

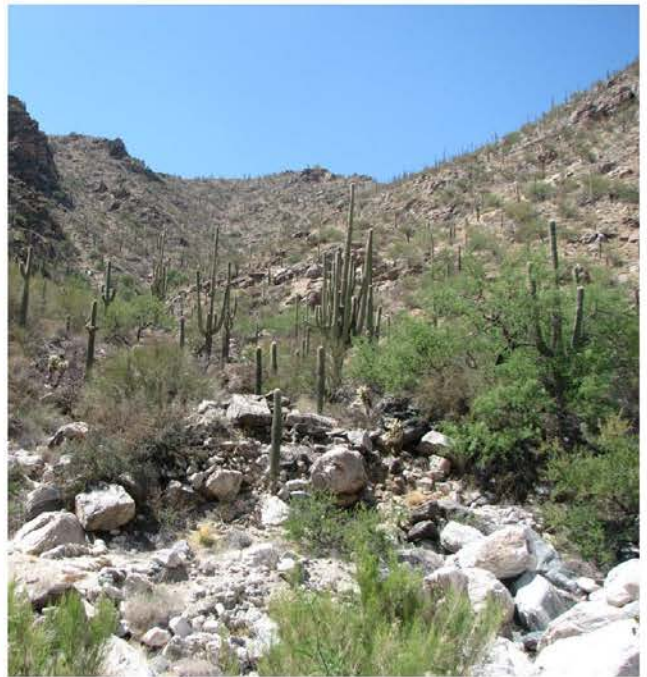


CZO@AGU 2016

December 12-16
San Francisco, California



National CZO Program **CRITICAL ZONE OBSERVATORIES** funded by NSF
studying the zone where rock meets life



Agenda

Special CZO Events:

CZO Geophysical Information for Teachers (GIFT) Workshop:

The Shale Hills Critical Zone Observatory Virtual Fieldwork Experience: A Gateway to the NGSS's Three Dimensional Science

Monday, December 12, 10:00- 11:30am, Marriott Marquis, Golden Gate A

Lead by: Dr. Tim White, Dr. Don Duggan- Haas, and Sarah Sharkey (CZO National Office)

Town Hall

TH060: Critical Zone Observatories: Platforms for Collaborative Science

Tuesday, December 13, 12:30 - 1:30pm, Moscone West - 3022

Critical Zone Observatories (CZOs) are natural laboratories for investigating Earth surface processes. CZO research seeks to understand these coupled processes across all timescales using quantitative models parameterized from observations of meteorological variables, streams, and groundwater, and sampling and analyzing landforms, bedrock, soils, and ecosystems. Teams of cross-disciplinary scientists at nine sites across the United States work to further CZ science using field and theoretical approaches, education and outreach. The U.S. network now includes a national office and funds to develop international collaborations, and currently is working to develop strong ties with other U.S. entities including the LTER network and CUAHSI.

In this town hall the CZO community seeks to engage the greater Earth surface and environmental science community through: 1) a brief update on the recent development of a strategic plan for the U.S. CZO network, and a status report of international CZ science activities; and, 2) a presentation by CZO researcher(s) highlighting important advances that could not have been made without the CZO approach. All scientists interested in problems related to the surface Earth environment are invited.

Union Session

U53A: The Critical Zone: Revealing the Structure, Function, and Evolution of Earth's Living Skin

Friday, December 16, 1:40 - 3:40pm, Moscone South - 102

Conveners: Suzanne Anderson (Boulder Creek) and Susan Brantley

Talks given by William Dietrich (UC Berkeley), Steven Holbrook (UWyoming), Jennifer McIntosh (UArizona), Ying Fan (Rutgers), Amilcare Porporato (Duke), David Beerling (USheffield)

Synopsis: The layers of earth materials and organisms at the Earth's surface behave as a distinct entity- the critical zone, and fundamentally differ from rock below and atmosphere above. Although thin on a planetary scale, the critical zone is substantive for the living systems it supports, and significant in modulating the flows of water and sediment to rivers and the sea. Dynamic interfaces at the top of the vegetation canopy, the ground surface, and at the deep transition to unweathered materials, vary spatially, and co-evolve, forming the template on which hydrologic and ecologic processes occur. Presentations in this session will highlight advances in 1) exploration of the architecture of critical zone and the processes that shape its structure, 2) interactions between organisms and the substrates they live on, and 3) analysis of spatial and temporal variations in water, energy, and biotic activity in the critical zone.

AGU Sessions:

Date/Time of Presentation	Location/Session Info	Presentation Title/Author(s)	Affiliation
Monday, December 12, 2016			
08:00 - 12:20 PM	B11B. Carbon and Water Cycling in Terrestrial Ecosystems during the Anthropocene I Posters Moscone South - Poster Hall	B11B-0456: Seasonal and Topographic Variation in Net Primary Productivity and Water Use Efficiency in a Southwest Sky Island Forest MURPHY, P.; MINOR, R. L.; SANCHEZ-CANETE, E. P.; POTTS, D. L.; BARRON-GAFFORD, G.	Catalina-Jemez
8:00 - 12:20 PM	B11D. Ecological (A)synchrony of Forest Responses to Climate I Posters Moscone South – Poster Hall	B11D-0500: Growing Season Conditions Mediate the Dependence of Aspen on Redistributed Snow Under Climate Change SODERQUIST, B.; KAVANAGH, K.; LINK, T. E.; SEYFRIED, M. S.; STRAND, E. K.	Reynolds Creek
8:30 – 8:45 AM	IN11E. Architecture and Integration Testbed for Earth/Space Science Cyberinfrastructures I Moscone West – 2000	IN11E-03: An Application of the Geo-Semantic Micro-services in Seamless Data-Model Integration JIANG, P.; ELAG, M.; KUMAR, P.; LIU, R.; HU, Y.; MARINI, L.; PECKHAM, S. D.; HSU, L.	IML
9:30 – 9:45 AM	H11D. Blue and Green Water in the Mountains: Water Supply, Extreme Events, and Ecological Responses in Snow and Glacier-fed Catchments I Moscone West - 2020	H11D-07: Hydrologic Response to Climatic and Vegetation Change in an Extreme Alpine Environment LIVNEH, B.; BADGER, A.; MOLOTCH, N. P.; BUENO DE MESQUITA, C.; SUDING, K.	Boulder
11:05- 11:20 AM	B12D. The Bioatmospheric N Cycle: N Emissions, Transformations, Deposition, and Terrestrial and Aquatic Ecosystem Impacts I Moscone West - 2008	B12D-04: The Effects of More Extreme Rainfall Patterns on Nitrogen Leaching from a Field Crop System in the Upper Midwest, USA HESS, L.; HINCKLEY, E.-L. S.; ROBERTSON, G. P.; MATSON, P. A.	Boulder
11:05- 11:20 AM	H12E. Water, Energy, and Society in Urban Systems II Moscone West – 3016	H12E-04: An Environmental Cost-benefit Analysis of Alternative Green Roofing Strategies WILLIAM, R. K.; GOODWELL, A. E.; RICHARDSON, M.; LE, P. L.; KUMAR, P.; STILLWELL, A. S.	IML
11:20 -11:35 AM	EP12A. Extracting Landscape Dynamics from the Sedimentary Record I Moscone West – 2005	EP12A-05: Leaky Sinks: Should (Paleo)erosion Rates and Floodplain Sedimentation Rates Covary? (Invited) WILLENBRING, J. K.; BROCARD, G. Y.	Luquillo
1:40 – 6:00 PM	B11C. Carbon Dynamics in Tropical, Arctic/Boreal, Coastal, and Wetland-Dominant Regions I Posters Moscone South – Poster Hall	B11C-0468: Climate Induced Changes in Global-Scale Litter Decomposition and Long-term Relationships with Net Primary Productivity	Luquillo

