State of Ohio Monthly Climate Update

THE OHIO STATE UNIVERSITY

Review – May 2025

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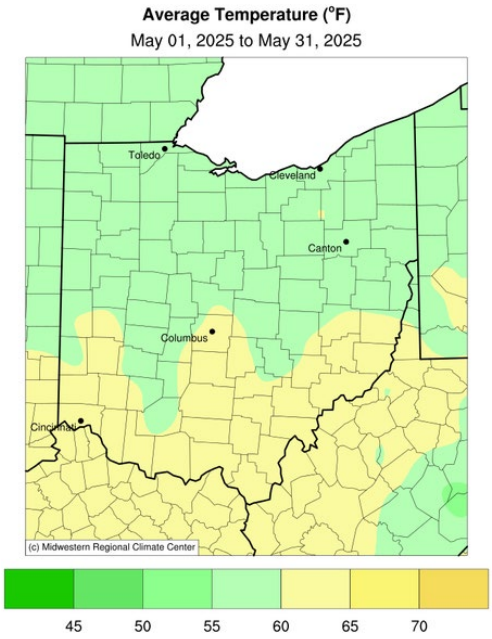

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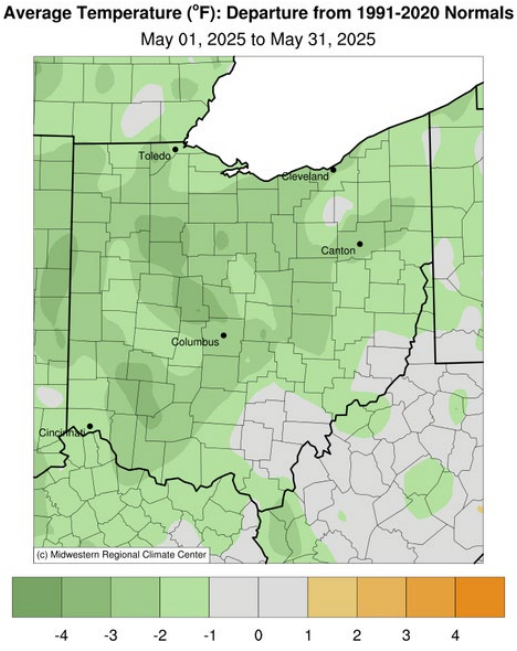

Figure 1a: Average temperature and 1b: Departure from Normal for the month of May 2025. Data courtesy of the Midwestern Regional Climate Center (http://mrcc.purdue.edu).

Temperature

May featured a prolonged cooler and active pattern in Ohio. Normal to below-normal temperatures were preeminent across the state, including a notable stretch of cooler than average weather to close out the month, which featured daily high temperatures as much as 10F below normal. In total, this led to average temperatures in the 55-60F range across the northern two-thirds of Ohio, with average temperatures reaching the 60-65F range in the southern third of the state (Fig 1a). Compared to normal, this was 1-3F below average across the majority of the region. Some portions of western Ohio recorded departures 3-4F below normal, while only far southeast Ohio recorded departures near average (Fig 1b). At the county level, sixteen counties experienced a colder-than-average May, ranking in the coldest third of their 131-year historical records. Lorain County recorded its 32nd coldest May. Statewide, this May ranked as the 52nd coldest on record for Ohio (Fig 2).

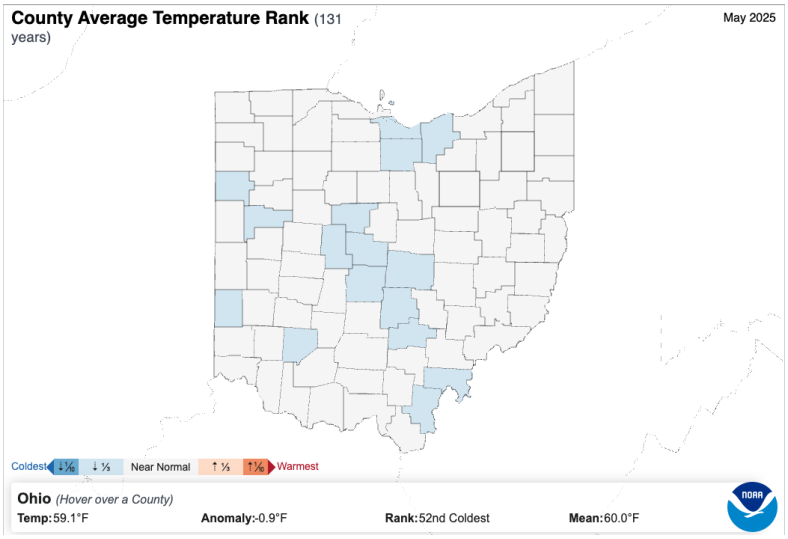

Figure 2: State of Ohio average temperature ranks by county for May 2025. Courtesy of the National Centers for Environmental Information (https://www.ncdc.noaa.gov/sotc/).

