

Review – May 2022

Temperature

Warm and wet define the conditions experienced in Ohio during the month of May. Temperatures remained around average to start the month before a stout high pressure system produced a string of unseasonably warm days, with many areas hitting the middle/upper 80°Fs as the second week of the month progressed. Despite consistent weather activity through the end of the month, warmer than average weather persisted. Average temperatures landed in the 60-65°F range across the northern half of the state, and 65-70°F in the southern half. (Fig. 1a) These values were as much as 3-4°F above average along the lakeshore, with 1-3°F above average being the norm elsewhere. (Fig 1b) This resulted in widespread above average marks in county level data, with Ohio notching a top 20 warmest May overall and some counties in the north getting into the top 15s. (Fig 2)

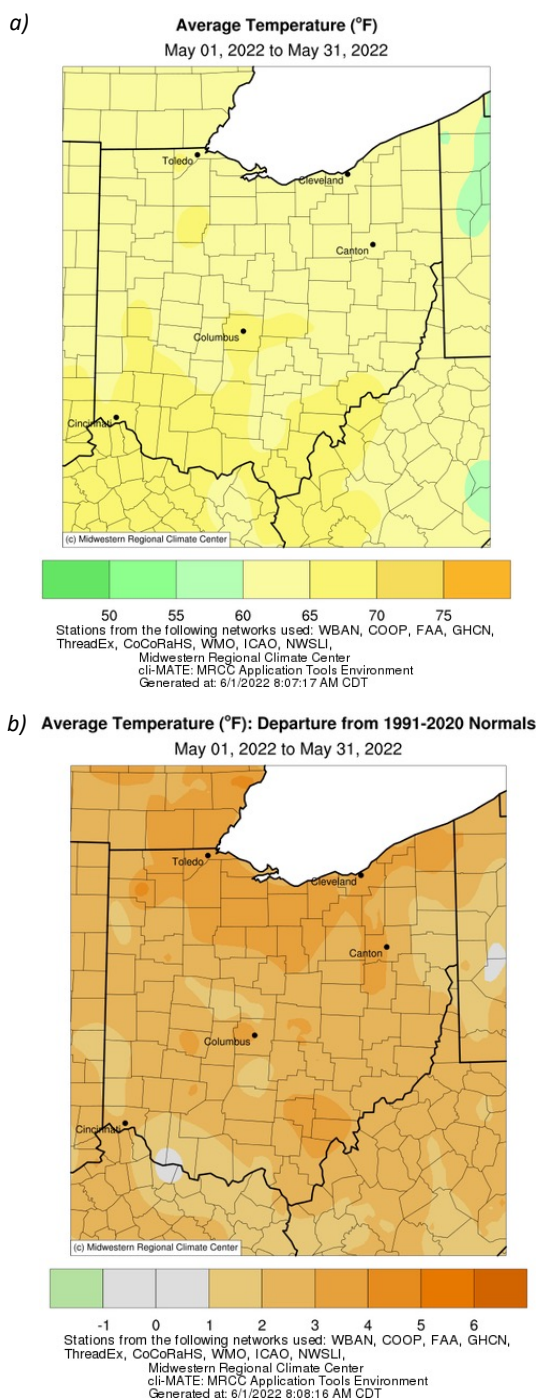


Figure 1a) Average temperature and 1b) Departures from Normal for the month of May 2022. Data courtesy of the Midwestern Regional Climate Center (<http://mrcc.purdue.edu>).

