

# Conference Program

## AGU Hydrology Days 2013

March 25 - March 27, 2013

Program at a Glance			
	March 25	March 26	March 27
8 am - 6 pm		Posters	Posters
8 am	Registration	Registration	Registration
8:30 - 10 am	Registration	Carbon Sequestration	Poster Session
			I-WATER Symposium
	Mid-morning break	Mid-morning break	Mid-morning break
10 am - 12	Soil Moisture - Hydrologic Modeling	Stochastic Approaches	Stream Restoration - Morphodynamics
			I-WATER Symposium
12 - 2 pm	Lunch Borland Lecture in Hydrology	Lunch Hydrology Days Award Lecture	Lunch Borland Lecture in Hydraulics
2 - 4 pm	Darcy Lecture & Groundwater in Agricultural Landscapes	Evapotranspiration - Crop Water Use & Yield	Snow Hydrology
	Mid-afternoon break	Mid-afternoon break	Hydrology Days Ends
4 - 6 pm	Contaminant Transport	Hydrologic Modeling - Fires - Water Quality	
	Adjourn	Adjourn	

<b>Hydrology Days 2013 Program</b>	
<b>Monday</b>	
<b>Time</b>	<b>Session</b>
9:00 am	<b>Registration - Cherokee Park Room - Lory Student Center</b>
10:00 am	<b>Hydrologic modeling - Soil Moisture</b> <b>Chair: Professor Jorge A Ramírez</b> <b>Department of Civil and Environmental Engineering, CSU</b>  <b>Cherokee Park Room - Lory Student Center</b>
10:00	<b>A physically based approach for the estimation of root-zone soil moisture from surface measurements: application on the AMMA database</b> S. Manfreda , L. Brocca , T. Moramarco, M. Fiorentino University of Basilicata, Italy
10:15	<b>Evaluation of a Method to Estimate Root-Zone Soil Moisture Based on Optical and Thermal Satellite Imagery</b> Nathan E. Alburn, Jeffrey D. Niemann, and Aymn Elhaddad Department of Civil and Environmental Engineering, Colorado State University
10:30	<b>Evaluation of Sampling Techniques for Observing Topographically-Dependent Variability in Catchment-Scale Soil Moisture Patterns</b> Kevin L. Werbylo and Jeffrey D. Niemann Department of Civil and Environmental Engineering, Colorado State University
10:45	<b>Effects of Vegetation on Shallow Soil Moisture at a Semiarid Montane Catchment</b> Devin C. Traff and Jeffrey D. Niemann Department of Civil and Environmental Engineering, Colorado State University
11:00	<b>Fully distributed GEOTop hydrological model integration in OMS3 system</b> Giuseppe Formetta, Olaf David, Matteo Dall'Amico, Giovanna Capparelli, Pasquale Versace, Luis Garcia, and Riccardo Rigon University of Trento, Trento, Italy
11:15	<b>Uncertainty in hydrologic predictions: Modeling a small ungauged basin in the Sahel</b> Mikell P. Warms and Jorge A. Ramírez Department of Civil and Environmental Engineering, Colorado State University
11:30	<b>Spatially distributed modeling of the Colorado River basin: Calibration of the variable infiltration capacity (VIC) model using a Genetic Algorithm</b> Jon Quebbeman and Jorge A Ramírez Department of Civil and Environmental Engineering, Colorado State University
12:00 pm	<b>Lunch - North Ball Room - Lory Student Center</b>
1:00 pm	<b>Borland Lecture in Hydrology - North Ball Room - Lory Student Center</b> <b>Hydromorphology: Rewriting Hydrology Textbooks for a Nonstationary World</b> <b>Professor Richard M Vogel</b> Department of Civil and Environmental Engineering, Tufts University

