

# The Impact of Climate on Water Supply Reliability

Wednesday, September 6, 2006, at 12:00 p.m.

Brickyard Orchid House, Room 175

21 E. 6th St., Suite 126B, Tempe

**Katharine Jacobs, Dave Meko, Bonnie Colby, Bart Nijssen,**  
**with students Laura Lindenmayer and Dustin Garrick**  
**Enhancing Water Supply Reliability through Climate Information**

Water supply variability has been a longstanding challenge in Arizona and the Colorado River Basin, stimulating large investments in water storage and delivery infrastructure. Climate change compounds the current regional water management challenge of developing and implementing shortage criteria. Surface water from the Colorado River provides close to 40% of the state's water supply. Climatic conditions are the major determinant of surface water supply and expanded use of climate information, based on current and proposed work, will have multiple benefits for water supply planning and river system management. This presentation summarizes the results of a two year multidisciplinary project focused on developing new sources of data to input into the Bureau of Reclamation's Colorado River Simulation System model, using information from tree rings and from climate models, and on new ways to use climate information in management applications such as dry year options with agriculture.

**Ms. Katharine L. Jacobs** is the Executive Director of the Arizona Water Institute, and is also the Deputy Director of the NSF Center for Sustainability of Arid Region Hydrology and Riparian Areas at the University of Arizona. She is the project manager for this project.

**Project Team:** Dr. David Meko is Associate Research Professor, Laboratory of Tree-Ring Research, UA; Dr. Bonnie Colby is Professor in the Department of Agricultural and Resource Economics with joint appointment in Hydrology and Water Resources at the UA. Dr. Bart Nijssen recently left the UA Departments of Civil Engineering and Hydrology and Water Resources to pursue private sector work in Seattle. Dr. Peter Troch, who recently joined the project team, is Professor, Department of Hydrology and Water Resources, UA.

**Robert Balling and Andrew Ellis**  
**Simulating the Potential Impacts of Regional Climate Change on**  
**Water Supply from the Salt and Verde Watersheds**

Approximately 40% of the water supply to the greater Phoenix region comes from runoff on the Salt and Verde watersheds, as the combined system delivers more than 1 million acre-feet of water to users annually. To test the sensitivity of these watersheds to climate change, a basic water budget model was adapted and applied. Beyond simple tests of the sensitivity of the watersheds to temperature and precipitation, the model was run using regional climate change data generated by general circulation models in representing greenhouse gas and sulfate aerosol emission scenarios for the 21st century. Plugging these climate change data into the model produces results which point to the importance of addressing water sustainability for Arizona's continued growth and development.

**Dr. Robert C. Balling, Jr.** is a professor in the climatology program in the School of Geographical Sciences at ASU. Over the past 20 years, Dr. Balling has been involved in a variety of interrelated climatological issues. He has published over 125 articles in the professional scientific literature and has written three books. He has served as a climate consultant to the United Nations Environment Program, the World Climate Program, the World Meteorological Organization, and the Intergovernmental Panel on Climate Change.

**Dr. Andrew W. Ellis** is an associate professor in the climatology program in the School of Geographical Sciences at ASU and Director of the School's Office of Climatology. He was appointed State Climatologist for Arizona in 2001, leading to service on the Technical Committee of the Arizona Drought Monitor, among others. Dr. Ellis' research interests are in hydroclimatology, specifically seasonal precipitation variability, watershed runoff modeling, and drought monitoring and forecasting.

**A reservation is required for this event, as lunch will be served.**

Please contact Michelle Schwartz at (480) 965-3367 or [Michelle.Schwartz@asu.edu](mailto:Michelle.Schwartz@asu.edu).



ARIZONA STATE UNIVERSITY

This lecture is presented by Arizona State University and the Decision Center for a Desert City.