American Geophysical Union Fall Meeting

December 9 – 13, 2024, Washington D.C. The University of Oklahoma

Tuesday, December 10, 2024

Examination of Meteorological Factors and Emissions Sources Leading to the Large Methane (CH4) Enhancements at the ARM Site in Oklahoma

Qingyu Wang¹, Xiao-Ming Hu², Petra Maria Klein³, Binbin Weng⁴, Ming Xue⁵, Wesley Honeycutt⁴, Sean Crowell⁶ and Chenghao Wang⁷, (1)University of Oklahoma Norman Campus, Norman, OK, United States, (2)University of Oklahoma Norman Campus, Center for Analysis and Prediction of Storms, Norman, OK, United States, (3)University of Oklahoma, School of Meteorology, Norman, United States, (4)Univ. Oklahoma, Norman, United States, (5)University of Oklahoma, Center for Analysis and Prediction of Storms, Norman, United States, (6)LumenUs Scientific, Oklahoma City, United States, (7)University of Oklahoma, School of Meteorology; Department of Geography and Environmental Sustainability, Norman, OK, United States

- Tuesday, 10 December 2024
 - 08:30 12:20
 - Hall B-C (Poster Hall) (Convention Center)

AE23A

Advancements in Lightning Meteorology, Climatology, and Remote Sensing I Poster

Dr. Kelcy N Brunner¹, Sarah D Bang², Timothy J Lang² and Sarah M. Stough³, (1)Texas Tech University, Lubbock, TX, United States(2)NASA Marshall Space Flight Center, Huntsville, United States(3)University of Oklahoma, Cooperative Institute for Severe and High-Impact Weather Research and Operations, Norman, United States

Session Proposal

- Tuesday, 10 December 2024
- 13:40 17:30
- Hall B-C (Poster Hall) (Convention Center)

H21P

<u>Evapotranspiration Partitioning to Enhance Understanding of Ecosystem Functioning and Climate Change Impacts I Poster</u>

Nishan Bhattarai¹, Pradeep Wagle² and Afshin Shayeghi¹, (1)University of Oklahoma, Department of Geography and Environmental Sustainability, Norman, United States(2)Oklahoma and Central Plains Agricultural Research Center, USDA Agricultural Research Service, El Reno, United States Session Proposal

- Tuesday, 10 December 2024
- 08:30 12:20
- Hall B-C (Poster Hall) (Convention Center)

Advancing International Research Partnerships in Peru – Leveraging Research Networks and Innovative Funding Models to Promote in-Country Research Capacity

Timothy R Filley, The University of Oklahoma, Department of Geography and Environmental Sustainability, Norman, United States, Victor Maqque, University of Oklahoma Norman Campus, Institute for Resilient Environmental and Energy Systems, Norman, United States, Henry Gustavo Polanco Cornejo, Universidad Nacional de San Agustín, Arequipa, Peru, Paul M Santi, Colorado School of Mines, Geology and Geological Engineering, Golden, CO, United States, Daniel Salas, Purdue University, School of Engineering Technology, West Lafayette, United States and Lori Hoagland, Purdue University, Horticulture, West Lafayette, United States

- Tuesday, 10 December 2024
- 13:40 17:30
- Hall B-C (Poster Hall) (Convention Center)

Moisture Transport Dynamics within the Convective Boundary Layer: Insights from the Southern Great Plains ARM Site

Leia M. Otterstatter, Brian R Greene and Scott Salesky, University of Oklahoma, School of Meteorology, Norman, United States

Abstract

- Tuesday, 10 December 2024
- 08:30 12:20
- Hall B-C (Poster Hall) (Convention Center)

S23F-04

Benchmarking Transfer Learning for Enhanced Detection and Monitoring of Induced Earthquakes from Regional and Microseismic Arrays

Hongyu Xiao, University of Oklahoma, Norman, OK, United States, Jacob I Walter, University of Oklahoma, Oklahoma Geological Survey, Norman, United States and Paul Ogwari, University of Oklahoma, Oklahoma Geological Survey, Norman, OK, United States

Abstract

- Tuesday, 10 December 2024
- 14:19 14:22
- eLightning Theater 5 (Convention Center)

Mapping Evapotranspiration to Assess the Effectiveness of Sustainable Land Management Practices in the South Central US

