State of Ohio
Monthly Climate Update

THE OHIO STATE UNIVERSITY

Review – December 2025

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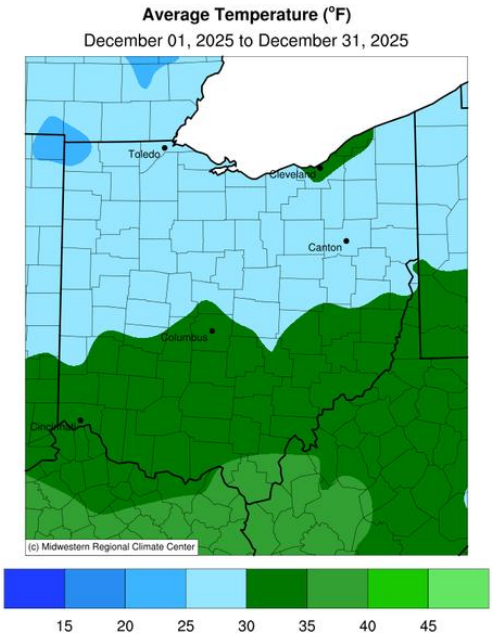

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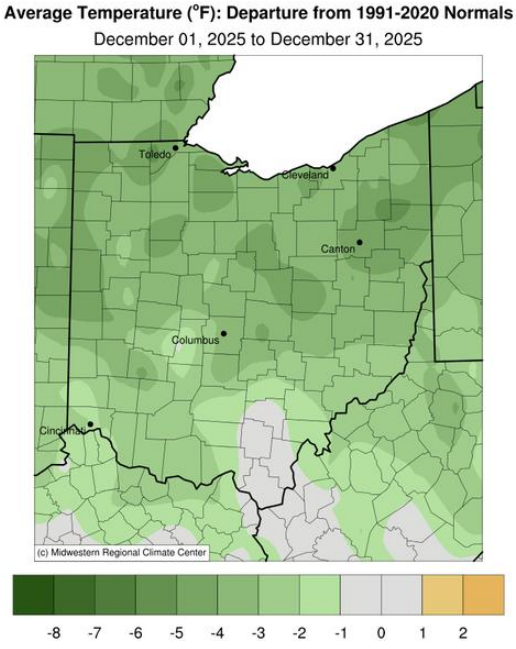


Figure 1a: Average temperature and 1b: Departure from Normal for the month of December 2025. Data courtesy of the Midwestern Regional Climate Center (http://mrcc.purdue.edu).

Temperature

December featured a wide range of temperatures across Ohio, with monthly averages ranging from near 20°F to around 40°F. The warmest temperatures were confined to the southernmost portion of the state, with a noticeable transition occurring in central Ohio. Much of the state experienced average temperatures between 25°F and 30°F, while northwest Ohio observed the coldest conditions, with averages near 20°F. In contrast, northeast Ohio contained an isolated area with slightly warmer averages between 30°F and 35°F (Fig. 1a). Overall, December temperatures across Ohio were predominantly below normal, except for southern Ohio, where temperatures were closer to climatological averages for the month (Fig. 1b). Statewide, December ranked as the 45th coldest on record in Ohio, based on 131 years of record. Most northern counties and some central and southern regions fell within the coldest one-third of historical Decembers, while a majority of southernmost counties remained near normal (Fig. 2).

