

Review – August 2022

Temperature

While August featured a hot start, an unusual troughing pattern brought much cooler than normal weather through the second week of the month. Daytime highs as cool as the low 70°Fs and lows in the upper 40°Fs were featured before temperatures warmed back to around average. With no real striking above or below normal periods to round out the month, average temperatures for the month finished squarely in 70-75°F range statewide. (Fig. 1a) This is essentially the average for most of the state as seen in Fig. 1b, with only parts of NE and S Ohio breaking 1-3°F above recent normals. Small parts of central OH even came 1-2°F below average! This also is reflected at the county level, with the center third of the state’s counties ranked near normal while the eastern and western fringes just squeaked into the upper third of the 128-year record. (Fig. 2)

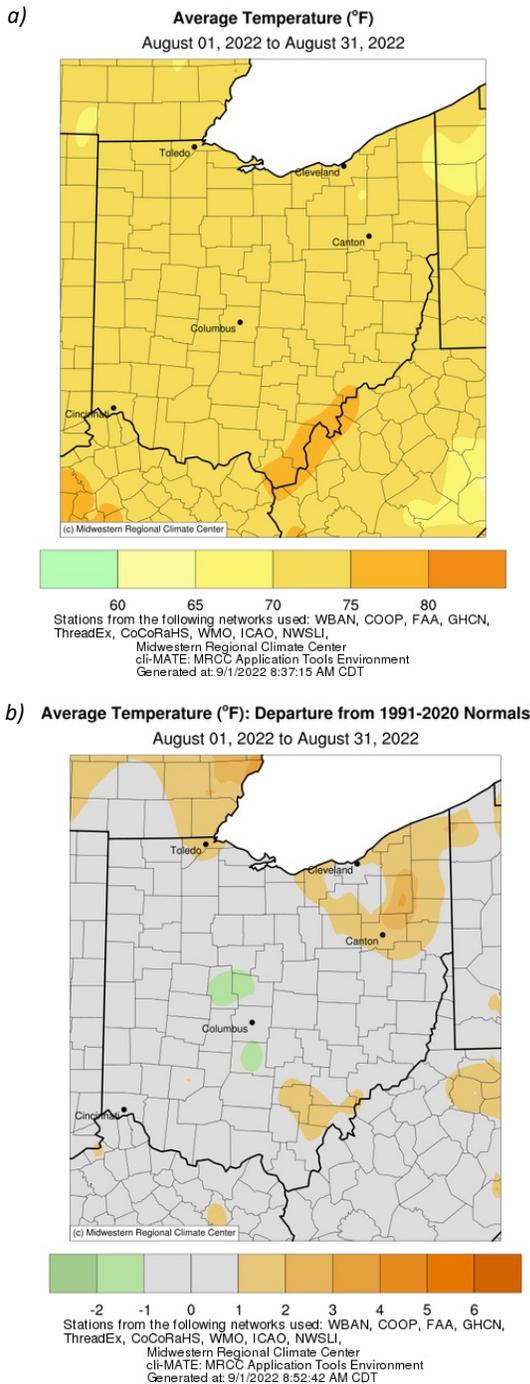


Figure 1a) Average temperature and 1b) Departures from Normal for the month of August 2022. Data courtesy of the Midwestern Regional Climate Center (<http://mrcc.purdue.edu>).

