

Review - April 2022

Temperature

In a reversal of last month, April delivered cooler than average temperatures across the state of Ohio. Specifically, the first 10-20 days of the month were markedly colder than normal, with some wintry precipitation even occurring in a few areas. Another stint of cooler weather was experienced near the end of the month, but only after a sharp warm-up that saw many areas hit 80-85°F for the first time this year. Despite the summery interlude, temperatures averaged only around 45-50°F for much of the state, with regions along the river seeing warmer averages in the 50-55°F range. (Fig 1a) This resulted in negative departures from the 1991-2020 normal statewide, with temperatures 1 to 3°F below average commonplace. (Fig 1b) This is also reflected in county level data for the state, with locations in the south and west most below normal in the 128-year ranks. (Fig 2)

County Average Temperature Rank (of 128 years)

April 2022

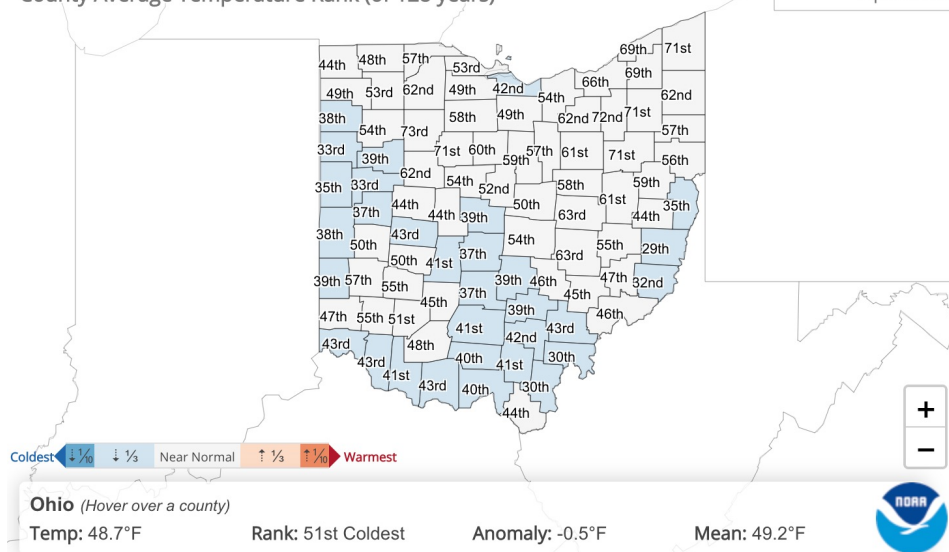


Figure 2). State of Ohio average temperature ranks by county for April 2022. Courtesy of the National Centers for Environmental Information (<https://www.ncdc.noaa.gov/sotc/>).

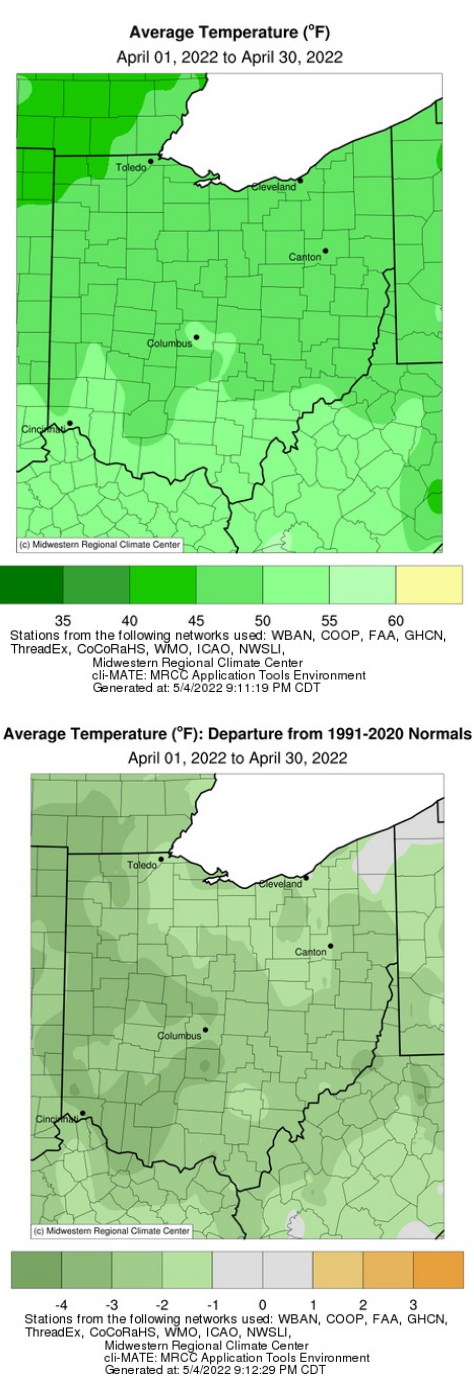
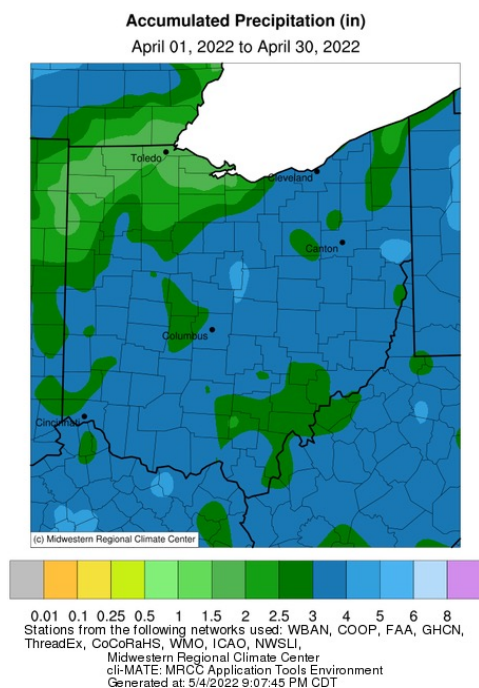