		SILVER, W. L.; SMITH, W. K.; PARTON, W. J.; WIEDER, W. R.; DELGROSSO, S.	
1:40 – 6:00 PM	B13C. From Land to Sea: Rivers as Integrated Signal of Watershed Processes, Climate, and Land-Use Change I Posters Moscone South – Poster Hall	B13C-0595: From City to Sea: Controls on Weathering Products and Limiting Nutrients in an Urban Tropical River MCDOWELL, W. H.; POTTER, J.; MCDOWELL, W. G.; RAMIREZ, A.	Luquillo
1:40 – 6:00 PM	B13D-0629. Integrating Biogeochemical and Microbiological Approaches to Understand Ecosystem Processes and Responses to Environmental Change IV Posters Moscone South – Poster Hall	B13D-0629: How Redox Fluctuation Shapes Microbial Community Structure and Mineral-Organic Matter Relationships in a Humid Tropical Forest Soil CAMPBELL, A.; BHATTACHARYYA, A.; LIN, Y.; TFAILY, M. M.; PASA-TOLIC, L.; CHU, R. K.; SILVER, W. L.; NICO, P. S.; PETT-RIDGE, J.	Luquillo
1:40 - 6:00 PM	B13D. Integrating Biogeochemical and Microbiological Approaches to Understand Ecosystem Processes and Responses to Environmental Change IV Posters Moscone South - Poster Hall	B13D-0630: Integrating Remote Sensing Hyperspectral Data and Point Measurements to Map Soil Properties across a Landscape GEBHARDT, M.; GALLERY, R. E.	Catalina-Jemez
1:40 – 6:00 PM	B13D. Integrating Biogeochemical and Microbiological Approaches to Understand Ecosystem Processes and Responses to Environmental Change IV Posters Moscone South - Poster Hall	B13D-0633: Microbial Community Activity is Insensitive to Passive Warming in a Semiarid Ecosystem ESPINOSA, N. J.; FEHMI, J. S.; GALLERY, R. E.	Catalina-Jemez
1:40 – 6:00 PM	B13D. Integrating Biogeochemical and Microbiological Approaches to Understand Ecosystem Processes and Responses to Environmental Change IV Posters Moscone South - Poster Hall	B13D-0640: Microbial Community Recovery Post-fire in a High Elevation Mixed Conifer Catchment in Response to Varied Precipitation Regime FAIRBANKS, D.; COOK, C.; CHOROVER, J.; GALLERY, R. E.; RICH, V. I.	Catalina-Jemez
1:40 – 6:00 PM	ED13E. Teaching about the Earth in the Context of Societal Issues II Posters Moscone South - Poster Hall	ED13E-0954: Critical Zone Science as a Multidisciplinary Framework for Teaching Earth Science and Sustainability WYMORE, A.; WHITE, T. S.; DERE, A. L. D.; HOFFMAN, A.; WASHBURNE, J. C.; CONKLIN, M. H.	Southern Sierra
1:40 – 6:00 PM	GC13E. Natural and Anthropogenic Drivers of Hydroclimatic Change in Western North America II Posters Moscone South – Poster Hall	GC13E-1235: Is Soil Development Controlling Ecohydrologic Response to Climate Change in the Southern Cascade and Sierra Nevada Watersheds, CA, USA? DEVINE, S.; O'GEEN, A. T.; DAHLKE, H. E.	Southern Sierra
1:40 – 6:00 PM	H13E. Saturated and Unsaturated Preferential Flow and Transport across Hydrological Scales in the	H13E-1414: Three Principals of Water Flow in Soils GUO, L.; LIN, H.	Susquehanna

	Critical Zone Posters Moscone South – Poster Hall		
1:40 – 6:00 PM	H13E. Saturated and Unsaturated Preferential Flow and Transport across Hydrological Scales in the Critical Zone Posters Moscone South – Poster Hall	H13E-1415: A Framework for Estimating the Occurrence Frequency and Dominant Controls of Preferential Flow across Diverse Soil Landscapes LIN, H.; GUO, L.	Susquehanna
1:40 – 6:00 PM	H13E. Saturated and Unsaturated Preferential Flow and Transport across Hydrological Scales in the Critical Zone Posters Moscone South – Poster Hall	H13E-1419: Unsaturated Flow Processes in Structurally-variable Pathways in Wildfire-affected Soils and Ash (Invited) EBEL, B.	Boulder
1:40 – 6:00 PM	H13E. Saturated and Unsaturated Preferential Flow and Transport across Hydrological Scales in the Critical Zone Posters Moscone South – Poster Hall	H13E-1417: Soil, Water, Plants and Preferred Flow in All Directions: A Biosphere-2 Experiment (Invited) MCDONNELL, J.; EVARISTO, J. A.; KIM, M.; VAN HAREN, J. L. M.; PANGLE, L. A.; HARMAN, C. J.; TROCH, P. A.	Catalina-Jemez
1:40 – 6:00 PM	H13K. Advancing Ecohydrology with Geophysics Posters Moscone South – Poster Hall	H13K-1559: Using Time-Lapse 3D Electrical Resistivity Tomography to Image the Seasonal Heterogeneous Change in Near-Surface Resistivity in the Reynolds Creek Critical Zone Observatory NIELSON, T.; BRADFORD, J. H.; SEYFRIED, M. S.	Reynolds Creek
1:40 – 6:00 PM	V13B. Magmatic and Tectonic Influences on Elemental Cycling and Earth's Climate and Oxidation State Posters Moscone South – Poster Hall	V13B-2837: Exploring Nested Reaction Fronts to Understand How Oxygen Cracks Rocks, Carbonic and Sulfuric Acids Dissolve Rocks, and Water Transports Rocks during Weathering (Invited) BRANTLEY, S. L.; GU, X.; SULLIVAN, P. L.; KIM, H.; STINCHCOMB, G.; LEBEDEVA, M.; BALASHOV, V. N.	Susquehanna
2:10 - 2:25 PM	C13F. Quantifying Spatial and Temporal Variability of Snow and Snow Processes I Moscone West – 3009	C13F-03: Using Remotely Sensed Fractional Snow Covered Area to Predict Snow Depth SCHNEIDER, D.; MOLOTCH, N. P.	Boulder
3:25 – 3: 40 PM	C13F. Quantifying Spatial and Temporal Variability of Snow and Snow Processes I Moscone West – 3009	C13F-08: Earlier and Slower Snowmelt in a Warmer World: Surprising Feedbacks to a Changing Climate HARPOLD, A. A.; BROOKS, P. D.	Boulder/ Catalina-Jemez
4:00 – 4:15 PM	EP14B. Recent Advances in Tectonic Geomorphology: Dates, Rates, Models, and Beyond II Moscone West – 2007	EP14B-01: Interplay Between Tectonics and Topography: Topographic Stress Controls on Bedrock Fractures and Surface Processes (Invited) MOON, S.; PERRON, J. T.; MARTEL, S. J.; HOLBROOK, S. J.; ST. CLAIR, J. T.; SINGHA, K.	Boulder

Tuesday, December 13, 2016			
8:00 – 12:20 PM	A21E. Mineral Dust Aerosols: From Small-Scale Insights to Large-Scale Understanding III Posters Moscone South – Poster Hall	A21E-0124: Dust Concentrations and Composition During African Dust Incursions in the Caribbean Region SANTOS-FIGUEROA, G.; MAYOL-BRACERO, O. L.; MORALES-GARCIA, F.	Luquillo
8:00 – 12:20 PM	B21I. Soil Carbon Dynamics: Soil Carbon Change across Scales I Posters Moscone South – Poster Hall	B21I-0539: Effects of Landscape Evolution on Soil Organic Carbon Dynamics in Intensively Managed Agricultural Landscapes YAN, Q.; KUMAR, P.	IML
8:00 – 12:20 PM	B21I. Soil Carbon Dynamics: Soil Carbon Change across Scales I Posters Moscone South – Poster Hall	B21I-0548: Soil CO ₂ and O ₂ Concentrations in Shale and Sandstone Catchments of Central Pennsylvania HILL, L. Z.; KAYE, J. P.; BRANTLEY, S. L.	Susquehanna
8:00 – 12:20 PM	H21B. Hydrochronology: Advances in Tracer Methods and Modeling of Residence Times in Hydrology II Posters Moscone South - Poster Hall	H21B-1398: A Multi-tracer Approach Coupled to Numerical Models to Improve Understanding of Mountain Block Processes in a High Elevation, Semi-humid Catchment DWIVEDI, R.; MCINTOSH, J. C.; MEIXNER, T.; FERRE, T. P. A.; CHOROVER, J.	Catalina-Jemez
8:00 – 12:20 PM	H21E. Citizen Science, Low-Cost Sensors, and Remote Sensing Applications in Data-Scarce Regions II Posters Moscone South – Poster Hall	H21E-1458: Unmanned Aerial System Aids Dry-season Stream Temperature Sensing CHUNG, M.; DETWEILER, C.; HIGGINS, J.; ORE, J-P.; DRALLE, D.; THOMPSON, S.	Eel River
8:00 – 12:20 PM	H21G. Hydroclimatic Extremes: Drought II Posters Moscone South – Poster Hall	H21G-1508: Is Snow a Drought Buster? The Need to Incorporate Snow into Common Drought Indices WEINER, J.; HARPOLD, A. A.; SAFEEQ, M.	Southern Sierra
8:00 – 12:20 PM	NS21B. Near Surface Geophysical Applications to Soil Processes, Dynamics, and Agriculture I Posters Moscone South – Poster Hall	NS21B-1898: Mapping Depth to Argillic Horizon Using Electromagnetic Induction on Historically Farmed Soils within the Piedmont Region of the United States RYLAND, R.; MARKEWITZ, D.; THOMPSON, A.	Calhoun
8:15 – 8:30 AM	B21N. Understanding Mechanisms Governing Ecosystem Biogeochemical Cycling in the Solid, Liquid, and Gas Phase: Physiology vs. Physics and Chemistry I Moscone West – 2010	B21N-02: Iron Redox Dynamics from Surface to Bedrock in a Deep Tropical Forest Soil: A New Conceptual Model HALL, S. J.; LIPTZIN, D.; BUSS, H. L.; DEANGELIS, K.; SILVER, W. L.	Luquillo

