

Conference Program

AGU Hydrology Days 2007

March 19 - March 21, 2007

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	March 19	March 20	March 21
8 am - 6 pm	Posters	Posters	Posters
8 - 9:45 am	Hydraulics - Fluid Mechanics I	All Posters Session	Hydrology - Agriculture - Management
9:45 - 10 am	Coffee break	Coffee break	Coffee break
10 - 12 am	Hydraulics - Fluid Mechanics II	Emerging Contaminants: Emerging Technologies	Hydrology - Agriculture - Management
12 - 2:00 pm	Lunch Borland Lecture in Hydraulics	Lunch Hydrology Days Award Presentation	Lunch Borland Lecture in Hydrology
2:00 - 3:45 pm	Sediment - Erosion	Transport in Porous Media - Remediation	Soil Moisture
2:00 - 3:45 pm	Land Use - Streams	Climate - Hydrology	Snow Hydrology I
3:45 - 4 pm	Coffee break	Coffee break	Coffee break
4 - 6 pm	Fires - Hydrology - Sediment	Transport in Porous Media - Remediation	
4 - 6 pm	Stream Restoration - Biomonitoring	Vegetation Hydrology Climate	Snow Hydrology II

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March 19	8:20 AM	Hydraulics - Fluid Dynamics I
		Chair: Professor Christopher Thornton Department of Civil and Environmental Engineering, CSU
		Cherokee Park Room - Lory Student Center
	8:20	Investigation of Bridge Pier Debris Scour
		Sean Kimbrel, Christopher Thornton and Michael Robeson Civil and Environmental Engineering Department, Colorado State University
	8:40	Articulated Concrete Block Stability under Hydraulic Jump Conditions on Sloped Channels
		Christopher E. Clopper; Christopher I. Thornton; and Michael D. Robeson Department of Civil and Environmental Engineering, Colorado State University
	9:00	Bend Erosion Mitigation Using Alphabet Weirs
		Steve Gerhardt, Christopher Thornton and Michael Robeson Department of Civil and Environmental Engineering, Colorado State University
	9:20	Evaluation of Alternative Methods for Dam Freeboard Design
		Carmen E. Bernedo, Lori L. Hadley and John C. Haapala MHW, Denver, Colorado
	9:40	Mid-morning break
March 19	10:00 AM	Hydraulics - Fluid Dynamics II
		Chair: Professor Christopher Thornton Department of Civil and Environmental Engineering, CSU
		Cherokee Park Room - Lory Student Center
	10:00	Alphabet Weir Physical Modeling
		Joseph J. Mercure, Christopher I. Thornton and Michael D. Robeson Department of Civil and Environmental Engineering, Colorado State University
	10:20	6:1 Froude Scale Physical Hydraulic Model in Support of Southern Nevada Water Authority's Las Vegas Wash Project
		Travis R. Rounsaville, Christopher I. Thornton and Amanda Cox Department of Civil and Environmental Engineering, Colorado State University
	10:40	Hydraulic Model Study of Grate and Curb Inlets for Storm Drainage.
		Barry Tanaka, Christopher Thornton and Michael Robeson Department of Civil and Environmental Engineering, Colorado State University

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	11:00	Native Topography Design Process
		Kent Walker, Christopher Thornton and Michael Robeson Department of Civil and Environmental Engineering, Colorado State University
	11:20	Celerity and Attenuation/Amplification of Supercritical Flow Waves
		Noah I. Friesen, Jennifer G. Duan and Pierre Y. Julien Department of Civil and Environmental Engineering, Colorado State University
	11:40	Hydraulic Modeling Analysis of the Middle Rio Grande- Escondida Reach, New Mexico
		Amanda K. Larsen and P.Y. Julien Department of Civil and Environmental Engineering, Colorado State University
March 19	12:00	Lunch break - North Ball Room - Lory Student Center
		Borland Lecture in Hydraulics Sediment transport and Storage in the Andes-Amazon sediment dispersal system Professor Thomas Dunne School of Environmental Science and Management, University of California, Santa Barbara
March 19	2:00 PM	Sediment - Erosion I Chair: Professor Lee MacDonald Department of Forest, Rangeland and Watershed Stewardship, CSU Cherokee Park Room - Lory Student Center
	2:00	Measuring and Predicting Road Sediment Production and Watershed-scale Sediment Delivery
		Abby Korte and Lee H. MacDonald Department of Forest, Rangeland, and Watershed Stewardship, Colorado State University
	2:20	Sediment Production and Delivery from Unpaved Roads and Off-Highway Vehicle (OHV) Trails in the Upper South Platte River Watershed, Colorado
		Matthew J. Welsh and Lee H. MacDonald Department of Forest, Rangeland, and Watershed Stewardship, Colorado State University
	2:40	Effectiveness of Erosion and Sediment Control Practices for Forest Roads
		Kelli Jo Rehder and John D. Stednick Department of Forest, Rangeland, and Watershed Stewardship, Colorado State University

