



All Affiliates Presentations and Posters.

Hyperlinks for individual papers go to AGU My Schedule and can be added.

Access full calendar: <http://bit.ly/2gWkVlc>

Follow us on Twitter [@ucwater](https://twitter.com/ucwater) for [#AGU16](https://twitter.com/AGU16)

Monday, 12 Dec. 2016

8:00-8:15 Moscone West - 3003

GC11E-01 Western Water and Climate Change--An Overview (Invited). **Michael D Dettinger**, U.S. Geological Survey, Carson City, NV, United States, **Bradley Hunt Udall**, Colorado State University, Fort Collins, CO, United States and **Aris P. Georgakakos**, Georgia Institute of Technology Main Campus, Georgia Water Resources Institute, Georgia Tech, Atlanta, GA, United States

11:35 – 11:50 Moscone West - 3024

H12B-06 Estimating Field Scale Crop Evapotranspiration using Landsat and MODIS Satellite Observations. **Andy Wong**¹, **Yufang Jin**¹, **Richard L Snyder**¹, **Zaccaria Daniele**¹ and **Feng Gao**², (1)University of California Davis, Department of Land, Air and Water Resources, Davis, CA, United States, (2)USDA ARS, Pendleton, OR, United States

*Implementing SGMA?
You'll need ET from Crops.*

17:00 - 17:15 Moscone West - 3014

H14D-05 Test of synthetic DNA tracers in a periodic hydrodynamic system for time-variable transit time distribution assessment. **Helen E Dahlke**¹, **Chaozi Wang**², **Coy McNew**¹, **Seanna McLaughlin**¹ and **Steve W Lyon**³, (1)University of California Davis, Davis, CA, United States, (2)Cornell University, Ithaca, NY, United States, (3)Stockholm University, Department of Physical Geography, Stockholm, Sweden

Morning Poster Session – Moscone South Poster Hall

C11C-0775 Closing the water balance using ParBal, a parallel energy balance snowmelt model: a test case in the Sierra Nevada, USA and an application case in the Hunza Basin, Pakistan. **Ned Bair**¹, **Karl Rittger**² and **Jeff Dozier**¹, (1)University of California Santa Barbara, Santa Barbara, CA, United States, (2)National Snow and Ice Data Center, Boulder, CO, United States

GC11C Interdisciplinary Approaches to Sustaining Agriculture in a Water-Poor World Posters. **Eve-Lyn S Hinckley**¹, **Amanda Carrico**², **Eve-Lyn S Hinckley**¹, **Eve-Lyn S Hinckley**¹ and **Theodore Grantham**³, (1)Institute of Arctic and Alpine Research, Boulder, CO, United States(2)University of Colorado at Boulder, Boulder, CO, United States(3)University of California Berkeley, Berkeley, CA, United States



GC11C-1153 Building the capacity of Extension educators to address climate change and agricultural sustainability (Invited). **Tapan B Pathak**, *University of California Division of Agriculture and Natural Resources, Merced, CA, United States* and **Julie E Doll**, *Michigan State University, W.K. Kellogg Biological Station, East Lansing, MI, United States*

GC11C-1154 Farmers' climate information needs for long-term adaptive decisions: A case study of almonds in CA. **Kripa Akila Jagannathan**¹, **Andrew D Jones**², **Tapan B Pathak**³, **Amber Catherine Kerr**⁴ and **David Doll**³, (1)*University of California Berkeley, Berkeley, CA, United States*, (2)*Lawrence Berkeley National Laboratory, Climate and Ecosystem Sciences Division, Berkeley, CA, United States*, (3)*University of California Division of Agriculture and Natural Resources, Davis, CA, United States*, (4)*University of California Davis, Davis, CA, United States*

Kripa gave a great talk at our water and climate information workshop. Updated PhD research with UCANR.

H11B-1311 Field-scale and Regional Variability in Evapotranspiration over Crops in California using Eddy Covariance and Surface Renewal. **Eric R Kent**¹, **Jenae' M Clay**¹, **Michelle Leinfelder-Miles**², **Jean-Jacques Lambert**³, **Cayle Little**⁴, **Rodrigo Otavio Camara Monteiro**⁵, **Priscylla Ferraz Camara Monteiro**⁶, **Kristen Shapiro**³, **Sloane Rice**¹, **Richard L Snyder**¹, **Zaccaria Daniele**¹ and **Kyaw Tha Paw U**¹, (1)*University of California Davis, Department of Land, Air and Water Resources, Davis, CA, United States*, (2)*UC Cooperative Extension San Joaquin County, Stockton, CA, United States*, (3)*University of California Davis, Davis, CA, United States*, (4)*California Department of Water Resources, DWR, Sacramento, United States*, (5)*Instituto Federal de Educacao, Ciencia e Tecnologia do Rio Grande do Sul, Bento Goncalves, Brazil*, (6)*Fundacao Estadual de Pesquisa Agropecuaria, Vacaria, Brazil*

H11B-1313 Evaluation of Daily Evapotranspiration Over Orchards Using METRIC Approach and Landsat Satellite Observations. **Ruyan He**^{1,2}, **Yufang Jin**², **Zaccaria Daniele**², **Maziar M. Kandelous**³ and **Eric R Kent**², (1)*China University of Mining Technology, College of Geoscience and Surveying Engineering, Beijing, China*, (2)*University of California Davis, Department of Land, Air, and Water Resources, Davis, CA, United States*, (3)*University of California Davis, Plant Sciences, Davis, CA, United States*



Afternoon Poster Session – Moscone South Poster Hall

Advice for teaching complex systems from the CZO.