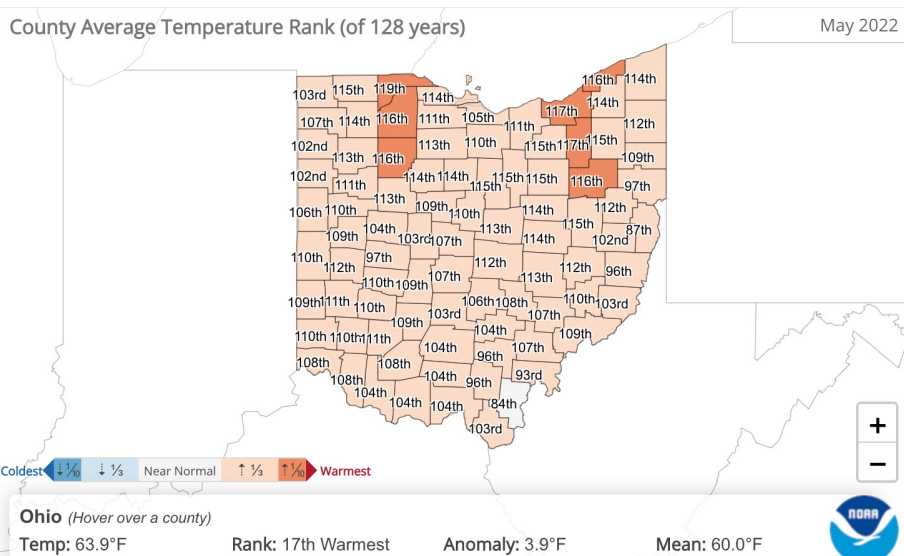
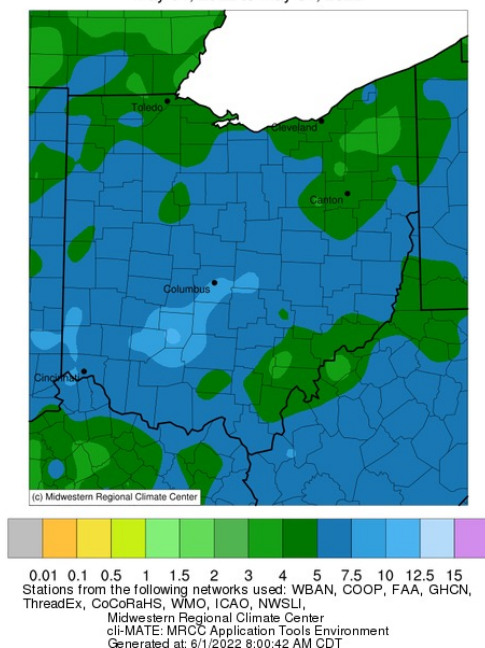


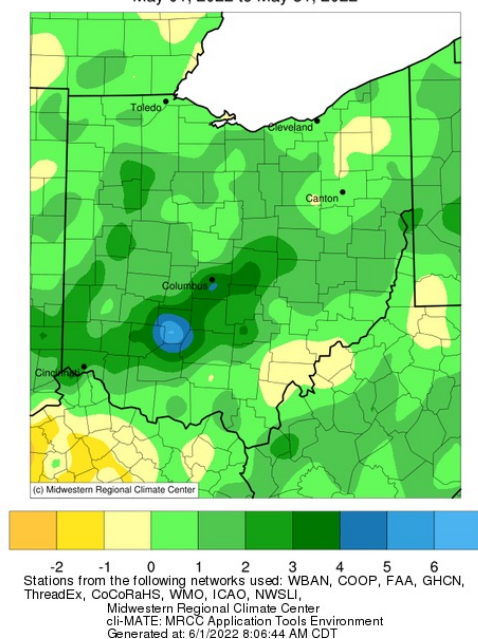
Figure 2). State of Ohio average temperature ranks by county for May 2022. Courtesy of the National Centers for Environmental Information (<https://www.ncdc.noaa.gov/sotc/>).

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a)
Accumulated Precipitation (in)
May 01, 2022 to May 31, 2022



b)
Accumulated Precipitation (in): Departure from 1991-2020 Normals
May 01, 2022 to May 31, 2022



Precipitation

More notable than the warmer weather was the successive periods of heavy rain and thunderstorms courtesy of a very active weather pattern. Multiple storm systems over the course of the month drew moisture into an already warm regime, resulting in some eye-catching monthly totals. 5-7.5 inches of accumulated precipitation were commonplace across much of the state, with even fringe areas in the north and east still receiving upwards of 4 inches. (Fig. 3a) This put almost the entire state above average in monthly precipitation, with most areas coming in anywhere between 1-3 inches above normal. (Fig. 3b) The most impressive monthly totals are seen along and south of the I-71 corridor, as well as in western OH, where 7-10 inches of rain fell thanks to repeated bouts of high-precipitation storms. Areas in this corridor experienced a top 10 wettest May as a result. (Fig. 4)

County Precipitation Rank (of 128 years)

