

AGU Fall Meeting 2022

CZNet Presentation Schedule - CZNet Booth Located at #1219

Thursday, December 8th

Session Type	Date	Start Time	End Time	Property	Room	Session Number	Title	People
Online Town Hall	12/8/2022	12:45:00	13:45:00	Online Only		TH011	Transforming Critical Zone Research Through Shared Science, Tools, Data, and Philosophy	Bhavna Arora , Lawrence Berkeley National Laboratory, Earth and Environmental Sciences Area, Berkeley, CA, United States, James Stegen , Pacific Northwest National Laboratory, Richland, United States, Christopher Wellen , Toronto Metropolitan University, Geography and Environmental Studies, Toronto, ON, Canada, Adam S Wymore , University of New Hampshire, Department of Natural Resources and the Environment, Durham, United States, Sylvain Kuppel , LSCE/IPSL, laboratoire CEA/CNR, Gif-Sur-Yvette, France, Claire J Oswald , Toronto Metropolitan University, Department of Geography and Environmental Studies, Toronto, ON, Canada, Ilhan gen-Xian , Lawrence Berkeley National Laboratory, Earth and Environmental Sciences Area, Berkeley, United States, Pamela L. Sullivan , Oregon State University, Corvallis, OR, United States and Jannis Groh , Forschungszentrum Jlich, Jlich,

Monday, December 12th

Session Type	Date	Start Time	End Time	Property	Room	Session Number	Title	People
Online Poster Discussion	12/12/2022	8:00:00	9:00:00	Online Only		H11K	Stable Isotopes in the Critical Zone: Methods, Applications, and Process Interpretations I Online Poster Discussion	Scott T Allen , University of Nevada Reno, Reno, United States, Elizabeth Joy Olson , Union College, Geosciences, Schenectady, NY, United States, Natalie Orlowski , University of Freiburg, Hydrology, Freiberg, Germany and Matthias Sprenger , Lawrence Berkeley National Laboratory, Earth and Environmental Sciences Area, Berkeley, CA, United States
Poster	12/12/2022	9:00:00	12:30:00	McCormick Place	Poster Hall, Hall - A	H12R	Stable Isotopes in the Critical Zone: Methods, Applications, and Process Interpretations II Poster	Scott T Allen , University of Nevada Reno, Reno, United States, Elizabeth Joy Olson , Union College, Geosciences, Schenectady, NY, United States, Natalie Orlowski , University of Freiburg, Hydrology, Freiberg, Germany and Matthias Sprenger , Lawrence Berkeley National Laboratory, Earth and Environmental Sciences Area, Berkeley, CA, United States

Session Type	Date	Start Time	End Time	Property	Room	Title	People
Poster	12/12/2022	9:00:00	12:30:00	McCormick Place	Poster Hall, Hall - A	H12R-0893	The Evolution of Water Stable Isotopes Through the Critical Zone: Direct Observations from a Vadose-Zone Monitoring System at the Eel River Critical Zone Observatory Evan King ¹ , William Jesse Hahn ² , William E Dietrich ³ , David Dralle ⁴ , Mielle Lee ³ , Hunter Thomas Jamison ³ , Kelsey L Crutchfield-Peters ⁵ , Todd E Dawson ⁵ , Jon K Golla ⁶ , Jennifer L Druhan ⁶ , Dana A Lapides ^{4,7} and Daniella Marie Rempe ¹ , (1)University of Texas at Austin, Department of Geological Sciences, Jackson School of Geosciences, Austin, United States, (2)Simon Fraser University, Geography, Pacific Institute for Climate Solutions, Burnaby, BC, Canada, (3)University of California Berkeley, Department of Earth and Planetary Science, Berkeley, United States, (4)USDA Forest Service, Pacific Southwest Research Station, Davis, United States, (5)University of California Berkeley, Integrative Biology, Berkeley, United States, (6)University of Illinois at Urbana-Champaign, Department of Geology, Urbana, United States, (7)Simon Fraser University, Geography Department, Burnaby, BC, Canada
Abstract	12/12/2022	9:30:00	9:40:00	McCormick Place	E252	IN12A-04	Tools for Advancing Open Data Science and Analytics for Water Jeffery S Horsburgh , Utah State University, Civil and Environmental Engineering, Logan, UT, United States
Lightning Talk	12/12/2022	12:20:00	12:30:00	McCormick Place	E353c	H13G-09	Climate Controls on River Chemistry Li Li , Pennsylvania State University Main Campus, University Park, PA, Bryn Stewart , Pennsylvania State University Main Campus, University Park, PA, Wei Zhi , Pennsylvania State University Main Campus, University Park, PA, Kayalvizhi Sadayappan , Pennsylvania State University Main Campus, University Park, PA, Shreya Ramesh , Pennsylvania State University Main Campus, University Park, PA, Devon Kerins , Pennsylvania State University Main Campus, University Park, PA, Gary Sterle , University of Nevada Reno, Reno, NV, Adrian Adam Harpold , University of Nevada Reno, Reno, NV, Julia Perdrial , University of Vermont, Burlington, VT
Online Poster Discussion	12/12/2022	13:45:00	14:45:00	Online Only		H14G	Introducing the Paradigm of Critical Zone Science to Agrohydrology I Online Poster Discussion Ying Zhao , University of Saskatchewan, Saskatoon, Canada, Kathleen Bailey Boomer , Smithsonian Institution, Queenstown, MD, United States, Steven P Loheide III , University of Wisconsin Madison, Civil and Environmental Engineering, Madison, WI, United States, Ying Fan , Rutgers University, Department of Earth and Planetary Sciences, Piscataway, United States, Yanping Li , University of Saskatchewan, Global Institute for Water Security, Saskatoon, SK, Canada and Jian Liu , Nanjing Normal University, School of Geographical Sciences, Nanjing, China

