

Hydrology Days 2008

Conference Program
AGU Hydrology Days 2008
 March 26 - March 28, 2008
 (Download [Conference Program](#) in PDF format)

	March 26	March 27	March 28
8 am - 6 pm	Posters	Posters	Posters
8 am - 9:45 am	Climate Change - Impacts - Colorado River I	Hydrologic Modeling	Water Quality - Urban Hydrology - Management
9:45 - 10 am	Coffee Break	Coffee Break	Coffee Break
10 - 12 am	Climate Change - Impacts - Colorado River II	Eco-Hydrology	Landscape Evolution - Fluvial Geomorphology
12 - 2:00 PM	Lunch Borland Lecture in Hydrology	Lunch Hydrology Days Award Presentation	Lunch Borland Lecture in Hydraulics
2 - 3:45 pm	Emerging Contaminants I	Watershed Science I	Sediment - Erosion - Evapotranspiration
2 - 3:45 pm	Panel: Sharing Water in Times of Stress and Scarcity		
3:45 - 4 pm	Coffee Break	Coffee Break	Coffee Break
4 - 6 pm	Emerging Contaminants II	Watershed Science II	Snow Hydrology
4 - 6 pm	Poster Session		

Date	Time	Session
Mar 26	8:30 AM	Climate Change - Climate Impacts on Water Supply
		Chair: Professor Jorge A. Ramirez Department of Civil and Environmental Engineering, CSU Cherokee Park Room - Lory Student Center
	8:30	Complementary Temperature/Precipitation Patterns Accompanying Climate Cycles in the Gunnison River Basin & Effects of Climate Change and Land Use Modifications
		Margaret A. Matter, Luis A. Garcia and Darrell Fontane Civil and Environmental Engineering Department, Colorado State University, Fort Collins
	8:45	Hydrologic responses of an alpine wetland to changes in climate, Front Range, Colorado
		Ashley Nielson, Mark Williams and Nel Caine Niwot Ridge LTER, University of Colorado, Institute of Arctic and Alpine Research
	9:00	Frequency, Duration and Risk Assessment of Drought in the Upper Green River Basin, Wyoming
		John T. Bellamy and Glenn A. Tootle Department of Civil and Architectural Engineering, University of Wyoming, Laramie
	9:15	Incorporating climate change information in water utility planning: A collaborative, decision analytic approach
		David Yates and Brett Gracely National Center for Atmospheric Research, Boulder, Colorado
	9:30	A Review of the 2007 Water Year in Colorado
		Nolan J. Doesken and Michael Gillespie Department of Atmospheric Science, Colorado State University
Mar 26	9:45 AM	Mid-morning break
Mar 26	10:00	Climate Change Session - Climate Impacts on Water Supply - Colorado River Case

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	AM	
		<p>Chair: Professor Jorge A. Ramirez Department of Civil and Environmental Engineering, CSU</p> <p>Cherokee Park Room - Lory Student Center</p>
	10:00	Climate Change and Reclamations Hydrologic Hazard Assessment Approach
		David Raff Bureau of Reclamation, Technical Service Center, Denver, CO
	10:20	Assessing Reservoir Operations Risks under Climate Change
		Levi Brekke Bureau of Reclamation, Technical Services Center, Denver, Colorado
	10:40	A Streamflow Generation Technique Under Climate Change Using Paleo and Observational Data for Colorado River
		Balaji Rajagopalan, Kenneth Nowak, James Prairie, Ben Harding and Martin Hoerling Civil Environmental and Architectural Engineering, University of Colorado, Boulder, CO
	11:00	Non-Parametric Paleo-Reconstruction of Lees Ferry Flows
		Subhrendu Gangopadhyay CIRES, University of Colorado, Boulder
	11:20	An Analysis of Hydrologic Variability Sensitivity in the Colorado River Basin
		James Prairie, Carly Jerla, and Russell Callejo Bureau of Reclamation, University of Colorado, Boulder, CO
	11:40	Effects of Anthropogenic Activities on Climate Cycle Patterns in Temperature and Precipitation over the 20th Century in the Gunnison River Basin
		Margaret A. Matter, Luis A. Garcia and Darrell Fontane Civil and Environmental Engineering Department, Colorado State University, Fort Collins
Mar 26	12:00	Lunch Break - North Ball Room - Lory Student Center
		<p>Borland Lecture in Hydrology Hydrology in the Global Change Era: the Colorado River as a Case Study</p> <p>Professor Dennis P. Lettenmaier Department of Civil and Environmental Engineering, University of Washington, Seattle</p>
Mar 26	2:00 PM	Emerging Contaminants - Sub-surface Flow
		<p>Chair: Professor Dave Gilbert Department of Civil and Environmental Engineering, CSU</p> <p>Cherokee Park Room - Lory Student Center</p>
	2:00	Development of a Toolbox for Property and Fate Prediction of New and Emerging Contaminants Based on Thermodynamic Modeling
		Jens Blotevogel, Thomas Borch and Dave Gilbert Department of Soil and Crop Sciences, Colorado State University, Fort Collins, CO
	2:15	Resolving the Feasibility of Treating Contaminants Stored in Plumes
		Azadeh Bolhari and Tom Sale Department of Civil and Environmental Engineering, Colorado State University
	2:30	Results from a Field Demonstration of Electrolytic Reactive Barriers (e-barriers) for Treatment of Energetic Compounds in Groundwater
		Dave Gilbert, Tom Sale and Matt Petersen Department of Civil and Environmental Engineering, Colorado State University

