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Maryland Climate Bulletin
October 2026

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DEPARTMENT OF ATMOSPHERIC & OCEANIC SCIENCE
Sumant Nigam, Chair

Maryland State Climatologist Office

Summary

Statewide averages indicate that October 2026 was warmer and drier than normal (i.e., 1991-2020 averages). Regionally, monthly mean temperatures were between 52 and 65°F, maximum temperatures were in the 65−73°F range, and minimum temperatures were between 38 and 54°F. Monthly total precipitation was in the 1.8−3.8 inches range.

Maryland Regional Features (Figures 1-5, C1, and D1)

- The mean temperature was warmer than normal across the state, especially in Garrett and Allegany counties (3.4−3.8°F), Charles County (3.2−3.4°F), Baltimore, Carroll, and Montgomery counties (3.0−3.2°F).

- The maximum temperature was also warmer than normal over the entire state, notably in Garrett County (5.7−6.0°F), Allegany County (5.1−5.7°F), northern Baltimore and Carroll counties (4.2−4.5°F), and central Prince George's County (4.2°F).

- The minimum temperature was warmer than normal almost everywhere in the state, notably in western Charles County (5.0−5.6°F), Allegany County (4.6−5.0°F), and southern Garrett County (4.2−4.6°F). Slightly below-normal temperatures appeared over northern Washington County.

- Precipitation was below normal in most of the state, especially in Somerset and southern Worcester counties (1.8−2.2 inches deficit), Howard, Carroll, Frederick, and Montgomery counties (1.4−1.8 inches deficit), and southern Saint Mary's County (1.4−1.6 inches deficit). Above-normal precipitation occurred in Allegany County, eastern Garrett and western Washington counties (0.2−0.6 inches). Among regions with below-normal precipitation, Somerset and Worcester counties received 50−55% less than normal October precipitation, and Howard, Carroll, Frederick, and Montgomery counties received 35−45% less, while southern Saint Mary's County received 40% less. The regions with above-normal precipitation received 5−15% more than their climatological monthly precipitation.

- Drought conditions improved by the end of October with respect to those at the end of September, with a decrease of ~3% in the extent of Moderate Drought over the Piedmont, and an increase of ~11% in the extent of drought-free areas over western and southern counties. Moderate drought is still impacting portions of Washington, Frederick, Carroll, Baltimore, Caroline, and Dorchester counties. Drought-free conditions cover all of Garrett and Allegany counties, western Washington County, all of Cecil County, eastern Kent County, all of Saint Mary's County, southern Calvert County, and most of Worcester County. The rest of the state was under Abnormally Dry conditions.

Maryland Climate Divisions (Figures 6-7, B1, and B2)

- All the climate divisions were warmer than normal in October, with Climate Division 8, Allegheny Plateau, having the largest departure from normal (3.5°F). Seven of the eight climate divisions were drier than normal, especially Climate Division 1, Southeastern

Shore, which had the largest departure from normal (1.80 inches below); Climate Division 7, Appalachian Mountains, was the only one with above-normal precipitation (0.16 inches).

- The statewide mean temperature in October was warmer than normal (2.8°F) after warmer-than-normal September (2.2°F) and August (1.6°F); this was the fifth month in a row with above-normal temperatures. Statewide precipitation was drier than normal again (1.00 inches below) after drier-than-normal September (0.85 inches below) and wetter-than-normal August (1.10 inches).

Extreme daily temperatures, precipitation, and growing degree days (Figures 8-10)

- Statewide maximum daily temperatures from January 1 to October 31 indicated that there were eight more hot days (maximum temperatures larger than 86°F) than normal (56 vs. 48) and three more heat waves (two or more consecutive hot days) than normal (12 vs. 9), none in October. Similarly, there were twenty more warm days (maximum temperatures larger than 80°F) than normal (121 vs. 101), and three more warm day spells (two or more consecutive warm days) than normal (14 vs. 11), with two spells in October. Statewide minimum daily temperatures indicated there were twenty-two more warm nights (minimum temperatures larger than 68°F) than normal (49 vs. 27) and a normal number of warm night spells (two or more consecutive warm nights; 6), but none in October.

- Statewide daily total precipitation from January 1 to October 31 showed that the number of days with extreme precipitation (at least 0.64 inches –the 95th percentile in 1951−2000) was three days below normal (13 vs. 16), with one occurring on October 12. The number of dry spells (two or more consecutive days with daily precipitation of less than 0.04 inches) was two fewer spells than normal (39 vs. 41); the mean duration of the dry spells was one day longer than normal (5 vs. 4). October had four dry spells, with the longest starting on October 19 and extending into November.

- The cumulative calendar year (January 1 to October 31) modified growing degree days (base 86/50°F) reached around 4254°FDD by the end of October and have been greater than normal since the second week of March, with a departure above normal of 374°FDD by the end of October. Under these conditions, modified growing days already exceeded the normal maximum of 4025°FDD reached by the end of the normal year. Similarly, simple growing degree days (base 50°F) reached about 4085°FDD by the end of October and have been above normal since the last week of March, with a 396°FDD departure by the end of October. Simple growing days also surpassed its normal maximum of 3751°FDD reached by the end of the normal year. The modified growing

degree days curve is well above normal and, in particular, above last year's curve since late August, setting a record by the end of the month.

Historical Context (Figure 11, Tables A1 and A2)

- Statewide mean, maximum, and minimum temperatures in October 2026 (59.8, 71.2, 48.4°F) were above their (1895-2025) long-term means (56.2, 67.1, 45.3°F). The mean and maximum temperatures were among the warmest 10% of values, while the minimum temperature was within the warmest 25% of values. However, none of the temperatures approached their warm records: 63.3°F for the mean temperature, 74.4°F for the maximum temperature set in 2007, or 53.8°F for the minimum temperature set in 2021. Statewide precipitation (2.79 inches) in October was below its long-term mean (3.25 inches) but still far from the driest record of 0.15 inches in 1963.

- Statewide mean, maximum, and minimum temperatures indicated that October 2026 was the twelfth, tenth, and twenty-third warmest October since 1895, respectively. Twenty counties had mean temperatures among the fifteen warmest on record; among them, Caroline, Charles, and Garrett were the closest to a record, with their eleventh-warmest October. Thirteen counties had maximum temperatures among the ten warmest, with Allegany and Garrett having their seventh-warmest October, Caroline and Talbot their eighth, and Baltimore, Washington and Worcester their ninth. On the other hand, only Charles and Queen Anne's counties were close to a warm record for minimum temperatures, with the former reaching the fourteenth-warmest and the latter the fifteenth-warmest since 1895.

- Statewide precipitation in October 2026 showed that this was the sixty-second driest October on record. Among counties, Somerset was closest to a dry record, ranking thirty-fifth driest since 1895.

Century-Plus Trends, 1895-2026 (Figures 12, 13)

- Statewide mean temperature and heating degree days in October showed significant trends: a warming trend (1.7°F/century) and a decreasing trend (−50.7°FDD/century), respectively, while precipitation had a non-significant wetting trend (0.56 in/century).

- Regionally, the mean temperatures in October showed significant warming trends almost everywhere in the state to the east and south of the Blue Ridge, over the counties of the Piedmont and coastal plains. The largest trends were in Baltimore City (2.4°F/century), central Piedmont counties, and the eastern part of the Eastern Shore (1.8−2.2°F/century).

- Regionally, precipitation in October displayed significant wetting trends over western Maryland, central Piedmont, and southern Western Shore. The largest significant wetting trends appeared over the central Piedmont, including Baltimore, Howard, and Harford counties and northern Prince George's and Anne Arundel counties (0.9−1.0 in/century); parts of Garrett and Allegany counties (0.7−0.8 in/century); and Saint Mary's County (0.7 in/century).

Chesapeake Bay Sea Surface Temperatures (Figures 14, 15, E1)

- Sea surface temperatures in the Chesapeake Bay in October 2026 were in the 64−67°F range. Regionally, they were colder than the 2007-2020 mean across the Bay, especially in the Chincoteague Bay, Honga River, Fisher Bay, and Nanticoke River (2.8−3.2°F below), the western Middle Basin (2.4−2.8°F below), Eastern Bay, coastal waters of Queen Anne's and Talbot counties, and Tangier Sound (1.6−2.0°F below). The all-basin mean October temperature of 65.7°F was below the 2007-2020 base-period mean (67.1°F) but still above the coldest October (62.7°F in 2022) in the 20-year dataset (2007-2026).

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1. Introduction

The Maryland Climate Bulletin is issued by the Maryland State Climatologist Office (MDSCO), which resides in the Department of Atmospheric and Oceanic Science at the University of Maryland, College Park. It documents the surface climate conditions observed across the state in a calendar month and is issued in the second week of the following month.

Maryland's geography is challenging, with the Allegheny and Blue Ridge mountains to the west, the Piedmont Plateau in the center, the Chesapeake Bay, and the Atlantic Coastal Plain to the east. The range of physiographic features and the state's eastern placement within the expansive North American continent contribute to a comparatively wide range of climatic conditions.

The bulletin aims to document and characterize monthly surface climate conditions in the state, situating them within the context of regional and continental climate variability and change, to help Marylanders interpret and understand recent climate conditions.

The monthly surface climate conditions for October 2026 are presented via maps of key variables, such as average surface air temperature, maximum surface air temperature, minimum surface air temperature, total precipitation, and their anomalies (i.e., departures from normal); they are complemented by drought conditions for the state, as given by the U.S. Drought Monitor in Section 3. Statewide and climate division averages for the month are compared using scatter plots in Section 4. Extreme warm daily temperatures and precipitation, as well as growing degree days, are presented from the analysis of daily statewide averaged temperatures and precipitation in Section 5. Monthly statewide averages are placed in the historical context using box-and-whisker plots in Section 6. Century-plus trends in statewide air temperature, heating degree days, precipitation, and state maps of air temperature and precipitation are presented in Section 7. Maps of monthly sea surface temperature (SST) in the Chesapeake Bay are presented in Section 8, along with basin averages and their annual evolution for the month. Ancillary statewide, climate division, and county-level information for air temperatures and precipitation are provided in tables and plots in Appendices A and B; climatology and variability maps are included in Appendices C and D, along with the percentage of normal precipitation and normalized anomalies; mean and variability of the sea surface temperatures in the Chesapeake Bay are displayed in Appendix E.

2. Data and Methods

Surface air temperatures, total precipitation, and degree-days data in this report are from the following sources:

- NOAA Monthly U.S. Climate *Gridded* Dataset at 5-km horizontal resolution (NClimGrid – Vose et al., 2014) for 1895-present. Available in preliminary status at: https://www.ncei.noaa.gov/data/nclimgrid-monthly/access/
  Data was downloaded on November 10, 2026.

- NOAA Monthly U.S. Climate *Divisional* Dataset (NClimDiv – Vose et al., 2014) for 1895-present. Available in preliminary status (v1.0.0-20261105) at:
  https://www.ncei.noaa.gov/pub/data/cirs/climdiv/
  Data was downloaded on November 10, 2026.

- NOAA area averages of daily temperatures and precipitation dataset (nClimGrid−Daily −Durre et al., 2022) for 1951-present. Available in preliminary status, v1.0.0, at:
  https://www.ncei.noaa.gov/products/land-based-station/nclimgrid-daily
  Data labeled as "scaled" was downloaded on November 6, 2026.

Drought conditions are from the U.S. Drought Monitor website:
https://droughtmonitor.unl.edu/Maps/MapArchive.aspx

Data and sources for the Chesapeake Bay are the following:

- Satellite-based sea surface temperatures from NOAA's CoastWatch Program. The data was made available by the Program's East Coast Node. This satellite-based sea surface temperature data uses data from the Advanced Very High Resolution Radiometer (AVHRR) on the European MetOp satellites, and the Visible Infrared Imaging Radiometer Suite (VIIRS) on the U.S. SNPP and NOAA JPSS satellites. In creating this product, nighttime overpasses for the U.S. East Coast are used, thereby avoiding daytime solar heating of the ocean surface and the associated warm bias in the data. In particular, the acquired product consists of monthly sea surface temperature data for the Chesapeake and Delaware Bays, with a nominal horizontal resolution of 750 m from 2007 to the present. This product is available at:
  https://eastcoast.coastwatch.noaa.gov/data/avhrr-viirs/sst-ngt
  Data was downloaded on November 2, 2026.

- A shapefile of watersheds for the state from the Maryland Department of the Environment and the Department of Natural Resources: the Maryland Watersheds – 8 Digit Watersheds. It contains 138 separate watersheds, identified with an 8-digit numeric code from which three are on the main steam of the Chesapeake Bay: the Upper Chesapeake Bay (code: 02139996; from the mouth of the Susquehanna River to northern side of the mouth of the Gunpowder River), the Middle Chesapeake Bay (code: 02139997; from the Gunpowder River to the mouth of the Chester River), and the Lower Chesapeake Bay (code: 02139998; from the south side of the mouth of the Chester River to the mouth of the Potomac River), which in turn are used to create a one-watershed shapefile for the entire basin. These four watersheds are used to create area-averaged sea surface temperatures for the Bay. The shapefile and associated files are available at:
  https://data.imap.maryland.gov/datasets/maryland::maryland-watersheds-8-digit-watersheds/about

Some definitions:

About climate and climatology. Weather and climate are closely related, but they are not the same. Weather represents the state of the atmosphere (temperature, precipitation, etc.) at any given time. On the other hand, climate refers to the long-term average of weather elements. If the average period is long enough, we can start to characterize the climate of a particular region.

It is customary to follow the World Meteorological Organization (WMO) recommendation and use 30 years for the average. The 30-year average weather data is traditionally known as Climate Normal (Kunkel and Court 1990) and is updated every ten years (WMO 2017). Establishing a climate normal, or climatology, is important because it allows one to compare a specific day, month, season, or even another normal period with the current normal. Such comparisons characterize anomalous weather and climate conditions, climate variability and change, and help define extreme weather and climate events (Arguez et al. 2012). The current climate normal, or simply the climatology, is defined for the period 1991–2020.

