State of Ohio Monthly Climate Update

THE OHIO STATE UNIVERSITY

Review – February 2025

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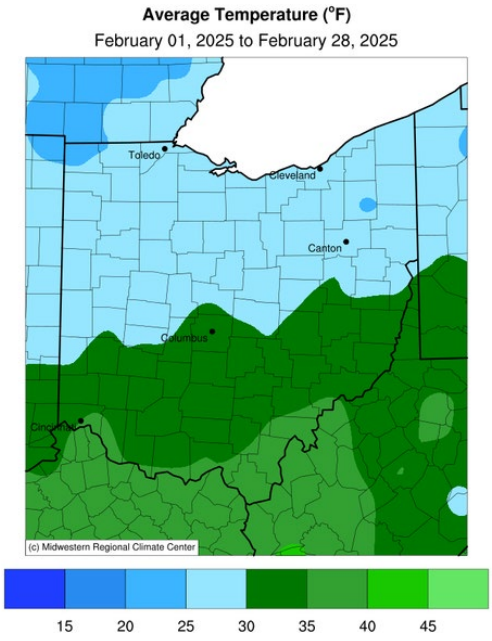

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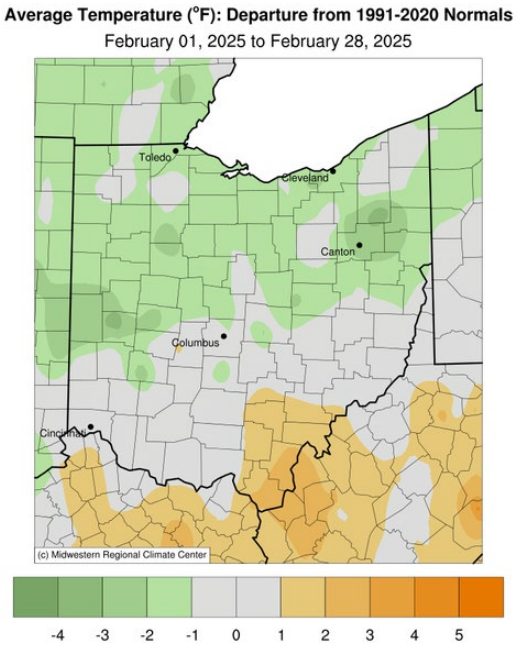

Figure 1a: Average temperature and 1b: Departure from Normal for the month of February 2025. Data courtesy of the Midwestern Regional Climate Center (http://mrcc.purdue.edu).

Temperature

February brought near-seasonal temperatures to Ohio, with only minor deviations from the historical average. However, this overall balance masked periods of extreme temperature fluctuations, as alternating rounds of unseasonable warmth and cold spells offset each other. A clear north-south temperature gradient was observed across the state. Average temperatures ranged from 25–30°F in northern Ohio, 30–35°F in central Ohio, and 35–40°F in the southernmost regions (Fig. 1a). Temperature anomalies followed a similar spatial pattern, with departures of 1–3°F below normal in the north, near-normal conditions in central Ohio, and slightly above-normal temperatures (1–2°F) in the south (Fig. 1b). At the county level, nearly the entire state ranked near normal for temperatures in February. Lawrence County ranked in the warmest third of its 131-year record (Fig. 2).

