State of Ohio Monthly Climate Update

THE OHIO STATE UNIVERSITY

Review – January 2025

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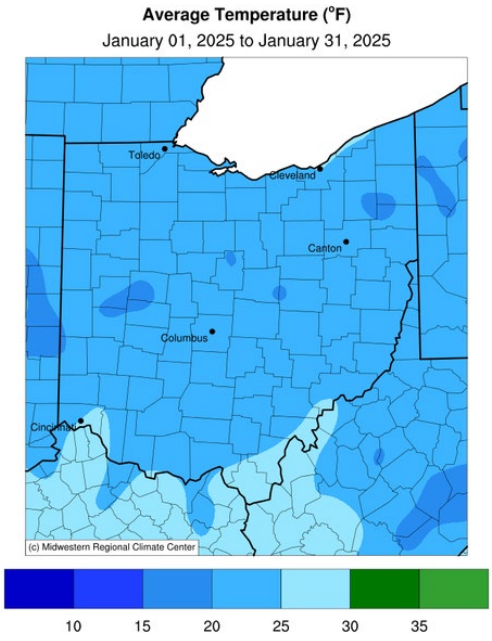

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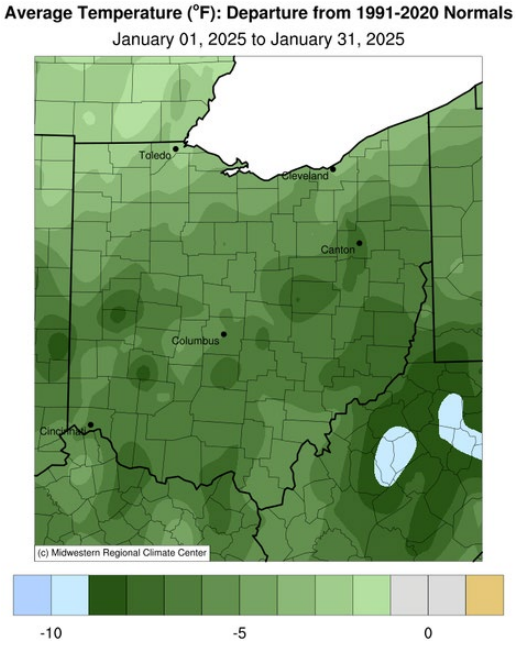

Figure 1a: Average temperature and 1b: Departure from Normal for the month of January 2025. Data courtesy of the Midwestern Regional Climate Center (http://mrcc.purdue.edu).

Temperature

January saw a significant drop in temperatures compared to previous months, with average temperatures across Ohio ranging from 20–25°F, except in the extreme south, where they were slightly warmer at 25–30°F (Fig. 1a). Temperature departures from normal varied across the state, generally ranging from 5–8°F below average. However, the northwest experienced a smaller deviation, with temperatures only 3–5°F below normal (Fig. 1b). At the county level, nearly the entire state ranked in at least the coldest third of the historical record, except for Williams, Fulton, Lucas, and Henry counties, which experienced near-normal temperatures for January. Gallia, Meigs, and Monroe counties ranked in the coldest tenth of their respective records. Statewide, January ranked as the 27th coldest on record (Fig. 2).