It should be noted that the satellite-based sea surface temperature dataset has a short temporal coverage of 20 years, from 2007 to the present, which prevents the calculation of its current climate normal (1991-2020). Instead, the 2007-2020 mean will be used without referring to it as a climatology.

About the anomalies: Anomalies for a given month (e.g., October 2026) are the departures of the monthly value from the corresponding month's 30-year average (i.e., from the average of 30 Octobers) during 1991-2020. When the observed monthly value exceeds its climatological value, it is referred to as above normal (e.g., warmer than normal or wetter than normal) or a positive anomaly. In contrast, when this value is smaller than its climatological value, it is referred to as below normal (e.g., colder than normal or drier than normal) or a negative anomaly. In the case of the sea surface temperature anomalies, they are calculated with respect to their 2007-2020 mean.

About variability. The monthly standard deviation of a climate variable measures its dispersion relative to its monthly mean and assesses its year-to-year, or interannual, variability. Anomalies are sometimes compared against that variability to identify extremes in the climate record. When anomalies are divided by the standard deviation, they are referred to as standardized anomalies.

About hot days, warm days, and warm nights. Extreme heat, detrimental to crops without irrigation and to populations lacking air conditioning, is tracked by the count of hot days, warm days and nights, and their consecutive occurrence (e.g., Tschurr et al. 2020, Barriopedro et al. 2023). A hot day is defined as one when the maximum temperature is greater than 86°F, a warm day is when the maximum temperature is greater than 80°F, while a warm night is when the minimum temperature is greater than 68°F. When these conditions persist for two or more days, they are referred to as heat waves for the hot days and warm spells for the warm days and nights. These threshold values correspond to the 89th and 75th percentiles of statewide daily maximum

temperatures and the 95th percentile of statewide daily minimum temperatures for the period 1951- 2000.

About degree days. Degree days represent the difference between the daily mean temperature (calculated as the average of the high and low temperatures) and a predefined base temperature. Since energy demand is cumulative, degree-day totals are typically calculated on a daily, monthly, seasonal, and annual basis.

- *Heating and cooling degree days.* These are used to get a general idea of the amount of energy required to warm or cool buildings. The base temperature used for this purpose is 65°F, which is considered tolerable for human comfort (CPC 2023).
- Growing Degree Days. These are used to estimate the growth and development of plants and insects during the growing season, under the assumption that development occurs only if the temperature exceeds a minimum development threshold temperature, or, in other words, if enough warmth is accumulated. Because actual development varies across plants and insects, and the presence of weeds and precipitation can influence it, a base temperature of 50°F is generally considered acceptable for all plants and insects (OSU 2024). However, this base temperature is best suited for the development of specific crops like corn, sweet corn, soybeans, tomatoes, and a few others.
    - Modified Growing degree days. The modified growing degree days are calculated by establishing base temperatures for the daily maximum and minimum temperatures before determining the daily mean temperature. When the base temperature for the daily maximum temperature is set to 86°F, and the base temperature for the daily minimum temperature is set to 50°F, the growing degree days are specific to corn development, as no appreciable growth is detected at temperatures below 50°F or above 86°F.

About extreme precipitation. This is defined as the number of days per year on which statewide-averaged daily total precipitation is equal to or greater than 0.64 inches. This threshold value represents the 95th percentile of statewide averaged daily total precipitation for 1951-2000.

About the dry day spells. A dry day is defined as a day with precipitation below 0.04 inches. These conditions are referred to as dry spells if they persist for two or more consecutive days. The number and duration of dry spells are particularly important during the vegetation period (Tschurr et al. 2020).

About NOAA's Climate Divisions. The term "climate division" refers to one of the eight divisions in the state that represent climatically homogeneous regions, as determined by NOAA: https://www.ncei.noaa.gov/access/monitoring/dyk/us-climate-divisions

The eight climate divisions in Maryland are:

- Climate Division 1: Southeastern Shore. It includes the counties of Somerset, Wicomico, and Worcester.
- Climate Division 2: Central Eastern Shore. It includes the counties of Caroline, Dorchester, and Talbot.
- Climate Division 3: Lower Southern. It includes the counties of Calvert, Charles, and St. Mary's.
- Climate Division 4: Upper Southern. It includes the counties of Anne Arundel and Prince George's.
- Climate Division 5: Northeastern Shore. It includes the counties of Kent and Queen Anne's.
- Climate Division 6: North Central. It includes the counties of Baltimore, Carroll, Cecil, Frederick, Harford, Howard, Montgomery, and the city of Baltimore.
- Climate Division 7: Appalachian Mountains. It includes the counties of Allegany and Washington.
- Climate Division 8: Allegheny Plateau. It includes Garrett County.

Note that these Climate Divisions do not correspond with the *Physiographic Provinces* in the state, as the former follow county lines. Climate Division 8 follows the *Appalachian Plateau Province*, Climate Division 7 follows the *Ridge and Valley Province*; however, Climate Division 6 includes the *Blue Ridge and the Piedmont Plateau provinces,* Climate Divisions 3, 4, and a portion of 6 include the *Upper Coastal Plain Province*, and Climate Divisions 1, 2, 5, and a portion of 6 include the *Lower Coastal Plain (or Atlantic Continental Shelf) Province*.

3. October 2026 Maps

A. Mean Temperatures

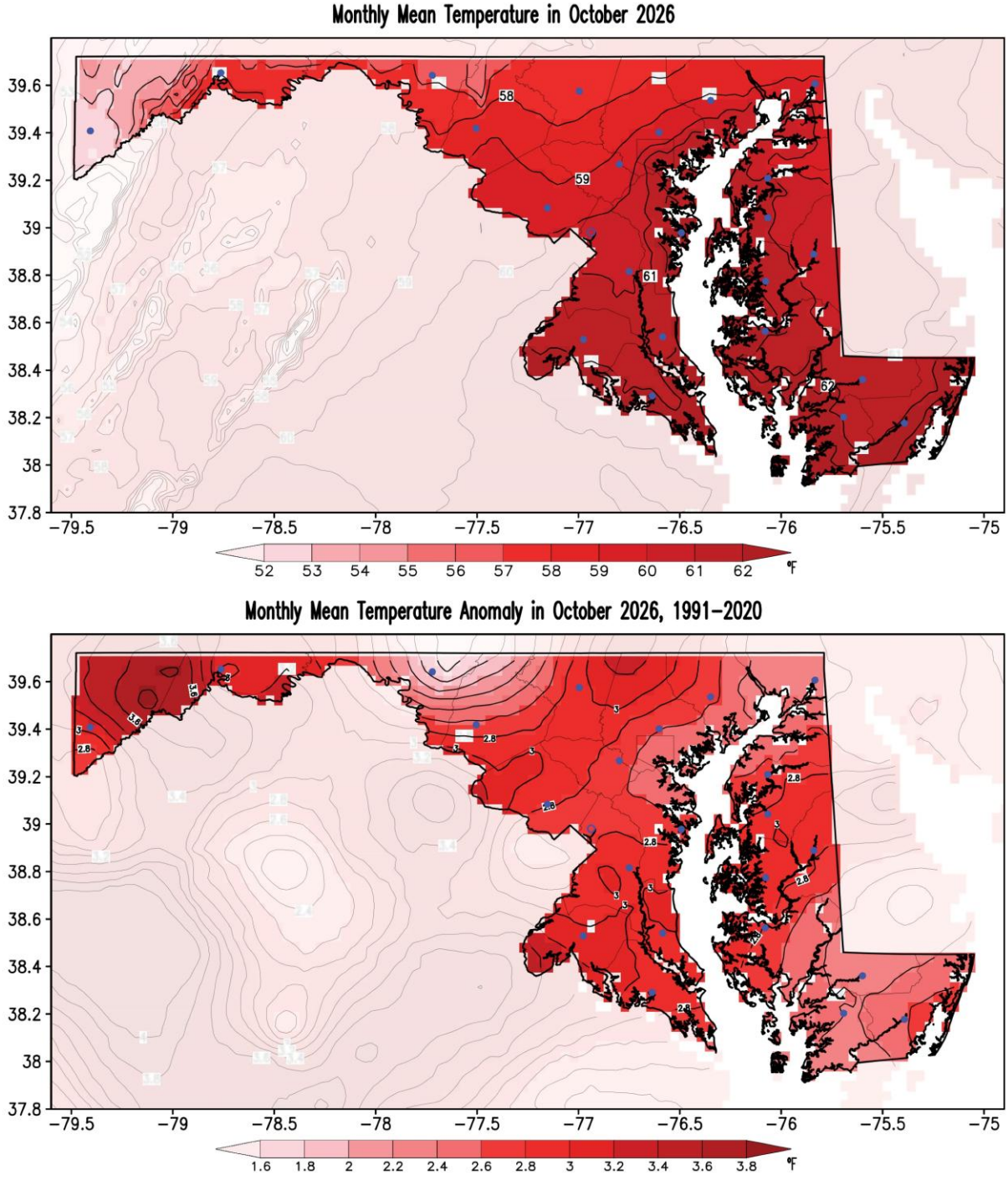

Figure 1. Monthly mean surface air temperature (top panel) and its anomaly with respect to the 1991-2020 climatology (bottom panel) for October 2026. Temperatures are in °F following the color bar. Red shading in the anomaly map marks warmer-than-normal conditions. Note shading outside the state has been washed out to facilitate focus on Maryland. Filled blue circles mark the county seats.

B. Maximum Temperatures

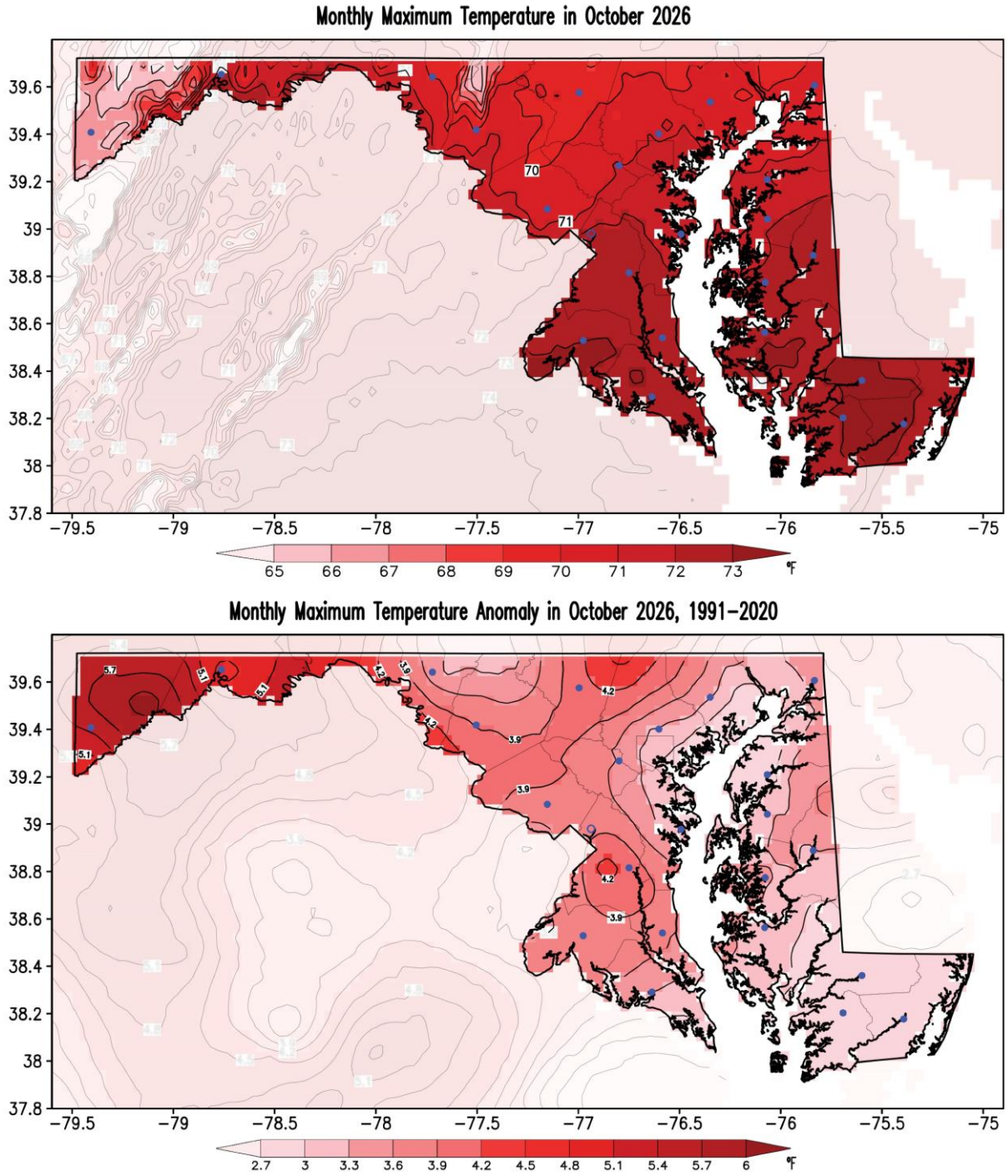

Figure 2. Monthly maximum surface air temperature (top panel) and its anomaly with respect to the 1991-2020 climatology (bottom panel) for October 2026. Temperatures are in °F following the color bar. Red shading in the anomaly map marks warmer-than-normal conditions. Note shading outside the state has been washed out to facilitate focus on Maryland. Filled blue circles mark the county seats.

