

Weather Forecast Office
Detroit, MI



2023 Summer Outlook for Southeast Michigan

90 Day Outlook Valid June 1 to August 31, 2023





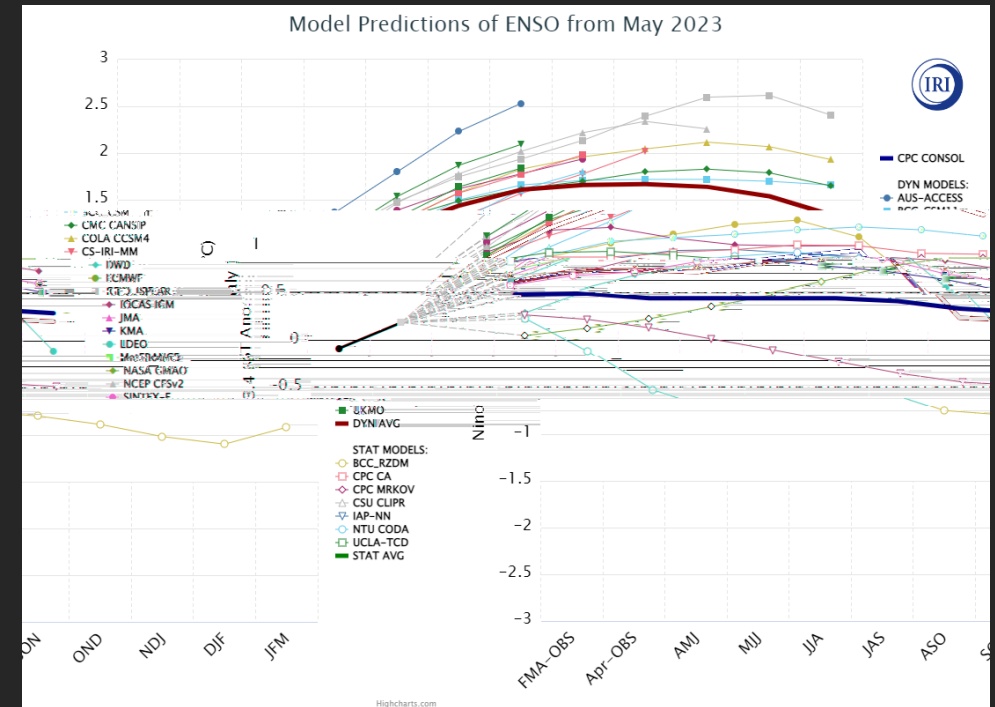
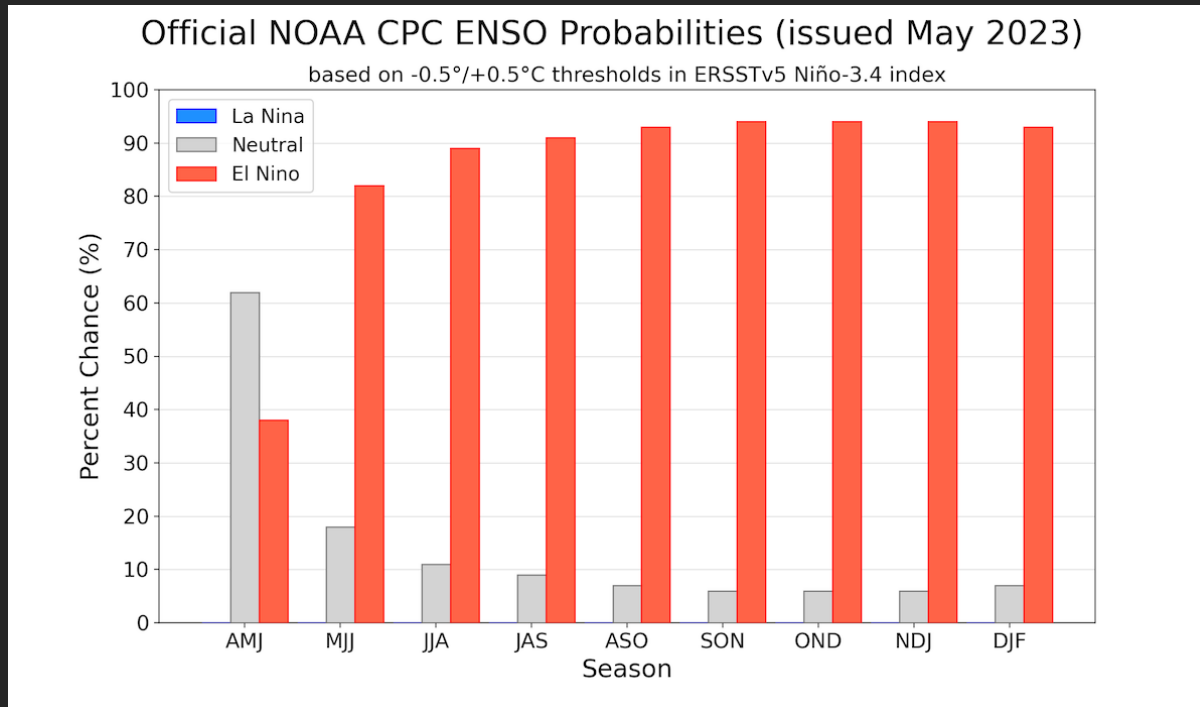
Contents