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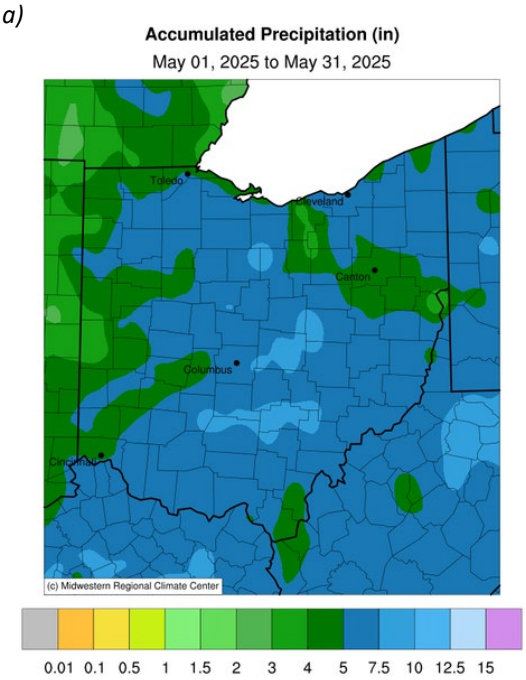

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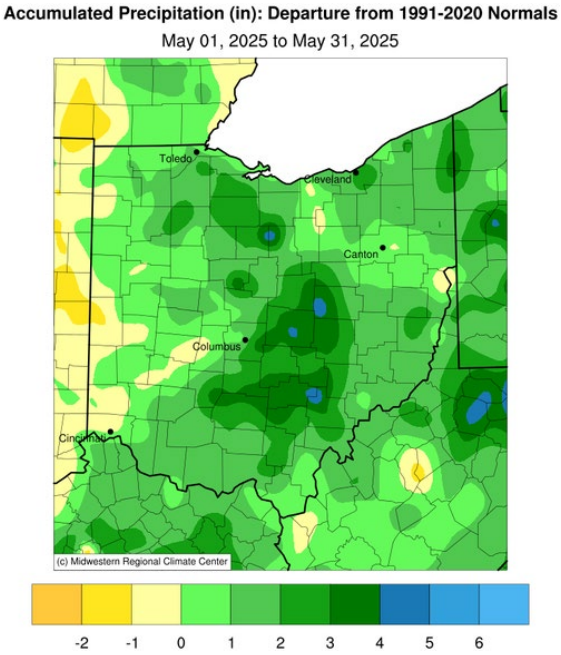


Figure 3a: Accumulated precipitation and 3b: Departures from Normal for the month of May 2025. Data courtesy of the Midwestern Regional Climate Center (http://mrcc.purdue.edu).

Precipitation

Alongside the cool weather, May featured an active weather pattern that brought multiple storm systems. Repeated rounds of rainfall from these storm systems led to a wetter than average month across the state. A majority of Ohio experienced between 4-7.5 inches of precipitation, with isolated areas in the central portion of the state seeing between 7.5-10 inches thanks to heavier rainfall events (Fig 3a). This led to notable departures from normal. Most of the state ended up precipitation amounts between 1-3 inches above normal, with the wettest areas in the center of the region reaching departures 3-5 inches above normal (Fig 3b). Generally, only small portions of western Ohio saw average to below-average precipitation. At the county level, nearly every county in Ohio experienced wetter-than-normal conditions in May. Darke, Preble, Montgomery, and Madison counties ranked near normal, while eleven counties ranked in the wettest tenth of their 131-year records. The remaining 73 counties ranked in the wettest third. Overall, this May was the 22nd wettest on record for Ohio (Fig. 4).