ED13E-0954 Critical Zone Science as a Multidisciplinary Framework for Teaching Earth Science and Sustainability. **Adam Wymore**, University of New Hampshire Main Campus, Durham, NH, United States, Timothy S White, Pennsylvania State University Main Campus, University Park, PA, United States, Ashlee Laura Denton Dere, University of Nebraska at Omaha, Omaha, NE, United States, Adam Hoffman, University of

Dubuque, Dubuque, IA, United States, James C Washburne, Sahra, Tucson, AZ, United States and Martha H Conklin, University of California Merced, Merced, CA, United States

GC13E-1235 Is Soil Development Controlling Ecohydrologic Response to Climate Change in the Southern Cascade and Sierra Nevada Watersheds, CA, USA? **Scott Devine**, Anthony T O'Geen and Helen E Dahlke, University of California Davis, Davis, CA, United States

H13M-1606 Assessment of Drywells as Effective Tools for Stormwater Management and Aquifer Recharge: Results of a Two-Year Field and Numerical Modeling Study. **Emily Edwards**¹, Barbara Washburn², Thomas Harter³, Graham E Fogg¹, Connie Nelson⁴, Bennett Lock² and Xue Li¹, (1)University of California Davis, Davis, CA, United States, (2)California EPA, Office of Environmental Health and Hazard Assessment, Sacramento, CA, United States, (3)University of California Davis, Dept. Land, Air, and Water Resources, Davis, CA, United States, (4)City of Elk Grove and Willdan Engineering, Elk Grove, CA, United States



TUESDAY, 13 DEC. 2016

08:30 - 08:45 Moscone West - 3012

A21L-03 *Impact of coastal fog on the energy and water balance of a California agricultural system.* **Sara A Baguskas**, University of California Santa Cruz, Environmental Studies, Santa Cruz, CA, United States, Andrew J Oliphant, San Francisco State University, San Francisco, CA, United States and Michael E Loik, University of California Santa Cruz, Santa Cruz, CA, United States

08:45 - 09:00 Moscone West - 3022

H21K-04 *Improving GPM Precipitation Phase for the Western US.* **Seshadri Rajagopal**, Desert Research Institute Reno, Reno, NV, United States, Adrian Adam Harpold, University of Nevada Reno, Natural Resources and Environmental Science, Reno, NV, United States and Michael D Dettinger, Scripps Institute of Oceanography, La Jolla, CA, United States

17:00 - 17:15 Moscone West - 3014

H24E-05 *The Need for Deeper Hydrology (Invited).* **Graham E Fogg**, University of California Davis, Davis, CA, United States

Deep topic from UC Water's groundwater philosopher.



Morning Poster Session – Moscone South Poster Hall

H21A-1379 Geospatial Analysis for Flood-Risk Management, Resilience, and US Policy. **Nicholas Pinter¹**, Rui Hui¹, David R. Conrad² and Kathleen Schaefer¹, (1)University of California Davis, Davis, CA, United States, (2)CFM, Consultant, Water Resources Policy, Chevy Chase, MD, United States

H21G-1508 Is Snow a Drought Buster? The Need to Incorporate Snow into Common Drought Indices. **Jon Weiner**, University of Nevada Reno, Reno, NV, United States, Adrian Adam Harpold, University of Nevada Reno, Natural Resources and Environmental Science, Reno, NV, United States and Mohammad Safeeq, University of California Merced, Merced, CA, United States

Afternoon Poster Session – Moscone South Poster Hall

H23E-1589 Opportunities and Barriers to Address Seawater Intrusion Along California's Coast (Invited). **Ruth Langridge**, University of California Santa Cruz, Santa Cruz, CA, United States

H23J-1703 The Economic Cost of Hydrologic Non-stationarity for Infrastructure Planning and Design. **Rui Hui¹**, Jay R Lund¹, Jonathan D Herman² and Kaveh Madani³, (1)University of California Davis, Davis, CA, United States, (2)University of California Davis, Civil and Environmental Engineering, Davis, CA, United States, (3)Imperial College London, London, SW7, United Kingdom

H23J-1706 Coupling long and short term decisions in the design of urban water supply infrastructure for added reliability and flexibility. **Guilherme Marques**, Institute of Hydraulic Research UFRGS, Porto Alegre, Brazil, Caetano Coelho Silva Fraga, UFRGS Federal University of Rio Grande do Sul, Rio Grande, Brazil and Josue Medellin-Azuara, University of California Davis, Civil and Environmental Engineering, Davis, CA, United States

IN23D-1790 American River Hydrologic Observatory (Invited). **Steven D Glaser¹**, Roger C Bales² and Martha H Conklin², (1)University of California Berkeley, Berkeley, CA, United States, (2)University of California Merced, Merced, CA, United States



WED., 14 DEC. 2016

08:00 - 10:00 Moscone West- 3014

Two sessions in 3014, 8a-12:20p on groundwater organized by Thomas Harter et al.

H31H Advances and Challenges in Unraveling the Impact of Nonpoint Source Fluxes on Groundwater, Vadose Zone, and Surface Waters I. **Emily M. Elliott¹, Jonathan M Duncan², Laura A Schifman³, Thomas Harter⁴, Jonathan M Duncan².**, (1)University of Pittsburgh, Pittsburgh, PA, United States(2)University of North Carolina at Chapel Hill, Chapel Hill, NC, United States(3)Environmental Protection Agency Cincinnati, Cincinnati, OH, United States(4)University of California Davis, Dept. Land, Air, and Water Resources, Davis, CA, United States

09:15 - 09:30 Moscone West - 3022

H31K-07 Tracking water through the Southern Sierra Critical Zone Observatory using radioactive and stable isotopes. **Melissa Thaw¹, Ate Visser², Amanda L Deinhart², Mike Sharp², Anthony Everhart¹, Richard K Bibby² and Martha H Conklin¹,** (1)University of California Merced, Merced, CA, United States, (2)Lawrence Livermore National Laboratory, Livermore, CA, United States

09:30 - 09:45 Moscone West - 2022/2024

IN31G-03 The NSF Arctic Data Center: Leveraging the DataONE Federation to Build a Sustainable Archive for the NSF Arctic Research Community. **Amber E Budden, Krisa M Arzayus, Sheekela Baker-Yeboah, Kenneth S Casey, Jeff Dozier, Christopher S. Jones, Matthew B. Jones, Mark Schildhauer and Lauren Walker**

A model for the new Open and Transparent Water Data Act (AB 1755)? Ask Jeff Dozier.

