

Hydrology Days 2009

Conference Program

AGU Hydrology Days 2009

March 25 - March 27, 2009

	March 25	March 26	March 27
8 am - 6 pm	Posters	Posters	Posters
8 am	Registration	Registration	Registration
8 am - 9:45 am	Snow Hydrology - Hydrologic Modeling	Evapotranspiration - Soil Salinity - Irrigation	Stream Restoration
9:45 - 10 am	Coffee break	Coffee break	Coffee break
10 - 12 am	Soil moisture patterns and controls	Climate - Policy & Poster Session	Water Quality - Urban Hydrology
12 - 2 pm	Lunch Borland Lecture in Hydrology	Lunch Hydrology Days Award Lecture	Lunch Borland Lecture in Hydraulics
2 - 3:45 pm	Streamflow forecasting	Groundwater - Subsurface Flow I	Hydraulics - Erosion - Sediment
3:45 - 4 pm	Coffee break	Coffee break	Coffee break
4 - 6 pm	Watershed modeling	Groundwater - Subsurface Flow II	

Date	Time	Session
March 25	8:00 am	Registration
March 25	8:30 am	Snow and Cold Regions Hydrology - Hydrologic Modeling Chair: Professor Stephen R. Fassnacht Department of Forest, Rangeland, and Watershed Stewardship, CSU Cherokee Park Room - Lory Student Center
	8:30	Representativeness of Snow Depth Sampling in a Pyrenees Mountain Valley, Spain J.I. López-Moreno, S.R. Fassnacht and J.B.P. Latron Instituto Pirenaico de Ecología, CSIC, Campus de Aula Dei, Zaragoza, Spain
	8:45	Enhanced Snowpack Assessment in Colorado using Spatial Datasets Amy Volckens, Michael Thiemann, Gerald Day, Michelle Garrison and Joe Busto Riverside Technology, inc., Fort Collins, CO
	9:00	A Local Aeolian Influence in the Surface Roughness of Melting Snow, Byers Peninsula, Antarctica S.R. Fassnacht and M. Toro Velasco Watershed Science Program, College of Natural Resources, Colorado State
	9:15	Evaluation of Snow Cover Depletion to Support Snowmelt Runoff Modeling for the Cache la Poudre River, Colorado Eric Richer, Stephanie Kampf and Steven Fassnacht Department of Forest, Rangeland and Watershed Stewardship, Colorado State University
	9:30	Accuracy of Spatial Precipitation Estimates for Hydrologic Modelling Douglas M. Hultstrand, Steven R. Fassnacht and Tye W. Parzybok Watershed Science Program, Colorado State University, Colorado
	9:45	Dew Point Temperature Estimation across Large Elevation Gradients Matthew C. Carney Bechtel National, Inc., San Francisco, California
March 25	9:45 am	Mid-morning break
March 25	10:00 am	Soil Moisture Patterns and Controls Chair: Professor Jeffrey D. Niemann Department of Civil and Environmental Engineering, CSU Cherokee Park Room - Lory Student Center
	10:00	Effects of Gully Topography on Space-Time Patterns of Soil Moisture in a Semiarid Grassland Joshua J. Melliger and Jeffrey D. Niemann Department of Civil and Environmental Engineering, Colorado State University
	10:20	Conceptual Soil Moisture Accounting in a Physics-Based Surface Hydrology Model: A Hybrid Approach James S. Halgren and Pierre Y. Julien Department of Civil and Environmental Engineering, Colorado State
	10:40	Developing Efficient Sampling Strategies to Estimate Spatial-Average Soil Moisture in the Lower Arkansas River Valley, Colorado Amin Haghnegahdar and Jeffrey D. Niemann Department of Civil and Environmental Engineering, Colorado State
	11:00	Controls on Spatial Patterns of Soil Moisture in a Semiarid Montane Catchment with Aspect-Dependent Vegetation Brandon M. Lehman and Jeffrey D. Niemann Department of Civil and Environmental Engineering, Colorado State University
	11:20	Spatial and temporal variability of hillslope hydraulic conductivity in the Colorado subalpine zone Lopez, Pedro J. and Kampf, Stephanie K. and Elder, Kelly J. Department of Forest, Rangeland and Watershed Stewardship, Colorado State University
March 25	12:00	Lunch Break - North Ball Room - Lory Student Center Borland Lecture in Hydrology Non-local Theories for Geomorphic Change Professor Efi Foufoula-Georgiou St. Anthony Falls Laboratory and National Center for Earth-surface Dynamics, Department of Civil Engineering, University of Minnesota