Figure 1a) Average temperature and 1b) Departures from Normal for the month of April 2022. Data courtesy of the Midwestern Regional Climate Center (<http://mrcc.purdue.edu>).

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a)



b)

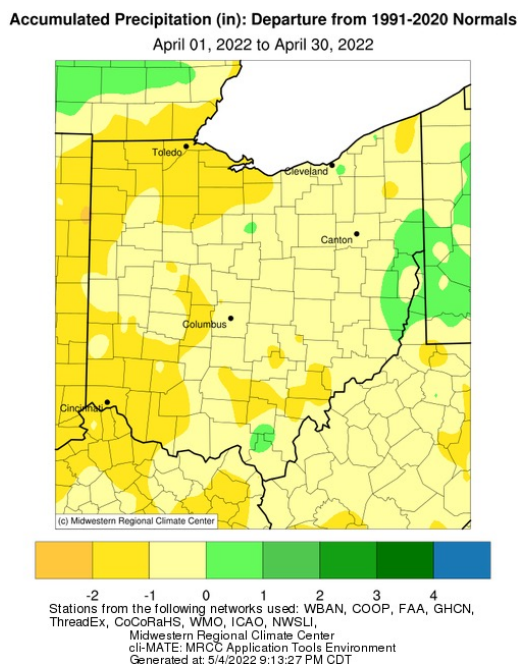


Figure 3a) Accumulated precipitation and 3b) Departures from Normal for the month of April 2022. Data courtesy of the Midwestern Regional Climate Center (<http://mrcc.purdue.edu>).

Precipitation

In another departure from previous months, April featured below average precipitation across much of the state. This was due in part to a relatively quiet weather pattern, mainly in the first half of the month, that featured cooler air aloft. This also helped keep wintry precipitation persistent into the middle part of April, as numerous instances of snow or graupel showers occurred versus liquid rain. In total, about 2.5-4 inches of liquid equivalent precipitation fell in Ohio, with the exception being in the northwest, where as little as 1.5-2.5 inches was seen for the month. (Fig 3a) These areas came in as much as 1-2 inches below normal for the month, while elsewhere registered dry but closer to normal. (Fig 3b) The driest spots by county were in the northwest, with Henry County and a handful of others clocking in a top 20 driest April in the 128-year record. (Fig 4)