- [ENSO \(El Niño Southern Oscillation\) Outlook](#)
- [Recent Conditions](#)
- [Climate Prediction Center Soil Moisture Analogs](#)
- [Climate Model Output – North American Multi-Model Ensemble \(NMME\)](#)
- [Trends in Recent Summers](#)
- [**Official Climate Prediction Center Summer Outlook**](#)
- [Southeast Michigan Summer Records and Trivia](#)



CPC/IRI Probabilistic ENSO Forecast

CPC/IRI ENSO Predictions Plume



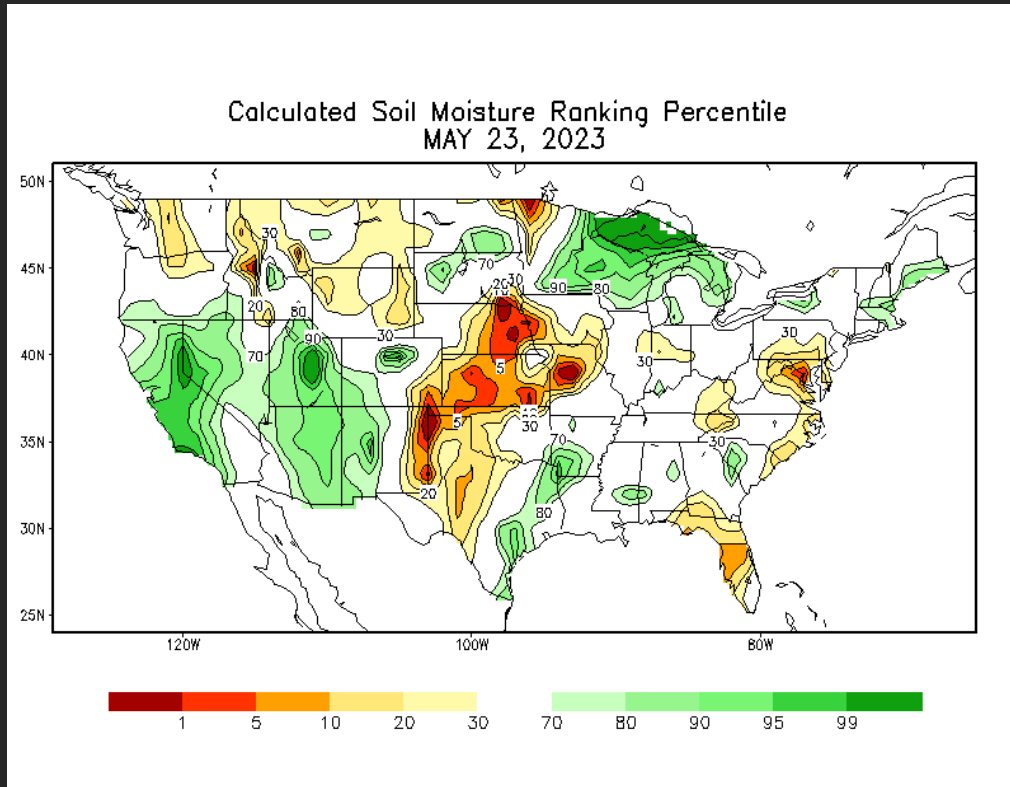
<https://iri.columbia.edu/our-expertise/climate/forecasts/enso/current/>

<https://iri.columbia.edu/our-expertise/climate/forecasts/enso/current/>

ENSO-neutral conditions exist as of May 11 and an El Niño watch is in effect. El Niño is expected to be declared in the next couple of months and is likely to persist into this fall and winter. Impacts of ENSO are typically less pronounced during the summer compared to the winter, but ENSO still provides a background influence for upper air patterns across the northern hemisphere.

