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# **Arid Zone Hydrology Under Climate Change Scenarios For the 21st Century**

**February 27 — 28, 2014**

**Rudder Tower**

**3rd Floor Room 301 TAMU**

**Organizers: Dr. Binayak Mohanty (TAMU) and  
Dr. Matthew McCabe (KAUST)**



Institute of Applied Mathematics and  
Computational Science ( IAMCS )



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## Thursday – February 27, 2014

Morning Session: Room - 301		
Time	Speaker	Title
8:00 - 8:30	<b>Registration/Breakfast Room: 302</b>	
8:30 - 8:45	Dr. Raymond Carroll (TAMU)	Welcome
8:45 - 8:55	Dr. Binayak Mohanty (TAMU)	<i>Introductory Comments</i>
8:55 - 9:30	Dr. Murugesu Sivapalan (University of Illinois)	<i>Predictability of Arid Zone Hydrology: Challenges and Opportunities</i>
9:30 - 10:05	Dr. Raghavendra Jana (KAUST)	<i>Understanding Vadose Zone Hydrology in Arid Regions</i>
10:05 - 10:40	Dr. Peter Troch (University of Arizona)	<i>Co-Evolution of Climate, Soil, and Vegetation and the Interplay with Hydrological Partitioning in High Elevation Semi-Arid Catchments.</i>
10:40 - 11:00	◆◆ Break ◆◆	
11:00 - 11:35	Dr. Scott Tyler (UNR)	<i>Aquatic Habitats in Arid Regions: Canaries in a Fishbowl</i>
11:35 - 12:15	Discussion <i>Arid Zone Hydrology – Global Challenges and Opportunities</i>	

12:15 - 1:30 pm Lunch

Afternoon Session: Room - 301		
Time	Speaker	Title
1:30 - 2:05	Dr. Kelly Caylor (Princeton University)	<i>Understanding the Role of Climate Variability as a Determinant of Dryland Structure and Function</i>
2:05 - 2:40	Dr. Bridget Scanlon (UT)	<i>Approaches to Enhancing Sustainability of Water Resources in Semiarid Regions</i>
2:40 - 3:05	Dr. Georgianne Moore (TAMU)	<i>Effects of Vegetation Change on Transpiration: When it varies. When it doesn't. And why.</i>
3:05 - 3:40	Dr. Mark Ankeny (INL)	<i>Improved Sustainability Using Vadose Zone Manipulation in Arid and Semiarid Environments</i>
3:40 - 4:00	◆◆ Break ◆◆	
4:00 - 4:25	Dr. Binayak Mohanty (TAMU)	<i>Soil Hydrologic Processes, Parameters, and Scaling for Arid Zone</i>
4:25 - 5:15	Discussion <i>Arid Zone Hydrology – Observation, Processes, and Parameters</i>	

## Friday– February 28, 2014

Morning Session: Room - 301		
Time	Speaker	Title
8:00 - 8:30	<b>Registration/Breakfast Room: 302</b>	
8:30 - 9:05	Dr. Peter Kitanidis (Stanford University)	<i>The Role of Smart Managed Aquifer Recharge and Treatment in Meeting the Water Needs of Arid Regions</i>
9:05 - 9:40	Dr. Wade Crow (USDA-ARS)	<i>A Parsimonious Data Assimilation System for Optimally Integrating Multi-Sensor Satellite Observations Over Semi-Arid Areas</i>
9:40 - 10:05	Dr. Mark Everett (TAMU)	<i>Near-Surface Geophysical Techniques and Their Application to Arid Zone Hydrology</i>
10:05 - 10:40	Dr. Witold Krajewski (UIOWA)	<i>Towards Better Understanding of Floods: Implications for Future Flood Frequencies</i>
10:40 - 11:00	◆◆ Break ◆◆	
11:00 - 11:35	Dr. Christopher Duffy (Penn State)	<i>The Catchment Isoscape: Theoretical and Experimental Strategy for Estimating the Isotopic Age of Soil Water with Implications for Semi-Arid Regions</i>
11:35 - 12:15	Discussion <i>Arid Zone Hydrology – Modeling, Assimilation, and Analyses</i>	

12:15 - 1:30 pm Lunch

Afternoon Session: Room - 301		
Time	Speaker	Title
1:30 - 2:00	Dr. John Nielsen-Gammon (TAMU)	<i>When Normal Isn't Good Enough: Surface Water and Runoff Along the Colorado River of Western and Central Texas</i>
2:00 - 2:30	Dr. W. Douglass Shaw (TAMU)	<i>Five Things You Need to Worry About in Thinking About Water and the Economics of Climate Change</i>
2:30 - 3:00	Dr. Gretchen Miller (TAMU)	<i>Improving Plant Water Uptake Formulations in Earth System Models of Arid and Semi-Arid Regions.</i>
3:00 - 3:30	Dr. Huilin Gao (TAMU)	<i>Effects of Urbanization and Climate Change on Streamflows Over the San Antonio River Basin, Texas</i>
3:30 - 3:50	◆◆ Break ◆◆	
3:50 - 4:30	Discussion <i>Arid Zone Hydrology – Projection, Extremes, and Economics</i>	
4:30 - 5:00	Closing Remarks and Action Items for White Paper Development	
5:00	Adjourn	