C. Minimum Temperatures

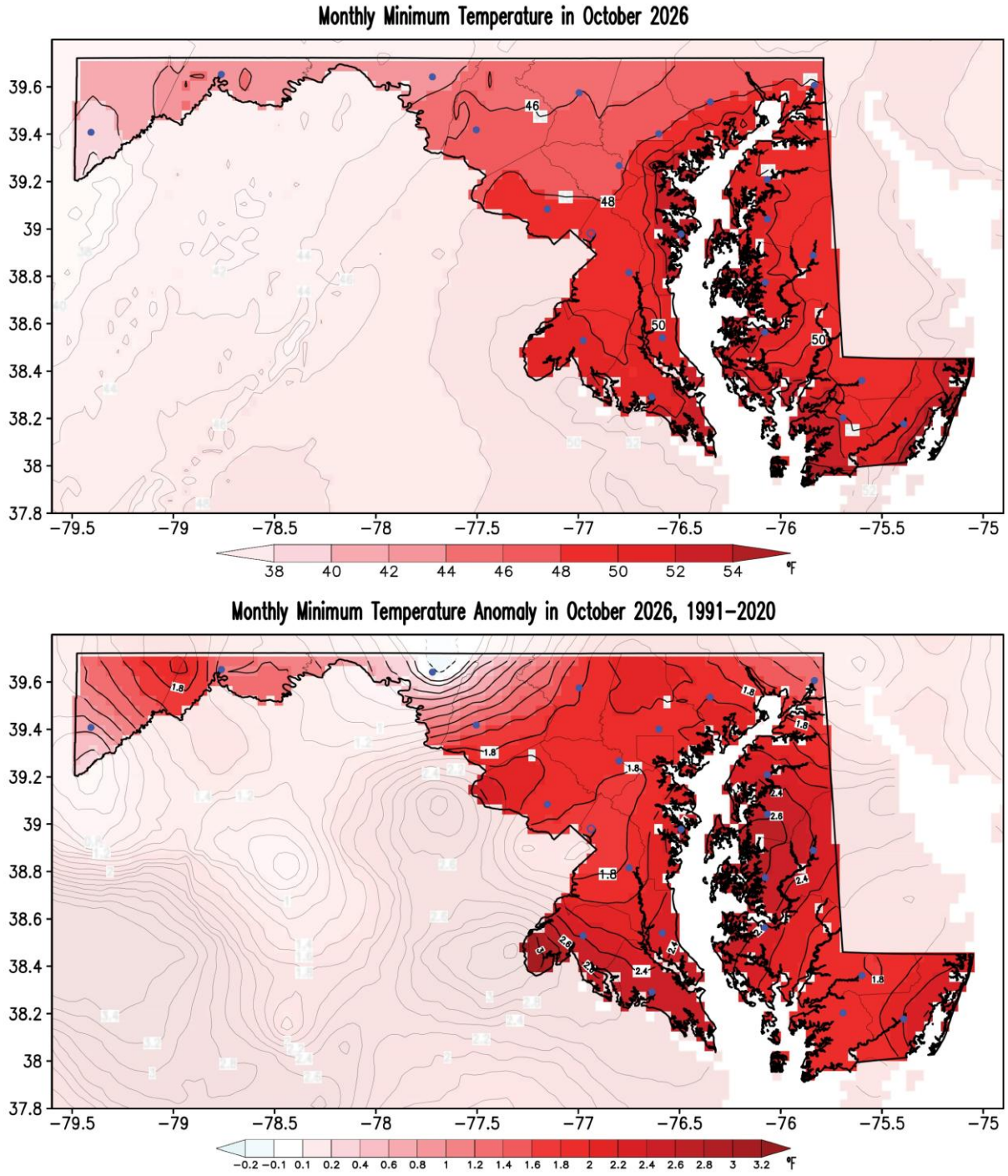

Figure 3. Monthly minimum surface air temperature (top panel) and its anomaly with respect to the 1991-2020 climatology (bottom panel) for October 2026. Temperatures are in °F following the color bar. Blue/red shading in the anomaly map marks colder/warmer-than-normal conditions. Note shading outside the state has been washed out to facilitate focus on Maryland. Filled blue circles mark the county seats.

D. Precipitation

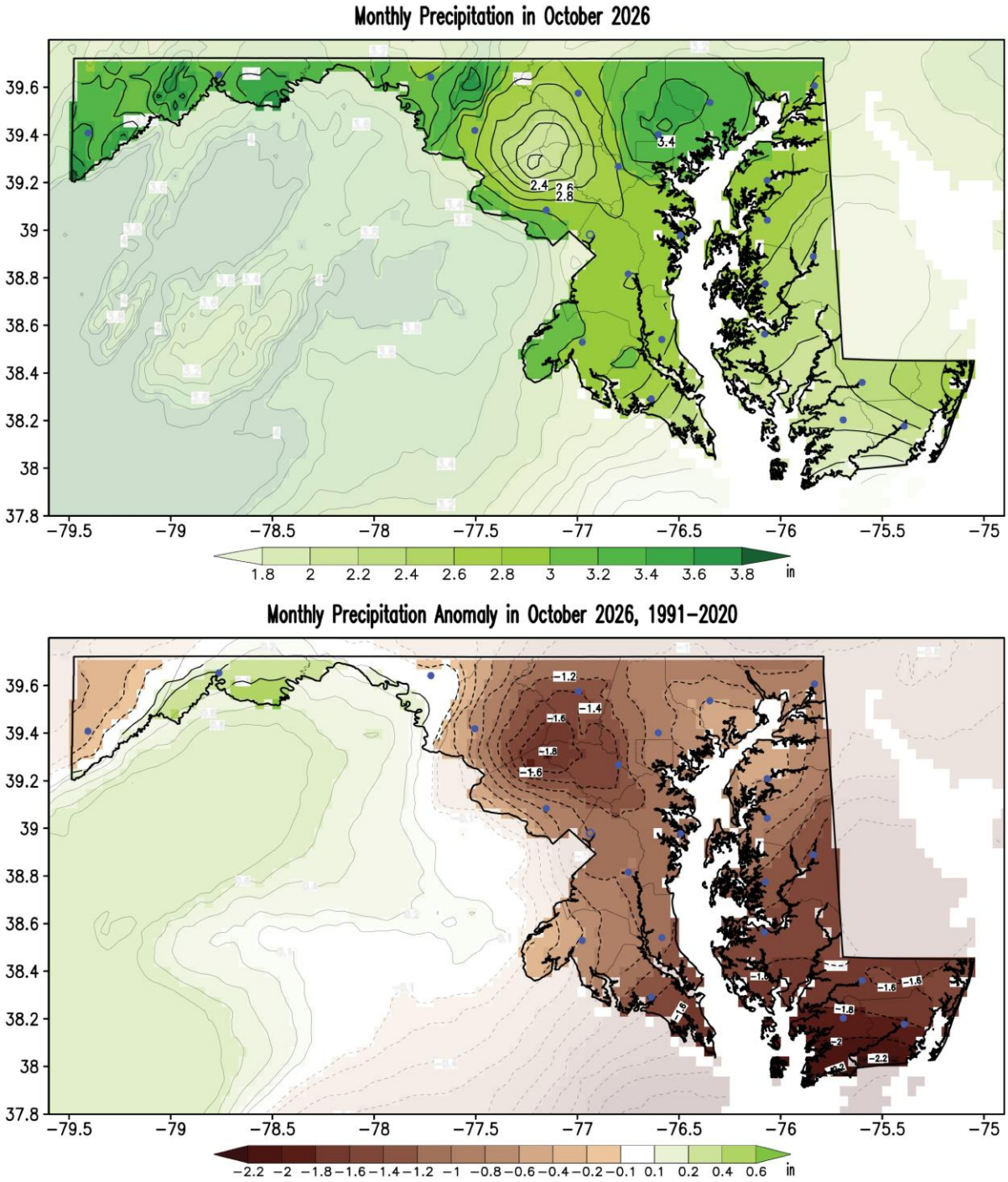

Figure 4. Monthly total precipitation (top panel) and its anomaly with respect to the 1991-2020 climatology (bottom panel) for October 2026. Precipitation is measured in inches, as indicated by the color bar. Brown/green shading in the anomaly map indicates drier/wetter-than-normal conditions. Note shading outside the state has been washed out to facilitate focus on Maryland. Filled blue circles mark the county seats.

E. Drought

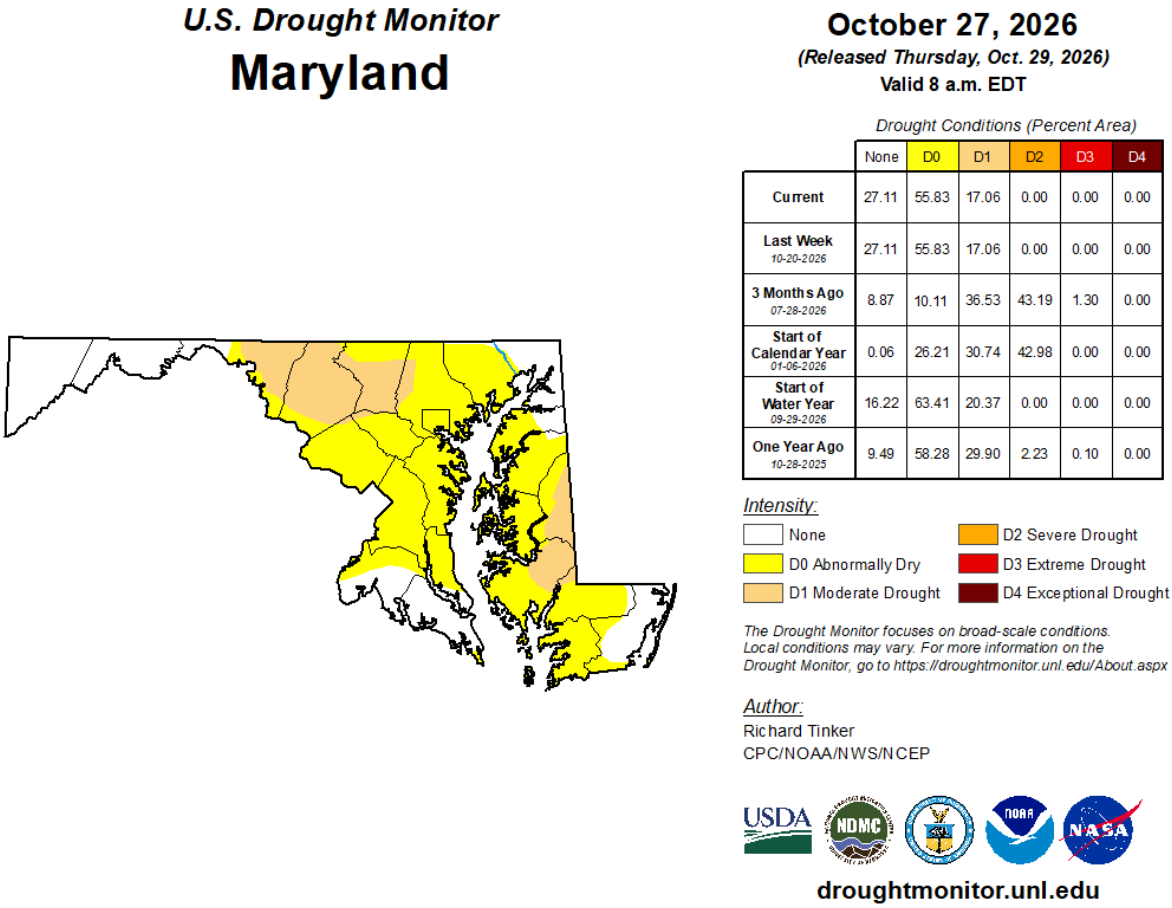

Figure 5. Drought conditions as reported by the U.S. Drought Monitor on October 27, 2026. Drought conditions improved compared with the end of September, with the extent of Moderate Drought decreasing by ~3% and the extent of drought-free areas increasing by ~11%. White shading indicates regions without drought. Yellow shading indicates Abnormally Dry regions; light orange shading shows regions under a Moderate Drought. Numbers in the table indicate the percentage of the state covered under each drought category at the time (left column). Typically, areas shown in yellow (Abnormally Dry) indicate land that is entering or exiting drought. Light orange areas (Moderate Drought) highlight land that may experience a low water supply and crop and pasture damage. The current conditions can be monitored on the U. S. Drought Monitor website. If interested, you can help monitor drought conditions by submitting a report of your local soil conditions through the National Drought Mitigation Center's Drought Impact Toolkit by using the Condition Monitoring Observer Reports system.

