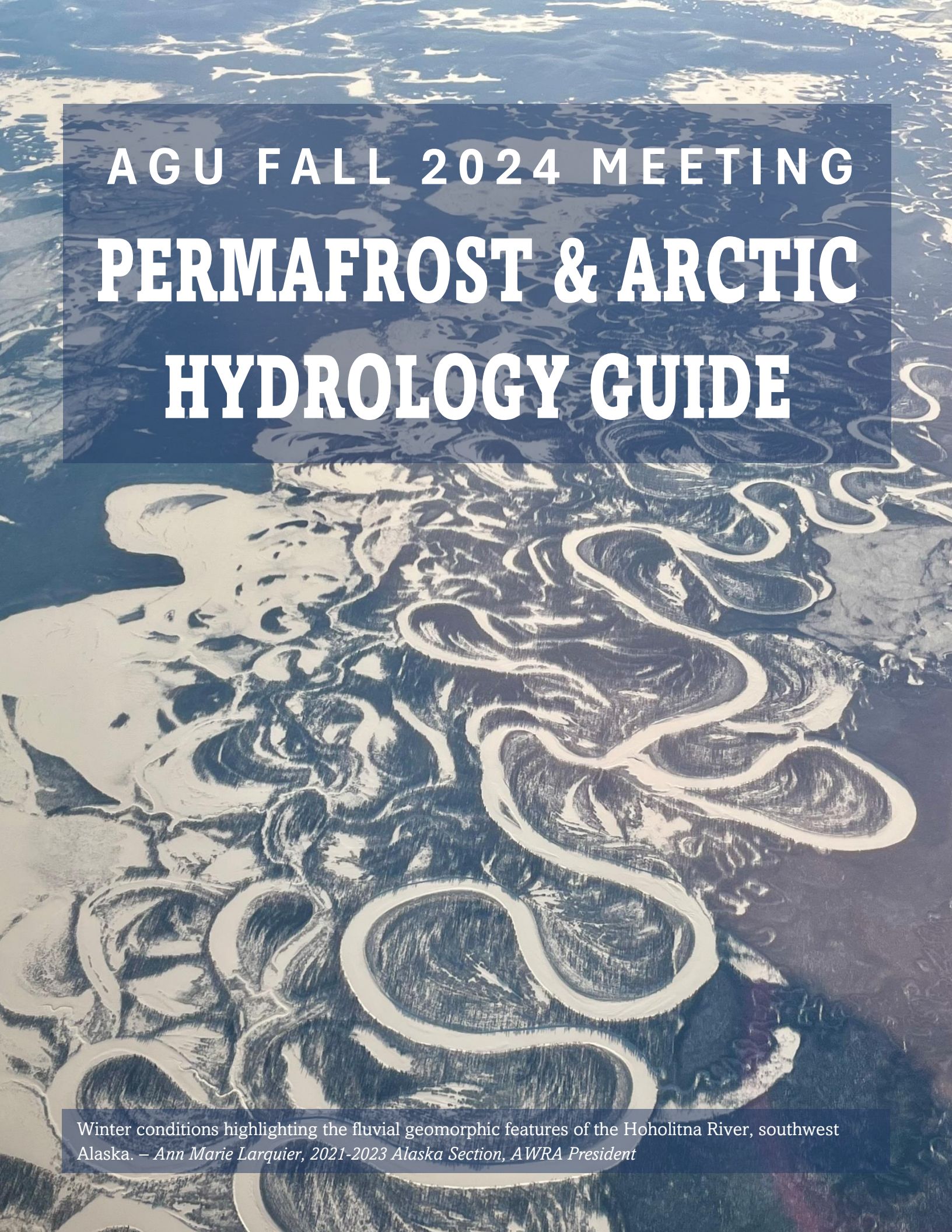




AGU FALL 2024 MEETING **PERMAFROST & ARCTIC HYDROLOGY GUIDE**

Winter conditions highlighting the fluvial geomorphic features of the Hoholtna River, southwest Alaska. – *Ann Marie Larquier, 2021-2023 Alaska Section, AWRA President*



