

USCID Water Management Conference

***Groundwater Issues and
Water Management —
Strategies Addressing the
Challenges of Sustainability***

Pre-Conference Workshop
Preparing Successful Grant Applications



USCID

The U.S. society for irrigation and drainage professionals

Cooperating Organization —
Groundwater Resources Association of California

March 4-7, 2014
Sacramento, California

Program

Monday, March 3

12:00 noon - 1:00 p.m. **Registration**

1:00 p.m. - 5:30 p.m. **Workshop — Preparing Successful Grant Applications**

Moderator — **Samuel W. Schaefer**, GEI Consultants, Inc., Santa Barbara, CA

Representative, Bureau of Reclamation

Representative, California Department of Water Resources

Tuesday, March 4

7:00 a.m. - 5:30 p.m. **Registration**

8:00 a.m. - 11:30 a.m. **Field Tour**

This half-day field trip will visit the **Sacramento Regional Water Authority**, for presentations on ground water issues. The return will feature a drive past Folsom Dam, providing a view of the new spillway and facilities.

12:00 noon - 1:15 p.m. **Lunch with Speaker**

Moderator — **Bryan P. Thoreson**, President, USCID, Conference Co-Chair, and Davids Engineering, Inc., Davis, CA

David Guy, Northern California Water Association, Sacramento, CA

1:30 p.m. - 3:00 p.m. **Plenary Session — Panel Discussion: California's Water Future: Picking up the Pace**

Moderator — **Thaddeus L. Bettner**, Glenn-Colusa Irrigation District, Willows, CA

Irrigation stakeholders will discuss California's current debate over facilities and ecosystem investments that are critical to long-term surface and groundwater reliability and sustainability. Panel Members include:

Lewis Bair, Reclamation District No. 108, Grimes, CA

John Sweigard, Merced Irrigation District, Merced, CA

Roger K. Patterson, Metropolitan Water District of Southern California, Los Angeles, CA

Dee Dee D'Adamo, State Water Resources Control Board, Stanislaus, CA

Richard Roos-Collins, Water and Power Law Group PC, Berkeley, CA

3:00 p.m. - 3:30 p.m. **Break**

3:30 p.m. - 5:00 p.m. **Plenary Session, continued**

Moderator — **Chris Peterson**, West Yost Associates, Davis, CA

Overdraft, Safe Yield, and Sustainable Yield: Lessons from Central Valley Groundwater Basins

Daniel Wendell and **Maurice Hall**, The Nature Conservancy; and **Ali Taghavi**, RMC Water and Environment, Sacramento, CA

Water, Salt, and Nitrate Movement on a Large Scale for California's Central Valley

Barbara Dalgish, **Dylan Boyle** and **Vicki Kretsinger**, Luhdorff & Scalmanini Consulting Engineers, Woodland, CA

Groundwater Management in the Upper Klamath Basin, Oregon and California: Balancing the Benefits of Groundwater for Agriculture and Wildlife.

Brian Wagner and **Marshall Gannett**, U.S. Geological Survey, Sacramento, CA

5:00 p.m. - 5:30 p.m. **Meet the Exhibitors**

5:30 p.m. - 7:30 p.m. **Networking Reception and Exhibition**

Wednesday, March 5

7:00 a.m. - 5:30 p.m. **Registration**

7:00 a.m. - 8:00 a.m. **Continental Breakfast in Exhibit Hall**

8:00 a.m. - 9:30 a.m. **Technical Session 1A — Evapotranspiration**

Moderators — **Jason Smesrud**, CH2M Hill, Portland, OR; and **John Sweigard**, Merced Irrigation District, Merced, CA

California Irrigation Management Information System (CIMIS) Updates

Bekele Temesgen, California Department of Water Resources, Sacramento, CA

New Techniques for CUNL

Delbert M. Smith, Bureau of Reclamation, Denver, CO

ET — Crop Measurements

Khalid Bali, University of California, Cooperative Extension, Holtville, CA

9:30 a.m. - 10:30 p.m. **Break in Exhibit Hall**

10:30 a.m. - 12:00 noon **Technical Session 1B —
Evapotranspiration**

Moderators — **Jason Smesrud** and **John Sweigard**

Validation of Remotely Sensed Surface Energy Balance Data at Field Scale: A Case Study from Southern California

Saleh Taghvaeian, Oklahoma State University, Stillwater, OK

Indicators of Changes in Sacramento Valley Consumptive Use

Byron Clark, **Grant Davids**, **Deepak Lal** and **Bryan Thoreson**, Davids Engineering, Inc., Davis, CA; and **Steve Macaulay**, Macaulay Water Resources, Davis, CA

Satellite Mapping of Agricultural Water Requirements in California

Forrest S. Melton, **Lee Johnson**, **Christopher Lund**, **Kirk Post**, **Alberto Guzman** and **Sam Hiatt**, NASA ARC-CREST, Moffett Field, CA; **Diganta Adhikari**, California State University, Fresno, Fresno, CA; and **Cayle Little**, **Bekele Temesgen** and **Kent Frame**, California Department of Water Resources, Sacramento, CA

12:00 noon - 1:15 p.m. **Lunch with Speaker**

Moderator — **Bryan P. Thoreson**

Groundwater Regulation: Is There a Place for State Regulation in Local Groundwater Basins?