	3:00	Physically Based Regression Equations to Estimate Surface Erosion Capacity
		Hui-Ming Shih and Chih Ted Yang Department of Civil and Environmental Engineering, Colorado State University
	3:20	Effectiveness of Erosion Control Measures Following Road Obliteration in the Central Rocky Mountains
		John D. Stednick, Kelli Jo Rehder and Tracy L. Weddle Department of Forest, Rangeland, and Watershed Stewardship, Colorado State University
	3:40	Mid-afternoon break
March 19	2:00 PM	Land use change and streams - Nutrient dynamics and streams
		Chair: Professor Brian Bledsoe Department of Civil and Environmental Engineering, CSU
		North Ball Room - Lory Student Center
	2:00	How agriculture and urbanization modify regional flow regimes across the United States
		Brian P. Bledsoe, N. LeRoy Pff and Cristopher O. Cuhaciyen Department of Civil and Environmental Engineering, Colorado State University
	2:15	How dams modify regional flow regimes across the United States
		N. LeRoy Poff, Brian P. Bledsoe and Christopher O. Cuhaciyen Department of Biology, Colorado State University
	2:30	A Comparison of Transient Storage Parameter Estimates Between Composite and Component Reach Lengths in a Mountain Stream
		Martin Briggs and Michael Gooseff Colorado School of Mines, Department of Geology and Geological Engineering
	2:45	The influence of stream geomorphic complexity on hyporheic flow processes
		Daniel W. Baker, Jennifer Mueller Price and Brian P. Bledsoe Department of Civil and Environmental Engineering, Colorado State University
	3:00	Reconsidering Nitrate Uptake Experiments in Streams
		Jennifer Mueller Price, Daniel W. Baker, Brian P. Bledsoe Department of Civil and Environmental Engineering, Colorado State University
	3:15	Seasonal Patterns of Floodplain Groundwater: The Roles of Climate and Riparian Transpiration
		Morino, K.A. and Scott, R.L. The University of Arizona, Tucson
	3:30	Mid-afternoon break

March 19	4:00 PM	Fires - Hydrology - Sediment
		Chair: Professor John Stednick Department of Forest, Rangeland and Watershed Stewardship, CSU
		Cherokee Park Room - Lory Student Center
	4:00	Field calibration of signals from surrogate techniques for gravel and cobble bedload
		Kristin Bunte, Kurt W. Swingle and Steven R. Abt Department of Civil and Environmental Engineering, Colorado State University
	4:20	Does ash contribute to post-fire soil sealing and increased runoff rates?
		Isaac J. Larsen and Lee H. MacDonald Department of Forest, Rangeland, and Watershed Stewardship, Colorado State University
	4:40	Surface Armoring and Post-fire Recovery in the Colorado Front Range
		Keelin Schaffrath and Lee MacDonald Department of Forestry, Rangeland and Watershed Stewardship, Colorado State University
	5:00	Wildfire and Watershed Hydrology: A Demonstration of the BROOK90 Hydrologic Model as a Tool for Estimating Post-Wildfire Stream-flows in South Boulder Creek, Colorado
		Kyle Richards Site Environmental Remediation Division, Arcadis U.S., Highlands Ranch
March 19	4:00 PM	Stream Restoration - Biomonitoring
		Chair: Professor Brian Bledsoe Department of Civil and Environmental Engineering, CSU
		North Ball Room - Lory Student Center
	4:00	Channel-forming discharge on the Dolores River and Yampa River, Colorado
		Gigi A. Richard and Richard M. Anderson Department of Physical and Environmental Sciences, Mesa State College, Grand Junction, CO
	4:15	Channel Adjustment Downstream of the Hapcheon Re-regulation Dam in South Korea
		Young Ho Shin and Pierre Y. Julien Department of Civil and Environmental Engineering, Colorado State University
	4:30	Regime Equations in Mountain Streams in the Cauca Region of Colombia
		Ana C. Arbeláez, María Elvira Guevara A., Lilian Posada G., Luís Jorge González M and Carlos A. Gallardo B. Facultad de Minas, Universidad Nacional de Colombia, Medellín