Session Type	Date	Start Time	End Time	Property	Room		Title	People
Poster	12/12/2022	14:45:00	18:15:00	McCormick Place	Poster Hall, Hall - A	H15Q	Introducing the Paradigm of Critical Zone Science to Agrohydrology II Poster	Ying Zhao , University of Saskatchewan, Saskatoon, Canada, Kathleen Bailey Boomer , Smithsonian Institution, Queenstown, MD, United States, Steven P Loheide III , University of Wisconsin Madison, Civil and Environmental Engineering, Madison, WI, United States, Ying Fan , Rutgers University, Department of Earth and Planetary Sciences, Piscataway, United States and Yanping Li , University of Saskatchewan, Global Institute for Water Security, Saskatoon, SK, Canada
Poster	12/12/2022	14:45:00	18:15:00	McCormick Place	Poster Hall, Hall - A	H15Q-0994	Identifying Tradeoffs and Synergies Among Ecosystem Services from Managed Aquifer Recharge Using a Critical Zone Approach	Harold Barker ¹ , Steven P Loheide III ¹ and Dominick Michael Ciruzzi ² , (1)University of Wisconsin Madison, Civil and Environmental Engineering, Madison, WI, United States, (2)University of Wisconsin Madison, Civil and Environmental Engineering, Madison, United States
Poster	12/12/2022	14:45:00	18:15:00	McCormick Place	Poster Hall, Hall - A	H15Q-0999	Quantifying the Energy Distribution within Critical Zone Based on the Maximum Entropy Production Principle	Kwanghun Choi , Korea University, School of Civil, Environmental, and Architectural Engineering, Seoul, Korea, Republic of (South) and Kyungrock Paik, Korea University, School of Civil, Environmental, and Architectural Engineering, Seoul, South Korea

Tuesday, December 13th

Session Type	Date	Start Time	End Time	Property	Room	Session Number	Title	People
Section Event (Invitation Only)	12/13/2022	7:00:00	8:00:00	Hyatt Regency McCormick Place	Jackson Park D		Soil and the Critical Zone Processes Technical Committee Meeting	Rosa Maymi , American Geophysical Union, Washington, DC, United States and Gregory Bindner , American Geophysical Union, Washington, DC, United States
Online Poster Discussion	12/13/2022	8:00:00	9:00:00	Online Only		H21G	Biogeochemical, Hydrological, and Anthropogenic Perturbations Driving Urban Critical Zone Processes I Online Poster Discussion	Joel Moore , Towson University, Environmental Science & Studies, Towson, MD, United States; Towson University, Physics, Astronomy, & Geosciences, Towson, MD, United States, Peter Groffman , CUNY Advanced Science Research Center and Brooklyn College Department of Earth and Environmental Sciences, New York, NY, United States, Karen L Prestegaard , Univ Maryland, College Park, United States and Claire Welty , Center for Urban Environmental Research, Center for Urban Environmental Research and Education, Baltimore, MD, United States
Oral	12/13/2022	9:00:00	10:30:00	McCormick Place	E270	H22E	Advancing Understanding of Mountainous Critical Zones Through Observations and Experiments I Oral	Ravindra Dwivedi , USDA-ARS, Southwest Watershed Research Center, Tucson, AZ, United States, Hoori Ajami , University of California Riverside, Riverside, CA, United States, Holly R Barnard , University of Colorado Boulder, Geography, Boulder, United States and Thomas Meixner , University of Arizona, Hydrology and Atmospheric Sciences, Tucson, United States

Session Type	Date	Start Time	End Time	Property	Room	Title	People
Poster	12/13/2022	9:00:00	12:30:00	McCormick Place	Poster Hall, Hall - A	H22U	Biogeochemical, Hydrological, and Anthropogenic Perturbations Driving Urban Critical Zone Processes II Poster Joel Moore , Towson University, Environmental Science & Studies, Towson, MD, United States; Towson University, Physics, Astronomy, & Geosciences, Towson, MD, United States, Peter Groffman , CUNY Advanced Science Research Center and Brooklyn College Department of Earth and Environmental Sciences, New York, NY, United States, Karen L Prestegard , Univ Maryland, College Park, United States and Claire Welty , Center for Urban Environmental Research, Center for Urban Environmental Research and Education, Baltimore, MD, United States
Poster	12/13/2022	9:00:00	12:30:00	McCormick Place	Poster Hall, Hall - A	H22U-1111	The Need for Integrated Critical Zone Process Understanding of Water Flow in Cities Sarah H. Ledford , Georgia State University, Atlanta, GA, United States, Rosemary Fanelli, US Geological Survey, South Atlantic Water Science Center, Baltimore, United States, Kristina Hopkins, U.S. Geological Survey, South Atlantic Water Science Center, Raleigh, United States, Christa Kelleher, Lafayette College, Easton, United States, Claire J Oswald, Toronto Metropolitan University, Department of Geography and Environmental Studies, Toronto, ON, Canada, Anneliese Sytsma, Colorado School of Mines, Civil and Environmental Engineering, Golden, CO, United States, Doerthe Tetzlaff, University of Aberdeen, Northern Rivers Institute, Aberdeen, United Kingdom, Laura Toran, Temple Univ, Philadelphia, PA, United States and Carolyn Breden Voter, University of Delaware, Civil and Environmental Engineering; Earth Sciences, Newark, DE, United States
Poster	12/13/2022	9:00:00	12:30:00	McCormick Place	Poster Hall, Hall - A	H22U-1112	Natural and Anthropogenic Drivers of Dissolved Organic Matter in the Urban Critical Zone Rachel S Gabor , The Ohio State University, School of Environment and Natural Resources, Columbus, OH, United States and Paul D Brooks, University of Utah, Geology and Geophysics, Salt Lake City, UT, United States
Poster	12/13/2022	9:00:00	12:30:00	McCormick Place	Poster Hall, Hall - A	H22V	Characterizing and Managing Hydrobiogeochemical Processes at Critical Interfaces in Critical Zones II Poster Bhavna Arora , Lawrence Berkeley National Laboratory, Earth and Environmental Sciences Area, Berkeley, CA, United States, Salvatore Calabrese , Texas A&M University, Department of Biological and Agricultural Engineering, College Station, United States and Lisa R Welp , Purdue University, Department of Earth, Atmospheric, and Planetary Sciences, West Lafayette, IN, United States
Poster	12/13/2022	9:00:00	12:30:00	McCormick Place	Poster Hall, Hall - A	H22V-1137	The Critical Zone Data Pipeline: a tool that synchronizes multi-decadal timeseries of watershed scale attributes Desneiges Murray , University of New Hampshire Main Campus, Durham, NH, United States, Laurel Larsen, University of California, Department of Geography, Department of Civil and Environmental Engineering, Berkeley, United States, Adam S Wymore, University of New Hampshire, Department of Natural Resources and the Environment, Durham, United States and Michelle E Newcomer, Lawrence Berkeley National Laboratory, Berkeley, CA, United States

