



National Stormwater Calculator Extreme Weather Research Overview & Coordination

Jason Bernagros

U.S. Environmental Protection Agency (EPA)

Office of Research and Development (ORD)

Center for Environmental Solutions and Emergency Response
Water Infrastructure Division, Stormwater Management Branch

Chesapeake Bay Program (CBP):

Urban Stormwater Workgroup (USWG) and Climate Resilience Workgroup (CRWG)

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Coordinating Research Efforts on Urban Stormwater Planning and Extreme Weather

- Both CBP and ORD currently conducting research on intensity duration frequency (IDF) curves for urban stormwater planning needs
 - ORD researchers: Tom Johnson, Tanya Spero, Anna Jalowska, Colleen Barr, and Jason Bernagros
- Interest in understanding how current research efforts overlap for possible collaboration
- ORD working on updating extreme weather data used within [EPA's National Stormwater Calculator](#)
 - Update applicable to use within [EPA's Stormwater Management Model \(SWMM\)](#)

SWC Weather data updates

- Currently rely on EPA's Better Assessment Science Integrating Point and Nonpoint Sources (BASINS) historical weather data. Data goes back approximately 30 years to 2006/2009.
 - Provides hourly rainfall (~8,200 stations) and daily potential evaporation (~5,200 stations)
 - Data is outdated now and needs to be updated.

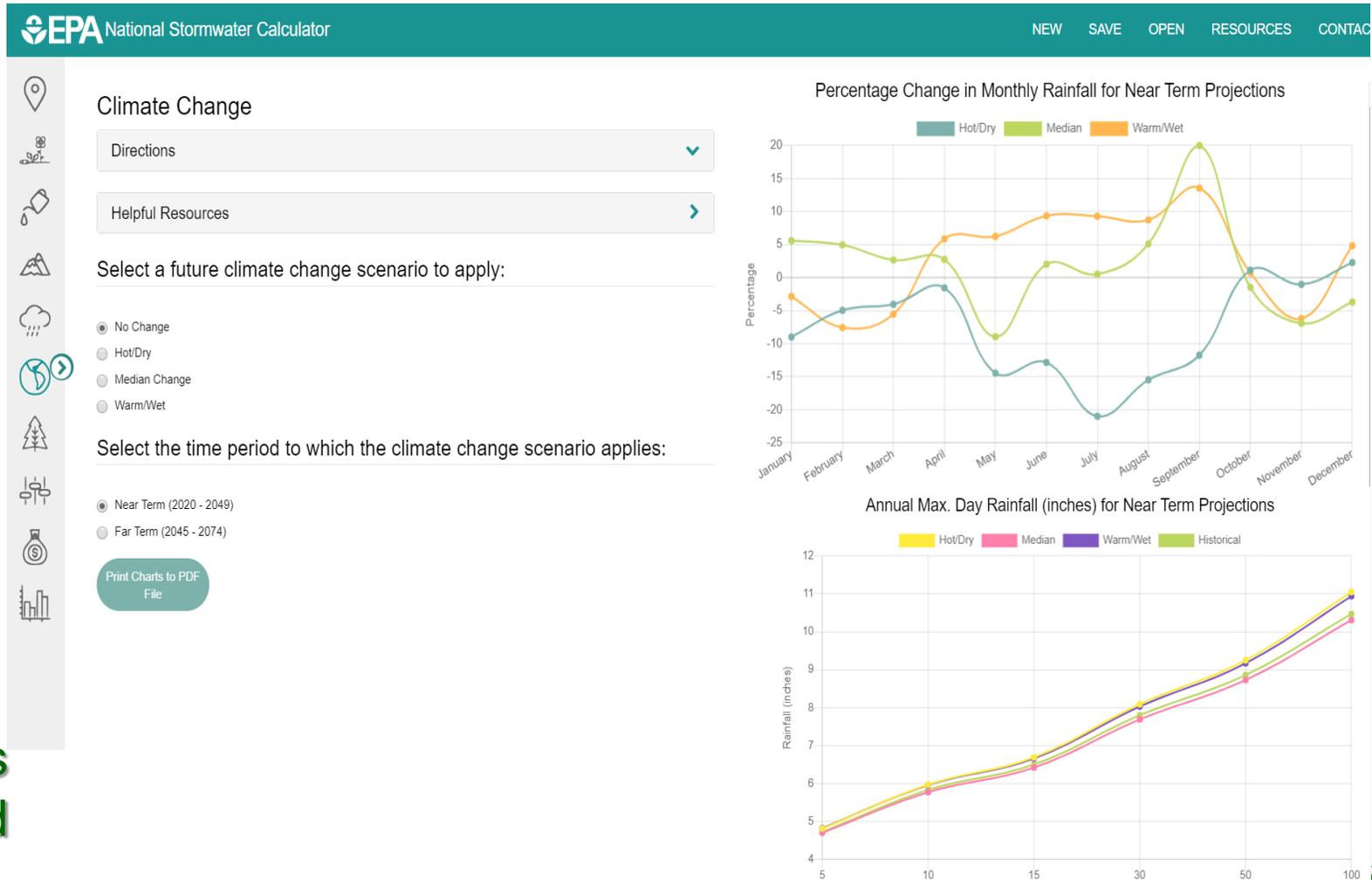
The screenshot displays the EPA National Stormwater Calculator interface. The top navigation bar includes the EPA logo, the text "National Stormwater Calculator", and buttons for "NEW", "SAVE", and "OPEN". A vertical sidebar on the left contains various icons for map navigation and data selection. The main area features a map of Annapolis, MD, with a green location pin and an orange weather icon. A data panel is overlaid on the map, titled "Precipitation/Evaporation". It includes a "Directions" dropdown menu, a "Rain Gage" dropdown menu set to "ANNAPOLIS POLICE BRKS", and a "Weather Station" dropdown menu also set to "ANNAPOLIS POLICE BRKS". Below these, the "Rainfall and Evaporation Information" section shows: "Record Start Date: 1970/01/01", "Record End Date: 2005/12/31", and "Annual Rainfall: 46". There is a "Download rainfall/evaporation data" link and a "Help" link at the bottom of the panel. The map background shows various streets and landmarks in Annapolis, including the Naval Academy and the Severn River.