	4:45	Bankfull Discharge in Mountain Streams in the Cauca Region of Colombia
		Ana C. Arbeláez, María Elvira Guevara A., Lilian Posada G., Luís Jorge González M and Carlos A. Gallardo B. Facultad de Minas, Universidad Nacional de Colombia, Medellin
	5:00	Restoration Structure Inventory and Survey Results from the Little Snake River and Tributaries, Northern Colorado
		John Meyer and Brian P. Bledsoe Department of Civil and Environmental Engineering, Colorado State University
	5:15	Landscape stream classifications for biomonitoring and the importance of intermediate scales
		Christopher O. Cuhaciyan and Brian P. Bledsoe Department of Civil and Environmental Engineering, Colorado State University
	5:30	Landscape-scale variability in stream substrate size: a GIS-based model
		Christopher O. Cuhaciyan and Brian P. Bledsoe Department of Civil and Environmental Engineering, Colorado State University
	5:45	Applying national lessons in non-point source outreach to achieve real gains in water quality: the process and potential of social marketing
		Robert J. Hawley Department of Civil and Environmental Engineering, Colorado State University
March 20	10:00 AM	Emerging Contaminants: Emerging Technologies
		Co-Chairs: Professor Amy Pruden and Professor Ken Carlson Department of Civil and Environmental Engineering, CSU
		Cherokee Park Room - Lory Student Center
	10:00	Multivariate Statistical Analysis of Denitrification in the Vadose Zone
		Maria B. Tucholke, John E. McCray, Geoffrey D. Thyne, and Reagan M. Waskom Hydrologic Science and Engineering Program, Colorado School of Mines, Golden, Colorado
	10:15	Removal of Perchlorate Through River Bank Filtration and Aquifer Recharge and Recovery
		Mustafa Yarkin and Kenneth H. Carlson Department of Civil and Environmental Engineering, Colorado State University
	10:30	Understanding the Transformations of Nitrate in the Turkey Creek Basin of Colorado
		Tiffany Yesavage and John Humphrey Colorado School of Mines

	10:45	Indirect Detection of Intentional Chemical Contamination in the Distribution System Using Low Cost Turbidity Sensors
		Seongho Cho, Kenneth Carlson and Kenneth Stutzman Department of Civil and Environmental Engineering, Colorado State University
	11:00	Electrokinetic Soil Processing as a Supplement to Bank Filtration for Removing Persistent Organic Contaminants
		Mary Beth Sullivan Department of Civil and Environmental Engineering, Colorado State University
	11:15	Response of Antibiotics and Antibiotic Resistance Genes (ARG) in High-Level and Low-Level Managed Manures
		H.N. Storteboom, S.C. Kim, K.H. Carlson and A. Pruden Department of Civil and Environmental Engineering, Colorado State University
	11:30	Biomolecular Characterization of Microbial Communities in Systems Treating Acid Mine Drainage.
		L. P. Pereyra, S. R. Hiibel, A. Pruden and K.F. Reardon Department of Civil and Environmental Engineering, Colorado State University
March 20	12:00	Lunch break - North Ball Room - Lory Student Center
		Hydrology Days Award Presentation Recent advances in hydrological sciences Professor J-Y Parlange Cornell University
March 20	2:00 PM	Transport in Porous Media - Remediation
		Chair: Professor Deanna Durnford Department of Civil and Environmental Engineering, CSU Cherokee Park Room - Lory Student Center
	2:00	Exact solution for two-phase non-equilibrium mass transfer of air sparging
		Osama Al-Gahtani, James Warner and Paul DuChateau Department of Civil and Environmental Engineering, Colorado State University
	2:15	Ensemble Solute Transport in 2-D Operator Stable Random Hydraulic Conductivity Fields
		Nathan D. Monnig and David A. Benson Colorado School of Mines, Golden, Colorado
	2:30	On the incomplete improvement of modeling solute transport in fractal media through conditioning with measured data
		Jordan Revielle and David A. Benson Colorado School of Mines, Golden, Colorado.