Nishan Bhattarai¹, Afshin Shayeghi¹, Pradeep Wagle², Sean Alexander Woznicki³, Jayash Paudel⁴, Sumit Sharma⁵ and Xiangming Xiao⁶, (1)University of Oklahoma, Department of Geography and Environmental Sustainability, Norman, United States, (2)USDA-ARS, Grazinglands Research Laboratory, El Reno, United States, (3)Grand Valley State University, Annis Water Resources Institute, Allendale, United States, (4)University of Oklahoma Norman Campus, Norman, United States, (5)Oklahoma State University, Stillwater, United States, (6)University of Oklahoma Norman Campus, School of Biological Sciences, Center for Earth Observation and Modeling, Norman, United States Abstract

- Tuesday, 10 December 2024
- 08:30 12:20
- Hall B-C (Poster Hall) (Convention Center)

Implementation of a Soil Health Assessment Program in the Peruvian Amazon

Carmen Roman Perez, The University of Oklahoma, Norman, United States, Washington, DC, United States, Martha Jimenez-Castaneda, The University of Oklahoma, Norman, United States, Yuri Arevalo Aranda, Instituto Nacional de Innovación Agraria, Tarapoto, Peru, Julio Alegre, Universidad Nacional Agraria La Molina, Lima, Peru, Victor Maqque, The University of Oklahoma, Norman, United States, Brad Illston, University of Oklahoma, Oklahoma Mesonet, Norman, United States and Timothy R Filley, The University of Oklahoma, Department of Geography and Environmental Sustainability, Norman, United States

Abstract

- Tuesday, 10 December 2024
- 13:40 17:30
- Hall B-C (Poster Hall) (Convention Center)

Influence of forest residue management on soil health indicators in *Eucalyptus* plantations
Antonio Florentino, Dr. ^{1,2}, Pedro Chudzik^{2,3}, Jose Leonado de Moraes Gonçalves⁴, Timothy R
Filley² and José Lavres¹, (1)University of São Paulo, Center for Nuclear Energy in Agriculture,
Piracicaba, Brazil, (2)The University of Oklahoma, Department of Geography and Environmental
Sustainability, Norman, United States, (3)University of São Paulo, Department of Soil Science,
College of Agriculture "Luiz de Queiroz", Piracicaba, Brazil, (4)University of São Paulo, Department of
Forest Sciences, College of Agriculture "Luiz de Queiroz", Piracicaba, Brazil *Abstract*

- Tuesday, 10 December 2024
- 13:40 17:30
- Hall B-C (Poster Hall) (Convention Center)

Agricultural Land Use Impacts On Soil Porewater Geochemistry And Connectivity In The Midwestern U.S.

Ashlee Laura Denton Dere¹, Brian Saccardi², Jennifer L Druhan³, Jinyu WANG⁴, Neal Edward Blair⁵, Lisa R Welp⁶, Kelly M. Deuerling⁷, Timothy R Filley⁸, Martha Jimenez-Castaneda⁹, Sean M Schaeffer¹⁰, Isaac Noel¹¹, Andrew Stumpf¹², Erin Bauer¹³, James Haken¹³, Allison Eva Goodwell², Alison M Anders¹⁴ and Praveen Kumar¹⁵, (1)University of Nebraska at Omaha, Geography/Geology, Omaha, NE, United States, (2)Prairie Research Institute at University of Illinois at Urbana-Champaign, Champaign, United States, (3)University of Illinois, Urbana Champaign, United States, (4)University of Illinois at Urbana-Champaign, Urbana, United States, (5)Northwestern University, Evanston, United States, (6) Purdue University, Department of Earth, Atmospheric, and Planetary Sciences, West Lafayette, IN, United States, (7)University of Nebraska at Omaha, Omaha, United States, (8)The University of Oklahoma, Department of Geography and Environmental Sustainability, Norman, United States, (9)University of Oklahoma, Norman, United States, (10)University of Tennessee, Biosystems Engineering and Soil Science, Knoxville, TN, United States, (11)University of Nebraska at Omaha, Biology, Omaha, United States, (12)Illinois State Geological Survey, Champaign, IL, United States, (13)Illinois State Water Survey, Champaign, United States, (14)University of Illinois at Urbana Champaign, Geology, Urbana, IL, United States, (15)University of Illinois at Urbana-Champaign, Department of Civil and Environmental Engineering, Urbana, United States Abstract

- Tuesday, 10 December 2024
- 08:30 12:20
- Hall B-C (Poster Hall) (Convention Center)

CO₂ Flux Biases and Error Estimation Across Sampling Frequency at Daily, Seasonal, and Annual Scales.

