MDSCO-2025-Y

Maryland Climate Bulletin Annual 2025

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DEPARTMENT OF
ATMOSPHERIC &
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Maryland
State
Climatologist
Office

Summary

Statewide averages show that 2025 was warmer and drier than normal (i.e., 1991-2020 averages), as it has been in the previous three years. Regionally, annual mean temperatures were in the 48−58°F range, annual maximum temperatures were between 58 and 68°F, and annual minimum temperatures were in the 38−49°F range. Annual-accumulated precipitation was between 32 and 50 inches. For simplicity, unless specified otherwise, temperatures will refer to annually averaged monthly temperatures, and precipitation to annually accumulated monthly precipitation.

Maryland Regional Features (Figures 1-4, C1, and D1)

- The mean temperature was warmer than normal over most of the state, particularly over Garrett County (1.0−1.5°F), western Montgomery and Frederick counties (0.6−0.7°F), western Charles County (0.5−0.6°F), and parts of Carroll, Baltimore, Howard, and northern Anne Arundel counties (0.4−.5°F). Slightly cooler-than-normal temperatures developed across the counties in the eastern half of the Eastern Shore.

- The maximum temperature was warmer than normal over the majority of the state, notably over Garrett County (1.4−1.7°F), eastern Allegany and western Washington counties (0.9°F), and parts of Montgomery, Frederick, Carroll, Baltimore, Howard, Anne Arundel, and Charles counties (0.4−0.5°F). Colder-than-normal conditions developed over the counties of the Eastern Shore and northeastern Piedmont, especially over Cecil County (1.0−1.1°F below).

- The minimum temperature was warmer than normal in almost the entire state, especially over Garrett County (1.2−1.4°F), western Montgomery and Frederick counties (0.6−1.0°F), Charles County (0.6−0.9°F), northern Harford and Cecil counties (0.5−0.7°F), and parts of Calvert, Talbot, and Dorchester counties (around 0.5°F). Slightly colder-than-normal conditions appeared over eastern Allegany and western Washington counties.

- Precipitation was below normal in almost the whole state, notably over portions of Montgomery and Frederick counties (12−13 inches deficit), portions of Howard and Carroll counties (9−11 inches deficit), and parts of Harford, Cecil, Kent, and Queen Anne's counties (8−10 inches deficit). These regions received 21−30%, 21−24%, and 18−21% less annual precipitation than normal, respectively. Slightly wetter than normal conditions appeared only over the northwest tip of Garrett County.

Maryland Statewide & Climate Divisions (Figures 5-7, B1, and B2)

- The monthly evolution of statewide mean temperatures and precipitation in 2025 showed that in seven of the twelve months, the state was warmer than normal, and that in eight of the twelve months, the state was drier than normal. The maximum positive departure from normal in the mean temperature occurred in March (5.6°F above), while the maximum negative departure was in December (4.7°F below). The maximum positive deviation in precipitation occurred in May (3.74 inches excess), and the maximum negative departure was in August (2.50 inches deficit). The month-to-month variability of the mean

temperature mirrored that of the minimum temperature, which drove above-normal mean temperatures in May and below-normal temperatures in November, counteracting the below-normal and above-normal departures in maximum temperature in these two months. The months with the coldest anomalies in the mean temperature (January, August, and December) had anomalies equal to or exceeding the all-month standard deviation (3.0°F), as did the warmest month (March); the anomalies in the maximum and minimum temperatures in these months also exceed their own all-month standard deviations (3.3 and 2.9°F, respectively). Above-normal precipitation occurred only in May and July, with the former exceeding the all-month standard deviation (1.6 inches), resulting in a spring with above-normal precipitation despite below-normal precipitation in March and normal April. August was the driest month of the year, and after it, the subsequent months had below-normal precipitation.

- The statewide mean temperatures in six of the eight climate divisions were warmer than normal, and the statewide precipitation in all eight climate divisions was drier than normal in 2025. Climate Division 8, Allegheny Plateau, had the warmest departure from normal (1.2°F), while Climate Division 6, North Central, had the driest departure (9.30 inches deficit). Climate Division 5, Northeastern Shore, and Climate Division 1, Southeastern Shore, were slightly colder than normal.

- The statewide mean temperature and precipitation anomalies have remained warmer and drier than normal in the last three years. The temperature anomaly in 2025 (0.3°F) was slightly above normal, reflecting mixed cold and warm anomalies across the state, whereas the anomalies in 2024 (2.1°F) and 2023 (1.9°F) were much higher due to homogeneous above-normal coverage across the state. On the other hand, the drier-than-normal precipitation anomalies in 2025 (7.00 inches deficit), 2024 (5.77 inches deficit), and 2023 (7.15 inches deficit) have been consistently high, reflecting a homogeneous distribution of drier-than-normal anomalies across the state.

Statewide Extremes in 2025 (Figures 8–11)

- The number of statewide hot days (daily maximum temperatures greater than 86°F) was fewer than normal by 4 days (44 vs. 48), with a normal number of heat waves (9) in 2025. The first heat wave began 20 days later than normal (June 13 vs. May 24), whereas the last wave began 21 days earlier (August 13 vs. September 3). The mean duration of the heat waves was normal (5 days), but the duration of the longest wave was 3 days shorter than normal (8 vs. 11). The hottest statewide maximum temperature of 98.3°F occurred on June 25.

- The number of statewide warm days (daily maximum temperatures greater than 80°F) was fewer than normal by 5 days (96 vs. 101), but the number of warm-day spells was greater by 2 spells (13 vs. 11) in 2025. The first warm-day spell started as normal (April 30), but the last spell started 5 days later than normal (September 26 vs. September 21).

The mean duration of the warm-day spells was shorter than normal by 2 days (7 vs. 9), but the duration of the longest spell was longer than normal by 1 day (34 vs. 33).

- The number of statewide warm nights (daily minimum temperatures greater than 68°F) was greater than normal by 11 nights (38 vs. 27), but the number of warm-night spells was fewer than normal by 1 spell (5 vs. 6) in 2025. The first warm-night spell started 1 day earlier than normal (June 22 vs. June 23), but the last spell started 15 days earlier (August 13 vs. August 28). The mean duration of the warm-night spells was longer than normal by 3 days (7 vs.4), while the duration of the longest spell was longer by 6 days (14 vs. 8). The warmest statewide minimum temperature of 75.3°F occurred on June 24.

- The number of statewide freezing days (daily minimum temperatures equal to or less than 32°F) was greater than normal by 3 days (93 vs. 90), but the number of freezing spells was fewer than normal by 2 spells (12 vs 14) in 2025. Similarly, the number of statewide moderate freezing days (daily minimum temperatures equal to or less than 28°F) was greater than normal by 4 days (63 vs. 59), but the number of moderate freezing spells was fewer than normal by 2 spells (10 vs. 12). The number of severe freezing days (daily minimum temperatures equal to or less than 24°F) was 8 days greater than normal (43 vs. 35), with a normal number of severe freezing spells (8). The mean duration of the freezing spells was longer than normal by 1 day (8 vs. 7), and the duration of the longest spell was longer by 5 days (29 vs. 24). The mean duration of the moderate freezing spells was longer than normal by 1 day too (6 vs. 5), and the duration of the longest spell was longer by 2 days (16 vs. 14). The mean duration of the severe freezing spells was also longer than normal by 1 day (5 vs. 4), and the duration of the longest spell was longer by 3 days (13 vs. 10). The coldest statewide minimum temperature of 4.7°F occurred on January 23.

- The statewide growing season lasted 3 fewer days than normal (214 vs. 217) in 2025. It started 10 days later than normal (April 11 vs. April 1) and ended 7 days later (November 10 vs. November 3).

- The statewide vegetation period lasted 17 fewer days (276 vs. 293) than normal in 2025. It started 9 days later than normal (February 25 vs. February 16) and ended 8 days earlier than normal (November 27 vs. December 5).

- The number of statewide dry spells (two or more consecutive days with daily total precipitation less than 0.04 inches) within the vegetation period was fewer than normal by 4 spells (34 vs. 38), and the number of dry spells within the calendar year was fewer than normal by 2 spells (46 vs. 48) in 2025. The mean duration of the dry spells in the vegetation period was normal (5 days), while the duration of the longest spell was shorter

by 2 days (14 vs. 16); similarly, the mean duration of the dry spells in the calendar year was also normal (5 days) while the duration of the longest spell was shorter by 1 day (16 vs. 17).

- The number of statewide days with extreme precipitation (total daily precipitation equal to or greater than the 95th percentile: 0.64 inches) was 5 days fewer than normal (14 vs. 19) in 2025.

- Statewide cumulative modified growing degree days and growing degree days were above normal since middle March and late March, respectively, in 2025.

Historical Context (Figure 12, Tables A1 and A2)

- The statewide mean, maximum, and minimum temperatures in 2025 (55.7, 65.5, and 45.8°F) were above their (1895-2024) long-term means and within 25% of their highest values but still far from their warmest records of 57.5, 67,7 and 47.5 °F set in 2024, 2023, and 2020, respectively. In 2025, statewide mean, maximum, and minimum temperatures were the twenty-third, twenty-eighth, and seventeenth warmest on record, respectively. Among the counties, Garrett County got its thirteenth warmest year in the mean, maximum, and minimum temperatures, while Charles County had its thirteenth warmest year in the mean and minimum temperatures since 1895. Montgomery and Cecil counties recorded their fifteenth warmest year for minimum temperature.

- Statewide precipitation (38.23 inches) in 2025 was below its (1895-2024) long-term mean and within 25% of the smallest values but still far from the driest record of 23.28 inches set in 1930. In 2025, statewide precipitation was the twenty-seventh driest year on record. Among the counties, Frederick County had its sixth driest year since 1895, Montgomery had its tenth driest, Washington County had its eleventh, and Kent County had its thirteenth.

Annual Trends: 1895-2024 & 1951-2024 (Figures 13, 14, 15)

- Statewide mean temperature, cooling degree days, heating degree days, and precipitation showed significant trends in the period 1895-2025. A warming trend (2.2°F/century), an increasing trend in cooling degree days (241.8°FDD/century), a decreasing trend in heating degree days (−625.1°FDD/century), and a wetting trend in precipitation (2.74 in/century).

- Regionally, mean temperatures showed significant warming trends everywhere in the state for the 1895-2025 period. Notably, the largest trend is in Baltimore City (3.0°F/century). Trends above 2.4°F/century are also evident over Montgomery, Howard,

Carroll, Baltimore, Harford, and Cecil counties, and over northern Anne Arundel, Prince George's, and the counties of the Eastern Shore.

- Regionally, precipitation had significant wetting trends over large regions in the state in the same 1895-2025 period. In particular, to the northwest of Baltimore City, over Baltimore, and Howard counties (4.5−5.5 in/century), over Montgomery, Howard, Anne Arundel, Prince George's, Carroll, Baltimore, Harford, and Cecil counties (3.5−4.0 in/century), and over portions of Garrett, Calvert, Saint Mary's counties and Somerset and Worcester counties (3.5−4.0 in/century).

- The statewide duration of the growing season, the duration of the vegetation period, and the number of dry spells within the vegetation period displayed significant increasing trends in the period 1951-2025 of 4.3 days/decade, 5.4 days/decade, and 0.7 spells/decade, respectively. On the other hand, the number of dry spells within the calendar year and the number of days with extreme precipitation showed no significant trends.

Chesapeake Bay Sea Surface Temperatures (Figures 16, 17, 18, E1)

- The sea surface temperatures in the Chesapeake Bay in 2025 were in the 59–61°F range. Regionally, they were colder than the 2007-2020 mean everywhere, except for the western and northern coastal areas in the Upper Basin. The coldest anomalies developed in the western coastal waters of the Middle Basin, and rivers such as Patuxent and Potomac in the west and Choptank in the east (1.2−2.7°F below); less cold anomalies appeared in the central waters in the Middle basin, the Tangier Sound, the Pocomoke Sound and the Chincoteague Bay (0.9−1.2°F below), and the central waters of the Lower Basin (0.1−0.3°F below). The all-basin mean temperature of 60.0°F was slightly below the 2007-2020 base-period mean (60.3°F) and far from the coldest annual temperature in the 19-year dataset (2007-2025), which was 58.4°F in 2014.

- The monthly evolution of the Entire Basin mean sea surface temperatures in 2025 showed that in seven of the twelve months, the basin was colder than the 2007-2020 base period mean, with a maximum negative departure from the mean in December (2.5°F below), although the maximum absolute departure was in April when it was warmer than the mean (2.6°F). Because of the size of the basins, the Lower Basin contributes more to the month-to-month variability of the Entire Basin, as was evident in October, when the Lower Basin's negative temperature anomaly offset the positive anomalies in the Middle and Upper basins.

- Following the severe freeze in mid-to-late January 2025, the Chesapeake Bay presented fast ice in sheltered inlets north of Annapolis, in the Eastern Shore, and along the Potomac River. High ice coverage, between 90−99%, was present in the Middle and Upper basins as well as the Potomac River. The Tanger Sound and Pocomoke Sound experienced 70−90% ice coverage in their waters.

Contents

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. This is the annual version of the bulletin, which presents annual conditions.

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

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

The annual surface climate conditions for 2025 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) in Section 3. The monthly evolution of statewide temperature and precipitation anomalies is presented via bar graphs, and the annual statewide and climate division averages are contrasted via scatter plots in Section 4. Extreme heat, cold, and precipitation, as well as agricultural indicators such as the growing season, vegetation period, and degree days, are presented in the analysis of daily statewide temperatures and precipitation in Section 5. The statewide annual temperatures and precipitation are placed in the context of their historical records using box-and-whisker plots in Section 6. Century-plus trends in statewide mean temperature, cooling and heating degree-days, precipitation, and maps of mean temperature and precipitation are presented in Section 7; half-century trends for the duration of the growing season, vegetation period, dry spells, and the number of days with extreme precipitation (from daily statewide temperatures and precipitation) are also included in the section. Maps of annual sea surface temperature (SST) in the Chesapeake Bay are presented in Section 8, along with basin averages and their monthly evolution; these are complemented by a map of maximum ice coverage. Ancillary statewide, climate division, and county-level information is provided via tables and bar graphs in Appendices A-B; climatology and variability maps are in Appendices C-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 & 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). It is available in a preliminary status at https://www.ncei.noaa.gov/data/nclimgrid-monthly/access/
  Data was downloaded on January 13, 2026.

- NOAA Monthly U.S. Climate *Divisional* Dataset (NClimDiv – Vose et al. 2014). It is available in a preliminary status (v1.0.0-20260107) at:
  https://www.ncei.noaa.gov/pub/data/cirs/climdiv/
  Data was downloaded on January 14, 2026.

- NOAA area averages of daily temperatures and precipitation dataset (nClimGrid−Daily −Durre et al. 2022). It is available in a preliminary status (v1.0.0) at:
  https://www.ncei.noaa.gov/pub/data/daily-grids/v1-0-0/
  Data was downloaded on January 8, 2026.

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 January 5, 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

Ice conditions in the Chesapeake Bay are from the U.S. National Ice Center website: https://usicecenter.gov/Products/MidAtlanticHome

Some definitions:

About the annual values: Annual temperatures are obtained as the mean of the monthly temperatures from January to December, while annual accumulated precipitation and degree days are obtained as the sum of their values in the twelve months (which in turn are obtained as the sum of their daily values).

About climate and climatology. Weather and climate are closely related, but they are not the same. Weather represents the state of the atmosphere (e.g., 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 as it allows one to compare a specific day, month, season, year, 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 just the climatology, is defined for 1991–2020.

It should be noted that the satellite-based sea surface temperature data set has a short temporal coverage of 19 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, season, or year (e.g., 2025) are the departures of the monthly, seasonal, or annual value from the corresponding 30-year average during the 1991-2020 period. When the observed 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 negative anomaly. In the case of the sea surface temperature anomalies, they are calculated with respect to their 2007-2020 mean.

About variability. The annual standard deviation of a climate variable measures its dispersion relative to its annual 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 the anomalies are divided by the standard deviation, they are named standardized anomalies.