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March 25	2:00 pm	Streamflow Forecasting - Probabilistic Approaches
		Chair: Professor Jose D. Salas Department of Civil and Environmental Engineering, CSU Cherokee Park Room - Lory Student Center
	2:00	Long Range Forecasting of Streamflows Using Hydro-Climatic Information J.D. Salas, C. Fu, and B. Rajagopalan Department of Civil and Environmental Engineering, Colorado State University
	2:20	Nonparametric Daily Disaggregation of Annual Streamflow Values Kenneth Nowak, James Prairie and Balaji Rajagopalan Department of Civil, Environmental, and Architectural Engineering, University of Colorado, Boulder
	2:40	Modification of Streamflow Forecasts using El Niño-Southern Oscillation in south-western Iran Amin Haghnegahdar and Mohammad Karamouz Amirkabir University of Technology, Tehran, Iran
	3:00	Uncertainty Analysis of the Standardized Precipitation Index in The Presence of Trend A. Cancelliere and B. Bonaccorso Department of Civil and Environmental Engineering, University of Catania, Italy
	3:20	Evaluation of Bayesian Uncertainty Analysis for Watershed Modeling Haw Yen and Mazdak Arabi Department of Civil and Environmental Engineering, Colorado State University
March 25	3:45 pm	Mid-afternoon break
March 25	4:00 pm	Watershed Modeling
		Chair: Professor Mazdak Arabi Department of Civil and Environmental Engineering, CSU Cherokee Park Room - Lory Student Center
	4:00	Global Sensitivity Analysis for Watershed Modeling: A Comparative Study Barmak Azizimoghaddam and Mazdak Arabi Department of Civil and Environmental Engineering, Colorado State University, Fort Collins
	4:15	Study of Watershed Processes Under Varying Climatic Regimes: Role of Spatial Scale Maya O. Motorova and Mazdak Arabi Department of Civil and Environmental Engineering, Colorado State University
	4:30	Implications of input spatial aggregation on a watershed model Emily L. Boyd and Mazdak Arabi Department of Civil and Environmental Engineering, Colorado State University
	4:45	The Impact of Land Use Change on Watershed Processes at Varying Spatial Scales Anthony Spencer and Mazdak Arabi Civil and Environmental Engineering Department, Colorado State University
	5:00	Challenges of Modeling the Fate and Transport of Pesticides in a Midwest Watershed Heather B. Hill and Mazdak Arabi Department of Civil and Environmental Engineering, Colorado State University
	5:15	Global Sensitivity Analysis of the SRH-1D Sediment Transport Model Applied to Two Physical Experiments Morgan D. Ruark, Jeffrey D. Niemann, Blair Greimann and Mazdak Arabi Department of Civil and Environmental Engineering, Colorado State University
	5:30	Global Sensitivity Analysis for the Hydrology of Major River Basins in Colorado Pranay Sanadhya and Mazdak Arabi Department of Civil and Environmental Engineering, Colorado State University
	5:45	On the Auto-Calibration of Watershed Models Mahdi Ahmadi and Mazdak Arabi Department of Civil and Environmental Engineering, Colorado State University
Date	Time	Session
March 26	8:00 am	Registration
March 26	8:45 am	Irrigation - Evapotranspiration - Soil Salinity
		Chair: Professor Luis A. Garcia Department of Civil and Environmental Engineering, CSU Cherokee Park Room - Lory Student Center
	8:45	Modeling Spatial and Temporal Variability in Irrigation and Drainage Systems: Improvements to the Colorado State Irrigation and Drainage Model (CSUID) Ayman Alzraiee and Luis Garcia Department of Civil and Environmental Engineering, Colorado State University
	9:00	A Streamflow and Salinity Modeling System for the Evaluation of Additional Water Resource Projects on the South Platte River Paul A. Haby and Jim C. Loftis Department of Civil and Environmental Engineering, Colorado State
	9:15	Improving Irrigation System Performance through Scheduled Water Delivery in the Middle Rio Grande Conservancy District. Kristoph-Dietrich Kinzli, Ramchand Oad, Luis Garcia, David Patterson, and David Gensler Department of Civil and Environmental Engineering, Colorado State University
	9:30	Guidelines for Optimal Irrigation Management for Blocked-end Irrigation Borders Jorge Escurra Department of Civil and Environmental Engineering, Colorado State University

