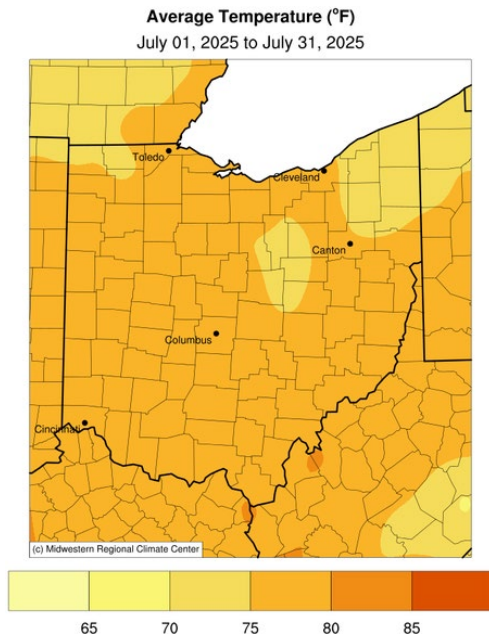


Review – July 2025

Temperature

July continued the theme of a hot and humid summer, with consistent warmth and remarkably muggy environments dominating the month. A pattern of southerly surface flow drawing moisture from the Gulf and Southeast US led to one of the most humid months on record, and supported warmer than normal highs and nighttime lows. This led to consistent average temperatures, ranging from 75-80F in most of Ohio. A few areas in the northeast and north-central parts of the state were exceptions with averages coming in between 70-75F (Fig 1a). Regardless, this was still warmer than average for the state, with areas generally ranging between 2-5F warmer than normal. The highest departures were located in southern Ohio, where some counties cleared 6F above normal (Fig 1b). At the county level, most Ohio counties ranked in the warmest tenth of their historical records for July, while the remaining 25 counties ranked in the warmest third. For Jackson, Lawrence, Pike, Scioto, and Tuscarawas counties, this was the third warmest July on record (Fig 2). Overall, it ranked as the 11th warmest July on record for Ohio, making for an uncomfortable month when coupled with the excessive humidity.

a)



b)

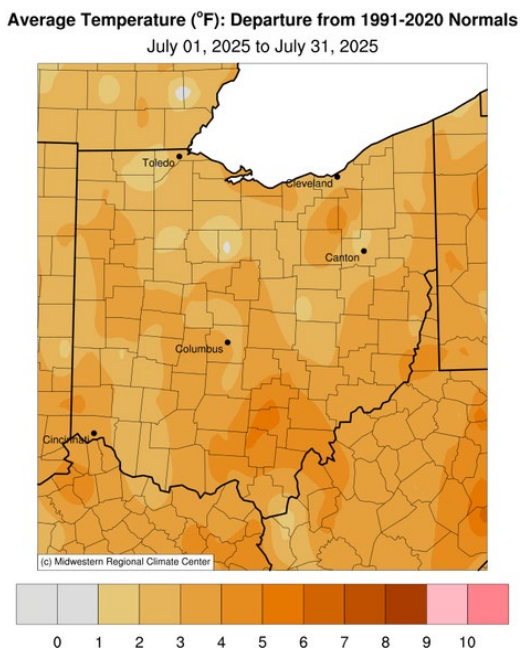


Figure 1a: Average temperature and 1b: Departure from Normal for the month of July 2025. Data courtesy of the Midwestern Regional Climate Center (<http://mrcc.purdue.edu>).

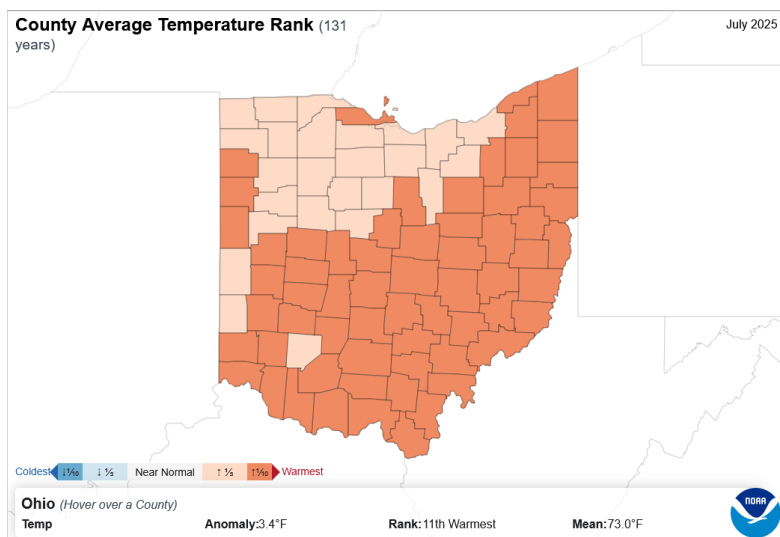


Figure 2: State of Ohio average temperature ranks by county for July 2025. Courtesy of the National Centers for Environmental Information (<https://www.ncdc.noaa.gov/sotc/>).