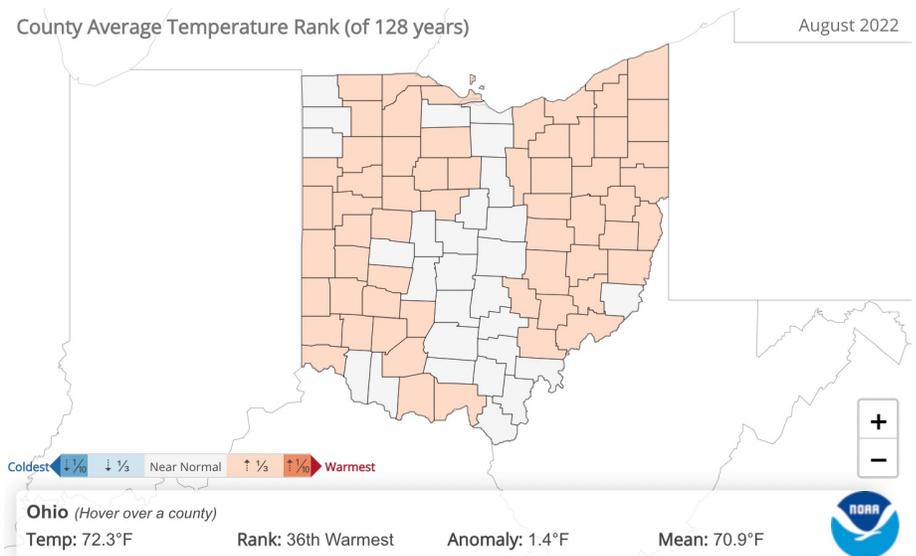


Figure 2). State of Ohio average temperature ranks by county for August 2022. Courtesy of the National Centers for Environmental Information (<https://www.ncdc.noaa.gov/sotc/>).

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Precipitation

While temperatures for August were rather uniform, precipitation was a different story. Large swatches of northern and southern OH received ample rainfall thanks to the timing and intensity of passing weather systems. Monthly totals of 3-6 inches of precipitation were common in these regions, with localized areas along the OH River seeing over 6 inches. (Fig. 3a) The picture is different in northeast and west central OH, where storms frequently dissipated or systems passed overnight. Only 1-3 inches or less fell in these areas this month, resulting in quite the disparity between these below normal areas and the normal to above normal areas surrounding them. (Fig. 3b) This disparity is even more obvious at the county level, with a few northwest and lakeside counties notching a top 10 wettest August compared to the dryness in parts of the west and northeast. (Fig. 4)

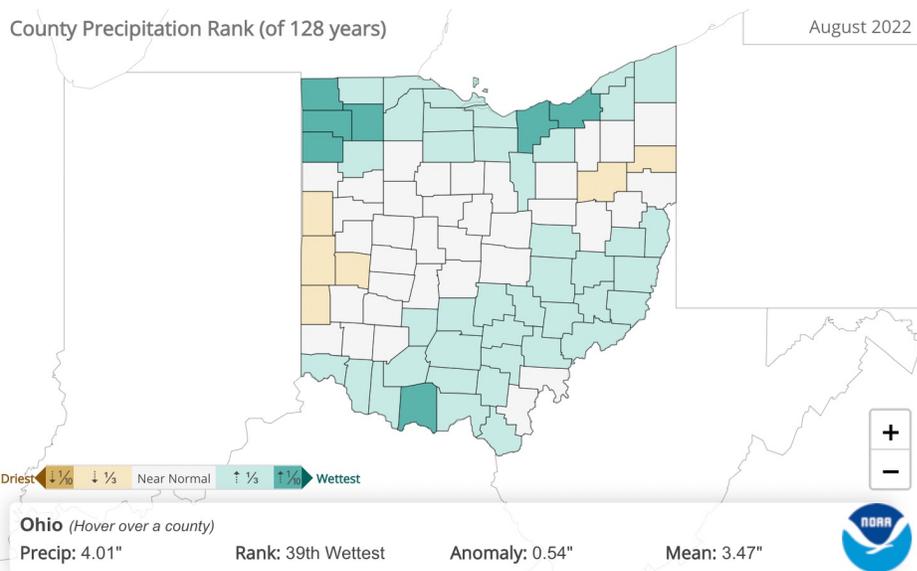
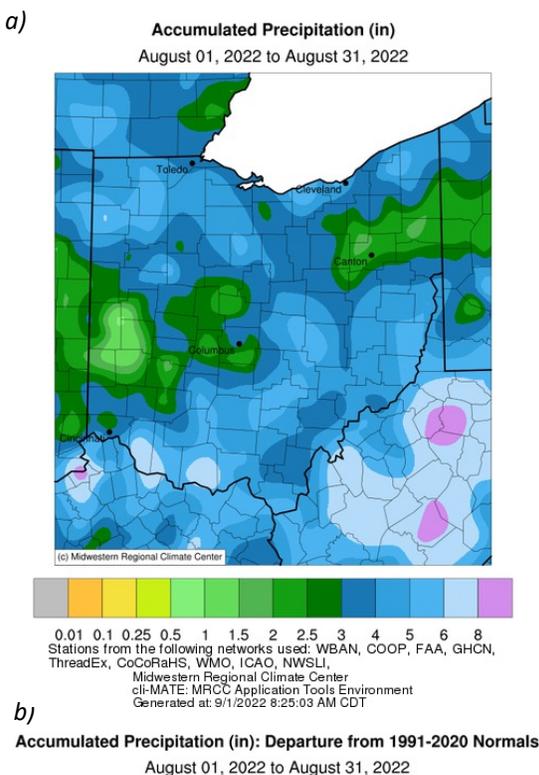


Figure 4). State of Ohio precipitation ranks by county for August 2022. Courtesy of the National Centers for Environmental Information (<https://www.ncdc.noaa.gov/sotc/>).