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	2:45	GIS-Finite Source Contaminant Migration Model (GIS-FISCOMM)
		Gustavo Borel Menezes and Hilary I. Inyang Global Institute for Energy and Environmental Systems, University of North Carolina
	3:00	Review of Research on the Processes Controlling the Dissolution of Dense Non-Aqueous Phase Liquids in Fractured Porous Media
		Jared D. King and John E. McCray Environmental Science and Engineering, Colorado School of Mines, Golden, CO
	3:15	Laboratory Column Study for Anaerobic Bioremediation of MTBE Using a Biological Permeable Reactive Barrier.
		Maria Raynal, Amy Pruden and Thomas Sale Department of Civil and Environmental Engineering, Colorado State University
	3:30	Numerical Simulation of the Seawater Intrusion between the Rivers Drini and Mat along the Albanian Coastal Area
		Fatos HOXHAI Institute of Hydrometeorology, Rr. Durrës, 219, Tirana, ALBANIA
	3:45	Mid-afternoon break
March 20	2:00 PM	Climate and Hydrology I
		Chair: Professor Jose D. Salas Department of Civil and Environmental Engineering, CSU
		North Ball Room - Lory Student Center
	2:00	Long Range Streamflow Forecast for Colorado Streams
		J.D. Salas, C. Fu, and B. Rajagopalan Department of Civil and Environmental Engineering, Colorado State University
	2:20	Effects of spring land cover change on early Indian summer monsoon variability
		Eungul Lee, Thomas N. Chase, Balaji Rajagopalan and Roger G. Barry Cooperative Institute for Research in Environmental Sciences (CIRES) and Department of Geography, University of Colorado, Boulder
	2:40	A Review of the 2006 Water Year in Colorado
		Nolan J. Doesken and Mike A. Gillespie Colorado Climate Center, Atmospheric Science Department, Colorado State University
	3:00	Investigating the potential of NAO index to forecast droughts in Sicily
		Cancelliere, A., Di Mauro, G., Bonaccorso, B. and Rossi, G. Department of Civil and Environmental Engineering, University of Catania, Italy

	3:20	North Atlantic Oscillation signals in the series of Beysehir lake-levels (Turkey)
		Ercan Kahya and Taner Cengiz Istanbul Technical University, Civil Engineering Department, Maslak Istanbul, Turkey
	3:40	Impact of El Niño Southern Oscillation (ENSO) on Hydrometeorology Variability at Valle del Cauca State, Colombia, Using Canonical Correlation Analysis
		Yesid Carvajal and Juan B. Marco School of Natural Resources and Environment, Faculty of Engineering, Universidad del Valle, Cali - Colombia
	4:00	Mid-afternoon break
March 20	4:00 PM	Transport in Porous Media - Remediation
		Co-Chairs: Professor David Gilbert and Professor Tom Sale Department of Civil and Environmental Engineering, CSU
		Cherokee Park Room - Lory Student Center
	4:00	Electrolytic reactors for treatment of contaminated groundwater
		Dave Gilbert, Matthew Petersen, Tom Sale Department of Civil and Environmental Engineering, Colorado State University
	4:15	Source Zone Remediation via ZVI-Clay: Lessons Learned from the First Ten Laboratory Studies
		Mitchell Olson and Tom Sale Department of Civil and Environmental Engineering, Colorado State University
	4:30	Emerging Drivers for Subsurface Remediation
		Tom Sale and Dave Gilbert Department of Civil and Environmental Engineering, Colorado State University
	4:45	Accelerating Redevelopment of Contaminated Sites Remediated with In-Situ Soil Mixing
		Kristin Sample, Charles D. Shackelford and Tom Sale Department of Civil and Environmental Engineering, Colorado State University
	5:00	Parameter Estimation of Aqueous Contaminant Transport and Storage in Heterogeneous, Alluvial Aquifers
		Lee Ann Doner and Tom Sale Department of Civil and Environmental Engineering, Colorado State University
	5:15	Resolving the Feasibility of Treating Contaminants Stored in Plumes
		Azadeh Bolhari and Tom Sale Department of Civil and Environmental Engineering, Colorado State