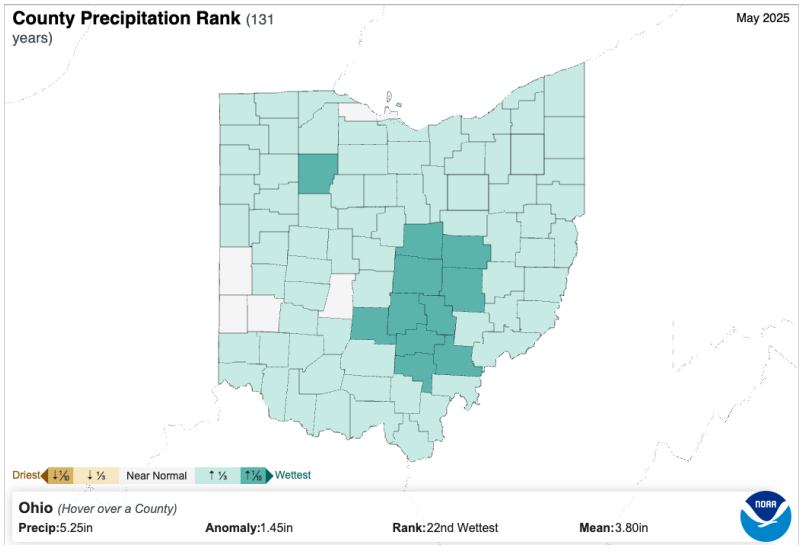
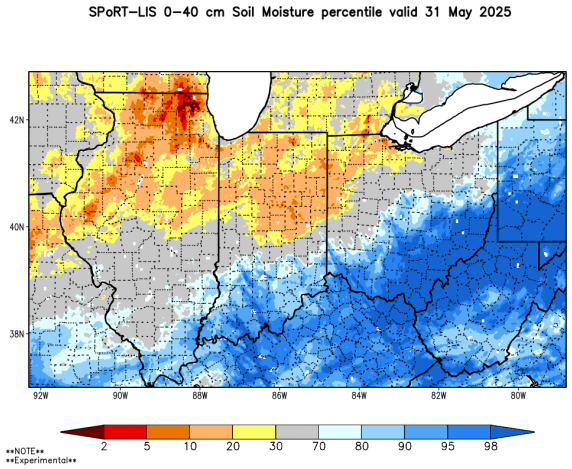


Figure 4: State of Ohio precipitation ranks by county for May 2025. Courtesy of the National Centers for Environmental Information (https://www.ncdc.noaa.gov/sotc/).

a)



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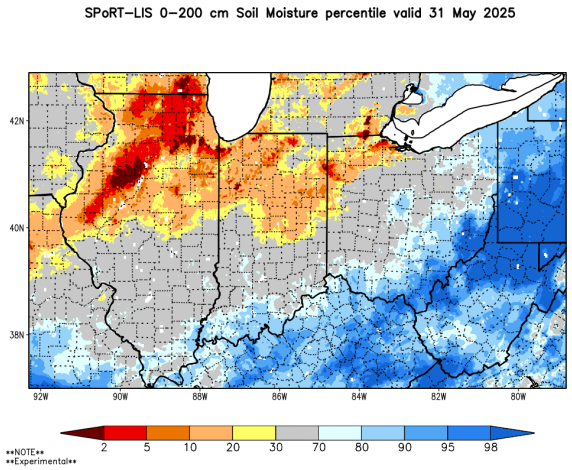


Figure 5a: 0-40 cm and 5b: 0-200 cm soil moisture percentile across the region at the end of May 2025. Courtesy of NASA SPoRTLIS (https://weather.msfc.nasa.gov/sport/case_studies/lis_IN.html).

Soil and Energy

Cooler and wetter conditions across Ohio led to notable impacts in soil and energy for this time of year. At the end of May, soil moisture percentiles at both the 0-40cm (Fig 5a) and the 0-200cm (Fig 5b) levels reflected the state's rainfall trends well, with average to upper percentile values present across central and southeast Ohio. Only northwest Ohio remained drier than normal, with lower percentile values present there after thanks to continued misses with the heaviest rainfall.