10:20 - 12:20 Moscone West - 3014

H32A Advances and Challenges in Unraveling the Impact of Nonpoint Source Fluxes on Groundwater, Vadose Zone, and Surface Waters II. **Christopher T Green¹, Laura A Schifman², Thomas Harter³, Laura A Schifman², Jonathan M Duncan⁴,** (1)US Geological Survey, Menlo Park, CA, United States(2)Environmental Protection Agency Cincinnati, Cincinnati, OH, United States(3)University of California Davis, Davis, CA, United States(4)University of North Carolina at Chapel Hill, Chapel Hill, NC, United States

10:50 - 11:05 Moscone West - 3014

H32A-03 Regional Scale Simulations of Nitrate Leaching through Agricultural Soils of California. **Efstathios Diamantopoulos¹, Mike Walkinshaw¹, Anthony T O'Geen¹ and Thomas Harter²,** (1)University of California Davis, Davis, CA, United States, (2)University of California Davis, Dept. Land, Air, and Water Resources, Davis, CA, United States



11:14 - 11:32 Moscone West - 3005

GC32C-05 Widespread tree mortality with the ongoing California drought: the roll of water balance and temperature (Invited). **Michael Goulden**, *University of California Irvine, Department of Earth System Science, Irvine, CA, United States* and **Roger C Bales**, *University of California Merced, Merced, CA, United States*

Endless dead trees in the Sierra Nevada explained

11:35 - 11:50 Moscone West - 3014

H32A-06 Assessing the groundwater salinization in closed hydrologic basins due to overdraft. **Zhilin Guo**, *Rich Pauloo and Graham E Fogg, University of California Davis, Davis, CA, United States*

Morning Poster Session – Moscone South Poster Hall

H31C-1396 A Preliminary Approach for the Quantification of Groundwater Recharge through Surface Water Groundwater Time Lag Estimates. **Jenny Ta**, *Thomas C Harmon and Joshua H Viers, University of California Merced, Merced, CA, United States*

Afternoon Poster Session – Moscone South Poster Hall

H33A-1516 Simulating Mass Removal of Groundwater Contaminant Plumes with Complex and Simple Models. **Jose Lopez**, *Zhilin Guo and Graham E Fogg, University of California Davis, Davis, CA, United States*

H33F-1593 Stochastic modeling of *Cryptosporidium parvum* to predict transport, retention, and downstream exposure. **Jennifer D Drummond**^{1,2}, *Fulvio Boano*³, *E. Rob Atwill*⁴, *Xunde Li*⁴, *Thomas Harter*⁵ and *Aaron Ian Packman*⁶, (1)*Desert Research Institute Reno, Reno, NV, United States*, (2)*Centre for Advanced Studies of Blanes (CEAB-CSIC), Blanes, Spain*, (3)*Politecnico di Torino, Torino, Italy*, (4)*University of California Davis, Davis, CA, United States*, (5)*University of California Davis, Dept. Land, Air, and Water Resources, Davis, CA, United States*, (6)*Northwestern University, Evanston, IL, United States*

H33F-1598 Fate of Nitrogen on California Dairies as Measured by Regulatory Reporting. **Taryn Parsons**, *University of California Davis, Davis, CA, United States*, **Eric Lee**, *Sustainable Conservation, Modesto, CA, United States* and **Thomas Harter**, *University of California Davis, Dept. Land, Air, and Water Resources, Davis, CA, United States*

H33F-1605 Estimating Unsaturated Zone N Fluxes and Travel Times to Groundwater at Watershed Scales. **Lixia Liao**, *US Geological Survey, Menlo Park, CA, United States*; *University of California Davis, land, air and water department, Davis, CA, United States*, **Christopher T Green**, *US Geological Survey, Menlo Park, CA, United States*, **Thomas Harter**, *University of California Davis, Dept. Land, Air, and Water Resources, Davis, CA, United States*, **Bernard T Nolan**, *USGS Headquarters, Reston, VA, United States*, **Paul F Juckem**, *U.S. Geological Survey, Middleton, WI, United States* and **Christopher L Shope**, *USGS, Baltimore, MD, United States*

H33F-1606 Investigating controls on denitrification rates during managed aquifer recharge: Field studies of infiltration. **Sarah Beganskas**¹, **Galen Gorski**², **Andrew T Fisher**³, **Walker Blackburn Weir**², **Calla M. Schmidt**⁴, **Chad Saltikov**⁵, **Brendon Stoneburner**⁶, **Jaime Hernandez**⁷, **Ryan Ellis Harmon**⁸ and **Tess S Weathers**⁸, (1)*University of California Santa Cruz, Earth and Planetary Sciences Department, Santa Cruz, CA, United States*, (2)*University of*