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	2:45	Remediation of Chlorinated Solvent Source Zones via ZVI-Clay Soil Mixing
		Mitchell Olson and Tom Sale Department of Civil Engineering, Colorado State University, Fort Collins
	3:00	Polymer Flooding for Enhanced Delivery of Groundwater Remediation Agents
		Megan M. Smith, Jeff A.K. Silva, John E. McCray, and Junko Munakata-Marr Hydrologic Science & Engineering, Colorado School of Mines
	3:15	Contact angle effects on the transport and retention of colloids in the vadose zone
		Tammo S Steenhuis, Yunati Zevi, Evelyn Aparicio, Bin Gao, Veronica L. Morales and J.-Yves Parlange Cornell University
	3:30	In-Situ Solution Mining of Uranium: Mining's Panacea or Pandora's Box
		James Warner Groundwater Program, Department of Civil and Environmental Engineering, Colorado State University

Mar 26	3:45 PM	Mid-afternoon break
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Mar 26	2:00 PM	Panel Discussion: Sharing Water in Times of Stress and Scarcity
		Chair: Professor Evan Vlachos Department of Sociology and Department Civil and Environmental Engineering, CSU
		North Ball Room - Lory Student Center

		Panel Discussion: Sharing Water in Times of Stress and Scarcity
		Panelists:
		Luis Garcia Department of Civil and Environmental Engineering, Colorado State University
		Jochen Froebrich Center for Water and Climate, Wageningen University, Netherlands
		Rodrigo Maia Civil Engineering, University of Porto, Portugal
		Evan Vlachos Department of Sociology and Department of Civil and Environmental Engineering, Colorado State University

Mar 26	3:45 PM	Mid-afternoon break
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Mar 26	4:00 PM	Emerging Contaminants - Sub-surface Flow
		Chair: Professor Dave Gilbert Department of Civil and Environmental Engineering, CSU
		Cherokee Park Room - Lory Student Center

	4:00	Detection and Characterization of Natural and Engineered Nanoparticles in the Environment
		Emily K. Leshner, Heather E. Pace and James F. Ranville Colorado School of Mines, Environmental Science and Engineering Division

