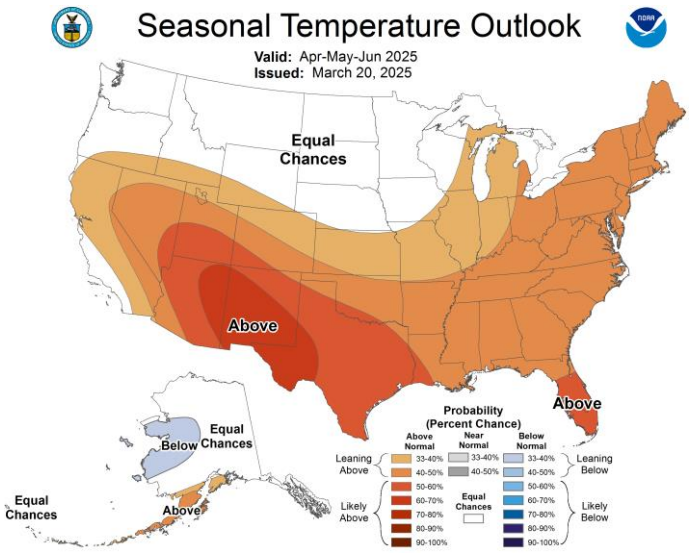

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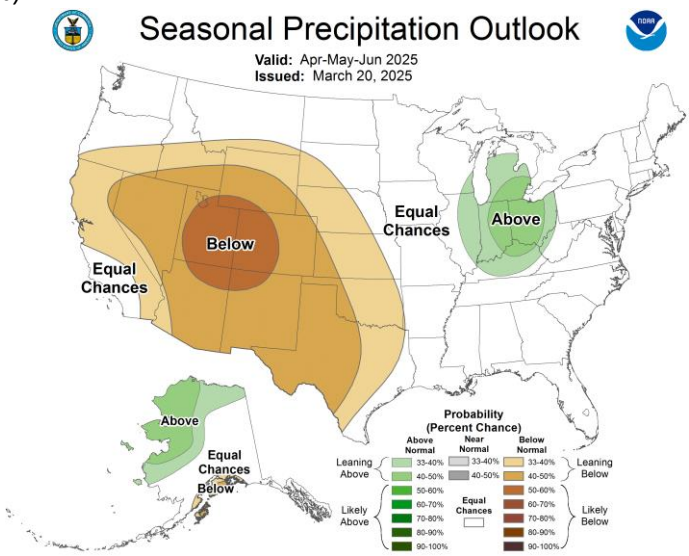

Figure 9a: Nationwide Seasonal Temperature and 9b: Precipitation Outlook for April-June. Courtesy of the Climate Prediction Center (https://www.cpc.ncep.noaa.gov/).

Looking Ahead

The Climate Prediction Center (CPC) three-month outlook suggests above-average temperatures and wetter-than-average conditions are likely across Ohio. The seasonal temperature forecast shows the greatest confidence in above-normal temperatures statewide, although confidence is slightly lower in the northwest (Fig. 9a). The precipitation outlook similarly indicates an increased likelihood of above-average precipitation, with the highest confidence centered in the western half of the state (Fig. 9b). While these seasonal outlooks provide a broad sense of what to expect, significant week-to-week variability is still likely. As the growing season begins, these short-term fluctuations in temperature and precipitation can have considerable impacts on agriculture. Variability in rainfall can influence planting schedules, soil moisture availability, and crop development, while shifts in temperature patterns may affect pest pressures, crop emergence, and early growth stages. The beginning of April saw cold spells bringing frost and freeze issues across Ohio. Close monitoring of short-term forecasts will remain critical.

Note: these outlooks do not provide the quantity of above or below normal conditions, just the likelihood of occurrence (i.e., the probability).

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