About hot days, warm days, and warm nights. Humans, animals, and plants are sensitive to extreme heat. Crops without irrigation and populations without air conditioning, especially pregnant women, children, the elderly, and the sick, are very vulnerable to heat waves and warm spells. Extreme heat, detrimental to crops without irrigation and to populations lacking air conditioning, is tracked by the counts of hot days, warm days, and nights and their consecutive occurrence (e.g., Tschurr et al., 2020; Barriopedro et al., 2023). Here, a *hot day* is defined as one with a maximum temperature greater than 86°F, a warm day as one with a maximum temperature greater than 80°F, and a warm night as one with a minimum temperature greater than 68°F (Tschurr et al., 2020). When these conditions persist for two or more consecutive days, they are called 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 temperature and the 95th percentile of statewide daily minimum temperature for the period 1951-2000.

About freezing days. Freezing temperatures affect people's health, comfort, and livelihood by impacting crops, livestock, infrastructure, water and energy resources, etc. Here, freezing temperatures are tracked by the count of days when daily minimum temperatures are equal to or below 32°F, 28°F, and 24°F (originally used to categorize agricultural impacts USDA, 2024) and their consecutive occurrence. These threshold values correspond to the 28th, 19th, and 12th percentiles of statewide daily minimum temperature for the period 1951−2000. Thus, a *freeze* is defined when the minimum temperatures are equal to or below 32°F, a *moderate freeze* is defined when the minimum temperatures are equal to or below 28°F, and a *severe freeze* is defined when the minimum temperatures are equal to or below 24°F. When these conditions persist for two or more consecutive days, they define freezing day spells.

About degree days. Degree days are the difference between the *daily mean temperature* (high temperature plus low temperature divided by two) and a predefined base temperature; because energy demand is cumulative, degree-day totals are usually calculated on a daily, monthly, seasonal, and annual basis.

- *Heating and cooling degree days*. These are used to get a general idea of how much energy is 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 idea that development will only occur if the temperature exceeds some minimum development threshold temperature or, in other words, if enough warmth is accumulated. Because the actual development will differ for different plants and insects, and the presence of weeds and precipitation can influence the development, 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 obtained if base temperatures are established for the daily maximum and minimum temperatures before calculating 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 with temperatures lower than 50°F or greater than 86°F.

About the growing season. This is the period between the last frost of spring and the first frost of fall when the minimum air temperature is above the freezing point of 32°F (USEPA, 2023). Thus, the *growing season* focuses on the weather conditions that allow plants to grow actively (e.g., Körner et al., 2023).

About the vegetation period. This is defined as the period between the first day of the first occurrence of 6 consecutive days with daily mean temperatures equal to or above 41°F and the day before the first occurrence of 6 consecutive days with daily mean temperatures below 41°F after the first of July (Tschurr et al., 2020). Hence, the *vegetation period* captures weather conditions that allow plants to grow at a different pace, even if it is minimal; the vegetation period, in this way, can last the whole year, including the dormant period.

The growing season and the vegetation period can be used as climate change indicators to track how vegetation conditions change over time.

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

About e*xtreme precipitation.* This is defined as the annual number of days with a statewide averaged daily total precipitation equal to or greater than 0.64 inches. This threshold represents the 95th percentile of statewide averaged daily total precipitation for 1951-2000.

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. 2025 Annual Mean Maps

A. Mean Temperatures

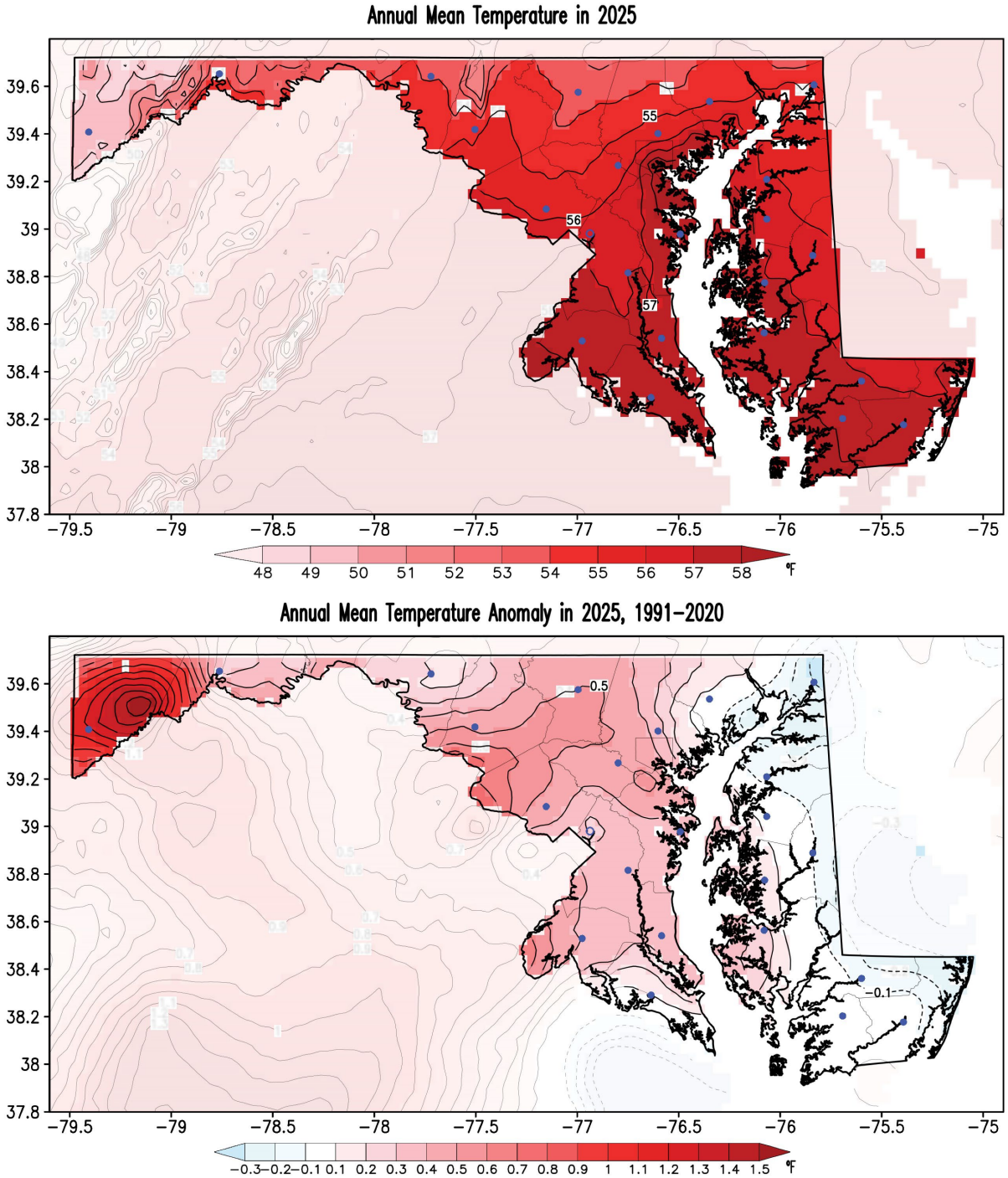

Figure 1. Annual mean of the mean surface air temperature (top panel) and its anomaly with respect to the 1991-2020 climatology (bottom panel) for 2025. Temperatures are in °F following the color bar. Blue/red shading in the anomaly map marks colder/warmer than normal conditions. Note shading outside the state has been washed out to facilitate focus on Maryland. Filled blue circles mark the county seats.

B. Maximum Temperatures

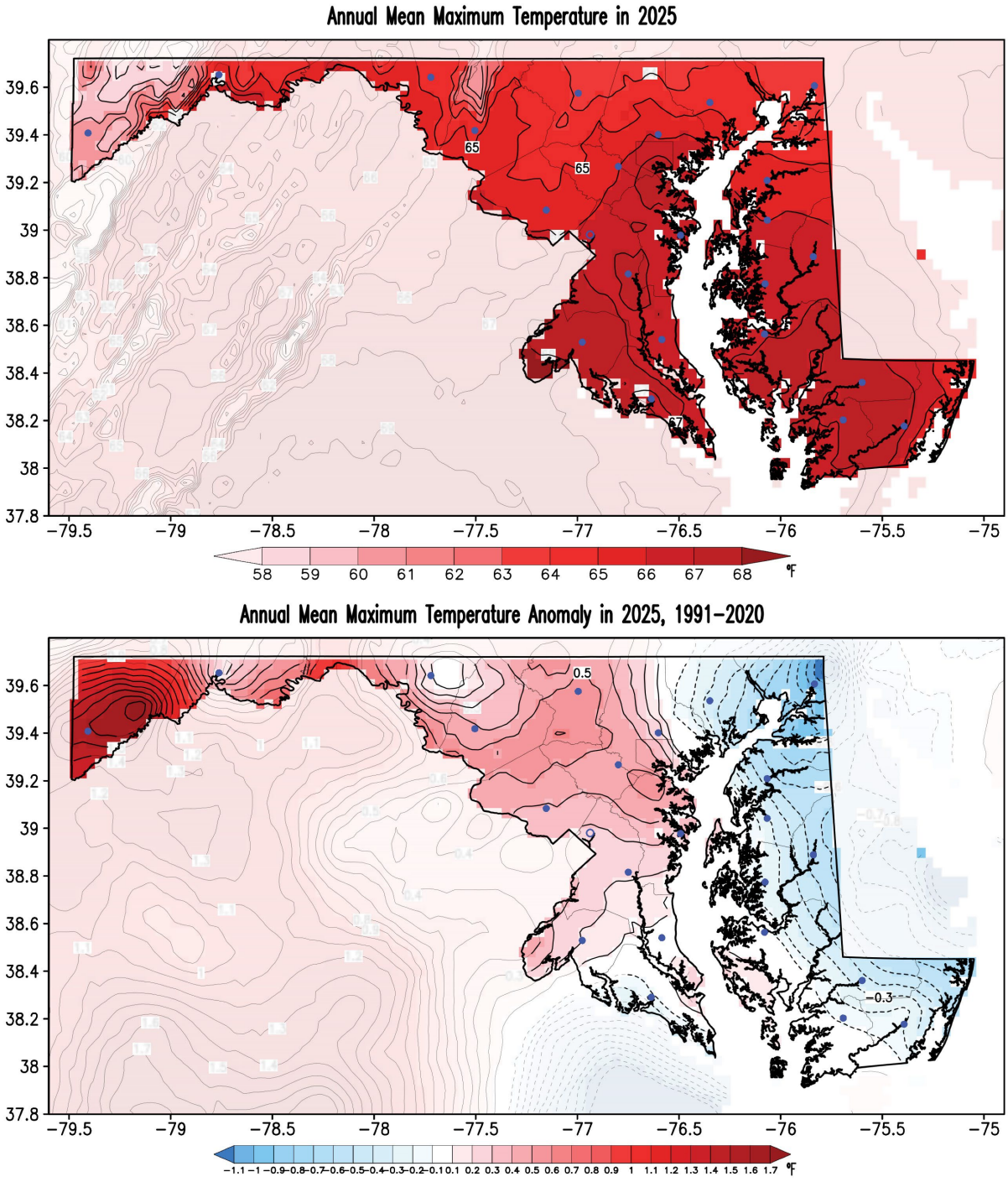

Figure 2. Annual mean of the maximum surface air temperature (top panel) and its anomaly with respect to the 1991-2020 climatology (bottom panel) for 2025. Temperatures are in °F following the color bar. Bule/red shading in the anomaly map marks colder/warmer than normal conditions. Note shading outside the state has been washed out to facilitate focus on Maryland. Filled blue circles mark the county seats.

C. Minimum Temperatures

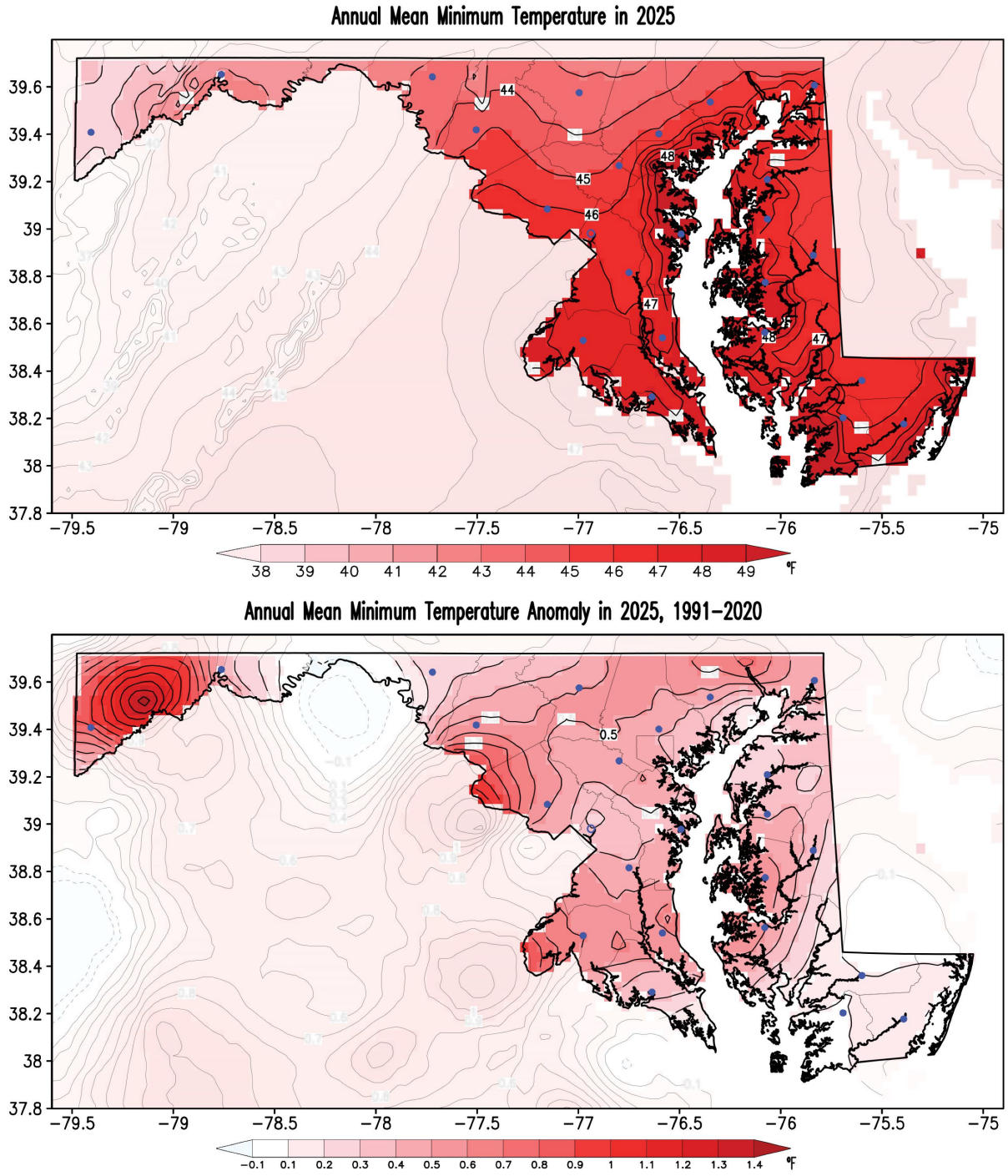

Figure 3. Annual mean of the minimum surface air temperature (top panel) and its anomaly with respect to the 1991-2020 climatology (bottom panel) for 2025. Temperatures are in °F following the color bar. Blue/red shading in the anomaly map marks colder/warmer than normal conditions. Note shading outside the state has been washed out to facilitate focus on Maryland. Filled blue circles mark the county seats.