Figure 3a) Accumulated precipitation and 3b) Departures from Normal for the month of August 2022. Data courtesy of the Midwestern Regional Climate Center (<http://mrcc.purdue.edu>).



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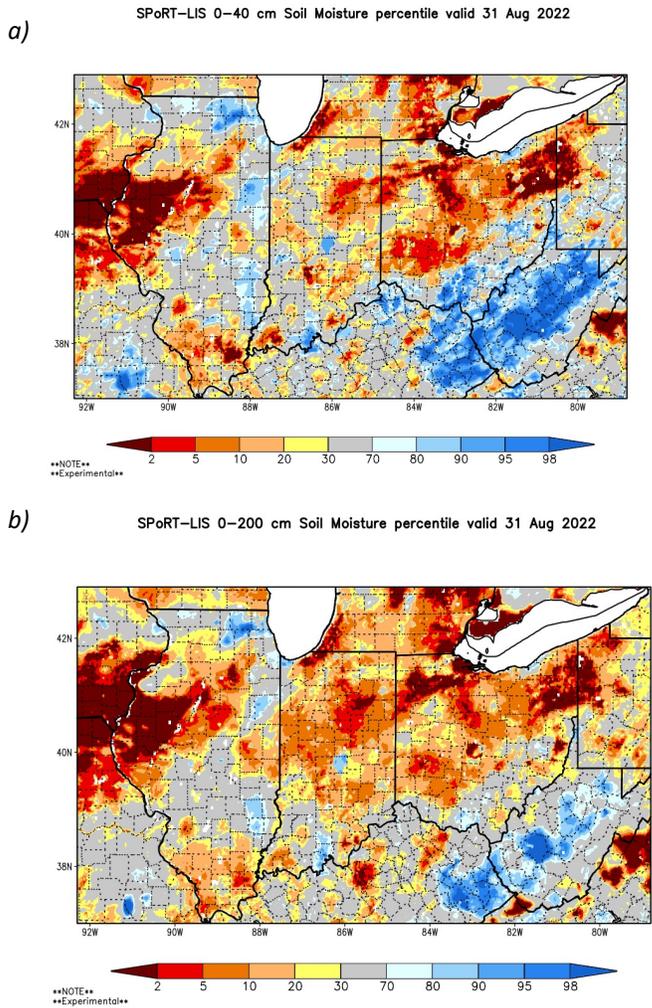


Figure 5a: 0-40 cm and 5b: 0-200 cm soil moisture percentile across the region at the end of August. Courtesy of NASA SPoRTLIS (https://weather.msfc.nasa.gov/sport/case_studies/lis_IN.html).

Soil and Energy

The hit-or-miss nature of precipitation this month combined with drier airmasses at the end of the month aiding in evaporation has resulted in an interesting set of soil moisture percentile maps at the end of the period. Dryness at the surface is present across most of the northern two-thirds of the state at both 0-40cm (Fig. 5a) and 0-200cm (Fig. 5b) levels, while the southeast and along the OH River is still very much saturated after this month's rain. There is still not much concern for significant impacts, though a few localized areas in the NE and Miami Valley region are showing other signs of drier conditions such as slower streamflows.

On the energy side, a hot start to the month gave cooling degree days (CDDs) a head start over heating degree days (HDDs). CDDs outpaced their normals especially in the northern region due to early highs in the 90°Fs and average temperatures to end the month. HDDs made a rebound, but were still a bit below normal this month. (Fig. 6)

Climate Division	Heating Degree Days	Normal	Departure	Cooling Degree Days	Normal	Departure
1	3	8	-5	220	204	16
2	2	6	-4	234	210	24
3	2	12	-10	195	166	29
4	0	5	-4	230	226	4
5	0	4	-4	218	233	-15
6	3	8	-5	220	193	27
7	1	6	-5	231	205	26
8	0	2	-2	269	262	7
9	0	2	-2	268	263	5
10	1	4	-3	242	229	14
Statewide	1	5	-4	234	221	12



Figure 6: (Left) August 2022 heating & cooling degree days. (Right) Corresponding Ohio Climate Divisions. Data courtesy of the Midwestern Regional Climate Center (<http://purdue.mrcc.edu>).