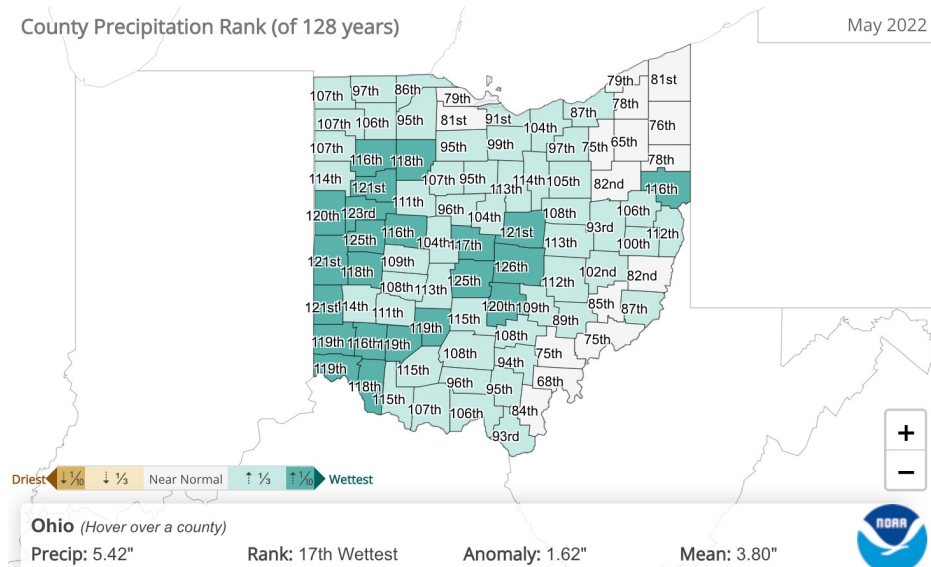


Figure 4). State of Ohio precipitation ranks by county for May 2022. Courtesy of the National Centers for Environmental Information (<https://www.ncdc.noaa.gov/sotc/>).

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

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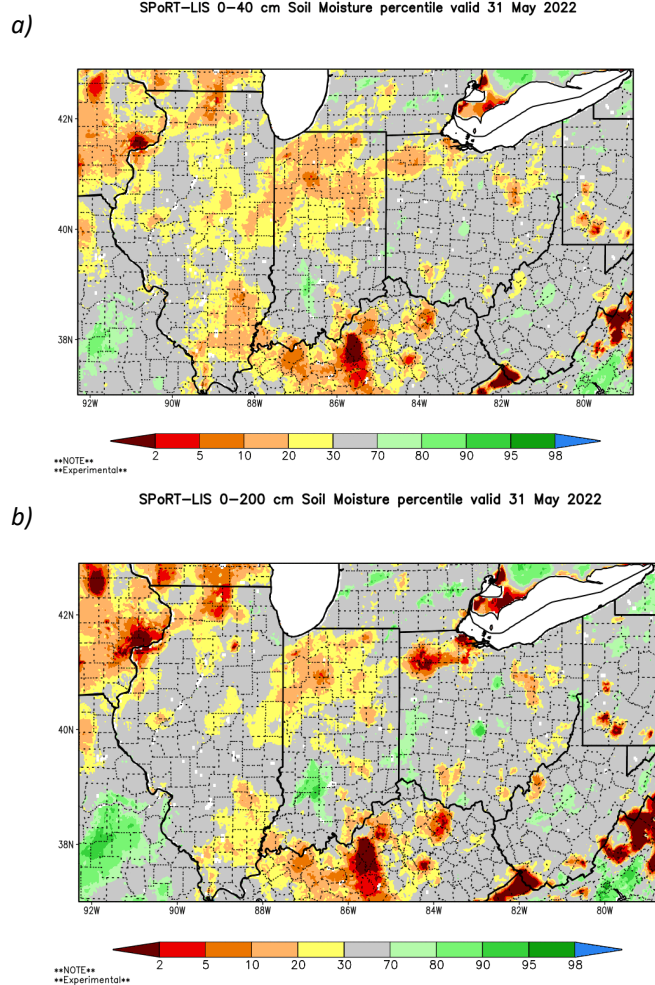


Figure 5a: 0-40 cm and 5b: 0-200 cm soil moisture percentile across the region at the end of May. Courtesy of NASA SPoRTLIS (https://weather.msfc.nasa.gov/sport/case_studies/lis_IN.html).

Soil and Energy

A month of active weather has alleviated any nagging soil issues near the surface. Both 0-40cm (Fig. 5a) and 0-200cm (Fig. 5b) soil moisture percentile products show moisture values around the average percentile range, with a few above average spots in central and southwest parts of the state where some of the heaviest precipitation fell. A drier zone in the lower percentiles remained in the northwest, but with rains persisting through the end of May, this is of little concern.