Session Type	Date	Start Time	End Time	Property	Room	Title	People	
Poster	12/13/2022	9:00:00	12:30:00	McCormick Place	Poster Hall, Hall - A	H22X-1157	Toward an Understanding of the Origin and Evolution of Appalachian Deep Critical Zone Fluids from Application of Radiogenic and Stable Metal Isotopes	Brian W. Stewart, University of Pittsburgh, Department of Geology & Environmental Science, Pittsburgh, PA, United States and Rosemary C. Capo, University of Pittsburgh, Department of Geology & Environmental Science, Pittsburgh, PA, United States
Lightning Talk	12/13/2022	9:10:00	9:20:00	McCormick Place	E270	H22E-02	Lateral Flow, Evapotranspiration, and Vegetation Response in the Mountain Critical Zone	P. James Denny-Frank, Lawrence Berkeley National Laboratory, Berkeley, United States, Erica R Siirila-Woodburn, Organization Not Listed, Washington, United States; Lawrence Berkeley National Laboratory, Earth and Environmental Sciences Area, Berkeley, CA, United States, Polly Boutte, University of California Berkeley, Berkeley, United States, Thomas Powell, Lawrence Berkeley National Laboratory, Berkeley, CA, United States, Yilin Fang, Battelle, Pacific Northwest National Laboratory, Richland, WA, United States and Lara M Kueppers, University of California Berkeley, Energy and Resources Group, Berkeley, United States
Lightning Talk	12/13/2022	9:30:00	9:40:00	McCormick Place	E270	H22E-04	Critical Zone Thickness Mapping of North East India using Artificial Neural Network	Arnab Kumar Pal ¹ , Alok Kumar ² and Archana M Nair ² , (1)Indian Institute of Technology Guwahati, Civil Engineering, Guwahati, India, (2)Indian Institute of Technology Guwahati, Department of Civil Engineering, Guwahati, India
Lightning Talk	12/13/2022	9:50:00	10:00:00	McCormick Place	E270	H22E-06	Critical Critical Zone: Cultural Context and Geochemical Processes in Spring Wetlands	Jory Chapin Lerback ¹ , Aradhna K Tripathi ² , Jessica Cattelino ¹ , Shannon Speed ¹ , Sedonna Goeman-Shulsky ¹ , Robert Ramirez ³ , Sara Manning ⁴ , Noah Williams ⁵ , Brenda B. Bowen ⁶ and Shane Macfarlan ⁷ , (1)University of California Los Angeles, Los Angeles, United States, (2)University of California Los Angeles, Department of Earth, Planetary, and Space Sciences, Department of Atmospheric and Oceanic Sciences, Institute of the Environment and Sustainability, Institute of Geophysics and Planetary Physics, Los Angeles, CA, United States, (3)Gabrielino Tongva Springs Foundation, Los Angeles, United States, (4)Big Pine Paiute Tribe, Environmental Department, Big Pine, United States, (5)Big Pine Paiute Tribe, Water Program, Big Pine, United States, (6)University of Utah, Salt Lake City, UT, United States, (7)University of Utah, Salt Lake City, UT, United States

Session Type	Date	Start Time	End Time	Property	Room	Title	People
Lightning Talk	12/13/2022	12:00:00	12:10:00	McCormick Place	S405a	B23A-07	Feedbacks between permafrost thaw and oxidative weathering in the Arctic critical zone Marisa Nicole Repasch , University of Colorado Boulder, Institute of Arctic and Alpine Research, Boulder, United States, Suzanne P Anderson, Univ of Colorado, INSTAAR and Department of Geological Sciences, Boulder, United States, Joshua Koch, USGS Alaska Science Center, Anchorage, United States, Shaily Rahman, University of Colorado Boulder, Boulder, United States, Josie Arcuri, University of Colorado Boulder, INSTAAR and Department of Geological Sciences, Boulder, United States, Robert S Anderson, University of Colorado, INSTAAR and Department of Geological Sciences, Boulder, CO, United States and Irina Overeem, University of Colorado, Institute of Arctic and Alpine Research and Department of Geological Sciences, Boulder, CO, United States
Online Poster Discussion	12/13/2022	13:45:00	14:45:00	Online Only		H24F	Advancing Understanding of Mountainous Critical Zones Through Observations and Experiments II Online Poster Discussion Ravindra Dwivedi , USDA-ARS, Southwest Watershed Research Center, Tucson, AZ, United States, Holly R Barnard , University of Colorado Boulder, Geography, Boulder, United States, Hoori Ajami , University of California Riverside, Riverside, CA, United States and Thomas Meixner , University of Arizona, Hydrology and Atmospheric Sciences, Tucson, United States
Poster	12/13/2022	14:45:00	18:15:00	McCormick Place	Poster Hall, Hall - A	H25L	Advancing Understanding of Mountainous Critical Zones Through Observations and Experiments III Poster Ravindra Dwivedi , USDA-ARS, Southwest Watershed Research Center, Tucson, AZ, United States, Hoori Ajami , University of California Riverside, Riverside, CA, United States, Holly R Barnard , University of Colorado Boulder, Geography, Boulder, United States and Thomas Meixner , University of Arizona, Hydrology and Atmospheric Sciences, Tucson, United States
Poster	12/13/2022	14:45:00	18:15:00	McCormick Place	Poster Hall, Hall - A	H25L-1248	Critical Zone Structure and Landscape Analysis in an Asymmetrical Ridge and Valley System in the Laramie Range, Wyoming Rachel Uecker , Clemson University, Clemson, SC, United States, Brady Flinchum, Clemson University, Geology, Clemson, SC, United States, Bradley Carr, University of Wyoming, Laramie, WY, United States and Steve Holbrook, Virginia Tech, Blacksburg, VA, United States
Poster	12/13/2022	14:45:00	18:15:00	McCormick Place	Poster Hall, Hall - A	NH25D-0474	Critical Zone Controls on Shallow Landslides: Insights from Numerical Simulations in a Steep, Forested Landscape Justin Higa ¹ , Giuseppe Formetta ² , Dino G. Bellugi ³ , William E Dietrich ^{4,5} , Brian A Ebel ⁶ , Riccardo Busti ² and Seulgi Moon ¹ , (1)University of California Los Angeles, Department of Earth, Planetary, and Space Sciences, Los Angeles, CA, United States, (2)University of Trento, Department of Civil, Environmental and Mechanical Engineering, Trento, Italy, (3)University of California, Berkeley, Department of Geography, Berkeley, CA, United States, (4)University of California Berkeley, Department of Earth and Planetary Science, Berkeley, United States, (5)University of California, Berkeley, Department of Geography, Berkeley, United States, (6)Water Resources Mission Area, U.S. Geological Survey, Burlington, United States