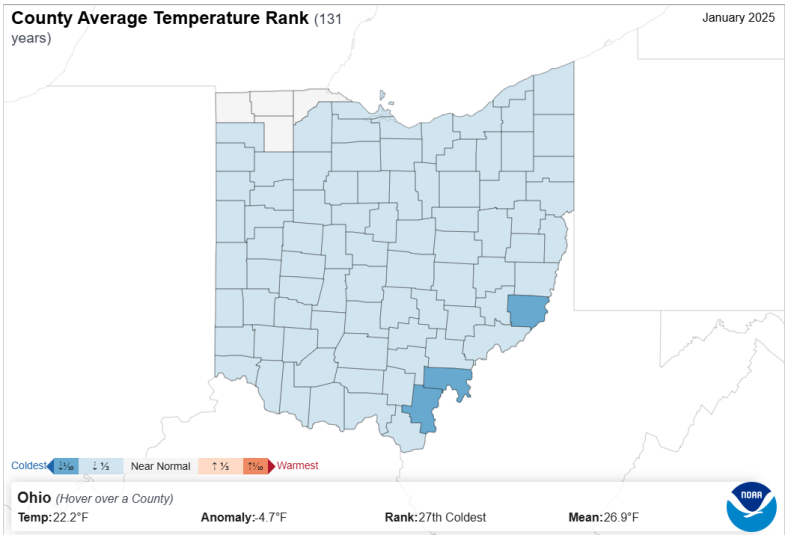

Figure 2: State of Ohio average temperature ranks by county for January 2025. Courtesy of the National Centers for Environmental Information (https://www.ncdc.noaa.gov/sotc/).

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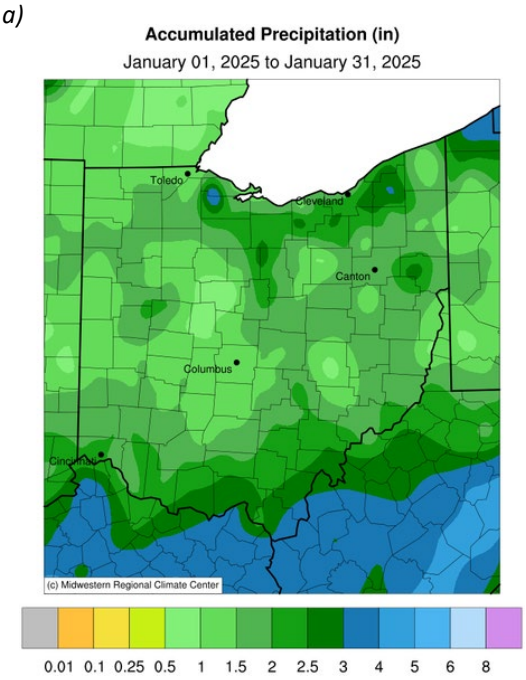

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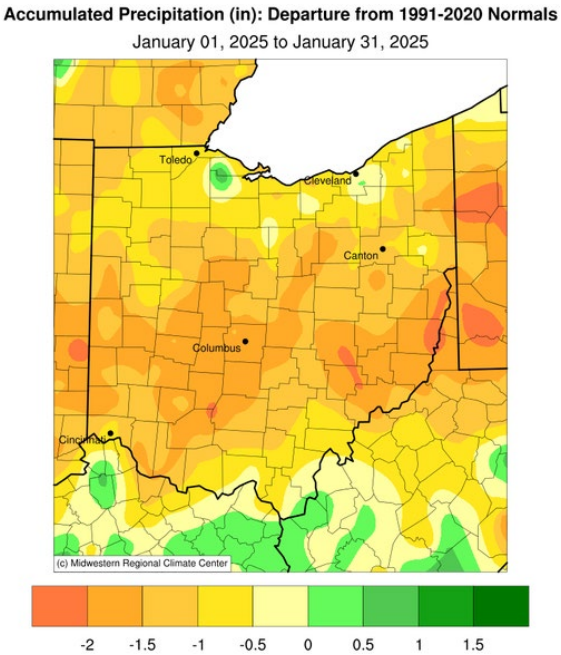

Figure 3a: Accumulated precipitation and 3b: Departures from Normal for the month of January 2025. Data courtesy of the Midwestern Regional Climate Center (http://mrcc.purdue.edu).

