



Connecticut Association of Flood Managers (CAFAM) – United States Geological Survey (USGS) Webinar

**THURSDAY, MARCH 19, 2026 – Advancing Hydrologic Risk Assessment Under
Climate Change (Future Hydrology)
1:00 pm-2:00 pm (Virtual Webinar)
Gregory Stewart, USGS**

Communities across the Northeast may face potential consequences of climate change ranging from more extreme rainfall to more pronounced and frequent droughts. Climate change could alter hydrology in potentially complex and unanticipated ways. Typical approaches for projecting hydrologic risk under climate change can misrepresent and underestimate the variability of climate and hydrology in the future. This limitation can severely impede risk-based decision-making for watershed and infrastructure management. As an alternative, this project applies emerging stochastic modeling tools that minimize future variability, including the development of a Stochastic Watershed Model. This model uses input from a Stochastic Weather Generator that estimates climate variables for future warming scenarios over the State of Massachusetts.

This investigation starts with a Stochastic Weather Generator developed at Cornell University. This tool simulates precipitation and temperature for selected warming scenarios throughout Massachusetts. Output from the Stochastic Weather Generator will be used to characterize future climate in Massachusetts. Additionally, output from the Stochastic Weather Generator will be used to drive a deterministic rainfall-runoff model, which defines how much runoff is created from a specific amount of rainfall. Finally, a Stochastic Watershed Model, developed at Tuft University, will be applied to correct the biases of the deterministic models at high- and low-flow extremes, which are common with deterministic watershed models.

There will be a question-and-answer period at the end of the presentation, as well as a brief discussion of other ongoing USGS projects in New England.

To register for this webinar, please use the following link:

<https://us06web.zoom.us/meeting/register/L6gfE6qPSU-9IG-atyRp0w>

Certification credits are pending with ASFPM; it is anticipated that this webinar will provide 1 CEC for CFMs.



Gregory Stewart, PE is Chief of the Applied Hydrology Branch in the New England Water Science Center and has been with the USGS since 1990. The Applied Hydrology Branch provides hydrologic data, research, and tools to water resource managers, stakeholders and policy makers that inform critical water management decisions throughout New England. Mr. Stewart's expertise includes hydrology, streamflow, and surface water modeling. His experience includes field data collection; hydrologic, hydraulic, and statistical studies including Flood Insurance Studies and Flood Recovery Reports; and coordinating various federal programs with FEMA.