Geophysical Research Abstracts
Vol. 20, EGU2018-9322, 2018
EGU General Assembly 2018

Using Climate Information for Reducing Drought and Water Quality Impacts

Puneet Srivastava (1), Vaishali Sharda (2), Golbahar Mirhosseini (3), Subhasis Mitra (4), and Sarmistha Singh (5)

(1) Auburn University, Water Resources Center, Biosystems Engineering, United States (srivapu@auburn.edu), (2) University of Nebraska, Water for Food Global Institute, United States, (3) Atkins, Washington, DC, United States, (4) Indian Institute of Technology, Palakkad, India, (5) Purdue University, Department of Earth, Atmospheric, and Planetary Sciences, United States

In recent years, great advances have been made in weather forecasting. Because of this, skill in forecasting precipitation and temperature with up to two week lead time has greatly improved, and the use of weather information for water resources decision-making has become ubiquitous. In addition to weather data, water resources community greatly relies on historical climate data for decision-making related to water supply, designing civil infrastructure, flood protection, and water quality protection. However, although we are greatly influenced by seasonal-to-interannual (SI) climate variability, water resources community has not yet embraced the use of SI climate forecasts in decision-making. Further, water resources community is also lax in updating historical climate data. In the southeastern United States (and many other parts of the world), large SI climate variability, caused mainly by the La Niña phase of the El Niño Southern Oscillation (ENSO), frequently results in low water availability and droughts. Because La Niña typically returns every two to seven years, drought is a recurring phenomenon and greatly affects the availability and quality of water in the Southeast. In recent years, advances have also been made to improve SI climate forecast skill. This is especially truly for the regions of the US (e.g., the Southeast) that are greatly affected by ENSO. In addition to SI climate variability, climate change is highlighting the critical need of continually updating historical climate data for use in water resources decision-making. On this poster, I will present a few examples from my research groups recent work on how SI climate forecasts can be used to mitigate the negative impacts of drought in the Southeast US and how recent climate changes is highlighting the importance of upgrading civil infrastructure for flood and water quality protection.