Valerie C. Kincaid, partner, **O’Laughlin & Paris LLP**, Sacramento, CA

1:30 p.m. - 3:00 p.m. **Technical Session 2A —
Irrigation Technology**

Moderators — **J. E. Ayars**, Agricultural Research Service, USDA, Parlier, CA; and **Neil W. Schild**, MWH Americas, Sacramento, CA

Methods Used by Bureau of Reclamation Economists to Estimate Irrigation Benefits when Water Supply Changes Occur

Rob Davis, Bureau of Reclamation, Denver, CO

Results from 2012-2013 Irrigation Trials in Cool Season Vegetables

Lee Johnson, NASA ARC-CREST, Moffett Field, CA; **Michael Cahn**, University of California, Cooperative Extension, Salinas, CA; **Frank Martin**, **Forrest Melton** and **Sharon Benzen**, Agricultural Research Service, USDA, Salinas, CA; **Barry Farrara**, University of California, Cooperative Extension, Salinas, CA; and **Christopher Lund** and **Kirk Post**, NASA ARC-CREST, Moffett Field, CA

Irrigation Monitoring for Floodplain Riparian Restoration on the Lower Colorado River

Matthew R. Grabau, GeoSystems Analysis, Inc., Tucson, AZ; **Dianne Bangle**, Bureau of Reclamation, Boulder City, NV; **Michael A. Milczarek** and **Lindsey A. Hovland**, GeoSystems Analysis, Inc., Tucson, AZ; and **Barbara Raulston**, Bureau of Reclamation, Boulder City, NV

3:00 p.m. - 3:30 p.m. **Break in Exhibit Hall**

3:30 p.m. - 5:30 p.m. **Technical Session 2B —
Drainage and Irrigation Technology**

Moderators — **J. E. Ayars** and **Neil W. Schild**

Irrigation and Nitrogen Management Decision Support Tool for Vegetables and Berries

Michael D. Cahn, **Richard F. Smith** and **Barry F. Farrara**, University of California Cooperative Extension, Salinas, CA; **Timothy K. Hartz**, University of California, Davis, Davis, CA; and **Lee F. Johnson**, **Forrest S. Melton** and **Kirk M. Post**, NASA ARC-CREST, Moffett Field, CA

CAP Drain Water Interceptor Project
TBA

Drainage Reuse by Grassland Area Farmers: The Road to Zero Discharge

C. Linneman, Summers Engineering, Inc., Hanford, CA; **A. Falaschi**, Panoche Drainage District, Firebaugh, CA; **J. D. Oster**, University of California, Graeagle, CA; **S. Kaffka**, University of California, Davis, Davis, CA; **S. Benes**, California State University, Fresno, Fresno, CA

Remote-Sensing-Based Comparison of Water Consumption: Drip- Versus Flood-Irrigated Fields

David Jordan, INTERA Incorporated, Albuquerque, NM; **Richard G. Allen**, University of Idaho, Twin Falls, ID; **Guillermo Martinez**, INTERA Incorporated, Austin, TX; and **Amber Whittaker**, INTERA Incorporated, Albuquerque, NM

6:30 p.m. - 7:00 p.m. **Reception**

7:00 p.m. - 9:30 p.m. **Dinner with Speaker**

Moderator — **Bryan P. Thoreson**

Groundwater and Water Management in California

Jay R. Lund, Director, Center for Watershed Sciences, University of California, Davis, CA

Thursday, March 6

7:00 a.m. - 5:00 p.m **Registration**

7:00 a.m. - 8:00 a.m. **Continental Breakfast**

8:00 a.m. - 10:00 a.m. **Concurrent Session 3A —
Groundwater Banking**

Moderators — **W. Martin Roche**, Consultant, Grass Valley, CA; and **Delbert M. Smith**, Bureau of Reclamation, Denver, CO

Managed Recharge Study and Implementation in the Eastern Snake Plain, ID, and Yakima, WA