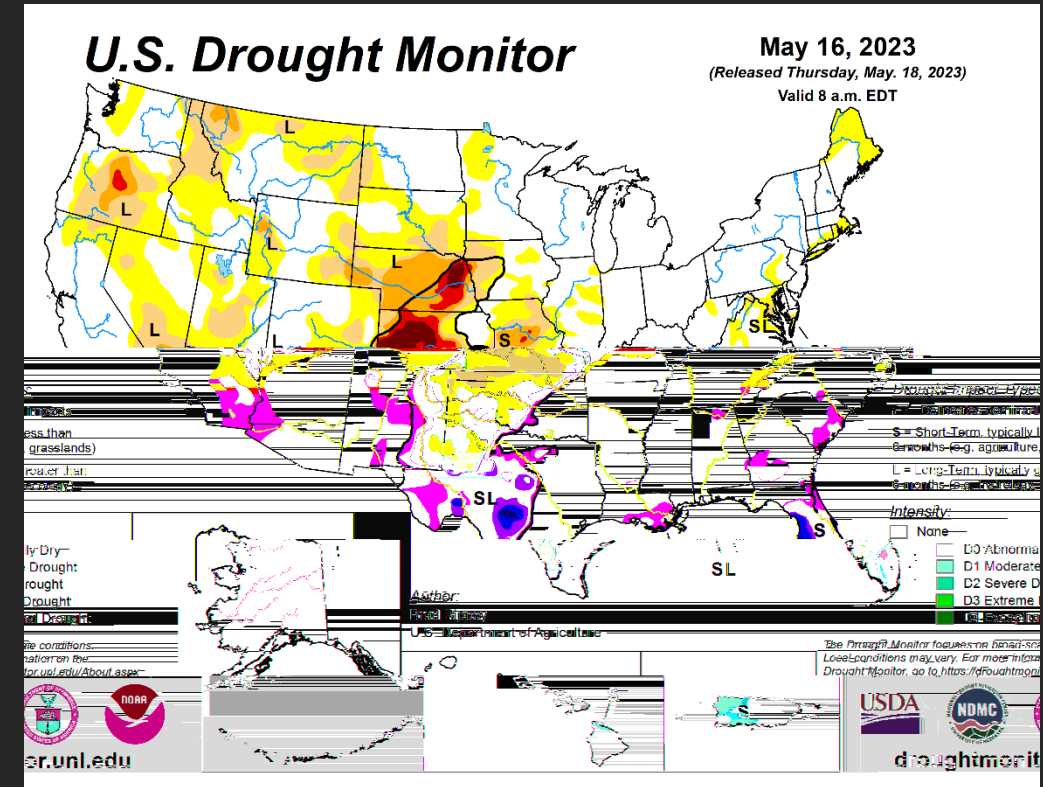


Soil Moisture



https://www.cpc.ncep.noaa.gov/products/Soilmst_Monitoring/Figures/daily/curr.w.rank.daily.gif

Drought



https://droughtmonitor.unl.edu/data/png/current/current_usdm.png

Despite a dry May (rainfall of only an inch or less), Southeast Michigan had a wet start to the year with rainfall totals since January 1 ranging from 1 to 4 inches above normal. Soil moisture is calculated to be near to above normal for the Great Lakes and drought is not evident across the area. Widespread severe to exceptional drought is observed across the central and southern Great Plains. Great Lakes water temperatures (not pictured) are near long-term averages for this time of year.



June

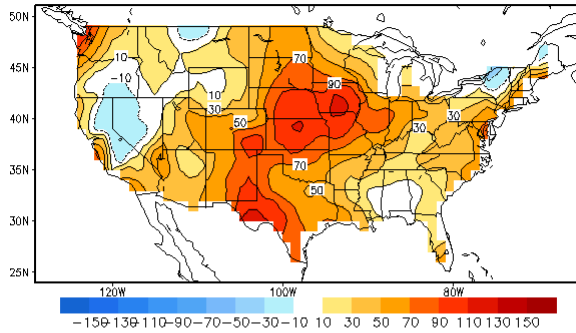
July

August

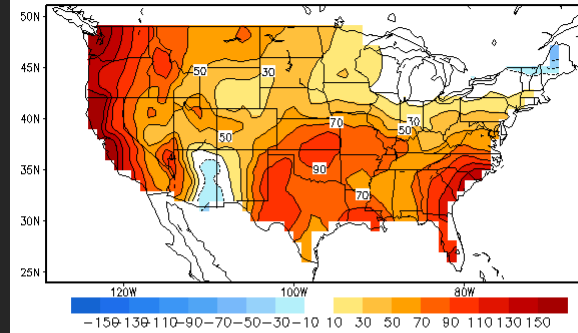
Temperature

Precipitation

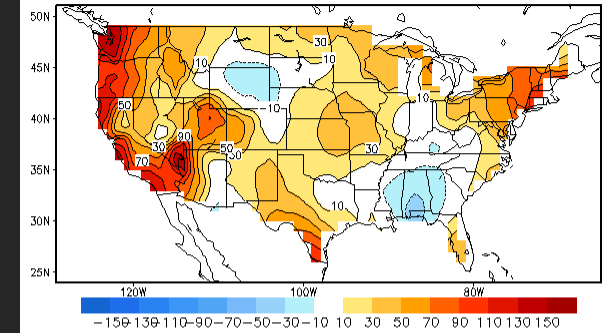
Lagged Averaged Temperature Outlook for JUN 2023
units: anomaly (sdX100), SM data ending at 20230523



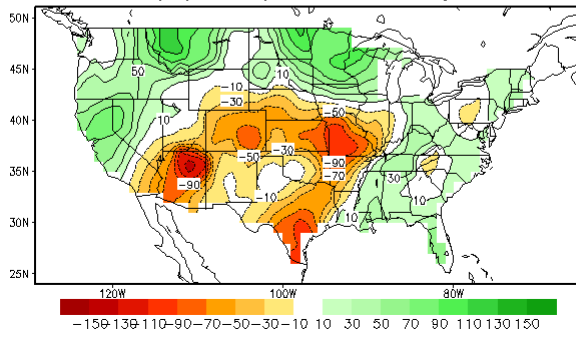
Lagged Averaged Temperature Outlook for JUL 2023
units: anomaly (sdX100), SM data ending at 20230523