Precipitation

Accumulated precipitation across Ohio varied widely in January, with most of the state experiencing below-normal totals. Precipitation amounts ranged from 1.5 to 2.5 inches across much of the state, with higher totals of 2 to 4 inches along the Lake Erie shoreline (Fig. 3a). Departures from normal were generally 0.5 to 2 inches below average, except for a small area between Ottawa and Sandusky counties, where precipitation was about an inch above normal (Fig. 3b). It is important to note that the accumulated precipitation maps depict liquid-equivalent precipitation which is why totals are not much higher in areas that received snow. At the county level, January precipitation was below average in every county except Lawrence County. A total of 37 counties ranked in the driest tenth of their 131-year record, and the state as a whole recorded its 13th driest January (Fig. 4).

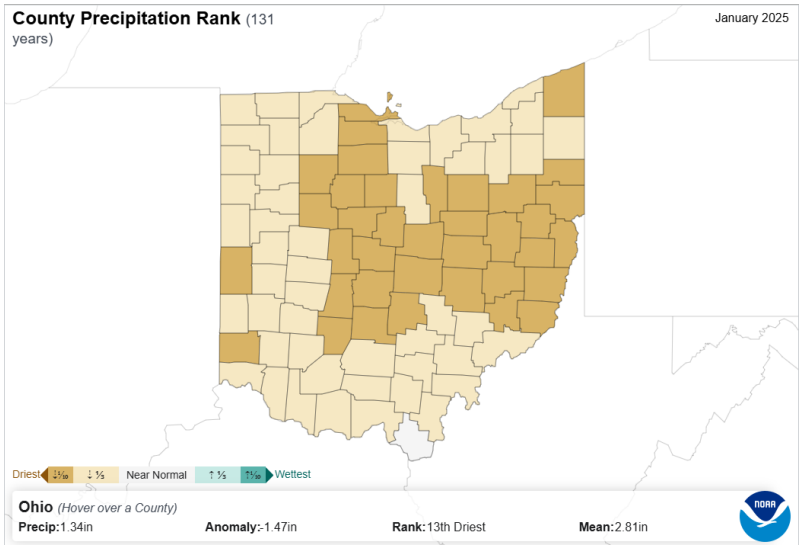

Figure 4: State of Ohio precipitation ranks by county for January 2025. Courtesy of the National Centers for Environmental Information (https://www.ncdc.noaa.gov/sotc/).

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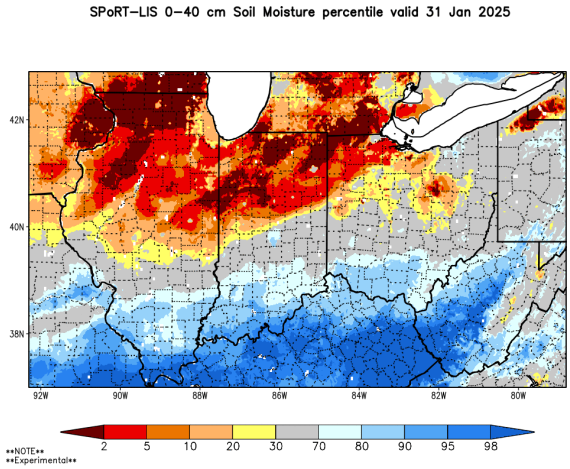

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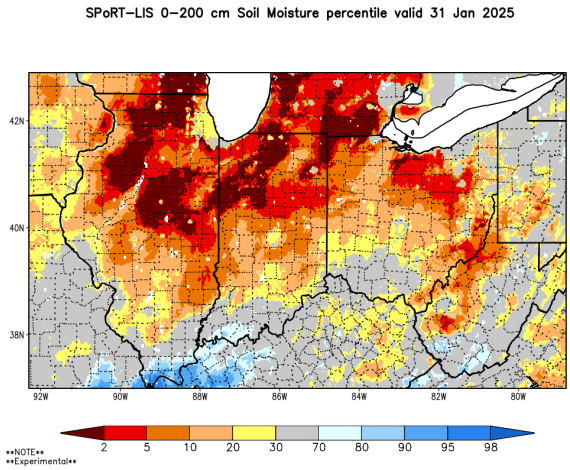

Figure 5a: 0-40 cm and 5b: 0-200 cm soil moisture percentile across the region at the end of January 2025. Courtesy of NASA SPoRTLIS (https://weather.msfc.nasa.gov/sport/case_studies/lis_IN.html).