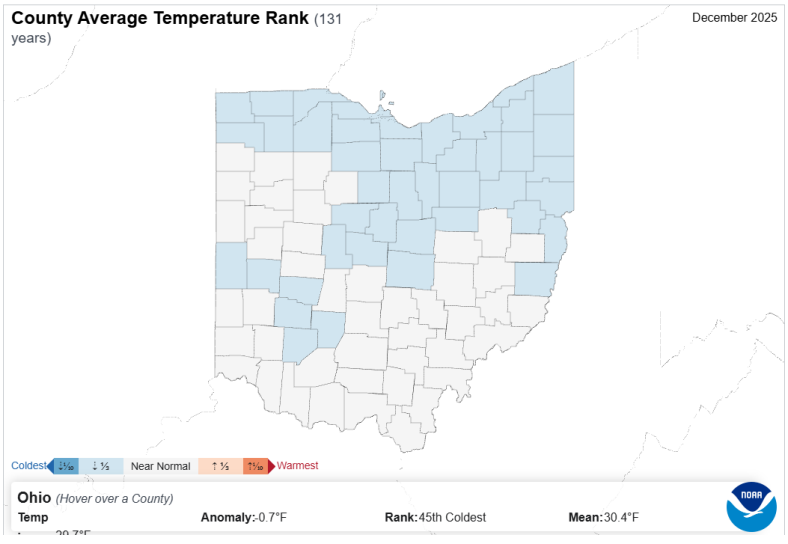
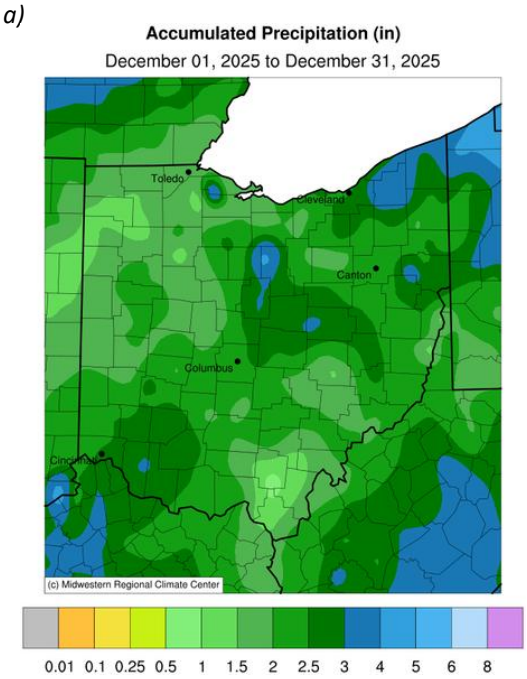


Figure 2: State of Ohio average temperature ranks by county for December 2025. Courtesy of the National Centers for Environmental Information (https://www.ncdc.noaa.gov/sotc/).

a)



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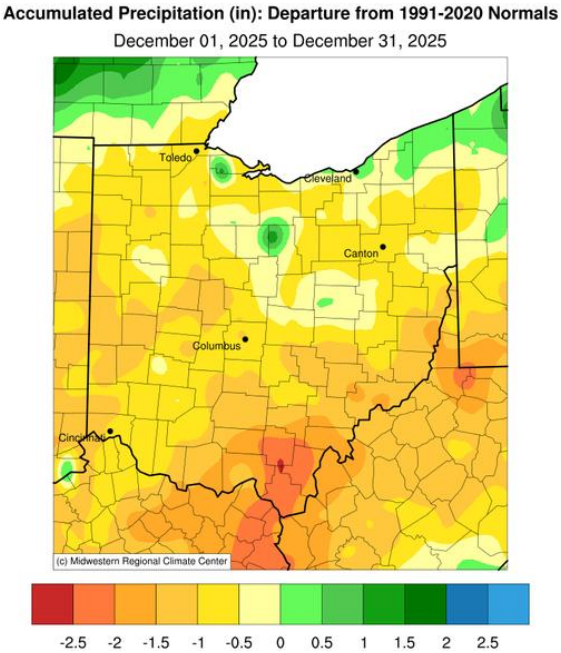


Figure 3a: Accumulated precipitation and 3b: Departures from Normal for the month of December 2025. Data courtesy of the Midwestern Regional Climate Center (http://mrcc.purdue.edu).

Precipitation

Accumulated precipitation during December varied considerably across Ohio. Northeastern Ohio emerged as the wettest region due to Lake Effect snow blowing moisture from Lake Erie. The southernmost and northwest portions of the state received substantially less precipitation, making them the driest areas for the month. The highest totals were observed in parts of northeast Ohio with 3 to 5 inches. In contrast, northwest Ohio and the southernmost counties received as little as 0.5 to 1 inch of precipitation (Fig. 3a). When compared to climatological normals, precipitation in portions of northeast Ohio was significantly above normal, with departures exceeding +2.5 inches (Fig. 3b). However, the majority of the state experienced below-normal precipitation for December. According to county-level precipitation rankings, December ranked as the 28th driest on record for Ohio. Most counties fell below normal, with some counties in the southern and southwestern parts of the state ranking within the driest tenth of historical Decembers (Fig. 4).