<b>2:00 pm</b>	<b>Darcy Lecture &amp; Groundwater in Agricultural Landscapes</b>
	<b>Chair: Professor Domenico Baú</b> <b>Department of Civil and Environmental Engineering, CSU</b>
	<b>Cherokee Park Room - Lory Student Center</b>
<b>2:00</b>	<b>Darcy Lecture: Managing groundwater beneath the agricultural landscape</b>
	David L. Rudolph, Ph.D., PE Department of Earth and Environmental Sciences and Department of Civil and Environmental Engineering, University of Waterloo, ON, Canada
<b>3:00</b>	<b>Quantifying groundwater recharge beneath deficit furrow irrigation: a method comparison</b>
	Jasmeen Moubarak, William Sanford, Jonathan King Department of Geosciences, Colorado State University, Fort Collins, Colorado
<b>3:15</b>	<b>Evaluation of the Glover Solution for Estimating Depletion of Groundwater Return Flows to Streams due to Land Fallowing in the Lower Arkansas River Valley, Colorado</b>
	Cale Mages, Ryan T. Bailey, and Timothy K. Gates Department of Civil and Environmental Engineering, Colorado State University
<b>3:30</b>	<b>Modeling Selenium and Nitrate Reactive Transport using OTIS-MULTI on the Arkansas River in southeastern Colorado</b>
	Erica C. Romero, Ryan T. Bailey, and Timothy K. Gates Department of Civil and Environmental Engineering, Colorado State University
<b>3:45</b>	<b>Arsenic and other Heavy Metals in Shallow Groundwater in Utah Valley, Utah</b>
	Jonathan N. Hilbert, Adam P. Homer, Devin R. Howard, Daniel J. Zacharias, Preston D. Colledge, Brandon B. Davis, Ryan J. McNamara, Daniel H. Natter, and Steven H. Emerman Department of Earth Science, Utah Valley University, Orem, Utah
<b>4:00 pm</b>	<b>Mid-afternoon break</b>
<b>4:15pm</b>	<b>Contaminant Transport</b>
	<b>Chair: Professor Thomas Sale</b> <b>Department of Civil and Environmental Engineering, CSU</b>
	<b>Cherokee Park Room - Lory Student Center</b>
<b>4:15</b>	<b>Water quality impacts of retardation and reaction in low permeability zones in groundwater plumes</b>
	Jennifer Wahlberg, Jack Martin, and Tom Sale Department of Civil and Environmental Engineering, Colorado State University
<b>4:30</b>	<b>Catalyzed Electrolytic Degradation of 1,4-Dioxane in Contaminated Water</b>
	Jeremy Jasmann, Thomas Borch, Tom Sale, and Jens Blotevogel Department of Chemistry, Colorado State University
<b>4:45</b>	<b>Analysis of Subsurface LNAPL Body Evolution</b>
	Anna Skinner and Tom Sale Department of Civil and Environmental Engineering, Colorado State University
<b>5:00</b>	<b>Aquifer Inversion with Simultaneous Estimation of Parameters, Source/Sink, and Boundary Condition</b>
	Jianying Jiao and Ye Zhang Department of Geology and Geophysics, University of Wyoming, Laramie, Wyoming
<b>5:15</b>	<b>Coupled modeling of water level dynamics and energy use for operational well fields in the Denver Basin</b>
	Jennifer Davis, Thomas Sale, and Michael Ronayne Department of Geosciences, Colorado State University
<b>5:30</b>	<b>Sustainable Thermally Enhanced LNAPL Attenuation</b>
	Daria Akhbari , Maria Irianni Renno, Adam Byrne, and Tom Sale Department of Civil and Environmental Engineering, Colorado State University
<b>5:45 pm</b>	<b>Adjourn</b>

<b>Hydrology Days 2013 Program</b>	
<b>Tuesday</b>	
<b>Time</b>	<b>Session</b>
<b>8:00 am</b>	<b>Registration - Cherokee Park Room - Lory Student Center</b>
<b>8:45 am</b>	<b>Carbon Sequestration</b> <b>Chair: Professor Domenico Baù</b> <b>Department of Civil and Environmental Engineering, CSU</b>  <b>Cherokee Park Room - Lory Student Center</b>
8:45	<b>Investigation of multiphase modeling approaches for behavior of supercritical CO2 in deep formations using analog fluids in the laboratory</b>  Luca Trevisan , Elif Agartan, Hiroko Mori, Tissa H. Illangasekare, Abdullah Cihan, Jens Birkholzer, and Quanlin Zhou Center for Experimental Study of Subsurface Environmental Processes (CESEP), Colorado School of Mines, Golden, CO
9:00	<b>Estimation of Surrogate Fluid Constitutive Relationships for Modeling of Tank Test Results to Develop Strategies for Geological Carbon Sequestration</b>  Hiroko Mori , Toshihiro Sakaki , Tissa H. Illangasekare Center for Experimental Study of Subsurface Environmental Processes, Colorado School of Mines, Golden, CO
9:15	<b>Stochastic Optimization of the Geological Sequestration of Carbon Dioxide</b>  Brent Cody , Ana González-Nicolás, Domenico Baù Department of Civil and Environmental Engineering, Colorado State University
9:30	<b>Estimation of the Sealing Properties of MTU-site (Michigan) for Geological Carbon Storage</b>  Ana González-Nicolás, Brent Cody and Domenico Baù Department of Civil and Environmental Engineering, Colorado State University