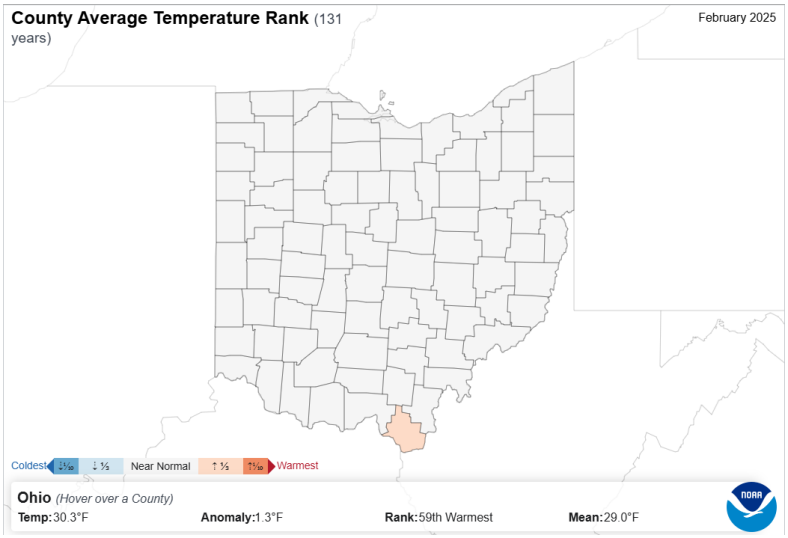

Figure 2: State of Ohio average temperature ranks by county for February 2025. Courtesy of the National Centers for Environmental Information (https://www.ncdc.noaa.gov/sotc/).

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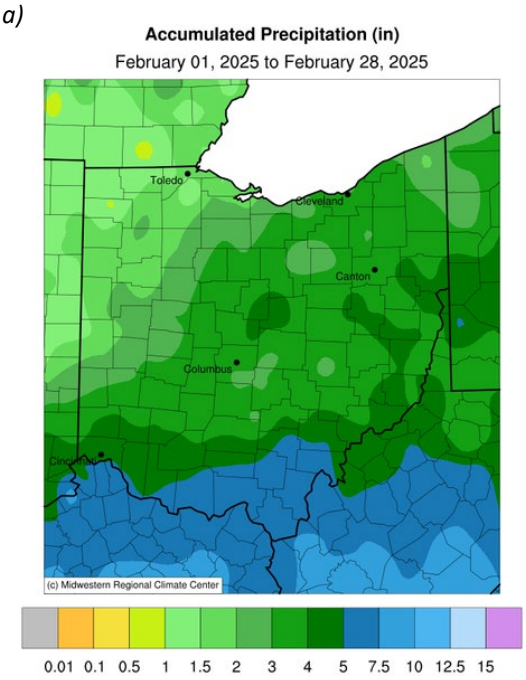

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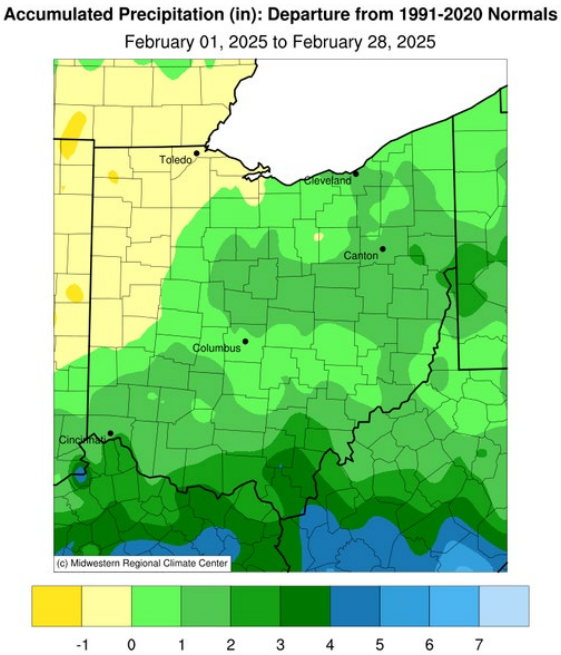

Figure 3a: Accumulated precipitation and 3b: Departures from Normal for the month of February 2025. Data courtesy of the Midwestern Regional Climate Center (http://mrcc.purdue.edu).

Precipitation

February saw above-normal precipitation across most of Ohio. Total accumulated precipitation ranged from 4–7.5 inches in the south to 0–2 inches in the northwest, with the rest of the state receiving around 2–4 inches (Fig. 3a). Compared to normal, the northwest recorded slightly below-average precipitation (0–1 inch below normal), while the southern border experienced 2–4 inches above normal. The remainder of the state saw departures of 0–2 inches above normal (Fig. 3b). At the county level, much of Ohio ranked in the wettest tenth of its historical record. Clermont, Lawrence, Meigs, Carroll, Columbiana, and Portage counties ranked in the warmest tenth of their record. In contrast, most counties in the northwest saw near-normal precipitation, with Williams, Fulton, Lucas, Defiance, Henry, and Wood counties ranking in the driest tenth of their 131-year record (Fig. 4).