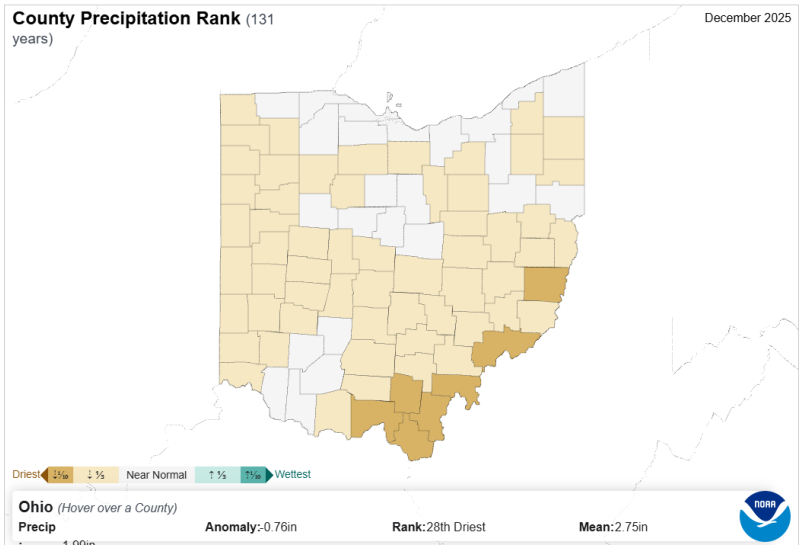
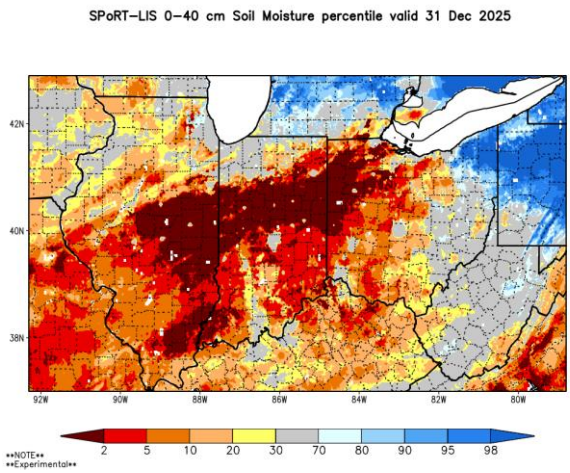


Figure 4: State of Ohio precipitation ranks by county for December 2025. Courtesy of the National Centers for Environmental Information (https://www.ncdc.noaa.gov/sotc/).

a)



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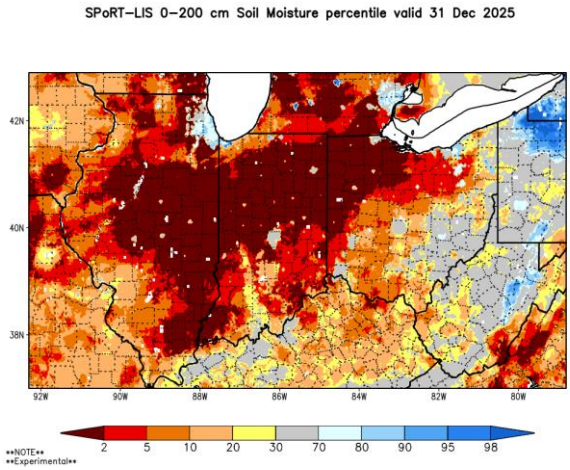


Figure 5a: 0-40 cm and 5b: 0-200 cm soil moisture percentile across the region at the end of December 2025. Courtesy of NASA SPoRTLIS (https://weather.msfc.nasa.gov/sport/case_studies/lis_IN.html).

Soil and Energy

Soil moisture conditions at the 0–40 cm depth at the end of December indicated that approximately two-thirds of Ohio was experiencing dry soil conditions. The remaining one-third of the state, primarily in eastern Ohio, showed normal or wetter-than-normal soils. The driest conditions were observed in northwest Ohio, where soil moisture values fell into the 2nd percentile. In contrast, northeast Ohio exhibited much wetter conditions, with soil moisture percentiles ranging from the 95th to 98th percentile (Fig. 5a). At greater depths (0–200 cm), soil moisture patterns were generally similar to those observed in the shallower layer; however, northeast Ohio did not maintain the same degree of wetness. Dry conditions became more pronounced in northwest Ohio, with additional counties falling into the 2nd percentile for soil moisture (Fig. 5b).