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Notable Events

Despite being a relatively quiet month in terms of headline-worthy weather, August still offered some interesting occurrences. Of these include the below average temperatures experienced in the early half of the month. One of the coolest days was August 14th, where a large part of northern and central Ohio only reached daytime highs of 65-75°F. (Fig. 7a) Most notably, Columbus tied a record low maximum with a high of only 70°F. This is around 10-15°F below normal for this time of year, quite the contrast to the month's hot start. (Fig. 7b)

Severe weather reports were down compared to prior summer months. Interestingly, no tornadoes were sighted during the month, with only damaging winds and hail being reported during instances of severe weather. (Fig. 8) The highest concentration of reports was in northern Ohio, where a line of severe thunderstorms moved out of southern MI and into the region the evening of August 29th causing a spate of tree and power line damage.

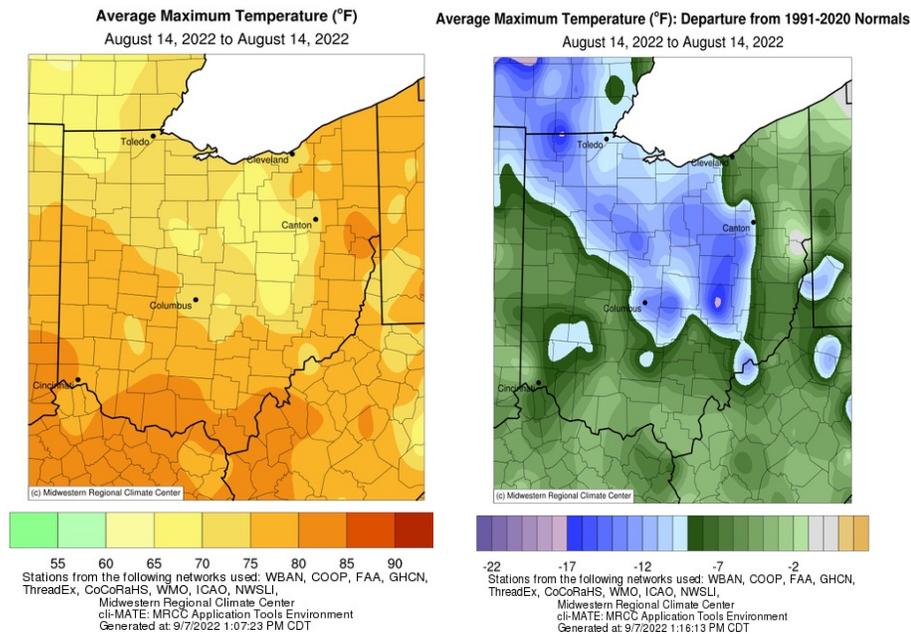


Figure 7a: Average maximum (high) temperatures (left) and 7b: departure from mean (right) across Ohio on August 14th, 2022. Data courtesy of the Midwest Regional Climate Center (<http://mrcc.purdue.edu>).

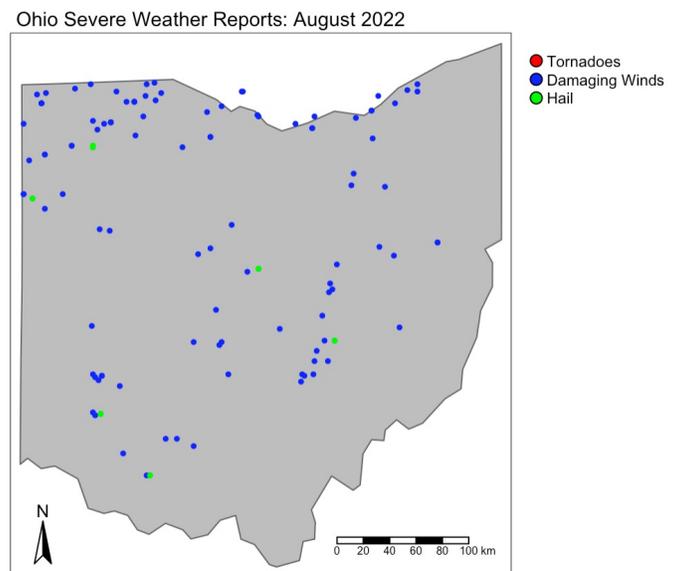


Figure 8: Statewide severe weather reports for August 2022. Includes damaging winds, hail, and tornadoes. Data courtesy of National Weather Service Local Storm Report archive, accessed via Iowa Environmental Mesonet. (<https://mesonet.agron.iastate.edu/>)

All data plotted in R Studio.