Jennifer Johnson, Bureau of Reclamation, Boise, ID

Groundwater in Colorado — From the Headwaters to the Plains

Suzanne S. Paschke, U.S. Geological Survey, Denver, CO

Groundwater Banking — Fresno Irrigation District

Randy Hopkins, Provost & Pritchard Consulting Group, Fresno, CA

Westwide Climate Change Risk Assessment — Estimation of Changes in Crop Evapotranspiration and Irrigation Requirements for 8 Western U.S. River Basins

Alan Harrison, Bureau of Reclamation, Denver, CO

8:00 a.m. - 10:00 a.m. **Concurrent Session 4A — Salts and Nutrients**

Moderators — **David E. Bradshaw**, Imperial Irrigation District, Imperial, CA; and **J. D. Oster**, University of California, Graeagle, CA

Crop Specific Drainage and NO₃ Leaching in California's Central and Salinas Valleys: Monitoring and Management

K. Post, **C. Lund**, **A. Purdy** and **I. Harlan**, NASA ARC-CREST, Moffett Field, CA; **L. Pierce**, California State University, Monterey Bay, Seaside, CA; and **L. Johnson** and **F. Melton**, NASA ARC-CREST, Moffett Field, CA

Nitrogen Management Practices for Groundwater Assessment in Santa Maria Valley, California

Samuel W. Schaefer, GEI Consultants, Inc., Santa Barbara, CA; and **Rob Almy**, Weston & Sampson, Peabody, MA

Protecting Groundwater Quality with Subsurface Drip Irrigation

James E. Ayars, Agricultural Research Service, USDA, Parlier, CA; and **Claude J. Phene**, SDI+, Clovis, CA

New Jerusalem Drainage District (NJDD) Subsurface Drainage System Management Alternatives

Sargeant J. Green, California Water Institute, Fresno, CA

10:00 a.m. - 10:30 a.m. **Break**

10:30 a.m. - 12:00 noon **Concurrent Session 3B — Conjunctive Use**

Moderators — **W. Martin Roche** and **Delbert M. Smith**

Conjunctive Management of Groundwater and Surface Water in Chowchilla Water District

Doug Welch, Chowchilla Water District, Chowchilla, CA; **Peter Leffler**, Fugro Consultants, Inc., Oakland, CA; **Bryan P. Thoreson**, Davids Engineering, Inc., Davis, CA; and **Nels Ruud**, Consultant, Sacramento, CA

Conveyance Enhancement for Conjunctive Use and Regional Water Management in Kern County, California

Marc Rozman, GEI Consultants, Inc., Glendale, CA; **Dana Munn**, North Kern Water Storage District, Bakersfield, CA; **Dave Ansolabehere**, Cawelo Water District, Bakersfield, CA; **Isela Medina** and **Samuel Schaefer**, GEI Consultants, Inc., Bakersfield, CA; **William Zeiders**, Zeiders Consulting, Bakersfield, CA; and **Brad Arnold**, GEI Consultants, Inc., Rancho Cordova, CA

Conjunctive Management of Surface Water and Groundwater in the Turlock Irrigation District

Debra C. Liebersbach, Turlock Irrigation District, Turlock, CA; and **Bryan P. Thoreson** and **Byron Clark**, Davids Engineering, Inc., Davis, CA

10:30 a.m. - 12:00 noon **Concurrent Session 4B — Irrigation and Water Quality Management**

Moderators — **David E. Bradshaw** and **J. D. Oster**

New Cropping Systems for Water Conservation in Arid Regions

Khalid M. Bali and **Oli G. Bachie**, University of California, Cooperative Extension, Holtville, CA; and **Daniel H. Putnam**, University of California, Davis, Davis, CA

A Farm Management Based Approach to Assess Nitrate Leaching Risk in the Kern Subwatershed

John Schaap, Provost & Pritchard Consulting Group, Visalia, CA; and **Stephanie Tillman**, Land IQ, Sacramento, CA

Critical Success Factors in SCADA Real-time Wireless Communication and Initiatives

Alan Gatlin, Firetide Inc., Los Gatos, CA

12:00 noon - 1:15 p.m. **Lunch with Speaker**

Moderator — **Bryan P. Thoreson**

Speaker — **David Murillo**, Regional Director, Bureau of Reclamation, Sacramento, CA

1:30 p.m. - 3:00 p.m. **Concurrent Session 5A — Groundwater**

Moderators — **Todd L. Hillaire**, California Department of Water Resources, Red Bluff, CA; and **Thaddeus L. Bettner**, Glenn-Colusa Irrigation District, Willows, CA

Sustainable Capture Fractions, Sustainable Capture Thresholds, Capture Efficiency, and Sustainable Groundwater Storage: Concepts for Managing Stream-Aquifer Systems