California Santa Cruz, Earth and Planetary Sciences Department, Santa Cruz, CA, United States, (3)University of California Santa Cruz, Earth and Planetary Sciences, Santa Cruz, CA, United States, (4)University of San Francisco, San Francisco, CA, United States, (5)UC Santa Cruz, Microbiology and Environmental Toxicology Department, Santa Cruz, CA, United States, (6)UC Santa Cruz, Santa Cruz, CA, United States, (7)University of California Santa Cruz, Microbiology and Environmental Toxicology Department, Santa Cruz, CA, United States, (8)University of California Santa Cruz, Santa Cruz, CA, United States

H33F-1607 Investigating Controls on Denitrification Rates During Managed Aquifer Recharge: Linking Field and Laboratory Column Experiments. **Galen Gorski**¹, Sarah Beganskas², Walker Blackburn Weir¹, Paul Karim³, Chad Saltikov⁴, Jaime Hernandez⁵ and Andrew T Fisher⁶, (1)University of California Santa Cruz, Earth and Planetary Sciences Department, Santa Cruz, CA, United States, (2)University of California Santa Cruz, Earth and Planetary Sciences Department, Santa Cruz, CA, United States, (3)University of California Santa Cruz, Santa Cruz, CA, United States, (4)UC Santa Cruz, Microbiology and Environmental Toxicology Department, Santa Cruz, CA, United States, (5)University of California Santa Cruz, Microbiology and Environmental Toxicology Department, Santa Cruz, CA, United States, (6)University of California Santa Cruz, Earth and Planetary Sciences, Santa Cruz, CA, United States

Galen just received the David Huntley award for a presentation on this groundwater work. Don't miss the other great groundwater posters nearby.

H33F-1610 The Slow Moving Threat of Groundwater Salinization: Mechanisms, Costs, and Adaptation Strategies. **Rich Pauloo**, Zhilin Guo and Graham E Fogg, University of California Davis, Davis, CA, United States

H33F-1611 Hydrogeologic Heterogeneity Enhances the Transfer of Salt Toward the High-Quality Deep Aquifers of the Western San Joaquin Valley (CA, USA). **Christopher Vincent Henri**¹, Thomas Harter² and Hua Zhang², (1)University of California Davis, Center for Watershed Sciences, Davis, CA, United States, (2)University of California Davis, Dept. Land, Air, and Water Resources, Davis, CA, United States

H33F-1617 A hybrid machine learning model to estimate nitrate contamination of production zone groundwater in the Central Valley, California. **Katherine Ransom**¹, Bernard T Nolan², Claudia C Faunt³, Andrew Bell¹, JoAnn Gronberg⁴, Jon Traum⁵, David C. Wheeler⁶, Celia Rosecrans⁵, Kenneth Belitz⁷, Sandra Eberts² and Thomas Harter¹, (1)University of California Davis, Davis, CA, United States, (2)USGS Headquarters, Reston, VA, United States, (3)USGS California Water Science Center San Diego, San Diego, CA, United States, (4)USGS California Water Science Center Menlo Park, Menlo Park, CA, United States, (5)USGS California Water Science Center Sacramento, Sacramento, CA, United States, (6)Virginia Commonwealth University, Department of Biostatistics, Richmond, VA, United States, (7)USGS Headquarters, NAWQA, Reston, VA, United States

PA33A-2233 Economic and Policy Drivers of Agricultural Water Desalination in California's Central Valley. **Paul Welle**, Carnegie Mellon University, Engineering and Public Policy, Pittsburgh, PA, United States, Josue Medellin-Azuara, University of California Davis, Civil and Environmental Engineering, Davis, CA, United States, Joshua H Viers, University of California Merced, Merced, CA, United States and Meagan Mauter, Carnegie Mellon University, Civil and Environmental Engineering, Pittsburgh, PA, United States



THURS., 15 DEC. 2016

11:50 - 12:05 Moscone West - 3016

H42E-07 Flood Seasonality in a Changing Climate – A Comparison Between Northern Europe and Northeastern North America. **Bettina Matti**¹, *Helen E Dahlke*², *Bastien Dieppois*³, *Damian Lawler*³ and *Steve W Lyon*⁴, (1)Coventry University, Coventry, CV1, United Kingdom, (2)University of California Davis, Davis, CA, United States, (3)Coventry University, Coventry, United Kingdom, (4)Stockholm University, Department of Physical Geography, Stockholm, Sweden

13:55 - 14:10 Moscone West - 3016

H43Q-02 Simulating partially illegal markets of private tanker water providers on the country level: A multi-agent, hydroeconomic case-study of Jordan. **Christian J. A. Klassert**¹, *Jim Yoon*², *Erik Gawel*¹, *Bernd Klauer*³, *Katja Sigel*³, *Samer Talozli*⁴, *Thibaut Lachaut*⁵, *Philip David Selby*⁶, *Stephen Knox*⁷, *Steven Gorelick*², *Amaury Tilmant*⁵, *Julien J Harou*⁸, *Daanish Mustafa*⁹, *Josue Medellin-Azuara*¹⁰, *Deepthi Rajsekhar*¹¹, *Nicolas Avisse*⁵ and *Hua Zhang*¹²

16:00 - 18:00 Moscone West - 3002

A44C Emerging Applications of Atmospheric-Rivers Science I Oral. **Michael Anderson**¹, **Michael D Dettinger**², (1)California Department of Water Resources, Sacramento, CA, United States(2)U.S. Geological Survey, Carson City, NV, United States

80% of CA floods come from Atmospheric Rivers

16:15 - 16:30 Moscone West - 3005

C44A-02 Assessing the spatial variability of mountain precipitation in California's Sierra Nevada using the Airborne Snow Observatory (Invited). **Ty Brandt**¹, *Jeffrey S Deems*², *Thomas H Painter*³ and *Jeff Dozier*¹, (1)University of California Santa Barbara, Santa Barbara, CA, United States, (2)National Snow and Ice Data Center, Boulder, CO, United States, (3)NASA Jet Propulsion Laboratory, Pasadena, CA, United States



