

Fort Collins Conference

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The **USCID Ninth International Conference on Irrigation and Drainage** took place, on October 11-14, 2016, in Fort Collins, Colorado. The theme of the conference was *Improving Water Management — Latest Methods in Evapotranspiration and Supporting Technologies*. The Conference was held in conjunction with an Evapotranspiration Workshop, organized by Tom Trout. The Conference was co-sponsored by the Environmental Water Resources Institute of ASCE, and the American Society of Agricultural and Biological Engineers. The Conference attracted 175 participants, including irrigation district staff, consultants, academics, researchers, and students, representatives from various governmental organizations, and equipment manufacturers. Conference Co-Chairs were **Delbert Smith**, Bureau of Reclamation, and **Eduardo Bautista** from the USDA, Agricultural Research Service.

The Conference opened with a field tour of the Limited Irrigation Research Farm, which is operated by the Water Management & Systems Research Unit of the USDA-ARS. The farm is located near Greeley. The research at the farm is measuring the water productivity of corn and sunflower, and seeking ways to improve the productivity through regulated deficit irrigation and determining physiological traits that limit productivity. Visitors were shown the precision drip irrigation system and several methods to evaluate crop response to water stress including remote sensing and infrared thermometry. The tour was followed by a lunch presentation by Neil S. Grigg, who provided an overview of Colorado State University's history in water resources and hydraulics research.

In the afternoon, the Conference continued with a plenary session that included presentations on various institutional issues of water management, including water rights, urban-rural water conflicts, water transfers, and conservation programs. **Rick Allen**, University of Idaho, also provided an overview of the *ASCE Manual of Practice 70 – Evaporation, Evapotranspiration, and Irrigation Water Requirements, Second Edition*, which is an update to the manual first published in 1990. Rick and **Marvin Jensen** are co-editors of this publication, which was prepared by the Task Committee on Revision of Manual 70, a technical group sponsored by ASCE-EWRI. Registered participants received a copy of this manual. The day finalized with a combined reception/poster presentation hosted by the Conference exhibitors.

The Conference continued on Wednesday morning with two concurrent technical tracks, the first dealing with Evapotranspiration and the second with Irrigation Management. A total of seven papers were presented in each track. Topics in the ET track included energy balance modeling, ET estimation with web-based irrigation scheduling tools, sensitivity of ET estimates to sensor and errors in ET estimation, and use of unmanned aerial systems for natural resource and irrigation management. The Irrigation Management track consisted of papers in irrigation scheduling applications, performance of sprinkle and drip irrigation systems, VRI irrigation, irrigation with effluents, and irrigation efficiency determinations. The morning sessions were followed by a lunch event, with Signe Snortland, Area Manager for USBR in Loveland, CO, as the invited speaker. Signe provided an update of USBR projects and water resource issues in Colorado.

The afternoon program consisted again of technical tracks on ET and Irrigation Management. Deficit irrigation, crop water use and measurement with different crops, and use of remotely sensed data for irrigation management were key topics in the ET track. The irrigation management session emphasized technologies for irrigation management, including sensors, software, as well as case studies in irrigation management. The day ended with a dinner presentation by **Kenneth R. Wright**, who shared with the audience his many experiences studying hydraulic systems in the city of Machu Pichu, the capital of the Incan Empire. One of the concurrent sessions on Thursday was the Colorado ET Workshop.

The second concurrent Thursday session focused on a variety of topics. The morning sessions dealt with conjunctive use studies, regional salinity studies, hydropower management, reservoir operations, and environmental issues. In the afternoon, topics included institutional management issues, technologies, recharge, and agricultural water conservation programs. Rick Allen was the speaker for the Thursday lunch event, and he provided an update on EEFlux, an effort aimed at developing ET maps for public use. This effort is supported by Google and various research institutions.

The Conference ended with a Friday tour. Tour stops included Northern Colorado Water Conservancy District headquarter facilities and interpretive gardens, the east slope facilities of the Colorado Big-Thompson Project, the Robert V. Trout Hydropower Plant at Carter Lake, the proposed Glade Reservoir and Chimney Hollow reservoir sites, the Colorado State University Hydraulics Lab, and the Historic Bellvue Hydraulics Laboratory. Lunch was served on the shores of Horsetooth Reservoir.☐