Community Climate Outlook
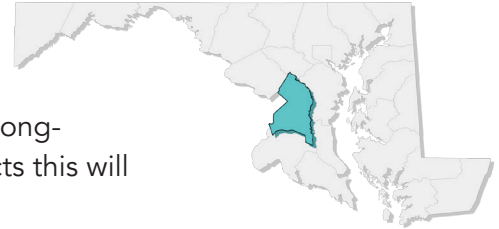# *PRINCE GEORGE'S COUNTY, MD*

Prince George's County residents will face increasingly severe weather- and climate-related hazards, such as **heat waves, flooding, and storm surge**.

As the frequency and intensity of local hazards change, it is important for all of us to protect communities and local habitats. Using the best available evidence, scientists can project how climate (long-term averages in daily weather) will change in the future, and the effects this will have on local communities.

Climate information can guide decision-making to help us plan and prepare for future weather and climate hazards. It is important that action includes areas with limited resources and people at higher risk. With justice-minded planning and preparation, Prince George's County can build a resilient community for all residents and future generations.

SEA LEVEL RISE

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KEY MESSAGE: *As temperatures warm, land ice melts and seawater expands causing sea levels to rise around the world. Between 1980 and 2019, sea levels near Prince George's County rose roughly 0.5 feet leading to more frequent and severe coastal flooding, and property damage. Sea levels will rise an additional 0.5 to 2.5 feet in the next 50 years (by 2070), submerging property and permanently reshaping Prince George's County's coastline.*

STORM SURGE: Rising sea levels increase the impacts of storm surge allowing waves and severe flooding to reach further inland. Storm surge can damage properties and coastal habitats, erode beaches, and cause serious injury or death.

Photo courtesy of M. Land, Chesapeake Bay Program

TIDAL FLOODING: Rising sea levels allow tides to push further inland causing more frequent high tide flooding, putting low-lying housing, commercial property, and infrastructure at risk. Repeated tidal flooding disrupts everyday life by closing roads and overwhelming storm drains.
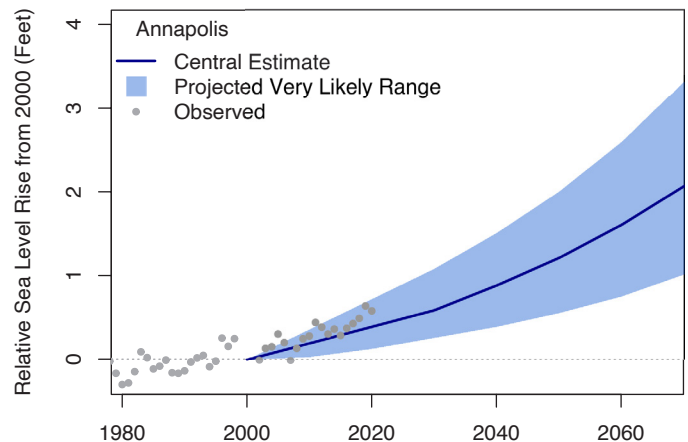
The graph shows the projected change of sea level in feet above mean sea level relative to 2000. The blue line shows the central estimate (50% probability) and the blue shading shows the very likely range (5 to 95% probability) of sea level rise used for official planning purposes in Maryland. Dots show the observed changes in sea level at Annapolis tide station. Data for the future scenarios are based on a low-emissions scenario (RCP 4.5).

FUTURE SCENARIOS[1]: Future climate will depend, in part, on the efforts that we take today to reduce carbon dioxide emissions from the burning of fossil fuels like coal, oil, and methane gas. This fact sheet presents two scenarios[1] of future climate based on a combination of climate models scaled to Prince George's County, MD. The first scenario, a higher-emissions scenario (RCP8.5), assumes continued increase of fossil fuel emissions, with no mitigation. The second, a lower-emissions scenario (RCP4.5), is a scenario where we tackle the issue of emissions head-on by responsibly using our natural resources and implementing strategies that begin to reduce global fossil fuel emissions by 2050, stabilizing carbon dioxide concentrations before 2100.

Access resources for adaptation, data references, and additional outlooks by visiting: *marisa.psu.edu/outlooks*

**MARISA**

CHANGING TEMPERATURE PATTERNS

! **KEY MESSAGE:** *Human health, local fisheries, and infrastructure are all threatened by higher temperatures. At 95°F, it is hard to keep indoor areas and our bodies cool. Prince George's County's summers are getting hotter and this is intensified by the Heat Island effect[3]. On average, Prince George's County sees 7 days per year with temperatures above 95°F (1990-2019 average). Within the next 50 years (by 2070), Prince George's County can expect a yearly average of 30 to 52 days above 95°F, with associated increases in cooling costs, reduced air quality, and heat-related illnesses.*

HEAT-RELATED ILLNESSES: Heatwaves can kill people and pets. In Maryland, more than 80 people have died from extreme heat between 2010 and 2019. Individuals at higher risk include children, pregnant women, older adults, outdoor workers, and lower-income residents.