11:20 -11:35 AM	B22B. Soil Carbon Dynamics: Diving into Our Conceptual and Operational View of Soil Carbon Pools I Moscone West - 2008	B22B-05: Beyond Clay - Using Selective Extractions to Improve Predictions of Soil Carbon Content RASMUSSEN, C.; BERHE, A. A.; BLANKINSHIP, J. C.; CROW, S. E.; DRUHAN, J. L.; HECKMAN, K. A.; KEILUWEIT, M.; LAWRENCE, C. R.; MARIN-SPIOTTA, E.; PLANTE, A. F.; SCHAEDEL, C.; SCHIMEL, J.; SIERRA, C. A.; THOMPSON, A.; WAGAI, R.; WIEDER, W. R.	Catalina-Jemez/ Luquillo/ Calhoun
11:20 -11:35 AM	B22A. From Land to Sea: Rivers as Integrated Signal of Watershed Processes, Climate, and Land-Use Change III Moscone West – 2004	B22A-05: Tropical River Suspended Load and Solute Dynamics in Storms within an Extreme Drought, Luquillo Critical Zone Observatory, Puerto Rico CLARK, K. E.; SHANLEY, J. B.; PERDRIAL, J. N.; PLANTE, A. F.; MCDOWELL, W. H.	Luquillo
12:30 – 1:30 PM	TH23D. Critical Zone Observatories: Platforms for Collaborative Science Moscone West - 2003	Town Hall – TH23D: WHITE, T. S.; MCDOWELL, W. H., BRANTLEY, S. L.	Susquehanna
1:40 – 6:00 PM	B23A. Challenges of Wildland Fire on Water Quality and Drinking Water Supply Posters Moscone South – Poster Hall	B23A-0562: Climatic Events and Historical Disturbances Control Acute and Chronic Water-Quality Impairment After Wildfire MURPHY, S. F.; MARTIN, D. A.; MCCLESKEY, R. B.; WRITER, J. H.	Boulder
1:40 – 3:40 PM	B23I. Soil Carbon Dynamics: Models and Experiments Investigating Controls on Soil Organic Matter Vulnerability in Dynamic Landscapes I Moscone West – 2006	B23I: Conveners BERHE, A. A.; DUNGAIT, J.; PRIES, C. H.; GEORGIU, K.	Southern Sierra
1:40 – 6:00 PM	B23D. The Role of Fire in the Carbon Cycle: Quantification and Characterization of Emissions, Fluxes, and Sequestration Potential III Posters Moscone South – Poster Hall	B23D-0604: Alteration of Soil Hydraulic Properties and Soil Water Repellency by Fire and Vegetation Succession in a Sagebrush Steppe Ecosystem CHANDLER, D. G.; SEYFRIED, M. S.	Reynolds Creek
1:40 – 6:00 PM	B23D. The Role of Fire in the Carbon Cycle: Quantification and Characterization of Emissions, Fluxes, and Sequestration Potential III Posters Moscone South – Poster Hall	B23D-0620: Rapid Recovery of Gross Ecosystem Production and Ecosystem-level Respiration in a Semiarid Sagebrush Shrubland Following Prescribed Fire FELLOWS, A.; FLERCHINGER, G. N.	Reynolds Creek
1:40 - 6:00 PM	B23E. Understanding Mechanisms Governing Ecosystem Biogeochemical Cycling in the Solid, Liquid, and Gas Phase: Physiology vs. Physics and Chemistry II Posters Moscone South – Poster Hall	B23E-0633: Comparing Rooting Depth and Niche Partitioning Between Shale and Sandstone Derived Soils in Central Pennsylvania Mixed Forests SZINK, I.; ADAMS, T. S.; ORR, A. S.; RUPPEL, M.; DONNELLY, S.; BRAZIL, L. I.; EISSENSTAT, D.	Susquehanna

1:40 - 6:00 PM	B23E. Understanding Mechanisms Governing Ecosystem Biogeochemical Cycling in the Solid, Liquid, and Gas Phase: Physiology vs. Physics and Chemistry II Posters Moscone South - Poster Hall	B23E-0639: The Necessity of Determining the Gas Transfer Coefficient In-situ to Obtain More Accurate Soil Carbon Dioxide Effluxes Through the Gradient Method SANCHEZ-CANETE, E. P.; SCOTT, R. L.; VAN HAREN, J. L. M.; BARRON-GAFFORD, G.	Catalina-Jemez
1:40 - 6:00 PM	H23G. Ecosystem Services: Linking Biophysical Processes to Livelihoods and Economies at Local to Global Scales II Posters Moscone South – Poster Hall	H23G-1657: Critical Zone Services as Environmental Assessment Criteria in Intensively Managed Agricultural Landscapes RICHARDSON, M.; KUMAR, P.	IML
2:40 – 2:55 PM	B23I. Soil Carbon Dynamics: Models and Experiments Investigating Controls on Soil Organic Matter Vulnerability in Dynamic Landscapes I Moscone West – 2006	B23I-05: The Effects of Redox Fluctuation on Iron-organic Matter Interactions in Wet Tropical Soils BHATTACHARYYA, A.; CAMPBELL, A.; LIN, Y.; NICO, P. S.; SILVER, W. L.; PETT-RIDGE, J.	Luquillo
4:00 – 6:00 PM	B24D. Soil Carbon Dynamics: Models and Experiments Investigating Controls on Soil Organic Matter Vulnerability in Dynamic Landscapes II Moscone West – 2006	B24D: Conveners BERHE, A. A.; DUNGAIT, J.; PRIES, C. H.; GEORGIU, K.	Southern Sierra
4:00 – 4:15 PM	H24B. Estimating Floodplain, Stream, and Aquatic Ecosystems Responses to Climatic Extremes I Moscone West – 3022	H24B-01: Managing Forests, Water Resources and Their Interaction in the Face of Increasing Drought Frequency and Severity in Semi-arid Regions (Invited) TAGUE, C.; MORITZ, M.	Southern Sierra
4:15 – 4:30 PM	H24C. Science Utilization and Results from the NASA Soil Moisture Active Passive (SMAP) Satellite Mission II Moscone West – 3018	H24C-02: SMAP Soil Moisture Data to Improve Remotely Sensed Global Estimates of Evapotranspiration PURDEY, A. J.; FISHER, J.; GOULDEN, M.; FAMIGLIETTI, J. S.	Southern Sierra
5:30 – 5:45 PM	B24D. Soil Carbon Dynamics: Models and Experiments Investigating Controls on Soil Organic Matter Vulnerability in Dynamic Landscapes II Moscone West – 2006	B24D-07: Mineralogy Impacts Microbial Community Establishment with Subsequent Effect on Initial Microbial Physiology and Soil Organic Matter Formation and Chemistry KALLENBACH, C.; FIERER, N. FREY, S. D.; GRANDY, S.	Boulder

Wednesday, December 14, 2016			
8:00 - 12:20 PM	B31F. Recent Trends in Atmospheric Deposition, Soils, and Biogeochemical Controls on Stream Chemistry Posters Moscone South – Poster Hall	B31F-0529: N Budget and Topographic Controls on N ₂ O in a Shale Watershed with High Atmospheric N Deposition WEITZMAN, J. N.; KAYE, J. P	Susquehanna
8:00 - 12:20 PM	EP31A. Sediment Size Input to Fluvial Networks: Production, Transformation, Delivery, and Effects I Posters Moscone South – Poster Hall	EP31A: Conveners ATTAL, M.; SKLAR, L. S.; RIEBE, C. S.	Southern Sierra
8:00 – 12:20 PM	H31E – Methods and Process Interpretations in the Soil-Plant-Atmosphere Continuum II Posters	H31E-1438: Evaluating the Impact of Global Warming on Water Balance of Maize by High-precision Controlled Experiment and MLCan Model MA, Y.; SONG, X.; KUMAR, P.; WU, Y.; WOO, D.; LE, P. V.; MA, C.	IML
8:00 – 8:15 AM	B31L. Soil Carbon Dynamics: Soil Carbon Change across Scales II Moscone West - 2006	B31L-01: Rapid Turnover and Minimal Accretion of Mineral Soil Carbon During 60-Years of Pine Forest Growth on Previously Cultivated Land RICHTER, D.; MOBLEY, M. L.; BILLINGS, S. A.; MARKEWITZ, D.	Calhoun
9:30 – 9:45 AM	H31K. Methods and Process Interpretations in the Soil-Plant-Atmosphere Continuum I Moscone West – 3022	H31K-07: Tracking Water Through the Southern Sierra Critical Zone Observatory Using Radioactive and Stable Isotopes THAW, M.; VISSER, A.; DEINHART, A. L.; SHARP, M.; EVERHART, A. BIBBY, R. K.; CONKLIN, M. H.	Southern Sierra
9:45 – 10:00 AM	B31L. Soil Carbon Dynamics: Soil Carbon Change across Scales II Moscone West - 2006	B31L-08: Projecting Soil Feedbacks to Atmospheric CO ₂ Following Erosion and Deposition on Centennial Timescales in Two Contrasting Forests: A Study of Critical Zone-Atmosphere Exchange (Invited) BILLINGS, S. A.; RICHTER, D.; ZIEGLER, S. E.; PRESTEGAARD, K. L.	Calhoun
10:35- 10:50 AM	EP32A. Control From Above and Below: Interactions Between Climate and Lithology in Landscape Evolution I Moscone West – 2012	EP32A-02: Hillslope Evolution in Landscapes Dominated by Layered Rocks GLADE, R.; ANDERSON, R. S.	Boulder
11:29-11:47 AM	GC32C. Semi-arid Shrublands Under Changing Climates I Moscone West – 3005	GC32C-05: Widespread Tree Mortality with the Ongoing California Drought: The Roll of Water Balance and Temperature (Invited) GOULDEN, M.; BALES, R. C.	Southern Sierra