An interesting tally for the month occurred with the state's degree days, with both fewer heating and cooling DDs compared to average statewide. (Fig 6) The large negative departures in HDDs reflect the warmer than average month, with fewer days below the mean 65°F mark leading to lesser heating needs. The lower CDDs, prominent mainly in southern zones, were likely influenced by the repeated rounds of rain that temporarily cooled daily high temperatures somewhat.

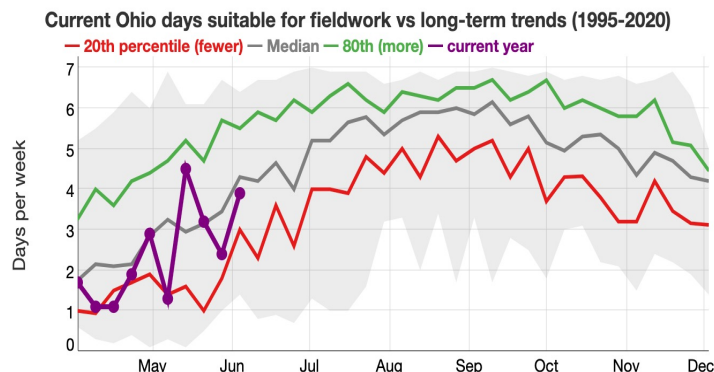
Climate Division	Heating Degree Days	Normal	Departure	Cooling Degree Days	Normal	Departure
1	123	190	-68	54	51	3
2	114	193	-79	58	51	7
3	146	228	-82	30	36	-6
4	96	162	-66	55	63	-8
5	85	154	-69	47	64	-16
6	97	190	-93	45	47	-1
7	110	184	-74	34	44	-10
8	73	134	-61	53	72	-19
9	55	130	-75	52	70	-17
10	69	157	-88	42	56	-14
Statewide	95	170	-75	47	56	-9



Figure 6: (Left) May 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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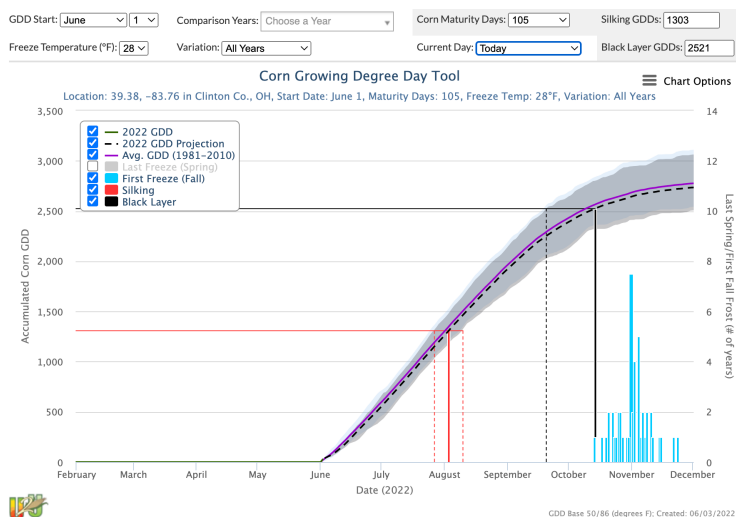
Data source: USDA NASS

Figure 7: Days suitable for fieldwork in Ohio, with current year vs. long-term trends. Data courtesy of USDA NASS and Kansas State University (<https://www.agmanager.info/farm-management/machinery/days-suitable-fieldwork-all-states>).

Agriculture

With planting season heading into its final weeks, this section is devoted to some agricultural conditions across the state. Days suitable for fieldwork fluctuated across May, with only 1-3 days/week available during active weather periods at the beginning and end of the month, and up to 4-5 days/week available during the quieter middle portion. (Fig. 7) Areas in the south and west impacted by more abnormal conditions have faced some instances of delayed planting or re-planting of corn and other crops. The result of this has been a shortening of corn maturity windows and reduction of growing degree days (GDDs) available to some farmers. For example, Clinton (Fig. 8a) and Hardin (Fig. 8b) counties both display a lower-than-average corn GDD projection on a shorter 106-day corn maturity cycle. While the shorter cycle is not optimal, it still allows farmers the opportunity to plant and gain a yield before the most common first freeze dates in early November.

a)



b)

