AGU Hydrology Days 2012

March 21 - March 23, 2012

Program at a Glance

	March 21	March 22	March 23
8 am - 6 pm		Posters	Posters
8 am	Registration	Registration	Registration
8:00 - 10 am	Hydraulics - Hydraulic Structures	Stochastic Approaches	Poster Session I-WATER Session
	Mid-morning break	Mid-morning break	Mid-morning break
10 am - 12	Environmental Engineering - Water Quality	Darcy Lecture - Subsurface Flow and Transport Processes I	Computational Fluid Dynamics
12 - 2 pm	Lunch Borland Lecture in Hydrology	Lunch Hydrology Days Award Lecture	Lunch Borland Lecture in Hydraulics
2 - 4 pm	Soil Moisture - Hydrologic Modeling	Subsurface Flow and Transport Processes II	Watershed Science
	Mid-afternoon break	Mid-afternoon break	Mid-afternoon break
4 - 6 pm	Evapotranspiration - Crop Water Use - Crop Yield	Climate - Water - Weather	Wild Fires - Watershed Response
	Adjourn	Adjourn	Hydrology Days 2012 Ends

Hydrology Days 2012 Program	
Wednesday March 21	
Time	**Session**
8:00 am	**Registration - Grey Rock Room - Lory Student Center**
8:30 am	**Experimental Fluid Mechanics - Hydraulic Engineering - Hydraulic Structures**
	Chair: Professor Christopher Thornton Department of Civil and Environmental Engineering, CSU Grey Rock Room - Lory Student Center
8:30	**Boundary shear-stress distributions for transverse features in a sinuous channel**
	Amanda L. Cox, Christopher I. Thornton, Drew C. Baird, S. Michael Scurlock, and Steven R. Abt Department of Civil and Environmental Engineering, Colorado State University
8:45	**Velocity effects of transverse in-stream structures in channel bends**
	S. Michael Scurlock, Amanda L. Cox, Christopher I. Thornton, and Drew C. Baird Department of Civil and Environmental Engineering, Colorado State University
9:00	**Developing Rating Curves for Bedrock Step-Pool Rivers using Sparse Data**
	Kevin L. Stuart and Steven H. Emerman Department of Earth Science, Utah Valley University, Orem, Utah
9:15	**Acoustic Doppler Velocimeter Limitations**
	Natalie A. Youngblood Department of Civil and Environmental Engineering, Colorado State University
9:30	**Testing levee slope resiliency at the new Colorado State University wave overtopping test facility**
	Bryan N. Scholl, Steven Hughes, Christopher Thornton Department of Civil and Environmental Engineering, Colorado State University
9:45	**Mid-morning break**
10:00 am	**Environmental Engineering - Water Quality**
	Chair: Professor Sybil Sharvelle Department of Civil and Environmental Engineering, CSU Grey Rock Room - Lory Student Center
10:00	**Treatment, Public Health and Regulatory Issues Associated with Graywater Reuse**
	Robert Glenn, Larry Roesner, and Sybil Sharvelle Department of Civil and Environmental Engineering, Colorado State University
10:15	**Leachability of Graywater Constituents after Application for Irrigation**
	Masoud Negahban Azar, Alicia Shogbon, and Sybil Sharvelle Department of Civil and Environmental Engineering, Colorado State University
10:30	**Characterizing and Modeling the Hydrologic Properties of Coal Combustion By-Products in Landfill Disposal Sites**
	Ryan Webb, John Stormont, Mark Stone, and Bruce Thomson Department of Civil Engineering, University of New Mexico, Albuquerque, NM
10:45	**Food waste diversion for enhanced methane gas production at the Drake water reclamation facility**
	Cristian Arthur Robbins Department of Civil and Environmental Engineering, Colorado State University
11:00	**Water Quality Assessment of Small Water Supply Reservoir Using Statistical and Analytical Methods**
	Nicolas A.Gonzalez, N. R. Swain, O. Obregon, G. P. Williams, E. J. Nelson, Dennis L. Eggett Department of Civil and Environmental Engineering, Brigham Young University, Provo, UT
11:15	**Comparison of Quality of Well Water Provided by a Jesuit Mission with Traditional Water Sources of the Tarahumara Indians, Sierra Tarahumara, Chihuahua, Mexico**
	Janae R. Nelson, Michael Thayne, Steven H. Emerman, Patricia K. Garcia, Marc E. Van Wagoner, Michael P. Bunds, and Joel A. Bradford Department of Earth Science, Utah Valley University, Orem, Utah