AGU FALL 2024 MEETING PERMAFROST & ARCTIC HYDROLOGY GUIDE

Washington, D.C., December 9-13, 2024

This Guide was prepared under the auspices of the Alaska Section, American Water Resources Association's Communications Committee (AK AWRA CCOM). If you are not already a member of the Alaska Section, please consider joining at ak-awra.org/membership.html. Previous AGU Permafrost Guides were prepared by the United States Permafrost Association (USPA) and can be found on its [website](http://www.uspa.org).

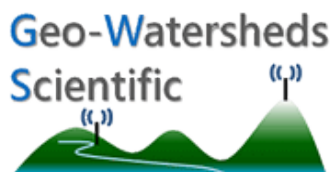
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INTRODUCTION

Introduction

The following is a compilation of presentations related to permafrost and related arctic hydrologic topics held at the 2024 AGU Fall Meeting in Washington, D.C. and online. The 427 total presentations are in order of day, type (poster, online only, or oral), and time. They were compiled from the meeting's online Scientific Program using the search terms listed below as they appear in either the title or abstract text.

We hope this guide helps you find permafrost presentations and engage with the presenting authors. If you have any questions, please contact Michael Lilly or Kristina Levine by email (see the inner cover page for contact information).

Search Terms

- Active Layer
- Aufeis
- Coastal Erosion
- Cold Regions
- Cryoplanation
- Cryosol
- Freezing Degree Days (FDD)
- Freezing Index
- Frost Action
- Frost Heave
- Frozen Debris Lobe
- Frozen Ground
- Frozen Soil
- Ground Carbon/CO₂
- Ground Ice
- Ground Methane/CH₄
- Ground Temperature
- Ice Wedge
- N-Factor
- Peat Layer
- Perennially Frozen Ground
- Periglacial
- Permafrost
- Pingo
- Rock Glacier
- Soil Adfreeze
- Soil Carbon/CO₂
- Soil Methane/CH₄
- Soil Creep
- Soil Frost
- Soil Prethawing
- Solifluction
- Thaw Consolidation
- Thaw Slump
- Thaw Strain
- Thawing Degree Days (TDD)
- Thawing Index
- Thermal Degradation
- Thermal Model
- Thermokarst
- Thermosyphon
- Tundra Soils
- Yedoma



BOOTH LISTING

Related Exhibition Booths

Visit the booths of organizations with interests and activities related to permafrost and arctic hydrology. The AGU exhibit booth map can be found here: [Booth Map](#).

- Alaska Science Stories - 155
- American Geosciences Institute - 1151
- Beadedstream - 310
- Campbell Scientific - 631
- Ecological Society of America - 561
- Esri - 739
- European Geosciences Union (EGU) - 449
- Institute of Tibetan Plateau Research, Chinese Academy of Sciences - 647
- Long Term Ecological Research Network - 1061
- NASA / National Aeronautics & Space Administration - 719
- National Science Foundation - 1101
- NOAA - National Oceanic & Atmospheric Administration - 539
- Polar Field Services - 1102
- Texas A&M University - College of Arts and Sciences - 865
- The Geological Society of America - 413
- Toolik Field Station - 1114
- U.S. Department of Energy Biological and Environmental Research Program - 139
- U.S. Geological Survey - 912
- UIC Science - 1106
- University Corporation for Atmospheric Research/National Center for Atmospheric Research - 605
- University of Alaska Fairbanks College of Fisheries and Ocean Sciences - 1059
- University of Alaska Fairbanks Research Institutes - 931
- University of Colorado Boulder – 964



PRESENTATIONS

DAILY (MONDAY – FRIDAY)

Daily (Monday – Friday)

■ Online Poster Presentations

How Ice Affects Erosion by Rock-ice Avalanches—Insights from Temperature-controlled Flume Experiments