D. Precipitation

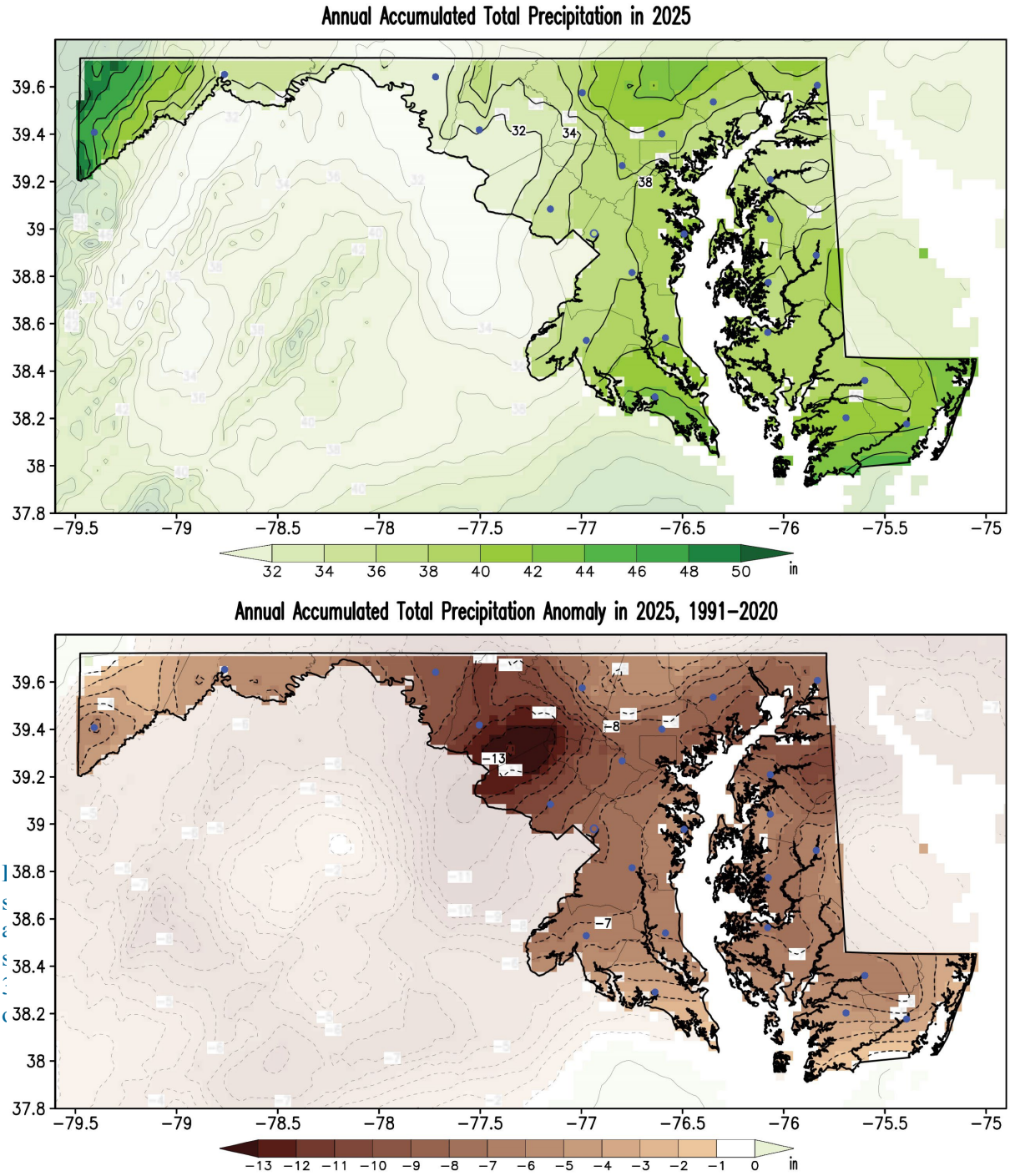

Figure 4. Annually accumulated precipitation (top panel) and its anomaly with respect to the 1991-2020 climatology (bottom panel) for 2025. Precipitation is in inches following the color bar. Brown/green shading in the anomaly map marks drier/wetter than normal conditions. Note shading outside the state has been washed out to facilitate focus on Maryland. Filled blue circles mark the county seats.

4. Statewide and Climate Divisions Averages in 2025

A. Statewide Monthly Evolution of Anomalies

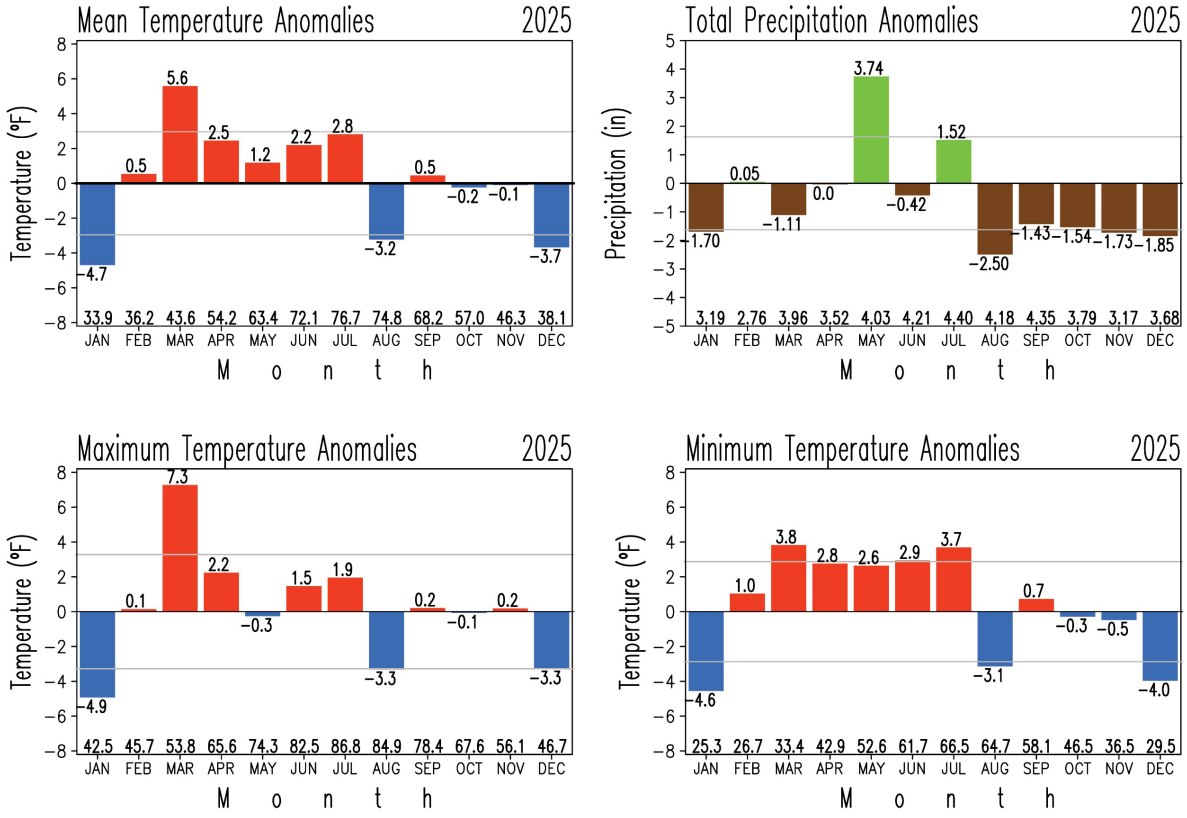

Figure 5. Maryland (statewide) monthly evolution of surface variables and their anomalies in 2025. Anomalies are with respect to the 1991-2020 climatology. Red/blue color represents positive/negative anomalies for mean surface air temperature (upper left), maximum surface air temperature (bottom left), and minimum surface air temperature (bottom right), while green/brown color indicates positive/negative anomalies in total precipitation (upper right). Temperatures are in °F, and precipitation is in inches. The all-month standard deviations for the mean temperature (3.0°F), maximum temperature (3.3°F), minimum temperature (2.9°F), and precipitation (1.6 inches) are indicated by the horizontal gray lines above and below the zero line. The numbers outside the bars indicate the magnitude of the anomaly, while the number at the bottom of each panel shows the monthly climatology.

B. 2025 Scatter Plots

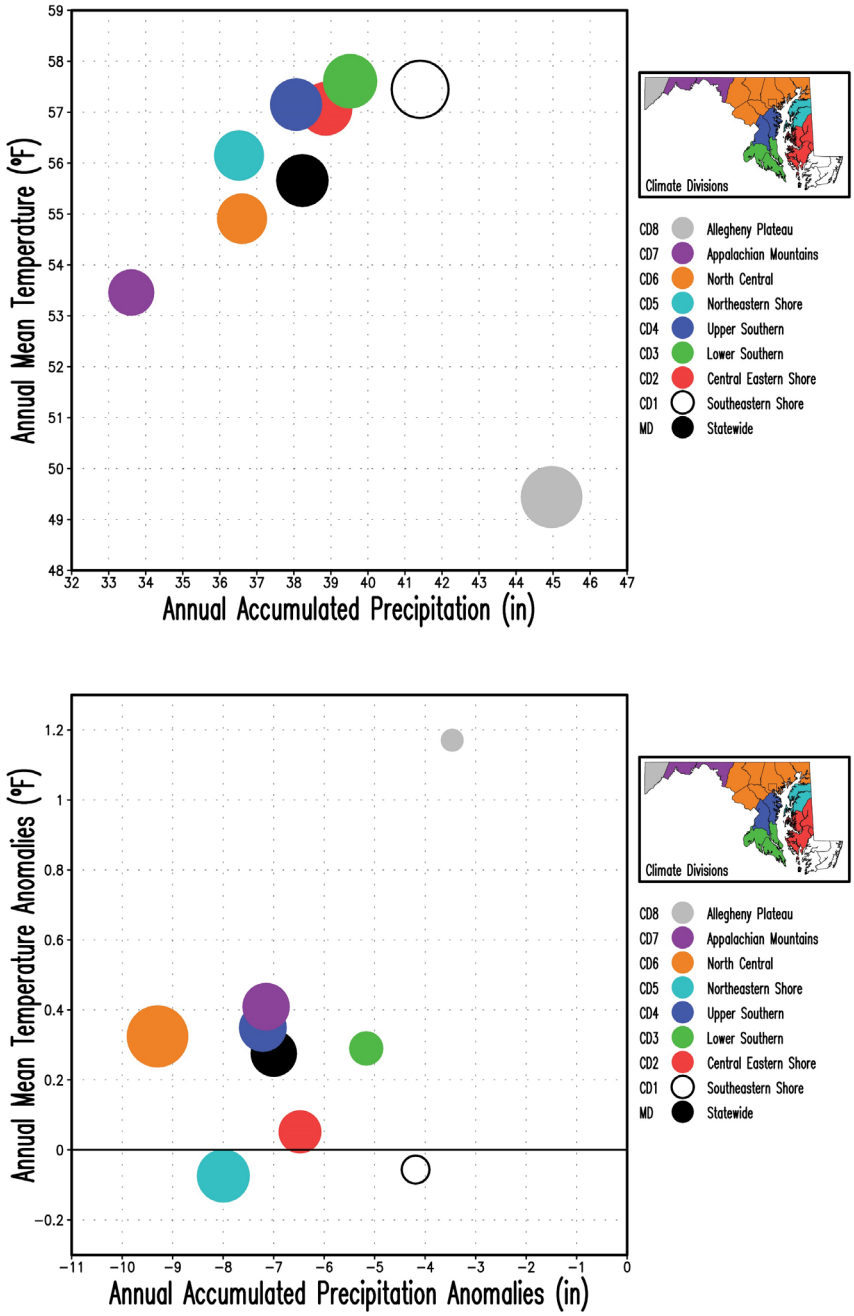

Figure 6. Scatter plots of Maryland (statewide) and Climate Divisions (CD#) for the annual mean of the mean surface air temperature and annually accumulated precipitation for 2025. The upper panel shows the mean temperature and total precipitation, and the bottom panel displays their anomalies with respect 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 (44.96 inches in CD8, top panel) and by the maximum precipitation anomaly (|−9.30| inches in CD6, 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.

C. 2023–2025 Scatter Plots

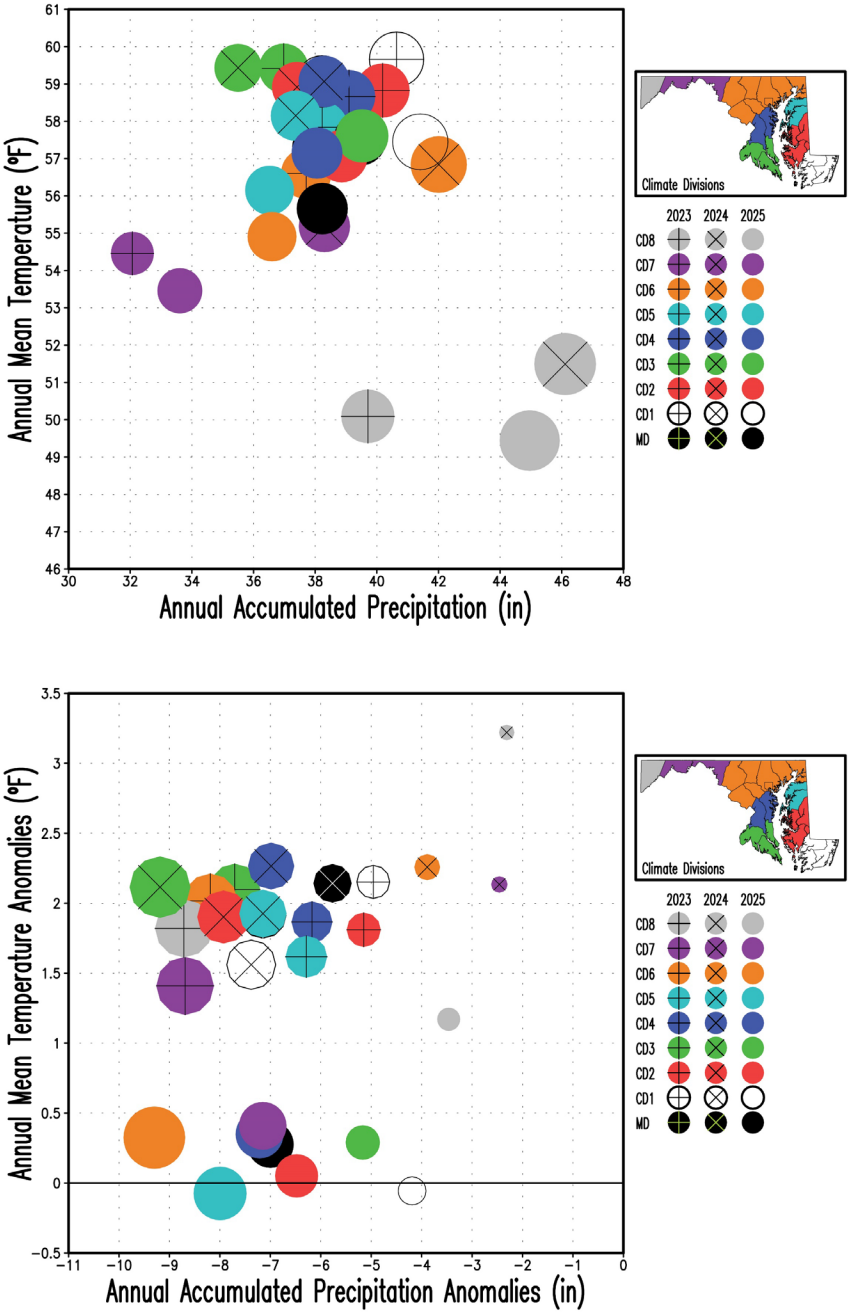

Figure 7. Scatter plots of Maryland (statewide) and Climate Divisions (CD#) for the annual mean of the mean surface air temperature and annually accumulated precipitation for 2023, 2024, and 2025. The upper panel shows the mean temperature and total precipitation, and the bottom panel displays their anomalies with respect 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 (46.11 inches in CD8 in 2024, top panel) and by the maximum precipitation anomaly (|−9.30| inches in CD6 in 2025, bottom panel) among the nine regions and three years. The year 2025 is displayed with filled circles only, while years 2024 and 2023 are displayed with superposed multiplication and addition signs, respectively.