11:30	**Determination of two cyclosiloxanes in waste activated sludge and removal by advanced oxidation.**
	Harshad Vijay Kulkarni and Pinar Omur-Ozbek Department of Civil and Environmental Engineering, Colorado State University
11:45	**The occurrence and removal of cyanobacterial metabolites Microcystin-LR and Geosmin from source waters.**
	Victor Sam and Pinar Omur-Ozbek Department of Civil and Environmental Engineering, Colorado State University
12:15 pm	**Lunch - Gray Rock Room - Lory Student Center**
1:00 pm	**Borland Lecture in Hydrology - Grey Rock Room - Lory Student Center**
	Isotope tracers in catchment hydrology: How far can we go? **Professor Jeffrey McDonnell** Department of Forest Engineering, Resources and Management, Oregon State University
2:00 pm	**Hydrologic modeling - Soil Moisture**
	Chair: Professor Jeffrey Niemann **Department of Civil and Environmental Engineering, CSU** **Grey Rock Room - Lory Student Center**
2:00	**A Conceptual Model to Estimate Topographically-Dependent Soil Moisture Patterns**
	Kevin L. Werbylo, Jeffrey D. Niemann, and Michael L. Coleman Department of Civil and Environmental Engineering, Colorado State University
2:15	**Investigating Controls on Soil Moisture Pattern Types and Their Time Instability**
	Michael L. Coleman and Jeffrey D. Niemann Department of Civil and Environmental Engineering, Colorado State University
2:30	**Turning rock into saprolite: Linking observations and models of vadose zone dynamics and chemical weathering**
	Abigail L. Langston, Gregory E. Tucker, Robert S. Anderson, and Suzanne P. Anderson Department of Geological Sciences and Cooperative Institute for Research in Environmental Sciences
2:45	**Distributed hydrologic modeling of extreme events on the Lui watershed, Malaysia**
	Jazuri Abdullah and Pierre Y. Julien Department of Civil and Environmental Engineering, Colorado State University
3:00	**Dam overtopping and flood routing with the TREX watershed model**
	Andrew Steininger and Pierre Y. Julien Department of Civil and Environmental Engineering Department, Colorado State University
3:15	**Distributed Watershed Modeling of Flash Floods in South Korean Mountains**
	Jaehoon Kim and Pierre Y. Julien Department of Civil and Environmental Engineering, Colorado State University
3:30	**Overbank flow analysis of the Bosque reach of the middle Rio Grande**
	Theodore R. Bender and Pierre Y. Julien Department of Civil and Environmental Engineering, Colorado State University
3:45 pm	**Mid-afternoon break**
4:00 pm	**Evapotranspiration - Crop Water Use - Crop Yield**
	Chair: Professor Jose Chavez **Department of Civil and Environmental Engineering, CSU** **Grey Rock Room - Lory Student Center**
4:00	**Scintillometry for Evapotranspiration estimation over irrigated alfalfa and dry grassland**
	Evan Rambikur and Jose L. Chavez Department of Civil and Environmental Engineering, Colorado State University
4:15	**Ground-based Remote Sensing of Corn Evapotranspiration under Limited Irrigation Practices**
	S. Taghvaeian, J. L. Chavez and N. C. Hansen Civil and Environmental Engineering Department, Colorado State University

4:30	**Vegetation Water Use Determined with Energy Balance Models Coupled with Airborne Multispectral Imagery and Weather Data**
	Jose L. Chavez Department of Civil and Environmental Engineering, Colorado State University
4:45	**Using METRIC to Estimate Surface Energy Fluxes over an Alfalfa Field in Eastern Colorado**
	Mcebisi Mkhwanazi, Jose L. Chavez Civil and Environmental Engineering Department, Colorado State University, Fort Collins.
5:30 pm	**Adjourn**