Soil and Energy

Soil moisture levels have been gradually returning to near-normal values over the past few months. By the end of January, the 0–40 cm soil moisture map indicated continued dry conditions in the northwest, with newly emerging wetter-than-average conditions in the southwest, while the rest of the state remained near normal (Fig. 5a). In contrast, the 0–200 cm soil moisture map revealed more pronounced differences, with much of northern Ohio experiencing significantly below-normal moisture levels with a small section in the southwest noting near normal levels (Fig. 5b).

In January, the number of Heating Degree Days (HDDs) was above normal, reflecting the colder-than-average temperatures. As expected during the winter months, Cooling Degree Days (CDDs) remained at zero across the state (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) January 2025 heating & cooling degree days. (Right) Corresponding Ohio Climate Divisions. Data courtesy of the Midwestern Regional Climate Center (http://mrcc.purdue.edu).

Notable Events

This January was characterized by above-average snowfall and below-average temperatures across much of the month. One particularly impactful event was the winter storm that occurred from January 5–6, which brought significant snowfall to southern Ohio. The storm developed as a low-pressure system moving through the Tennessee Valley. The northern portion of systems like these typically produce the heaviest snowfall. In this case, the region of heaviest snow included southern Ohio, with widespread snowfall totals ranging from 5 to 12.5 inches across the southern half of the state (Fig. 7).

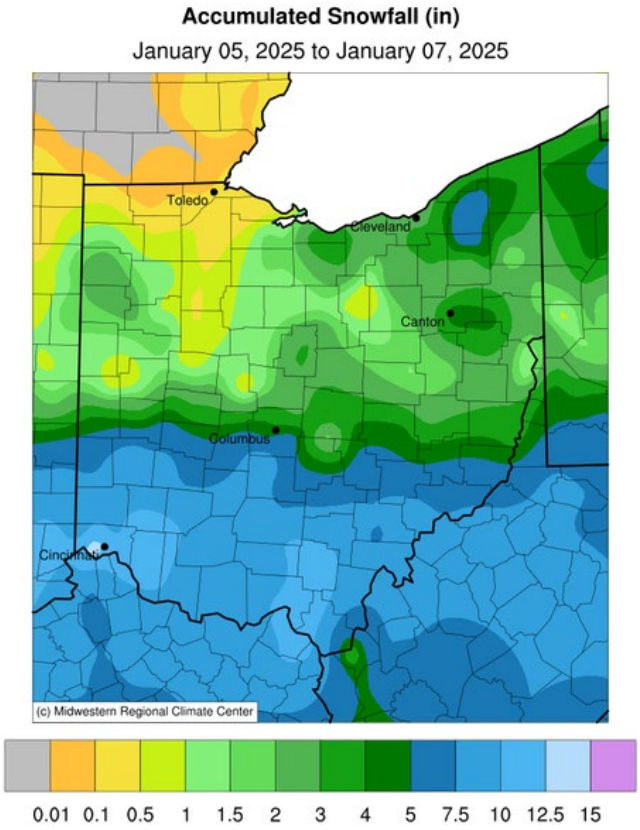

Figure 7: Accumulated snowfall between January 5 and January 7. Data courtesy of the Midwestern Regional Climate Center (http://mrcc.purdue.edu).

In addition to the snow, the storm brought wind gusts of up to 30 mph, significantly reducing visibility and creating hazardous travel conditions. Cold temperatures and slippery roads made commuting difficult, with reports of sleet, ice, and freezing rain near the Ohio River further complicating travel. A traffic camera image captured by the Ohio Department of Transportation on I-74 at Morgan Road shows treacherous road conditions for commuters at 8 a.m. on January 6th (Fig. 8). The combination of heavy snowfall, strong winds, and icy conditions led to numerous accidents, road closures, and school delays. While Ohio is accustomed to snow in January, southern Ohio does not experience snowfalls of this magnitude as often as other parts of the state. This brought unique challenges due to its topography and roadways.