9:45 am    **Mid-morning break**

<b>10:00 am</b>	<b>Probabilistic and Stochastic Approaches</b> <b>Chair: Professor Jorge A Ramírez</b> <b>Department of Civil and Environmental Engineering, CSU</b>  <b>Cherokee Park Room - Lory Student Center</b>
10:00	<b>Estimating the Uncertainty of the Probable Maximum Precipitation</b>  Jose D. Salas , German Gavilan , and Fernando R. Salas Department of Civil and Environmental Engineering, Colorado State University
10:15	<b>Application of Stochastic Weather Generator based Seasonal Ensemble Streamflow Forecasts to Water Resources Management</b>  Lianne Daugherty, Edith Zagona and Balaji Rajagopalan Civil, Environmental, and Architectural Engineering, University of Colorado, Boulder
10:30	<b>High-resolution Spatial Estimates of Precipitation in Equatorial Americas by Blending Station and Satellite Data</b>  Andrew Verdin , Balaji Rajagopalan, and, Chris Funk Civil, Environmental, and Architectural Engineering, University of Colorado, Boulder
10:45	<b>Daily rainfall simulations and return period calculations for Malaysian monsoons</b>  Nur Shazwani Muhammad and Pierre Y. Julien Department of Civil and Environmental Engineering, Colorado State University
11:00	<b>Modeling Large Scale Climate Indicators Using Wavelet-based Time Series Method</b>  Solomon Erkyihun, Balaji Rajagopalan and Edith Zagona Civil, Environmental, and Architectural Engineering, University of Colorado, Boulder

11:15	<b>Towards a better understanding of hydrologic sensitivity to climate change: impact of hydrologic model choices</b>
	Pablo A. Mendoza, Martyn P. Clark, Balaji Rajagopalan and Naoki Mizukami Civil, Environmental, and Architectural Engineering, University of Colorado, Boulder
11:30	<b>Climatic Variability of the West African Monsoon and its Influence on Meningococcal Meningitis Susceptibility</b>
	Daniel Broman, Thomas Hopson and Balaji Rajagopalan Civil, Environmental, and Architectural Engineering, University of Colorado, Boulder
11:45	<b>Record Breaking Typhoon Touchdowns on Korean Peninsula during July to September 2012: Climatological Features and Hydrometeorological Perspective</b>
	Byunghyun Song and Balaji Rajagopalan Cooperative Institute for Research of Environmental Sciences (CIRES), University of Colorado, Boulder
12:00	Lunch - North Ball Room - Lory Student Center
1:00 pm	<b>Hydrology Days Award Lecture - North Ball Room - Lory Student Center</b> <b>Water Security under Climate Change</b>
	<b>Professor Vijay P Singh</b> Department of Biological and Agricultural Engineering, and Department of Civil and Environmental Engineering, Texas A & M University, College Station, TX
2:00 pm	<b>Evapotranspiration - Crop Water Use - Crop Yield</b>
	<b>Chair: Professor José Chávez</b> <b>Department of Civil and Environmental Engineering, CSU</b>
	<b>Cherokee Park Room - Lory Student Center</b>
2:00	<b>What Drives Spatial and Temporal Variability of Evaporative Demand Across CONUS?</b>
	Michael T. Hobbins Colorado Basin River Forecast Center, NOAA National Weather Service
2:15	<b>Preliminary Performance Evaluation of the Penman Monteith Evapotranspiration Equation in Southeastern Colorado</b>
	Abhinaya Subedi, José L. Chávez, and Allan A. Andales Department of Civil and Environmental Engineering, Colorado State University
2:30	<b>Remote sensing for evaluating crop water stress at field scale using infrared thermography: potentials and limitations</b>
	Saleh Taghvaeian, José L. Chávez, Jon Altenhofen, Tom Trout and Kendall DeJonge Department of Civil and Environmental Engineering, Colorado State University
2:45	<b>Mapping Evapotranspiration with the Remote Sensing ET algorithms METRIC and SEBAL under advective and non-advective conditions: Accuracy determination with weighing lysimeters</b>
	Mcebisi M. Mkhwanazi and José L. Chávez Department of Civil and Environmental Engineering, Colorado State University
3:00	<b>A Real-time Common Operating Picture for Managing Water Observations, Operations, and Diversions</b>
	Fernando R. Salas and David R. Maidment Center for Research in Water Resources, University of Texas at Austin, Austin, Texas
3:15	<b>A Web-Service based Tool to Generate Crop Rotation Management Input Files for Spatially distributed Agroecosystem Models</b>
	Holm Kipka, Olaf David, Jim Lyon, Luis A. Garcia, Timothy R. Green, James C. Ascough II and Ken Rojas Department of Civil and Environmental Engineering, Colorado State University
3:30	<b>Testing a new channel routing component in JGrass-NewAge model</b>
	Giuseppe Formetta, Olaf David and Riccardo Rigon University of Trento, Trento, Italy
3:45 pm	Mid-afternoon break