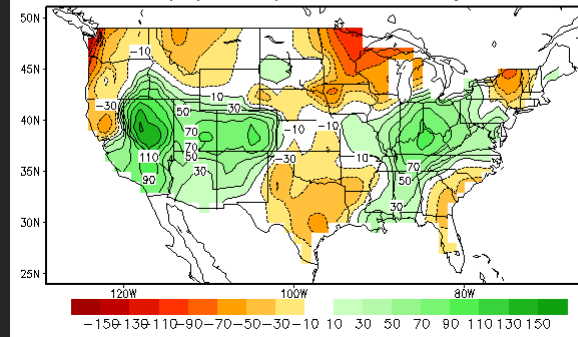
Lagged Averaged Temperature Outlook for AUG 2023
units: anomaly (sdX100), SM data ending at 20230523



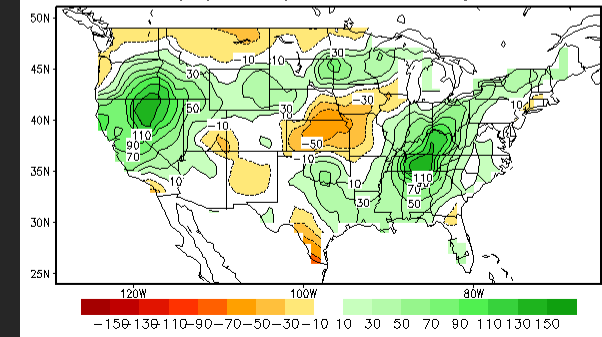
Lagged Averaged Precipitation Outlook for JUN 2023
units: anomaly (sdX100), SM data ending at 20230523



Lagged Averaged Precipitation Outlook for JUL 2023
units: anomaly (sdX100), SM data ending at 20230523



Lagged Averaged Precipitation Outlook for AUG 2023
units: anomaly (sdX100), SM data ending at 20230523



https://www.cpc.ncep.noaa.gov/soilmst/img/cas_pt_mon.lead1.gif

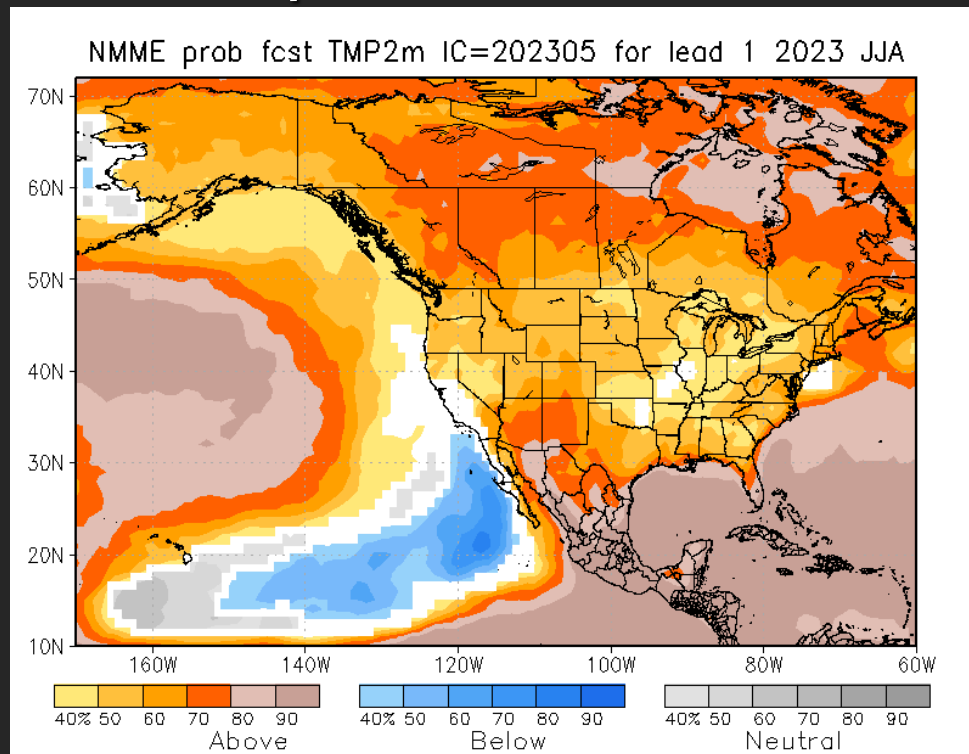
https://www.cpc.ncep.noaa.gov/soilmst/img/cas_pt_mon.lead2.gif

https://www.cpc.ncep.noaa.gov/soilmst/img/cas_pt_mon.lead3.gif

Soil moisture and drought have predictive value leading into the summer, and CPC soil moisture analogs provide a depiction of how summers with similar antecedent conditions evolved. Analogs (above) with similar soil moisture conditions to this year generally showed warmer than normal conditions across the Great Lakes for June and August with less signal in either direction for July. The analogs generally showed wetter than normal conditions for the Ohio Valley and Southeast Michigan, though the northern extent of these conditions does carry some uncertainty.