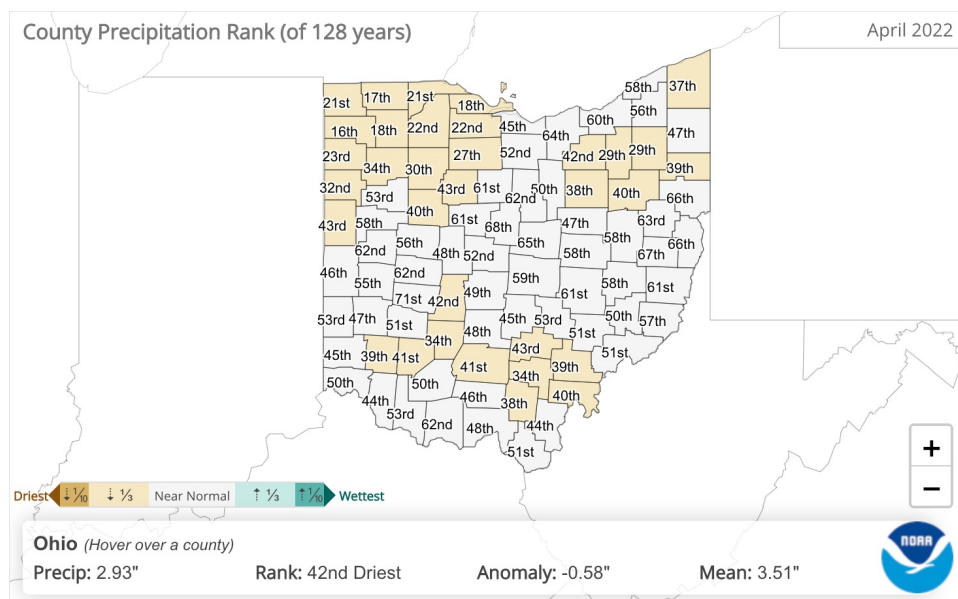


Figure 4). State of Ohio precipitation ranks by county for April 2022. Courtesy of the National Centers for Environmental Information (<https://www.ncdc.noaa.gov/sotc/>).

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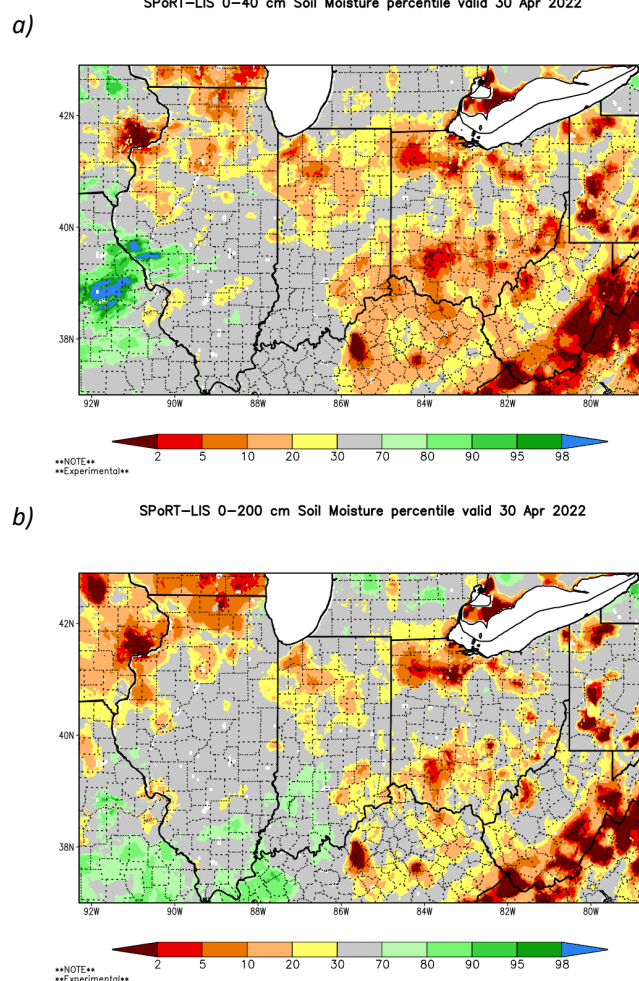


Figure 5a: 0-40 cm and 5b: 0-200 cm soil moisture percentile across the region at the end of April. Courtesy of NASA SPoRTLIS (https://weather.msfc.nasa.gov/sport/case_studies/lis_IN.html).

Soil and Energy

Some drier conditions are beginning to be experienced through the soil column, particularly in Northwest Ohio where back-to-back months of lower to average precipitation have begun to exert their effects. Co-located areas of drier than normal conditions are plainly visible on the 0-40cm (Fig 5a) and 0-200cm (Fig 5b) soil moisture percentile maps. While no significant impacts are being experienced, it is worth keeping an eye on as time goes on. Elsewhere, regions in southern OH are also a bit drier than average, but primarily at levels near the surface. Central OH remains around average with soil moisture in between the 30th and 70th percentiles.