Brian Saccardi¹, Ashlee Laura Denton Dere², Allison Eva Goodwell¹, Jennifer L Druhan³, Erin Bauer⁴, Jinyu WANG⁵, James Haken⁴, Andrew Stumpf⁶, Steve Sargent⁷, Timothy R Filley³, Lisa R Welp⁶, Martha Jimenez-Castaneda¹⁰, Neal Edward Blair¹¹, Bruce L Rhoads¹² and Praveen Kumar¹³, (1)Prairie Research Institute at University of Illinois at Urbana-Champaign, Champaign, United States, (2)University of Nebraska at Omaha, Geography/Geology, Omaha, NE, United States, (3)University of Illinois, Urbana Champaign, United States, (4)Illinois State Water Survey, Champaign, United States, (5)University of Illinois at Urbana-Champaign, Urbana, United States, (6)Illinois State Geological Survey, Champaign, IL, United States, (7)Illinois State Geological Survey, Champaign, United States, (8)The University of Oklahoma, Department of Geography and Environmental Sustainability, Norman, United States, (9)Purdue University, Department of Earth, Atmospheric, and Planetary Sciences, West Lafayette, IN, United States, (10)University of Oklahoma, Norman, United States, (11)Northwestern University, Evanston, United States, (12)University of Illinois Urbana-Champaign, Department of Geography & Geographic Information Science, Urbana, United States, (13)University of Illinois at Urbana-Champaign, Department of Civil and Environmental Engineering, Urbana, United States

Abstract

- Tuesday, 10 December 2024
- 13:40 17:30
- Hall B-C (Poster Hall) (Convention Center)

GC22B-08

<u>Increasing Frequency and Precipitation Intensity of Convective Storms in the Peruvian Central Andes:</u>
<u>Projections from Convection Permitting Regional Climate Simulations</u>

Dr. Yongjie Huang, PhD¹, Ming Xue², Xiao-Ming Hu³, Elinor R Martin⁴, Hector Novoa⁵, Renee A McPherson⁶, Changhai Liu⁷, Mengye Chen⁶, Yang Hong⁶, Andres Vitaliano Perez Pachari⁶, Isaac Yanqui Morales⁶, José Luis Ticona¹⁰ and Auria Julieta Flores Luna⁶, (1)University of Oklahoma Norman Campus, Center for Analysis and Prediction of Storms (CAPS), Norman, United States, (2)University of Oklahoma, Center for Analysis and Prediction of Storms, Norman, United States, (3)University of Oklahoma Norman Campus, Center for Analysis and Prediction of Storms, Norman, OK, United States, (4)University of Oklahoma, School of Meteorology, Norman, United States, (5)Universidad Nacional de San Agustín de Arequipa, Arequipa, Peru, (6)University of Oklahoma, South Central Climate Adaption Science Center, Norman, United States, (7)National Center for Analysis and Prediction of Storms, Norman, United States, (8)The University of Oklahoma, Center for Analysis and Prediction of Storms, Norman, United States, (9)University of Oklahoma, School of Civil Engineering and Environmental Science, Norman, United States, (10)Servicio Nacional de Meteorología e Hidrología del Perú, Arequipa, Peru

Abstract

- Tuesday, 10 December 2024
- 11:30 11:40
- Salon C (Convention Center)

GC24G-08

Recent dust trends and extremes associated with land use management and jet stream dynamics over Northern Eurasia