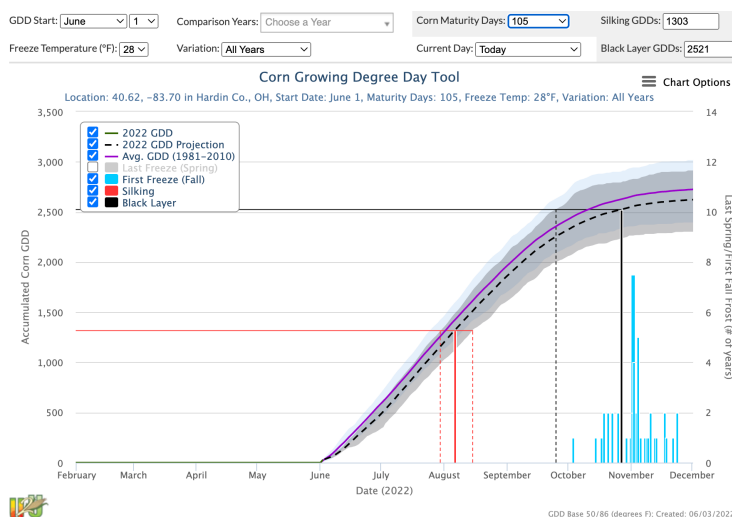


Figure 8a: Clinton County and 8b: Hardin County projected corn growing degree day graphs and other agricultural information, set for a planting date of June 1. Data and graphs courtesy of the High Plains Regional Climate Center and the Useful to Usable (U2U) Project. To use the Corn GDD tool, visit: (<https://hprcc.unl.edu/agroclimate/qdd.php>).

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Notable Events

As mentioned in the precipitation section, May was notably wet across the state, especially in the southwest. A closer inspection of the accumulated precipitation map for the month reveals a corridor of 7.5-10 inches of rain stretching generally along I-71 from Columbus to Wilmington, with another area in the Cincinnati/Hamilton region. (Fig. 9) An eye-catching precipitation maximum occurred in Washington Court House, OH, where a CoCoRaHS station measured 12.40 inches of rainfall across the month. This much precipitation, mainly from instances of heavy thunderstorms dropping 1-3 inches of rain in a short period, gradually led to instances of areal and stream flooding as well as some field inundation.

Reports of severe weather also increased from the prior month, as an active pattern plus plenty of heat and moisture fueled severe thunderstorm activity. (Fig. 10) A May 3rd storm complex caused a cluster of severe reports in northwest OH, including a weak tornado southwest of Findlay, OH. Elsewhere, a swath of wind and hail reports occurred across south central OH thanks to volatile weather from May 19th-21st.

Accumulated Precipitation (in)
May 01, 2022 to May 31, 2022

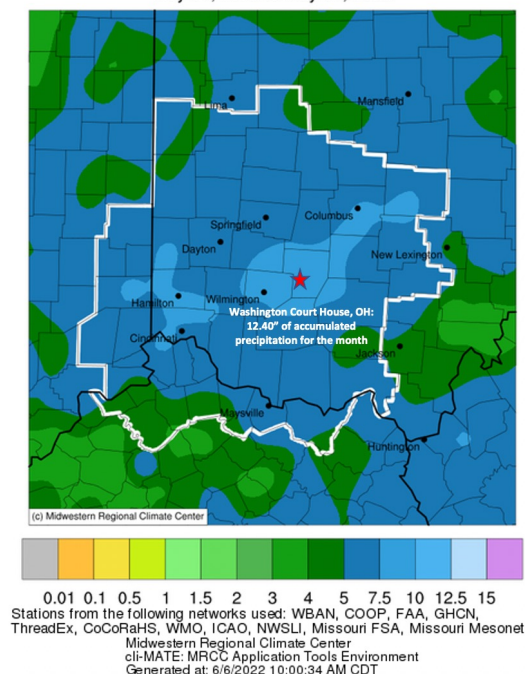


Figure 9: Accumulated precipitation for the month of May 2022 focused on southwest Ohio. Red star = accumulated precipitation maximum. Data courtesy of the Midwestern Regional Climate Center (<http://mrcc.purdue.edu>). Precipitation maximum courtesy of the Community Collaborative Rain, Hail, and Snow Network (<https://cocorahs.org/>)