<b>4:00 pm</b>	<b>Hydrologic Modeling and Analysis - Water Quality - Fire Impacts</b>
	<b>Chair: Professor Jorge A Ramírez</b> <b>Department of Civil and Environmental Engineering, CSU</b>
	<b>Cherokee Park Room - Lory Student Center</b>
4:00	<b>Developing demonstration GSSHA and GS-FLOW models for Upper Susquehanna</b>
	Eleeja Shrestha and James Halgren Riverside Technology, inc., Fort Collins
4:15	<b>Distributed monsoon flood modeling at Kota Tinggi, Malaysia</b>
	J. Abdullah and P. Y. Julien Department of Civil and Environmental Engineering, Colorado State University
4:30	<b>Use of the Manning Equation to Estimate Stream Discharge through Natural Slot Canyons and Artificial Slots</b>
	Holly A. Ivie, Dylan B. Dastrup, Andrew Simister, and Steven H. Emerman Department of Earth Science, Utah Valley University, Orem, Utah
4:45	<b>Stream flow hydrograph separation using end-member mixing analysis and analytical techniques</b>
	Tonia Hack and William Sanford Department of Geosciences, Colorado State University
5:00	<b>Quantification of post-wildfire hydrologic response, hillslope erosion, and channel morphology: baseline data following the High Park Fire</b>
	Daniel J. Brogan, Sarah Schmeer, Stephanie K. Kampf, Lee H. MacDonald, and Peter A. Nelson Department of Civil and Environmental Engineering, Colorado State University
5:15	<b>Impacts of High Park Fire on Poudre River Water Quality</b>
	Clare Steninger and Pinar Omur-Ozbek Department of Civil and Environmental Engineering, Colorado State University
5:30	<b>Predictive Modeling of Geosmin, a Taste and Odor Compound, in Northern Colorado Water Supplies</b>
	Glenn Parr and Pinar Omur-Ozbek Department of Civil and Environmental Engineering, Colorado State University
5:45	<b>A Plan for Conversion of Stormwater to Groundwater Recharge on the Utah Valley University Main Campus, Orem, Utah</b>
	Dylan B. Dastrup, Gabriela R. Ferreira, Daniel Zacharias, Daniel H. Natter, Lawrence T. Kellum, Brandon B. Davis, Michael R. Alexander, Jeffrey Selck, and Steven H. Emerman Department of Earth Science, Utah Valley University, Orem, Utah