		University
	5:30	Comparison of potential removal mechanisms of phosphorus in soil adsorption systems using analytical and numerical modeling techniques
		Kathleen A. Lindstrom, John E. McCray and Geoff D. Thyne Hydrologic Science and Engineering, Geology and Geological Engineering Division, Colorado School of Mines, Golden, CO
	5:45	Advancements in Field Implementation and Method Development of Single Well Tracer Studies used to Calculate LNAPL Flux Rates in Impacted Aquifers
		Tim Smith, Kimberly LeMonde and Tom Sale Department of Civil and Environmental Engineering, Colorado State University
March 20	4:00 PM	Vegetation Hydrology and Climate
		Chair: Professor Jeff Niemann Department of Civil and Environmental Engineering, CSU
		Cherokee Park Room - Lory Student Center
	4:00	Stochastic Simulation of Multivariate Systems Based on Decomposition Analysis
		T.S. Lee, J.D. Salas, D. Frevert, and T. Fulp Department of Civil and Environmental Engineering, Colorado State University
	4:15	Effects of Topography on Vegetation-Hydrology Interactions in a Semiarid Grass Ecosystem
		Valeriy Ivanov and Rafael L Bras Center for the Environment, Harvard University
	4:30	On the long-term control of vegetation on landforms
		Erkan Istanbuluoglu, Omer Yetemen and Enrique R. Vivoni Department of Geosciences, University of Nebraska
	4:45	From salt to sky: Estimating evaporation at the Salar de Atacama, Northern Chile
		Stephanie K. Kampf Department of Forest, Rangeland, and Watershed Stewardship, Colorado State University
	5:00	Spatial grouping of annual streamflow patterns in Turkey
		Ercan Kahya, M. Cuneyd Demirel and Thomas C. Piechota Istanbul Technical University, Civil Engineering Department, Hydraulic Division, 34469 Maslak Istanbul, Turkey
	5:15	Changes in Seasonal Precipitation and Temperature Signals over the 20th Century and Corresponding Response in Historic versus Reconstructed Natural Streamflows for the Gunnison River
		Margaret A. Matter, Luis A. Garcia and Darrell Fontane Department of Civil and Environmental Engineering, Colorado State University

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March 21	8:20 AM	Hydrology - Agriculture - Water Management
		Chair: Professor Luis Garcia Department of Civil and Environmental Engineering, CSU
		Cherokee Park Room - Lory Student Center
	8:20	Assessing Soil Salinity Using a Geostatistical Approach
		Ahmed Eldeiry and Luis A. Garcia Department of Civil and Environmental Engineering, Colorado State University
	8:40	A Remote Sensing - GIS Approach to Evaluate the Effects of Soil Salinity on Evapotranspiration
		Aymn Elhaddad, Luis A. Garcia and Timothy K. Gates Department of Civil and Environmental Engineering, Colorado State University
	9:00	Improving Water Delivery Efficiency in the Middle Rio Grande using a Decision Support System
		Kristoph-Dietrich Kinzli and Ramchand Oad Department of Civil Engineering, Colorado State University
	9:20	Using Canopy Cover and Vegetation Indices to Estimate Crop Water Use
		Thomas Trout USDA-ARS-Water Management Research
	9:40	Mid-morning break
March 21	10:00 AM	Hydrology - Agriculture - Water Management
		Chair: Professor Luis Garcia Department of Civil and Environmental Engineering, CSU
		Cherokee Park Room - Lory Student Center
	10:00	Evaluating Recreational Benefits of Water Resources on Small Geographical Areas: An Application to Rivers in Puerto Rico
		John B. Loomis and Juan Marcos González Dept. Ag. & Resource Economics, Colorado State University
	10:20	Recreation Visitation in Tropical Forest Rivers: Puerto Rico's Mameyes and Espíritu Santo
		Luis E. Santiago, Armando González-Cabán and John Loomis Graduate School of Planning, University of Puerto Rico, Río Piedras
	10:40	Risk and security indicators for water supply systems
		Neil S. Grigg Department of Civil and Environmental Engineering, Colorado State University