11:35-11:50 AM	B32A. Characterizing Spatial and Temporal Variability of Hydrological and Biogeochemical Processes across Scales I Moscone West – 2004	B32A-06: Role of Micro-topographic Variability on Soil Carbon and Nitrogen Dynamics in Intensively Managed Landscape WOO, D.; KUMAR, P.	IML
11:35-11:50 AM	NG32A. Earth System Dynamics, Complexity, and Predictability: Physical and Analytical Approaches Bridging the Geosciences I Moscone South – 302	NG32A-06: Temporal Information Partition Networks (TIPNets): A Process Network Framework to Reveal Eco-Hydrologic Feedbacks, Responses and Shifts GOODWELL, A. E.; KUMAR, P.	IML
11:50 - 12:05 PM	B32A. Characterizing Spatial and Temporal Variability of Hydrological and Biogeochemical Processes across Scales I Moscone West – 2004	B32A-07: Hydrogeochemical Synchrony Drives Chemostatic Behavior in Stream Chemistry (Invited) LI, L.; BAO, C.; SULLIVAN, P. L.; BRANTLEY, S. L.; SHI, Y.; DUFFY, C.	Susquehanna
1:40 - 6:00 PM	B33B. Characterizing Spatial and Temporal Variability of Hydrological and Biogeochemical Processes across Scales II Posters Moscone South – Poster Hall	B33B-0589: Investigating the Effects of Soil Moisture on Net Ecosystem Exchange in Shale Hills GRIFFITHS, Z. G.; DAVIS, K. J.; HE, Y.	Susquehanna
1:40 - 6:00 PM	B33B. Characterizing Spatial and Temporal Variability of Hydrological and Biogeochemical Processes across Scales II Posters Moscone South – Poster Hall	B33B-0593: A Centimeter-Scale Investigation of Geochemical Hotspots in a Soil Lysimeter UMANZOR, M.; WANG, Y.; DONTSOVA, K.; CHOROVER, J.; TROCH, P. A.	Catalina-Jemez
1:40 - 6:00 PM	B33B. Characterizing Spatial and Temporal Variability of Hydrological and Biogeochemical Processes across Scales II Posters Moscone South – Poster Hall	B33B-0595: Using a Spatially-Distributed Hydrologic Biogeochemistry Model to Study the Spatial Variation of Carbon Processes in a Critical Zone Observatory SHI, Y.; EISSENSTAT, D. M.; DAVIS, K. J.; HE, Y.	Susquehanna
1:40 – 6:00 PM	B33C. Constraining Biosphere-Atmosphere Exchange Processes Using Remote Sensing and In Situ Networks II Posters Moscone South – Poster Hall	B33C-0619: Deriving Temporal Net Ecosystem Exchange Estimates by Combining Eddy Covariance and Remote Sensing Data ZHOU, Q.; FLORES, A. N.; FELLOWS, A.; GLERCHINGER, G. N.	Reynolds Creek
1:40 – 6:00 PM	B33D. Mercury Biogeosciences and Environmental Change II Posters Moscone South – Poster Hall	B33D-0644: A Tropical Paradox – High Mercury Deposition, but Low Mercury Bioaccumulation in Northeastern Puerto Rico SHANLEY, J. B.; MARVIN-DIPASQUALE, M. C.; LANE, O.; ARENDT, W.; HALL, S. J.	Luquillo
1:40 - 6:00 PM	EP33B. Control from Above and Below: Interactions between Climate and Lithology in Landscape Evolution II Posters Moscone South – Poster Hall	EP33B-0983: Colluvial Signatures of Pleistocene Sediment Production in Central Pennsylvania DEL VECCHIO, J.; DENN, A.; DIBIASE, R.; BIERMAN, P.	Susquehanna

1:40 - 6:00 PM	H33H. Hydrologic Data Assimilation II Posters Moscone South – Poster Hall	H33H-1656: Assimilating the Cosmic-ray Soil Moisture Observing System Measurements for Understanding Watershed Hydrodynamics CAI, Z.; XIAO, D.; SHI, Y.; LI, L.	Susquehanna
2:25 – 2:40 PM	B33J. Assessment of Satellite-Derived Essential Climate Variables in the Terrestrial Domain II Moscone West – 2008	B33J-04: Assessment of SMAP L2/L3 Soil Moisture Products Using In Situ Based Core Validation Sites COLLIANDER, A.; JACKSON, T. J.; BINDLISH, R.; CHAN, S.; DAS, N. N.; KIM, S.; COSH, M. H.; DUNBAR, R. S.; ASANUMA, J.; AIDA, K.; BERG, A. A.; ROWLANDSON, T. L.; BOSCH, D. D.; CALDWELL, T. G.; CAYLOR, K. K.; GOODRICH, D. C.; JASSAR, H. K.; LOPEZ-BAEZA, E.; MARTINEZ-FERNANDEZ, J.; GONZALES-ZAMORA, A.; LIVINGSTON, S.; MCNAIRN, H.; PACHECO, A. M.; MOGHADDAM, M. MONTZKA, C.; NOTARNICOLA, C.; NIEDRIST, G.; PELLARIN, T.; PRUEGER, J. H.; PULLIAINEN, T.; RAUTIAINEN, K.; RAMOS, J.; SEYFRIED, M. S.; STARKS, P. J.; SU, Z.; ZENG, Y.; VAN DER VELDE, R.; THIBEAULT, M.; DORIGO, W.; VREUGDENHIL, M.; WALKER, J. P.; WU, X.; MONERRIS, A.; O’NEILL, P. E.; ENTEKHABI, D.; YUEH, S. H.	Reynolds Creek
3:10 – 3:25 PM	H33N. Existing and Legacy Oil and Gas Infrastructure: Characterization, Mitigation, and Management I Moscone West - 3011	H33N-07: Using Stream Chemistry Measurements by Scientists and Nonscientists to Assess Leakage from Oil and Gas Wells in Pennsylvania BRANTLEY, S. L.; WENDT, A.; SOWERS, T. SHALE NETWORK TEAM	Susquehanna
4:00 – 6:00 PM	EP34A. Sediment Size Input to Fluvial Networks: Production, Transformation, Delivery and Effects II Moscone West – 2005	EP34A: Conveners ATTAL, M.; SKLAR, L. S.; RIEBE, C. S.	Southern Sierra
4:15 – 4:30 PM	EP34A. Sediment Size Input to Fluvial Networks: Production, Transformation, Delivery, and Effects II Moscone West – 2005	EP34A-02: Spatial Variations in the Size Distribution of Sediment Supplied to Channels: A Synthesis of Detrital Thermochronometry from 11 Size Classes in Inyo Creek, California LUKENS, C.; SHUSTER, D. L.; SKLAR, L. S.; RIEBE, C.S.	Southern Sierra
4:24 – 4:36 PM	B34C. Tropical Forests Under a Changing Climate II Moscone West – 2004	B34C-03: Drought Drives Rapid Shifts in Soil Biogeochemistry and Greenhouse Gas Emissions in a Wet Tropical Forest O’CONNELL, C.; SILVER, W. L.; RUAN, L.	Luquillo