Figure 8: Photo pulled from NWS Wilmington Twitter courtesy of ODOT camera along I-74 in Hamilton CO, Ohio. Image depicts poor road conditions for commuters resulting from heavy snow. (https://x.com/NWSILN/status/1876251710194434347)

Forecast: February – April 2025

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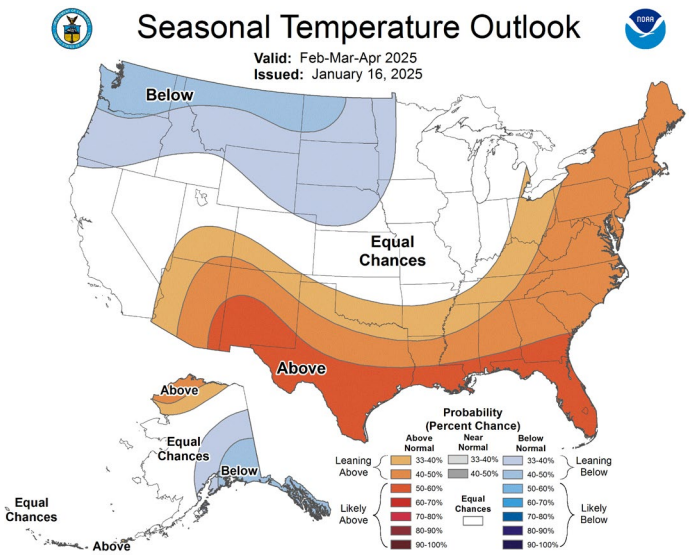

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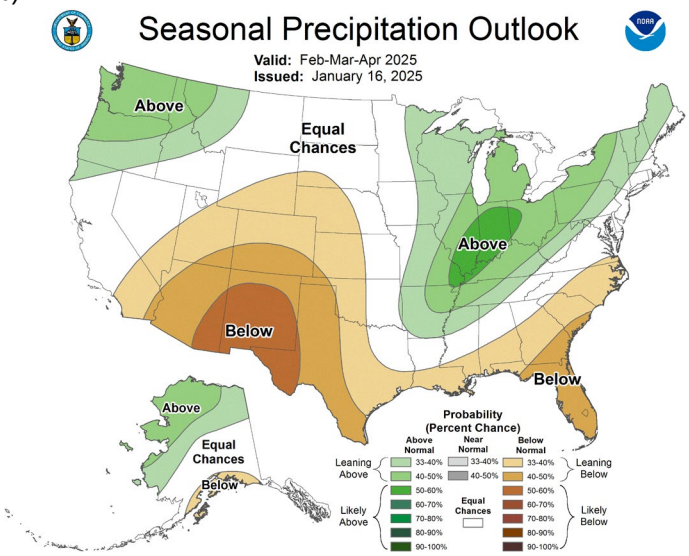

Figure 9a: Nationwide Seasonal Temperature and 9b: Precipitation Outlook for February-April. Courtesy of the Climate Prediction Center (https://www.cpc.ncep.noaa.gov/).

Looking Ahead

The Climate Prediction Center's (CPC) three-month outlook projects warmer and wetter-than-average conditions across Ohio. The temperature outlook indicates above-normal temperatures statewide, with the highest probability in the southeast and the lowest in the northwest (Fig. 9a). Similarly, the precipitation outlook suggests an increased likelihood of above-average rainfall, with the greatest probability along the western border (Fig. 9b). These outlooks align with the ongoing transition from an ENSO-neutral state to La Niña conditions, which is historically associated with increased precipitation across Ohio. The combination of warmer temperatures and above-normal rainfall could increase the risk of flooding, impact agriculture, and contribute to more active storm systems. While the overall trend favors warmer and wetter conditions, short-term variability will still occur as a result of short-term impactful weather patterns.

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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