Hydrology Days 2012 Program	
Thursday March 22	
Time	**Session**
8:00 am	**Registration - North Ball Room - Lory Student Center**
8:15 am	**Probabilistic and Stochastic Approaches**
	Chair: Professor Jorge A Ramirez Department of Civil and Environmental Engineering, CSU North Ball Room - Lory Student Center
8:15	**A Case Study: Climate Change Decision Support for the Apalachicola, Chattahoochee, Flint Basins**
	Day, G. N., McMahon, G., Friesen, N., Carney, S. Riverside Technology, inc., Fort Collins, CO, USA
8:30	**Influence of spatial variation in precipitation on artificial neural network rainfall-runoff model**
	Andre Dozier Department of Civil and Environmental Engineering, Colorado State University
8:45	**Conditional Probability of Consecutive Rainy Days during Monsoons in Malaysia**
	Nur Shazwani Muhammad and Pierre Y. Julien Department of Civil and Environmental Engineering, Colorado State University
9:00	**On Drought Severity-Duration-Frequency Curve Based On Copula Theory**
	Jae Won Kwak, Yeon Soo Kim, Jong So Lee and Hung Soo Kim Department of Civil Engineering, Inha University, Incheon, Korea
9:15	**Probabilistic quantitative precipitation estimates using reanalysis datasets: a comparison of different approaches**
	Pablo Mendoza, Balaji Rajagopalan and Martyn P. Clark Department of Civil, Environmental, and Architectural Engineering, University of Colorado, Boulder
9:30	**Stochastic Weather Generator Based Ensemble Streamflow Forecasting**
	Nina Caraway, Balaji Rajagopalan, Andy Wood, and Kevin Werner Civil, Environmental, and Architectural Engineering, University of Colorado, Boulder, CO
9:45 am	**Mid-morning break**
10:00 am	**Darcy Lecture - Subsurface Flow and Transport Processes I**
	Chair: Professor Domenico Bau Department of Civil and Environmental Engineering, CSU North Ball Room - Lory Student Center
10:00	**Darcy Lecture: Transport of Viruses in Partially Saturated Soil and Groundwater**
	S. Majid Hassanizadeh Department of Earth Sciences, Utrecht University, Netherlands
11:00	**A Selenium Reaction Module for Agricultural Groundwater Systems**
	Ryan T. Bailey and Timothy K. Gates Department of Civil and Environmental Engineering, Colorado State University
11:15	**Hydraulic conductivity assessment via tracer test data assimilation: comparison between Ensemble Smoother and Ensemble Kalman Filter**
	Elena Crestani, Domenico Bau, Matteo Camporese and Paolo Salandin ICEA Department, Unversity of Padova, Italy
11:30	**Reductive Dechlorination and Desorption of Hydrophobic Contaminants in Non-aqueous Media**
	Jeramy Jasmann, Thomas Borch, Tom Sale, Jens Blotevogel Department of Chemistry, Colorado State University
11:45	**CO2 Traps: A New Tool to Monitor Natural LNAPL Loss Rates**
	Kevin McCoy Department of Civil and Environmental Engineering, Colorado State University

12:00	**Lunch - North Ball Room - Lory Student Center**
1:00 pm	**Hydrology Days Award Lecture - North Ball Room - Lory Student Center**
	Multi-scale Models for CO2 Injection into Deep Saline Aquifers **Professor Michael A. Celia** Department of Civil and Environmental Engineering, Princeton University, Princeton, NJ USA
2:00 pm	**Subsurface Flow and Transport Processes II**
	Chair: Professor Domenico Bau **Department of Civil and Environmental Engineering, CSU** **North Ball Room - Lory Student Center**
2:00	**Experimental analysis of supercritical CO2 migration at laboratory scale aimed to investigate capillary trapping**
	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
2:15	**Analyzing Potential Improvements to a Semi-Analytical CO2 Leakage Algorithm**
	Brent Cody, Ana Gonzalez-Nicolas, Domenico Bau Department of Civil and Environmental Engineering, Colorado State University
2:30	**Potential Impacts of Carbon Sequestration on Freshwater Aquifers: Adding Pieces to the Puzzle**
	Assaf Wunsch, Alexis K. Navarre-Sitchler, John E. McCray Hydrological Science and Engineering Program, Colorado School of Mines, Golden, CO
2:45	**Carbon geological sequestration: effects of parameter uncertainty on fluid overpressure and CO2 leakage**
	Ana Gonzalez-Nicolas, Brent Cody and Domenico Bau Department of Civil and Environmental Engineering, Colorado State University
3:00	**Temporal Partitioning of a Chlorinated Solvent Release Between Transmissive and Low Permeability Zones**
	A. Bolhari and T. Sale Department of Civil and Environmental Engineering, Colorado State University
3:15	**Groundwater Analysis of Atoll Islands in the Federated States of Micronesia: Observations, Modeling, and Training**
	Ryan T. Bailey and John W. Jenson Department of Civil and Environmental Engineering, Colorado State University
3:45 pm	**Mid-afternoon break**
4:00 pm	**Climate - Water - Weather**
	Chair: Professor Jorge A Ramirez **Department of Civil and Environmental Engineering, CSU** **North Ball Room - Lory Student Center**
4:00	**Great Missouri River Flood of 2011: Lessons for the future**
	Neil S. Grigg Civil and Environmental Engineering Department, Colorado State University
4:15	**Changing Hydrology of a Large, Floodplain Lake in Response to Geomorphic Alterations at the Head of the Mississippi River Delta**
	Frank L Willis and Richard F Keim School of Renewable Natural Resources, Louisiana State University Agricultural Center, Baton Rouge, LA
4:30	**Impact of Climate Change on Wetland Functions**
	Duck Gil Kim, Hee Sung Noh, Na Rae Kang, and Hung Soo Kim Department of Civil Engineering, Inha University, Korea
4:45	**A Review of the 2011 Water Year in Colorado**
	Nolan Doesken and Wendy Ryan Colorado Climate Center, Department of Atmospheric Science, Colorado State University
5:00	**Meeting the Global Challenges of Water Scarcity**
	Brian Richter Global Freshwater Strategies, The Nature Conservancy
6:00 pm	**Adjourn**