5. Statewide Extremes and Daily Evolution in 2025

A. Hot Days, Warm Days, and Warm Nights

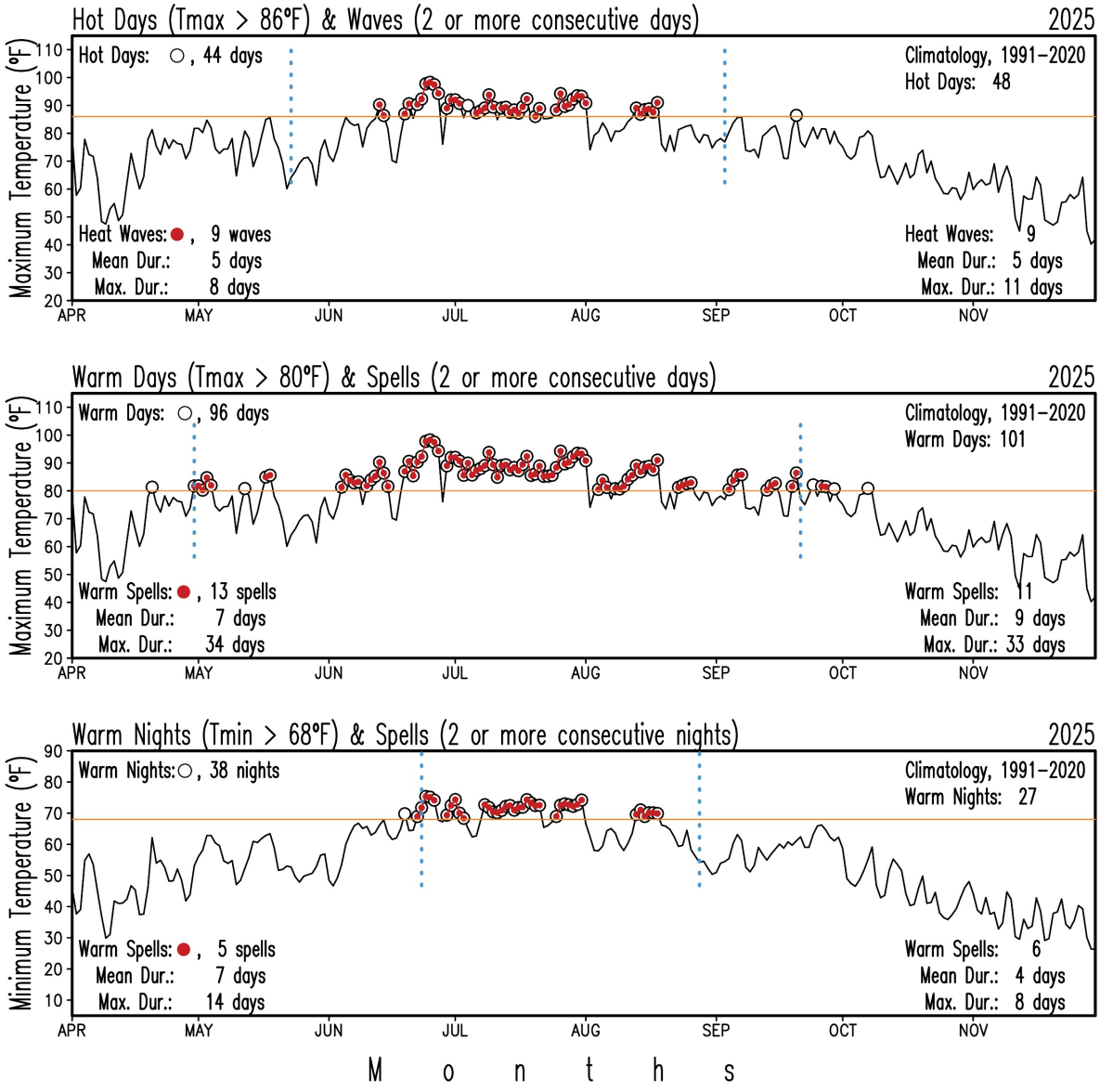

Figure 8. Maryland (statewide) number of hot days (upper panel), warm days (middle panel), and warm nights (bottom panel), and their consecutive occurrence for the period January 1 – December 31, 2025. The upper panel shows hot days in open circles and heat waves in red-filled circles from statewide 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 lower panel shows warm nights in open circles and warm night spells in red-filled circles from statewide daily minimum temperatures. The continuous orange line in each panel marks the 86, 80, and 68°F threshold temperatures for each case. The vertical light blue dotted lines mark the 1991-2020 climatological start dates of the first and last waves and spells. Figures at the county and climate division level and summary tables can be found on the MDSCO website.

B. Freezing Days

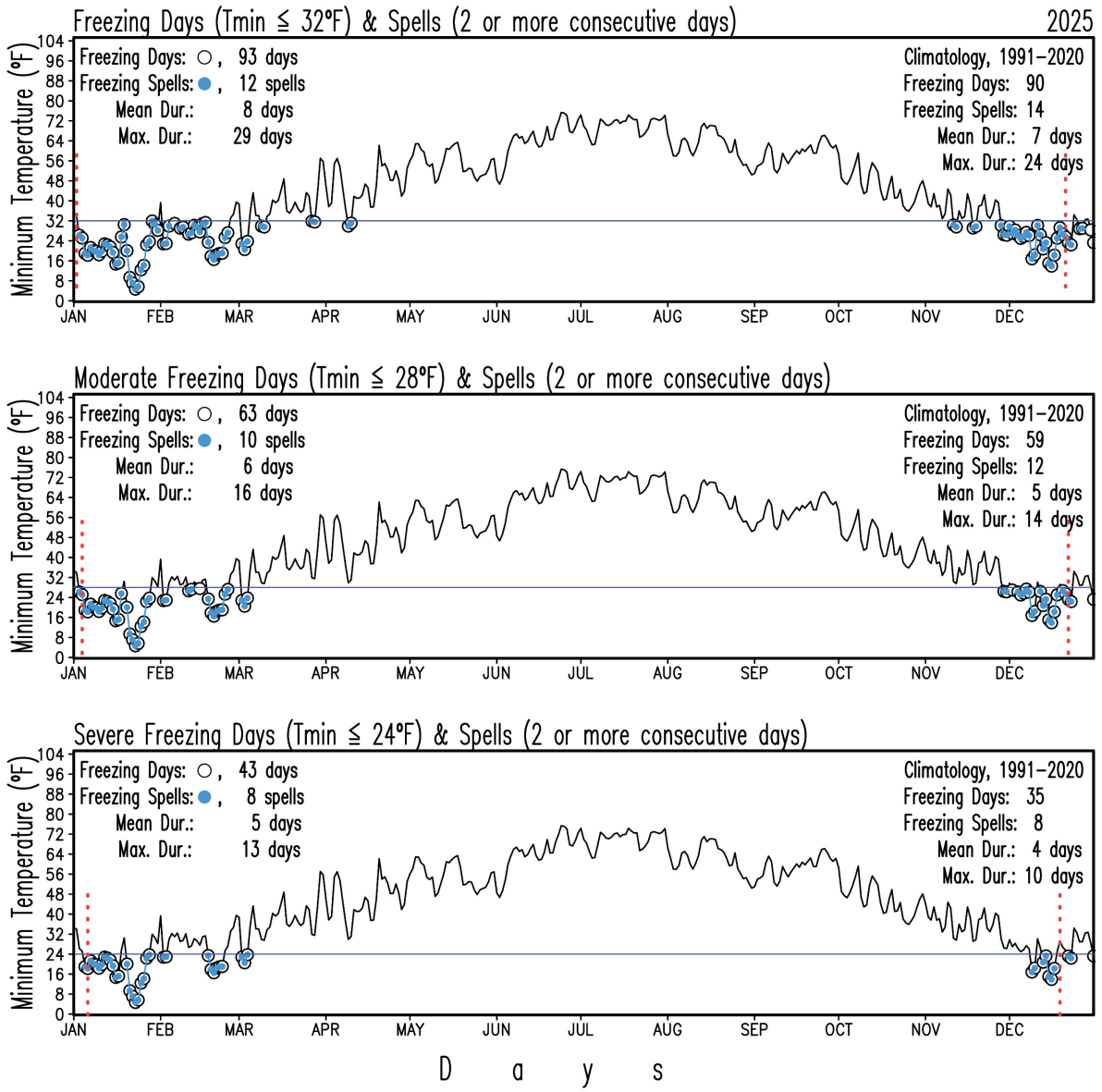

Figure 9. Maryland (statewide) number of freezing days (upper panel), moderate freezing days (middle panel), and severe freezing days (bottom panel), and their consecutive occurrence for the period January 1 – December 31, 2025. The upper panel shows freezing days in open circles and freezing spells in blue-filled circles from statewide daily minimum temperatures. The middle panel shows moderate freezing days in open circles and moderate freezing spells in blue-filled circles from statewide daily minimum temperatures. The lower panel shows severe freezing days in open circles and severe freezing spells in blue-filled circles from statewide daily minimum temperatures. The continuous blue line in each panel marks the 32, 28, and 24°F threshold temperatures for each case. The vertical red dotted lines mark the 1991-2020 climatological start dates of the first and last spells in the year. Figures at the county and climate division level and summary tables can be found on the MDSCO website.

C. Growing Season, Vegetation Period, Dry Spells, and Extreme Precipitation

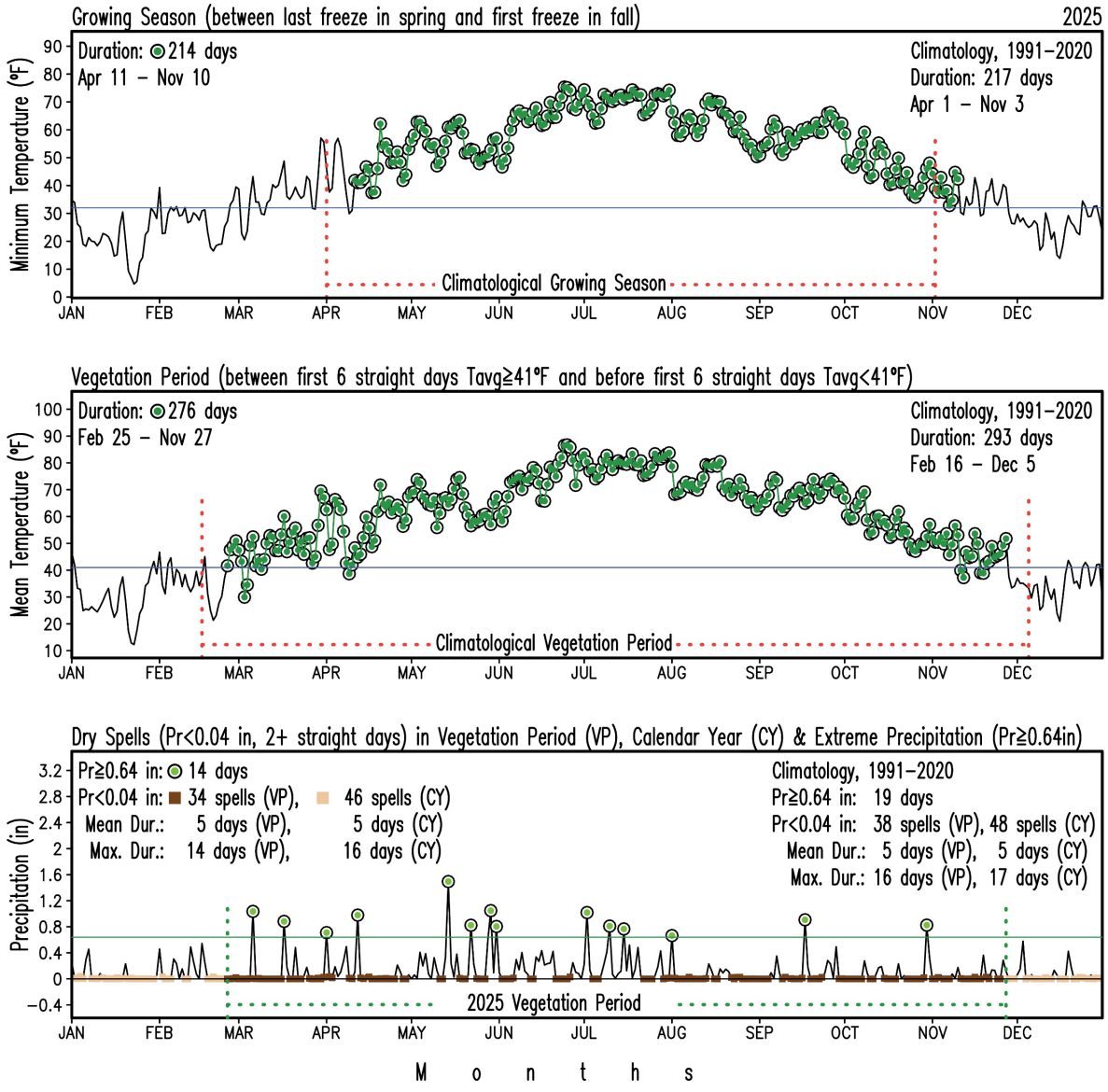

Figure 10. Maryland (statewide) growing season (upper panel), vegetation period (middle panel) and dry spells, and extreme precipitation (lower panel) for the period January 1 - December 31, 2025. The upper panel shows the growing season from statewide daily minimum temperatures in green circles. The middle panel displays the vegetation period from statewide daily mean temperatures in green-filled circles. The lower panel shows dry spells (consecutive days with daily total precipitation less than 0.04 inches) within the vegetation period (VP) in brown-filled squares, additional dry spells within the calendar year (CY) in light brown squares, and extreme precipitation days (precipitation equal to or larger than 0.64 inches) in green-filled circles from statewide daily total precipitation. The dotted red lines in the upper panel mark the climatological start and end of the growing season, and those in the middle panel mark the climatological start and end of the vegetation period. The dotted green line in the bottom panel marks the start and end of the vegetation period in 2025 while the horizontal green line marks the threshold precipitation value of 0.64 in. Figures at the county and climate division level and summary tables can be found on the MDSCO website.