**6:00 pm     Adjourn**

<b>Hydrology Days 2013 Program</b>	
<b>Wednesday</b>	
<b>Time</b>	<b>Session</b>
<b>8:00 am</b>	<b>Registration - Cherokee Park Room - Lory Student Center</b>
<b>8:00 am</b>	<b>I-WATER Symposium</b>
	<b>Chair: Professor Jorge A Ramírez Department of Civil and Environmental Engineering, CSU</b>
	<b>Virginia Dale Room - Lory Student Center</b>
	<b>I-WATER Research Projects</b>
8:00	<b>Transport of pollutants from cow feedlots in eastern Colorado into Rocky Mountain alpine lakes</b> Aaron Piña Department of Atmospheric Science, and I-WATER Program, Colorado State University
8:15	<b>Developing social-ecological decision support tools for environmental flows management</b> David M. Martin and N. LeRoy Poff Department of Biology/Graduate Degree Program in Ecology, and I-WATER Program, Colorado State University
8:30	<b>Measurement and Modeling of Seasonal Responses of Plant Transpiration to Soil Moisture Deficits</b> Grace Miner Department of Horticulture and Landscape Architecture, and I-WATER Program, Colorado State University
8:45	<b>Simulations of the High Plains drought of 2012 using the Super-parameterized Community Earth System Model (SP-CESM)</b> Isaac D. Medina Department of Atmospheric Science, and I-WATER Program, Colorado State University
9:00	<b>A conceptual model for assessing the influence of scale and sediment transport regime on geomorphic sensitivity to environmental change</b> Joel Sholtes Department of Civil and Environmental Engineering, and I-WATER Program, Colorado State University
9:15	<b>Permafrost degradation and biogeochemical cycling in northern Alaska</b> Laurel Lynch, Jessica Ernakovich, Matthew Wallenstein Graduate Degree Program in Ecology, and I-WATER Program, Colorado State University
9:30	<b>Mechanistic influences of sediment and soil organic carbon storage in mountainous headwaters of the Colorado Rocky Mountains</b> Nicholas A. Sutfin Department of Geosciences, and I-WATER Program, Colorado State University
<b>9:45 am</b>	<b>Mid-morning break</b>
10:00	<b>Ensemble-Based Analysis of the June 2012 Rain and Hailstorm in Colorado Springs, CO: Forecast Uncertainty and Communication of Weather Information to Front Range Decision-Makers</b> Vanessa Vincente Department of Atmospheric Science, and I-WATER Program, Colorado State University
10:15	<b>Water: Allocation and valuation strategies under increasing scarcity</b> Alexander S Maas Department of Agriculture and Resource Economics, and I-WATER Program, Colorado State University
10:30	<b>Closing the gap: a framework to inform ecosystem service quantification at multiple scales</b> Dylan Harrison-Atlas Graduate Degree Program in Ecology, and I-WATER Program, Colorado State University
10:45	<b>Title</b> Erick Carlson Graduate Degree Program in Ecology, and I-WATER Program, Colorado State University