Xin Xi, Michigan Technological University, Houghton, MI, United States, Xinzhu Li, Michigan Technological University, Houghton, United States, Daniel Steinfeld, GVZ Gebäudeversicherung Kanton Zürich, Zürich, Switzerland, Steven M Cavallo, University of Oklahoma Norman Campus, Norman, OK, United States, Jun Wang, the University of Iowa, Iowa City, United States, Jiquan Chen, Michigan State University, Geography, Environment and Spatial Sciences, East Lansing, United States, Kanat Zulpykharov, Al-Farabi Kazakh National University, Almaty, Kazakhstan and Geoffrey M Henebry, Michigan State University, Department of Geography, Environment, and Spatial Sciences & Center for Global Change and Earth Observations, East Lansing, United States *Abstract*

- Tuesday, 10 December 2024
- 17:10 17:20
- 140 A-B (Convention Center)

Observation and Simulation of Methane (CH₄) Plumes during the Morning Boundary Layer Transition Xiao-Ming Hu¹, Wesley Honeycutt², Chenghao Wang², Binbin Weng² and Ming Xue³, (1)University of Oklahoma Norman Campus, Center for Analysis and Prediction of Storms, Norman, OK, United States, (2)Univ. Oklahoma, Norman, United States, (3)University of Oklahoma, Center for Analysis and Prediction of Storms, Norman, United States Abstract

- Tuesday, 10 December 2024
- 13:40 17:30
- Hall B-C (Poster Hall) (Convention Center)

EP24B-06

Force-Chain Dynamics Imaged in an Experimental Granular Pile, with Implications for Landslide and Creep Processes

Nicholas W Hayman, University of Oklahoma, Oklahoma Geological Survey, Norman, United States and Benjamin Allen, University of Oklahoma Norman Campus, Oklahoma Geological Survey, Norman. United States

Abstract

- Tuesday, 10 December 2024
- 16:50 16:58
- 146 C (Convention Center)

GC24I-07

<u>Using Logistic Regression-Cellular Automata to Project Future Sites for Commercial Wind Energy</u>

<u>Development</u>

Joshua Wimhurst and John Scott Greene, University of Oklahoma Norman Campus, Department of Geography and Environmental Sustainability, Norman, United States

Abstract

- Tuesday, 10 December 2024
- 17:05 17:15
- 143 A-C (Convention Center)

PP23E-05

High-resolution μ-XRF records of Common Era environmental and limnological change from central Lake Tanganyika, eastern Africa

Leandro Domingos Luz, University of Minnesota Twin Cities, Continental Scientific Drilling Facility, Minneapolis, United States, Michael M McGlue, University of Kentucky, Earth and Environmental Sciences, Lexington, United States and Michael J Soreghan, University of Oklahoma Norman Campus, School of Geosciences, Norman, United States Abstract

- Tuesday, 10 December 2024
- 15:10 15:25
- 101 (Convention Center)

Mountain-facilitated downward transport of volcano plumes exacerbates air pollution over Arequipa, Peru

Xiao-Ming Hu, Univ. Oklahoma, Norman, United States, Ming Xue, University of Oklahoma, Center for Analysis and Prediction of Storms, Norman, United States, Tingting Qian, CAMS Chinese Academy of Meteorological Sciences, Beijing, China, Hector Novoa, Universidad Nacional de San Agustín de Arequipa, Arequipa, Peru, Jose Ticona, Servicio Nacional de Meteorología e Hidrología del Perú, Arequipa, Peru, Lan Gao, University of Oklahoma, School of Meteorology, Norman, United States, Xingliang Li, Earth System Modeling and Prediction Center, China Meteorological Administration, Beijing, China and Adriana Larrea Valdivia, Universidad Nacional San Agustin de Arequipa, Chemistry, Arequipa, Peru

Abstract

- Tuesday, 10 December 2024
- 08:30 12:20
- Hall B-C (Poster Hall) (Convention Center)

<u>Progressive Fracture Propagation and Seismic Response in Laboratory Hydraulic Fracturing Experiments</u>

Zhi Ye, South Dakota School of Mines and Technology, Rapid City, SD, United States and Ahmad Ghassemi, University of Oklahoma Norman Campus, Mewbourne College of Petroleum and Geological Engineering, Norman, OK, United States

Abstract

- Tuesday, 10 December 2024
- 13:40 17:30
- Hall B-C (Poster Hall) (Convention Center)

SWIPe: A Surface-Water Index of Performance and Its Relation to Atmospheric Water Supply and Demand in the Upper Missouri River Basin (1989-2021)