As expected with the winter months, the Cooling Degree Days (CDDs) remained at 0, meaning the daily average temperature never rose above 65 °F. While energy for AC decreases, more energy is put into heating buildings due to colder then average temperatures resulting in an average of 1099 Heating Degree Days (HDDs) for the state, which is 96 days above normal (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	1187	1063	124	0	0	0
2	1147	1036	111	0	0	0
3	1155	1025	130	0	0	0
4	1129	1037	92	0	0	0
5	1100	1002	98	0	0	0
6	1152	1035	117	0	0	0
7	1126	1008	118	0	0	0
8	1025	961	64	0	0	0
9	975	920	55	0	0	0
10	1040	965	75	0	0	0
Statewide	1099	1003	96	0	0	0

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

Notable Event

On December 2, several regions in Ohio broke daily snowfall records previously set in the 1930s, including Cincinnati with 4.2 inches, Columbus with 4.7 inches, and Dayton with 3.6 inches (Fig. 7). This system more directly affected west central Ohio but continued to move through the state as central and northeastern Ohio received anywhere from 3 to 6 inches. Originating from the southeast of the U.S., the winds dragged moisture and precipitation north. Impacts included several counties issuing snow emergencies along with early morning school delays and closures.

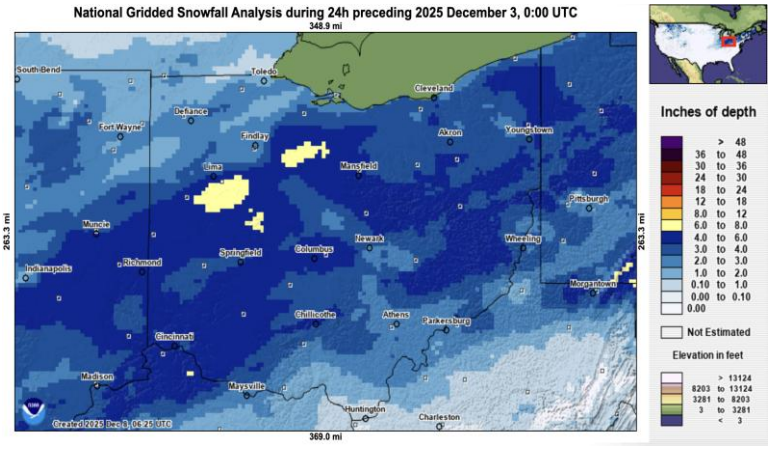


Figure 7. Map of total snow accumulation for Ohio on December 2. Source: NOAA's National Operational Hydrological Remote Sensing Center. Accessed at https://www.nohrsc.noaa.gov/interactive/html/map.html

Drought

Given the below-average accumulated precipitation in December, it is unsurprising that portions of Ohio remain in extreme drought. The most severe conditions are concentrated in northwest Ohio, particularly from Defiance through the Toledo area. Drought intensity gradually decreases outward from this region. Smaller pockets of abnormally dry (D0) conditions persist along eastern Ohio and just southwest of central Ohio. Currently, 29.21% of the state is classified as D0, with 16.73% in D1, 11.33% in D2, and 7.83% in D3 drought categories (Fig. 8), collectively affecting 1,220,129 people. However, with the potential for winter storms, these drought conditions may begin to ease for the first time since June.

