



Temperature and Precipitation

While Ohio's temperatures stayed well within historical normals in the autumn months, the same cannot be said for the state's precipitation. Temperatures were somewhat consistent throughout the region, mostly staying within 1°F above or below normal despite the season's variability, although some small areas in the southwest and northeast diverged from the normal by as much as 2°F in either direction (Fig. 1a).

Precipitation during the season was not as uniform, as eastern Ohio mostly saw around 10 inches of precipitation (15 inches in the northeast), totaling around 5 inches more than the west, which received 3-7.5 inches (Fig. 1b). The state primarily experienced 1-5 inches less precipitation accumulation than normal (50-100% of normal). Exceptions came in the far east, which saw 1-5 inches more than normal (100-150% of average), as well as around Darke County in the west, which received 5-6 inches less than normal (25-50% of average) (Fig. 1c and 1d).

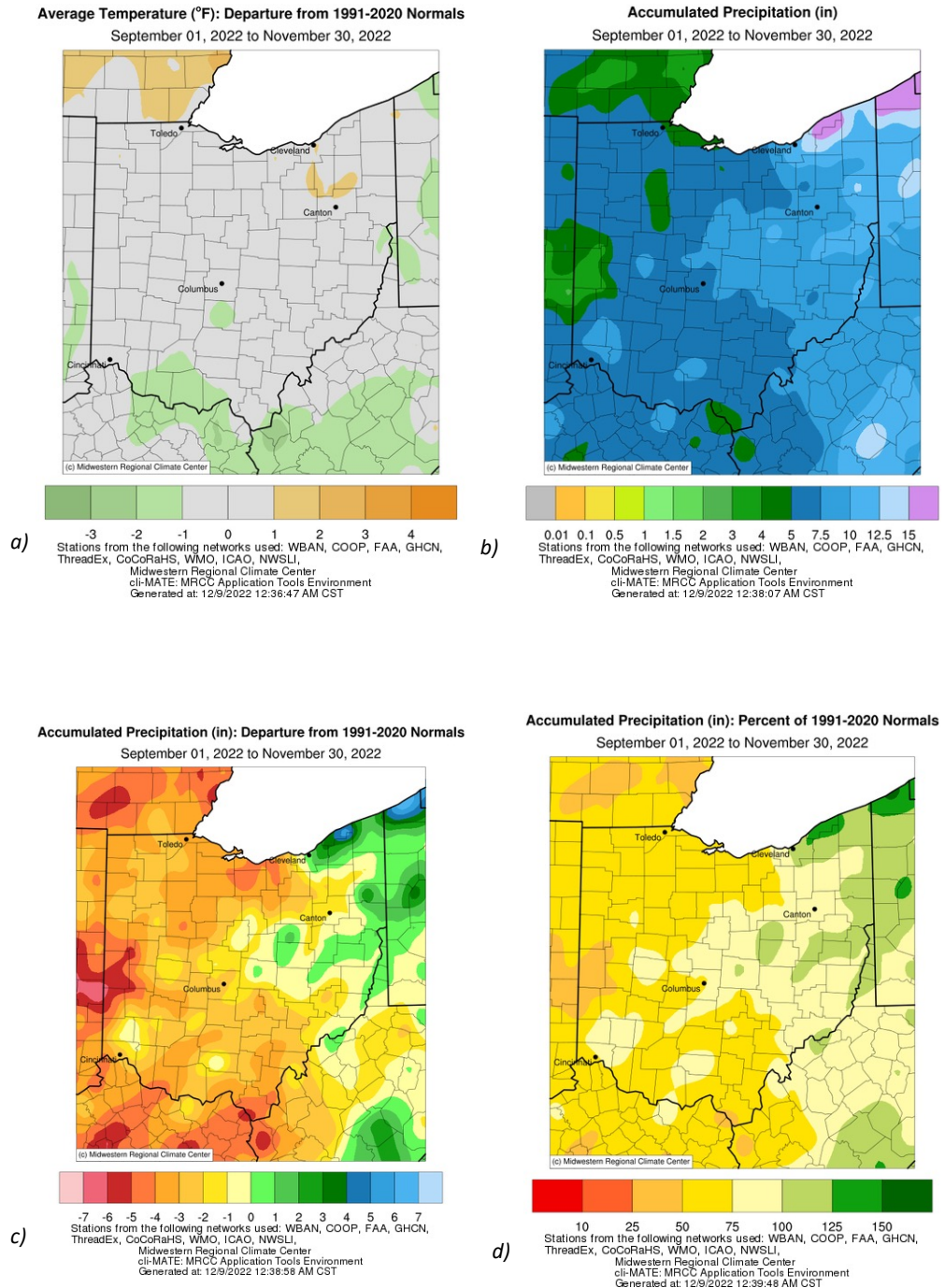
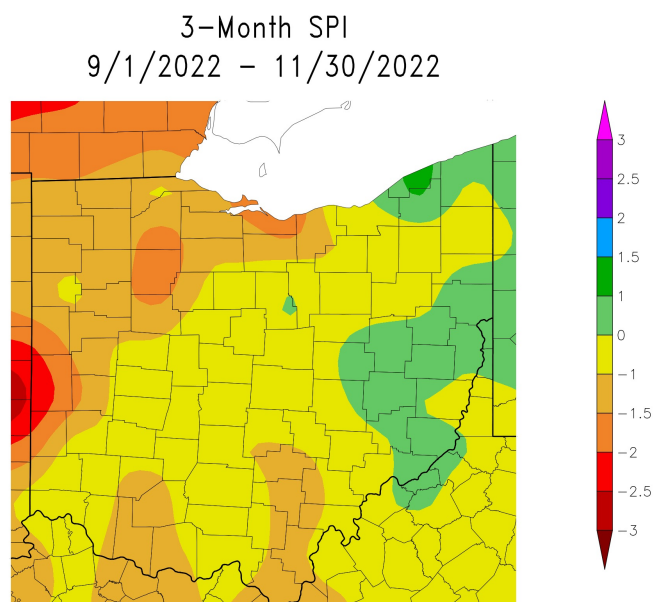