SWC Weather data updates

- Actively researching and updating historical weather data using NOAA's Integrated Surface Database (ISD):
 - Data going back 20 years to as recent as 1 week old
 - Focusing on station data from principal airports and National Weather Service (NWS) Cooperative Observer Program (COOP)
 - Allow users of the SWC to have easy access to recent historical weather data, that will be annually updated by EPA
 - Existing BASINS data will be appended to ISD weather data in the SWC
- Expect to conduct user testing in 2020 and finalize historical weather update research in 2021

Updates to Extreme Weather in the SWC

- Currently rely on extreme weather data from Climate Resilience Evaluation and Awareness Tool (CREAT) 2.0 from 2013
- CREAT 2.0 climate change scenario is applied to the user selected BASINS weather station (percent change in rainfall and temperature)
- Extreme 24-hour design storms (5 – 100 year storm) computed from CREAT 2.0



Updates to Extreme Weather in the SWC

- Researching best recent and available technical options/approaches for updating existing and projected IDF curves data for use within the SWC and SWMM. New data-sets and approaches available since 2013.
- Updated extreme weather data in the SWC will be applied to the annually updated historical weather data from ISD and NWS COOP stations.
- Expecting to conduct user testing of the extreme weather update for the SWC in 2021

Discussion: Q & A

- Shared or common research interests with the CBP, USWP, and CRWG?
- Exploring ways to coordinate research efforts on extreme weather and stormwater BMP design and planning and design tools used within the Chesapeake Bay?
 - Opportunities for testing updates to the SWC extreme weather module with CBP partners?
- Data requirements for updated and projected IDF curves for the Chesapeake Bay?
 - Certain 24-hour design storms
 - Future projected time periods
- Other thoughts?

Jason Bernagros
bernagros.jason@epa.gov
202-566-1671