Session Type	Date	Start Time	End Time	Property	Room		Title	People
Poster	12/13/2022	14:45:00	18:15:00	McCormick Place	Poster Hall, Hall - A	SY25C-0599	Equity, Diversity, and Community: Opportunities for Critical Zone Science and Education	Dustin W Kincaid ¹ , Julia N Perdrial ² , Deidre Wheaton ³ , Erin C Seybold ⁴ , Bryn Stewart ⁵ , Leon Walls ⁶ , Michael Blouin ⁶ , Regina E Toolin ⁶ and Jon Chorover ⁷ , (1)University of Vermont, Department of Civil & Environmental Engineering, Burlington, United States, (2)University of Vermont, Department of Geography & Geoscience, Burlington, VT, United States, (3)Jackson State University, Jackson, MS, United States, (4)University of Kansas, Kansas Geological Survey, Lawrence, United States, (5)Pennsylvania State University Main Campus, University Park, PA, United States, (6)University of Vermont, Burlington, VT, United States, (7)University of Arizona, Tucson, AZ, United States
Lightning Talk	12/13/2022	15:35:00	15:45:00	McCormick Place	N426c	SY25B-06	Leveraging Community Water Science for National Impact: A Service Provider Approach Offered by the Water Data Collaborative	Deanna McCay ¹ , Scott Howard Ensign ² , Robbie O'Donnell ³ , R John Dawes ⁴ and Erin Hofmann ⁴ , (1)Consortium of Universities for the Advancement of Hydrologic Science, Inc., Arlington, United States, (2)Stroud Water Research Center, Department of Science, Avondale, PA, United States, (3)Water Data Collaborative, Washington, DC, United States, (4)The Commons, Washington, DC, United States
Online Session	12/14/2022	8:00:00	9:00:00	Online Only		H31E-06	Peak Anomaly Detection using Critical Zone Time Series Data: Knowledge-Engineering and Deep-Learning	Byung Suk Lee , University of Vermont, Computer Science, Burlington, VT, United States, John Clay Kaufmann, University of Vermont, Computer Science, Burlington, United States, James B Shanley, USGS, Montpelier, VT, United States, Donna M Rizzo, University of Vermont, Department of Civil and Environmental Engineering, Burlington, VT, United States, Julia N Perdrial, University of Vermont, Department of Geography & Geoscience, Burlington, VT, United States and Ijaz Ul Haq, University of Vermont, Burlington,
Wednesday, December 14th								
Session Type	Date	Start Time	End Time	Property	Room	Session Number	Title	People
Online Session	12/14/2022	8:00:00	9:00:00	Online Only		H31E-06	Peak Anomaly Detection using Critical Zone Time Series Data: Knowledge-Engineering and Deep-Learning	Byung Suk Lee , University of Vermont, Burlington, VT, John Clay Kaufmann , University of Vermont, Burlington, VT, James Shanley , University of Vermont, Burlington, VT, Donna Rizzo , University of Vermont, Burlington, VT, Julia Perdrial , University of Vermont Burlington, VT, Ijaz Ul Haq , University of Vermont, Burlington, VT, Erin Seybold , University of Vermont, Burlington, VT, Manya Ruckhaus , University of Vermont, Burlington, VT, Erin Seybold , University of Kansas, Lawrence, KS, Kristen Underwood , University of Vermont, Burlington, VT, Dustin Kincaid , University of Vermont, Burlington, VT, James Shanley , USGS, Bryn Stewart , Pennsylvania State University Main Campus, University Park, PA, Li Li , Pennsylvania State University Main Campus, University Park, PA
Poster	12/14/2022	9:00:00	12:30:00	McCormick Place	Poster Hall, Hall - A	H32S-1157	Drivers and pathways of carbon and nitrogen in soil and streams: insights from the Sleepers River Research Watershed in Vermont	Erin Seybold , University of Kansas, Lawrence, KS, Kristen Underwood , University of Vermont, Burlington, VT, Dustin Kincaid , University of Vermont, Burlington, VT, James Shanley , USGS, Bryn Stewart , Pennsylvania State University Main Campus, University Park, PA, Li Li , Pennsylvania State University Main Campus, University Park, PA

