



## Temperature and Precipitation

While temperatures were above-average throughout Ohio during the winter months, accumulated precipitation departures were much more variable. Average temperature departures in the state followed a general north-south gradient, with the northern half of Ohio seeing temperatures of around 5-7°F higher than normal and the southern half seeing departures of around 3-5°F higher than normal (Fig. 1a). Meanwhile, much of the state saw around 7.5-10 inches of accumulated precipitation over the quarter. In addition, portions of the southwest and east saw up to 10-12.5 inches of accumulated precipitation, while much of the northwest saw only 5-7.5 inches (Fig. 1b). Such variation led to the northwest corner and central belt of Ohio having 0-2 more inches of accumulated precipitation than normal, while the rest of the state recorded 0-2 less inches than normal (Fig. 1c). Looking at percentages, the positive departures seen in the northwest and central belt translate to 100-125% of normal, while the rest of the state stayed within 75-100% of normal (Fig. 1d).

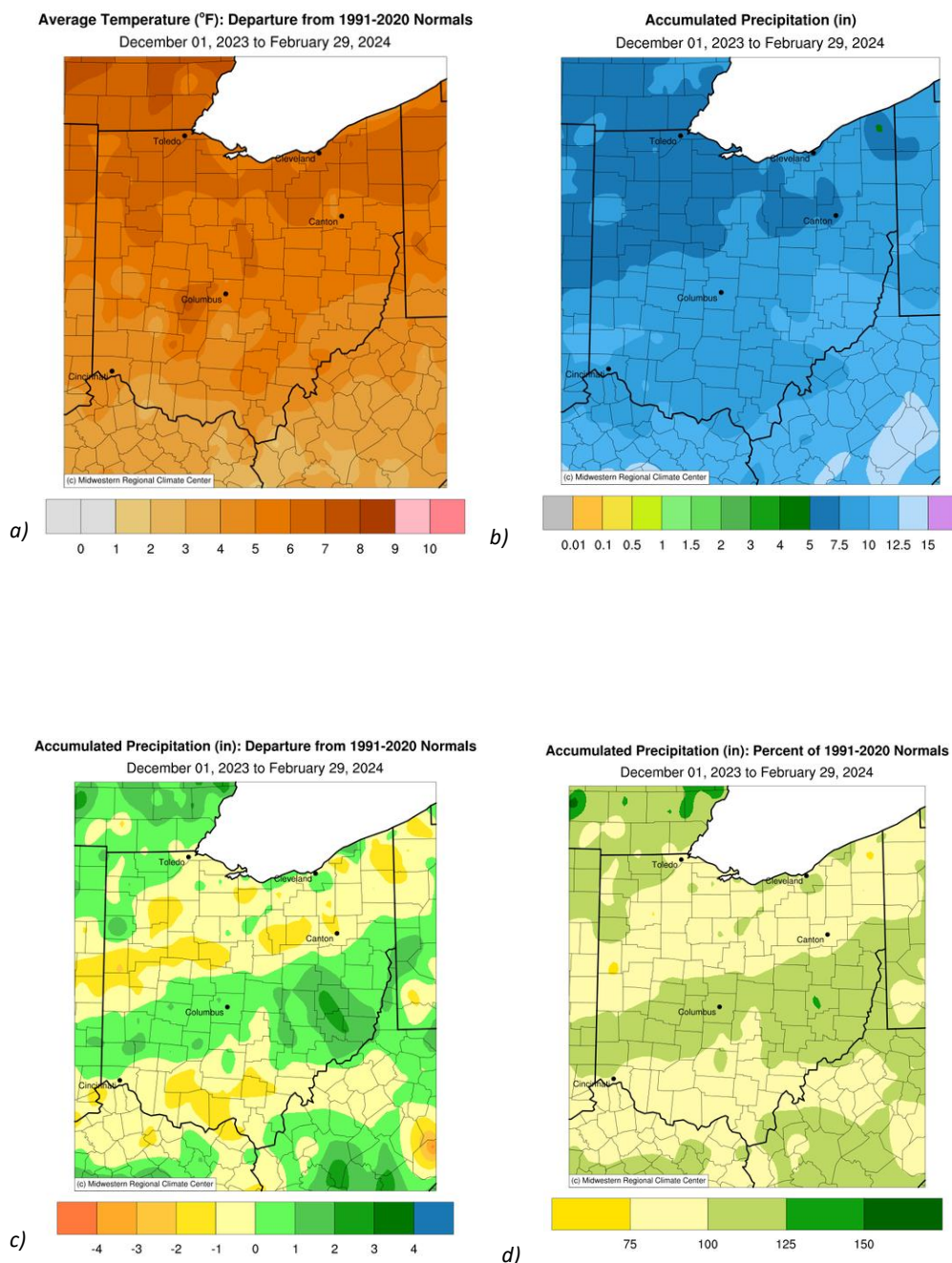
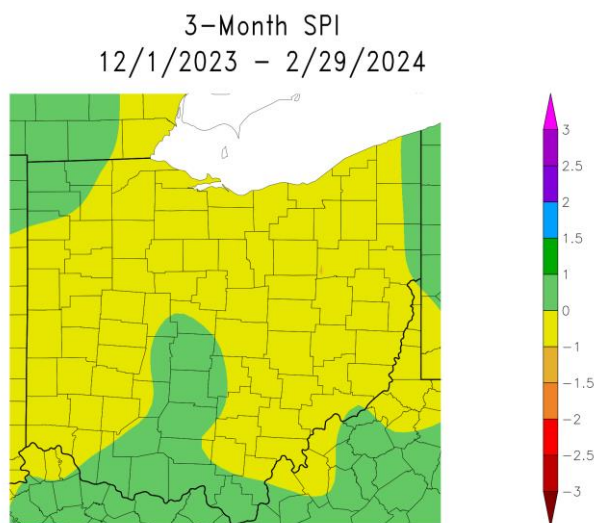