Hydrology Days 2012 Program	
Friday March 23	
Time	**Session**
8:00 am	**Registration - North Ball Room - Lory Student Center**
8:00 am	**I-WATER Session**
	Chair: Professor Jorge A Ramirez Department of Civil and Environmental Engineering, CSU Grey Rock Room - Lory Student Center
8 - 10:00	**I-WATER Projects**
8 - 12:00	**Internal I-WATER Program Assessment**
8:00 am	**Poster Session**
	Chair: Professor Jorge A Ramirez Department of Civil and Environmental Engineering, CSU North Ball Room - Lory Student Center
1	**Downstream Effects of Diversion dams on Riparian vegetation communities in the Routt National Forest, Colorado**
	Simeon Caskey Department of Geosciences, Colorado State University
2	**Modeling hydrology in a Rocky Mountain peatland**
	Dave Millar, David Cooper, and Michael Ronayne Department of Forestry and Rangeland Stewardship, Colorado State University
3	**Application of the Cowell Index to Monthly Streamflow Analysis**
	Robert T Milhous Hydrologist, Torries Peak Analysis, Fort Collins, Colorado
4	**Evaluating the spatial variability of snowpack properties across a northern Colorado basin**
	G.A. Sexstone and S.R. Fassnacht Watershed Science Program, Colorado State University
5	**Rapid assessment of a large-magnitude snow avalanche event in Colorado**
	Sara Simonson, Steven Fassnacht and Scott Toepfer Natural Resource Ecology Laboratory, Watershed Science Program, Colorado State University
6	**Perceived Climatic Warming and Drying Near the Khangai Mountains, Mongolia Explored Through Station Record Length Analysis**
	N. B. H. Venable, S. R. Fassnacht, G. Adyabadam, Tumenjargal S. Watershed Science Program, Colorado State University
7	**Synthetic unit hydrograph using Nash model with geospatially estimated parameters in the mid-sized watershed**
	Kang Boosik and Kim JinGyeom Department of Civil and Environmental Engineering, Dankook University, Republic of Korea
8	**Numerical modeling of soil water flow under different vegetation cover types in urban environments of the Colorado Front Range**
	Edward A. Gage and David J. Cooper Graduate Degree Program in Ecology, Colorado State University, Fort Collins
9	**Intermediate scale testing and modeling for improving fundamental understanding of dissolution trapping in deep geologic formations**
	Elif Agartan, Tissa Illangasekare, Abdullah Cihan, Jens Birkholzer, Quanlin Zhou and Luca Trevisan Center for Experimental Study of Environmental Subsurface Processes (CESEP), Colorado School of Mines, Golden, CO
10	**The effect of fire on the thermal properties of soils**
	Elizabeth A. Kirby, Kathleen M. Smits, and William J. Massman Environmental Science and Engineering Division, Colorado School of Mines