Session Type	Date	Start Time	End Time	Property	Room	Title	People
Poster	12/14/2022	9:00:00	12:30:00	McCormick Place	Poster Hall, Hall - A H32S-1150	Leveraging Catchment Attributes to Explain Patterns of Concentration-Discharge Relationships Across the Contiguous United States	Dustin Kincaid , University of Vermont, Burlington, VT, Kristen Underwood , University of Vermont, Burlington, VT, Scott Hamshaw , University of Vermont, Burlington, VT, Ijaz Ul Haq , University of Vermont, Burlington, VT, Li Li , Pennsylvania State University Main Campus, University Park, PA, Donna Rizzo , University of Vermont, Burlington, VT, Erin Seybold , University of Kansas, Lawrence, KS, Bryn Stewart , Pennsylvania State University Main Campus, University Park, PA, Julia Perdrial , University of Vermont, Burlington, VT
Poster	12/14/2022	9:00:00	12:30:00	McCormick Place	Poster Hall, Hall - A NS32B	Near-Surface Geophysics in the Critical Zone	Gregory Mount , Broward County Florida, Environmental Protection and Growth Management Dept, Davie, FL, United States, Kristina Keating , Rutgers University Newark, Earth and Environmental Sciences, Newark, NJ, United States, Jorden L Hayes , Co-Author, Department of Earth Sciences, Laramie, United States and Roman A DiBiase , Pennsylvania State University Main Campus, Department of Geosciences, University Park, PA, United States
Poster	12/14/2022	9:00:00	12:30:00	McCormick Place	Poster Hall, Hall - A NS32B-0361	Imaging the Subsurface of the Critical Zone in Garner Run and Bear Meadows using Electrical Resistivity Tomography	Antonelli Estanus ¹ , Chelsea Oti ¹ , Nicole Urday ² , Maejoye Dwanah ² , Yonesha Y Donaldson ³ , Kristina Keating ⁴ , Jorden L Hayes ⁵ , Gregory Mount ⁶ , Angelo Tarzona ⁷ , Tonian Robinson ⁸ , Jael Estrada ⁹ , Carolina Caro Cano ¹⁰ , Roman A DiBiase ¹¹ and Joanmarie Del Vecchio ¹² , (1)Rutgers University Newark, Newark, NJ, United States, (2)Rutgers University-Newark, Newark, United States, (3)University of Georgia, Department of Geology, Athens, GA, United States, (4)Rutgers University Newark, Earth and Environmental Sciences, Newark, NJ, United States, (5)Dickinson College, Department of Earth Sciences, Carlisle, United States, (6)Resilient Environment Department, Broward County, Fort Lauderdale, United States, (7)Georgia Institute of Technology Main Campus, Atlanta, United States, (8)University of South Florida, School of Geosciences, Tampa, FL, United States, (9)Rutgers University Newark, Department of Earth and Environmental Sciences, Newark, NJ, United States, (10)Rutgers University, Department of Earth & Environmental Sciences, Newark, NJ, United States, (11)Pennsylvania State University Main Campus, Department of Geosciences, University Park, PA, United States, (12)Dartmouth College, Department of Earth Sciences, Hanover, NH, United States
Poster	12/14/2022	9:00:00	12:30:00	McCormick Place	Poster Hall, Hall - A NS32B-0363	Full Waveform Inversion Imaging of the Critical Zone: Unlocking Near-Surface Seismic Data with Open-Source Technology	Benjamin Eppinger , Virginia Tech, Blacksburg, United States, Zhaolun Liu, Princeton University, Geosciences, Princeton, United States, Steve Holbrook, Virginia Tech, Blacksburg, VA, United States and Jeroen Tromp, Princeton University, Princeton, United States

Session Type	Date	Start Time	End Time	Property	Room		Title	People
Poster	12/14/2022	9:00:00	12:30:00	McCormick Place	Poster Hall, Hall - A	NS32B-0366	Mapping Vadose Zone Hydrology and Soil Properties in Dryland Critical Zones with High Infiltration Using Shallow Electromagnetic and Magnetic Techniques	Kristina Sasser ¹ , Mark Engle ² , Aracely Garcia ² , Diane Irene Doser ² , Mark R Baker ³ , Lixin Jin ¹ and Jessica Hartman ⁴ , (1)University of Texas at El Paso, Department of Earth, Environmental and Resource Sciences, El Paso, TX, United States, (2)University of Texas at El Paso, Department of Earth, Environmental and Resource Sciences, El Paso, United States, (3)University of Texas at El Paso, El Paso, TX, United States, (4)University of Texas at El Paso, Earth, Environmental and Resource Sciences, El Paso, TX, United States
Poster	12/14/2022	9:00:00	12:30:00	McCormick Place	Poster Hall, Hall - A	NS32B-0367	Defining Spatial Heterogeneity: Using Ground Penetrating Radar to Map the Boundaries between Soil, Saprolite, and Bedrock in the Critical Zone	Annalee Chiaviello , Clemson University, Clemson, SC, United States, Brady Flinchum, Clemson University, Geology, Clemson, SC, United States, Ciaran J Harman, Johns Hopkins University, Environmental Health and Engineering, Baltimore, United States, Jordan L Hayes, Dickinson College, Carlisle, PA, United States, Samantha Motz, Georgia Institute of Technology, Earth and Atmospheric Sciences, Atlanta, United States, David Litwin, Johns Hopkins University, Environmental Health and Engineering, Baltimore, MD, United States and Steve Holbrook, Virginia Tech, Blacksburg, VA, United States
Poster	12/14/2022	9:00:00	12:30:00	McCormick Place	Poster Hall, Hall - A	H32S-1168	Delineating Event-Scale Metal(loid) Fluxes in an Alpine Stream Catchment	Kenneth Swift Bird , Colorado School of Mines, Golden, CO, Dayana Arrue , Colorado School of Mines, Golden, CO, Alexis Navarre-Sitchler , Colorado School of Mines, Golden, CO, Kamini Singha , Colorado School of Mines, Golden, CO
Poster	12/14/2022	9:00:00	12:30:00	McCormick Place	Poster Hall, Hall - A	H32S-1152	Connection between concentration-discharge relations and near-stream groundwater residence times	Sara Warix , Colorado School of Mines, Golden, CO, Alexis Navarre-Sitchler , Colorado School of Mines, Golden, CO, Kamini Singha , Colorado School of Mines, Golden, CO

Thursday, December 15th

Session Type	Date	Start Time	End Time	Property	Room	Session Number	Title	People
Witherspoon Lecture	12/15/2022	9:10:00	9:20:00	McCormick Place	E354b	H42A-01	The importance of "stuff getting stuck" in hydro(geo)logy	Kamini Singha , Colorado School of Mines, Golden, CO
Lightning Talk	12/15/2022	11:55:00	12:05:00	McCormick Place	E451a	H43E-06	A Continental-scale Deep Learning Model for Total Phosphorus Reveals Progress Toward Water Quality Goals over the Past 40 Years in the United States	Wei Zhi ¹ , Chaopeng Shen ² , Elizabeth W Boyer ³ , Gary Shen ⁴ , Xiaofeng Liu ¹ and Li Li ² , (1)Pennsylvania State University Main Campus, Department of Civil and Environmental Engineering, University Park, United States, (2)Pennsylvania State University Main Campus, Department of Civil and Environmental Engineering, University Park, PA, United States, (3)Penn State University, Department of Ecosystem Science & Management, University Park, United States, (4)USGS, Chesapeake Bay Program, Annapolis, MD, United States