4. October and ASO 2026 Statewide and Climate Divisions Averages

A. October Scatter Plots

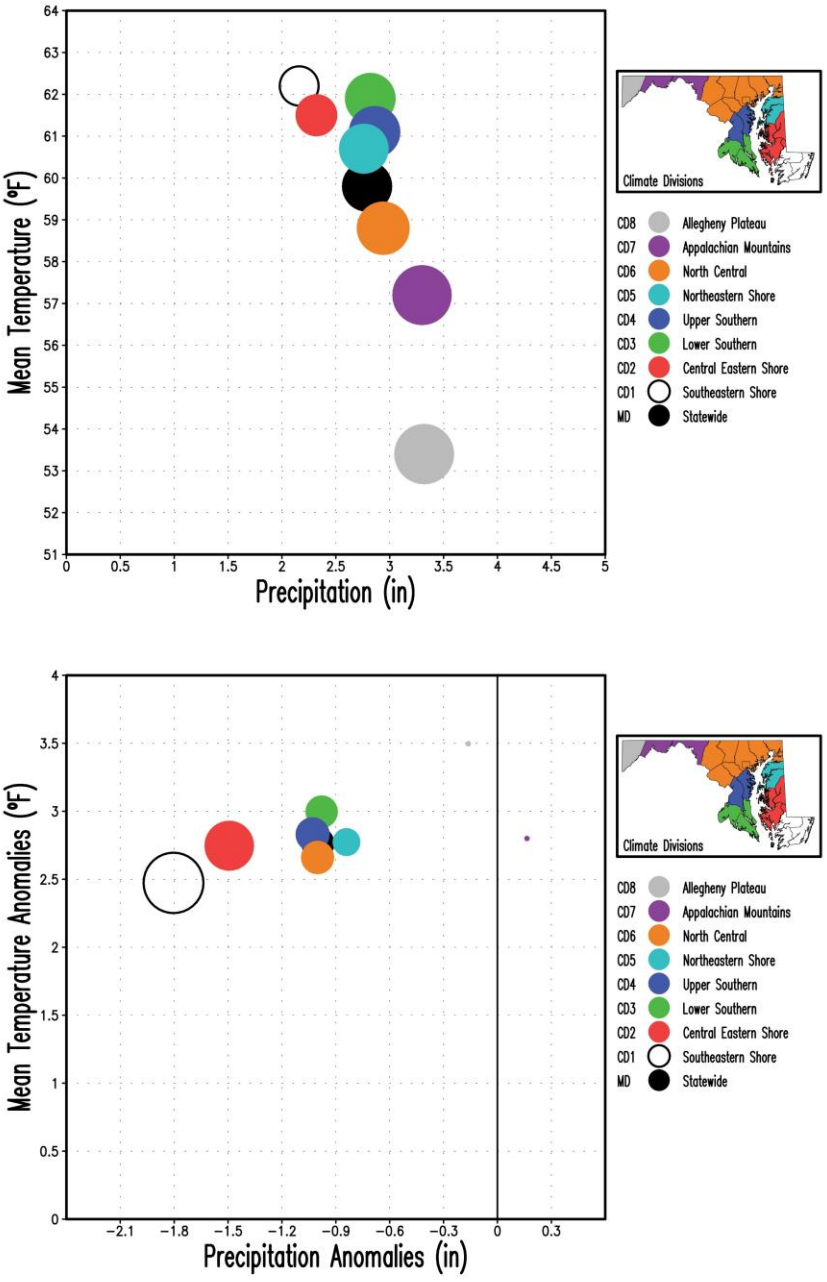

Figure 6. Scatter plots of Maryland (statewide) and Climate Divisions (CD#) monthly mean surface air temperature vs. total precipitation for October 2026. The upper panel displays the mean temperature and total precipitation, while the bottom panel displays their anomalies relative to the 1991-2020 climatology. Temperatures are in °F and precipitation is in inches. The size of the circles is proportional to the total precipitation scaled down by the maximum precipitation (3.32 inches in CD8, top panel) and by the maximum precipitation anomaly (|−1.80| inches in CD1, bottom panel) among the nine regions. Note that the color of the filled circles corresponds to the color in the Climate Divisions according to the inset map.

B. August – October Scatter Plots

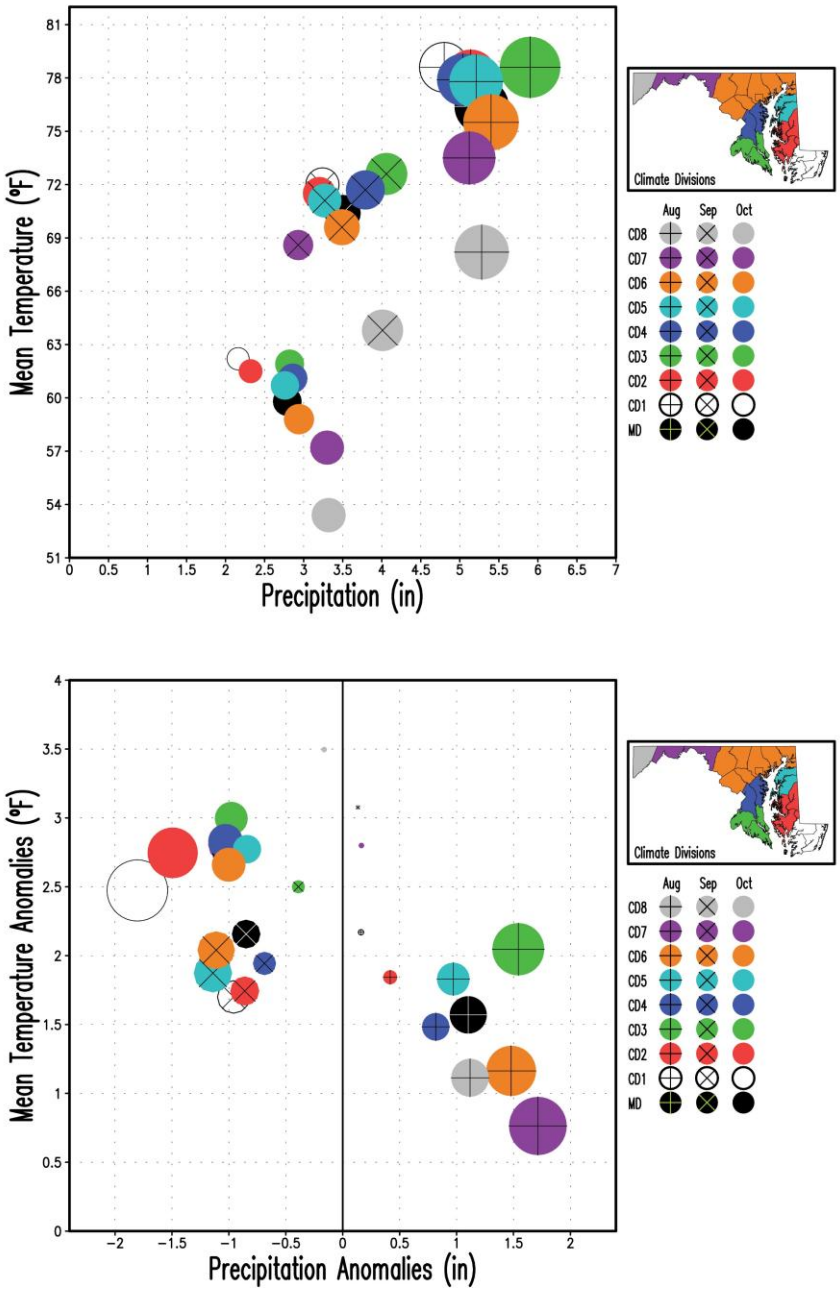

Figure 7. Scatter plots of Maryland (statewide) and Climate Divisions (CD#) monthly mean surface air temperature vs. total precipitation for August, September, and October 2026. The upper panel displays the mean temperature and total precipitation, while the bottom panel shows their anomalies relative to the 1991-2020 climatology. Temperatures are in °F, and precipitation is in inches. The size of the circles is proportional to the total precipitation scaled down by the maximum precipitation (5.90 inches in CD3 in August, top panel) and by the maximum precipitation anomaly (|−1.80| inches in CD1 in October, bottom panel) among the nine regions and three months. October is displayed with filled circles only, while September and August are displayed with superposed multiplication and addition signs, respectively.

5. Extremes in Statewide Averages

A. Hot Days, Warm Days, and Warm Nights

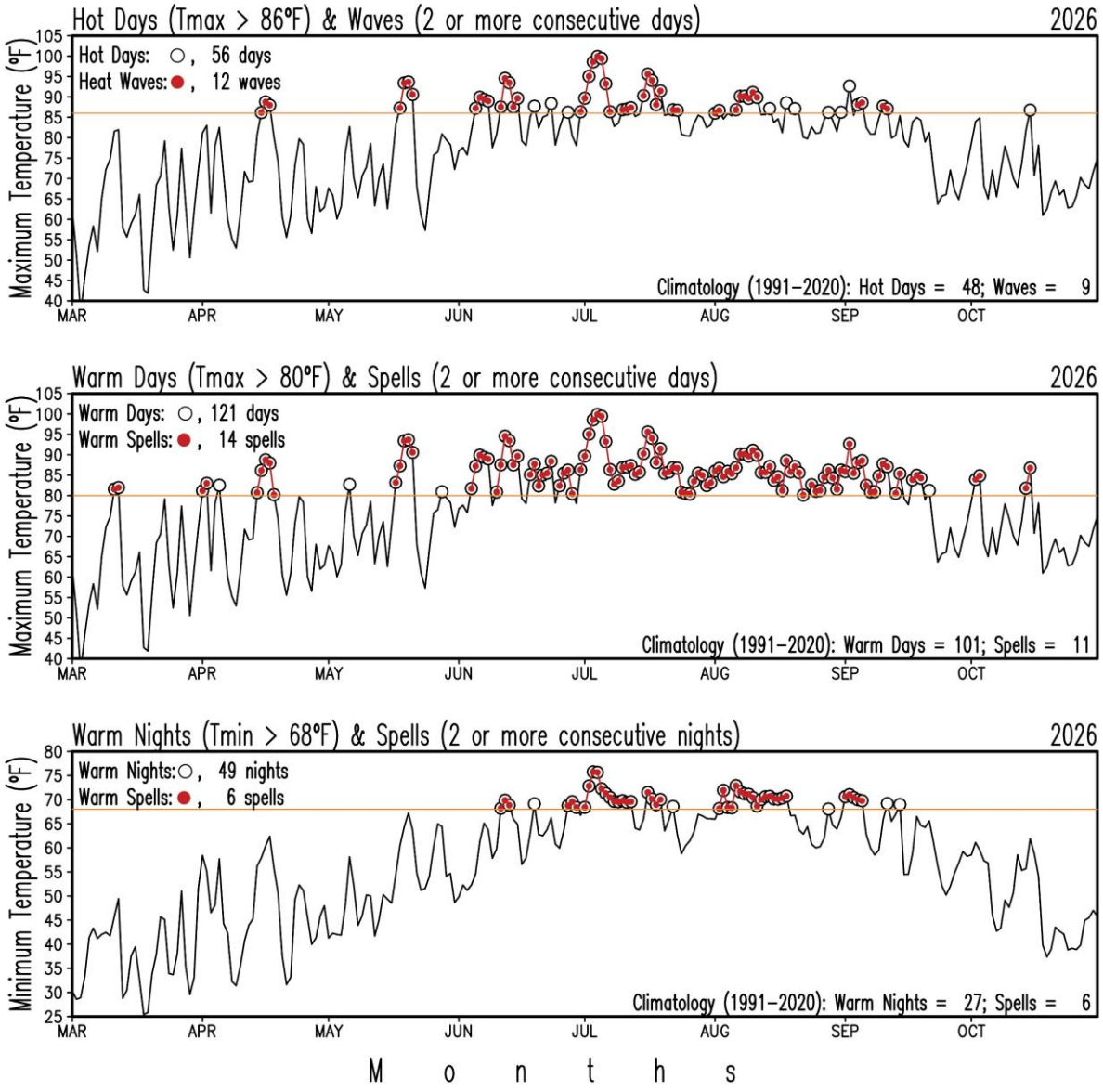

Figure 8. Maryland (statewide) number of hot days, warm days, warm nights, and their consecutive occurrence for the period January 1 – October 31, 2026. The upper panel shows hot days in open circles and heat waves in red-filled circles from statewide daily maximum temperatures. The middle panel shows warm days in open circles and warm day spells in red-filled circles from statewide daily maximum temperatures. The bottom panel shows warm nights in open circles and warm night spells in red-filled circles from statewide daily minimum temperatures. The orange line in each panel marks the threshold temperatures of 86°F, 80°F and 68°F for each case. Figures at the county and climate division levels, as well as summary tables, are available on the MDSCO website, along with near-real-time figures.

B. Extreme Precipitation and Dry Spells

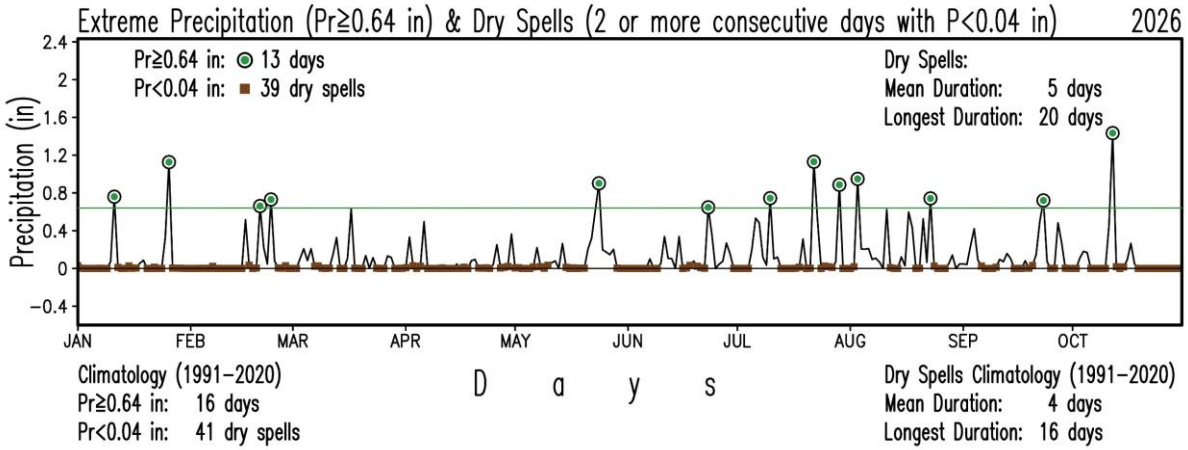

Figure 9. Maryland (statewide) number of days with extreme precipitation and dry spells for the period January 1 – October 31, 2026. Days with extreme precipitation (precipitation of 0.64 in or more) are identified by green-filled circles. Dry spells (consecutive days with daily total precipitation less than 0.04 in) are shown by brown-filled squares. Both extremes are identified from the statewide total daily precipitation. Figures at the county and climate division levels, as well as summary tables, are available on the MDSCO website, along with near-real-time figures.