	11:00	Hydrologic System for Simulating Reference Flows in the Geum River Basin' s TMDL Practices
		Jaekyoung Noh and Luis Garcia Agricultural Engineering Department, Chungnam National University, Daejeon, South Korea
	11:20	An Alternative Approach to Measuring Hydrologic Change - a Comparison Study Between Raster-Based Analysis and "Indicators of Hydrologic Alteration"
		Richard Koehler National Weather Service/COMET program, UCAR Office of Programs, Boulder, CO
March 21	12:00	Lunch break - North Ball Room - Lory Student Center
		Borland Lecturer in Hydrology Behavioral Modeling: A New Theoretical Framework for Hydrological Predictions Professor Murugesu Sivapalan University of Illinois, Urbana-Champaign
March 21	2:00 PM	Hydrologic Modeling - Soil Moisture Chair: Professor Jeff Niemann Department of Civil and Environmental Engineering, CSU Cherokee Park Room - Lory Student Center
	2:00	Assessing modeled spatial and temporal variability in soil moisture using automated, multi-objective, step-wise calibration
		Mark W. Strudley, Timothy R. Green, Robert H. Erskine, Olaf David and Makiko Umemoto USDA Agricultural Research Service, Agricultural Systems Research Unit
	2:15	Evaluating the Performance and Parameter Uncertainty of a Numerical Model for Basin-Wide Average Soil Moisture
		Danielle R. Tripp and Jeffrey D. Niemann Department of Civil and Environmental Engineering, Colorado State University
	2:30	Resilience and stability of wetlands: the role of functional diversity
		Eduardo Zea-Cabrera, Fernando Miralles-Wilhelm, Ignacio Rodriguez-Iturbe Department of Civil and Environmental Engineering, Florida International University Miami
	3:00	Comparison of Geostatistical Methods for the Spatial Estimation of Soil Moisture at the Catchment Scale
		Michael L. Coleman and Jeffrey D. Niemann Department of Civil and Environmental Engineering, Colorado State University

	3:15	NPOESS Soil Moisture Satellite Data Assimilation: using WindSat Data
		Andrew S. Jones, Gary McWilliams, Cynthia L. Combs, Tarendra Lakhankar, Scott Longmore, George Mason, Michael Mungiole, Dustin Rapp and Thomas H. Vonder Haar Cooperative Institute for Research in the Atmosphere, Colorado State University
	3:30	Developing consistency and transferability in topographic modeling index
		N.R. Pradhan, F.L. Ogden and Y. Tachikawa University of Wyoming, Laramie, WY
	3:45	High Resolution Soil Moisture Retrieval from Active Microwave Remote Sensing Data
		Tarendra Lakhankar, Andrew Jones and Hosni Ghedira Cooperative Institute for Research in the Atmosphere, Colorado State University
	4:00	Mid-afternoon break
March 21	2:00 PM	Snow Hydrology I
		Chair: Professor Steven Fassnacht Department of Forest, Rangeland and Watershed Stewardship, CSU
		North Ball Room - Lory Student Center
	2:00	Topographic, meteorologic, and canopy controls on the scaling characteristics of the spatial distribution of snow depth fields
		Ernesto Trujillo and Jorge A. Ramirez Department of Civil and Environmental Engineering, Colorado State University
	2:20	Plant Species Composition Reveals Temporal and Spatial Dynamics of Snow Slides in the San Juan Mountains, Colorado
		Sara Simonson, Thomas Stohlgren and Chris Landry Natural Resource Ecology Laboratory, Colorado State University
	2:40	Assessing Spatial Variability of a Snow Pack from Individual Snow Course Measurements in Colorado
		Magdalena Skordahl and Steven R. Fassnacht Watershed Science Program, College of Natural Resources, Colorado State University
	3:00	Simulation of snowpack ablation at two mid-latitude subalpine sites using SnowModel and Fast All-Season Soil STrength (FASST)
		Anne E. Sawyer, Kelly J. Elder, Steven R. Fassnacht, Glen E. Liston and Susan Frankenstein Watershed Science Program, College of Natural Resources, Colorado State University