May tends to feature the first notable increase of cooling degree days in the energy sector. However, thanks to cooler-than-average temperatures across the state, initial cooling degree day tallies came in below normal over all Ohio climate divisions. Heating degree days varied during this pattern, with most divisions experiencing average to above average tallies with only two exceptions in the southeast (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	228	200	28	18	45	-27
2	224	210	14	20	41	-21
3	258	238	20	14	29	-15
4	185	177	8	21	50	-29
5	182	170	12	25	49	-24
6	210	208	2	17	35	-18
7	201	200	1	14	34	-19
8	145	147	-2	26	56	-30
9	132	142	-10	30	54	-24
10	164	170	-6	23	42	-20

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

Notable Events

A significant severe weather outbreak impacted the Midwest on May 16, featuring numerous supercell thunderstorms that produced multiple tornadoes. The most destructive was an EF-4 tornado that struck Marion, Illinois. In addition to the tornadoes, the system generated widespread damaging winds and reports of hail as large as softballs (Fig. 7).

As the system moved into Ohio on May 16, the primary threat transitioned from tornadoes to damaging winds and large hail. Highland County reported hail up to 3 inches in diameter, with baseball-sized hail observed near Greenfield along the Highland–Ross County line. Hail measuring 2 inches was widespread across the region. In addition to the large hail, strong wind gusts caused significant damage, including uprooted trees and downed power lines in several areas (Fig. 8). In Wilmington, a large tree fell in Sugar Grove Cemetery, contributing to localized power outages. According to estimates from HailTrace.com, more than 7,000 properties near Wilmington, OH, were impacted by hail at least one inch in diameter.

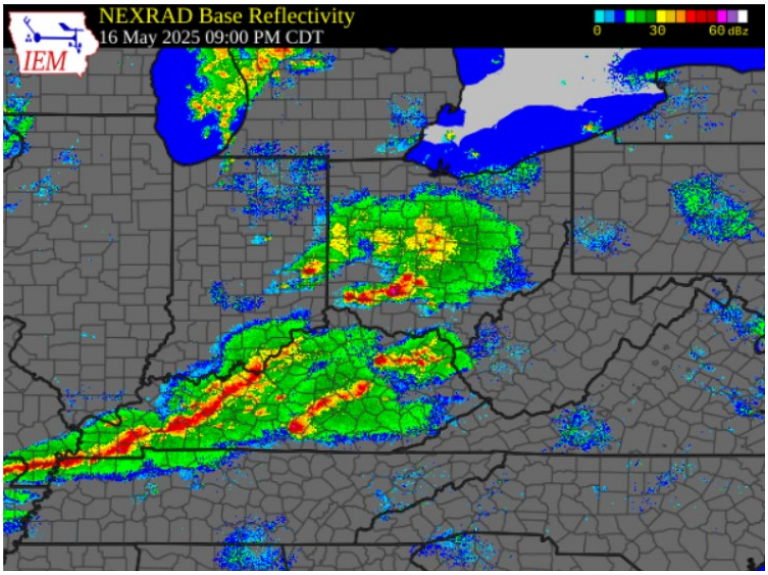


Figure 7. Radar reflectivity image depicting a squall line of strong thunderstorms observed on May 16. Radar data obtained from the Iowa Environmental Mesonet NEXRAD radar archive. (https://mesonet.agron.iastate.edu/current/mcview.phtml)