Session Type	Date	Start Time	End Time	Property	Room	Title	People
Online Poster Discussion	12/15/2022	13:45:00	14:45:00	Online Only		H44C	Advancing the State of the Science of Water Resources Modeling; Community Development at the Intersection of Domain, Data, and Computer Sciences I Online Poster Discussion Trey Flowers , NOAA Office of Water Prediction, National Water Center, Tuscaloosa, United States, Patrick Burke , NOAA/NOS/CO-OPS, Silver Spring, MD, United States, Jerad Bales , Consortium of Universities for the Advancement of Hydrologic Science, Inc., Washington, DC, United States and Christopher Massey , U.S. Army Engineers Research and Development Center, Coastal and Hydraulics Laboratory, Vicksburg, MS, United States
Poster	12/15/2022	14:45:00	18:15:00	McCormick Place	Poster Hall, Hall - A	H45I	Advancing the State of the Science of Water Resources Modeling; Community Development at the Intersection of Domain, Data, and Computer Sciences II Poster Trey Flowers , NOAA Office of Water Prediction, National Water Center, Tuscaloosa, United States, Patrick Burke , NOAA/NOS/CO-OPS, Silver Spring, MD, United States, Jerad Bales , Consortium of Universities for the Advancement of Hydrologic Science, Inc., Washington, DC, United States and Christopher Massey , U.S. Army Engineers Research and Development Center, Coastal and Hydraulics Laboratory, Vicksburg, MS, United States
Lightning Talk	12/15/2022	15:10:00	15:20:00	McCormick Place	E451a (Lakeside, Level 4)	H45E-03	Surface Water-Groundwater Connectivity Controls on Metal(loid) Fate and Transport Kamini Singha , Colorado School of Mines, Golden, CO, Beth Hoagland , Colorado School of Mines, Golden, CO, Alexis Navarre-Sitchler , Colorado School of Mines, Golden, CO

Friday, December 16th

Session Type	Date	Start Time	End Time	Property	Room	Session Number	Title	People
Online Poster Discussion	12/16/2022	8:00:00	9:00:00	Online Only		B51A	Biogeochemical Cycling Mediated by Colloidal Particles in the Critical Zone I Online Poster Discussion Kenton Alan Rod , Pacific Northwest National Laboratory, Richland, WA, United States, Marc F. Benedetti , Institut de Physique du Globe de Paris, Paris, France, Jon Chorover , University of Arizona, Environmental Science, Tucson, United States and Qian Zhao , Pacific Northwest National Laboratory, Earth and Biological Sciences Directorate, Richland, WA, United States	
Online Poster Discussion	12/16/2022	8:00:00	9:00:00	Online Only		H51A	Advances in Petrophysics for Hydrogeophysics and Critical Zone Science I Online Poster Discussion Qifei Niu , Boise State University, Boise, ID, United States, Damien Jougnot , Sorbonne Universite, UMR 7619 METIS, Paris, France and Florian M. Wagner , Institute for Applied Geophysics and Geothermal Energy, RWTH Aachen University, Aachen, Germany	
Oral	12/16/2022	9:00:00	10:30:00	McCormick Place	E352	H52B	Advancing the State of the Science of Water Resources Modeling; Community Development at the Intersection of Domain, Data, and Computer Sciences III Oral Trey Flowers , NOAA Office of Water Prediction, National Water Center, Tuscaloosa, United States, Patrick Burke , NOAA/NOS/CO-OPS, Silver Spring, MD, United States, Jerad Bales , Consortium of Universities for the Advancement of Hydrologic Science, Inc., Washington, DC, United States and Christopher Massey , U.S. Army Engineers Research and Development Center, Coastal and Hydraulics Laboratory, Vicksburg, MS, United States	
Poster	12/16/2022	9:00:00	12:30:00	McCormick Place	Poster Hall, Hall - A	H52J-0583	Rethinking the Origin of Counterclockwise DOM C-Q Hysteresis James Shanley , USGS, Bryn Stewart , Pennsylvania State University Main Campus, University Park, PA, Jonathan Malzone , National Park Service, Kevin Ryan , U.S. Geological Survey, Serena Matt , USGS, Julia Perdril , University of Vermont, Burlington, VT	

Session Type	Date	Start Time	End Time	Property	Room	Title	People
Poster	12/16/2022	9:00:00	12:30:00	McCormick Place	Poster Hall, Hall - A B52D	Biogeochemical Cycling in the Critical Zone: From Genomes to Ecosystems I Poster	Hannah Naughton , Lawrence Berkeley National Laboratory, Ecology, Berkeley, CA, United States, Gianna Marschmann , Lawrence Berkeley National Laboratory, Climate & Ecosystem Sciences Division, Berkeley, CA, United States, Patrick Sorensen , Lawrence Berkeley National Laboratory, Earth and Environmental Sciences Area, Berkeley, CA, United States and Qiong Wu , University of California, Berkeley, Berkeley, United States
Poster	12/16/2022	9:00:00	12:30:00	McCormick Place	Poster Hall, Hall - A EP52C-0774	Where Does Wood Come From? Using Dendrochronology and Isotopic Methods to Identify the Watershed Origin of Wood in the River Corridor	So Cromratie Clemons , University of Colorado at Boulder, Geography, Boulder, United States, Katherine B Lininger, University of Colorado at Boulder, Geography, Boulder, CO, United States, J Renee Brooks, U.S. Environmental Protection Agency, Pacific Ecological Systems Division, Corvallis, United States and Holly R Barnard, University of Colorado Boulder, Geography, Boulder, United States
Poster	12/16/2022	9:00:00	12:30:00	McCormick Place	Poster Hall, Hall - A H52H	Advances in Petrophysics for Hydrogeophysics and Critical Zone Science II Poster	Qifei Niu , Boise State University, Boise, ID, United States, Damien Jougnot , Sorbonne Universite, UMR 7619 METIS, Paris, France and Florian M. Wagner , Institute for Applied Geophysics and Geothermal Energy, RWTH Aachen University, Aachen, Germany
Poster	12/16/2022	9:00:00	12:30:00	McCormick Place	Poster Hall, Hall - A H52H-0542	<i>Characterizing Deep CZ Structure and Saturation in the Piedmont using P-wave and S-wave Seismic Refraction</i>	Brady Flinchum ¹ , Steve Holbrook ² , Dario Grana ³ , Bradley Carr ³ and Russell Patrick Callahan ⁴ , (1)Clemson University, Geology, Clemson, SC, United States, (2)Virginia Tech, Blacksburg, VA, United States, (3)University of Wyoming, Laramie, WY, United States, (4)University of California Santa Cruz, Santa Cruz, CA, United States
Poster	12/16/2022	9:00:00	12:30:00	McCormick Place	Poster Hall, Hall - A H52J	Catchment and Critical Zone Science – Understanding Ecosystems Through Monitoring, Analysis, and Experimentation IV Poster	Stephen D Sebestyen ¹ , Antonio Alves Meira Neto ² , James B Shanley ³ , Lili Yao ⁴ , Tirthankar Roy ⁵ , Dingbao Wang ⁴ and Jonathan M Duncan ⁶ , (1)USDA Forest Service, Northern Research Station, Vallejo, CA, United States(2)University of Arizona, Tucson, AZ, United States(3)USGS, Montpelier, VT, United States(4)University of Central Florida, Orlando, FL, United States(5)University of Arizona, Tucson, United States(6)Pennsylvania State University Main Campus, Ecosystem Science and Management, University Park, PA, United States
Poster	12/16/2022	9:00:00	12:30:00	McCormick Place	Poster Hall, Hall - A H52P-0681	Tracer Dilution Studies in Coal Creek, Colorado, to Predict Metal Transport	Jenelle Cockerham , Fort Valley State University, Fort Valley, GA, Kenneth Swift Bird , Colorado School of Mines, Golden, CO, Dayana Arrue , Colorado School of Mines, Golden, CO, Kamini Singha , Colorado School of Mines, Golden, CO