D. Growing Degree Days

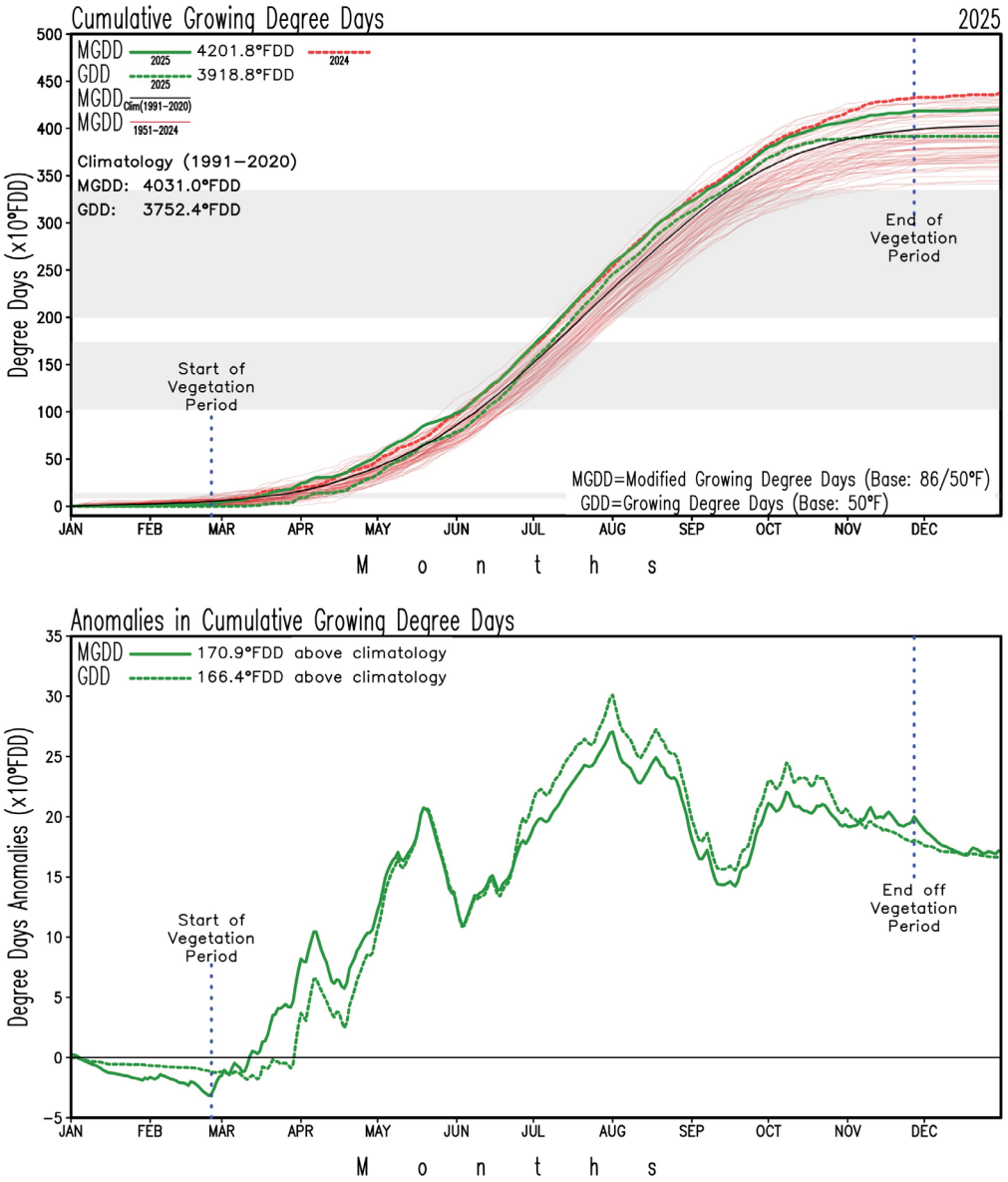

Figure 11. Maryland (statewide) cumulative growing degree days (upper panel) and its anomaly with respect to the 1991-2020 climatology (lower panel) for the period January 1 - December 31, 2025. The growing degree days are displayed with the dashed green line, while the modified growing degree days are shown with the continuous green line in the upper panel; for reference the modified growing degree days for 2024 are displayed with a dashed red line; the black line shows the 1991-2020 climatology of the cumulative modified growing degree days; the thin red lines display the cumulative modified growing degree days every year from 1951 to 2023. The gray shaded areas mark a range of values in corn development (IPAD, 2023): emergence (82-140), tassel-silk (1024-1740), and physiological maturity (2000-3350). Anomalies with respect to the 1991-2020 climatology in the cumulative modified growing degree days (bottom panel) are displayed with the continuous green line, while those for the cumulative growing degree days are shown with the dashed green line. The vertical dotted blue lines mark the start and end of the vegetation period in 2025. The accumulated growing degree days and their anomalies at the end of the year are displayed at the top left in each panel. Figures at the county and climate division level and summary tables can be found on the MDSCO website.

6. 2025 Statewide Averages in the Historical Record

A. Box and Whisker Plots

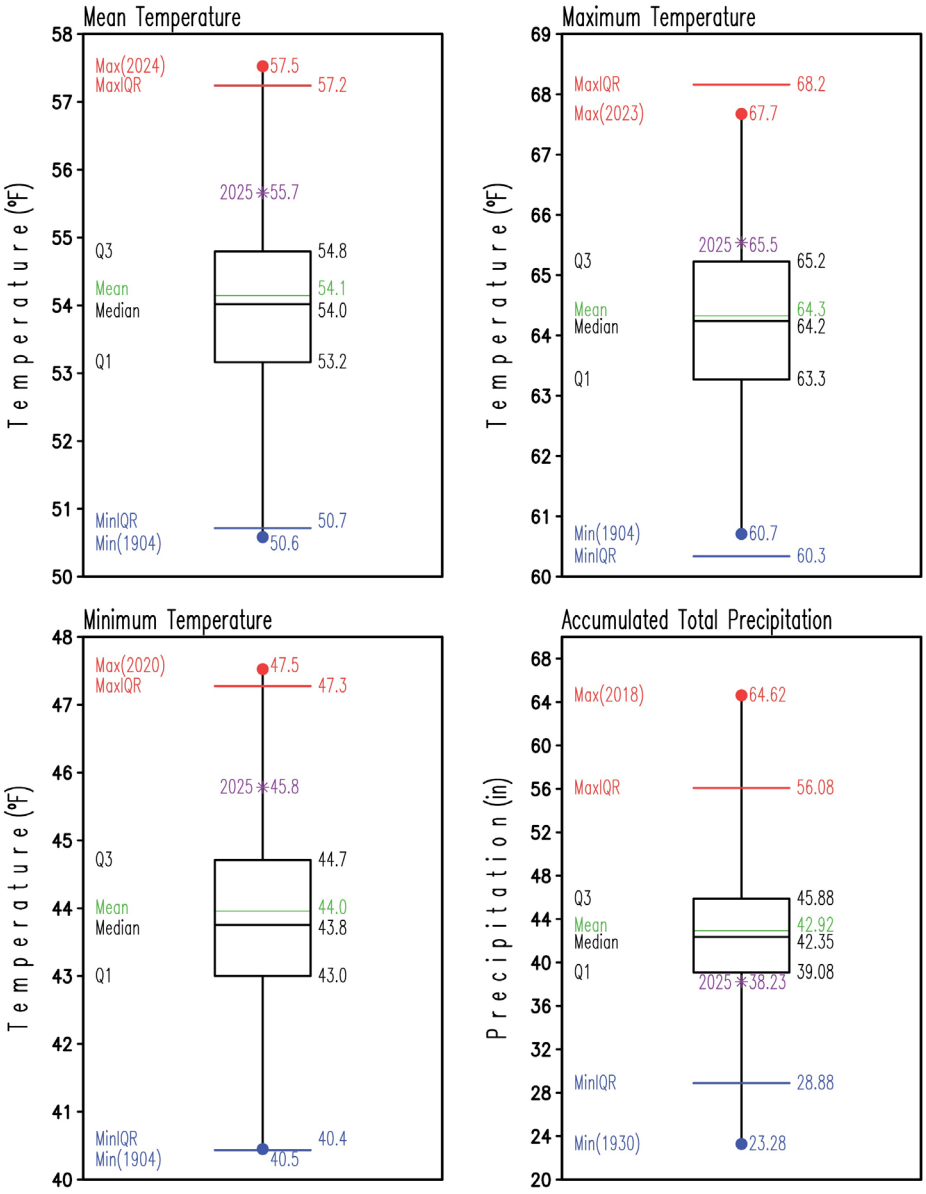

Figure 12. Box and Whisker plots of Maryland (statewide) annual means of the mean (upper left), maximum (upper right), minimum (lower left) surface air temperatures, and annually accumulated total precipitation (lower right) for the period 1895-2024. Conditions for 2025 are represented by the label and asterisk in purple. Statistics for the period 1895-2024 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. 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. Trends

A. 1895-2025: Statewide Mean Temperature, Degree-Days, and Precipitation

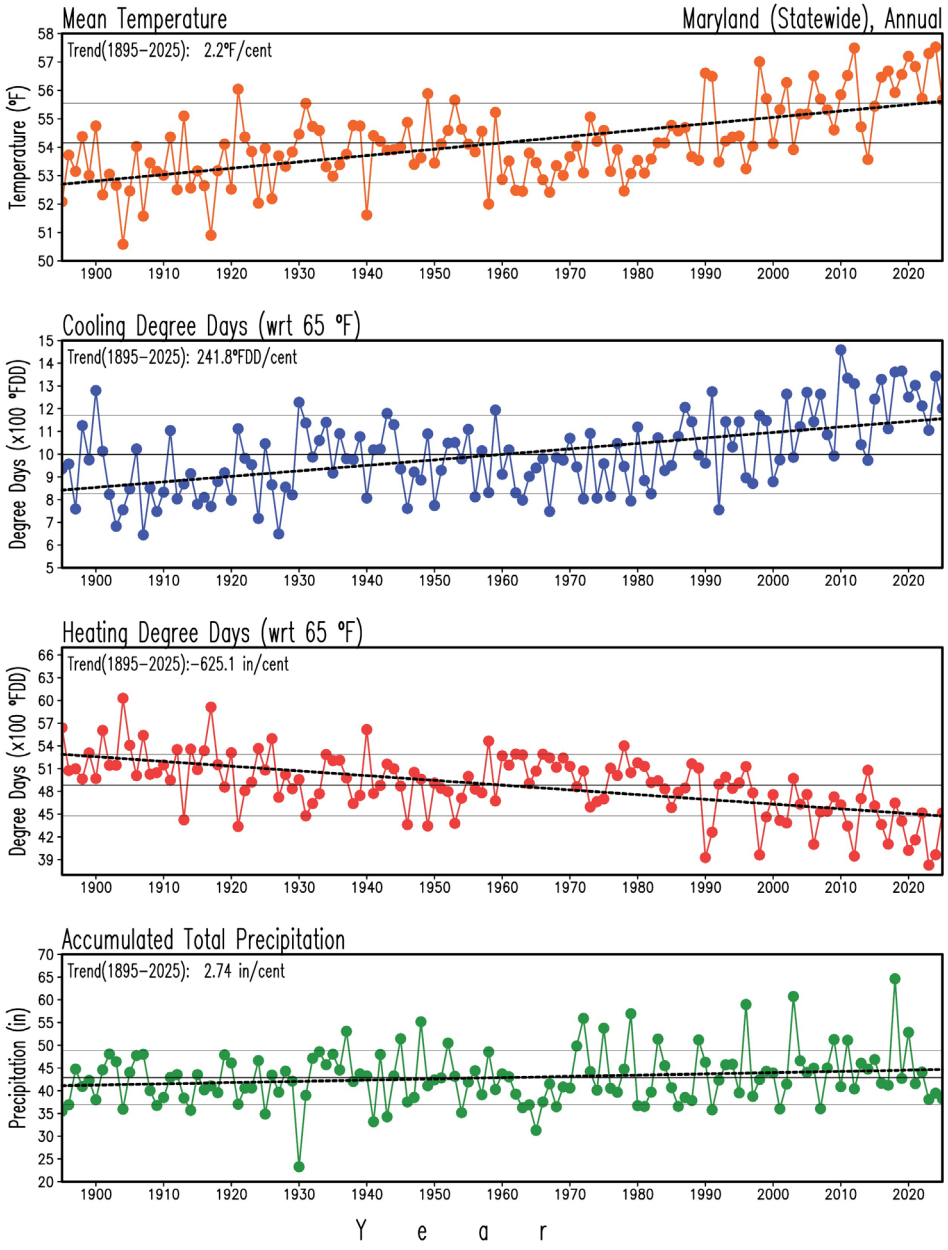

Figure 13. Maryland (statewide) annual mean of the mean surface air temperature, cooling degree-days, heating degree days, and annually accumulated precipitation for the period 1895-2025. Temperature is in °F, cooling and heating degree-days are in °F degree-days (°FDD), and precipitation is in inches. The thin, continuous black lines in each panel display the long-term means (54.2°F, 999.0°FDD, 4882.7°FDD, and 42.89 in, respectively; 1895-2025), and the double thin, continuous gray lines indicate the standard deviation (1.4°F, 172.1°FDD, 405.3°FDD, and 5.96 in, respectively) above/below the long-term mean. The thick dashed black lines show the long-term linear trends. The warming temperature trend (2.2°F/century), the increasing cooling degree-days trend (241.8°FDD/century), the decreasing heating degree-days trend (–625.1°FDD/century), and the accumulated precipitation trend (2.74 in/century) are statistically significant at the 95% level (*Student's t-test* –Santer et al. 2000).

B. 1895-2025: Temperature and Precipitation Maps

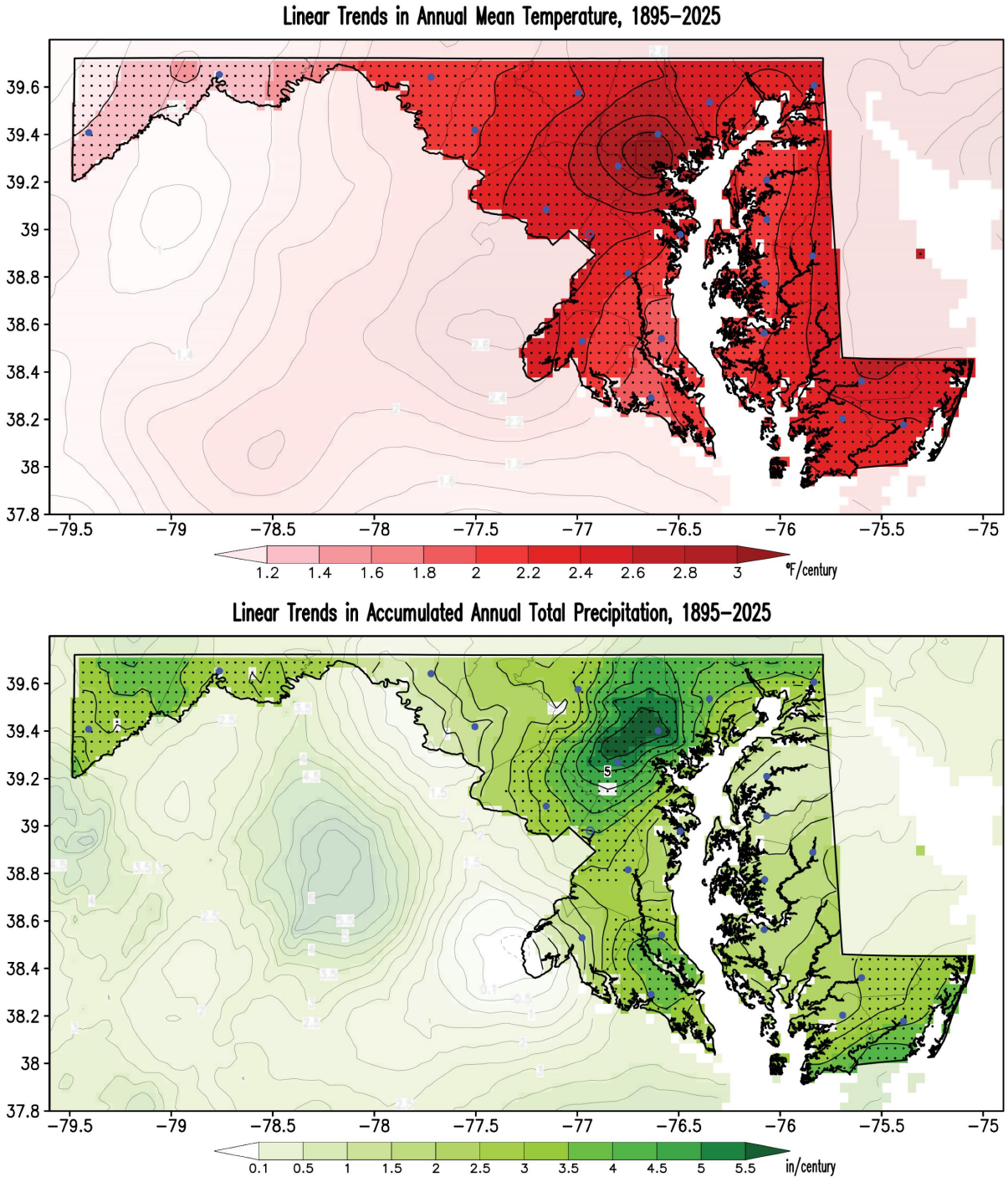

Figure 14. Linear trends in the annual means of the mean surface air temperature and annually accumulated precipitation for the period 1895-2025. Temperatures are in °F/century, and precipitation is in inches/century following the color bars. Red shading in the temperature map marks warming trends. Green shading in the precipitation map shows wetting trends. Stippling in the maps shows 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