Review – July 2025

Precipitation

Coupled with the warmth and humidity, July saw several periods of active weather. However, precipitation was often localized based on where the strongest showers and storms developed. This led to several "islands" of significant rainfall while other corners of the state remained near or below normal. Some of the most consistent precipitation occurred over the north-central and southern parts of Ohio. These areas saw between 5-7.5 inches of precipitation, with isolated areas over 7.5 inches noted along the US 33 corridor southeast of Columbus as well as in north central Ohio. Northeast Ohio and a few areas in Northwest Ohio on the other hand only saw 1-4 inches of rain for the month (Fig 2a). This led to widely varying departures from normal. The wettest parts of the state were 3-5 inches above normal for the month, while the driest areas of the state came in between normal and 2 inches below normal (Fig 2b). At the county level, three counties ranked in the driest tenth of their historical records for July, while eight counties ranked in the wettest tenth (Fig 4). Overall, most counties ranked in the wettest third of the 131-year record, and the state as a whole experienced its 38th wettest July on record.

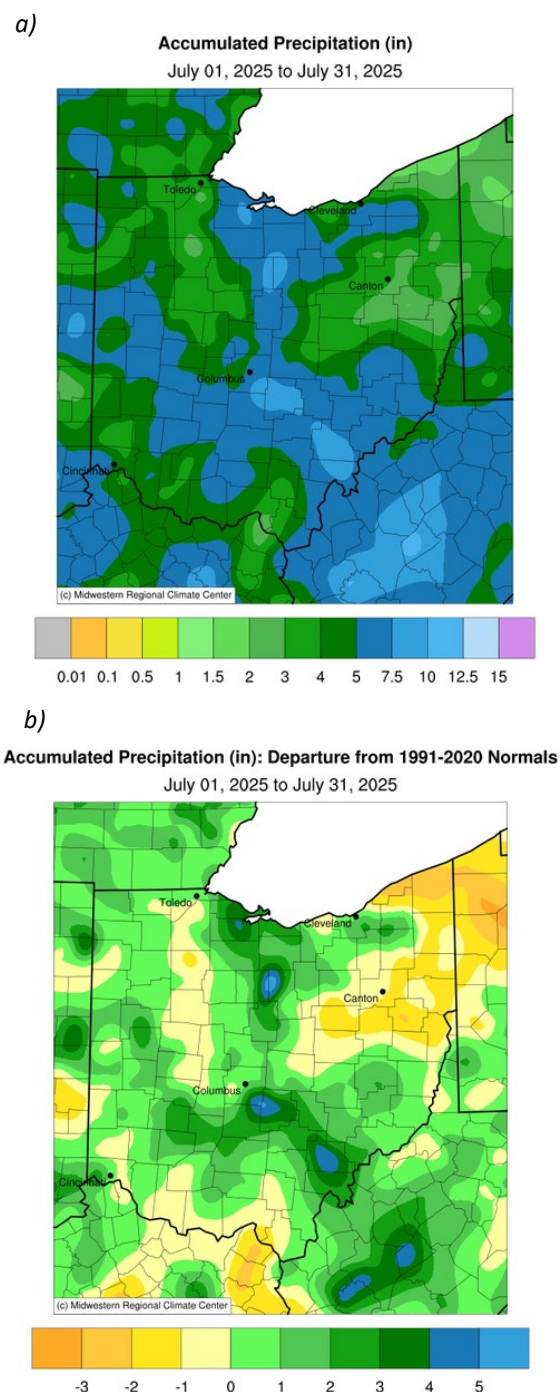


Figure 3a: Accumulated precipitation and 3b: Departures from Normal for the month of July 2025. Data courtesy of the Midwestern Regional Climate Center (<http://mrcc.purdue.edu>).