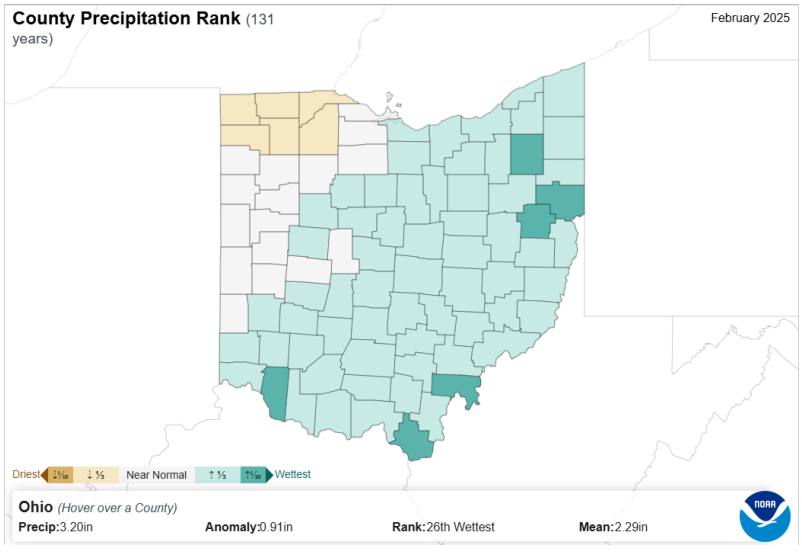

Figure 4: State of Ohio precipitation ranks by county for February 2025. Courtesy of the National Centers for Environmental Information (https://www.ncdc.noaa.gov/sotc/).

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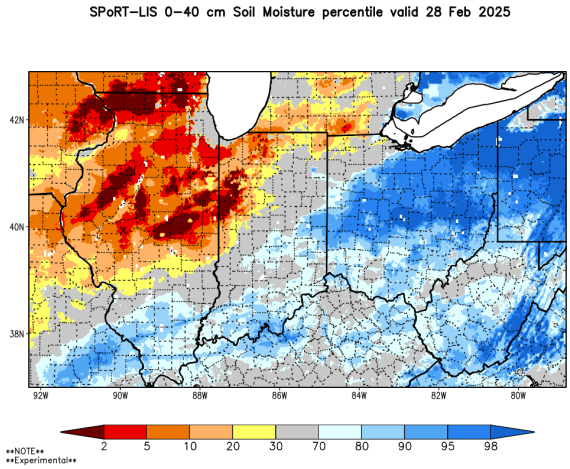

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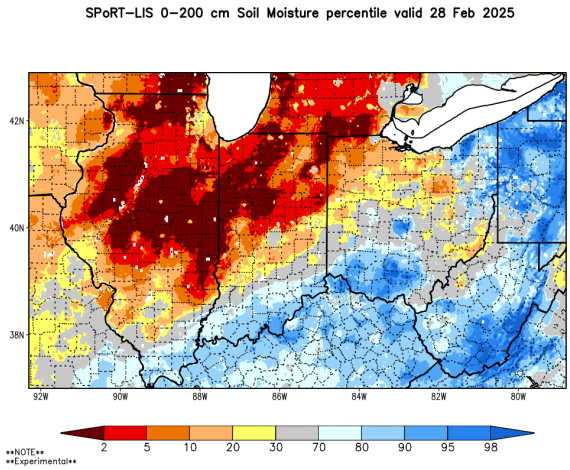

Figure 5a: 0-40 cm and 5b: 0-200 cm soil moisture percentile across the region at the end of February 2025. Courtesy of NASA SPoRTLIS (https://weather.msfc.nasa.gov/sport/case_studies/lis_IN.html).

Soil and Energy

At the end of February, soil moisture levels across most of Ohio had returned to normal, with some areas experiencing above-normal values. The 0–40 cm soil moisture map indicates wetter-than-normal conditions across nearly the entire state, except for the northwest (Fig. 5a). The 0–200 cm map shows near-normal moisture levels for most of Ohio, with drier-than-normal conditions in the northwest and wetter-than-normal conditions in the southwest and northeast (Fig. 5b).

Heating Degree Days (HDDs) were above normal across all climate divisions in February, reflecting the influence of periodic extreme cold throughout the month. As expected, Cooling Degree Days (CDDs) remained at zero statewide. However, with the transition into spring, CDD values are likely to rise in the coming month (Fig. 6).