16:30 - 16:45 Moscone West - 3022

H44B-03 Sensitivities of dry season runoff to precipitation and temperature in southern Sierra Nevada streams. **Mohammad Safeeq¹**, Carolyn T Hunsaker² and Roger C Bales¹, (1)University of California Merced, Merced, CA, United States, (2)USDA Forest Service, Pacific Southwest Research Station, Vallejo, CA, United States

*The Future of Sierra snowpack.
Will it change how we act?*

16:45 - 17:00 Moscone West - 3002

A44C-04 Natural Hazards Risk Reduction and the ARkStorm Scenario. **Dale A Cox**, USGS Headquarters, Reston, VA, United States, Michael D Dettinger, Scripps Institute of Oceanography, La Jolla, CA, United States and F Martin Ralph, Scripps Institution of Oceanography, La Jolla, CA, United States

17:45 - 18:00 Moscone West - 3005

C44A-08 Optimizing placements of ground-based snow sensors for areal snow cover estimation using a machine-learning algorithm and melt-season snow-LiDAR data. **Carlos Oroza¹**, Zeshi Zheng¹, Steven D Glaser¹, Roger C Bales² and Martha H Conklin², (1)University of California Berkeley, Berkeley, CA, United States, (2)University of California Merced, Merced, CA, United States

16:00 - 18:00 Moscone West - 3016

*Don't miss this key session on
groundwater from a variety of
perspectives.*

H44F Water and Society: Water Resources Management and Policy in a Changing World III. **Matteo Giuliani¹**, Alvar Escriva-Bou², Manuel Pulido-Velazquez³, Kaveh Madani⁴, Matteo Giuliani¹, Patrick M Reed⁵, Alvar Escriva-Bou², Jay R Lund⁶ and Manuel Pulido-Velazquez³, (1)Politecnico di Milano, Milano, 20133, Italy(2)Public Policy Institute of California, San Francisco, CA, United States(3)Polytechnic University of Valencia, Valencia, Spain(4)Imperial College London, London, SW7, United Kingdom(5)Cornell University, Ithaca, NY, United States(6)University of California Davis, Davis, CA, United States

16:15 - 16:30 Moscone West - 3016

H44F-02 Recharge Net Metering to Incentivize Sustainable Groundwater Management (Invited). **Andrew T Fisher¹**, Chris Coburn², Michael Kiparsky³, Brian S Lockwood⁴, Mary Bannister⁴, Kelli Camara² and Sacha Lozano², (1) University of California Santa Cruz, Earth and Planetary Sciences, Santa Cruz, CA, United States, (2)Resource Conservation District - Santa Cruz County, Capitola, CA, United States, (3)University of California Berkeley, Berkeley, CA, United States, (4)Pajaro Valley Water Management Agency, Watsonville, CA, United States

16:45 - 17:00 Moscone West - 3016

H44F-04 Targeting water and energy conservation using big data. **Alvar Escriva-Bou**, Public Policy Institute of California, San Francisco, CA, United States, Manuel Pulido-Velazquez, Polytechnic University of Valencia, Valencia, Spain and Jay R Lund, University of California Davis, Davis, CA, United States



17:00 - 17:15 Moscone West - 3016

H44F-05 Mining residential water and electricity demand data in Southern California to inform demand management strategies. **Andrea Cominola¹**, *Edward S Spang²*, *Matteo Giuliani³*, *Andrea Castelletti¹*, *Frank J Loge²* and *Jay R Lund²*, (1)Politecnico di Milano, Milano, Italy, (2)University of California Davis, Davis, CA, United States, (3)Politecnico di Milano, Milano, 20133, Italy

Morning Poster Session – Moscone South Poster Hall

H41B-1329 Sensitivity Analysis and Calibration of a Non-linear Integrated Hydrologic Model in an Agricultural Groundwater Basin with a Groundwater Dependent Ecosystem. **Douglas Germond Tolley III**, *University of California Davis, Davis, CA, United States*, *Laura Foglia, UC Davis, Mainz, 55128, Germany* and *Thomas Harter, University of California Davis, Dept. Land, Air, and Water Resources, Davis, CA, United States*

Afternoon Poster Session – Moscone South Poster Hall

H43E-1505 Where will the flow go after the snow? Case study of the Diguillín Watershed, Central Chile. **Katherine H. Markovich¹**, *Jose Luis Arumi²*, *Graham E Fogg¹*, *Helen E Dahlke¹* and *Reed M Maxwell³*, (1)University of California Davis, Davis, CA, United States, (2)Universidad de Concepcion, Chillan, Chile, (3)Colorado School of Mines, Hydrologic Science and Engineering Program and Department of Geology and Geological Engineering, Golden, CO, United States

Check out the reprise of Katie's presentation on CA last year – the start of an international comparison between Chile and California.