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	4:15	Fate of Antibiotic Resistance Genes (ARG) in On-Farm Lagoons
		Chad McKinney and Amy Pruden Department of Civil and Environmental Engineering, Colorado State University
	4:30	Occurrence and Potential Fate of Steroid Hormones in the Cache la Poudre River
		Robert B. Young and Thomas Borch Department of Soil and Crop Sciences, Colorado State University, Fort Collins
	4:45	Continuous Delivery of Reagents in Enhanced Reductive Dechlorination (ERD) Remedial Strategies and the Potential for Biofouling
		Kelli Jo Rehder, Elena Moreno-Barbero and Jay Erickson ARCADIS, Highlands Ranch, Colorado
	5:00	Evaluating consolidation of large columns of sand mixed with zero-valent iron and clay slurry for remediation
		Gustavo Vianna, Charles D. Shackelford, and Tom Sale Department of Civil and Environmental Engineering, Colorado State University
	5:15	Using Wavelet Analysis to Determine Dominant Scales of Hydraulic Conductivity and Head Fields
		Matthew Dillin and Roseanna Neupauer Civil Environmental and Architectural Engineering, University of Colorado, Boulder, CO
	5:30	Stochastic Multiobjective Management of Groundwater Supply Systems
		Domenico A. Baú Department of Civil and Environmental Engineering, Colorado State University
	5:45	The correct construction of fractional Brownian motion and its effect on solute transport
		Jordan Revielle and David A. Benson Hydrologic Sciences and Engineering Program, Department of Geology and Geological Engineering, Colorado School of Mines, Golden
	6:00 PM	Adjourn
Mar 26	4:00 PM	Poster Session
		Chair: Professor Jorge A. Ramirez Department Civil and Environmental Engineering, CSU
		North Ball Room - Lory Student Center
	6:00 PM	Adjourn
Date	Time	Session
Mar 27	8:45 AM	
Mar 27	8:30 AM	Hydrologic Modeling - Paleo-hydrology
		Chair: Professor Pierre Julien Department of Civil and Environmental Engineering, CSU
		Cherokee Park Room - Lory Student Center
	8:30	On the Importance of Spatial Correlation in Stochastic Precipitation Records Used in Water Supply Modeling
		Matthew C. Carney, Marijan Babić and Woldezion Mesghinna Natural Resources Consulting Engineers, Inc., Fort Collins, Colorado
	8:45	Hyetograph Simulation of High-Intense Rainfall Events
		Franz Konecny BOKU - University of Natural Resources and Applied Life Sciences, Vienna.

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	9:00	Improved Graphical Representation of CASC2D-TREX Results
		James S. Halgren, Pierre Y. Julien and Mark Velleux Civil and Environmental Engineering Department, Colorado State University
	9:15	Application of a physically-based interpolation method to reconstruct an aquifer boundary produced by a preserved paleotopography
		Michael L. Coleman, Jeffrey D. Neimann and Elaine P. Jacobs Department of Civil and Environmental Engineering, Colorado State University, Fort Collins
	9:30	A Review of Paleoflood Surveys in the Black Hills of Western South Dakota
		Nancy Steinberger and Jeffrey D. Niemann Federal Emergency Management Agency, Lakewood, Colorado
	9:45	A simple contributing-area model to assess flood risk in mountainous basins
		Paola Allamano, Pierluigi Claps and Francesco Laio Department of Hydraulics, Transport and Civil Infrastructures, Polytechnic of Turin, Italy

Mar 27	10:00 AM	Mid-morning break
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Mar 27	10:20	Eco-hydrology - Soil Moisture Controls
		Chair: Professor Jorge A. Ramirez Department of Civil and Environmental Engineering, CSU
		Cherokee Park Room - Lory Student Center

	10:20	Estimation of Soil Moisture, Peak Leaf Area Index and Evapotranspiration Partitioning at Two Semi-Arid Grassland Sites using the Statistical-Dynamical Ecohydrology Model
		John P. Kochendorfer and Jorge A. Ramirez Department of Civil and Environmental Engineering, Colorado State University

	10:40	Geostatistical Method for Analysis of Large Scale Spatial Variability of Soil Moisture
		Tarendra Lakhankar, Andrew Jones, Cynthia Combs, Manajit Sengupta and Thomas H. Vonder Haar Cooperative Institute for Research in the Atmosphere, Colorado State University

	11:00	Topographic and Vegetation Controls on Spatial Patterns of Soil Moisture in a Small Semi-Arid Montane Catchment
		Brandon M. Lehman and Jeffrey D. Niemann Department of Civil and Environmental Engineering, Colorado State University, Fort Collins, CO

	11:20	The prediction of Soil Moisture Distribution for a small catchment by the Distributed Hydrology Soil Vegetation Model (DHSVM) based on SSURGO soil maps in southern Indiana.
		Zamir Libohova, Laura Bowling, Phillip Owens, Philip Schoeneberger, Brad Lee, and H.E. Winzeler Agronomy Department, Purdue University, West Lafayette, IN

Mar 27	12:00	Lunch Break - North Ball Room - Lory Student Center
		Hydrology Days Award Presentation The estimation of groundwater storage changes at climatic time scales from low streamflow observations
		Professor Wilfried Brutsaert William L. Lewis Professor of Engineering, Cornell University

Mar 27	2:00 PM	Watershed Science I
		Co-Chairs: Professor Stephanie Kampf and Professor John D. Stednick Department of Forest, Range, and Watershed Stewardship, CSU
		Cherokee Park Room - Lory Student Center