Figure 1: Statewide departures from normal temperature (a) and accumulated precipitation (b) over the winter months at top, followed by statewide accumulated precipitation departures (c) and percent of normals for precipitation (d) at bottom. All data courtesy of the Midwestern Regional Climate Center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



Generated 3/10/2024 at HPRCC using provisional data.

NOAA Regional Climate Centers

Figure 2: Three-month Standardized Precipitation Index (SPI) across the state of Ohio from December 2023 through February 2024, used as a proxy for soil moisture conditions. Data courtesy of the High Plains Regional Climate Center (<https://hprcc.unl.edu/>)

## Soil and Energy

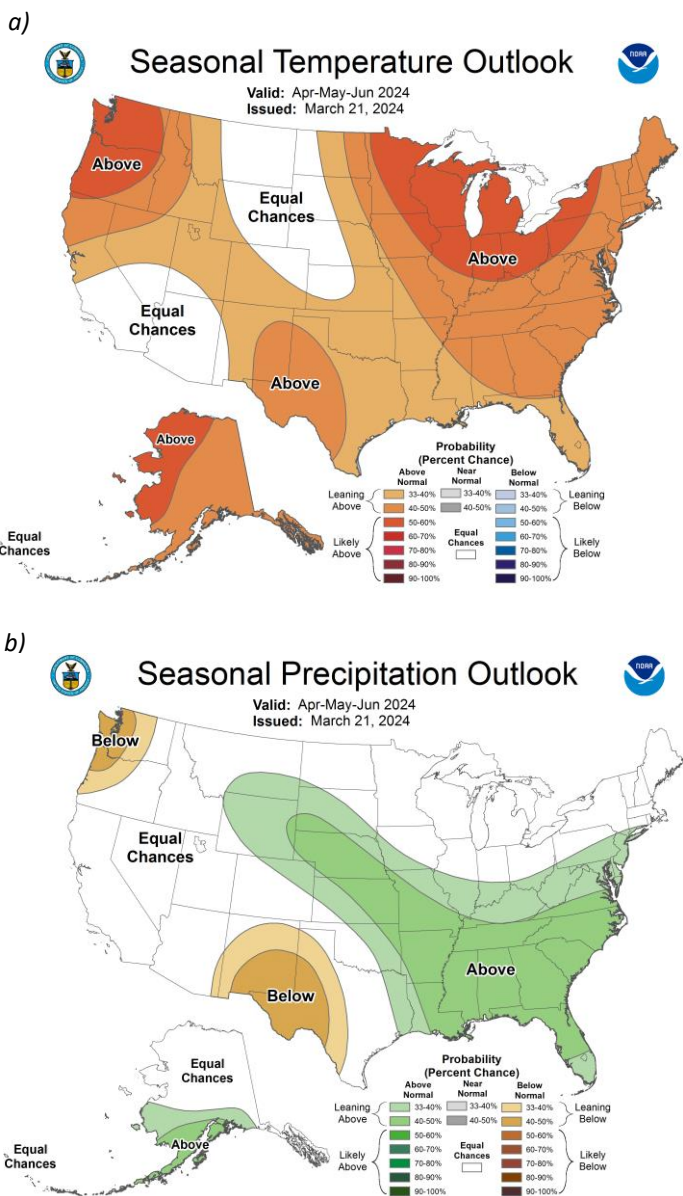
Despite below-average precipitation accumulation over the winter season, generally moderate 3-month SPIs were observed across Ohio. While the state was split between SPI ranges of -1 to 0 and 0 to 1, both categories represent approximately moderate soil moisture levels (Fig. 2). A closer look at Ohio's month-to-month soil moisture reveals that such near-normal SPIs are the result of a transition from significantly dry soil conditions at the end of 2023 to widespread high soil moisture in January, with a return to more moderate conditions later in February. Overall, the winter season hosted a wide variety of soil moisture trends in Ohio.

Meanwhile, the prevalence of above-normal temperatures throughout winter led to fewer Heating Degree Days (HDDs) than normal in all of Ohio's climate divisions. Additionally, as expected, no Cooling Degree Days (CDDs) were recorded in the season (Fig. 3).

Climate Division	Heating Degree Days	Normal	Departure	Cooling Degree Days	Normal	Departure
1	2790	3373	-584	0	0	0
2	2696	3285	-589	0	0	0
3	2750	3315	-565	0	0	0
4	2718	3224	-507	0	0	0
5	2629	3122	-493	0	0	0
6	2700	3239	-539	0	0	0
7	2642	3148	-506	0	0	0
8	2609	3014	-406	0	0	0
9	2464	2848	-384	0	0	0
10	2547	3008	-461	0	0	0
Statewide	2650	3149	-499	0	0	0



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



## Looking Ahead

While the CPC’s 3-month outlooks show confidence in Ohio’s temperatures for the coming season, the same cannot be said for precipitation. Temperatures are forecast with moderate confidence to be above-normal for the entire state this spring, continuing the trend seen throughout winter (Fig. 4a). Meanwhile, most of Ohio has equal chances of above- or below-normal precipitation over the coming months, with the southernmost part of the state having a slightly higher chance of seeing above-normal precipitation (Fig. 4b). As Ohio moves into spring, and more specifically into the main growing season, above-average temperatures may result in fewer frost events and other adverse conditions for vegetation, potentially benefitting agricultural development in the season. With general uncertainty in the precipitation outlook, soil moisture trends cannot be determined at this time. As such, it is important to consult shorter-term forecasts as the season progresses. Additionally, the period of March through June marks the peak of tornado season in the United States. With multiple severe weather events having already occurred in Ohio, staying weather aware should be a main priority.

Figure 4: a) Nationwide Seasonal Temperature and b) Precipitation Outlook for April-June 2024. Courtesy of the Climate Prediction Center (<https://www.cpc.ncep.noaa.gov/>).

*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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