C. Modified and Simple Growing Degree Day

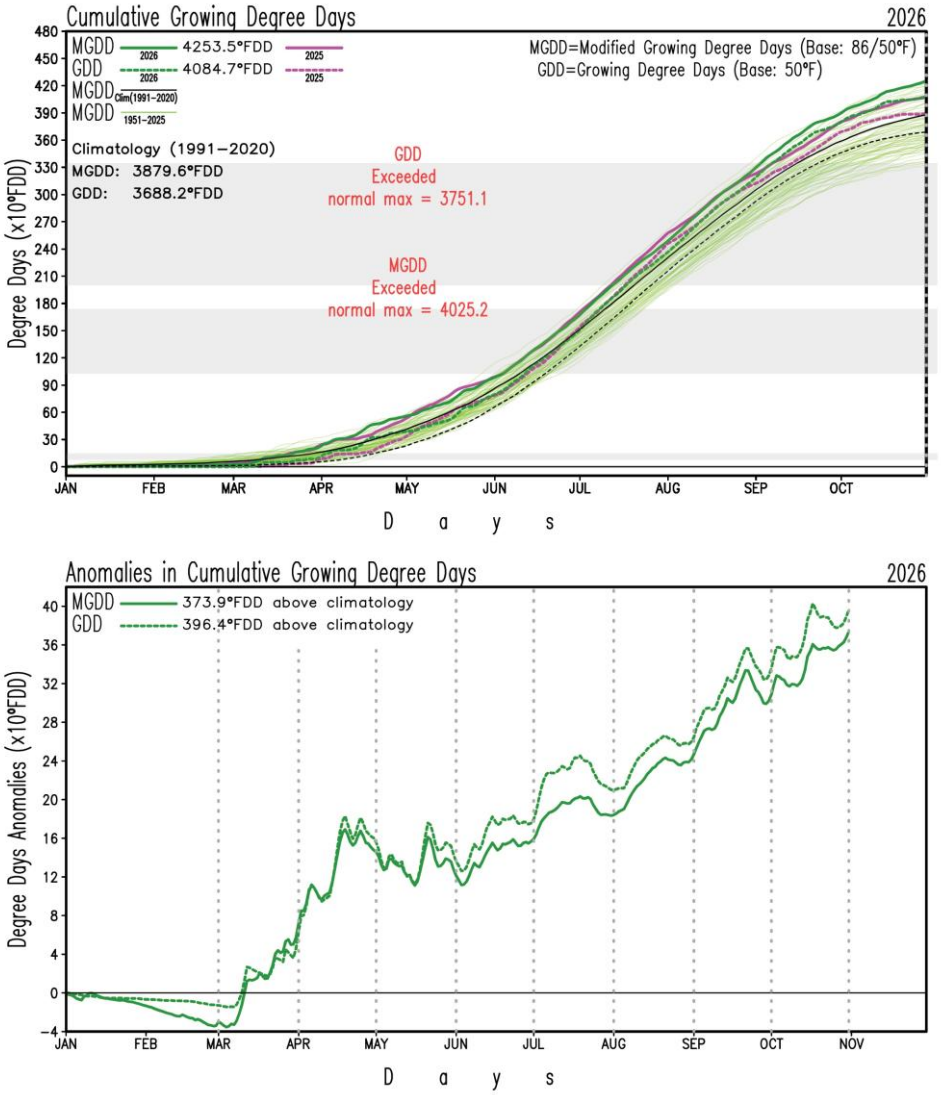

Figure 10. Maryland (statewide) cumulative modified and simple growing degree days (upper panel) and their anomaly with respect to the 1991-2020 climatology (lower panel) for the period January 1 – October 31, 2026. The modified growing degree days are shown with the continuous thick green line in the upper panel and for reference their 1991-2020 climatology and the year 2025 are displayed with continuous black and purple lines, respectively; the continuous thin light-green lines display the cumulative modified growing degree days every year from 1951 to 2024. Similarly, the simple growing degree days are shown as dashed thick lines. The gray-shaded areas mark ranges of values for emergence (82-140), tassel-silk (1024-1740), and physiological maturity (2000-3350) in corn development (IPAD, 2023). The red annotations in the upper panel display how many days ahead of climatology the October 31 accumulated values were. Anomalies relative to the 1991-2020 climatology in the cumulative modified growing degree days are displayed as the continuous green line, while those for the growing degree days are shown as the dashed green line (bottom panel). The vertical dotted gray lines mark the start of the months since March. The accumulated growing degree days and their anomalies as of October 31 are displayed at the top left of each panel. Analysis is from statewide daily maximum and minimum temperatures. Figures at the county and climate division levels, as well as summary tables, are available on the MDSCO website, along with near-real-time figures.

6. October 2026 Statewide Averages in the Historical Record

A. Box and Whisker Plots

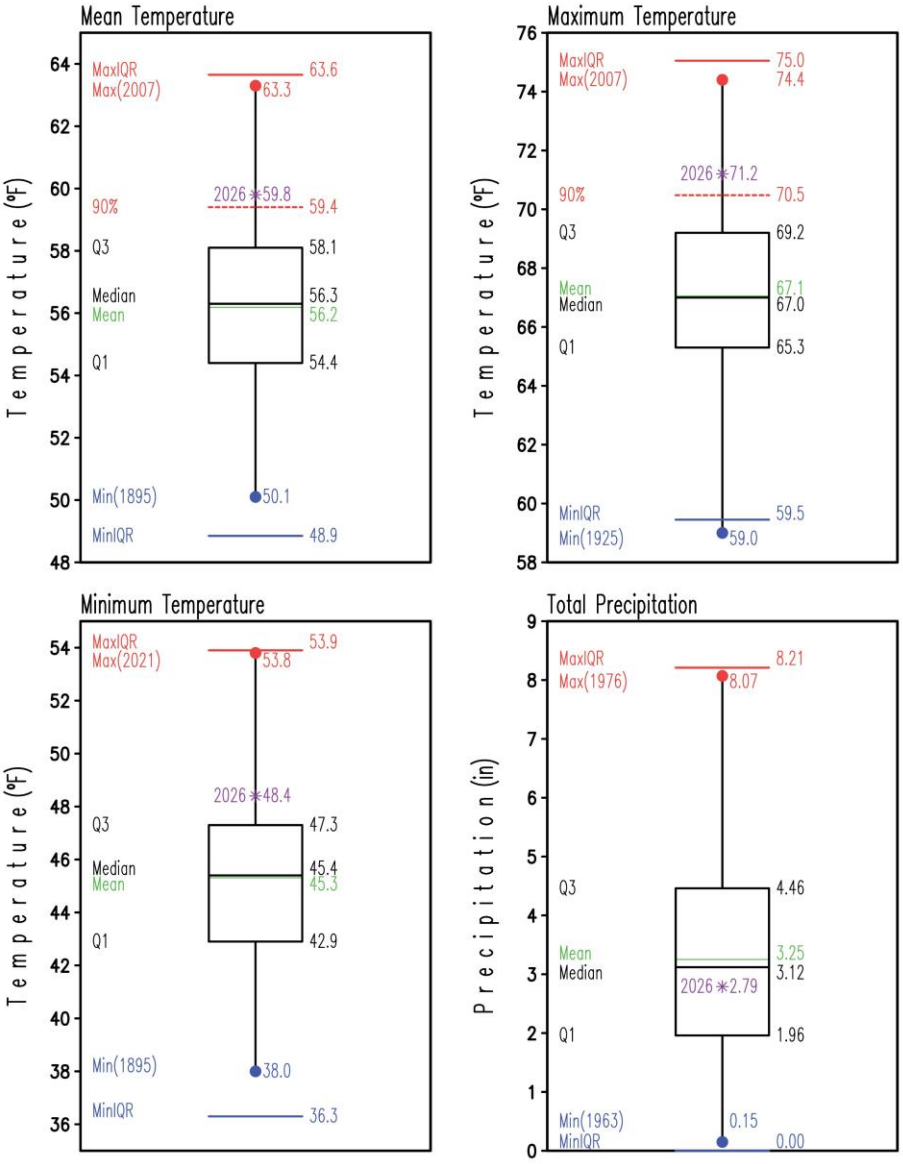

Figure 11. Box and Whisker plots of Maryland (statewide) monthly mean (upper left), maximum (upper right), minimum (lower left) surface air temperatures, and total precipitation (lower right) for October for the period 1895-2025. Conditions for October 2026 are represented by the label and asterisk in purple. Statistics for the period 1895-2025 are labeled at the left side of each box and whisker plot, and their values are at their right. Temperatures are in °F, and precipitation is in inches. The mean is the green line within the box, while the median is the black line within the box. The lower (Q1) and upper (Q3) quartiles, indicating the values of the variable that separate 25% of the smallest and largest values, are the lower and upper horizontal black lines of the box, respectively. For reference, the 90th percentile in the mean and maximum temperatures are displayed with red dashed lines. The blue and red dots mark the minimum and maximum values in the period at the end of the whiskers; the year of occurrence is shown in parentheses. The blue and red horizontal lines represent extreme values defined by Q1-1.5×(Q3-Q1) and Q3+1.5×(Q3-Q1), respectively.

7. 1895-2026 October Trends

A. Statewide Averages in Mean Temperature, Heating Degree Days, and Precipitation

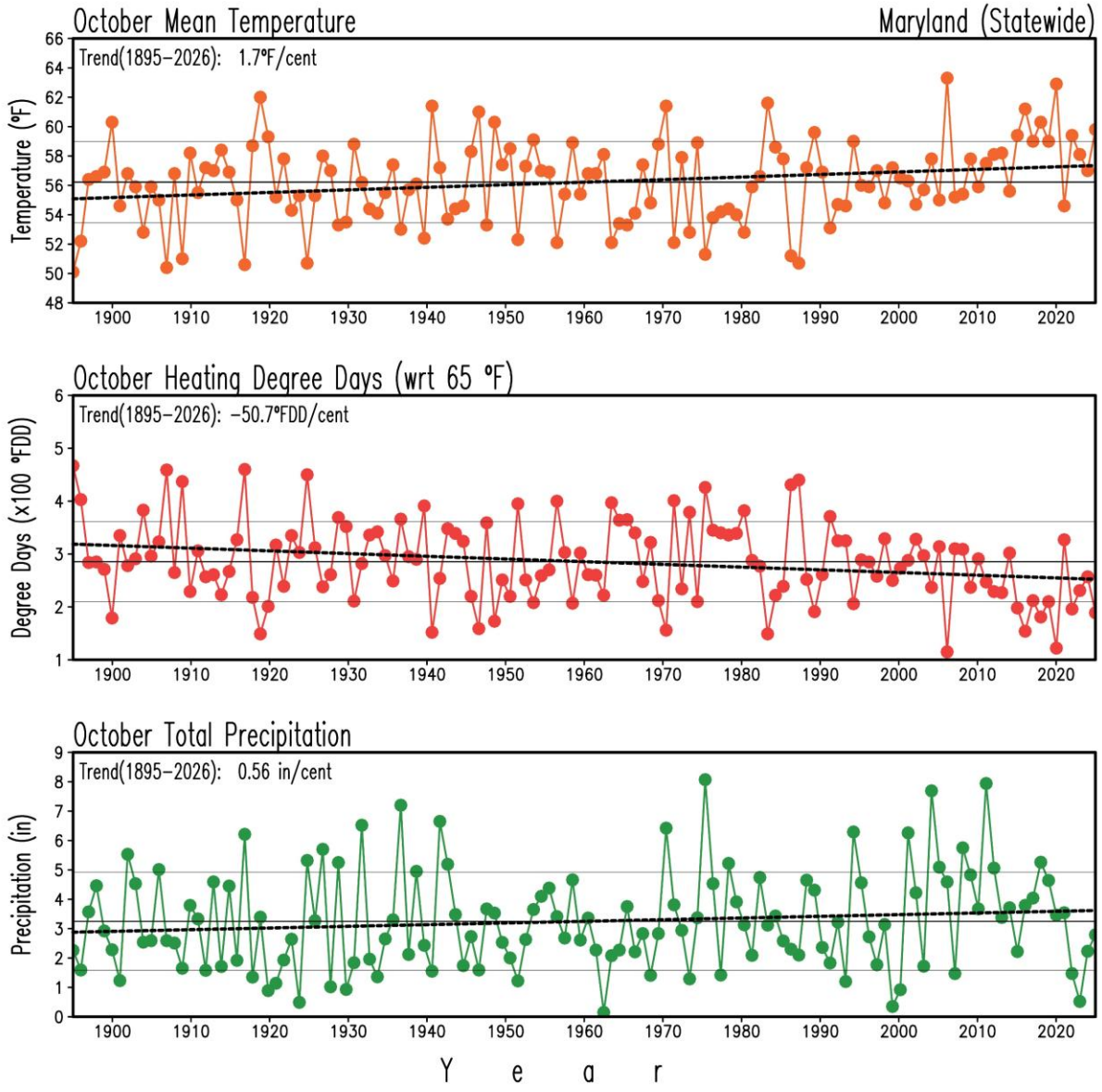

Figure 12. Maryland (statewide) mean surface air temperature, heating degree days, and precipitation in October for the period 1895-2026. Temperature is in °F, heating degree-days are in °F, and precipitation is in inches. The thin, continuous black lines in each panel display the long-term means (56.2°F, 285.5°FDD, and 3.25 in, 1895-2026), and the double thin, continuous gray lines indicate the standard deviation (2.8°F, 75.9°FDD, and 1.67 in) above/below the long-term mean. The thick dashed black lines show the long-term linear trend. The warming temperature trend (1.7°F/century) and the decreasing heating degree-days trend (−50.7°FDD/century) are statistically significant at the 95% level (*Student's t-test* −Santer et al. 2000), but not the wetting precipitation trend (0.56 in/century).