Forecast: Sept-Nov 2022

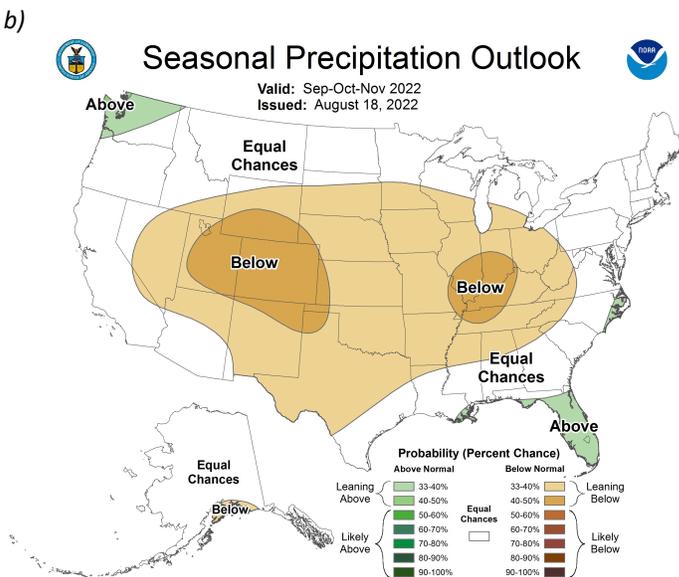
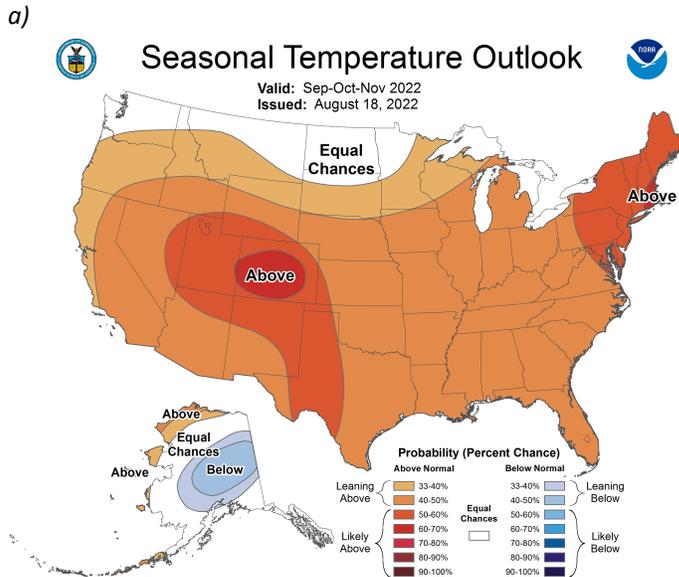


Figure 9a: Nationwide Seasonal Temperature and 9b: Precipitation Outlook for September-November. Courtesy of the Climate Prediction Center (<https://www.cpc.ncep.noaa.gov/>).

Looking Ahead

The newest three-month outlook from the Climate Prediction Center advertises the potential continuation of warm weather for parts of the fall season. Ohio is positioned squarely in probabilities leaning toward more above average temperatures. (Fig. 9a) Coupled with this, probabilities also lean toward below normal precipitation for this stretch. (Fig. 9b) While there is potential for summer-like conditions to persist with this match of probabilities, we are also entering the time period where temperatures will slowly begin to moderate naturally over the coming weeks, with shorter days and less incoming solar energy leading to a decline in our mean temperature. Simply put, even our above-average days will slowly begin to feel more tolerable compared to some of the sweltering heat experienced in the summer months. The drier outlook would have both positive and negative impacts, allowing for good field-working conditions approaching harvest but potential antagonizing some of our locally dry regions.

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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