5:00 – 5:15pm	EP34A Sediment Size Input to Fluvial Networks: Production, Transformation, Delivery, and Effects II Moscone West - 2005	EP34A-06: Universal shape evolution of particles by bed-load (Invited) Jerolmack D.J.; Domokos G.; Shaw S.; Sipos A.; Szabo T.	Luquillo
5:10 – 5:25 PM	B34B. Soil Carbon Dynamics: Interactions of Plants, Microbes, and Minerals II Moscone West – 2006	B34B-05: Plant Functional Traits Associated with Mycorrhizal Root Foraging in Arbuscular Mycorrhizal and Ectomycorrhizal Trees EISSENSTAT, D. M.; CHEN, W.; CHENG, L.; LIU, B.; KOIDE, T.; GUO, D.	Susquehanna
5:30 – 5:45 PM	H34C. Critical Role of Field Observation and Experimentation in Catchments and Beyond in Advancing the Hydrological Sciences II Moscone West – 3022	H34C-07: Inputs of Organic Carbon to Watersheds via Atmospheric Deposition: Variation across Spatial and Temporal Scales IAVORIVSKA, L.; BOYER, E. W.	Susquehanna
Thursday, December 15, 2016			
8:00 – 12:20 PM	B41D. Soil Carbon Dynamics: Diving into Our Conceptual and Operational View of Soil Carbon Pools II Posters Moscone South – Poster Hall	B41D-0455: Representation of Diffusion Controlled Carbon Stabilization in Reactive Transport Models THOMPSON, A.; DRUHAN, J. L.; WAGAI, R.; PLANTE, A. F.; LAWRENCE, C. R.; BREHE, A. A.; SIERRA, C. A.; RASMUSSEN, C.	Luquillo
8:00 – 12:20 PM	B41D. Soil Carbon Dynamics: Diving into Our Conceptual and Operational View of Soil Carbon Pools II Posters Moscone South – Poster Hall	B41D-0467: Digging a Little Deeper: Microbial Communities, Molecular Composition and Soil Organic Matter Turnover Along Tropical Forest Soil Depth Profiles PETT-RIDGE, J. P.; MCFARLANE, K. J.; HECKMAN, K. A.; REED, S.; GREEN, E. A.; NICO, P. S.; TFAILY, M. M.; WOOD, T. E.; PLANTE, A. F.	Luquillo
8:00 – 12:20 PM	B41E. Soil Carbon Dynamics: Interactions of Plants, Microbes, and Minerals III Posters Moscone South – Poster Hall	B41E-0493: How Deep Does Disturbance Go? The Legacy of Hurricanes on Tropical Forest Soil Biogeochemistry GUTIERREZ DEL ARROYO, O.; SILVER, W.	Luquillo
8:00 – 12:20 PM	B41F. Soil Carbon Dynamics: Models and Experiments Investigating Controls on Soil Organic Matter Vulnerability in Dynamic Landscapes III Posters Moscone South – Poster Hall	B41F: Conveners BERHE, A. A.; DUNGAIT, J.; PRIES, C. H.; GEORGIU, K.	Southern Sierra
8:00 – 12:20 PM	B41F. Soil Carbon Dynamics: Models and Experiments Investigating Controls on Soil Organic Matter Vulnerability in	B41F-0518: Effect of Agriculture and Reforestation on Turnover Rates SOM in Ultisol Profiles, Calhoun CZO CHERKINSKY, A.; EHLINGER, R.	Calhoun

	Dynamic Landscapes III Posters Moscone South – Poster Hall		
8:00 – 12:20 PM	H23H. Stream Temperature: Potential Climate Change Adaptation in an Integrated Landscape Context II Posters Moscone South – Poster Hall	H23H-1673: Two Dimensional Modeling of the Extent and Stability of Cold Water Refugia at the Confluences of the South Fork of the Eel River GREER, G.; THOMPASON, S.	Eel River
8:00 – 12:20 PM	B41G. Tree Mortality: Causes, Patterns, and Implications II Posters Moscone South - Poster Hall	B41G-0531: Water Stress Reduces Evaporative Cooling in Hybrid Poplars During Hot Drought: Genotype Influences Degree of Coupling Between Thermal Stress and Atmosphere FOJTIK, A. C.; BARNES, M.; BARNES, M.; BRESHEARS, D. D.; LAW, D.; MOORE, D. J.	Catalina- Jemez
8:00 – 12:20 PM	H41B. Transforming Hydrologic Prediction and Decision Making III Posters Moscone South - Poster Hall	H41B-1303: Numerical Demons in Monte Carlo Estimation of Bayesian Model Evidence with Application to Soil Respiration Models ELSHALL, A. S.; YE, M.; NIU, G-Y.; BARRON- GAFFORD, G.	Catalina- Jemez
8:00 – 12:20 PM	H41B. Transforming Hydrologic Prediction and Decision Making III Posters Moscone South - Poster Hall	H41B-1317: Design and Applications of a GeoSemantic Framework for Integration of Data and Model Resources in Hydrologic Systems ELAG, M.; KUMAR, P.	IML
8:00 - 8:15 AM	EP41D. Modeling the Terrestrial Landscape I Moscone West - 2007	EP41D-01: Assessing the Sensitivity of a Water-limited, Mixed Tree-grass-shrub Ecosystem to Climate Change and Geomorphic Controls Using a Community Modeling Framework GELB, L.; NUDURUPATI, S. S.; YAGER, E.; GLENN, N. F.; PIERCE, J. L.; FLORES, A. N.	Reynolds Creek
8:00 - 8:15 AM	EP41F. The Architecture and Workings of Earth’s Critical Zone I Moscone West – 2003	EP41F-01: Quantifying the Spatial Variability in Critical Zone Architecture Through Surface Mapping and Near-surface Geophysics (Invited) DIBIASE, R.; DEL VECCHIO, J. ; MOUNT, G.; HAYES, J. L.; COMAS, X.; GUO, L.; LIN, H.; ZARIF, F.; FORSYTHE, B.; BRANTLEY, S. L.	Susquehanna
8:00 – 8:15 AM	H41H. Groundwater-Surface Water Interactions: Identifying and Integrating Physical, Biological, and Chemical Processes across Scales I Moscone West – 3020	H41H-01: An Inductive Model of Hyporheic Flowpath Geometry and Dynamics During Baseflow Recession (Invited) WARD, A. S.; SCHMADEL, N.; WONDZELL, S. M.; GOOSEFF, M. N.	Boulder
8:15 – 8:30 AM	EP41F. The Architecture and Workings of Earth’s Critical Zone I Moscone West - 2003	EP41F-02: Integrated Geophysical Study to Understand the Architecture of the Deep Critical Zone in the Luquillo Critical Zone	Luquillo

		Observatory (Puerto Rico) COMAS, X.; WRIGHT, W. J.; HYNEK, S. A.; NTARLAGIANNIS, D.; TERRY, N.; WHITING, F.; JOB, M. J.; BRANTLEY, S. L.; FLETCHER, R. C.	
8:30 – 8:45 AM	EP41F. The Architecture and Workings of Earth's Critical Zone I Moscone West - 2003	EP41F-03: Coring the Deep Critical Zone in the Jemez River Basin Critical Zone Observatory, Valles Caldera National Preserve, Northern New Mexico MORAVEC, B. G.; WHITE, A. M.; PARAS, B.; SANCHEZ, A.; FAIRBANKS, D.; MCINTOSH, J. C.; PELLETIER, J. D.; GALLERY, R. E.; RASMUSSEN, C.; CHOROVER, J.	Catalina- Jemez
8:45 –9:00 AM	EP41D. Modeling the Terrestrial Landscape I Moscone West - 2007	EP41D-04: Modeling the Rock Glacier Cycle ANDERSON, R. S.; ANDERSON, L. S.	Boulder
8:45 –9:00 AM	EP41F. The Architecture and workings of Earth's Critical Zone I Moscone West – 2003	EP41F-04: Microclimate Controls on the Evolution of Critical Zone Architecture in the Susquehanna Shale Hills Critical Zone Observatory WEST, N.; KIRBY, E.; NYBLADE, A.; BRANTLEY, S. L.	Susquehanna
9:15 – 9:30 AM	EP41F. The Architecture and Workings of Earth's Critical Zone I Moscone West – 2003	EP41F-06: Investigating the Mechanisms of Shale Porosity Development to Understand Hydrologic Controls on Hillslope Scale Weathering in a Comparison across CZOs GU, X.; REMPE, D.; BRANTLEY, S. L.	Susquehanna/ Eel River
9:30 – 9:45 AM	EP41F. The Architecture and Workings of Earth's Critical Zone I Moscone West - 2003	EP41F-07: Ecohydrological Consequences of Critical Zone Structure in the Franciscan Formation, Northern California Coast Ranges HAHM, W. J.; DIETRICH, W. E.; DAWSON, T.; LOVILL, S.; REMPE, D.	Eel River
10:20-10:35 AM	EP42B. The Architecture and Workings of Earth's Critical Zone II Moscone West - 2003	EP42B-01: Taking the Pulse of the Skin of the Earth Quantifying the Spatial and Temporal Variability in Soil Biogeochemical Cycling and Stream Aqueous Losses LOHSE, K. A.; FELLOWS, A.; FLERCHINGER, G. N.; MCCORKLE, E. P.; MACNEILLE, R. B.; SEYFRIED, M. S.; PIERSON, F. B.	Reynolds Creek
10:50-11:05 AM	EP42B. The Architecture and Workings of Earth's Critical Zone II Moscone West – 2003	EP42B-03: The Vertical Signature of Gophers on the Critical Zone in the Colorado Front Range Subalpine Zone WINCHELL, E. W.; ANDERSON, R. S.; KASTE, J. M.	Boulder
11:05 -11:20 AM	EP42B. The Architecture and Workings of Earth's Critical Zone II Moscone West – 2003	EP42B-04: Global Datasets and Nd Isotopes in Pine Needles Estimate Dust Inputs to Ecosystems in Eroding Landscapes	Southern Sierra