	3:20	Snowpack property variations below the canopy
		Patrick J. Ewing and Steven R. Fassnacht Watershed Science Program, College of Natural Resources, Colorado State University
	3:40	Mid-afternoon break
March 21	4:00 PM	Snow Hydrology II
		Chair: Professor Steven Fassnacht Department of Forest, Rangeland and Watershed Stewardship, CSU
		North Ball Room - Lory Student Center
	4:00	Snow Depth is an Integration of the Ground and Snow Surfaces
		Steven R. Fassnacht and Jeffrey S. Deems Watershed Science Program, College of Natural Resources, Colorado State University
	4:20	Regional Patterns of Snow Water Equivalent in the Colorado River Basin Using Snowpack Telemetry (SNOTEL) Data
		Jeffrey E. Derry and Steven R. Fassnacht Watershed Science Program, College of Natural Resources, Colorado State University
	4:40	Assessing the Variation in Snow Surface Roughness
		Mark V. Corrao and Steven R. Fassnacht Watershed Science Program, College of Natural Resources, Colorado State University
	5:00	Subnivean Space versus Winter Recreation: A Preliminary Assessment
		Erin K. Bentley and Steven R. Fassnacht Watershed Science Program, College of Natural Resources, Colorado State University
March 20	8:00 AM	Posters
		Chair: Jorge A Ramirez Department of Civil and Environmental Engineering, CSU
		North Ball Room - Lory Student Center
	1	Distinguishing anthropogenic impact using hydrochemical and spatial analyses, southeastern Piceance Basin, Colorado
		Tamee R. Albrecht and Geoffrey D. Thyne Hydrologic Science and Engineering Program, Department of Geology and Geological Engineering, Colorado School of Mines, Golden

2	A Strategic Approach to Assessing the State of a Watershed
	Angela Henn, Melinda Laituri, Rob Buirgy, Brenda Faber and Sheila Murphy Colorado State University
3	Wireless Sensor Network Based Continuous Plume Monitoring: Proof of Concept in Intermediate-Scale Tank Test, Preliminary Results.
	Lisa Porta, Tissa H. Illangasekare, Philip Loden, Qi Han, Denney Liptak and Anura Jayasumana Center for Experimental Study of Subsurface Environmental Processes, Division of Environmental Sciences and Engineering, Colorado School of Mines, Golden, CO
4	Modeling Fingering at a Continuum Scale: A Stochastic Lagrangian Approach
	K. S. Barnhart, D. W. Dean, and T. H. Illangasekare Center for Experimental Study of Subsurface Environmental Processes, Colorado School of Mines, Golden, Colorado
5	Regional Watershed Management System
	Durmus Cesur San Antonio River Authority, San Antonio, Texas
6	Low Flow Discharges Regional Analysis using Wakeby Distribution in an ungauged basin in Colombia.
	Ana C. Arbeláez and Lina M. Castro Area Metropolitana del Valle de Aburrá, Medellín, Colombia.
7	Hydrostat v1.0, a Java Application for Extreme Events Frequency Analysis
	Lina M. Castro, Ana C. Arbeláez and Camilo Hoyos Department of Civil Engineering, Universidad del Valle - Colombia.
8	Comparison of rotated and unrotated principal components of Turkish streamflow
	Serdar Kalayci and Ercan Kahya Selcuk University, Department of Civil Engineering, Campus Konya, Turkey
9	The links between the categorized Southern Oscillation indicators and precipitation patterns over Turkey
	M. Cagatay Karabork and Ercan Kahya Civil Engineering Department, Dumlupinar University, Kutahya, Turkey
10	Trend analysis of sea levels along Turkish coasts
	Burkay Seseogullari, Ebru Eris, and Ercan Kahya Civil Engineering Department, Istanbul Technical University, Maslak Istanbul, Turkey
11	Stochastic modeling of Karasu River (Turkey) using the methods of Artificial Neural Networks
	Ibrahim Can, Cahit Yerdelen and Ercan Kahya Ataturk University, Civil Engineering Department, Erzurum, Turkey
12	Do El NINO events modulate the statistical characteristics of Turkish streamflow?
	Ercan Kahya, Ali Ihsan Marti Istanbul Technical University, Civil Engineering Department, Hydraulic Division, 34469 Maslak Istanbul, Turkey
13	ENSO effects on mean temperature in Turkey
	Ali Ihsan Marti and Ercan Kahya Selcuk University, Civil Engineering Department, Hydraulic Division, 42035, Campus, Konya, Turkey