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	1342	1232	109	0	0	0
2	1331	1200	131	0	0	0
3	1357	1206	151	0	0	0
4	1361	1183	178	0	0	0
5	1339	1146	194	0	0	0
6	1354	1183	172	0	0	0
7	1335	1149	185	0	0	0
8	1318	1107	211	0	0	0
9	1261	1047	214	0	0	0
10	1306	1103	203	0	0	0
State	1330	1156	175	0	0	0

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

Notable Events

February saw fluctuating weather patterns across Ohio, with periods of warmth, cold, dryness, and heavy precipitation. One of the most significant weather events occurred in southern Ohio on February 15–16, when widespread flooding impacted multiple areas, particularly east of Cincinnati and around Athens. Leading up to the event, multiple days of snowfall had accumulated across the region. As temperatures rose, extensive snowmelt released approximately half an inch of water (Fig. 7).

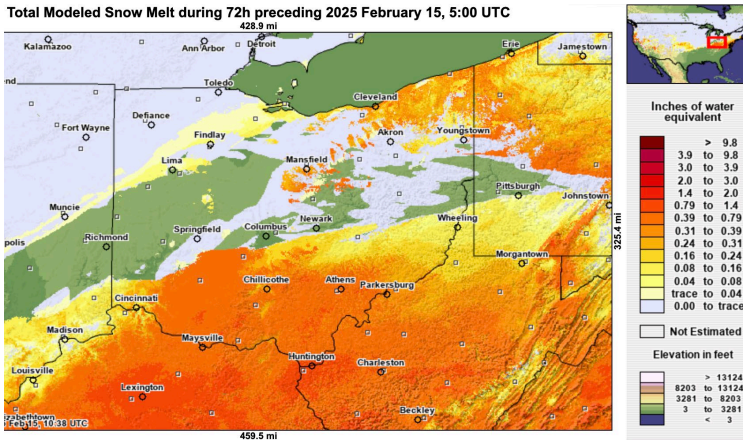

Figure 7: Total Modeled Snow melt from the 72 hours leading up to the flooding that occurred on February 15-16 (https://www.nohrsc.noaa.gov/interactive/html/map.html).

A passing cold front then brought additional rain and snow, with some areas recording up to four inches of total precipitation (Fig. 8). The combination of rain and snowmelt led to flash flooding, particularly in low-lying regions. Flooding was especially pronounced in areas with road networks prone to water accumulation, causing localized travel disruptions. The excess water overwhelmed drainage systems and increased streamflow, leading to temporary inundation of roads and low-lying properties. While flooding events in this region are not uncommon, the combination of rapid snowmelt and heavy rainfall within a short period contributed to the severity of this event.

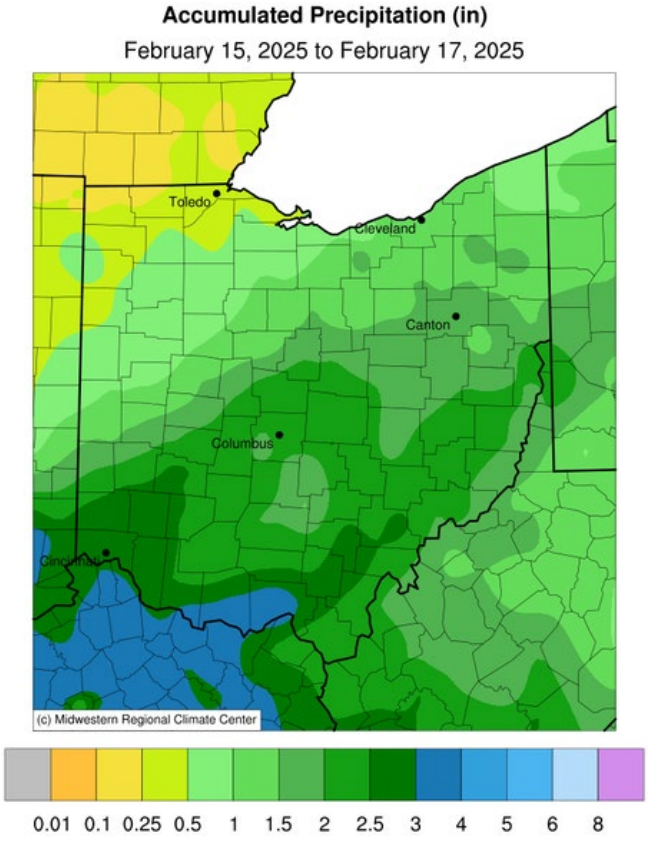

Figure 8: Accumulated precipitation between February 15 and 17 2025. Data courtesy of the Midwestern Regional Climate Center (http://mrcc.purdue.edu).