B. Temperature and Precipitation Maps

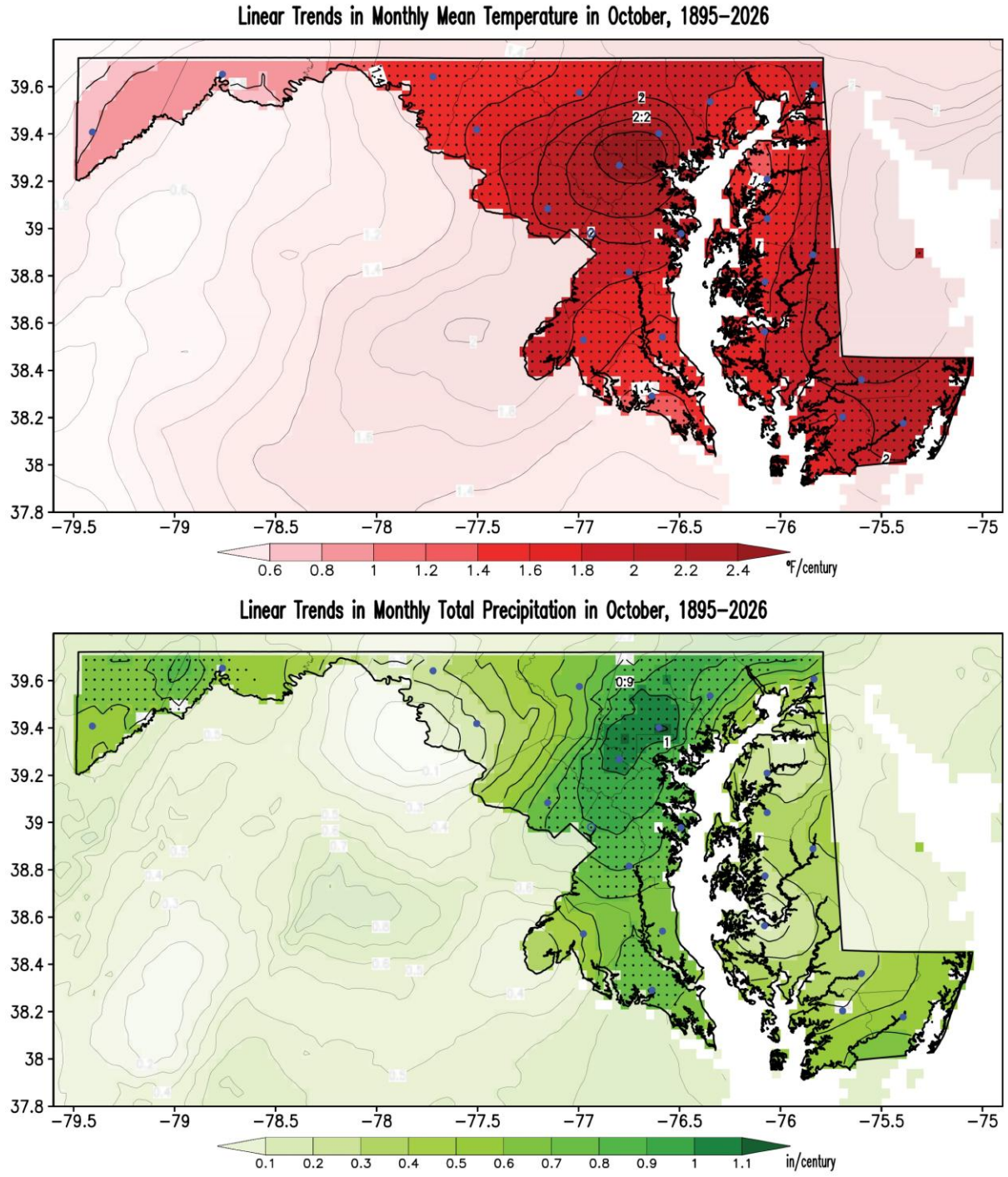

Figure 13. Linear trends in surface air mean temperature and precipitation in October for the period 1895-2026. Temperatures are in °F/century, and precipitation is in inches/century following the color bars. Red shading in the temperature map marks warming trends. Green shading in the precipitation map shows wetting trends. Stippling in the maps indicates regions where trends are statistically significant at the 95% level (*Student's t-test* −Santer et al. 2000). Note that shading outside the state has been washed out to facilitate focus on Maryland. Filled blue circles mark the county seats.

8. Chesapeake Bay's Sea Surface Temperatures

A. October 2026 Sea Surface Temperature Maps

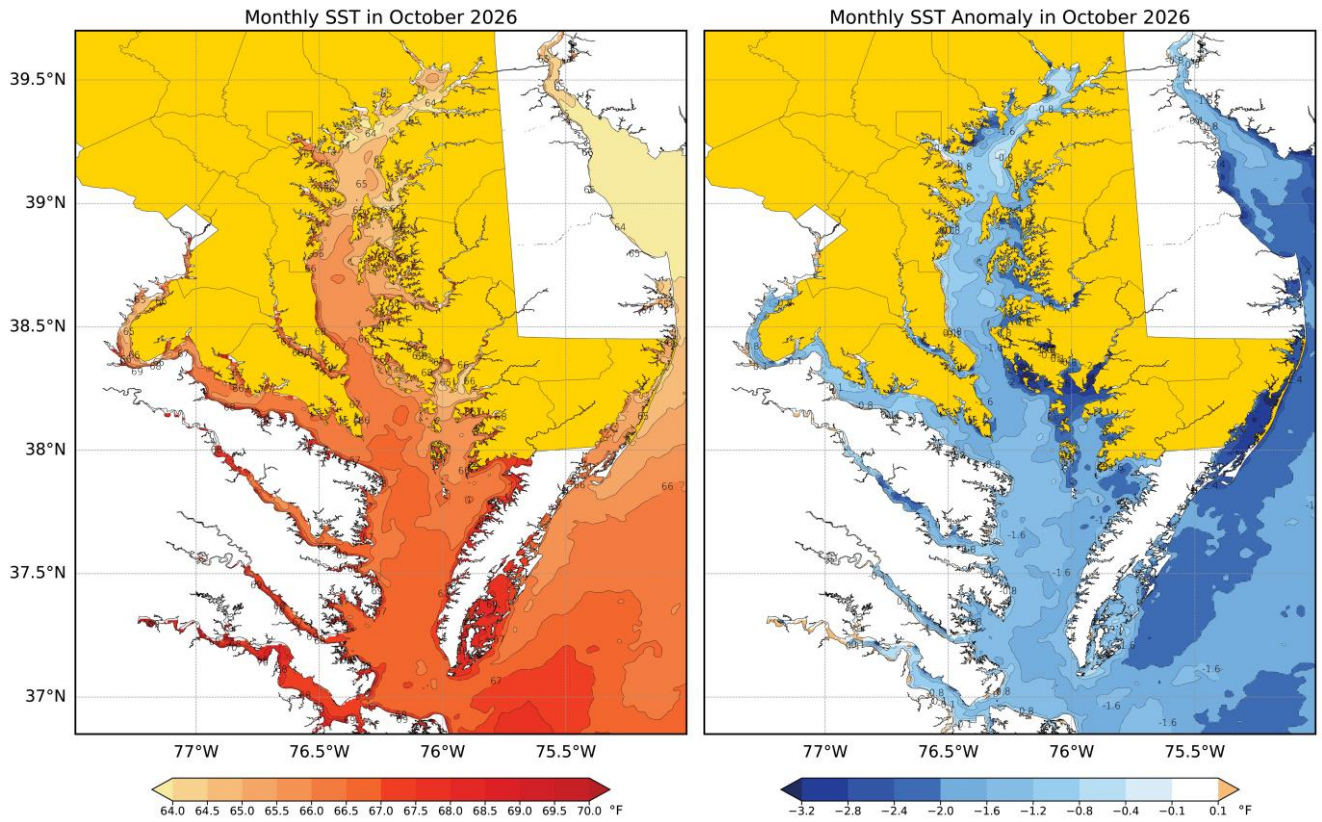

Figure 14. Monthly sea surface temperature (left panel) and its anomaly (right panel) in the Chesapeake Bay and surrounding coastal areas in October 2026. Temperatures are in °F, following the color bar. Blue/orange shading in the anomaly map marks colder/warmer temperatures than the 2007-2020 mean. For clarity, the temperatures and their anomalies have been smoothed using a 9-point spatial smoother applied four times. Note that Maryland has been shaded yellow to facilitate focus on the state waters.

B. October Upper, Middle, Lower, and Entire Basins Sea Surface Temperature Averages

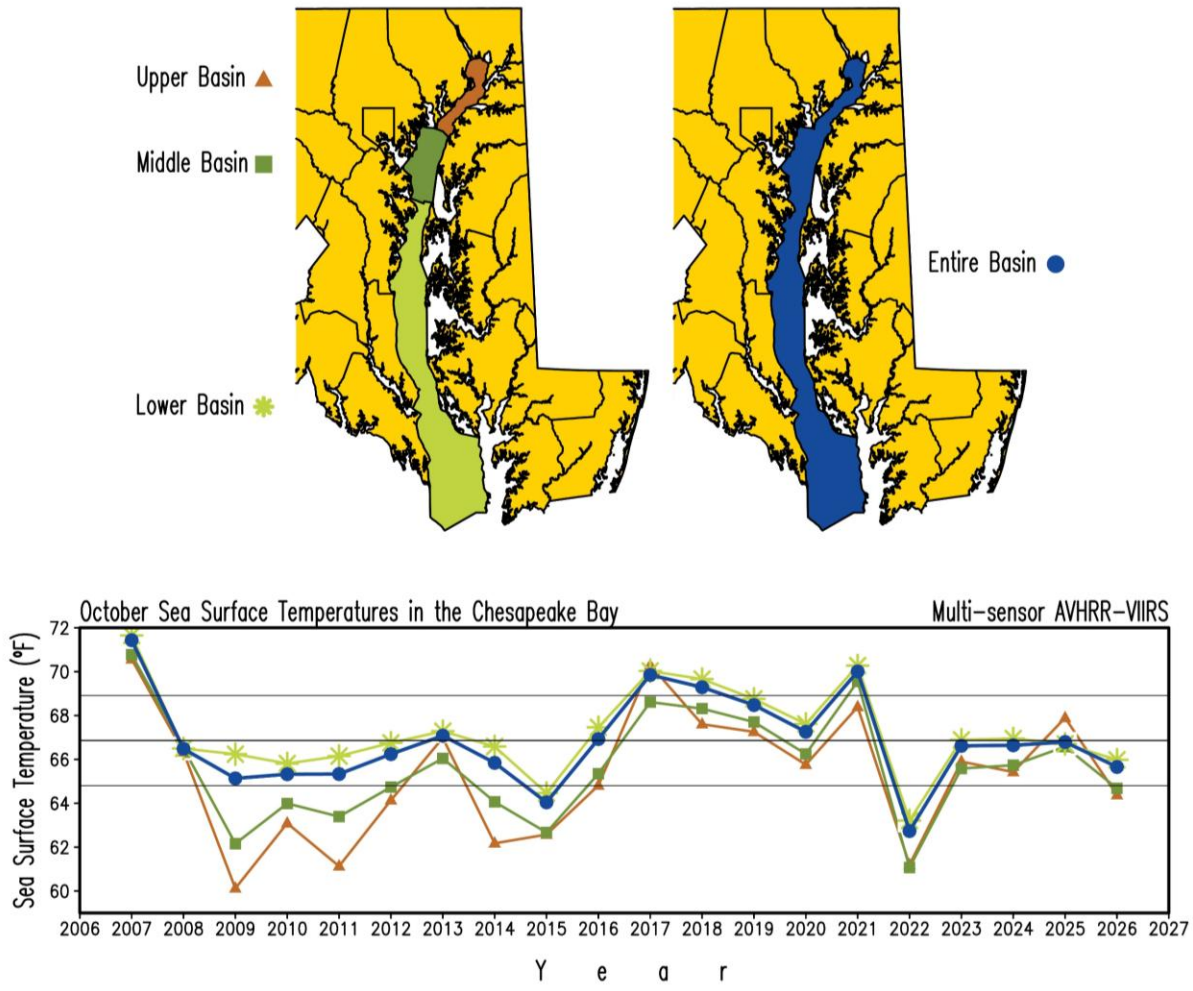

Figure 15. Watersheds in the Chesapeake Bay (top panel) and their area-averaged sea surface temperatures in October for the period 2007-2026 (bottom panel). Temperatures are in °F. The color of the lines corresponds to the color of the watersheds in the Bay, as indicated on the maps: Brown for the Upper Bay, dark green for the Middle Bay, light green for the Lower Bay, and Navy Blue for the Entire Bay. The mean temperature for the Entire basin in October 2026 was 65.7°F, while for the Upper, Middle, and Lower basins was 64.4, 64.7, and 66.0°F, respectively. The thin, continuous black line in the lower panel displays the 2007-2026 mean for the Entire Basin (66.9°F), and the double thin, continuous gray lines indicate the standard deviation (2.1°F) above/below the long-term mean. The 2007-2026 mean October temperatures for the Upper, Middle, and Lower basins were 65.3, 65.7, and 67.2°F, with standard deviations of 2.9, 2.4, and 2.0°F, respectively. Cold records were set in 2022 for the Entire, Middle, and Lower Basins at 62.7°F, 61.1°F, and 63.2°F, respectively, whereas the Upper Basin record of 60.1°F has stood since 2009.