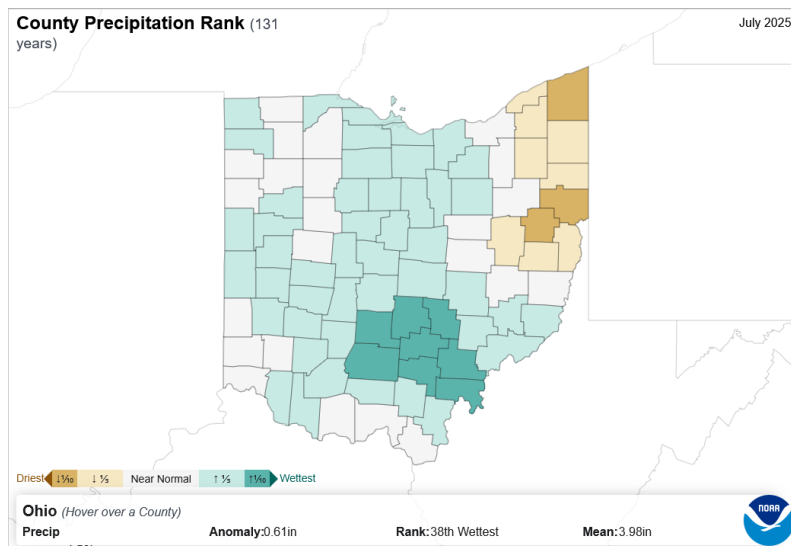
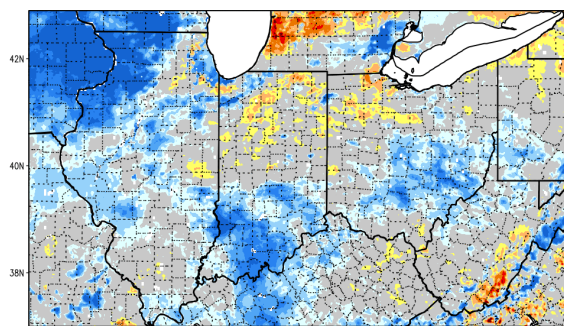


Figure 4: State of Ohio precipitation ranks by county for July 2025. Courtesy of the National Centers for Environmental Information (<https://www.ncdc.noaa.gov/sotc/>).

Review – July 2025

a)

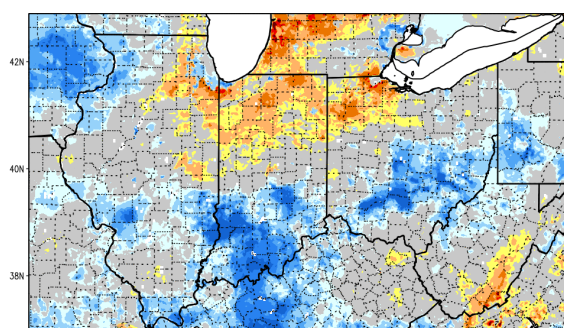
SPoRT-LIS 0–40 cm Soil Moisture percentile valid 31 Jul 2025



NOTE
Experimental

b)

SPoRT-LIS 0–200 cm Soil Moisture percentile valid 31 Jul 2025



NOTE
Experimental

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

Soil and Energy

Despite the inconsistent distribution of precipitation this month, soil conditions continued to hold steady or improve across the state. Wet or normal soil conditions continued across most regions, with the wettest soil moisture percentiles existing in southern Ohio at both the 0–40cm (Fig 5a) and 0–200cm (Fig 5b) levels. Drier than normal conditions continued to persist, primarily at the 0–200cm level, across northwest Ohio.

Cooling Degree Days (CDDs) were above normal in July, reflecting the above-normal temperatures. No Heating Degree Days (HDDs) were recorded, as expected for summer months (Fig 6). Overall, the increase in CDDs likely indicates higher energy usage this July as many looked to stay cool in the hot and humid conditions prevalent throughout the course of the month.

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	0	3	-3	339	253	86
2	0	4	-4	343	244	99
3	0	9	-9	286	196	90
4	0	3	-3	369	268	100
5	0	2	-2	367	265	101
6	0	5	-5	342	221	120
7	0	5	-5	348	224	124
8	0	1	-1	408	295	113
9	0	1	-1	421	292	129
10	0	3	-3	384	252	132



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

Review – July 2025

Notable Events

July in Ohio was marked by high humidity and frequent thunderstorms, fueled by warm, moisture-rich air from the Gulf of Mexico interacting with passing frontal systems. The most significant severe weather occurred on July 19 and July 28, producing a combined total of five tornadoes—four rated EF0 and one rated EF1 (Fig 7). On July 19, three tornadoes occurred near Springfield and north of Sidney, with two rated EF0 and one near Springfield rated EF1 that damaged trees, barns, and several homes. On July 28, another EF0 tornado occurred in Wayne County, causing lighter damage. An additional EF0 tornado occurred in Medina County on July 7th. Numerous damaging wind reports were recorded statewide on these days as well, with straight-line winds toppling countless trees, blocking roads, and damaging power lines, leading to widespread power outages (Fig 8). While overall damage was generally minor, these storms were significant enough to disrupt day-to-day operations, though no injuries or fatalities were reported. The repeated rounds of thunderstorms also contributed to localized areas of above-normal precipitation and flash flooding, particularly in regions where storms tracked repeatedly over the same locations.