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	2:00	Watersheds, watershed processes, monitoring and research: what, why, where, and so what
		Charles W. Slaughter Ecohydraulics Research Group, University of Idaho-Boise
	2:15	What can vadose zone physics tell us about hillslope flow processes?
		Stephanie K. Kampf Department of Forest, Rangeland, and Watershed Stewardship, Colorado State University
	2:30	Kinematic wave technique for hydrologic distributed modeling of stationary storm events: an application to synthetic rectangular basins and an actual watershed
		Michael J. Shultz, Ernest C. Crosby and John A. McEnery National Weather Service – West Gulf River Forecast Center, Fort Worth, Texas
	2:45	Sediment Production and Delivery From Roads in the Sierra National Forest, California
		Lee MacDonald, Allison Stafford, and Abby Korte Department of Forest, Rangeland, and Watershed Stewardship, Colorado State University, Fort Collins, CO
	3:00	Influence of landscape and reach-scale variables on aquatic community structure in tropical island streams
		Catherine L. Hein, Andrew S. Pike, J. Felipe Blanco, Todd Crowl, Fred N. Scatena, Melinda Laituri, and Alan P. Covich Watershed Sciences Department, Utah State University, Logan, UT
	3:15	A validation of the cumulative watershed effects models: Delta-Q and FOREST
		S.E. Litschert and L. H. MacDonald College of Natural Resources, Colorado State University
	3:30	Combining Subsurface Drainage and Windbreaks to Control Dryland Salinity
		H. Steppuhn Semiarid Prairie Agricultural Research Centre, Agriculture and Agri-Food Canada
Mar 27	3:45 PM	Mid-afternoon break
Mar 27	4:00 PM	Watershed Science II
		Co-Chairs: Professor Lee MacDonald and Professor Steven Fassnacht Department of Forest, Range, and Watershed Stewardship, CSU
		Cherokee Park Room - Lory Student Center
	4:00	How to Drain an Air Base in Korea – Watershed and Internal Drainage Challenges
		Craig R. Wilkening CH2M HILL – Denver, Colorado
	4:15	Effects of Landscape Scale Prescribed Fire on Hydrology and Stream Chemistry
		Andrea M. Heard and J.D. Stednick Sequoia-King Canyon National Park, Department of Forest, Rangeland, and Watershed Stewardship, Colorado State University
	4:30	Hillslope and Low-order Channel Changes after a High-severity Fire: Differences in Processes and Recovery Rates
		Duncan Eccleston, Lee H. MacDonald, and Keelin Schaffrath Department of Forest, Rangeland and Watershed Stewardship, Colorado State University, Ft. Collins, CO
	4:45	Surface-groundwater interactions and nutrient transport in alpine and subalpine catchments, Front Range, CO
		P. Tyson Atkins, Mark W. Williams, and Kenneth R. Hill INSTAAR and Department of Geography, University of Colorado, Boulder
	5:00	Longevity of acid rock drainage (ARD): Mineralogical and chemical comparison of mine-waste piles and post-glacial talus rock producing acidic solutions
		Jessica Duggan, John Ridley, and John Stednick Geosciences, Colorado State University

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	5:15	Changes in Snowmelt Streamflow Timing and Magnitude in Colorado
		Christopher Hawkins and J. D. Stednick Department of Forest, Rangeland and Watershed Stewardship, Colorado State University
	5:30	Hydrologic Responses of High Elevation Watersheds to Mountain Pine Beetle
		Ryan Jensen and J.D. Stednick Department of Forest, Rangeland, and Watershed Stewardship, Colorado State University
	5:45	Managing Watersheds in Developing Countries: What Management Skill and Education Are Needed?
		Ted C. Sheng Colorado State University
	6:00 PM	Adjourn
Date	Time	Session
Mar 28	8:30 AM	
Mar 28	8:30 AM	Water Quality - Urban Hydrology - Management
		Chair: Professor Jim Loftis Department of Civil and Environmental Engineering, CSU
		Cherokee Park Room - Lory Student Center
	8:30	The State of the Upper Cache la Poudre River from a Hydrologic and Water Quality Perspective
		Jennifer Moore, Jim Loftis and Judy Billica Department of Civil and Environmental Engineering, Colorado State University
	8:45	Graywater Application for Household Irrigation as a Viable Means to Meet Water Demand in Arid Regions
		Sybil Sharvelle and L. A. Roesner Department of Civil and Environmental Engineering, Colorado State University
	9:00	Statistical Analysis of BMP Effectiveness in the Cannonsville, NY Watershed
		Dillon M. Cowan, Christine A. Shoemaker and Jery R. Stedinger Environmental and Water Resources Systems Engineering Group, School of Civil and Environmental Engineering, Cornell University, Ithaca, NY
	9:15	Recreation Benefits of Natural Area Characteristics at the Caribbean National Forest
		Luis E. Santiago and John Loomis Graduate School of Planning, University of Puerto Rico, Río Piedras
	9:30	Total water management: from vision to execution
		Neil S. Grigg Civil Engineering Department, Colorado State University, Fort Collins
	9:45	Integrated regional water planning and development: a case study in the Lower Moulouya Basin, North East Morocco
		Nazik El Yaalaoui Colorado State University, Department of Civil and Environmental Engineering.
Mar 28	10:00 AM	Mid-morning break
Mar 28	10:15 AM	Landscape Evolution - Fluvial Geomorphology
		Chair: Professor Jeffrey Niemann Department of Civil and Environmental Engineering, CSU
		Cherokee Park Room - Lory Student Center