		ARVIN, L.; RIEBE, C. S.; ACIEGO, S.; BLAKOWSKI, M. A.	
11:52 -12:10 PM	U42A. Integration of Climate, Hydrology, Social Science, and Water Management: Connecting Hydroclimate Models with Stakeholder Need Moscone South - 102	U42A-06: Hydrologic Response to Changes in the Timing and Rate of Snowmelt: Implications for Water Resource Management in the Western U.S. (Invited) MOLOTCH, N. P.; HARPOLD, A. A.; BARNHART, T. B.; TRUJILLO, E.	Boulder
11:56-12:08 PM	B42A. Tropical Forests Under a Changing Climate III Moscone West – 2020	B42A-09: Diurnal and Seasonal Cloud Base Patterns Highlight Small-Mountain Tropical Cloud Forest Vulnerability GONZALEZ, G.; VAN BEUSEKOM, A.; SCHOLL, M. A	Luquillo
12:05 -12:20 PM	EP42B – The Architecture and Workings of Earth’s Critical Zone II Moscone West – 2006	EP42B-08: Anthropogenic Reorganization of Critical Zone in Intensively Managed Landscapes KUMAR, P., ANDERS, A. M.; BETTIS, E. A.; BLAIR, N. E.; FILLEY, T. R.; GRIMLEY, D. A.; LE, P. V.; LIN, H.; LIN, Y. F.; KEEFER, D. A.; KEEFER, L. L.; MUSTE, M.; PACKMAN, A. I.; PAPANICOLAOU, T.; RHOADS, B. L.; RICHARDSON, M.; SCHNOEBELEN, D. J.; STUMPF, A.; WARD, A. S.; WILSON, C. G.; WOO, D.; YAN, Q.; GOODWELL, A. E.	IML
1:40 - 6:00 PM	EP43A. The Architecture and Workings of Earth’s Critical Zone II Posters Moscone South – Poster Hall	EP43A-0935: Developing and Evaluating a Theory for Lateral Erosion by Bedrock Channels in a Landscape Evolution Model LANGSTON, A. L.; TUCKER, G. E.	Boulder
1:40 - 6:00 PM	EP43A. The Architecture and Workings of Earth’s Critical Zone II Posters Moscone South – Poster Hall	EP43A-0936: When Hillslope-derived Blocks Alter River Evolution: A Sensitivity Analysis SHOBE, C. M.; TUCKER, G. E.	Boulder
1:40 - 6:00 PM	EP43C. The Architecture and Workings of Earth’s Critical Zone III Posters Moscone South – Poster Hall	EP43C-0964: Comprehensive Seismic Surveys Suggest that Subsurface Water-holding Capacity is Secondary to Bedrock Nutrient Content as a Regulator of Vegetation Productivity in the Sierra Nevada Batholith, California TAYLOR, N. J.; RIEBE, C. S.; DUEKER, K. G.; GOULDEN, M.; FLINCHUM, B. A.; PASQUET, S.; CALLAHAN, R. P.; HAHM, W. J.; KEIFER, I. S.; HOLBROOK, W. S.	Southern Sierra
1:40 - 6:00 PM	EP43C. The Architecture and Workings of Earth’s Critical Zone III Posters Moscone South – Poster Hall	EP43C-0966: Probing the Critical Zone Using Passive- and Active-source Estimates of Subsurface Shear-Wave Velocities CALLAHAN, R. P.; TAYLOR, N. J.; PASQUET, S.; DUEKER, K. G.; RIEBE, C. S.; HOLBROOK, W. S.	Southern Sierra

1:40 - 6:00 PM	EP43C. The Architecture and Workings of Earth's Critical Zone III Posters Moscone South – Poster Hall	EP43C-0968: Quantifying the Role of Trees as Critical Zone Architects Employing Crowbars, Wedges and Other Tools of Soil Production MARSHALL, J. A.; ANDERSON, R. S.; DAWSON, T. E.; DIETRICH, W. E.; SKLAR, L. S.	Boulder/ Eel River
1:40 - 6:00 PM	EP43C. The Architecture and Workings of Earth's Critical Zone III Posters Moscone South – Poster Hall	EP43C-0973: Geomorphic Equilibrium and the Spatial Variation of the Geomorphic Diffusivity at the Susquehanna Shale Hills Critical Zone Observatory ZHANG, Y.; SLINGERLAND, R. L.; DUFFY, C.; GU, X.; LIN, H.; WEST, N.	Susquehanna
1:40 - 6:00 PM	EP43C. The Architecture and Workings of Earth's Critical Zone III Posters Moscone South – Poster Hall	EP43C-0976: Connecting Evapotranspiration and Groundwater Fluxes in the Critical Zone HARMON, R. E.; SZUTU, D. J.; BARNARD, H. R.; RANDALL, J.; SINGHA, K.	Boulder
1:40 - 6:00 PM	EP43C. The Architecture and Workings of Earth's Critical Zone III Posters Moscone South – Poster Hall	EP43C-0977: Electrical Resistivity Imaging is Consistent with Shallow Interflow within the Garner Run Subcatchment of the Susquehanna Shale Hills CZO ZARIF, F.; SLATER, L. D.; BRANTLEY, S. L.; ROBINSON, J.; KESSOURI, P.	Susquehanna
1:40 - 6:00 PM	EP43C. The Architecture and Workings of Earth's Critical Zone III Posters Moscone South – Poster Hall	EP43C-0978: Slope-Aspect Control on Geochemical Weathering within the Boulder Creek Critical Zone Observatory ELDAM, R.; NAVARRE-SITCHLER, A.; SINGHA, K.; MOORE, J.	Boulder
1:40 - 6:00 PM	EP43C. The Architecture and Workings of Earth's Critical Zone III Posters Moscone South – Poster Hall	EP43C-0979: Effect of Metamorphic Foliation on Regolith Thickness, Catalina Critical Zone Observatory, Arizona LEONE, J. D.; HOLBROOK, W. S.; PELLETIER, J. D.; CHOROVER, J.; CARR, B.	Catalina-Jemez
1:40 - 6:00 PM	EP43C. The Architecture and Workings of Earth's Critical Zone III Posters Moscone South – Poster Hall	EP43C-0983: Characterizing Subsurface Lithology and Hydrological Processes at the Susquehanna Shale Hills CZO Using Multi-scale Near-surface Geophysical Measurements MOUNT, G.; GUO, L.; COMAS, X.; DIBIASE, R.; HAYES, J. L.; DEL VECCHIO, J.; FORSYTHE, B.; BRANTLEY, S. L.	Susquehanna
1:40 - 6:00 PM	EP43C. The Architecture and Workings of Earth's Critical Zone III Posters Moscone South – Poster Hall	EP43C-0986: The Dynamical System of Weathering: Deterministic and Stochastic Analysis CALABRESE, S.; PAROLARI, A.; PORPORATO, A. M.	Calhoun

1:40 - 6:00 PM	EP43C. The Architecture and Workings of Earth's Critical Zone III Posters Moscone South – Poster Hall	EP43C-0987: Fractures in the deep critical zone characterized by drilling and geophysics in the Laramie Range, Wyoming HAYES, J. L.; HOLBROOK, W. S.; CARR, B.; FLINCHUM, B. A.; REMPE, D; NOVITSKY, C. G.; DEWEY, J.	Eel River
1:40 - 6:00 PM	EP43C. The Architecture and Workings of Earth's Critical Zone III Posters Moscone South – Poster Hall	EP43C-0991: Evaluating the Life Effect of Lithology on Porosity Development in Ridgetops in the Appalachian Piedmont MARCON, V.; GU, X.; FISHER, B.; BRANTLEY, S. L.	Susquehanna
1:40 - 6:00 PM	EP43C. The Architecture and Workings of Earth's Critical Zone III Posters Moscone South – Poster Hall	EP43C-0992: A Comparison of Bedrock Weathering at Two Igneous Mountain Watersheds, Jemez Critical Zone, New Mexico, and Reynolds Creek Critical Zone, Idaho MCGUFFY, C.; HOLBROOK, W. S.	Reynolds Creek
1:40 - 6:00 PM	H43G. Disturbance Hydrology: Exploring Immediate and Long-Term Impacts of Abrupt Changes on Hydrological Processes and Earth Systems III Posters Moscone South – Poster Hall	H43G-1529: Implications of Increasing Forest Density and Vegetation Water Demand on Drought Impacts in California Montane Forest SAKSA, P. C.; SAFEEQ, M.; DYMOND, S.	Southern Sierra
1:40 - 6:00 PM	H43G. Disturbance Hydrology: Exploring Immediate and Long-Term Impacts of Abrupt Changes on Hydrological Processes and Earth Systems III Posters Moscone South – Poster Hall	H43G-1544: Quantifying Hillslope to Watershed Erosional Response Following Wildfire VEGA, S.; PIERSON, F. B.; WILLIAMS, C. J.; BROOKS, E. S.; PIERCE, J. L.; ROEHNER, C.	Reynolds Creek
2:55 – 3:10 PM	B43E. 20 Years of Eddy Flux Research in AmeriFlux and EuroFlux: History, Highlights, and Future Directions II Moscone West – 2008	B43E-06: Insights from a Network of Long-term Measurements of Biosphere-Atmospheric Exchanges of Water Vapor and Carbon Dioxide in Southern Arizona SCOTT, R. L.; BARRON-GAFFORD, G. BIEDERMAN, J. A.	Catalina-Jemez
3:10 – 3:25 PM	H43N. Heterogeneity, Mixing, and Reaction across Scales: New Experimental, Numerical, and Theoretical Approaches I Moscone West – 3014	H43N-07: Analytical Solution for Transport with Bimolecular Reactions in Fracture-Matrix Systems with Application to In-Situ Chemical Oxidation ARSHADI, M.; RAJARAM, H.	Boulder
3:10 – 3:25 PM	H43P. Transforming Hydrologic Prediction and Decision Making: Cyberinfrastructure IV Moscone West – 3024	H43P-07: Using the Landlab Toolkit to Evaluate and Compare Alternative Geomorphic and Hydrologic Model Formulations (Invited) TUCKER, G. E.; ADAMS, J. M.; DOTY, S. G.; GASPARINI, N. M.; HILL, M. C.; HOBLEY, D. E. J.; HUTTON, E.; ISTANBULLUOGLU, E.; NUDURUPATI, S.	Boulder