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	9:45	Comparison of Regression Kriging and Co-Kriging Techniques to Estimate Soil Salinity Using Landsat Images
		Ahmed Eldeiry and Luis Garcia Department of Civil and Environmental Engineering, Colorado State University
	10:00	Calculating ET and Crop Coefficients for the South Platte Using a Surface Energy Balance Model (ReSET)
		Aymn Elhaddad and Luis Garcia Department of Civil and Environmental Engineering, Colorado State
	10:15	Applying inverse modeling techniques to regional ground water models of the Lower Arkansas River Valley
		Eric D. Morway and Timothy K. Gates Department of Civil and Environmental Engineering, Colorado State University
March 26	10:30 am	Climate - Policy & Poster Session
		Chair: Professor Jorge A. Ramirez Department of Civil and Environmental Engineering, CSU North Ball Room - Lory Student Center
	10:30	Water resources policy: issues for the new administration
		Neil S. Grigg Civil Engineering Department, Colorado State University
	10:45	A Review of the 2008 Water Year in Colorado
		Nolan J. Doesken, Wendy Ryan and Michael Gillespie Department of Atmospheric Science, Colorado State University
	11:00	Poster Session
March 26	12:00	Lunch Break - North Ball Room - Lory Student Center
		Hydrology Days Award Presentation Optimal Search Strategy for the Definition of a Dense Non-Aqueous Phase Liquid (DNAPL) Source Professor George F. Pinder College of Engineering and Mathematical Sciences, University of Vermont
March 26	2:00 pm	Groundwater - Subsurface Flow I
		Chair: Professor Michael Celia Department of Civil and Environmental Engineering, Princeton University Cherokee Park Room - Lory Student Center
	2:00	Seven Simplifications for Models of CO2 Injection
		Michael A. Celia and Jan M. Nordbotten Department of Civil and Environmental Engineering, Princeton University, Princeton
	2:15	Underground flows and Wyoming's role as a laboratory
		Myron B. Allen, Provost University of Wyoming, Laramie
	2:30	Thermodynamically Constrained Averaging Theory for Porous Media Flow: Why Bother?
		William G. Gray Environmental Sciences and Engineering, University of North Carolina at Chapel Hill
	2:45	Decision Guide for Selecting Remedies for Chlorinated Solvent Releases
		Tom Sale Department of Civil and Environmental Engineering, Colorado State University
	3:00	Analysis of Two-Species Reaction-Diffusion with Applications to Chemical Oxidation of DNAPLs in Fractured Rock
		Harihar Rajaram and Carter Coolidge University of Colorado, Boulder
	3:15	Translating Knowledge From Laboratory Studies to Full-Scale Dissolved Plumes Generated From DNAPL Source Zones
		Tissa H. Illangasekare Center for Experimental Study of Subsurface Environmental Processes Division of Environmental Sciences and Engineering, Colorado School of Mines, Golden
	3:30	Assimilation of recovered contaminant mass measurements to support the management of remediation systems under uncertain hydraulic conductivity and plume distributions
		Domenico A. Baù Department of Civil and Environmental Engineering, Colorado State University
	3:45	Groundwater Flow and Transport Modeling With Correlated Possibilistic Data
		Metin Ozbek and James L. Ross ENVIRON International Corporation
March 26	4:00 pm	Mid-afternoon break
March 26	4:15 pm	Groundwater - Subsurface Flow II
		Chair: Professor Thomas Sale Department of Civil and Environmental Engineering, CSU Cherokee Park Room - Lory Student Center
	4:15	Mobilization and reactive transport of selenium in a stream-aquifer system: From field monitoring toward remediation modeling
		Ryan T. Bailey, Brent M. Cody, and Timothy K. Gates Department of Civil and Environmental Engineering, Colorado State University
	4:30	Using SEAWAT Code to simulate seawater intrusion in Gaza Strip
		Ayman Alzraiee and Deanna Durnford Department of Civil and Environmental Engineering, Colorado State University