Appendix A. October 2026 Data Tables: Statewide, Climate Divisions, and Counties

A. Mean Temperature and Precipitation

Region	Mean Air Temperature (°F)	Rank (#)
Statewide	59.8	121
Climate Division 1	62.2	118
Climate Division 2	61.5	119
Climate Division 3	61.9	122
Climate Division 4	61.1	120
Climate Division 5	60.7	119
Climate Division 6	58.8	120
Climate Division 7	57.2	120
Climate Division 8	53.4	122
Allegany	57.1	120
Anne Arundel	61.3	119
Baltimore	59.1	120
Baltimore City	60.8	120
Calvert	61.8	121
Caroline	60.8	122
Carroll	57.7	121
Cecil	59.3	118
Charles	61.8	122
Dorchester	61.8	119
Fredrick	58.0	119
Garrett	53.4	122
Harford	59.2	118
Howard	59.0	120
Kent	60.6	116
Montgomery	59.4	121
Prince George's	60.8	121
Queen Anne's	60.9	120
Saint Mary's	62.1	121
Somerset	62.5	116
Talbot	61.8	120
Washington	57.2	117
Wicomico	61.5	118
Worcester	62.4	119

Region	Total Precipitation (in)	Rank (#)
Statewide	2.79	62
Climate Division 1	2.16	42
Climate Division 2	2.32	44
Climate Division 3	2.82	61
Climate Division 4	2.86	65
Climate Division 5	2.76	63
Climate Division 6	2.94	64
Climate Division 7	3.30	81
Climate Division 8	3.32	81
Allegany	3.39	87
Anne Arundel	2.86	63
Baltimore	3.24	73
Baltimore City	3.26	80
Calvert	2.74	57
Caroline	2.35	43
Carroll	2.67	54
Cecil	3.01	67
Charles	3.02	74
Dorchester	2.25	44
Fredrick	2.79	62
Garrett	3.33	81
Harford	3.31	80
Howard	2.55	54
Kent	2.87	65
Montgomery	2.78	61
Prince George's	2.87	64
Queen Anne's	2.71	62
Saint Mary's	2.58	53
Somerset	1.95	35
Talbot	2.54	52
Washington	3.21	76
Wicomico	2.26	43
Worcester	2.25	45

Table A1. Monthly mean surface air temperature (left) and total precipitation (right) at Maryland (statewide), climate division, and county levels for October 2026. Temperatures are in °F, and precipitation is in inches. The rank is the position the variable for October 2026 occupies among the 132 Octobers, after the 132 values have been arranged from lowest to highest using the *standard competition ranking method*. The closer to 132 the rank is, the larger (i.e., the warmer/wetter) the value of the surface variable is in the record; similarly, the closer to 1 the rank is, the smaller (i.e., the colder/drier) the value of the surface variable is in the record.

B. Maximum and Minimum Temperatures

Region	Maximum Air Temperature (°F)	Rank (#)
Statewide	71.2	123
Climate Division 1	72.8	122
Climate Division 2	72.6	124
Climate Division 3	72.8	122
Climate Division 4	72.1	122
Climate Division 5	71.5	122
Climate Division 6	70.3	123
Climate Division 7	70.7	126
Climate Division 8	66.3	126
Allegany	70.9	126
Anne Arundel	71.8	120
Baltimore	70.6	124
Baltimore City	71.4	122
Calvert	72.5	123
Caroline	72.5	125
Carroll	69.7	123
Cecil	70.2	123
Charles	73.0	122
Dorchester	72.8	121
Fredrick	69.8	122
Garrett	66.4	126
Harford	70.2	122
Howard	70.7	123
Kent	71.0	118
Montgomery	70.8	123
Prince George's	72.4	123
Queen Anne's	71.7	122
Saint Mary's	72.6	120
Somerset	72.8	121
Talbot	72.2	125
Washington	70.4	124
Wicomico	73.0	122
Worcester	72.8	124

Region	Minimum Air Temperature (°F)	Rank (#)
Statewide	48.4	110
Climate Division 1	51.5	110
Climate Division 2	50.4	114
Climate Division 3	51.1	115
Climate Division 4	50.0	112
Climate Division 5	49.9	116
Climate Division 6	47.4	110
Climate Division 7	43.6	101
Climate Division 8	40.3	101
Allegany	43.3	107
Anne Arundel	50.8	113
Baltimore	47.6	109
Baltimore City	50.3	112
Calvert	51.0	114
Caroline	49.0	115
Carroll	45.8	110
Cecil	48.4	104
Charles	50.7	119
Dorchester	50.9	112
Fredrick	46.2	108
Garrett	40.4	103
Harford	48.2	108
Howard	47.3	112
Kent	50.1	115
Montgomery	48.1	111
Prince George's	49.2	111
Queen Anne's	50.0	118
Saint Mary's	51.6	115
Somerset	52.1	109
Talbot	51.4	115
Washington	43.9	93
Wicomico	50.0	107
Worcester	51.9	109

Table A2. Monthly maximum (left) and minimum (right) surface air temperatures at Maryland (statewide), climate division, and county levels for October 2026. Temperatures are in °F. The rank is the position the variable for October 2026 occupies among the 132 Octobers, after the 132 values have been arranged from lowest to highest using the *standard competition ranking method*. The closer to 132 the rank is, the larger (i.e., the warmer) the value of the surface variable is in the record; similarly, the closer to 1 the rank is, the smaller (i.e., the colder) the value of the surface variable is in the record.

Appendix B. October 2026 Bar Graphs: Statewide, Climate Divisions, and Counties

A. Temperatures and Precipitation

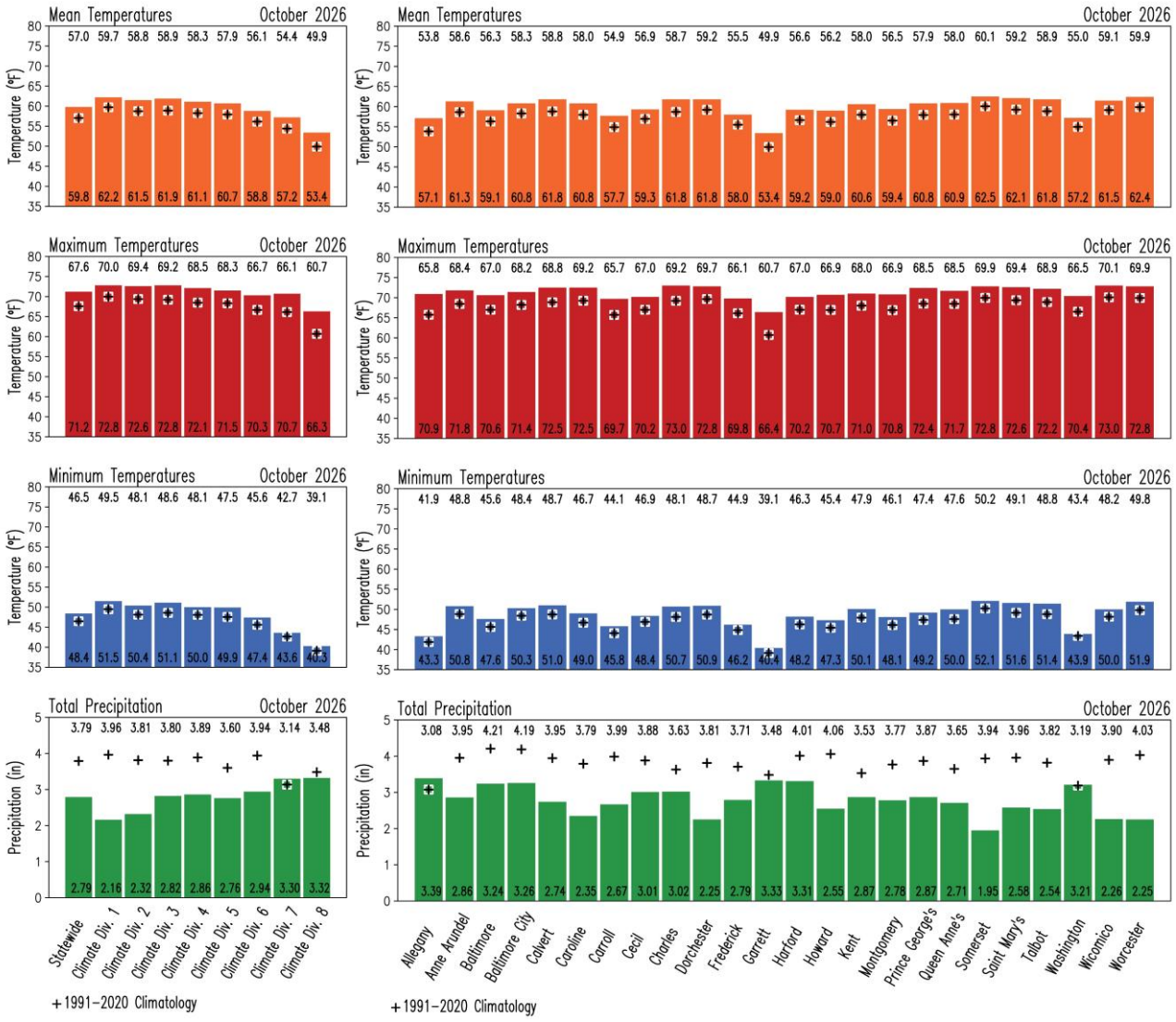

Figure B1. Monthly surface variables for Maryland in October 2026. Color bars represent the variables as follows: mean surface air temperature (orange), maximum surface air temperature (red), minimum surface air temperature (blue), and total precipitation (green) at statewide and climate division (left column), and county (right column) levels. Temperatures are in °F, and precipitation is in inches. The numbers at the base of the bars indicate the magnitude of the variable for October 2026. For comparison, the corresponding 1991-2020 climatological values for October are displayed as black addition signs, and their magnitudes are shown at the top of the panels.

B. Temperatures and Precipitation Anomalies

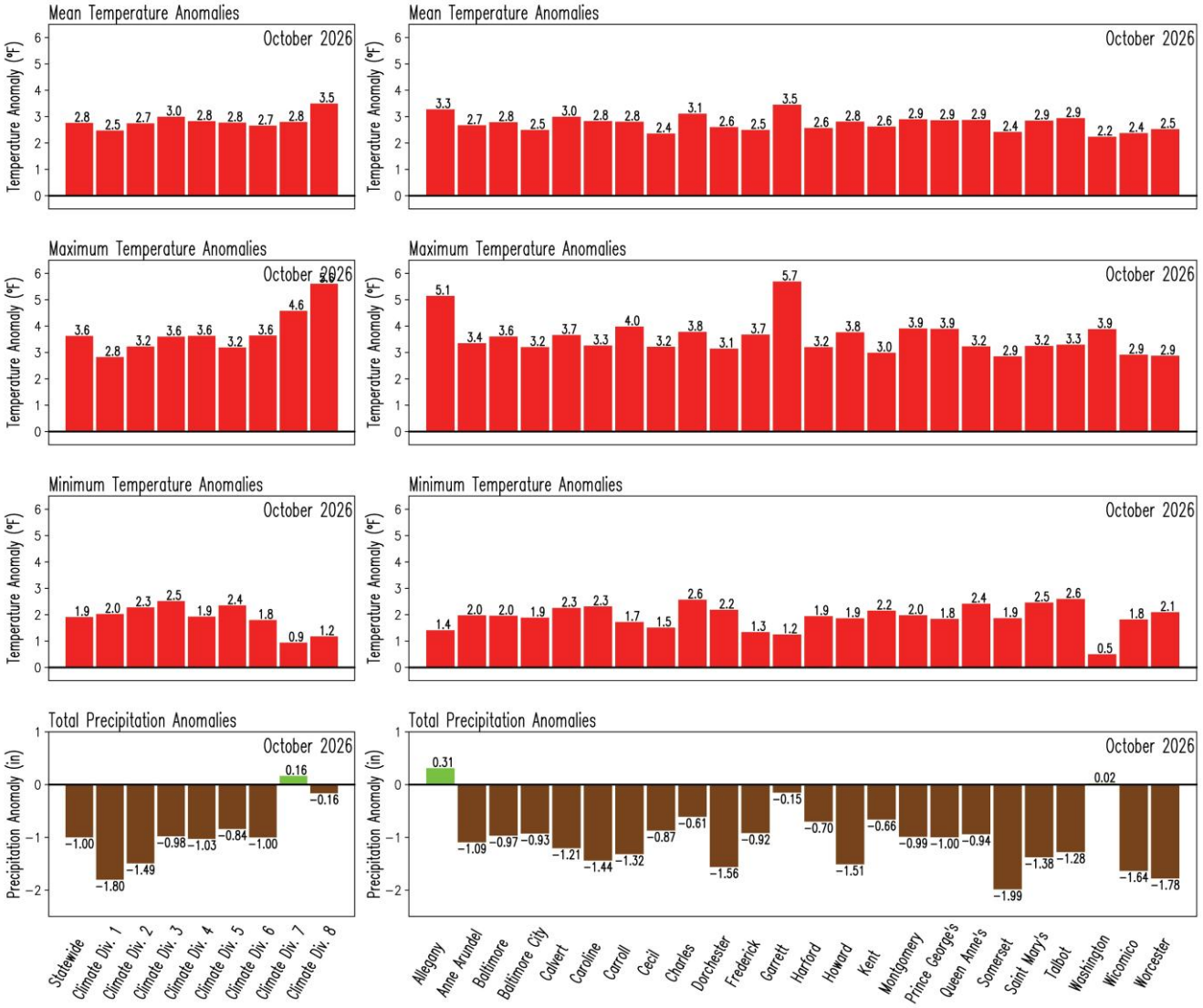

Figure B2. Anomalies in the monthly surface variables for Maryland in October 2026. Anomalies are with respect to the 1991-2020 climatology. Red color represent positive (warmer than normal) anomalies for mean surface air temperature (upper row), maximum surface air temperature (second row from top), and minimum surface air temperature (third row from top), while green/brown color indicates positive/negative (wetter/drier than normal) anomalies in total precipitation (bottom row) at statewide and climate division (left column) and county (right column) levels. Temperatures are in °F, and precipitation is in inches. The numbers outside the bars indicate the magnitude of the anomaly for October 2026.