H43G-1529 Implications of Increasing Forest Density and Vegetation Water Demand on Drought Impacts in California Montane Forest. **Philip C Saksa¹**, *Mohammad Safeeq¹* and *Salli Dymond²*, (1)University of California Merced, Merced, CA, United States, (2)US Forest Service Davis, Davis, CA, United States

UC Water AGU Reception

6-9pm, 54 Mint

RSVP: UCWaterAGU.eventbrite.com



FRIDAY, 16 DEC. 2016

10:20 - 12:20 Moscone West - 3016

The first of three “Water and Society” Sessions + posters

H52F Water and Society: Insights from Hydroeconomic Models for Managing Supply, Quality, and Coordination in Water Resource Systems under Climate Extremes and Uncertainty I. **Joseph R Kasprzyk¹, Josue Medellin-Azuara², Guilherme Marques³, Manuel Pulido-Velazquez⁴ and Andrea Castelletti⁵**, (1)University of Colorado at Boulder,

Boulder, CO, United States(2)University of California Davis, Davis, CA, United States(3)Institute of Hydraulic Research UFRGS, Porto Alegre, Brazil(4)Universitat Politècnica de València, Valencia, Spain(5)Politecnico di Milano, Milano, Italy

10:20 - 12:20 Moscone West - 3014

H52C Drought, Groundwater Management, Recharge, Baseflow, and Sustainability: Assessment, Monitoring, Modeling, Planning, and Policy I. **David Dralle¹, Thomas Harter², Bridget R Scanlon³, and Omar Al-Qudah⁴**, (1)University of California Berkeley, Berkeley, CA, United States(2)University of California Davis, Dept. Land, Air, and Water Resources, Davis, CA, United States(3)University of Texas at Austin, Bureau of Economic Geology, Jackson School of Geosciences, Austin, TX, United States(4)Texas A&M University-Kingsville, College of Engineering, Kingsville, TX, United States

10:20 - 12:20 Moscone West - 3002

H52G Water and Society: Water Resources Management and Policy in a Changing World V. **Matteo Giuliani¹, Alvar Escriva-Bou², Kaveh Madani³, Patrick M Reed⁴, Jay R Lund⁵, Manuel Pulido-Velazquez⁶ and Gregory W Characklis⁷**, (1)Politecnico di Milano, Milano, 20133, Italy(2)Public Policy Institute of California, San Francisco, CA, United States(3)Imperial College London, London, SW7, United Kingdom(4)Cornell University, Ithaca, NY, United States(5)University of California Davis, Davis, CA, United States(6)Polytechnic University of Valencia, Valencia, Spain(7)University of North Carolina at Chapel Hill, Chapel Hill, NC, United States

10:35 - 10:50 Moscone West - 3005

GC52B-02 Responses of High-Elevation Cold Desert Shrubs to a Wet Winter After California’s Historic Drought of 2012 - 2015. **Michael E Loik**, University of California Santa Cruz, Santa Cruz, CA, United States

10:35-10:50 Moscone West - 3016

H52F-02 Evaluation of water security in Jordan using a multi-agent, hydroeconomic model: Initial model results from the Jordan Water Project. **Jim Yoon¹, Christian J. A. Klassert², Thibaut Lachaut³, Philip David Selby⁴, Stephen Knox⁵, Steven Gorelick¹, Deepthi Rajsekhar¹, Amaury Tilmant⁶, Nicolas Avisse³, Julien J Harou⁷, Josue Medellin-Azuara⁸, Erik Gawel², Bernd Klauer⁹, Daanish Mustafa¹⁰, Samer Talozzi¹¹, Katja Sigel⁹ and Hua Zhang¹²**, (1)Stanford University, Earth System Science, Stanford, CA, United States, (2)University of Leipzig, Chair of Economics / Institutional Environmental Economics, Leipzig, Germany, (3)Laval University, Civil and Water Engineering, Quebec City, QC, Canada, (4)University of Manchester, Manchester, United Kingdom, (5)University



of Manchester, School of Mechanical, Aerospace and Civil Engineering, Manchester, United Kingdom, (6)Organization Not Listed, Washington, DC, United States, (7)University College London, London, United Kingdom, (8)University of California Davis, Civil and Environmental Engineering, Davis, CA, United States, (9)Helmholtz Centre for Environmental Research UFZ Leipzig, Department of Economics, Leipzig, Germany, (10)King's College London, London, WC2R, United Kingdom, (11)Jordan University of Science and Technology, Civil Engineering, Irbid, Jordan, (12)Texas A&M University Corpus Christi, College of Science and Engineering, Corpus Christi, TX, United States

11:35 - 11:50 Moscone West - 3022

H52E-06 Concentration-Discharge Relationship and Endmember Mixing in the Intermediate and Large Watersheds of the US West. **Fengjing Liu**¹, Matthew P Miller², Mark W Williams³, Martha H Conklin⁴, John Yang⁵ and Roger C Bales⁴, (1)Lincoln University, Department of Agriculture and Environmental Science and Cooperative Research Program, Lincoln, New Zealand, (2)USGS, Salt Lake City, UT, United States, (3)Univ Colorado, Boulder, CO, United States, (4)University of California Merced, Merced, CA, United States, (5)Lincoln University, Department of Agriculture and Environmental Science and Cooperative Research Program, Jefferson City, MO, United States

11:05 - 11:20 Moscone West - 3014

It's Friday. Recharge your batteries with some groundwater recharge.

H52C-05 Linking collection of stormwater runoff to managed aquifer recharge using a geographic information system and hydrologic modeling. **E. K. Teo**¹, Kyle Stoddard Young², Sarah Beganskas³, Andrew T Fisher⁴, Sacha Lozano⁵, Walker Blackburn Weir⁶ and Ryan Ellis Harmon¹, (1)University of California Santa Cruz, Santa Cruz, CA, United States, (2)Organization Not Listed, Washington, DC, United States, (3)University

of California Santa Cruz, Earth and Planetary Sciences Department, Santa Cruz, CA, United States, (4)University of California Santa Cruz, Earth and Planetary Sciences, Santa Cruz, CA, United States, (5)Resource Conservation District - Santa Cruz County, Capitola, CA, United States, (6)University of California Santa Cruz, Earth and Planetary Sciences Department, Santa Cruz, CA, United States

11:20 - 11:35 Moscone West - 3014

H52C-06 Recharging California's Groundwater: Crop Suitability and Surface Water Availability for Agricultural Groundwater Banking. Tiffany Noel Kocis¹, **Helen E Dahlke**² and Andrew Brown², (1)University of California Davis, Department of Land, Air and Water Resources, Davis, CA, United States, (2)University of California Davis, Davis, CA, United States.