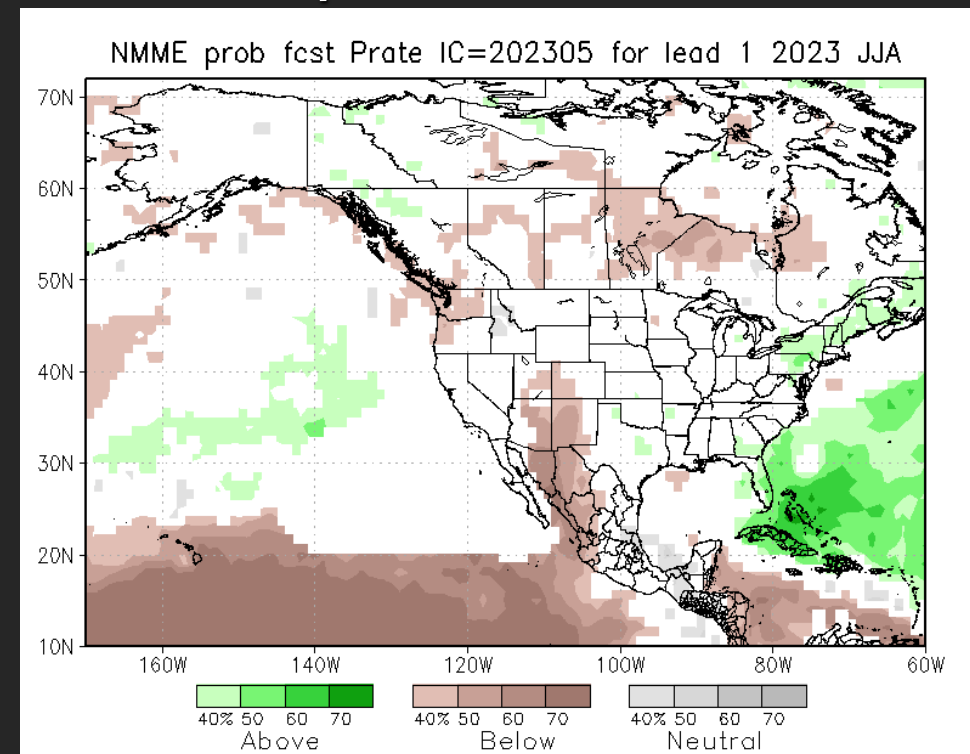


Summer 2023 Temperature Probabilities



https://www.cpc.ncep.noaa.gov/products/NMME/prob/images/prob_ensemble_tmp2m_us_season1.png

Summer 2023 Precipitation Probabilities

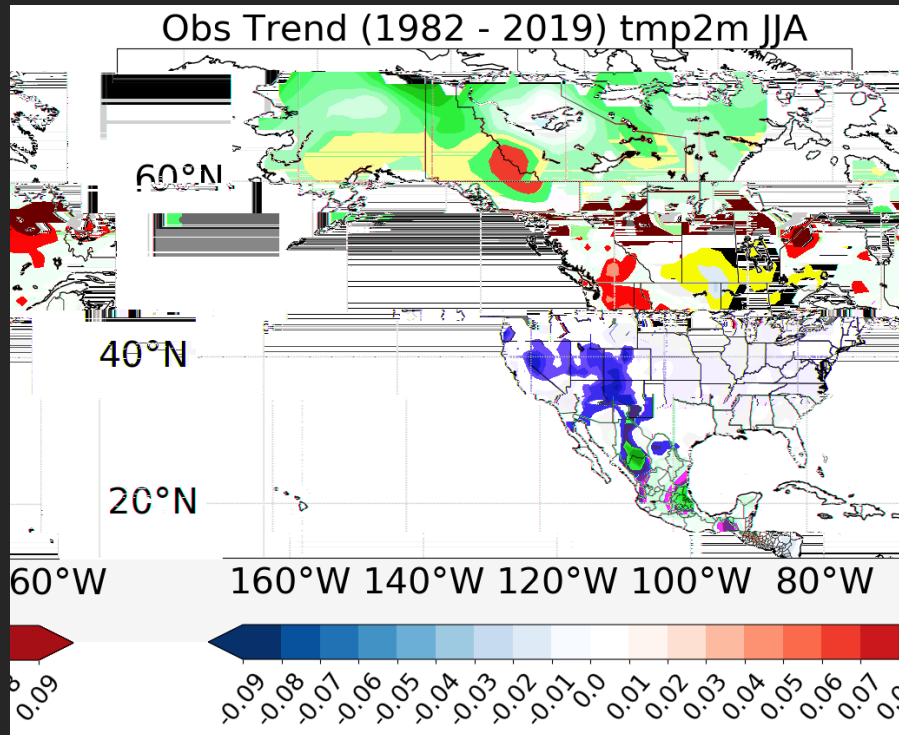


https://www.cpc.ncep.noaa.gov/products/NMME/prob/images/prob_ensemble_prate_us_season1.png

The NMME is the averaged output of several climate models and is another tool to guide seasonal-scale predictions. Recent output (above) favors warmer than normal temperatures for the local area this summer. Meanwhile, near to above normal precipitation is favored. Temperature output from the NMME generally has higher skill than that for precipitation for this period.