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	10:15	Influence of hillslope aspect on landscape evolution: Inferences from analysis of landscape morphology in central New Mexico
		Erkan Istanbuluoglu, Omer Yetemen, Enrique R. Vivoni and Hugo A. Gutiérrez-Jurado and Rafael L. Bras Department of Geosciences and Department of Biological Systems Engineering, University of Nebraska, Lincoln, NE
	10:30	A channel evolution model in response to urbanization in southern California
		Robert J. Hawley, Brian P. Bledsoe, and Eric Stein Department of Civil and Environmental Engineering, Colorado State University
	10:45	Longitudinal Distribution of Wood along Headwater Streams in the Colorado Front Range
		Ellen Wohl and Kristin Jaeger Department of Geosciences, Colorado State University
	11:00	In-stream wood volume and dynamics in an unmanaged neotropical headwater catchment
		Daniel Cadol and Ellen Wohl Department of Geosciences, Warner College of Natural Resources, Colorado State University
	11:15	Characterizing geomorphic controls of riparian width for mountain streams in the Colorado Front Range
		Lina Polvi and Ellen Wohl Colorado State University, Department of Geosciences, Fort Collins, CO
	11:30	Controls on recent channel narrowing and incision in Canyon de Chelly National Monument, Arizona.
		Kristin Jaeger and Ellen Wohl Department of Geosciences, College of Natural Resources, Colorado State University
	11:45	Scaling terrain attributes by fractal methods
		Robert H. Erskine, Timothy R. Green and Jeffrey D. Niemann Civil Engineering Department, Colorado State University, Fort Collins, CO
Mar 28	12:00	Lunch Break - North Ball Room - Lory Student Center
		Borland Lecture in Hydraulics The Dependence of Watershed Processes on the Evolution of the Critical Zone Professor William E. Dietrich Department of Earth and Planetary Science, University of California, Berkeley
Mar 28	2:00 PM	Sediment - Erosion - Evapotranspiration - Irrigation
		Chair: Professor Luis A. Garcia Department of Civil and Environmental Engineering, CSU Cherokee Park Room - Lory Student Center
	2:00	Applicability of the Modified Einstein Procedure
		Seema C. Shah-Fairbank, Pierre Y. Julien and Junke Guo Civil and Environmental Engineering Department, Colorado State University, Fort Collins, CO
	2:15	The Application of GIS in Watershed Runoff and Erosion Modeling: a Case Study of EASI Model
		X. Shawn Huang, Lyle W. Zevenbergen and John N. Cochran River Engineering, Ayres Associates
	2:30	Comparison of three pebble count procedures in a gravel-bed mountain stream: procedural details cause huge differences
		Kristin Bunte, Kurt W. Swingle and Steven R. Abt Engineering Research Center, Department of Civil Engineering, Colorado State University, Fort Collins
	2:45	Determining environmental flow requirements for substrate maintenance in cobble and boulder bed rivers in South Africa
		James Cullis Department of Civil, Environmental, and Architectural Engineering, University of Colorado at Boulder