11:50 - 12:05 Moscone West - 3014

H52C-08 A high-resolution, regional analysis of stormwater runoff for managed aquifer recharge site assessment. **Kyle Stoddard Young**¹, Andrew T Fisher², Sarah Beganskas³, Ryan Ellis Harmon⁴, E. K. Teo⁴, Walker Blackburn Weir⁵ and Sacha Lozano⁶, (1)US Coast Guard Academy, New London, CT, United States, (2)University of California Santa Cruz, Earth and

Kyle finished his masters of science in June 2016, minutes before our annual retreat. Here's his thesis research!



Planetary Sciences, Santa Cruz, CA, United States, (3)University of California Santa Cruz, Earth and Planetary Sciences Department, Santa Cruz, CA, United States, (4)University of California Santa Cruz, Santa Cruz, CA, United States, (5)University of California Santa Cruz, Earth and Planetary Sciences Department, Santa Cruz, CA, United States, (6)Resource Conservation District - Santa Cruz County, Capitola, CA, United States

16:00 - 18:00 Moscone West - 3014

H54B Drought, Groundwater Management, Recharge, Baseflow, and Sustainability: Assessment, Monitoring, Modeling, Planning, and Policy

III Bridget R Scanlon¹, David Dralle², Thomas Harter³, Bridget R Scanlon¹, David Dralle², Omar Al-Qudah⁴, Helen E Dahlke⁵ and Samuel Sandoval Solis⁵, (1)University of Texas at Austin, Bureau of Economic Geology, Jackson School of Geosciences, Austin, TX, United States(2)University of California Berkeley, Berkeley, CA, United States(3)University of California Davis, Dept. Land, Air, and Water Resources, Davis, CA, United States(4)Texas A&M University-Kingsville, College of Engineering, Kingsville, TX, United States(5)University of California Davis, Davis, CA, United States

*Saving the best for last!
This session is worth sticking
around for. Catch up on the
Whole Watershed Integration
project.*

16:30 - 16:45 Moscone West - 3014

H54B-03 Mapping Aquifer Systems with Airborne Electromagnetics in the Central Valley of California. **Rosemary J Knight¹, Ryan Smith¹, Ted Asch², Jared Abraham², Jim Cannia², Graham E Fogg³ and Andrea Viezzoli⁴**, (1)Stanford University, Stanford, CA, United States, (2)Aqua Geo Frameworks, Lakewood, CO, United States, (3)University of California Davis, Davis, CA, United States, (4)Aarhus Geophysics ApS, Aarhus, Denmark

17:30 - 17:45 Moscone West - 3014

H54B-07 Whole Watershed Management to Maximize Total Water Storage: Case Study of the American-Cosumnes River Basin. **Erfan Goharian¹, Robert Gailey¹, Josue Medellin-Azuara¹, Stephen Maples¹, L.E. Adams¹, Samuel Sandoval Solis¹, Graham E Fogg¹, Helen E Dahlke¹, Thomas Harter² and Jay R Lund¹**, (1)University of California Davis, Davis, CA, United States, (2)University of California Davis, Dept. Land, Air, and Water Resources, Davis, CA, United States

16:00 - 18:00 Moscone West - 3016

H54F Water and Society: Insights from Hydroeconomic Models for Managing Supply, Quality, and Coordination in Water Resource Systems under Climate Extremes and Uncertainty III. **Manuel Pulido-Velazquez¹, Guilherme Marques², Josue Medellin-Azuara³, Joseph R Kasprzyk⁴, Julien J Harou⁵ and Amaury Tilmant⁶**, (1)Universitat Politècnica de València, Valencia, Spain(2)Institute of Hydraulic Research UFGRS, Porto Alegre, Brazil(3)University of California Davis, Davis, CA, United States(4)University of Colorado at Boulder, Boulder, CO, United States(5)University College London, London, United Kingdom(6)Laval University, Civil and Water Engineering, Quebec City, QC, Canada



Morning Poster Session – Moscone South Poster Hall

A51E Emerging Applications of Atmospheric-Rivers Science II Posters. **Michael Anderson¹, Michael Anderson¹, Michael D Dettinger², Michael Anderson¹ and F Martin Ralph³**, (1)California Department of Water Resources, Sacramento, CA, United States(2)U.S. Geological Survey, Carson City, NV, United States(3)Scripps Institution of Oceanography, La Jolla, CA, United States

C51C-0669 Catchment-scale snow depth monitoring with balloon photogrammetry. **Dongyue Li¹, Oliver Wigmore¹, Benjamin J Vanderjagt¹, Michael T Durand¹, Noah P Molotch² and Roger C Bales³**, (1)The Ohio State University, Columbus, OH, United States, (2)University of Colorado at Boulder, Geography / INSTAAR, Boulder, CO, United States, (3)University of California Merced, Merced, CA, United States

C51C-0673 The Effect of the Vertical Canopy Structure on Snow Processes in Low and High Snow Scenarios in the Western California and Southern Wyoming: Simulations of Vertical Resolved Energy Fluxes & Snow Interception Using a Higher Order Closure Multi-Layer Soil-Vegetation-Atmospheric Model. **Laura E McGowan, Kyaw Tha Paw U, Helen E Dahlke and David R. Pyles**, University of California Davis, Davis, CA, United States

H51A-1412 Drought Water Right Curtailment. **Wesley Walker, Andrew Tweet, Bonnie Magnuson-Skeels, Chad Whittington, Brad Arnold and Jay R Lund**, University of California Davis, Davis, CA, United States