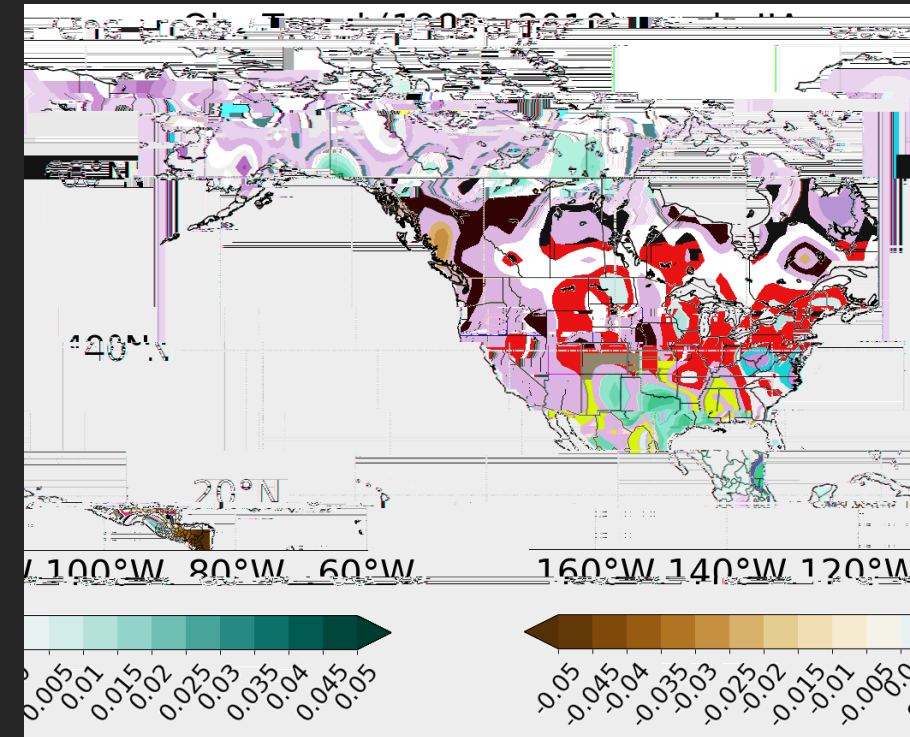


Summer Temperature Trends (1982-2019)



https://www.cpc.ncep.noaa.gov/products/people/sstrazzo/cbam/trend/05/Obs_TrendMap1982-2019_tmp2m.png

Summer Precipitation Trends (1982-2019)

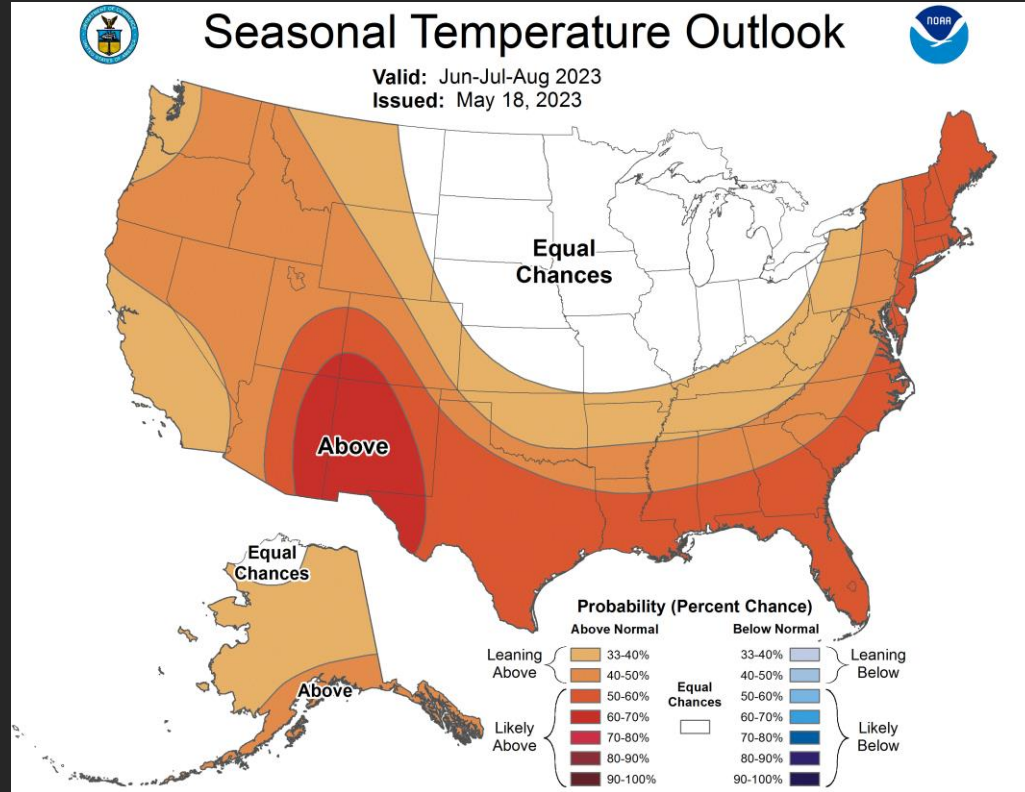


https://www.cpc.ncep.noaa.gov/products/people/sstrazzo/cbam/trend/05/Obs_TrendMap1982-2019_prate.png