C. 1951-2025: Statewide Growing Season, Vegetation Period, Dry Spells, and Extreme Precipitation

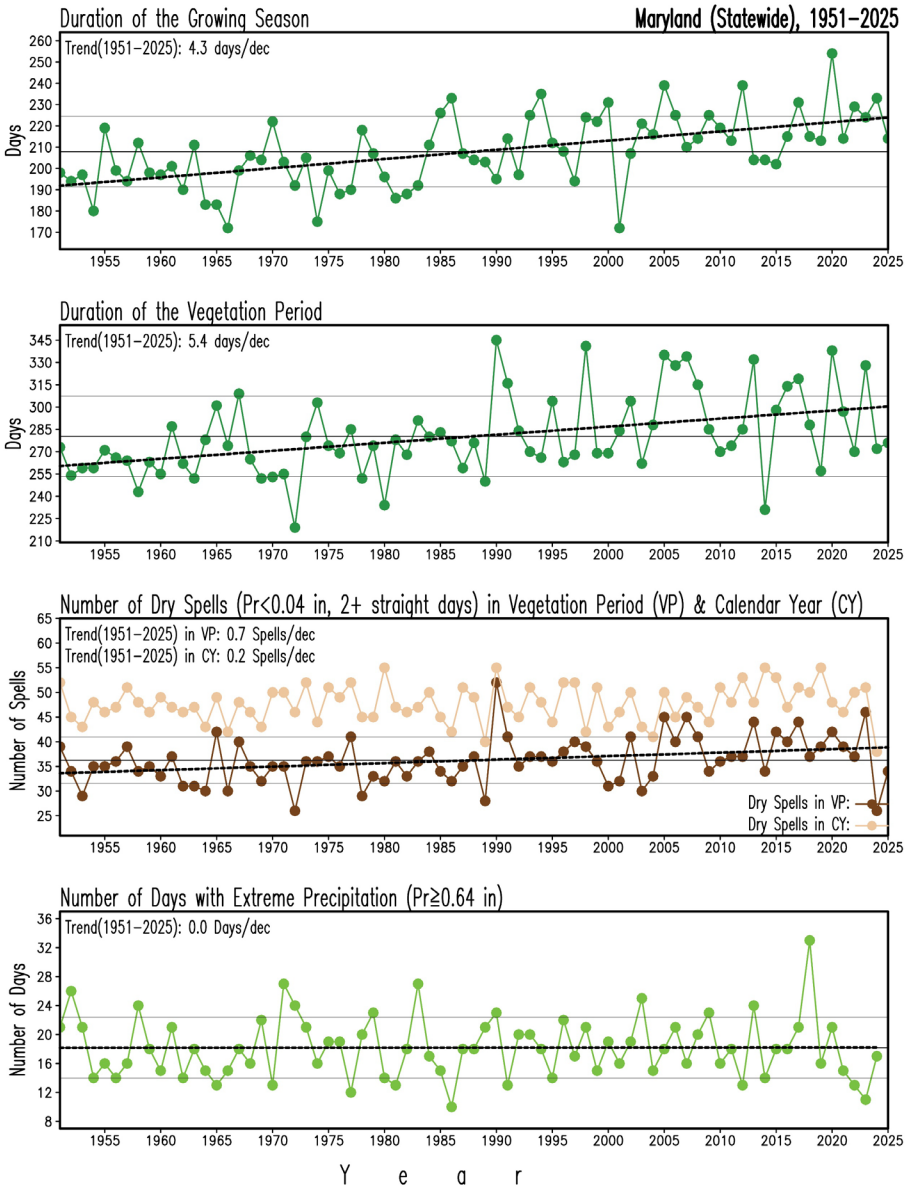

Figure 15. Maryland (statewide) duration of the growing season, duration of the vegetation period, number of dry spells in the vegetation period (VP), and number of days with extreme precipitation for the period 1951-2025. The thin, continuous black lines in each panel display the long-term means (208 days, 280 days, 36 spells, and 18 days, respectively; 1951-2025), and the double thin, continuous gray lines indicate the standard deviation (16.6 days, 27.0 days, 4.7 spells, and 4.2 days, respectively) above/below the long-term mean. The thick dashed black lines show the long-term linear trends for the period 1951-2025. For comparison, the number of dry spells for the calendar year (CY) is displayed with a light brown line in the third panel from above. The increasing trends in the duration of the growing season (4.3 days/decade) and vegetation period (5.4 days/decade), the increasing trend in the number of dry spells within the vegetation period (0.7 spells/decade) are statistically significant at the 95% level (*Student's t-test* –Santer et al. 2000) but no the increase in the number of dry spells in the calendar year (0.2 spells/decade); the number of days with extreme precipitation has no trend (0.0 days/decade).

8. Chesapeake Bay's Sea Surface Temperatures and Ice

A. Maps

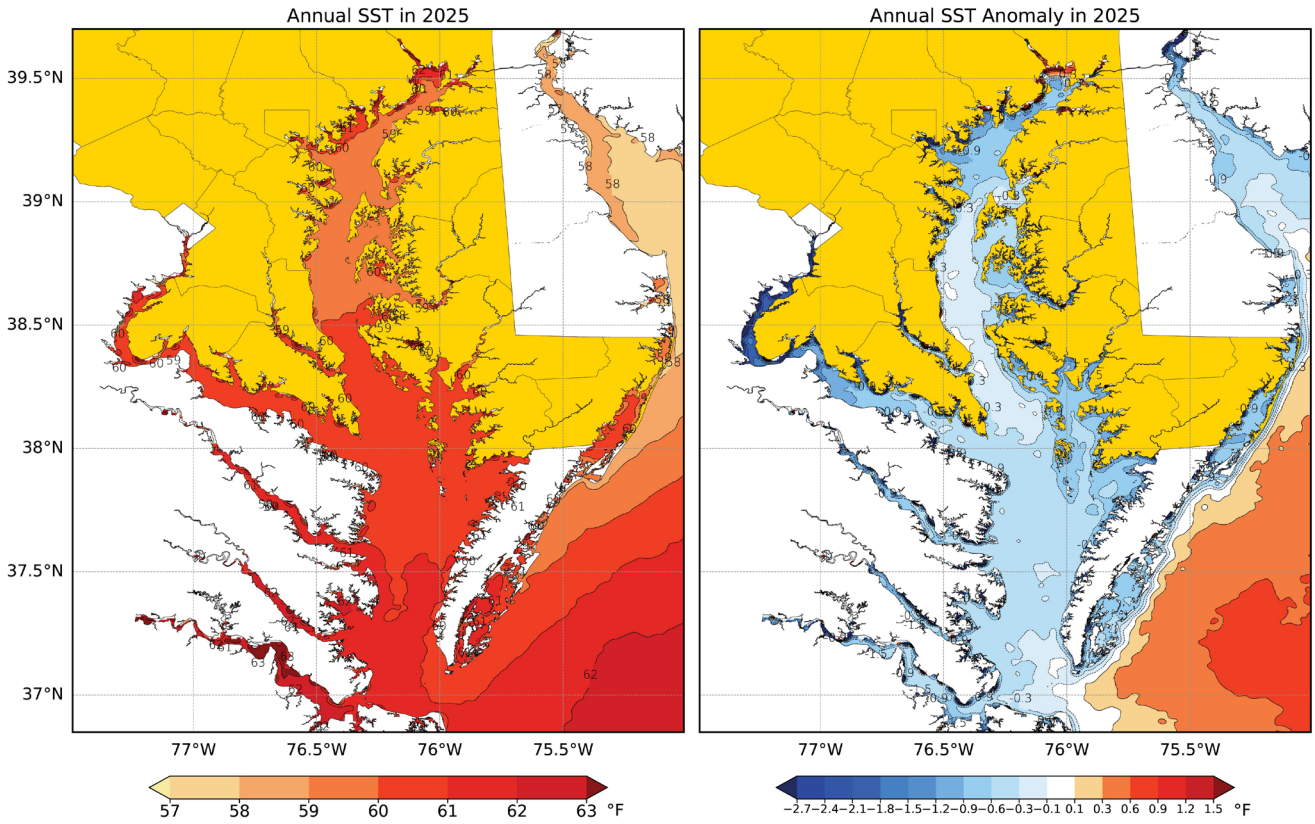

Figure 16. Annual mean of the sea surface temperature (left panel) and its anomaly (right panel) in the Chesapeake Bay and surrounding coastal areas in 2025. Temperatures are in °F following the color bar. Blue/orange shading in the anomaly map marks colder/warmer temperatures than the 2007-2020 mean. 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. Upper, Middle, Lower, and Entire Basins Averages

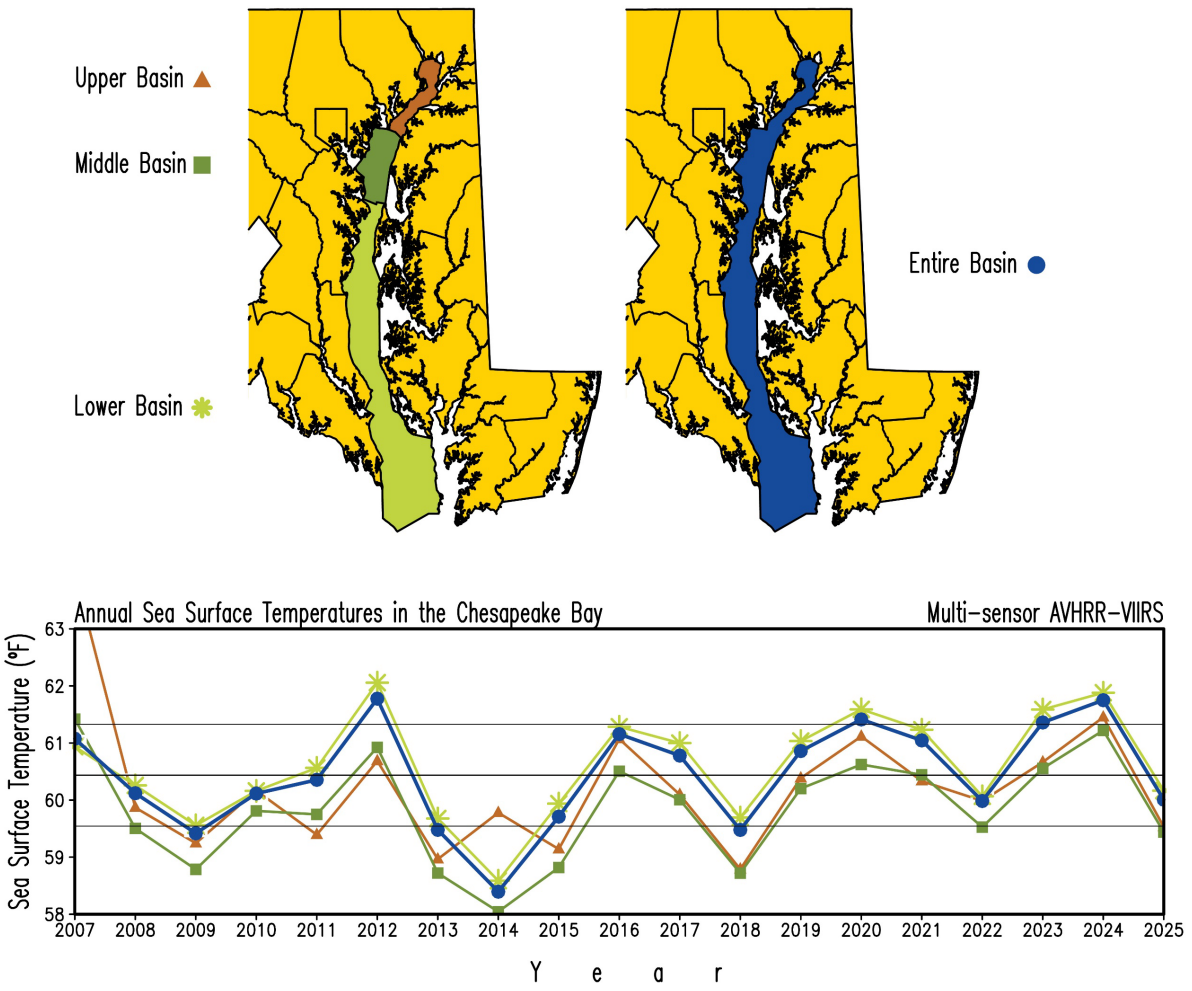

Figure 17. Watersheds in the Chesapeake Bay (top panel) and their area-averaged annual mean sea surface temperatures for the period 2007-2025 (bottom panel). Temperatures are in °F. The color of the lines corresponds to the color of the watersheds in the Bay, as indicated on the maps: Brown for the Upper 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 2025 was 60.0°F, while for the Upper, Middle, and Lower basins was 59.5, 59.4, and 60.2°F, respectively. The thin, continuous black line in the lower panel displays the 2007-2025 mean for the Entire Basin (60.4°F), and the double thin, continuous gray lines indicate the standard deviation (0.9°F) above/below the long-term mean. The 2007-2025 annual mean temperatures for the Upper, Middle, and Lower basins were 60.2, 59.8, and 60.6°F, respectively, while their standard deviations were 1.1, 0.9, and 0.9°F, respectively.

C. Monthly Evolution of the Sea Surface Temperatures in 2025

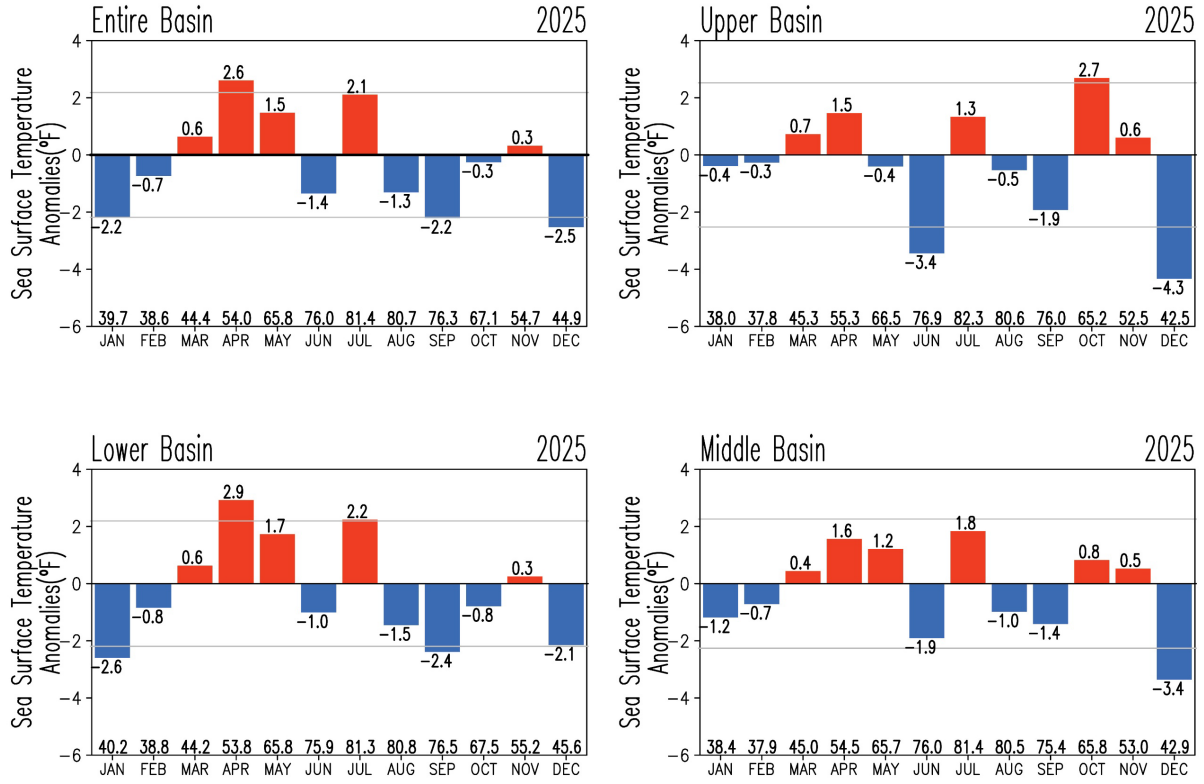

Figure 18. Monthly evolution of the sea surface temperature anomalies in the basins of the Chesapeake Bay in 2025. Anomalies are with respect to the 2007-2020 mean. Red/blue color represents positive/negative anomalies in the Entire Basin (upper left), Upper Basin (upper right), Middle Basin (bottom right), and Lower basin (bottom left). Temperatures are in °F. The all-month standard deviations for the Entire Basin (2.2°F), Upper Basin (2.5°F), Middle Basin (2.3°F), and Lower Basin (2.2°F) are indicated by the horizontal gray lines above and below the zero line. The numbers outside the bars indicate the magnitude of the anomaly, while the number at the bottom of each panel shows the monthly 2007-2020 mean.