A cooler than average month produced many more heating degree days than usual, with all of Ohio's climate divisions experiencing an increase of 45-100 HDDs compared to normal. The warm stretch in the latter half of the month produced the first noticeable cooling degree days (CDDs), the number of which ended up right around average for each division. (Fig 6)

Climate Division	Heating Degree Days	Normal	Departure	Cooling Degree Days	Normal	Departure
1	565	490	75	4	5	-1
2	530	485	45	7	5	2
3	563	517	46	5	4	2
4	518	433	84	4	6	-2
5	500	409	91	6	7	-1
6	512	463	48	9	5	4
7	516	450	66	6	5	1
8	477	376	101	2	8	-6
9	433	349	84	10	10	0
10	470	395	75	7	7	0
Statewide	507	433	74	6	6	0



Figure 6: (Left) April 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

As previously mentioned, persistently cooler airmasses allowed for some instances of wintry precipitation to occur well into April. The most significant example of this was April 18-19, where a low pressure system pivoted through south central Ohio. Areas to the northwest of this system saw periods of snow and mixed precipitation before the storm gradually pushed out of the area. While most regions saw only a trace of snow at best, a corridor from the lakeshore southeast to the Indiana state line saw 1-3 inches of snow accumulation before the event was over. (Fig 7)

While the cooler than normal weather kept wintry precipitation lingering, it also helped to keep severe weather reports to a minimum compared to in March. Only a handful of reports occurred this month, mostly associated with frontal systems that passed through the state April 13th-14th and April 25th. (Fig 8) The state's lone tornado for the month occurred on April 25th, thanks to a cluster of storms that also produced a swath of damaging winds in NE Ohio.

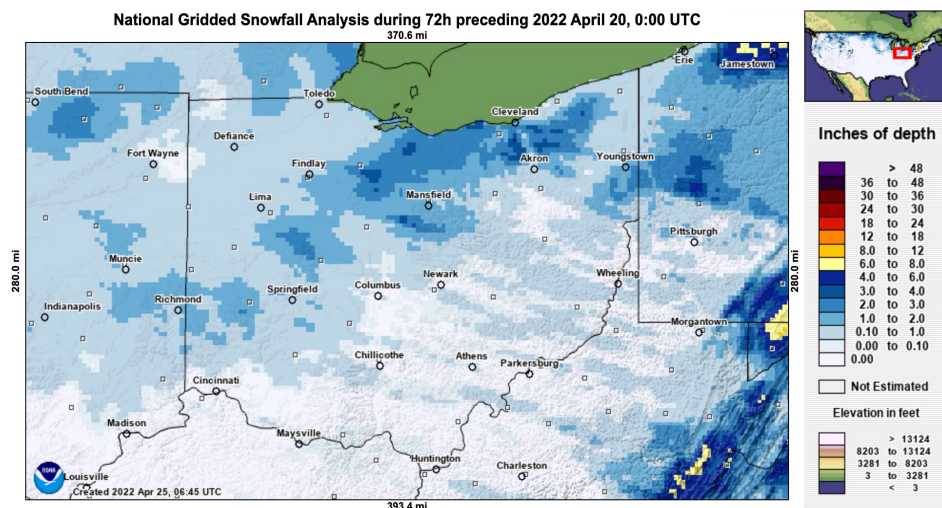


Figure 7: Statewide snowfall analysis for the 72-hour period preceding April 20, 2022. Courtesy of NOAA's National Operational Hydrologic Remote Sensing Center (NOHRSC) (<https://www.nohrsc.noaa.gov/nsa/>).