Mar 28	3:00	Evapotranspiration - Irrigation - Salinity
	3:00	Soil Salinity Samples and Variograms: Case Study in the Lower Arkansas Basin
		Ahmed Edeiry and Luis A. Garcia Department of Civil and Environmental Engineering, Colorado State University
	3:15	Characterization of Salinity Fluxes in the Lower South Platte River Basin, Northeastern Colorado
		Paul A. Haby and Jim C. Loftis Civil and Environmental Engineering Department, Colorado State University
	3:30	Strategies for Reducing Consumptive Use of Alfalfa
		Brad Lindenmayer, Neil Hansen, Mark Crookston and Ajay Jha Department of Soil and Crop Sciences
	3:45	Limited Irrigation Adoption and Water Leasing in Colorado
		James Pritchett, Jennifer Thorvaldson and Ajay Jha Department of Agricultural and Resource Economics, Colorado State University
	4:00	Analyzing the Effects of High Water Tables on Evapotranspiration From Uncultivated Land in Colorado's Lower Arkansas River Valley
		Niklas U. Hallberg, Jeffrey D. Niemann, and Timothy K. Gates Department of Civil and Environmental Engineering, Colorado State University
	4:15	Efficient Irrigation Water Management in the Middle Rio Grande using Decision-support Models and Infrastructure Modernization
		Kristoph-Dietrich Kinzli, Ramchand Oad, Luis Garcia, David Patterson, and David Gensler Department of Civil and Environmental Engineering Colorado State University
Mar 28	4:30 PM	Mid-afternoon break
March 28	4:45 PM	Snow and Cold Land Regions Hydrology
		Chair: Professor Jorge A. Ramirez Department of Civil and Environmental Engineering, CSU
		Cherokee Park Room - Lory Student Center
	4:45	Synthetic generation techniques for illustrating the differences between the spatial organization of snow depth fields in sub-alpine forest and alpine tundra
		Ernesto Trujillo, Jorge A. Ramírez and Kelly Elder Department of Civil and Environmental Engineering, Colorado State University
	5:00	Snowcover Variability Due to Wind & Rangeland Shrub Interactions in North Park, Colorado
		Molly E. Tedesche, S. R. Fassnacht, P. Meiman, and M.E. Fernandes-Gimenez Watershed Science College of Natural Resources, Colorado State University, Fort Collins CO
	5:15	Snow avalanche path ecology: Examples from the San Juan Mountains, Colorado
		Sara Simonson, Thomas Stohlgren, Chris Landry, and Steven Fassnacht Natural Resource Ecology Laboratory, Colorado State University
	5:30	Variability Among Snow Course and Snow Telemetry Measurements Across Colorado
		S.R. Fassnacht, M.E. Skordahl, and J.E. Derry Watershed Program, Geosciences, Colorado State University, Fort Collins, CO
	5:45	Integrated mountain system monitoring and snow system research at Senator Beck Basin, San Juan Mountains, Southwest Colorado
		Landry, Christopher C.; Painter, Thomas H.; Barrett, Andrew P.; Neff, Jason C.; Lawrence, Corey R.; Castle, Sara; Steltzer, Heidi; Marshall, Hans-Peter Center for Snow and Avalanche Studies, Silverton, CO