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4:45	The determination of the thermal conductivity of sands under varying density, moisture and drainage/wetting conditions	
	Kathleen M. Smits, Toshihiro Sakaki, and Tissa H. Illangasekare Environmental Science and Engineering Division, Colorado School of Mines, Golden	
5:00	Quantum Mechanical Degradation Pathway Prediction for New and Emerging Contaminants	
	Jens Blotevogel, Thomas Borch, Arthur Mayeno and Tom Sale Department of Soil and Crop Sciences, Colorado State University	
5:15	Optimization Approaches for the Management of Groundwater Supply Systems under Parameter Uncertainty	
	Jonghyun Lee and Domenico A. Baú Department of Civil and Environmental Engineering, Colorado State University	
5:30	Applied groundwater tracers: an invaluable practitioners tool for remediation system design and operation	
	Craig E. Divine ARCADIS US, Inc., Highlands Ranch, Colorado	
5:45	Update on Iron-Clay Soil Mixing for Remediation of Chlorinated Solvent Source Zones	
	Mitchell Olson and Tom Sale Department of Civil and Environmental Engineering, Colorado State University	
Date	Time	Session
March 27	8:00 am	Registration
March 27	8:00 am	Stream Restoration
		Chair: Professor Brian P. Bledsoe Department of Civil and Environmental Engineering, CSU Cherokee Park Room - Lory Student Center
8:00	Conceptual Model for Three Basic Watershed Types and the Corresponding Flood Plain Morphologies in Southern California	
	David Dust and Brian Bledsoe Department of Civil and Environmental Engineering, Colorado State University	
8:15	Investigating how natural rehabilitation of an agricultural stream can affect transient storage and nitrate uptake	
	Jennifer Mueller Price, Daniel W. Baker and Brian P. Bledsoe Department of Civil and Environmental Engineering, Colorado State University	
8:30	An Adaptive Assessment of the Flushing Flow Needs of the Lower Poudre River, Colorado: First Evaluation	
	Robert T Milhous Retired Hydrologist, US Geological Survey, Fort Collins, Colorado	
8:45	A screening tool for assessing channel sensitivity to hydromodification in southern California	
	Robert J. Hawley and Brian P. Bledsoe Department of Civil and Environmental Engineering, Colorado State	
9:00	Long-term effects of urbanization on the flow rates and durations of small streams in southern California	
	Robert J. Hawley and Brian P. Bledsoe Department of Civil and Environmental Engineering, Colorado State	
9:15	Fine sediment distribution and benthic habitat alteration by small diversion dams on Rocky Mountain streams	
	Daniel W. Baker, Brian P. Bledsoe and Christine M. Albano Department of Civil and Environmental Engineering, Colorado State University	
9:30	Conceptual Watershed-Scale Process Domains for Three Basic Flood Plain Morphologies in Southern California.	
	David Dust and Brian Bledsoe Department of Civil and Environmental Engineering, Colorado State University	
March 27	9:45 am	Mid-morning break
March 27	10:00 am	Water Quality - Urban Hydrology - Management
		Chair: Professor Sybil Sharvelle Department of Civil and Environmental Engineering, CSU Cherokee Park Room - Lory Student Center
10:00	Arsenic and other Heavy Metals in Swimming Pools fed by Hot Springs in Utah Valley and the Wasatch Range	
	Kevin A. Rey, Salem M. Thompson, Becky Y. Curtis, Robert C. White, Steven H. Emerman Department of Earth Science, Utah Valley University, Orem, Utah	
10:15	Evaluation of methods for representing urban terrain in stormwater modeling	
	Jorge Gironás, Jeffrey D. Niemann, Larry A. Roesner, Fabrice Rodriguez and Hervé Andrieu Department of Civil and Environmental Engineering, Colorado State University	
10:30	pH-responsive membranes for treatment of wastewaters	
	Heath Himstedt, Katie Marshall and Ranil Wickramasinghe Department of Chemical and Biological Engineering, Colorado State University	
10:45	Long-term effects of Graywater Irrigation on Soil Quality	
	Masoud N. Azar, Sybil Sharvelle and Mary Stromberger Department of Civil and Environmental Engineering, Colorado State University	
11:00	An Evaluation of Graywater Reuse Utilizing a Constructed Wetland Treatment System	
	A.W. Jokerst, L. A. Roesner and S.E. Sharvelle Department of Civil and Environmental Engineering, Colorado State University	
11:15	Evaluation of the Feasibility of Decentralized Anaerobic Digestion for Blackwater Treatment	
	Kris Bruun and Sybil Sharvelle Department of Civil and Environmental Engineering, Colorado State University	
11:30	Decentralized Anaerobic Treatment of Blackwater: A Sustainable Development Technology Concept for Urban Water Management	
	Gallagher, NT and Sharvelle, S Department of Civil and Environmental Engineering, Colorado State	