Appendix C. October 1991-2020 Climatology and October 2026 Precipitation as Percentage of Climatology Maps

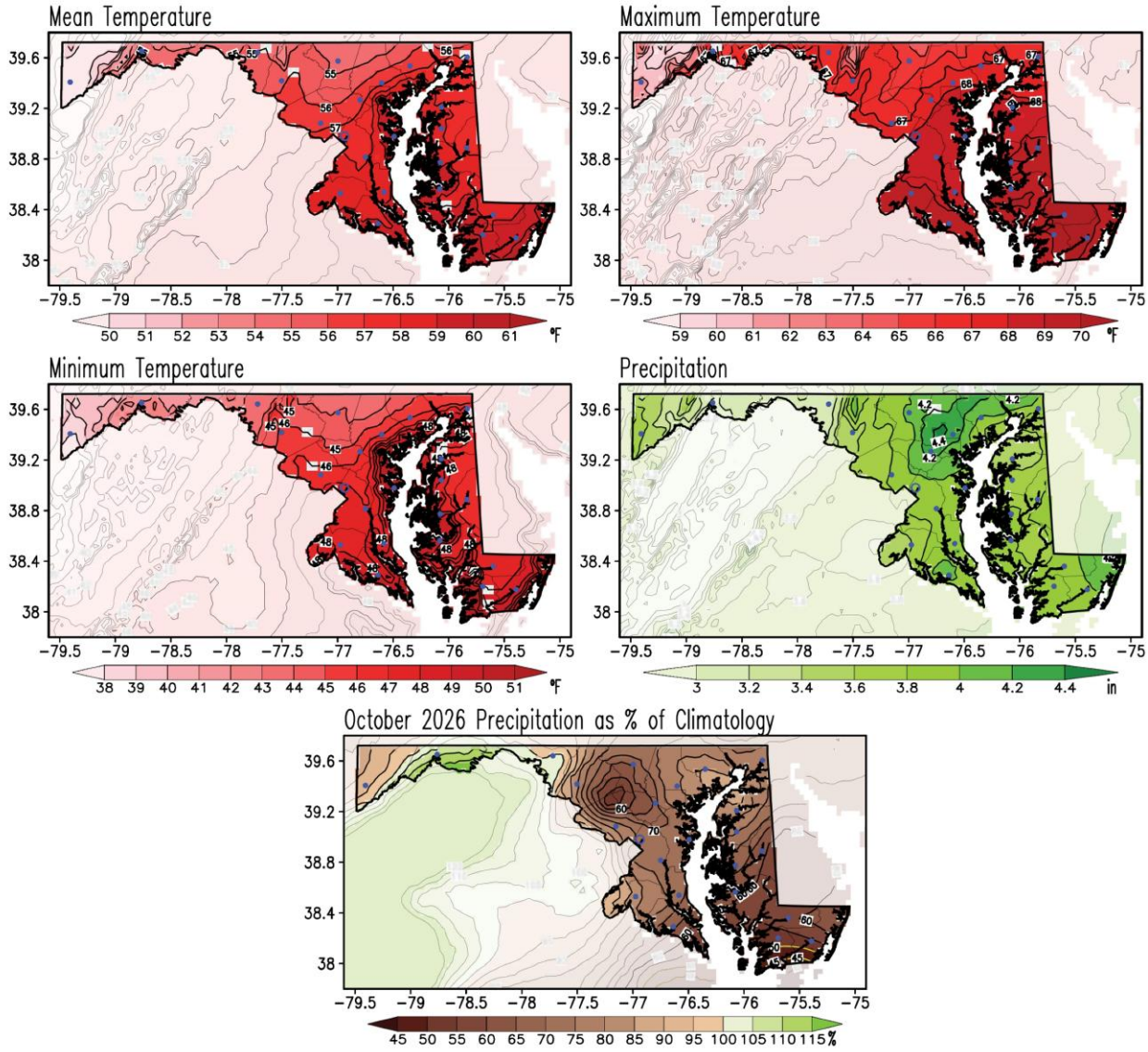

Figure C1. October climatology of the monthly mean, maximum, and minimum surface air temperatures, and total precipitation for the period 1991-2020 (upper and middle rows), and precipitation in October 2026 as a percentage of climatology (bottom row). Temperatures are in °F, and precipitation in inches according to the color bars. This is the current climate normal against which the October 2026 conditions are compared to obtain the October 2026 anomalies (from Figures 1 to 4). Precipitation as a percentage is calculated by dividing the total precipitation (from Figure 4) by the climatology (from the middle right panel) and multiplying that ratio by 100, so the units are expressed as a percentage of the climatology (%); the brown/green shading in this map indicates drier/wetter than normal conditions, and yellow isolines are for percentages equal to or less than 50%. Note that shading outside the state has been washed out to facilitate focus on Maryland. Filled blue circles mark the county seats.

Appendix D. October Standard Deviation and October 2026 Standardized Anomalies Maps

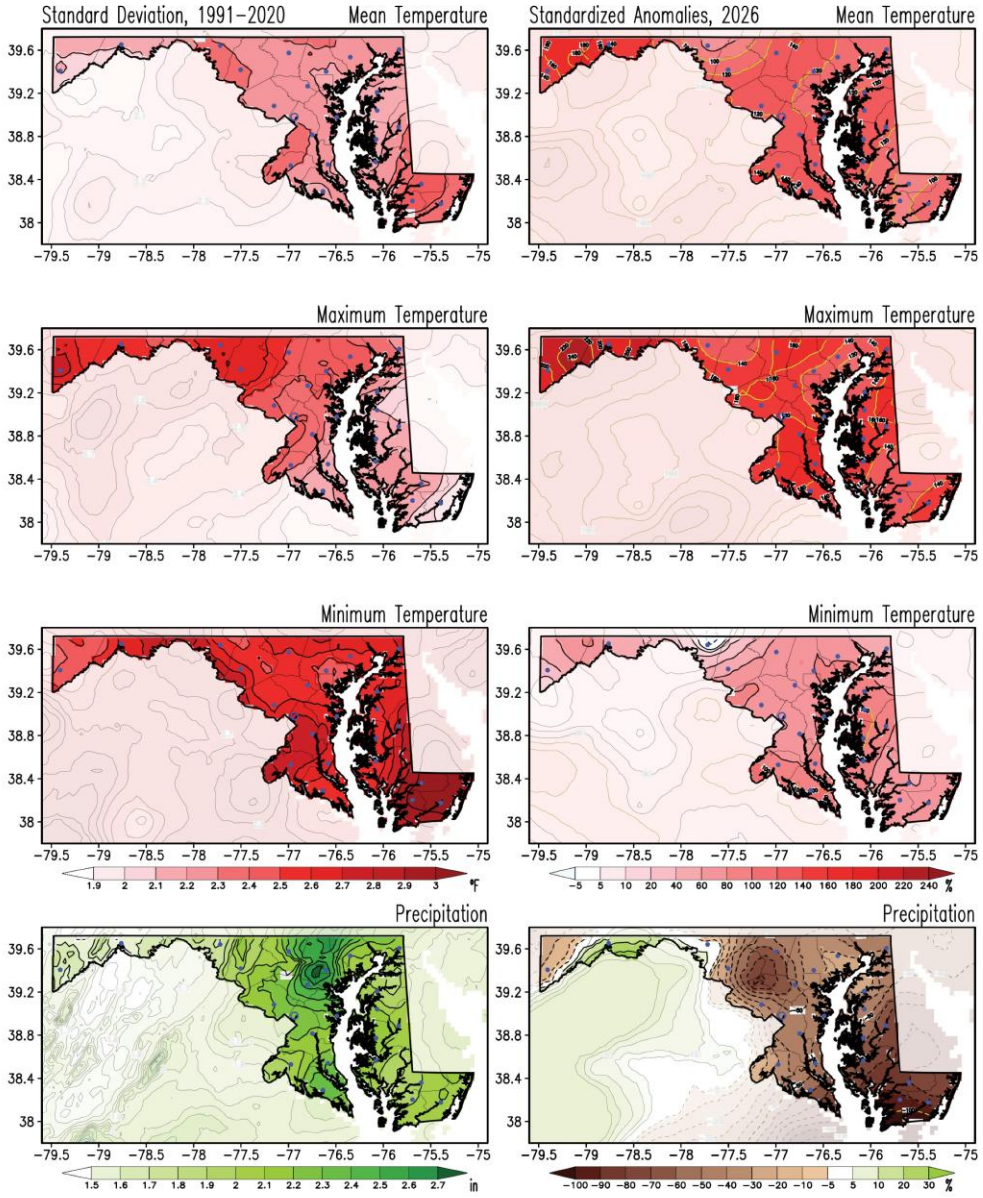

Figure D1. Standard deviation for October and standardized anomalies of temperatures and precipitation for October 2026. Standard deviations for monthly mean, maximum, and minimum surface air temperatures and total precipitation were obtained from the 1991-2020 period (left column). Anomalies for October 2026 (right column) are obtained as a percentage of the standard deviations. The standard deviations for temperature are in °F, and those for precipitation are in inches according to the color bars. Blue/red shading in the anomaly temperature maps marks colder/warmer-than-normal conditions; brown/green shading in the anomaly precipitation map marks drier/wetter than normal conditions. The standardized anomalies are obtained by dividing the raw anomalies (from Figures 1 to 4) by the standard deviation (from left column panels) and multiplying the ratio by 100; hence, the units are in percent (%); yellow isolines highlight anomalies larger than ±1 standard deviation. Note that shading outside the state has been washed out to facilitate focus on Maryland. Filled blue circles mark the county seats.

Appendix E. October 2007-2020 Mean and Standard Deviation of Sea Surface Temperature Maps

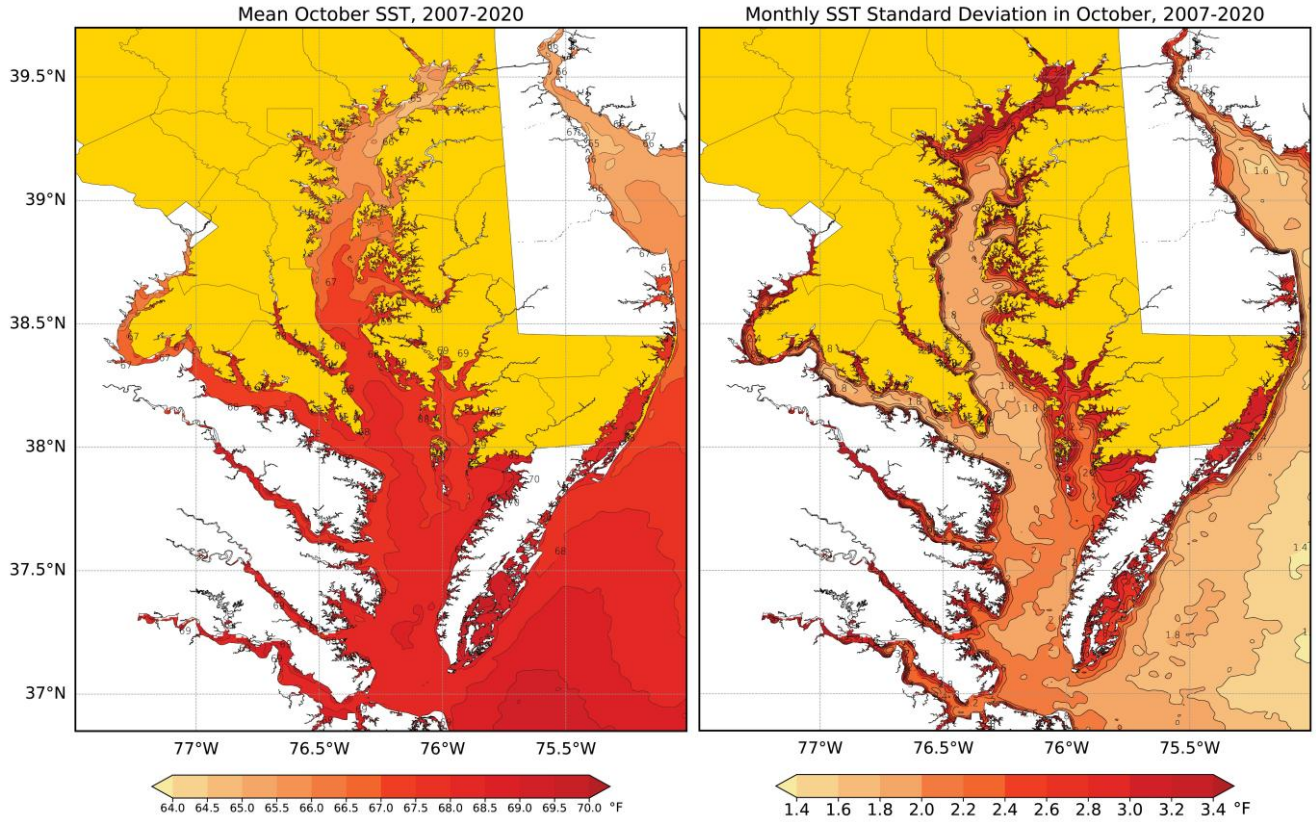

Figure E1. Mean (left panel) and standard deviation (right panel) of sea surface temperatures in the Chesapeake Bay and surrounding coastal areas in October for the period 2007-2020. The mean and standard deviation of the temperatures are in °F according to the color bars. The mean temperature map is the current mean against which October 2026 conditions are compared to obtain October 2026 anomalies (see Figure 14). For clarity, the mean and standard deviation of the temperature have been smoothed using a 9-point spatial smoother, applied four times. To facilitate comparison between the mean October map (left panel) and the October 2026 map (Figure 14, left panel), the shading schemes are the same. Note that Maryland has been shaded yellow to facilitate focus on the state waters.

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