Mar 26	4:00 PM	Poster Session
		<p>Chair: Professor Jorge A. Ramirez Department Civil and Environmental Engineering, CSU</p> <p>North Ball Room - Lory Student Center</p>
		<p>Delivery of Remedial Amendments to Lower-Permeability Zones through Fluid Viscosity Modifications</p> <p>M. Oostrom, L. Zhong, T.W. Wietsma, M.A. Covert and T.E. Queen Energy and Environment Directorate, Pacific Northwest National Laboratory, Richland, WA</p>
		<p>A fully-automated apparatus for constant flux, constant head, and falling head hydraulic conductivity measurements</p> <p>T.W. Wietsma, M. Oostrom, M.A. Covert, T.E. Queen, and M.J. Fayer Pacific Northwest National Laboratory</p>
		<p>Desiccation of Homogeneous and Heterogeneous Porous Media Systems: Intermediate-scale Experiments and Numerical Simulation</p> <p>M. Oostrom, T.W. Wietsma, M.A. Covert, and T.E. Queen Pacific Northwest National Laboratory</p>
		<p>The Irrigation Water Optimization Project (IWOP)</p> <p>Jennifer Thorvaldson, James Pritchett, Neil Hansen and Ajay Jha Department of Agricultural and Resource Economics, Colorado State University, Fort Collins, Colorado</p>
		<p>Seepage investigation examined surface water ground water interactions in Great Sand Dunes National Park and Preserve</p> <p>James J. Harte, Andrew Valdez and Sharla Stevenson National Park Service, Water Resources Division</p>
		<p>An Archive of Downscaled WCRP CMIP3 Climate Projections over the contiguous United States</p> <p>Levi Brekke Bureau of Reclamation, Technical Services Center, Denver, Colorado</p>
		<p>Natural resources' universal pattern and sustainability</p> <p>Peter E. Black Faculty of Forestry and Natural Resources Management, SUNY College of Environmental Science & Forestry, Syracuse, New York</p>
		<p>Plant Species Composition Reveals Temporal and Spatial Dynamics of Snow Slides in the San Juan Mountains, Colorado</p> <p>Sara Simonson, Thomas Stohlgren and Chris Landry Geosciences, Colorado State University, Fort Collins, CO</p>
		<p>Calculation of PMP and PMF for the Sava River</p> <p>Anja Horvat and Mitja Brilly University of Ljubljana Faculty of Civil and Geodetic Engineering, Chair of Hydrology and Hydraulic Engineering , Hajdrihova 28, Ljubljana, Slovenia</p>
		<p>Using field measurements towards an improved understanding of shallow hydrogeology in an unsaturated sandy soil under tropical climate conditions</p> <p>Michele Minihane and David L Freyberg Environmental Fluid Mechanics and Hydrology, Civil and Environmental Engineering Department, Stanford University</p>
		<p>Water balance of the Sava river - Developement of algorithm Petton for calibration of Watlab model</p> <p>Anton Cotar and Mitja Brilly Hydrologic Department, Faculty for Civil Engineering and Geodesy, University of Ljubljana, Slovenia</p>
		<p>Program Development on the Nonparametric Weather Generator with Climate Condition supported by a Database System</p> <p>Jonghyun Lee and Taesam Lee Department of Civil and Environmental Engineering, Colorado State University</p>

	Organic Compounds in Raw Wastewater & STE from Single Sources
	Maria B. Tucholke, Kathy E. Conn, and Christiane Hoppe Department of Environmental Science and Engineering , Colorado School of Mines, Golden, Colorado
	A feasibility study to retrieve deep soil moisture using a temporal variational data assimilation method and WindSat data
	Andrew S. Jones, Tarendra Lakhankar, Cynthia L. Combs, Scott Longmore, Manajit Sengupta, and Thomas H. Vonder Haar Center for Geosciences/Atmospheric Research, Cooperative Institute for Research in the Atmosphere, Colorado State University
	The Simulation Programs of the Instream Flow Incremental Methodology
	Robert T. Milhous Fort Collins Science Center, U.S. Geological Survey, Fort Collins, Colorado
	Accounting practically for the turning factor in river seepage
	Hubert J. Morel-Seytoux Hydroprose Consulting International, 57 Selby Lane, Atherton, CA 94027-3926
	New conditioning methods for improving the application of fractional Brownian motion fields to fractal aquifer media
	Elizabeth J. Conover and David A. Benson Department of Geology and Geological Engineering, Colorado School of Mines, Golden, Colorado.
	Quantity and Quality of Storm water Runoff in Dryland Agroecosystems
	Kate Norvell, Neil Hansen, D.G. Westfall and Ajay Jha Department of Soil and Crop Sciences, Colorado State University
	Limited Irrigation Adoption and Water Leasing in Colorado
	James Pritchett, Jennifer Thorvaldson and Ajay Jha Department of Agricultural and Resource Economics, Colorado State University
	Infiltration and Clogging with Pervious Concrete Pavement
	J. Patrick Coughlin and David C. Mays Department of Civil Engineering, University of Colorado Denver
	Enterprise GIS for Integrated Decision Making
	Durmus Cesur San Antonio River Authority, San Antonio, TX 78229
	Variational Data Assimilation Method for Soil Moisture Estimation Using Active Microwave Data
	Tarendra Lakhankar, Andrew S. Jones and Thomas H. Vonder Haar Cooperative Institute for Research in the Atmosphere, Colorado State University
	Sources and Transformations of Nitrate in a Colorado Mountain Watershed
	Tiffany Yesavage and John Humphrey Colorado School of Mines
	Quality control of daily precipitation data through neural networks
	G. Sciuto, B. Bonaccorso, A. Cancelliere and G. Rossi Department of Civil and Environmental Engineering, University of Catania, Catania, Italy