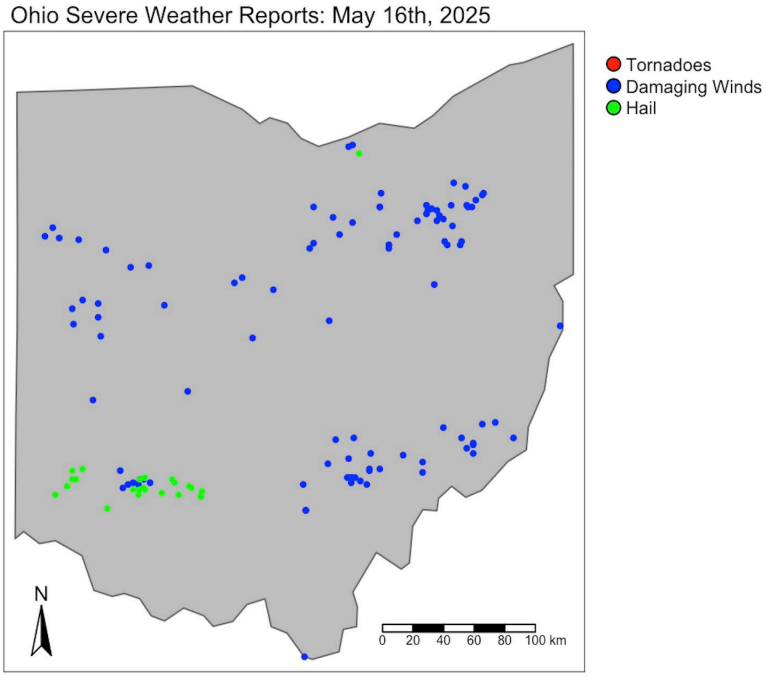
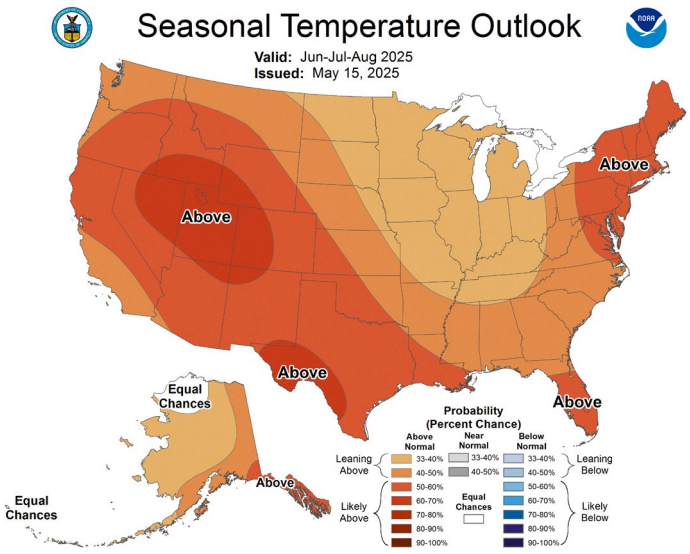


Figure 8: Local storm reports from May 16, 2025, in Ohio. The graphic was created by Geddy Davis using SPC data.

Forecast: June – August 2025

a)



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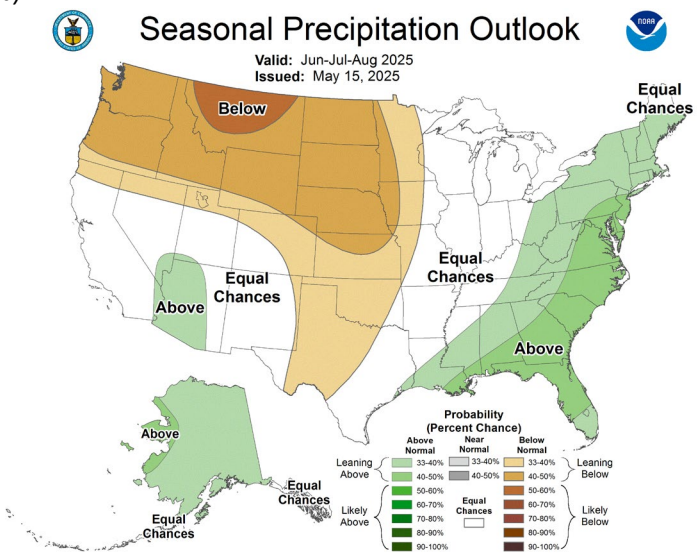

Figure 9a: Nationwide Seasonal Temperature and 9b: Precipitation Outlook for May-July. Courtesy of the Climate Prediction Center (https://www.cpc.ncep.noaa.gov/).

Looking Ahead

The latest Climate Prediction Center (CPC) seasonal outlooks continues to suggest warmer-than-average temperatures across Ohio and wetter conditions for the eastern half of the state, a rinse-and-repeat style outlook similar to last month. The seasonal temperature outlook favors lower confidence for above-average temperatures, with the highest certainty along Ohio's eastern border (Fig. 9a). The precipitation outlook indicates equal chances for above- or below-average precipitation in the western half of the state, while slightly favoring above-average precipitation in the east, again with limited confidence (Fig. 9b).

Due to the low confidence in both temperature and precipitation forecasts, the potential impacts remain uncertain. Continued monitoring of short-term weather patterns and updated seasonal guidance will be important for anticipating any emerging risks or opportunities related to seasonal climate variability. Aspects such as storm track and soil moisture will become important to follow as we head into the heart of growing season.

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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