14	Performing k-means analysis to drought principal components of Turkish rivers
	M. Cuneyd Demirel, A. J. Mariano and Ercan Kahya Istanbul Technical University, Institute of Science and Technology, 34469 Maslak Istanbul, Turkey
15	Hydrological determination of hierarchical clustering scheme by using small experimental matrix
	M. Cuneyd Demirel and Ercan Kahya Istanbul Technical University, Institute of Science and Technology, Istanbul, Turkey
16	Historical drought occurrences in Turkey: An analysis based on the standardized precipitation index (SPI)
	Ali Umran Komuscu and Ercan Kahya Turkish State Meteorological Service, Ankara, Turkey
17	Wakeby Distribution for Flood Frequency Analysis. Application to Cauca Region, Colombia
	Lina M. Castro and Ana C. Arbeláez Department of Civil Engineering, Universidad del Valle - Colombia
18	Comparison of AGRMET Model Results with In Situ Soil Moisture Data
	Cynthia L. Combs, Dustin Rapp, Andrew S. Jones, and George Mason Cooperative Institute for Research in the Atmosphere, Colorado State University
19	Comparison of stream reach residence time distributions measured with tracer experiments of different time scales
	Robert A. Payn, Michael N. Gooseff, David A. Benson Department of Geology and Geological Sciences, Colorado School of Mines, Golden CO
20	Geostatistics of large scale in-situ and satellite derived soil moisture data
	Tarendra Lakhankar, Andrew Jones, Cynthia Combs, Dustin Rapp, and Thomas H. Vonder Haar Cooperative Institute for Research in the Atmosphere, Colorado State University
21	Road and Stream Network Connectivity and Potential: Northeastern Puerto Rico, an exploratory analysis.
	Sherrill, K.R., Laituri, M.J., Helmer, E.H., Ramirez, J.A. Blanco, J.F., Hein, K., Pike, A.S, Crowl, T.A. and Covich, A.P. Department of Forest Rangeland and Watershed Stewardship, Colorado State University
22	Water retention behavior of sand as affected by a surrounding medium
	Toshihiro Sakaki, Anuchit Limswat and Tissa H. Illangasekare Center for Experimental Study of Subsurface Environmental Processes Colorado School of Mines, Golden, Colorado
23	Hydro-geomorphological classification of the Albanian coastline in the Mediterranean sea
	Niko Pano, Alfred Frasher, Bardhyl Avdyli, Koço Gjoka, Marenglen Bukli and Shpetim Bozdo Hydrometeorological Institute, Albanian Academy of Sciences, Tirana
24	River-Aquifer Interaction: A Mathematical Model For Vertical Groundwater Barriers
	Cinzia Miracapillo Institute of Civil Engineering, University of Applied Sciences Northwestern Switzerland