11	**Material Characterization for Intermediate Scale Testing to Develop Strategies for Geologic Sequestration of CO2**
	Hiroko Mori, Toshihiro Sakaki, Tissa H. Illangasekare Environmental Science and Engineering, Colorado School of Mines, Golden, Colorado, USA
12	**Analysis of Future Discharge in Nakdong River Basin According to Effect on Climate Change**
	Hyun Suk Shin, Tae Seok Shon, and Mi Eun Kim, Ji Ye Im Department of Civil and Environmental Engineering, Pusan National University, Pusan, South Korea
13	**The Study on the Development of Flood Forecasting and Warning System in On-cheon Stream**
	Hyun Suk Shin, Mi Eun Kim, Young Su Jang, Tae Seok Shon Department of Civil and Environmental Engineering, Pusan National University, Pusan, South Korea
14	**Evaluating the evolution of vapor intrusion pathways using electrical resistance tomography in heterogeneously-packed intermediate-scale sand tank tests**
	Luke Shannon, Kathleen M. Smits, and Tissa H. Illangasekare Environmental Science and Engineering, Colorado School of Mines, Golden, Colorado, USA
15	**Removal Rates In A Subsurface Flow Wetland And A Comparison To Free Water Surface Wetlands**
	Margaret Hollowed and Sybil Sharvelle Department of Civil and Environmental Engineering, Colorado State University
16	**Beyond Lees Ferry: Assessing the Long-term Hydrologic Variability of the Lower Colorado River Basin**
	Lisa C. Wade, Balaji Rajagopalan , Jeffrey J. Lukas, and David Kanzer Civil, Environmental, and Architectural Engineering Department, University of Colorado, Boulder
17	**Assessment of Climate Change on the Arkansas River Basin**
	Fariborz Nasr Azadani and Darrell G Fontane Department of Civil and Environmental Engineering, Colorado State University
18	**Statistical Downscaling using Hybrid Model of Multi-Site Artificial Neural Network and Random Cascade Scheme**
	Kang Boosik, Moon Soojin, and Kim Jungjoong Department of Civil and Environmental Engineering, Dankook University, Republic of Korea
19	**Influence of digital elevation model resolution on terrain based hydrologic parameters for a subalpine catchment, Front Range, Colorado**
	Blaine Hastings and Stephanie Kampf Department of Ecosystem Science and Sustainability, Colorado State University
20	**Relative Sensitivity of the Seasonal Snow Zones to Climate Warming in the Western United States**
	Cara Moore, Stephanie Kampf, Eric Richer, Brandon Stone Natural Resource Ecology Laboratory, Colorado State University
21	**Log Jams and Carbon Storage in Headwater Streams in Colorado's Front Range**
	N. D. Beckman and E.E. Wohl Department of Geosciences, Colorado State University
22	**Coupling updated flow duration curves from downscaled climate change predictions with sediment transport relations to estimate future transport regimes in the Yampa Biver basin.**
	Joel Sholtes Department of Civil and Environmental Engineering, Colorado State University
23	**Determination of the Area Weighted Curve Number Distribution in a South Miami Catchment Utilizing Maximum Likelihood Classification in ArcGIS**
	Jessica Seersma Department of Civil and Environmental Engineering, University of Colorado at Boulder
24	**Petroleum Hydrocarbon Sheens in Surface Water - Governing Processes and Solutions**
	Alison Hawkins, Julio Zimbron, Tom Sale, Mark Lyverse, and Pat Hughes Department of Civil and Environmental Engineering, Colorado State University
25	**Geomorphic classification for arid ephemeral streams using channel geometry and basin characteristics**
	Nicholas A. Sutfin, Ellen Wohl and Jeremy Shaw Department of Geosciences, Colorado State University