ENERGY USE: Heat islands[3] increase the demand for air conditioning. In the US, electricity demand for cooling will increase by 5-20% for every added degree C. During heatwaves, increased demand can overload systems causing power companies to conduct rolling brownouts or blackouts to avoid system failure.

Photo courtesy of P. Pellegrino, stock.adobe.com
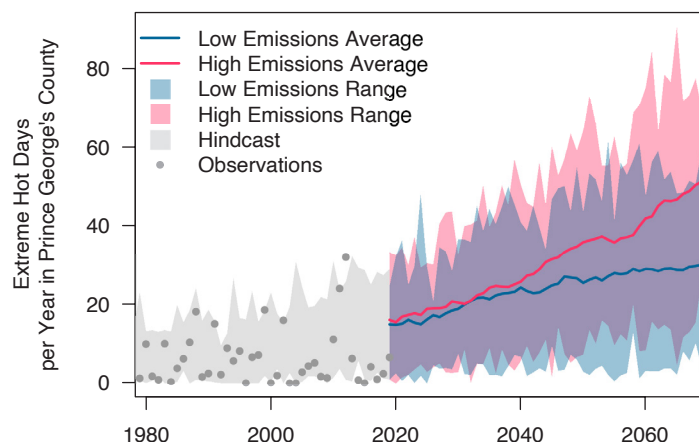
The graph shows the number of days in a year with temperatures above or equal to 95°F. Dots represent observed annual days of extreme temperatures and the gray shading shows the hindcast[2]. Two scenarios[1] of the future are shown as a high-emissions scenario (RCP 8.5) in red and a low-emissions scenario (RCP 4.5) in blue. Data for the future scenarios[1] are retrieved from Multivariate Adaptive Constructed Analogs (MACA), and observed data are from the Gridded Surface Meteorological Dataset (gridMET).

CHANGING RAINFALL PATTERNS

! **KEY MESSAGE:** *Heavy rainfall in Prince George's County is increasing in frequency and intensity, causing property damage, septic backups, and impacts to water quality in wells, local streams, mold and indoor air quality issues, and the Chesapeake Bay. Annual rainfall in Prince George's County will likely increase by an average of 2 to 3 inches (2050-2079 average compared to the 1990-2019 average).*

FLOODING: Heavy rain overwhelms infrastructure and drainage systems, causing property damage and covering roads.

Photo courtesy of M. Mitchell

REDUCED HUMAN HEALTH: Changing moisture levels impact the spread of mold and illness, including tick- and mosquito-borne diseases. High humidity allows ticks to travel further and promotes mold growth. Flooded areas from rainfall promote mosquito reproduction leading to more mosquitoes.
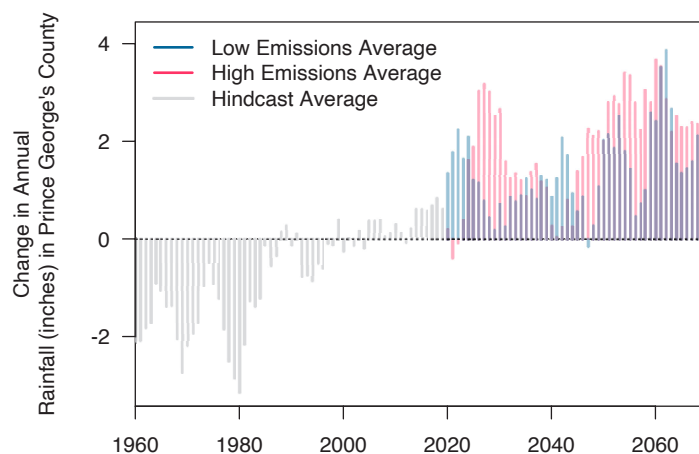
The graph shows the change in annual rainfall compared to the average between 1990 and 2019. The gray lines show the hindcast[2]. Two scenarios[1] of the future are shown as a high-emissions scenario (RCP 8.5) in red and a low-emissions scenario (RCP 4.5) in blue. Data for the future scenarios[1] are retrieved from MACA.

FOOTNOTES:
1 Scenarios are a plausible representation of future events. They are not predictions or forecasts, but they offer insight into the implications of developments and actions.
2 Hindcasts are model results for a historical period. Hindcasts are useful for comparing observations with model estimates.
3 Heat islands are urban areas where temperatures are higher than the surrounding areas due to high concentrations of infrastructure and limited green space.