<b>8:00 am</b>	<b>Poster Session</b>
	<b>Chair: Professor Jorge A Ramírez</b> <b>Department of Civil and Environmental Engineering, CSU</b>
	<b>North Ball Room - Lory Student Center</b>
1	<b>CSU Ventures - Helping Bright Ideas Become Great Innovations</b> Steve Albers, Steve Foster, Jessica Joslin, Jeremy Chignell, Esteban Hincapie, Jason Prapas and Scott Fulbright CSU Ventures, Colorado State University, Fort Collins, CO
2	<b>Investigating the Feasibility of Using Ecozones in the Design of Water Balance Covers for Waste Containment by Analyzing the Sensitivity of Cover Effectiveness to Climate, Vegetation and Soil Parameters</b> Joel Barber and David Benson Department of Geology and Geological Engineering Colorado School of Mines, Golden, CO
3	<b>A development of a fuzzy methodology to study the propagation of a flood wave in Potengi River, Rio Grande do Norte - Brazil</b> Sales, Raquel Jucá de Moraes ; Araújo, Juliana Alencar Firmo de; Santos, Silvia Helena ; Souza, Raimundo Oliveira de Universidade Federal do Ceará e bolsista da CNPq, Ceará, Brazil
4	<b>Development of a methodology for the calculation of the risk of eutrophication in the a reservoir in the state of Ceará, Brazil</b> Araújo, Juliana Alencar Firmo de; Sales, Raquel Jucá de Moraes ; Santos, Silvia Helena ; Souza, Raimundo Oliveira de Universidade Federal do Ceará e bolsista da CNPq, Ceará, Brazil
5	<b>Application of the Fuzzy Theory in a Reservoir Operation Model to Study the Behavior of the Regularized Flow</b> Santos, Silvia Helena ; Araújo, Juliana Alencar Firmo de; Sales, Raquel Jucá de Moraes ; Souza, Raimundo Oliveira de Universidade Federal do Ceará e bolsista da CNPq, Ceará, Brazil
6	<b>Evaluation of L-Moment and PPCC method to determine the best regional distribution of monthly rainfall data (Case study: Northwest of Iran)</b> Amirataee, B. Montaseri, M. and Rezaei, H. Department of Water Engineering, Urmia University, Urmia, Iran
7	<b>A Fundamental Study of Convective Mixing of CO<sub>2</sub> in Heterogeneous Geologic Media using Surrogate Fluids and Numerical Modeling</b> Elif Agartan, Tissa Illangasekare, Abdullah Cihan, Jens Birkholzer, Quanlin Zhou and Luca Trevisan Center for Experimental Study of Environmental Subsurface Processes, Colorado School of Mines, Golden, CO
8	<b>Assessing current and future effects of climate change on groundwater in Kaloko-Honokohau National Historical Park</b> Sharla Stevenson National Park Service, Fort Collins, Colorado
9	<b>Interpreting watershed scale hydrological alterations from widespread mountain pine beetle infestation using stable isotopes</b> Lindsay A. Bearup , Reed M. Maxwell, David W. Clow , John E. McCray and Jonathan O. Sharp Civil and Environmental Engineering Department, Colorado School of Mines, Golden, CO
10	<b>Reconstructing Streamflow to Nowhere: Long-term Variability of Flow Into the San Luis Valley Closed Basin, Colorado, USA</b> N. B. H. Venable , P. M. Brown , S. R. Fassnacht Watershed Science Program, Colorado State University
11	<b>Inverse Modeling of Groundwater Flow in a Fractured Aquifer under Confined Condition</b> Yifan Zhang, Ye Zhang, Dongdong Wang Department of Geology & Geophysics, University of Wyoming, Laramie
12	<b>Evaluation of streamflow depletion induced by groundwater withdrawals and irrigation reservoirs</b> Nam Won Kim and Jeongwoo Lee Water Resources Research Division, Water Resources & Environment Research Department, Korea Institute of Construction Technology, South Korea



13	<b>Flood Frequency Analysis using Daily Flood Data based on SWAT model</b> Nam Won Kim and Jeong Eun Lee Water Resources Research Division, Water Resources & Environment Research Department, Korea Institute of Construction Technology, South Korea
14	<b>Spatial Extension of Runoff Data Using a Lumped Concept Model</b> Nam Won Kim and Yong Jung Water Resources Research Division, Korea Institute of Construction Technology, South Korea
15	<b>An integrated hydrologic analysis considering ephemeral stream runoff characteristics in Cheonmi-cheon watershed, Jeju Island</b> Nam Won Kim , IL Moon Chung and Han Na Na Water Resources & Environment Research Department, Korea Institute of Construction Technology, South Korea
16	<b>Characterization of Microbial Communities Mediating Anaerobic Biodegradation of Petroleum Hydrocarbons along a Depth Transect in NAPL Zones</b> Maria Irianni Renno , Daria Akhbari, Adam Byrne, Tom Sale and Susan De Long Department of Civil and Environmental Engineering, Colorado State University
17	<b>An Index to Cottonwood Establishment Potential</b> Robert T Milhous Hydrologist. Fort Collins, Colorado
18	<b>Dynamic Data Integration and Stochastic Inversion of a Two-Dimensional Confined Aquifer</b> Dongdong Wang , Ye Zhang and Juraj Irsa Department of Geology and Geophysics, University of Wyoming
19	<b>Building a Physical Effectiveness Monitoring Protocol for Design Channels at Road-Stream Crossings</b> Heidi Klingel, Dan Cenderelli, Ellen Wohl Department of Geosciences, Colorado State University
20	<b>Evaluating water quality ecosystem services of wetlands under climatic change</b> Rosemary M. Records , Mazdak Arabi, Steven Fassnacht and Walter Duffy Department of Geosciences, Colorado State University
21	<b>Multi-year impacts of sedimentation during managed aquifer recharge</b> Andrew J. Racz , Andrew T. Fisher , Calla M. Schmidt , Marc Los Huertos , Brian S. Lockwood Earth and Planetary Sciences, University of California, Santa Cruz