3:25 – 3:40 PM	EP43E. Soil State Characteristics: From Observations to Data Assimilation and Modeling II Moscone West - 2003	EP43E-08: Impacts of Potential Evapotranspiration and Precipitation Patterns on Downscaling Soil Moisture in Regions with Large Topographic Relief NIEMANN, J. D.; COWLEY, G. S.; GREEN, T. R.; SEYFRIED, M. S.; JONES, A. S.; GRAZAITIS, P. J.	Reynolds Creek
4:00 – 4:15 PM	C44A. Recent Advances in Monitoring, Measuring, and Modeling Snow Processes I Moscone West - 3005	C44A-01: Expanded Science and Management Utility of SWE and Albedo Data from the NASA/JPL Airborne Snow Observatory PAINTER, T. H.; DEEMS, J. S.; MARKS, D. G.; HEDRICK, A. R.; BORMANN, K.; SKILES, S. M.; BOARDMAN, J. W.; GRAHAM, C. B.; MCGURK, B. J.; GEHRKE, F.; BERISFORD, D. F.; FERRAZ, A.; SAATCHI, S.; SCHIMEL, D.	Reynolds Creek
4:30 – 4:45 PM	H44B. General Surface Hydrology II Moscone West – 3022	H44B-03: Sensitivities of Dry Season Runoff to Precipitation and Temperature in Southern Sierra Nevada Streams SAFEEQ, M.; HUNSAKER, C. T.; BALES, R.C.	Southern Sierra
5:00 – 5:12 PM	B44D. The Resilience and Vulnerability of Arctic and Boreal Ecosystems to Climate Change I Moscone West – 2020	B44D-05: Biomass-C Specific Temperature Responses of Microbial C Transformations Reveal Consistency Regardless of Microbial Community Structure Across Diverse Timescales of Inquiry MIN, K.; BUCKERIDGE, K. M.; ZIEGLER, S. E.; EDWARDS, K. A.; BAGCHI, S.; BILLINGS, S. A.	Calhoun
5:45 – 6:00 PM	C44A. Recent Advances in Monitoring, Measuring, and Modeling Snow Processes I Moscone West – 3005	C44A-08: Optimizing Placements of Ground-Based Snow Sensors for Areal Snow Cover Estimation Using a Machine-learning Algorithm and Melt-Season OROZA, C.; ZHENG, Z.; GLASER, S. D.; BALES, R. C.; CONKLIN, M. H.	Southern Sierra
Friday, December 16, 2016			
8:00 – 12:20 PM	B51C. Forest Structure from Lidar: Getting and Using Structure to Monitor and Model Changes in Forest Ecosystem Functions and Services I Posters Moscone South – Poster Hall	B51C-0418: Characterizing Canopy Structure Using Waveform LiDAR WANG, K.; KUMAR, P.	IML
8:00 – 12:20 PM	B51H. Soil Phosphorus Cycling from the Tropics to the Poles I Posters Moscone South – Poster Hall	B51H-0497: Competing for Phosphorus Under Changing Redox Conditions: Biological Versus Geochemical Sinks GROSS, A.; PETT-RIDGE, J.; SILVER, W. L.	Luquillo
8:00 – 12:20 PM	C51B. Modeling of the Cryosphere: Seasonal Snow II Posters Moscone South – Poster Hall	C51B-0656: Assessing the Climate Sensitivity of Cold Content and Snowmelt in	Boulder

		Seasonal Alpine and Subalpine Snowpacks JENNINGS, K. S.; MOLOTCH, N. P.	
8:00 – 12:20 PM	C51C. Recent Advances in Monitoring, Measuring, and Modeling Snow Processes II Posters Moscone South – Poster Hall	C51C-0666: The Unrecognized Climate Change Signal: During-Storm Humidity Increases in Mountain Regions of the Western U.S.A. KORMOS, P. R.; MARKS, D. G.; SEYFRIED, M. S.; HAVENS, S.; HEDRICK, A. R.; LOHSE, K. A.	Reynolds Creek
8:00 – 12:20 PM	C51C. Recent Advances in Monitoring, Measuring, and Modeling Snow Processes II Posters Moscone South – Poster Hall	C51C-0669: Catchment-scale Snow Depth Monitoring with Balloon Photogrammetry LI, D.; WIGMORE, O.; VANDERJAGT, B. J.; DURAND, M. T.; MOLOTCH, N. P.; BALES, R. C.	Southern Sierra/ Boulder
8:00 – 12:20 PM	GC51E. The Role of Fire in the Earth System: Understanding Drivers, Feedbacks, and Interactions with the Land, Atmosphere, and Society IV Posters Moscone South – Poster Hall	GC51E-1234: Integrating Fire Effects Into an Ecohydrologic Model for Simulating Fire Regimes BART, R. R.; TAGUE, C.; KENNEDY, M. C.; MCKENZIE, D.	Southern Sierra
8:00 – 12:20 PM	GC51E. The Role of Fire in the Earth System: Understanding Drivers, Feedbacks, and Interactions with the Land, Atmosphere, and Society IV Posters Moscone South – Poster Hall	GC51E-1236: Ecohydrological Projections of Fire Regimes: Balancing Uncertainty and Complexity to Integrate Cross-disciplinary Simulation Systems KENNEDY, M. C.; MCKENZIE, D.; TAGUE, C.; BART, R. R.	Southern Sierra
8:00 – 12:20 PM	H51E. Modeling the Critical Zone: Integrating Processes and Data across Disciplines and Scales II Posters Moscone South – Poster Hall	H51E-1529: Understanding Controls of Hydrologic Processes across Two Monolithological Catchments Using Model-data Integration XIAO, D.; SHI, Y.; LI, L.	Susquehanna
8:00 – 12:20 PM	H51E. Modeling the Critical Zone: Integrating Processes and Data across Disciplines and Scales II Posters Moscone South – Poster Hall	H51E-1531: 'Dhara': An Open Framework for Critical Zone Modeling LE, P. V.; KUMAR, P.	IML
8:00 – 12:20 PM	H51E. Modeling the Critical Zone: Integrating Processes and Data across Disciplines and Scales II Posters Moscone South – Poster Hall	H51E-1536: Understanding Hydrogeochemical Processes at the Watershed Scale Using RT-Flux-PIHM LI, L.; BAO, C.; SHI, Y.; DUFFY, C.; BRANTLEY, S. L.	Susquehanna
8:00 – 12:20 PM	H51G. Advances in Ecohydrology of Water-Stressed Environments II Posters Moscone South - Poster Hall	H51G-1560: An Experimental and Modeling Synthesis to Determine Seasonality of Hydraulic Redistribution in Semi-arid Region with Multispecies Vegetation Interaction LEE, E.; KUMAR, P.; BARRON-GAFFORD, G.; SCOTT, R. L.	Catalina-Jemez/ IML