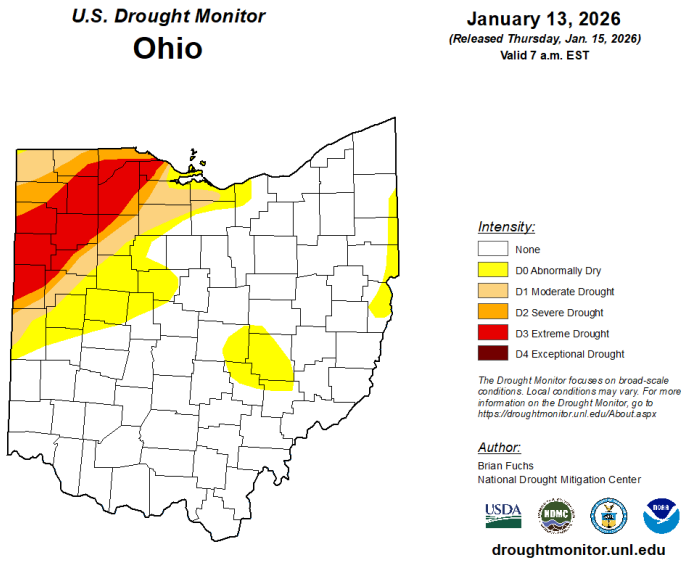
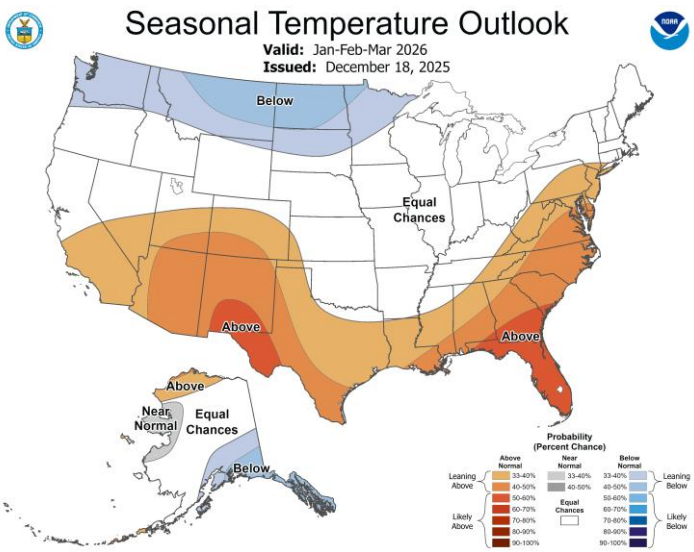


Figure 8: Map showcasing drought conditions in Ohio released on January 15, determined by the U.S. Drought Monitor. https://droughtmonitor.unl.edu/CurrentMap/StateDroughtMonitor.aspx?OH

Forecast: January – March 2026

a)



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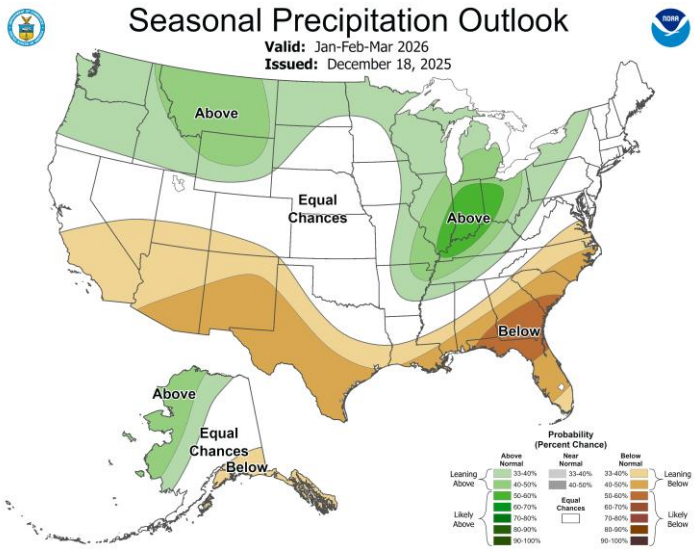

Figure 9a: Nationwide Seasonal Temperature and 9b: Precipitation Outlook for January – March 2026. Courtesy of the Climate Prediction Center (https://www.cpc.ncep.noaa.gov/).

Looking Ahead

The Climate Prediction Center's three-month temperature outlook indicates equal chances of above- or below-normal temperatures across Ohio (Fig. 9a). In contrast, the seasonal precipitation outlook shows a greater likelihood of above-normal precipitation in western Ohio, with probabilities reaching 50–60%. Elsewhere across the state, the chance of above-normal precipitation remains lower but still possible, generally ranging from 33–40% (Fig. 9b).

Temperatures, especially in the second week of January, have been variable but are leaning towards the colder end. Despite optimism for above normal precipitation in the outlook, December was fairly dry, which has persisted into January. The only impactful precipitation for the state has been from lake effect snow off of Lake Erie and the occasional snow squall system here and there. Although these dry conditions seem to be staying, typical changes in the jet stream during the winter season could provide Ohio with the precipitation that it has been lacking.

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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