A. Ice in the Bay in 2025

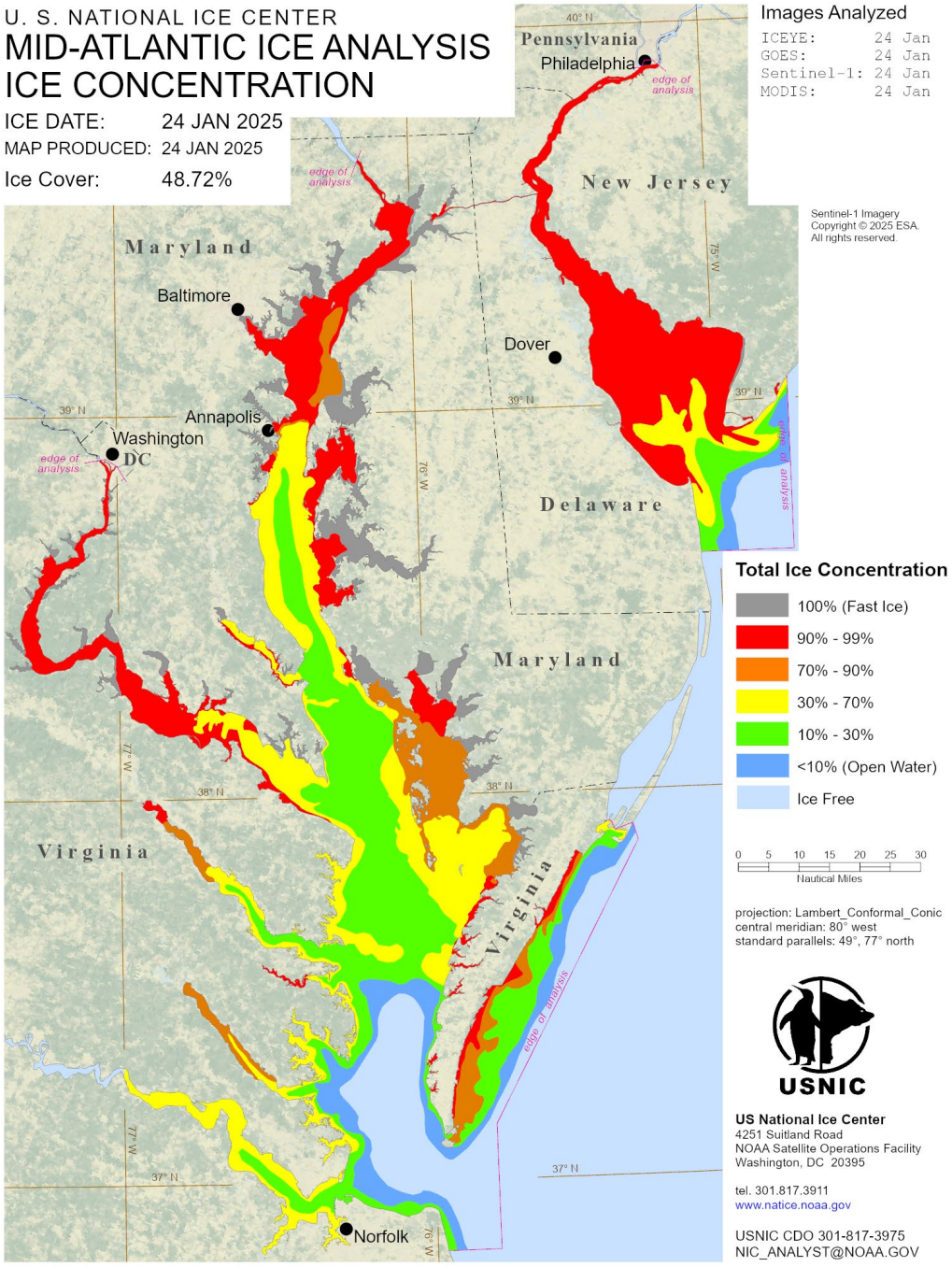

Figure 19. Maximum ice coverage in the year of 48.72% in the Chesapeake and Delaware bays as tracked by the U. S. National Ice Center on January 24, 2025. As indicated by the color legend, gray-shaded areas mark waters where fast ice was present, red-shaded areas mark waters with up to 90−99% of ice coverage, orange-shaded areas mark waters with 70−90% of ice coverage, yellow-shaded areas mark waters with 30−70% of ice coverage, green-shaded areas mark waters with 10−30% of ice coverage, dark blue-shaded areas mark waters with less than 10% of ice coverage, and light blue-shaded areas mark ice-free waters. Updated ice conditions in the Bay and outlooks are available on the USNIC website.

Appendix A. 2025 Data Tables: Statewide, Climate Divisions, and Counties

A. Mean Temperature and Precipitation

Region	Mean Air Temperature (°F)	Rank (#)
Statewide	55.7	109
Climate Division 1	57.5	107
Climate Division 2	57.1	108
Climate Division 3	57.6	110
Climate Division 4	57.2	112
Climate Division 5	56.2	102
Climate Division 6	54.9	110
Climate Division 7	53.5	113
Climate Division 8	49.4	119
Allegany	53.0	114
Anne Arundel	57.4	112
Baltimore	55.1	114
Baltimore City	57.2	113
Calvert	57.3	110
Caroline	56.3	107
Carroll	53.9	112
Cecil	54.9	103
Charles	57.7	113
Dorchester	57.5	110
Fredrick	54.4	112
Garrett	49.5	119
Harford	55.0	108
Howard	55.2	115
Kent	56.1	102
Montgomery	55.7	115
Prince George's	56.9	112
Queen Anne's	56.4	107
Saint Mary's	57.5	108
Somerset	57.9	108
Talbot	57.2	109
Washington	54.0	109
Wicomico	57.2	106
Worcester	57.3	107

Region	Accumulated Precipitation (in)	Rank (#)
Statewide	38.23	27
Climate Division 1	41.41	54
Climate Division 2	38.86	30
Climate Division 3	39.52	45
Climate Division 4	38.06	29
Climate Division 5	36.52	15
Climate Division 6	36.60	20
Climate Division 7	33.61	20
Climate Division 8	44.96	60
Allegany	35.44	37
Anne Arundel	38.80	38
Baltimore	40.05	47
Baltimore City	38.34	38
Calvert	39.79	43
Caroline	38.84	31
Carroll	36.95	27
Cecil	38.35	24
Charles	37.68	34
Dorchester	38.77	32
Fredrick	32.88	6
Garrett	44.90	60
Harford	39.03	32
Howard	36.34	23
Kent	35.96	13
Montgomery	33.55	10
Prince George's	37.71	30
Queen Anne's	37.06	20
Saint Mary's	41.91	61
Somerset	41.86	60
Talbot	38.18	26
Washington	31.84	11
Wicomico	39.79	38
Worcester	42.22	61

Table A1. Annual mean of the mean surface air temperature (left) and annually accumulated precipitation (right) at Maryland (statewide), climate division, and county levels for 2025. Temperatures are in °F, and precipitation is in inches. The rank is the position the variable for 2025 occupies among the 131 years after the 131 values have been arranged from lowest to highest using the *standard competition ranking method*. The closer to 131 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	65.5	104
Climate Division 1	67.0	104
Climate Division 2	66.8	103
Climate Division 3	67.3	99
Climate Division 4	66.9	104
Climate Division 5	65.6	90
Climate Division 6	64.8	104
Climate Division 7	64.6	109
Climate Division 8	59.8	113
Allegany	64.2	104
Anne Arundel	66.9	107
Baltimore	65.2	105
Baltimore City	66.8	112
Calvert	66.8	98
Caroline	66.5	97
Carroll	64.2	104
Cecil	63.8	87
Charles	67.7	101
Dorchester	67.2	104
Fredrick	64.5	107
Garrett	59.8	113
Harford	64.5	96
Howard	65.4	108
Kent	65.2	89
Montgomery	65.4	106
Prince George's	66.9	102
Queen Anne's	65.9	94
Saint Mary's	67.1	95
Somerset	67.3	105
Talbot	66.5	103
Washington	64.9	109
Wicomico	67.3	103
Worcester	66.5	102

Region	Minimum Air Temperature (°F)	Rank (#)
Statewide	45.8	115
Climate Division 1	47.9	111
Climate Division 2	47.3	117
Climate Division 3	47.9	115
Climate Division 4	47.5	115
Climate Division 5	46.7	115
Climate Division 6	45.0	116
Climate Division 7	42.4	111
Climate Division 8	39.1	120
Allegany	41.7	113
Anne Arundel	48.0	115
Baltimore	45.0	116
Baltimore City	47.6	117
Calvert	47.9	114
Caroline	46.1	116
Carroll	43.5	116
Cecil	46.0	117
Charles	47.8	119
Dorchester	47.7	116
Fredrick	44.3	113
Garrett	39.1	119
Harford	45.5	117
Howard	44.9	116
Kent	46.9	115
Montgomery	45.9	117
Prince George's	46.9	116
Queen Anne's	46.8	115
Saint Mary's	48.0	112
Somerset	48.5	111
Talbot	48.0	116
Washington	43.0	111
Wicomico	47.0	110
Worcester	48.1	111

Table A2. Annual mean of the maximum (left) and minimum (right) surface air temperatures at Maryland (statewide), climate division, and county levels for 2025. Temperatures are in °F. The rank is the position the variable for 2025 occupies among the 131 years after the 131 values have been arranged from lowest to highest using the *standard competition ranking method*. The closer to 131 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. 2025 Bar Graphs: Statewide, Climate Divisions, and Counties

A. Temperatures and Precipitation

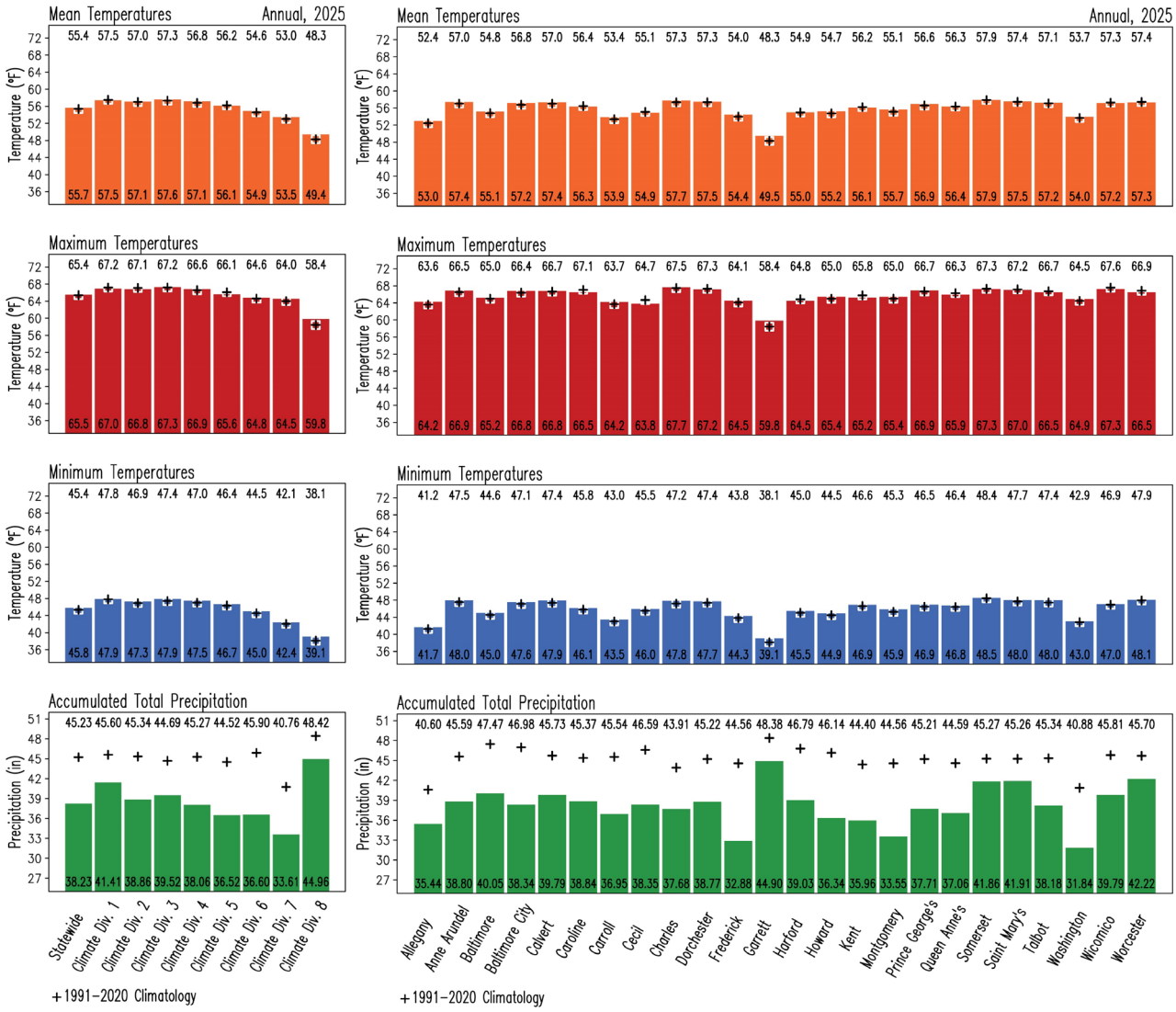

Figure B1. Annual surface variables in Maryland for 2025. Color bars represent the variables as follows: annual mean of the mean surface air temperature (orange), maximum surface air temperature (red), minimum surface air temperature (blue), and annually accumulated total precipitation (green) at statewide 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 2025. For comparison, the corresponding 1991-2020 climatological annual values are displayed as black addition signs, and their magnitudes are shown at the top of the panels.