Afternoon Poster Session – Moscone South Poster Hall

The drought from above

H53C-1720 Assessing Drought Impacts on Water Storage Changes from New GRACE Mascons Solutions and Regional Groundwater Modeling in the Central Valley of California. **Zizhan Zhang¹, Claudia C Faunt², Bridget R Scanlon¹, Himanshu Save³, David N Wiese⁴, Michael D Dettinger⁵, Laurent Longuevergne⁶ and Steven A Margulis⁷**, (1)University of Texas at Austin, Bureau of Economic Geology, Jackson School of Geosciences, Austin, TX, United States, (2)USGS California Water Science Center San Diego, San Diego, CA, United States, (3)Center for Space Research, Austin, TX, United States, (4)NASA Jet Propulsion Laboratory, Pasadena, CA, United States, (5)Scripps Institute of Oceanography, La Jolla, CA, United States, (6)CNRS, Paris Cedex 16, France, (7)University of California Los Angeles, Los Angeles, CA, United States

EP51B-0892 Quantifying Changes in Spatio-temporal Floodplain Inundation Patterns due to Restoration along the Lower Cosumnes River, California. **Alison A Whipple¹, William E Fleenor¹ and Joshua H Viers²**, (1)University of California Davis, Davis, CA, United States, (2)University of California Merced, Merced, CA, United States

H53C Drought, Groundwater Management, Recharge, Baseflow, and Sustainability: Assessment, Monitoring, Modeling, Planning, and Policy II Posters. **Omar Al-Qudah¹, Abdelmoula Haboub², Thomas Harter³, Bridget R Scanlon⁴, David Dralle⁵, Omar Al-Qudah¹ and Abdelmoula Haboub²**, (1)Texas A&M University-Kingsville, College of Engineering, Kingsville, TX, United States(2)Lincoln University, Lincoln, New Zealand(3)University of California Davis, Dept. Land, Air, and Water Resources, Davis, CA, United States(4)University of Texas at Austin, Bureau of Economic Geology, Jackson School of Geosciences, Austin, TX, United States(5)University of California Berkeley, Berkeley, CA, United States



H53F-1779 Sierra Nevada snowpack and runoff prediction integrating basin-wide wireless-sensor network data. **Yeosang Yoon**¹, *Martha H Conklin*¹, *Roger C Bales*¹, *Ziran Zhang*², *Zeshi Zheng*² and *Steven D Glaser*², (1)University of California Merced, Merced, CA, United States, (2)University of California Berkeley, Berkeley, CA, United States

Whole Watershed Integration!

H53A Water and Society: Insights from Hydroeconomic Models for Managing Supply, Quality, and Coordination in Water Resource Systems under Climate Extremes and Uncertainty II Posters. **Joseph R Kasprzyk**¹, **Guilherme Marques**², **Manuel Pulido-Velazquez**³, **Joseph R Kasprzyk**¹, **Josue Medellin-Azuara**⁴, **Guilherme Marques**², **Joseph R Kasprzyk**¹, **Manuel Pulido-Velazquez**³ and **Amaury Tilmant**⁵, (1)University of Colorado at Boulder, Boulder, CO, United States(2)Institute of Hydraulic Research UFGRS, Porto Alegre, Brazil(3)Universitat Politècnica de València, Valencia, Spain(4)University of California Davis, Davis, CA, United States(5)Laval University, Civil and Water Engineering, Quebec City, QC, Canada

H53A-1659 An open source hydroeconomic model for California's water supply system: PyVIN. **Mustafa Sahin Dogan**¹, *Ellie White*¹, *Jonathan D Herman*², *Quinn Hart*¹, *Justin Merz*¹, *Josue Medellin-Azuara*¹ and *Jay R Lund*¹, (1)University of California Davis, Davis, CA, United States, (2)University of California Davis, Civil and Environmental Engineering, Davis, CA, United States

H53C-1726 Intricacies in Drought Management Policy, Crisis Response and Preparedness: Linking the Interface. **Pavithra Prakash**, *University of California Davis, Department of Land, Air and Water Resources, Davis, CA, United States* and *Thomas Harter, University of California Davis, Dept. Land, Air, and Water Resources, Davis, CA, United States*

H53A-1663 Use of Unmanned Aerial Vehicles for Improving Farm Scale Agricultural Water Management in Agriculture at a Farm Scale. A case study for field crops in the California's Central Valley. **Jorge Andres Morande**¹, **Josue Medellin-Azuara**², *Yufang Jin*¹, *YangQuan Chen*³, *Kyaw Tha Paw U*⁴ and *Joshua H Viers*³, (1)University of California Davis, Davis, CA, United States, (2)University of California Davis, Civil and Environmental Engineering, Davis, CA, United States, (3)University of California Merced, Merced, CA, United States, (4)University of California Davis, Land, Air and Water Resources, Davis, CA, United States

H53C-1716 How to Recharge a Confined Alluvial Aquifer System. **Stephen Maples**¹, *Graham E Fogg*¹ and *Yunjie Liu*², (1)University of California Davis, Davis, CA, United States, (2)Lawrence Berkeley National Laboratory, Berkeley, CA, United States

How to Recharge!

H53B-1685 Levee Presence and Wetland Areas within the 100-Year Floodplain of the Wabash Basin. **Ryan R Morrison**¹, *Quan Dong*¹, *Fernando Nardi*², *Theodore Grantham*³ and *Antonio Annis*², (1)U.S. Geological Survey, Fort Collins, CO, United States, (2)University for Foreigners Perugia, Perugia, Italy, (3)University of California Berkeley, Berkeley, CA, United States.