Patrick M. Wurster, U.S. Geological Survey, Wyoming-Montana Water Science Center, Missoula, United States, Roy R Sando, USGS Wyoming-Montana Water Science Center, Helena, United States, John W. Jones, U.S. Geological Survey, Kearneysville, WV, United States, Anteneh Sarbanes, Hydrologic Remote Sensing Branch, Baltimore, MD, United States, Lindsay Thurman, USGS Northwest Climate Adaptation Science, Amherst, United States, Kyle I. McLean, USGS Northern Prairie Wildlife Research Center, Jamestown, ND, United States, Laura G Labriola, University of Oklahoma Norman Campus, Civil Engineering and Environmental Science, Norman, OK, United States, Toby Welborn, U.S. Geological Survey, Carson City, United States and Ryan McShane, USGS Wyoming-Montana Water Science Center, Cheyenne, WY, United States

- Tuesday, 10 December 2024
- 13:40 17:30
- Hall B-C (Poster Hall) (Convention Center)

Practical Insights Derived from the 2023 Mw6.6 Earthquake in Puna Island, Ecuador

Stephen Hernandez¹, Jose Viteri Lopez², Juan Gabriel Barros Lopez³ and Michel Toro¹, (1)Geophysics Institute National Polytechnic School Ecuador, Quito, Ecuador, (2)University of Oklahoma Norman Campus, School of Geosciences, Norman, United States, (3)Universidad Internacional Del Ecuador, Quito, Ecuador

Abstract

- Tuesday, 10 December 2024
- 08:30 12:20
- Hall B-C (Poster Hall) (Convention Center)

Optimizing Laboratory Measurements for Below-Ground Soil CO₂ Isotopes

Martha Jimenez-Castaneda¹, Janine Sparks¹, Jordan Jones¹ and Timothy R Filley², (1)The University of Oklahoma, Norman, United States, (2)The University of Oklahoma, Department of Geography and Environmental Sustainability, Norman, United States

Abstract

- Tuesday, 10 December 2024
- 08:00 17:30
- iPoster Gallery (Online)

Near Surface Flow Behavior in Katabatic Winds Over Steep Slopes

Pawan Chandiramani¹, Manuel F Schmid², Scott Salesky³ and Marco Giovanni Giometto², (1)Columbia University of New York, Palisades, NY, United States, (2)Columbia University, Department of Civil Engineering and Engineering Mechanics, New York, United States, (3)University of Oklahoma, School of Meteorology, Norman, United States Abstract

• Tuesday, 10 December 2024

- 08:30 12:20
- Hall B-C (Poster Hall) (Convention Center)

Investigating Compound Heat Wave and Fine Particulate Matter Pollution Events in Urban Areas
Jessica Leffel, University of Oklahoma, School of Meteorology, Norman, United States and Chenghao
Wang, University of Oklahoma, School of Meteorology; Department of Geography and Environmental
Sustainability, Norman, OK, United States
Abstract

- Tuesday, 10 December 2024
- 13:40 17:30
- Hall B-C (Poster Hall) (Convention Center)

The Impact of Anthropause During COVID-19 on the Activity of Avian Influenza Host Birds

Qiang Zhang^{1,2}, Jinwei Dong¹ and Xiangming Xiao³, (1)Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences, Beijing, China, (2)University of Chinese Academy of Sciences, Beijing, China, (3)University of Oklahoma Norman Campus, School of Biological Sciences, Center for Earth Observation and Modeling, Norman, United States Abstract

- Tuesday, 10 December 2024
- 08:00 17:30
- iPoster Gallery (Online)

A24G-08

<u>Creating a 4D Dataset of Atmospheric Boundary-Layer Properties using Field Campaign Data</u> Collected in the Southeast Texas