Ohio Severe Weather Reports: July 2025

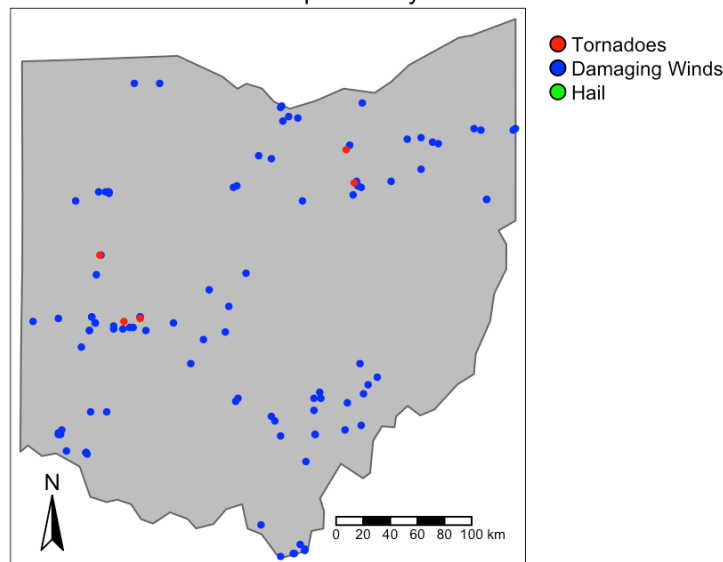


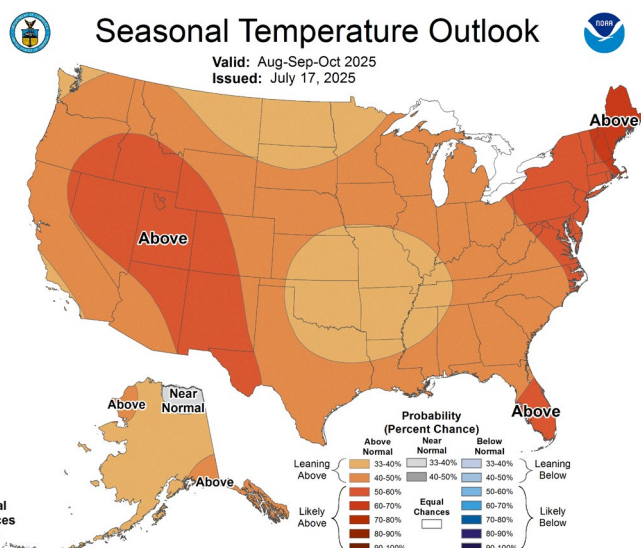
Figure 7. Local storm reports from July 2025 in Ohio. The graphic was created by Geddy Davis using SPC data.



Figure 8. A tree crushed a wooden and chain-link fence and landed against a house in central Ohio during the severe storm of July 12, 2025 (courtesy of FOX-28 Columbus)

Forecast: August – October 2025

a)



b)

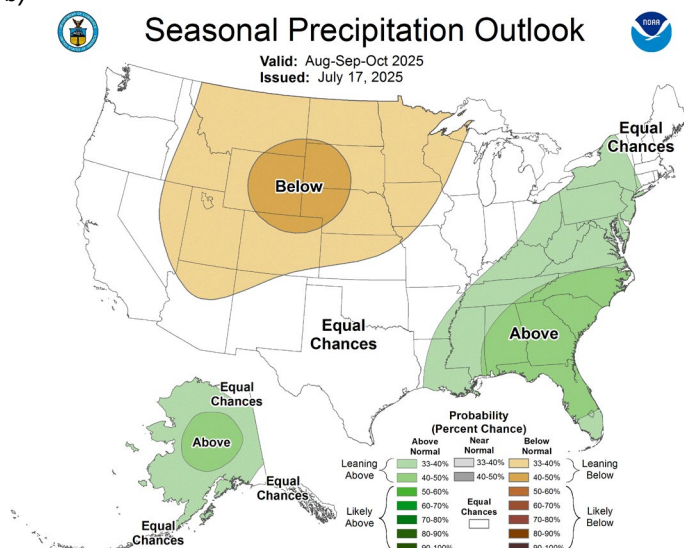


Figure 9a: Nationwide Seasonal Temperature and 9b: Precipitation Outlook for August-October. Courtesy of the Climate Prediction Center (<https://www.cpc.ncep.noaa.gov/>).

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Looking Ahead

More of the same looks to be in store for the state as we head into the late summer and early fall months. The newest Climate Prediction Center (CPC) outlooks suggest continued warmer than normal conditions over the state for the next 3 months (Fig 9a). In addition, chances for wetter than normal conditions look to persist for southern and eastern Ohio, while the outlook for northern and western Ohio is more uncertain with equal chances for above, below, or near normal precipitation in the coming months (Fig 9b). Monitoring of these conditions will be important as we head towards harvest time in Ohio. In particular, any excessive rainfall will hamper opportunities to get into the field for crop maintenance and harvest.

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