Session Type	Date	Start Time	End Time	Property	Room	Title	People	
Lightning Talk	12/16/2022	9:10:00	9:20:00	McCormick Place	S105bc	G52A-02	Fluctuation in subsurface water inferred from GPS elastic displacements: Insight on water cycle processes and the critical zone	Donald F Argus ¹ , Hilary R Martens ² , David N Wiese ² , Adrian A Borsa ⁴ , Matthew Swar ⁵ , Ellen Knappe ⁶ , Nicholas Lau ⁴ , Alissa M White ² , Felix W Landerer ⁷ and William P Gardner ⁸ , (1)NASA Jet Propulsion Laboratory, Pasadena, CA, United States, (2)University of Montana, Geosciences, Missoula, MT, United States, (3)Jet Propulsion Laboratory, California Institute of Technology, Pasadena, United States, (4)Scripps Institution of Oceanography, University of California San Diego, La Jolla, United States, (5)University of Montana, Missoula, United States, (6)Scripps Institution of Oceanography, University of California San Diego, La Jolla, CA, United States, (7)JPL/NASA/Caltech, Pasadena, United States, (8)University of Montana, Missoula, MT, United States
Oral	12/16/2022	11:00:00	12:30:00	McCormick Place	S405a	B53B	Biogeochemical Cycling Mediated by Colloidal Particles in the Critical Zone II Oral	Kenton Alan Rod , Pacific Northwest National Laboratory, Richland, WA, United States, Marc F. Benedetti , Institut de Physique du Globe de Paris, Paris, France, Jon Chorover , University of Arizona, Environmental Science, Tucson, United States and Qian Zhao , Pacific Northwest National Laboratory, Earth and Biological Sciences Directorate, Richland, WA, United States
Oral	12/16/2022	11:00:00	12:30:00	McCormick Place	E352	H53B	Advancing the State of the Science of Water Resources Modeling; Community Development at the Intersection of Domain, Data, and Computer Sciences IV Oral	Trey Flowers , NOAA Office of Water Prediction, National Water Center, Tuscaloosa, United States, Patrick Burke , NOAA/NOS/CO-OPS, Silver Spring, MD, United States, Jerad Bales , Consortium of Universities for the Advancement of Hydrologic Science, Inc., Washington, DC, United States and Christopher Massey , U.S. Army Engineers Research and Development Center, Coastal and Hydraulics Laboratory, Vicksburg, MS, United States
Lightning Talk	12/16/2022	11:15:00	11:30:00	McCormick Place	S402b	SH53A-02	A fragmented and extended Alfvén critical zone in the young solar wind	William H Matthaeus ¹ , Rohit Chhiber ¹ , Arcadi V. Usmanov ³ , Riddhi Bandyopadhyay ² , Melvyn L Goldstein ³ and Steven R Cranmer ⁴ , (1)University of Delaware, Department of Physics and Astronomy, Newark, DE, United States, (2)Princeton University, Department of Astrophysics, Princeton, NJ, United States, (3)University of Maryland Baltimore County, Baltimore, MD, United States, (4)University of Colorado, Boulder, CO, United States
Lightning Talk	12/16/2022	11:30:00	11:40:00	McCormick Place	S405a	B53B-04	Considering colloids will change the way you think about elemental fluxes in the critical zone	Aaron Thompson , University of Georgia, Crop and Soil Sciences, Athens, GA, United States

Session Type	Date	Start Time	End Time	Property	Room	Title	People
Oral	12/16/2022	14:45:00	16:15:00	McCormick Place	E352	H55E	Advancing the State of the Science of Water Resources Modeling; Community Development at the Intersection of Domain, Data, and Computer Sciences V Oral Trey Flowers , NOAA Office of Water Prediction, National Water Center, Tuscaloosa, United States, Patrick Burke , NOAA/NOS/CO-OPS, Silver Spring, MD, United States, Jerad Bales , Consortium of Universities for the Advancement of Hydrologic Science, Inc., Washington, DC, United States and Christopher Massey , U.S. Army Engineers Research and Development Center, Coastal and Hydraulics Laboratory, Vicksburg, MS, United States
Oral	12/16/2022	14:45:00	16:15:00	McCormick Place	E265	H55F	Catchment and Critical Zone Science – Understanding Ecosystems Through Monitoring, Analysis, and Experimentation I Oral Stephen D Sebestyen , USDA Forest Service, Northern Research Station, Vallejo, CA, United States, Antonio Alves Meira Neto , University of Arizona, Tucson, AZ, United States, James B Shanley , USGS, Montpelier, VT, United States and Jonathan M Duncan , Pennsylvania State University Main Campus, Ecosystem Science and Management, University Park, PA, United States
Poster	12/16/2022	14:45:00	18:15:00	McCormick Place	Poster Hall, Hall - A	A550-1303	Local Sources Control the Properties of Mineral Dust Accumulating in the High-Elevation Critical Zone of the Great Basin and Rocky Mountains, USA Jeffrey S Munroe , Middlebury College, Earth and Climate Sciences, Middlebury, VT, United States, Elsa J Soderstrom , Middlebury College, Earth and Climate Sciences, Middlebury, United States and Derek V. Mallia , University of Utah, Atmospheric Sciences, Salt Lake City, United States
Poster	12/16/2022	14:45:00	18:15:00	McCormick Place	Poster Hall, Hall - A	B55E-1029	Soil Particle Size Distribution (PSD) as a Predictor Variable for Microbial Species Distribution Alexander Ederer ¹ , Marley Watkins ² , Rachel E Gallery ³ , Emma L Aronson ⁴ and Jon Chorover ² , (1)University of Arizona, Tucson, United States, (2)University of Arizona, Environmental Science, Tucson, United States, (3)University of Arizona, School of Natural Resources and the Environment, Tucson, AZ, United States, (4)University of California Riverside, Riverside, CA, United States
Poster	12/16/2022	14:45:00	18:15:00	McCormick Place	Poster Monitor 3	H55B-23	Quantifying and Comparing Evapotranspiration Dynamics Using Temporal Moment Analysis of Sap Flow Time Series Joel Singley , Roger Williams University, Bristol, RI, Isaac Fry , Colorado School of Mines, Golden, CO, Luke Jacobsen , Colorado School of Mines, Golden, CO, Kamini Singha , Colorado School of Mines, Golden, CO

