



## ***21st Century Global Freshwater Security: Can it Exist and Can Scientists Communicate the Challenges?***

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### **Abstract**

Climate models and decades of satellite data are converging on the unfortunate reality that Earth's water cycle is changing. Paleoclimate indicators remind us that this has always been the case. Freshwater is constantly being exchanged among the atmosphere, ocean, land and ice reservoirs, while on land, patterns of precipitation, evapotranspiration, flooding and drought are shifting. The evolving water cycle of the 21st century will likely be stronger, more variable, and will result in broad swaths of mid-latitude drying, accelerated by the depletion of the world's major groundwater aquifers. A well-defined geography of freshwater 'haves' and 'have-nots' is clearly emerging. What does water sustainability mean under such dynamic climate and hydrologic conditions, in particular when coupled with future projections of population growth? How will water managers cope with these new normals, and how will food and energy production be impacted? The responsibility of communicating this changing global water landscape falls squarely on the shoulders of the academic research community, yet the challenge of doing so is daunting. In this lecture I will review what our latest research tells us, including some personal experiences with science communication and water diplomacy.

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