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March 27	12:00	Lunch Break - North Ball Room - Lory Student Center
		Borland Lecture in Hydraulics Hydraulics in the Time of Cholera: The Chicago River, Lake Michigan and Public Health Professor Marcelo H. Garcia Department of Civil and Environmental Engineering, University of Illinois at Urbana-Champaign
March 27	2:00 pm	Hydraulic Modeling - Sedimentation
		Chair: Professor Pierre Y. Julien Department of Civil and Environmental Engineering, CSU Cherokee Park Room - Lory Student Center
	2:00	Assessing Channel Change and Bank Stability Downstream From Hog Park Reservoir, Medicine Bow National Forest, Wyoming. Liz Gilliam and Ellen Wohl Department of Geosciences, Colorado State
	2:15	Cheongmi Stream Hydraulic Modeling Analysis Jaehoon Kim, Hyeyun Ku, Seema C. Shah-Fairbank, and Pierre Y. Julien Department of Civil and Environmental Engineering, Colorado State
	2:30	Resistance to Flow for Liquid-Granular Flows in Steep Channels Anna Paris, Aronne Armanini and Pierre Julien CUDAM-Department of Civil and Environmental Engineering, University of Trento, Italy
	2:45	Transport relationships between bedload traps and a Helley-Smith sampler in coarse-bedded streams Kristin Bunte and Steven R. Abt Department of Civil and Environmental Engineering, Colorado State University
	3:00	Application of GSTARS3 to Xiaolangdi Reservoir Sedimentation Studies Chih Ted Yang and Jungkyu Ahn Department of Civil and Environmental Engineering, Colorado State University
	3:15	Extreme flood event: Case study of Johor flood of December 2006 and January 2007, Malaysia Atikah Shafie and Pierre Julien Department of Civil and Environmental Engineering, Colorado State University
	3:30	Uncertainty Associated with Hillslope Delineation in Watershed Erosion Modeling X. Shawn Huang, Lyle W. Zevenbergen River Engineering, Ayres Associates.
	3:45	Effects of Road Treatments on Sediment Production and Delivery in the Sierra Nevada Allison Stafford and Lee MacDonald Forest, Rangeland, and Watershed Stewardship, Colorado State University
	4:00	The Effectiveness of Surface Rehabilitation Treatments for Unpaved Forest Roads A.K. Donnellycolt and L.H. MacDonald Department of Forest, Range and Watershed Stewardship, Colorado State University
End of Hydrology Days 2009		
March 26	8:00 am	Posters
		Chair: Professor Jorge A. Ramirez Department of Civil and Environmental Engineering, CSU North Ball Room - Lory Student Center
		Frequency analysis of low flows Jarbou A. Bahrawi and José D Salas Civil and Environmental Engineering Department, Colorado State University
		Afghanistan Water, Agriculture, and Technology Transfer Program (AWATT) Ajay Jha, James Pritchett, Steve Davies and Ramchand Oad Agricultural and Resource Economics, Colorado State University
		The Origin and Fate of High Arsenic Concentrations in a Coalbed Natural Gas Produced Water Impoundment Jonathan T. Sowder, Thijs Kelleners and K.J. Reddy Department of Renewable Resources, University of Wyoming, Laramie, WY
		Employment of Historical Literature Information on Flood Frequency Analysis using Bayesian MCMC method Jonghyun Lee, Taesam Lee, Daeryong Park, and Youngil Song Department of Civil and Environmental Engineering, Colorado State University
		Basin-wide Regionalization of Large-scale Model Output using the Artificial Neural Network Algorithm Boosik Kang and Bonggi Lee Department of Civil and Environmental Engineering, Dankook University, Republic of Korea
		A Coupled Stochastic Space-Time Intermittent Random Cascade Model for Precipitation Downscaling Boosik Kang and Jorge A Ramirez Department of Civil and Environmental Engineering, Dankook University, Korea
		Experimental quantification of bulk sampling volume of ECH2O soil moisture sensors Anuchit Limsuwat, Toshihiro Sakaki, Tissa H. Illangasekare Center of Experimental Study of Subsurface Environmental Processes, Environmental Science and Engineering Department, Colorado School of Mines, Golden
		Environmental Information Management Using GIS Durmus Cesur San Antonio River Authority, San Antonio, TX
		Statistical links between seasonal hydrologic and large-scale climatic signals and their use in a nonparametric approach for daily disaggregation José M. Molina and Jorge A. Ramírez Department of Civil and Environmental Engineering, Colorado State University