26	**Debris Flow Chronology and Analysis of Controls on Debris Flow Occurrence in the Upper Colorado River Valley, Rocky Mountain National Park, CO**
	Kyle Grimsley Department of Geosciences, Colorado State University
27	**Using Conditional Probability Maps to Manage Soil Salinity and Crop Yield**
	Ahmed A. Eldeiry and Luis A. Garcia Department of Civil and Environmental Engineering, Colorado State University
9:45 am	**Mid-morning break**
10:00 am	**Computational Fluid Dynamics - Hydraulic modeling**
	Chair: Professor Karan Venayagamoorthy **Department of Civil and Environmental Engineering, CSU** **North Ball Room - Lory Student Center**
10:00	**Lateral mixing of passive scalars around porous obstacles in tidal flows**
	Hyeyun Ku and Subhas Karan Venayagamoorthy Dept. of Civil and Environmental Engineering, Colorado State University
10:20	**Evaluation and Improvement of RANS Turbulence models for Stably Stratified Environmental Flows**
	Farid Karimpour and Subhas Karan Venayagamoorthy Department of Civil and Environmental Engineering, Colorado State University
10:40	**Computational Modeling of Baffled Disinfection Tanks**
	Zachary Taylor and Subhas Karan Venayagamoorthy Department of Civil and Environmental Engineering, Colorado State University
11:00	**Relevant length scales and time scales in shear flow turbulence**
	Benjamin Mater, Subhas Karan Venayagamoorthy, and Lakshmi Dasi Department of Civil and Environmental Engineering, Colorado State University
11:20	**Flow structures and dynamics of stably stratified turbulence**
	Simon M. Schaad and Subhas Karan Venayagamoorthy Department of Civil and Environmental Engineering, Colorado State University
11:40	**Sustainable channel width analysis for the Middle Rio Grande, NM**
	Kiyoung Park 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**
	How vegetation alters water motion, and the feedbacks to environmental system structure and function **Professor Heidi Nepf** Department of Civil and Environmental Engineering, MIT
2:00 pm	**Watershed Science**
	Chair: Professor Stephanie Kampf **Department of Ecosystem Science and Sustainability, CSU** **North Ball Room - Lory Student Center**
2:00	**Land use and watershed science: a 30-year perspective on lessons learned and what we should be worrying about?**
	Lee H. MacDonald Department of Ecosystem Science and Sustainability, Colorado State University
2:20	**"Developing a watershed monitoring project" revisited: What to measure, in what order and why?**
	Jeffrey J. McDonnell Dept. of Forest Engineering, Resources and Management, Oregon State University, Corvallis, OR
2:35	**Hydrology, hydrochemistry and implications for water supply of a cloud forest in Central America**
	Luis A. Caballero, Brian K. Richards, Shree K. Giri and Tammo S.Steenhuis Department of Environment and Development Studies, Zamorano University, Honduras

2:50	**Water Rights Consulting: a Colorado-Based Perspective**
	Matthew J. Welsh, P.H. Headwaters Corporation, Denver, Colorado
3:05	**Conceptual model for complex river responses by expanding Lane's relation**
	David Dust and Ellen Wohl Department of Geosciences, Colorado State University
3:20	**Coarse particulate organic matter transport in two Rocky Mountain streams**
	Kristin Bunte, Kurt W. Swingle, Steven R. Abt, John P. Potyondy Department of Civil and Environmental Engineering, Colorado State University
3:35	**Mid-afternoon break**
3:50 pm	**Wild Fires - Watershed Impcts**
	Chair: Professor Lee MacDonald **Department of Ecosystem Science and Sustainability, CSU** **North Ball Room - Lory Student Center**
3:50	**Effects of thinning and a wildfire on sediment production rates, channel morphology, and water quality in the upper South Platte watershed**
	Zamir Libohova, Lee MacDonald, and Deborah Entwistle United States Department of Agriculture, Natural Resources Conservation Service, National Soil Survey Center, Lincoln, Nebraska.
4:05	**Increased Erosion Risk after Wildfires**
	Peter R. Robichaud Rocky Mountain Research Station, USDA Forest Service, Moscow, Idaho
4:20	**Runoff and sediment production from forest fires at two scales**
	Juan de Dios Benavides-Solorio and Lee H. MacDonald Instituto Nacional de Investigaciones Forestales Agricolas y Pecuarias, Guadalajara, Mexico
4:35	**Twelve years of post-fire erosion and runoff research in the Colorado Front Range**
	Joseph W. Wagenbrenner and Peter R. Robichaud Biological Systems Engineering, Washington State University, Pullman and Rocky Mountain Research Station, US Forest Service, Moscow, Idaho
4:50	**Exploring Post-Wildfire Erosion using Terrestrial Lidar**
	Francis Rengers and Gregory Tucker Geological Sciences Department, University of Colorado, Boulder.
5:05	**NetMap integrated tools and watershed data: scientifically based and spatially explicit solutions for natural resource management.**
	Sam Litschert and Lee Benda Earth Systems Institute, Fort Collins, CO
5:20	**Concluding Remarks**
	Lee H. MacDonald Watershed Science Program, Department of Ecosystem Science and Sustainability, Colorado State University
5:30 pm	**Hydrology Days 2012 ends**