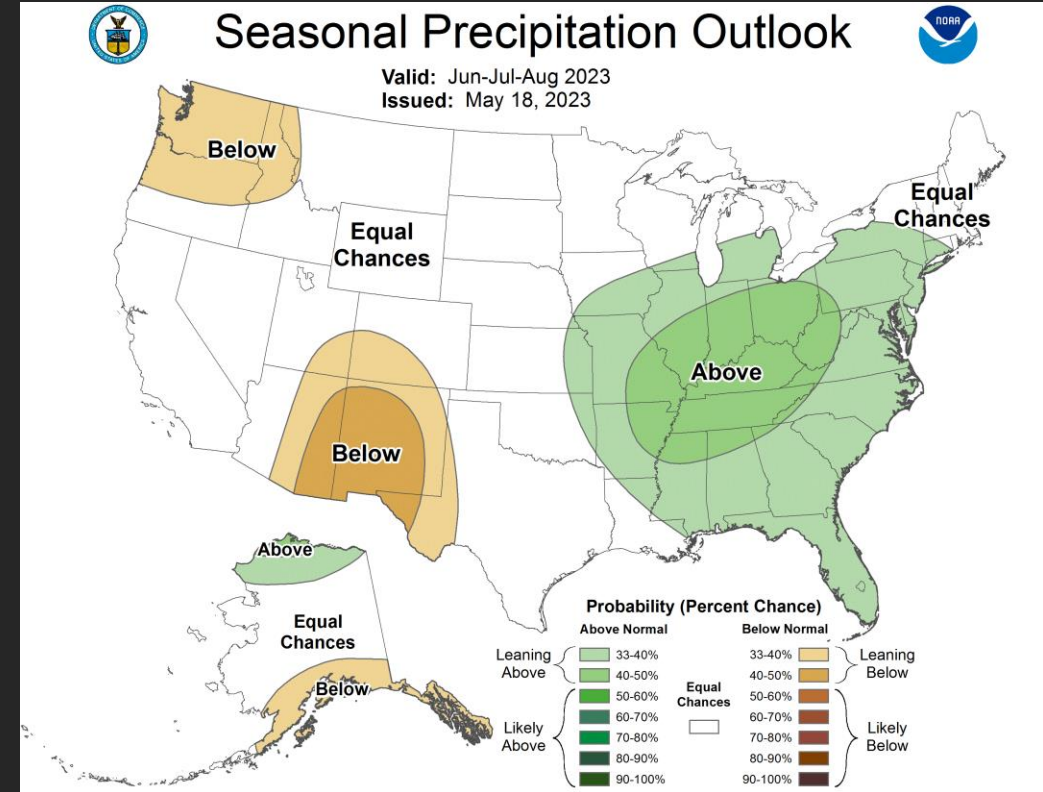
Over the past several decades, average summertime temperatures and precipitation have both trended slightly upward across Southeast Michigan. These trends highlight the changing “normal” and are important factors to consider in the seasonal forecast.



Temperature



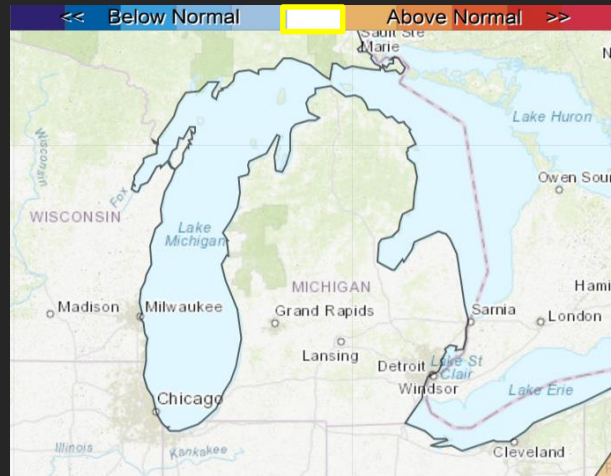
Precipitation



In the official summer outlook from the Climate Prediction Center, Southeast Michigan resides within equal chances for above, near, or below normal temperatures. Meanwhile, probabilities lean toward **above normal precipitation**. This outlook accounts for many factors including ENSO, dynamical guidance such as the NMME, statistical tools, soil moisture conditions, and trends in recent years.