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	Improving Stream Temperature Predictions for River Water Decision Support Systems: A Preliminary Physically-Based Temperature Model for the Upper Sacramento River, California
	Andrew Pike, Eric Danner and Steve Lindley National Marine Fisheries Service, Southwest Fisheries Science Center, Santa Cruz, CA
	Public Beliefs Towards Water Use in the West
	Alan D. Bright, Andrea Shortsleeve, James Pritchett, Jennifer Thorvaldson, Troy Bauder and Reagan Waskon Department of Human Dimensions of Natural Resources, Colorado State University
	Water Use, Sharing, and Willingness to Pay: A Survey of Western Households
	James Pritchett, Jenny Thorvaldson, Alan Bright, Andrea Shortsleeve, Troy Bauder, Reagan Waskon Colorado State University
	A Framework for Probabilistic Forecasting of Seasonal Water Quality Threshold Exceedance
	Erin Towler, Balaji Rajagopalan, R. Scott Summers and David Yates Department of Civil, Environmental and Architectural Engineering, University of Colorado at Boulder
	Preliminary Hydrologic Survey of the Sierra Tarahumara, Chihuahua, Mexico
	Ryan B. Anderson, James P. Durand, Mallory A. Palmer, Tracy L. Kemp, Steven H. Emerman, Michael P. Bunds, Connie K. Smith Barnes, Joel A. Bradford Department of Earth Science, Utah Valley University, Orem, Utah
	Cellular Automata Model for Simulating Wind Transport of Snow and the Interaction with Topography and Alpine Vegetation
	Ernesto Trujillo and Jorge A. Ramírez Department of Civil and Environmental Engineering, Colorado State University
	A generalized modeling framework based on solution to stochastic differential equations to analyze CO2 leakage- cases of two-phase and bubble flow
	David Dean, Abdullah Cihan and Tissa H. Illangasekare Center for Experimental Study of Subsurface Environmental Processes Division of Environmental Sciences and Engineering, Colorado School of Mines, Golden
	Resolving the Feasibility of Treating Contaminants Stored in Plumes
	Azadeh Bolhari and Tom Sale Department of Civil and Environmental Engineering, Colorado State University
	Processes Controlling the Stability LNAPL Pools in Porous Media
	Nicholas Mahler and Tom Sale Department of Civil and Environmental Engineering, Colorado State University