B. Temperatures and Precipitation Anomalies

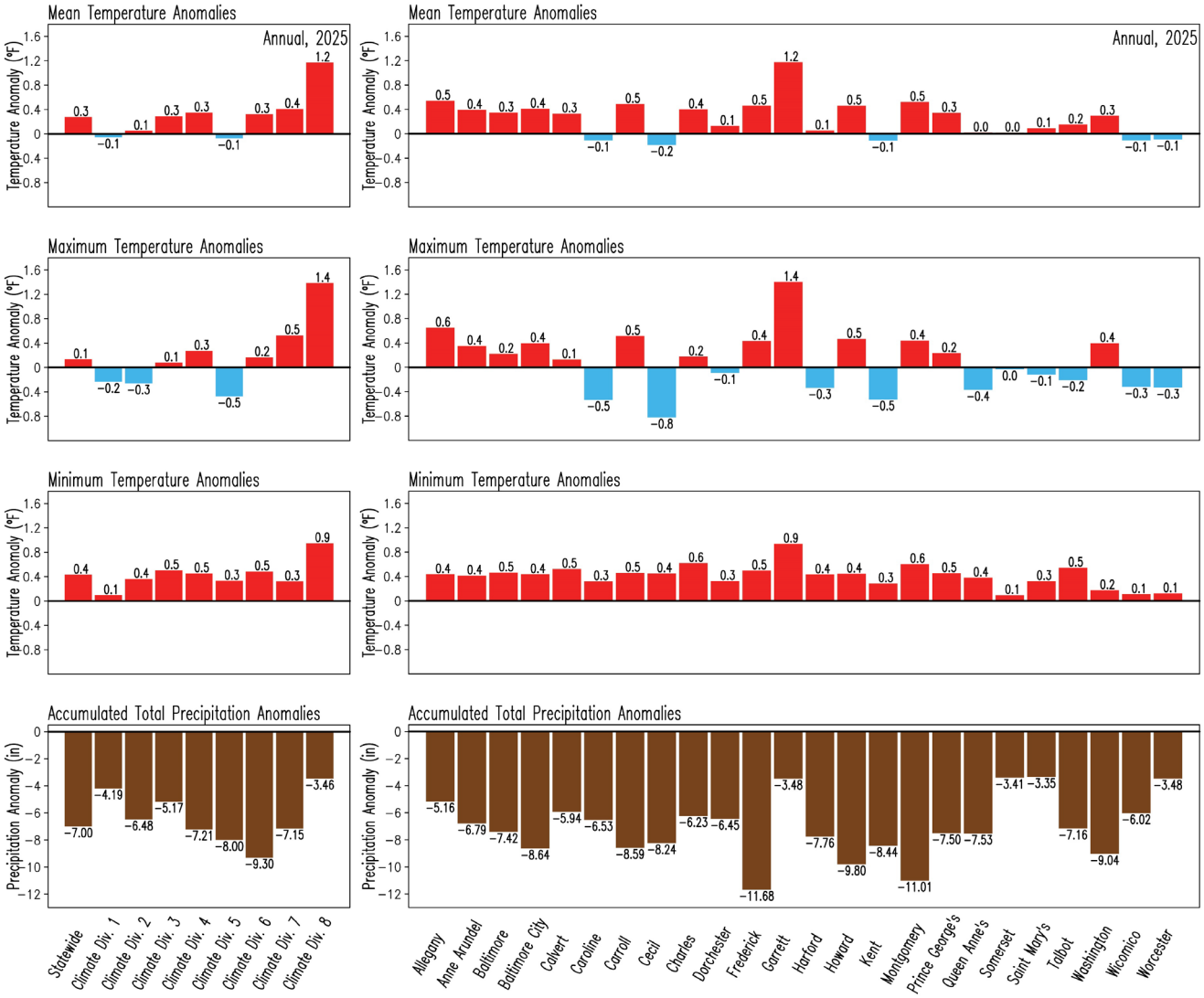

Figure B2. Anomalies of the annual surface variables in Maryland for 2025. Anomalies are with respect to the 1991-2020 annual climatology. Red/blue color represents positive/negative anomalies for the annual means of the mean surface air temperature (upper row), maximum surface air temperature (second row from top), and minimum surface air temperature (third row from top), while brown color indicates negative anomalies in the annually accumulated precipitation (bottom row) at statewide and climate division (left column), and at county (right column) levels. Temperatures are in °F, and precipitation is in inches. The numbers outside the bars indicate the magnitude of the 2025 anomaly.

Appendix C. Annual 1991-2020 Climatology Maps and 2025 Precipitation Anomaly as Percentage of Climatology

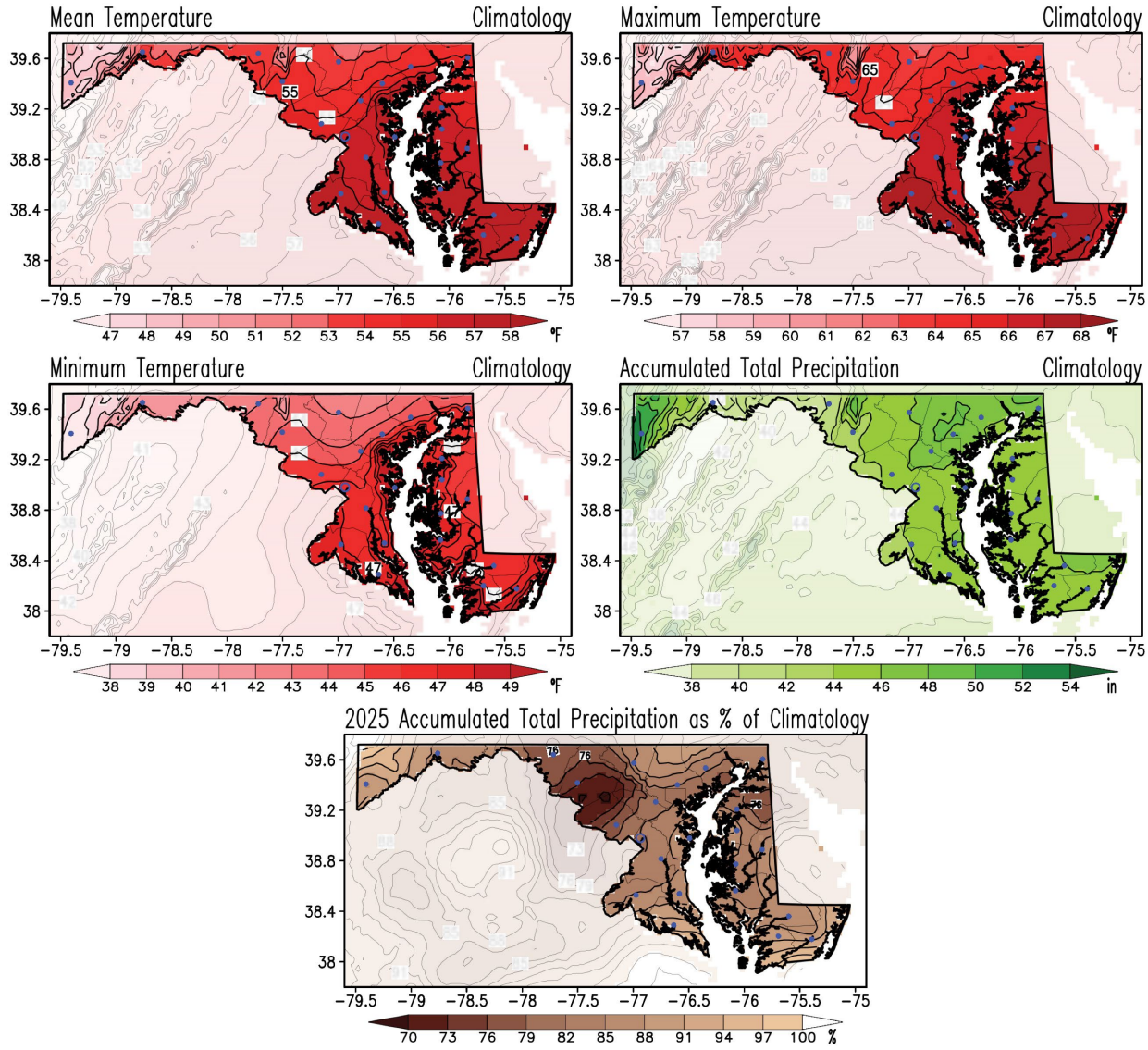

Figure C1. Climatology of the annual mean of the mean, maximum, and minimum surface air temperatures, and annually accumulated precipitation for the period 1991-2020 (upper and middle rows), and precipitation anomalies in 2025 as a percentage of climatology (bottom row). Temperatures are in °F and precipitation in inches according to the color bars. This is the current climate normal against which the 2025 conditions are compared to obtain the 2025 annual anomalies. Precipitation as a percentage is calculated by dividing the total precipitation (from Figure 4) by the climatology (from the middle right panel) and multiplying the ratio by 100, so units are in percent of climatology (%); the brown shading in this map indicates drier than normal conditions. Note that shading outside the state has been washed out to facilitate focus on Maryland. Filled blue circles mark the county seats.

Appendix D. Annual Standard Deviation and 2025 Standardized Anomalies Maps

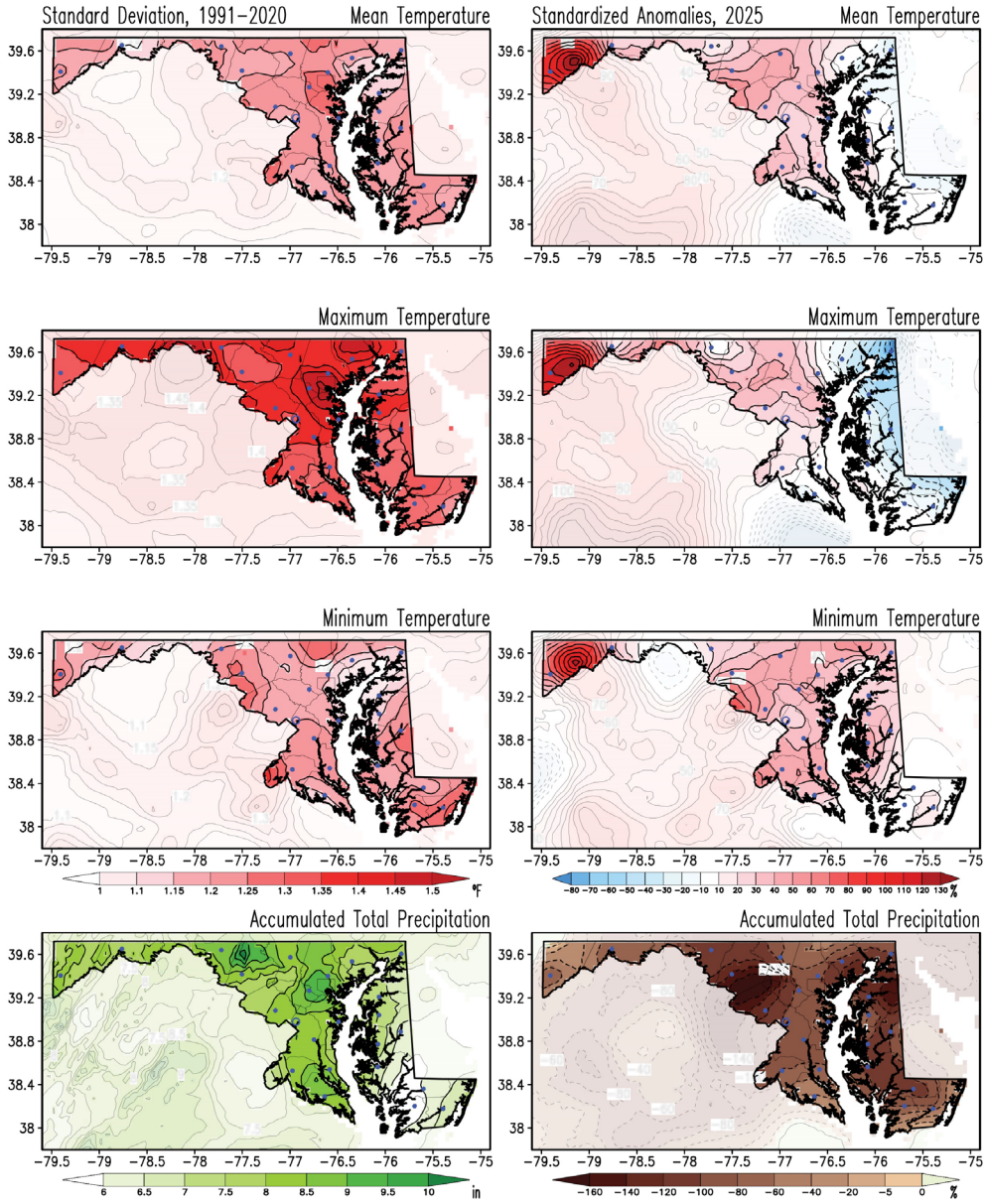

Figure D1. Standard deviation and standardized annual anomalies of the annual means of the temperatures and annually accumulated total precipitation for 2025. Standard deviations for annual mean, maximum, and minimum surface air temperatures and accumulated precipitation were obtained for the 1991-2020 period (left column). Anomalies for 2025 (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, units are in percent (%). Note that shading outside the state has been washed out to facilitate focus on Maryland. Filled blue circles mark the county seats.

Appendix E. 2007-2020 Mean and Standard Deviation of Annual Sea Surface Temperatures

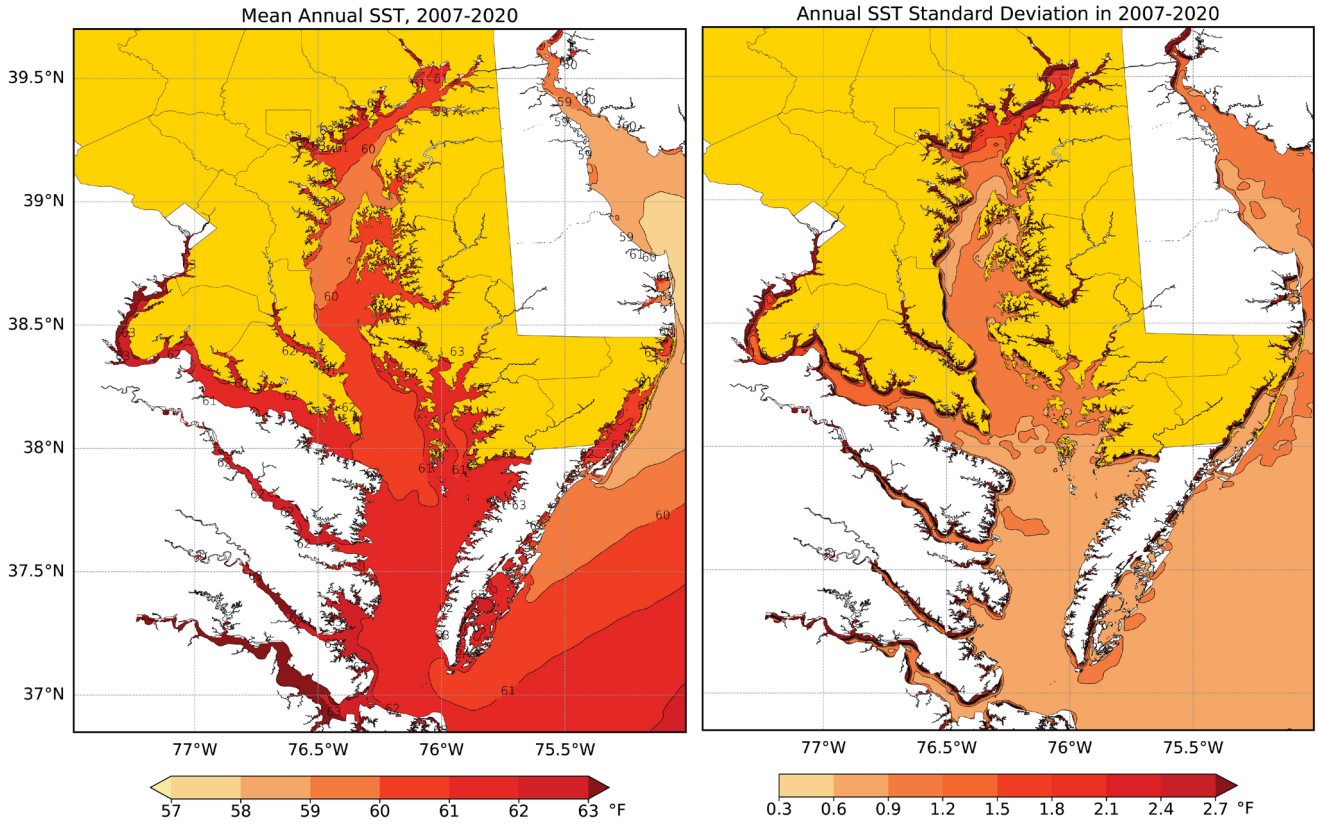

Figure E1. Mean (left panel) and standard deviation (right panel) of the annual mean sea surface temperatures in the Chesapeake Bay and surrounding coastal areas for the period 2007-2020. The mean and standard deviation of the temperatures are in °F according to the color bars. The mean temperature map is the current mean against which the 2025 annual mean conditions are compared to obtain the 2025 annual anomalies (from Figure 16). 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 map (left panel) and the 2025 map (Figure 16, 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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