9:45 am      Mid-morning break

10:00 am	<b>Stream Restoration - Morphodynamics - Erosion and Sedimentation</b> <b>Chair: Professor Pierre Y. Julien</b> <b>Department of Civil and Environmental Engineering, CSU</b>  <b>Cherokee Park Room - Lory Student Center</b>
10:00	<b>Let's be honest: addressing key uncertainties in stream restoration design and decision-making</b> Brian P. Bledsoe Department of Civil and Environmental Engineering, Colorado State University
10:15	<b>Progress in the morphodynamics of bedrock-alluvial rivers</b> Peter A. Nelson and Giovanni Seminara Department of Civil and Environmental Engineering, Colorado State University
10:30	<b>Improving the stream restoration design process with decision analysis, predictive design, and online portals</b> Daniel W. Baker Department of Civil and Environmental Engineering, Colorado State University
10:45	<b>A consideration of channel morphology, flow regime variability and sediment transport relations in determining effective discharge</b> Kevin Werbylo, Joel Sholtes and Brian P. Bledsoe Department of Civil and Environmental Engineering, Colorado State University

11:00	<b>Mechanics of Sediment Plug Formation in the Middle Rio Grande, NM</b> Kiyoung Park and Pierre Y. Julien Department of Civil Engineering, Colorado State University
11:15	<b>Magnitude - Frequency analysis revisited: Effective discharge for gravel bedload in Rocky Mountain streams shifts to highest recorded flows when based on accurate transport relations</b> Kristin Bunte , Dan A. Cenderelli, Kurt W. Swingle, Steven R. Abt Department of Civil and Environmental Engineering, Colorado State University
11:30	<b>Data Processing of the Middle Rio Grande – Elephant Butte Reach, New Mexico</b> Katharine E. Anderson and Pierre Y. Julien Department of Civil and Environmental Engineering, Colorado State University
11:45	<b>Geomorphic Analysis of the Middle Rio Grande – Elephant Butte Reach, New Mexico</b> Tracy E. Owen and Pierre Y. Julien Department of Civil and Environmental Engineering, Colorado State University
12:00	Lunch - North Ball Room - Lory Student Center
1:00 pm	Borland Lecture in Hydraulics - North Ball Room - Lory Student Center <b>Sediment Transport in River Channel Design</b> <b>Professor Peter R. Wilcock</b> Department of Geography and Environmental Engineering, Johns Hopkins University, Baltimore
2:00 pm	<b>Snow Hydrology</b> <b>Chair: Professor Steven Fassnacht</b> <b>Department of Ecosystem Science and Sustainability, CSU</b>  <b>Cherokee Park Room - Lory Student Center</b>
2:00	<b>Changes in the amount and days with snowfall across the Northern Great Plains of the United States</b> Mikaela L. Cherry, Steven R. Fassnacht ESS-Watershed Science, Colorado State University, Fort Collins, CO 80523-1476 USA
2:15	<b>Trends in snow accumulation and melt in Rocky Mountain National Park, Colorado, USA</b> Glenn G. Patterson, Steven R. Fassnacht and Amanda Weber Watershed Science, Colorado State University
2:30	<b>Modeling Small Watershed Snowmelt Hydrographs Using Snow Telemetry Data</b> David C. Deitemeyer and Steven R. Fassnacht ESS-Watershed Science, Colorado State University
2:45	<b>Using Airborne Lidar to Assess the Variability and Scaling of Snow Depth Retrievals from Satellite-Based Altimeters</b> G.A. Sexstone and S.R. Fassnacht Watershed Science Program, Colorado State University
3:00	<b>Snow Depth Variability and Sampling</b> Steven R. Fassnacht, Juan Ignacio López-Moreno, Graham A. Sexstone, Evan J. Blumberg, Amir H. Kashipazha ESS-Watershed Science, Colorado State University

3:15 pm      Hydrology Days 2013 ends