Jeffrey C. Davids, Davids Engineering, Inc./California State University, Chico/H2oTech, Chico, CA; **Steffen W. Mehl**, California State University, Chico, Chico, CA; and **Grant G. Davids**, Davids Engineering, Inc., Davis, CA

Conjunctive Management: Changing Water Regulation and Evolving Strategies

Laura A. Schroeder and **Brian R. Sheets**, Schroeder Law Offices, PC, Portland, OR

Promoting Sustainable Groundwater & Water Transfers in the Sacramento Valley

David R. E. Aladjem, Downey Brand Attorneys LLP, Sacramento, CA; and **Steve Macaulay**, Macaulay Water Resources Inc., Davis, CA

1:30 p.m. - 3:00 p.m. **Concurrent Session 6A — Water Management**

Moderators — **Franklin E. Dimick**, Dimick Water Resources Engineering, Monroe, UT; and **Khalid Bali**, University of California, Cooperative Extension, Holtville, CA

The Historical Re-Operation of the Exchequer Project

Hicham EITal, Merced Irrigation District, Merced, CA

Reoperation of Lake Yosemite and Crocker Dam

Hicham EITal, Merced Irrigation District, Merced, CA

Electrical Resistivity Investigation of Fluvial Architecture to Evaluate Potential Seepage Conduits to Agricultural Lands Along the San Joaquin River, Merced County, California, 2012-2013

Krishangi D. Groover, **Matthew K. Burgess** and **James F. Howle**, U.S. Geological Survey, San Diego, CA

3:00 p.m. - 3:30 p.m. **Break**

3:30 p.m. - 5:00 p.m. **Concurrent Session 5B — Groundwater**

Moderators — **Todd L. Hillaire** and **Thaddeus L. Bettner**

Canal Water and Groundwater: Foes or Friends?

Ian C. Tod, Ian Tod Associates, Aliso Viejo, CA; **Muhammad Nawaz Bhutta**, National Development Consultants, Lahore, Pakistan; **Mehmood ul Hassan**, Government of Pakistan, Lahore, Pakistan; and **Axel Braxein**, Independent Water Resources Consultant, Lahore, Pakistan

Climate Change, Groundwater and Water Conservation: A Basin Study in the Santa Ana River Watershed

Subhrendu Gangopadhyay, **Kristine Blickenstaff**, **Ian Ferguson**, **Laura Condon** and **Tom Pruitt**; Bureau of Reclamation, Denver, CO

Klamath Groundwater

Darren B. Cordova, MBK Engineers, Sacramento, CA

3:30 p.m. - 5:00 p.m. **Concurrent Session 6B — Water Management**

Moderators — **Franklin E. Dimick** and **Khalid Bali**

CABY — Maintaining Sustainable Water Supplies in a Rural Area of California

W. Martin Roche, Consulting Engineer, Grass Valley, CA

Mobile Monitoring Technologies: The Mobiletracker and Remotetracker

Peter-Jules van Overloop, Delft University of Technology, Delft, The Netherlands; **Jeffrey C. Davids**, H2oTech, Chico, CA; and **Meinte Vierstra**, Mobile Canal Control, Delft, The Netherlands

Implementation of a Decision Support System for Improving Irrigation Water Delivery

Kristoph-Dietrich Kinzli, Florida Gulf Coast University, Fort Myers, FL; **David Gensler**, Middle Rio Grande Conservancy District, Albuquerque, NM; **Ramchand Oad**, Colorado State University, Fort Collins, CO; and **Nabil Shafike**, New Mexico Interstate Stream Commission, Albuquerque, NM

Friday, March 7

8:00 a.m. - 5:30 p.m. **Field Tour**

The Tour will focus on **irrigation distribution system modernization** with a visit to the **South San Joaquin Irrigation District** Division 9 Irrigation Enhancement Project, near Ripon. The project consists of the design, construction and operation of a **pressurized irrigation water system**, including a 19-mile network of pressurized pipeline, a water storage basin, a pumping station, a turnout at each participating parcel containing a flow control valve and meter, and a radio-based SCADA system. The project will enable the District to more efficiently deliver water to the farmers and monitor its usage, while eliminating operational spills.

Following lunch, the tour will visit **Oakdale Irrigation District's** new Northside Reservoir and automated lateral demonstration project. The project involved the replacement of 28 check structures and the design and installation of 31 gates on the 6.5 mile Claribel Lateral and the 8.5 mile Cometa Lateral to demonstrate Rubicon's Total Channel Control (TCC). The goal of the demonstration project was to improve distribution efficiency and enhance service levels to farmers by providing a near on-demand supply.

(Updated February 10, 2014)