Forecast: March – May 2025

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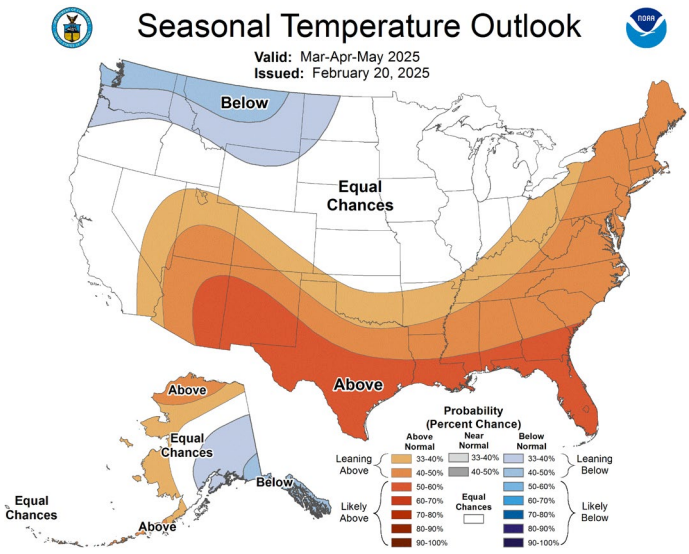

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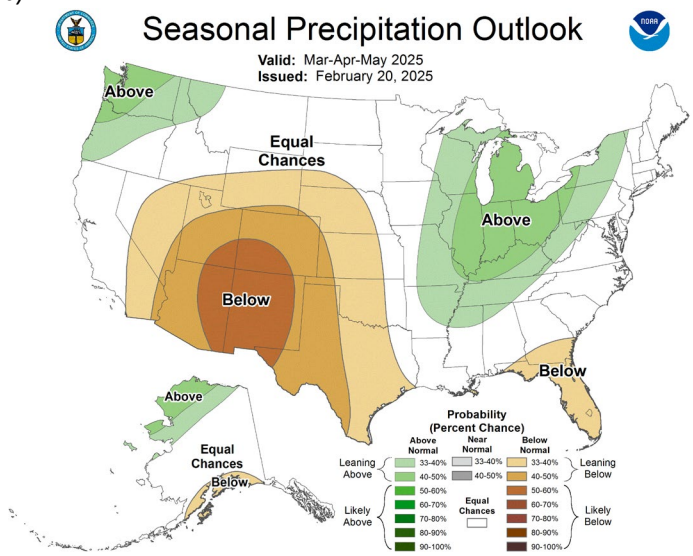

Figure 9a: Nationwide Seasonal Temperature and 9b: Precipitation Outlook for March-May. Courtesy of the Climate Prediction Center (https://www.cpc.ncep.noaa.gov/).

Looking Ahead

The Climate Prediction Center (CPC) three-month outlook indicates a warmer and wetter-than-average pattern across Ohio. While the temperature outlook suggests an increased likelihood of above-normal temperatures statewide, confidence remains low. In the northwest, probabilities are more evenly distributed, with equal chances of above- or below-normal temperatures (Fig. 9a). The seasonal precipitation outlook, however, carries moderate confidence in wetter-than-normal conditions across the state (Fig. 9b). If these predictions hold, the early growing season could see both benefits and challenges for agriculture. Increased precipitation may enhance soil moisture, supporting early crop development, but excessive rainfall could lead to flooding and planting delays. Similarly, above-normal temperatures may accelerate plant growth but could also heighten the risk of early-season pest activity. It is important to remember that these outlooks provide long-term trends rather than precise forecasts. Shorter-term weather forecasts offer greater accuracy and should be monitored regularly for day-to-day planning.

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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