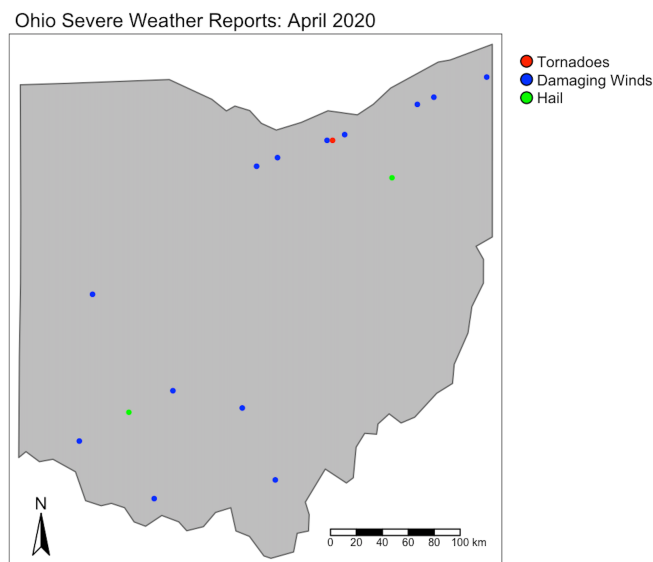
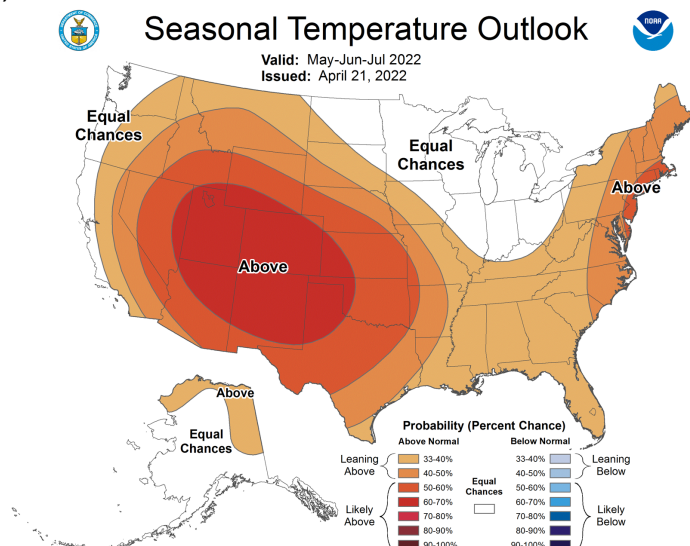


Figure 8: Statewide severe weather reports for April 2022. Includes damaging winds, hail, and tornadoes. Data courtesy of National Weather Service Local Storm Report archive, accessed via Iowa Environmental Mesonet. (<https://mesonet.agron.iastate.edu/>)

Data plotted in R Studio.

Forecast: May-July 2022

a)



b)

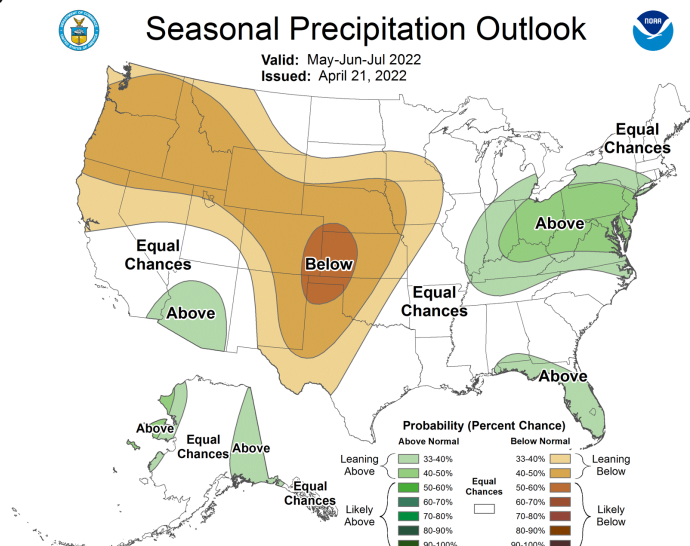


Figure 9a: Nationwide Seasonal Temperature and 9b: Precipitation Outlook for May-July 2022. Courtesy of the Climate Prediction Center (<https://www.cpc.ncep.noaa.gov/>).

Looking Ahead

A new outlook from the Climate Prediction Center portrays a possible change for the region in the temperature section. The forecast suggests equal chances of above or below average temperatures for most of Ohio. (Fig 9a) This means there is no strong signal to forecasters that favor either warmer or cooler temperatures than normal in the coming months. This could result in temperatures staying around average, or it could result in a continuation of the warm/cool fluctuations noted over the past few months on a more consistent basis. On the precipitation side of the outlook, above average chances of precipitation remain on the table across much of the region, indicating that stretches of active weather remain possible as the state heads into the summer months. (Fig 9b) 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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