Figure 1: Statewide departures from normal temperature (a) and accumulated precipitation (b) over the autumn months at top, followed by statewide departures from normal of precipitation (c) and percent of normal (d) at bottom. All data courtesy of the Midwestern Regional Climate Center (<http://mrcc.purdue.edu>).



Generated 12/6/2022 at HPRCC using provisional data.

NOAA Regional Climate Centers

Figure 2: Three-month Standardized Precipitation Index (SPI) across the state of Ohio from September through November, used as a proxy for soil moisture conditions. Data courtesy of the High Plains Regional Climate Center (<https://hprcc.unl.edu/>)

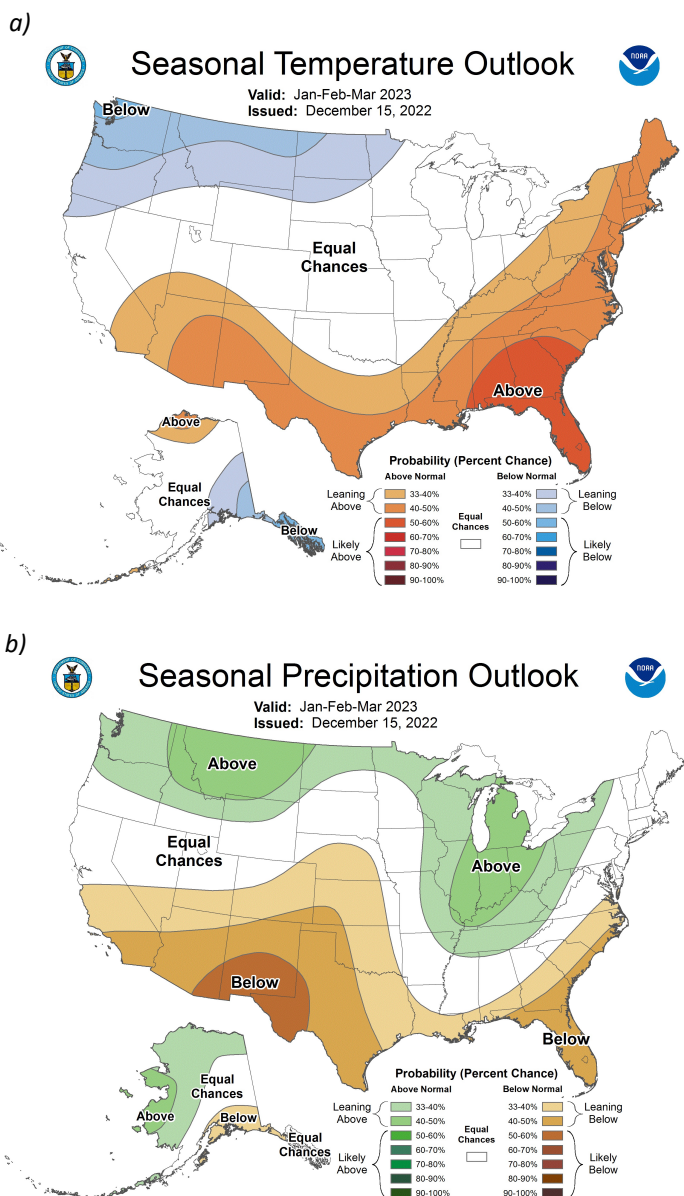
Soil and Energy

Most of the Ohio experienced dry soil conditions in the autumn months, with the northwest and pockets in the south seeing greater dryness than the rest of the state. The areas around Darke County were most impacted by this dryness, seeing a 3-Month Standardized Precipitation Index (SPI) of -1.5 to -2.5 (Fig. 2). Meanwhile, the east and northeast received sufficient precipitation to see positive values in the index, at around 0 to 1.5. As temperatures began to drop in the autumn months, most of the state, save for the northeast, saw slightly fewer Cooling Degree Days (CDDs) than historical normal. The northern half of Ohio saw less Heating Degree Days (HDDs) than normal, while the southern portion saw more. Statewide, this meant that HDDs were very close to normal during the period (Fig. 3).

Climate Division	Heating Degree Days	Normal	Departure	Cooling Degree Days	Normal	Departure
1	1160	1217	-57	99	91	7
2	1101	1174	-73	103	94	8
3	1210	1246	-36	61	66	-5
4	1134	1143	-8	106	108	-3
5	1143	1112	31	93	108	-15
6	1180	1209	-29	75	81	-6
7	1163	1160	2	82	85	-3
8	1100	1054	46	118	127	-9
9	1064	1016	48	108	127	-20
10	1129	1102	27	89	103	-14
Statewide	1137	1139	-2	94	101	-6



Figure 3: (Left) Total September-November 2022 heating & cooling degree days. (Right) Corresponding Ohio Climate Divisions. Data courtesy of the Midwestern Regional Climate Center (<http://purdue.mrcc.edu>).



Looking Ahead

The latest 3-month outlook from the Climate Prediction Center indicates a potential change in Ohio’s recent precipitation trends in the coming winter months. In a continued reversal of extended dry conditions, there is an increased probability that Ohio will see above normal precipitation accumulation in the first quarter of next year, with the western half of the state having the highest likelihood (Fig. 4b).

Additionally, there is a slight probability of above normal temperatures for the southeastern half of Ohio, with the other half having equal chances of above and below normal temperatures (Fig. 4a). As winter continues to progress over the following months, higher temperatures may help to reduce the volume of heating degree days, though whether this develops is yet to be seen. Similarly, precipitation during the period may come in the form of snow, freezing rain, or sleet, possibly resulting in frequent impacts on productivity.

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

Figure 4: a) Nationwide Seasonal Temperature and b) Precipitation Outlook for January-March 2023. Courtesy of the Climate Prediction Center (<https://www.cpc.ncep.noaa.gov/>).

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