Ohio Severe Weather Reports: May 2022

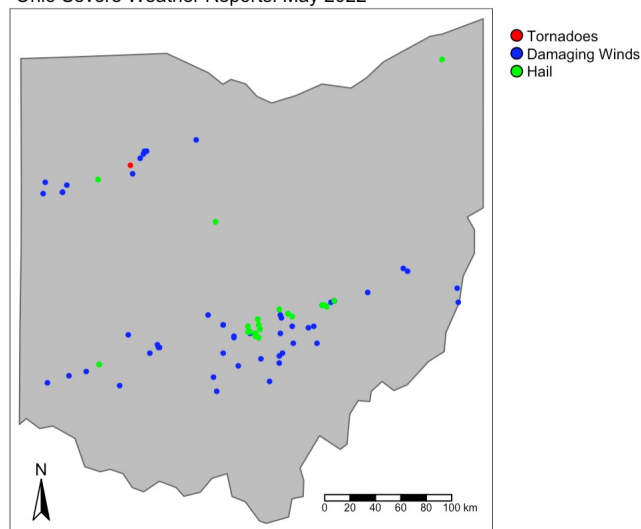
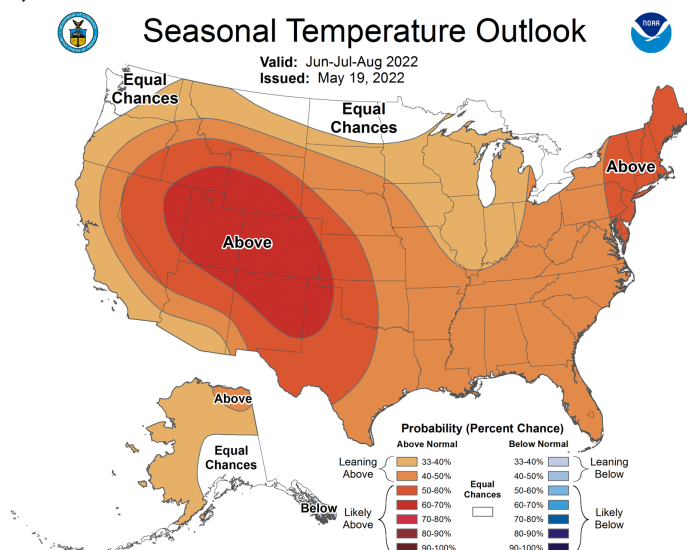


Figure 10: Statewide severe weather reports for May 2022. Includes damaging winds, hail, and tornadoes. Data courtesy of National Weather Service Local Storm Report archive, accessed via Iowa Environmental Mesonet. (<https://mesonet.agron.iastate.edu/>)

Data plotted in R Studio.

Forecast -

a)



b)

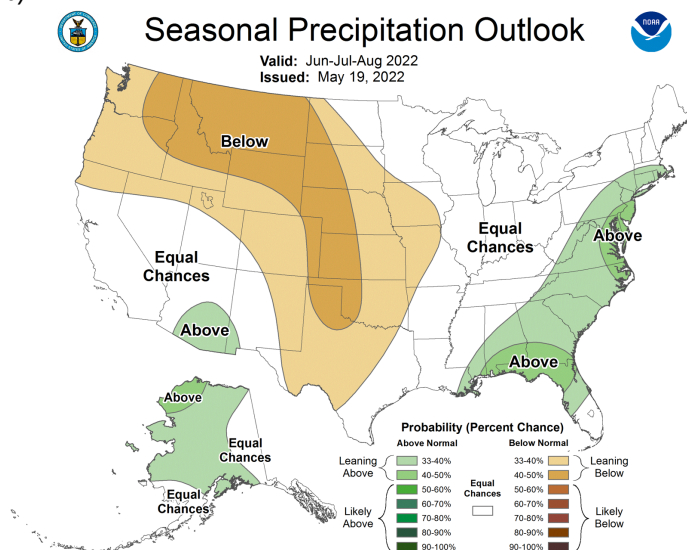


Figure 11a: Nationwide Seasonal Temperature and 11b: Precipitation Outlook for June-August. Courtesy of the Climate Prediction Center (<https://www.cpc.ncep.noaa.gov/>).

Looking Ahead

The Climate Prediction Center's 3-month outlooks indicate some changes as we move further toward the summer season. Increased probabilities for above average temperatures indicate increased odds the state will lean warmer for the coming months. (Fig. 11a) Coupled with this, equal chances exist across the region for either above or below average precipitation, meaning there is no strong signal to forecasters that one option will occur over the other. (Fig. 11b) This could result in more average precipitation amounts for the period, or it could result in alternating wet/dry periods. Regardless, the season looks to be heading toward the warmer side with some changes in weather pattern possible. 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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