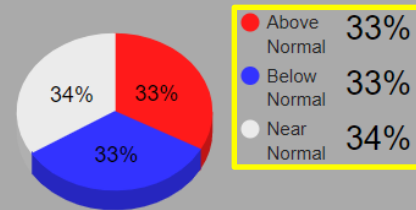


Temperature



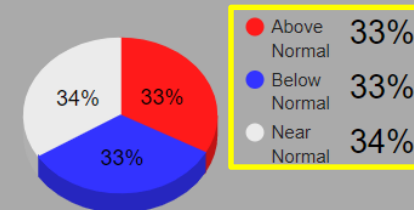
Detroit

Three Category Temperature Outlook
Normal Maximum Temperature: **81**
Normal Minimum Temperature: **61**



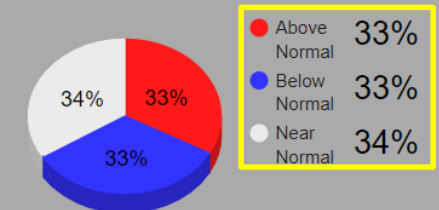
Flint

Three Category Temperature Outlook
Normal Maximum Temperature: **80**
Normal Minimum Temperature: **58**



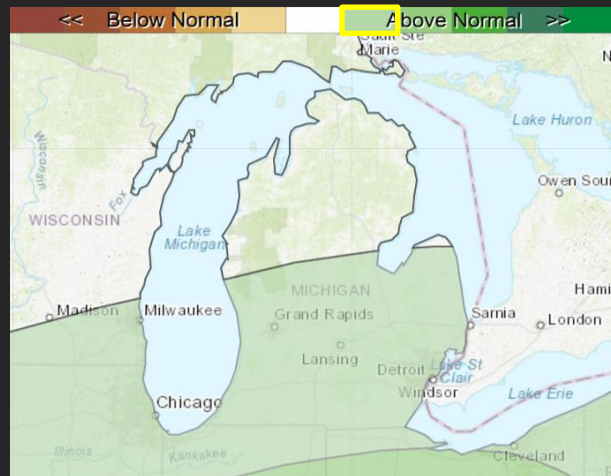
Saginaw

Three Category Temperature Outlook
Normal Maximum Temperature: **80**
Normal Minimum Temperature: **58**



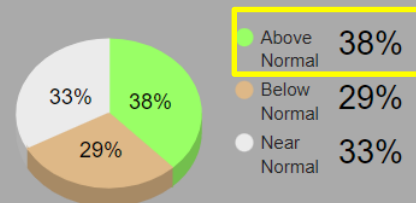
Equal Chances for Above, Below, or Near Normal Temperatures

Precipitation



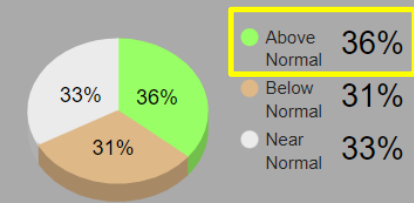
Detroit

Three Category Precipitation Outlook
Normal Precipitation: **9.85**



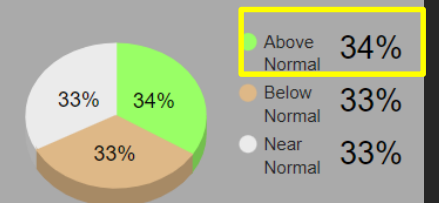
Flint

Three Category Precipitation Outlook
Normal Precipitation: **9.59**



Saginaw

Three Category Precipitation Outlook
Normal Precipitation: **9.26**



Leaning Toward Above Normal Precipitation

2023 Summer Outlook for Southeast Michigan

Weather Forecast Office
Detroit, MI



Southeast Michigan Summer Records and Trivia

Normal High/Low	June	July	August
Detroit	79.7 / 60.2	83.7 / 64.4	81.4 / 63.2
Flint	78.2 / 55.9	82.1 / 59.7	79.9 / 58.3
Saginaw	78.5 / 57.7	82.2 / 61.2	80.0 / 59.4

Normal Precip	June	July	August
Detroit	3.26"	3.51"	3.26"
Flint	3.12"	3.41"	3.16"
Saginaw	3.28"	2.83"	3.85"

Warmest...	Temperature	Month	Summer
Detroit	105 (Jul. 24, 1934)	79.3 (Jul. 2011)	74.9 (2016)
Flint	108 (Jul. 13, 1936)	78.0 (Jul. 1921)	74.2 (1933)
Saginaw	111 (Jul. 13, 1936)	77.5 (Jul. 1936)	73.0 (1931)

Wettest...	Month	Summer
Detroit	8.76" (Jul. 1878)	16.96" (1896)
Flint	11.18" (Aug. 1937)	18.39" (1937)
Saginaw	10.76" (Jun. 2017)	16.28" (1928)

Coolest...	Temperature	Month	Summer
Detroit	36 (Jun. 11, 1972)	62.8 (Jun. 1985)	66.5 (1915)
Flint	33 (Jun. 4, 1998)	60.1 (Jun. 1969)	65.4 (1992)
Saginaw	33 (Jun. 8, 1949)	60.6 (Jun. 1982)	64.8 (1915)

Driest...	Month	Summer
Detroit	0.16" (Aug. 1894)	3.58" (1911)
Flint	0.16" (Jul. 1939)	3.76" (1930)
Saginaw	0.27" (Aug. 1927)	3.54" (1927)

Normal # of 90+ degree days per summer... Detroit: 11.2; Flint: 9.7; Saginaw: 7.7

All temps in °F; normals reflect 1991-2020 period