Session Type	Date	Start Time	End Time	Property	Room	Title	People	
Poster	12/16/2022	14:45:00	18:15:00	McCormick Place	Poster Hall, Hall - A	EP55C-0805	Understanding the deep critical zone in the South Carolina Piedmont using borehole sampling and imaging	Christina Kitamikado ¹ , Bradley Carr ¹ , Anders J Noren ² , Russell Patrick Callahan ³ , Steve Holbrook ⁴ , Jorden L Hayes ⁵ and Clifford S Riebe ⁶ , (1)University of Wyoming, Department of Geology and Geophysics, Laramie, WY, United States, (2)CSDCO, Department of Earth and Environmental Sciences, University of Minnesota, ESCI, Minneapolis, MN, United States, (3)University of California Santa Cruz, Earth and Planetary Sciences, Santa Cruz, CA, United States, (4)Virginia Polytechnic Institute and State University, Department of Geosciences, Blacksburg, United States, (5)Dickinson College, Department of Earth Sciences, Carlisle, United States, (6)University of Wyoming, Department of Geology and Geophysics, Laramie, United States
Poster	12/16/2022	14:45:00	18:15:00	McCormick Place	Poster Hall, Hall - A	EP55C-0839	Steady-state Erosion and Soil Production in the South Carolina Piedmont Inferred from Cosmogenic Nuclide Depth Profiles	Nancy Weinheimer , University of Wyoming, Laramie, WY, Clifford Riebe , University of Wyoming, Laramie, WY, Russell Patrick Callahan , University of California Santa Cruz, Santa Cruz, CA, Alexander Neely , University of California Los Angeles, Los Angeles, CA
Lightning Talk	12/16/2022	16:45:00	17:00:00	McCormick Place	E265	H56A-01	Classification of Streams and Rivers Toward a Science-Based Foundation for the Development of Nutrient Criteria in the United States	Elizabeth W Boyer , Penn State University, Department of Ecosystem Science & Management, University Park, United States
Oral	12/16/2022	16:45:00	18:15:00	McCormick Place	S405a	B56A	Biogeochemical Cycling in the Critical Zone: From Genomes to Ecosystems III Oral	Hannah Naughton , Lawrence Berkeley National Laboratory, Ecology, Berkeley, CA, United States, Gianna Marschmann , Lawrence Berkeley National Laboratory, Climate & Ecosystem Sciences Division, Berkeley, CA, United States, Patrick Sorensen , Lawrence Berkeley National Laboratory, Earth and Environmental Sciences Area, Berkeley, CA, United States and Qiong Wu , University of California, Berkeley, Berkeley, United States
Oral	12/16/2022	16:45:00	18:15:00	McCormick Place	E265	H56A	Catchment and Critical Zone Science – Understanding Ecosystems Through Monitoring, Analysis, and Experimentation II Oral	Stephen D Sebestyen , USDA Forest Service, Northern Research Station, Vallejo, CA, United States, James B Shanley , USGS, Montpelier, VT, United States, Dingbao Wang , University of Central Florida, Orlando, FL, United States and Jonathan M Duncan , Pennsylvania State University Main Campus, Ecosystem Science and Management, University Park, PA, United States

Session Type	Date	Start Time	End Time	Property	Room	Title	People	
Lightning Talk	12/16/2022	17:00:00	17:12:00	McCormick Place	E265	H56A-02	Dominant Source Areas Shift Seasonally from Longitudinal to Lateral Contributions in a Montane Headwater Stream	Sidney A Bush ^{1,2} , Andrew L Birch ³ , Sara R Warix ⁴ , Pamela Sullivan ⁵ , Michael N Gooseff ^{2,6} , Diane M McKnight ^{2,6} and Holly R Barnard ^{1,2} , (1)University of Colorado Boulder, Geography, Boulder, United States, (2)Institute of Arctic and Alpine Research, Boulder, United States, (3)National Park Service, Fort Collins, United States, (4)Colorado School of Mines, Hydrological Science and Engineering, Golden, CO, United States, (5)Oregon State University, College of Earth, Ocean, and Atmospheric Sciences, Corvallis, United States, (6)University of Colorado Boulder, Civil, Environmental, and Architectural Engineering, Boulder, United States
Lightning Talk	12/16/2022	17:48:00	18:00	McCormick Place	E265	H56A-06	Stream DOC and DIC Response to Climate and Acidification Disturbances at Sleepers River	Bryn Stewart , Pennsylvania State University Main Campus, University Park, PA, James Shanley , USGS, Serena Matt , USGS, Julia Perdril , University of Vermont, Burlington, VT, Manya Ruckhaus , University of Vermont, Burlington, VT, Erin Seybold , University of Kansas, Lawrence, KS, Dustin Kincaid , University of Vermont, Burlington, VT, Li Li , Pennsylvania State University Main Campus, University Park,