Katia Lamer¹, Zackary Mages², Bernat Puigdomenech³, Paul J. Walter⁴, Zeen Zhu⁵, Anita D Rapp⁶, Christopher John Nowotarski⁶, Sarah D Brooksժ, Alexandra Ulinski⁶, Milind Sharma⁶, Petra Maria Klein¹⁰, Michelle R. Spencer¹¹, Travis Griggs⁶ and Katherine McKeown¹², (1)Brookhaven National Laboratory, Environmental and Climate Sciences Department, Upton, United States, (2)Stony Brook University, Stony Brook, NY, United States, (3)McGill University, Montreal, QC, Canada, (4)St. Edward's University, Austin, United States, (5)Brookhaven National Laboratory, Upton, United States, (6)Texas A&M University, Atmospheric Sciences, College Station, United States, (7)Texas A&M University College Station, United States, (8)University of Houston, Houston, United States, (9)Texas A&M University College Station, Atmospheric Sciences, College Station, United States, (10)University of Oklahoma, School of Meteorology, Norman, United States, (11)University of Oklahoma, Cooperative Institute for Severe and High-Impact Weather Research and Operations, Norman, United States, (12)Pennsylvania State University Main Campus, Meteorology and Atmospheric Science, State College, United States

Abstract

- Tuesday, 10 December 2024
- 17:20 17:30
- 202 B (Convention Center)

A23L-06

Update on the NASA-ASI Multi-Angle Imager for Aersolos (MAIA) Pre-Launch Mission Status

David J Diner¹, Lori O. Bator¹, Stacey W Boland¹, Kevin Burke¹, Larry Di Girolamo², Scott Gluck³, Sina Hasheminassab¹, Amber Jenkins⁴, Veljko M Jovanovic³, Yang Liu⁵, Saagar Patel¹, Robert Rosenberg¹, Giovanni Rum⁶, Sara Susca¹, Jun Wang⁷, Ross Weidman¹, Feng Xu⁸, Huanxin Zhang⁹ and The MAIA Team, (1)Jet Propulsion Laboratory, California Institute of Technology, Pasadena, United States, (2)University of Illinois at Urbana-Champaign, Urbana, United States, (3)Jet Propulsion Laboratory, California Institute of Technology, Pasadena, CA, United States, (4)NASA Jet Propulsion Laboratory, Pasadena, United States, (5)Emory University, Gangarosa Department of Environmental Health,

Atlanta, GA, United States, (6)Italian Space Agency, Rome, Italy, (7)University of Iowa, Iowa City, IA, United States, (8)University of Oklahoma, School of Meteorology, Norman, OK, United States, (9)University of Iowa, Department of Chemical and Biochemical Engineering, Iowa City, IA, United States

Abstract

- Tuesday, 10 December 2024
- 15:05 15:15
- 202 A (Convention Center)

IN23E-05

Making Geospatial Data Easier to Access: NASA Earthdata's Application for Extracting and Exploring Analysis Ready Samples (AppEEARS)

Cole Krehbiel, USGS Earth Resources Observation and Science (EROS) Center Sioux Falls, Sioux Falls, SD, United States, Aaron M Friesz, Organization Not Listed, Washington, United States, Mahsa Jami, University of Oklahoma Norman Campus, Geography and Environmental Sustainability, Norman, United States and Erik Bolch, USGS Earth Resources Observation and Science (EROS) Center Sioux Falls, Sioux Falls, United States

Abstract

- Tuesday, 10 December 2024
- 14:22 14:25
- eLightning Theater 4 (Convention Center)

Investigating the relationship between wildfires and lightning

Michael Stock, University of Oklahoma Norman Campus, Norman, United States, Joseph Berry, Cooperative Institute for Severe and High-Impact Weather Research and Operations, Norman, United States, Julia Tilles, Sandia National Laboratories, Albuquerque, United States and Vanna Chmielewski, NOAA / OAR / National Severe Storms Laboratory, Norman, United States Abstract

- Tuesday, 10 December 2024
- 13:40 17:30
- Hall B-C (Poster Hall) (Convention Center)

Reanalysis of Fly's Eye GLM Simulator (FEGS) optical pulse detections from the 2017 GOES-R Post Launch Test (GOES-R PLT) field campaign

Thomas D Walker, University of Alabama in Huntsville, Huntsville, AL, United States, Sarah M. Stough, University of Oklahoma, Cooperative Institute for Severe and High-Impact Weather Research and Operations, Norman, United States, Mason Quick, NASA Marshall Space Flight Center, Huntsville, United States and Kaitlyn Wheeler, University of Alabama in Huntsville, Huntsville, United States

Abstract

- Tuesday, 10 December 2024
- 13:40 17:30
- Hall B-C (Poster Hall) (Convention Center)