8:00 – 12:20 PM	H51G. Advances in Ecohydrology of Water-Stressed Environments II Posters Moscone South - Poster Hall	H51G-1566: Aspect as a Driver of Soil Carbon and Water Fluxes in Desert Environments SUTTER, L.; BARRON-GAFFORD, G.; SANCHEZ-CANETE, E. P.	Catalina-Jemez
8:00 – 12:20 PM	IN51C. Spatial Data Infrastructure for Earth and Space Sciences: Analyzing, Visualizing, and Sharing Multidimensional Earth Science Data I Posters Moscone South - Poster Hall	IN51C-1867: Information Architecture Used to Manage Multi-Domain Data Analysis in Intensively Managed Landscape – Critical Zone Observatory ANGELO, B.; MARINI, L.; KUMAR, P.; MUSTE, M.; KOOPER, R.	IML
8:00 – 8:15 AM	H51J. Advances in Ecohydrology of Water-Stressed Environments I Moscone West – 3011	H51J-01: Impacts of Hydraulic Redistribution on Overstory-Understory Interactions in a Semiarid Savanna BARRON-GAFFORD, G.; MINOR, R. L.; HENDRYX, S.; LEE, E.; SUTTER, L.; COLELLA, A.; MURPHY, P. SANCHEZ-CANETE, E. P.; HAMERLYNCK, E. P.; KUMAR, P. SCOTT, R. L.	Catalina-Jemez/IML
8:15 – 8:30 AM	H51N. Modeling the Critical Zone: Integrating Processes and Data across Disciplines and Scales I Moscone West - 3022	H51N-01: The Hydrologic Interface Between Soil Carbon and Subsurface Weathering: Insights from the East River Scientific Focus Area and Eel River Critical Zone Observatory (Invited) DRUHAN, J. L.; LIU, Y.; FERNANDEZ, N. M.; REMPE, D.; LAWRENCE, C. R.; WINNICK, M. J.; MAHER, K.; DIETRICH, W. E.	Eel River
8:15 – 8:30 AM	H51N. Modeling the Critical Zone: Integrating Processes and Data across Disciplines and Sales I Moscone West - 3022	H51N-02: Hot Spots and Hot Moments: Linking Hydropedology and Biogeochemistry in the Critical Zone (Invited) LIN, H.	Susquehanna
8:15 – 8:30 AM	H51J. Advances in Ecohydrology of Water-Stressed Environments I Moscone West 3011	H51J-02: Implications of Topographically Induced Variations in Solar Radiation for Water Balance, Vegetation and soil Development SEYFRIED, M. S.; FLERCHINGER, G. N.; LINK, T. E., MCNAMARA, J. P.;	Reynolds Creek
8:45 – 9:00 AM	H51N. Modeling the Critical Zone: Integrating Processes and Data across Disciplines and Sales I Moscone West - 3022	H51N-04: Using Isotopic Age of Water as a Constraint on Model Identification at the Critical Zone Observatory (Invited) DUFFY, C.; THOMAS, E.; BHATT, G.; HOLMES, G.; BOYER, E. W.; SULLIVAN, P.	Susquehanna
9:00 – 9:15 AM	H51N. Modeling the Critical Zone: Integrating Processes and Data across Disciplines and Scales I Moscone West - 3022	H51N-05: Bidirectional Response of Runoff to Changes in Snowmelt Rate, Timing, and Amount BARNHART, T. B.; MOLOTCH, N. P.; TAGUE, C.	Boulder/Southern Sierra

9:30 – 9:45 AM	H51N: Modeling the Critical Zone: Integrating Processes and Data Across Disciplines and Scales I Moscone West – 3022	H51N-07: Impact of Gullying on Hillslope Hydrology at the Calhoun Critical Zone Observatory CHEN, X.; KUMAR, M.	Calhoun
9:45 – 10:00 AM	H51N. Modeling the Critical Zone: Integrating Processes and Data across Disciplines and Sales I Moscone West - 3022	H51N-08: Influence of Climate Change on the Evolution of Contrasting Tropical Landscapes in the Luquillo Critical Zone Observatory DIALYNAS, Y. G.; BRAS, R. L.	Luquillo
10:20 -12:20 AM	H52C. Drought, Groundwater Management, Recharge, Base Flow, and Sustainability: Assessment, Monitoring, Modeling, Planning and Policy I. Moscone West - 3014	H52C: Convener DRALLE, D.	Eel River
10:50-11:05 AM	GC52A. Earth Science Results from New Imaging Spectroscopy Measurements Around the Globe II Moscone West – 3001	GC52A-03: A Framework for Using Repeat Hyperspectral Satellite Measurements for Global Characterization of Soil Properties DUTTA, D.; KUMAR, P.	IML
11:35-11:50 AM	H52A. Advances in Process-Based Hydrologic Modeling I Moscone West - 3024	H52A-06. A Mean Field Approach to the Watershed Response Under Stochastic Seasonal Forcing BARTLETT, M. S.; RODRIGUEZ-ITURBE, I.; PORPORATO, A. M.	Calhoun
11:35-11:50 AM	H52E. Runoff Generation Processes in Changing Environments: Integrating Observations, Processes, and Principles I Moscone West – 3022	H52E-06: Concentration-Discharge Relationship and Endmember Mixing in the Intermediate and Large Watersheds of the US West LIU, F.; MILLER, M. P.; WILLIAMS, M. W.; CONKLIN, M. H.; YANG, J.; BALES, R. C.	Southern Sierra
1:40 – 6:00 PM	B53D. Global Distribution Patterns of Soil Biota and Their Relationships to Earth Biogeochemical Cycling Poster Moscone South – Poster Hall	B53D-0548: Biogeography and Metabolic Potential of Soil Microbial Communities Across Local Environmental Gradients Illuminated Through Metagenomics SHARRAR, A.; DIAMOND, S.; BUTTERFIELD, C.; STARR, E.; THOMAS, B. C.; BANFIELD, J. F.	Eel River
1:40 - 6:00 PM	EP53C. Earth and Planetary Surface Processes General Contributions Moscone South – Poster Hall	EP53C-0953: Hydrogeomorphological Characterization of River Valleys: A Cross-CZO Analysis MAGNUSON, A. L.; YANG, Q.; KUMAR, P.	Reynolds Creek/IML
1:40 – 6:00 PM	GC53D. Ecosystem Recovery from Climate Extremes II Posters Moscone South – Poster Hall	GC53D-1332: Severe Drought Constrains Seedling and Sapling Growth in a Puerto Rican Tropical Rainforest ALONSO-RODRIGUEZ, A. M.; REED, S.; CAVALERI, M. A.; URIARTE, M.; CARTER, K.; BACHELOT, B. WOOD, T. E.	Luquillo
1:40 – 6:00 PM	H53E. Ecohydrologic and Ecogeomorphologic Processes at	H53E-1751: The Role of Vegetation on Gully Stabilization at a Severely Degraded	Calhoun

	the Intersection of Landscapes and Environmental Change II Posters Moscone South – Poster Hall	Landscape: A Case Study from Calhoun Experimental Critical Zone Observatory BASTOLA, S.; DIALYNAS, Y. G.; BRAS, R. L.; NOTO, L. V.; ISTANBULLUOGLU, E.	
1:40 – 6:00 PM	H53F. Runoff Generation Processes in Changing Environments: Integrating Observations, Processes, and Principles II Posters Moscone South – Poster Hall	H53F-1765: Subsurface and Terrain Controls on Runoff Generation in Deep Soil Landscapes MALLARD, J. M.; MCGLYNN, B. L.; RICHTER, D.	Calhoun
1:45 – 2:03 PM	U53A. The Critical Zone: Revealing the Structure, Function, and Evolution of Earth’s Living Skin Moscone South – 102	U53A-01: The Critical Zone: A Necessary Framework for Understanding Surface Earth Processes (Invited) DIETRICH, W. E.	Eel River
2:03 – 2:21 PM	U53A. The Critical Zone: Revealing the Structure, Function, and Evolution of Earth’s Living Skin Moscone South – 102	U53A-02: Critical Zone Architecture and Processes: A Geophysical Perspective (Invited) HOLBROOK, W. S.	Calhoun
2:21 – 2:39 PM	U53A. The Critical Zone: Revealing the Structure, Function, and Evolution of Earth’s Living Skin Moscone South – 102	U53A-03: Changing Energy Inputs at Earth’s Surface Translates to Differences in Water Availability, Weathering Rates, and Biotic Activity at Depth (Invited) MCINTOSH, J. C.; ZAPATA-RIOS, X.; RASMUSSEN, C.; BROOKS, P. D.; GALLERY, R. E.; PELLETIER, J. D.; CHOROVER, J.	Catalina-Jemez
2:57 – 3:15 PM	U53A. The Critical Zone: Revealing the Structure, Function, and Evolution of Earth’s Living Skin	U53A-05: Propagation of Hydroclimatic Variability Through the Critical Zone (Invited) PORPORATO, A. M.; CALABRESE, S.; PAROLARI, A.	Calhoun
4:15 – 4:30 PM	H54E. Runoff Generation Processes in Changing Environments: Integrating Observations, Processes, and Principles III Moscone West - 3022	H54E-02: Seasonal Variations in Stream Chemistry in a Semi-arid Montane Headwater Stream Reveal Changing Hydrologic Flowpaths ANDERSON, S. P.; MILLS, T. J.	Boulder
4:30 – 4:45 PM	B54E. Soil Phosphorus Cycling from the Tropics to the Poles II Moscone West – 2002	B54E-03: Soil Phosphorus Redistribution Among Iron-bearing Minerals Under Redox Fluctuation LIN, Y.; BHATTACHARYYA, A.; CAMPBELL, A.; NICO, P. S.; PETT-RIDGE, J.; SILVER, W. L.	Luquillo
4:45 – 5:00 PM	B54E. Soil Phosphorus Cycling from the Tropics to the Poles II Moscone West – 2002	B54E-04: Influence of Climate and Lithology on Soil Phosphorus WILSON, S. G.; MARGENOT, A. J.; O’GEEN, A. T.	Southern Sierra