Presenter: Liyang Jiang

08:00 - 17:30

iPoster Gallery (Online)

Carbon Cycle Evolution in Lake Basins Across a Permafrost Thaw Trajectory in Northwestern Canada: A Spatio-Temporal Examination of Isotopic and Geochemical Signature of Waters

Presenter: Dr. Daniel L Peters, PhD

08:00 - 17:30

iPoster Gallery (Online)

Experimental Evidence of Rock-Ice Segregation Impacting the Mobility of Rock-Ice Avalanches

Presenter: Zetao Feng

08:00 - 17:30

iPoster Gallery (Online)

Warming Rivers Accelerate the Permafrost Thaw and Thermokarst Landslide Development in Tibetan Plateau

Presenter: Yi Zhao

08:00 - 17:30

iPoster Gallery (Online)



PRESENTATIONS

MONDAY , DEC 9TH

Monday, December 9th

||■ Poster Presentations

A Credible International Approach to Limiting Climate Change Impacts Requires Supplementing Emissions Reduction and GHG Removal with Near-Term Climate Intervention

Presenter: Michael C MacCracken

08:30 - 12:20

Hall B-C (Poster Hall) (Convention Center)

An Innovative Multi-Model Coupling Strategy for Simulating Watershed-Scale Surface and Subsurface Flow Interactions

Presenter: Dr. A T M Sakiur Rahman, PhD

08:30 - 12:20

Hall B-C (Poster Hall) (Convention Center)

Arctic Observing Mission (AOM): Mission Concept Overview

Presenter: Denis Dufour

08:30 - 12:20

Hall B-C (Poster Hall) (Convention Center)

Freeze/Thaw Surface State Retrieval Over The Arctic Boreal Zone By SmallSat GNSS-Reflectometry

Presenter: Hugo Carreno-Luengo

08:30 - 12:20

Hall B-C (Poster Hall) (Convention Center)



PRESENTATIONS

MONDAY , DEC 9TH

High Latitude Lake and River Dynamics with ICESat-2

Presenter: Charon M Birkett

08:30 - 12:20

Hall B-C (Poster Hall) (Convention Center)

Permafrost Monitoring in the Qinghai-Tibet Engineering Corridor Using Distributed Acoustic Sensing and Dense Nodal Array

Presenter: Haoyuan Sun

08:30 - 12:20

Hall B-C (Poster Hall) (Convention Center)

Soil Carbon Predictive Mapping Based on Machine Learning Algorithms and Sentinel Mmages in the Qilian Mountains

Presenter: Dr. Meng Zhu

08:30 - 12:20

Hall B-C (Poster Hall) (Convention Center)

Testing Detectability of Pore-Filling Ice with Ground-Penetrating Radar for Planetary ISRU at Hekla Volcano, Southern Iceland

Presenter: Emileigh Shoemaker

08:30 - 12:20

Hall B-C (Poster Hall) (Convention Center)

Thermal Regimes and Rock Slope Stability in the Northern Japanese Alps

Presenter: Hirotaka Sugiyama

08:30 - 12:20

Hall B-C (Poster Hall) (Convention Center)



PRESENTATIONS

MONDAY , DEC 9TH

A long-term daily climate dataset to assess the circumpolar permafrost carbon climate feedback at a 4-km resolution.

Presenter: Helene Genet

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Analysis of Active Layer Thickness and Climate Data at Utqiagvik, Alaska with Random Forest and Multiple Linear Regression Algorithms

Presenter: Maya Maciel-Seidman

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Arctic ice wedge polygon characterization using multilevel remote sensing

Presenter: Trina L Merrick

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Assessing Climate-Induced Changes in Arctic Lake Sediments: A Comparative Study of Two Lakes from SW Greenland

Presenter: Nina Botvin

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Assessing the Spatiotemporal Impact of Oil and Gas Development on Arctic Ecosystems Using Remote Sensing Data

Presenter: Latha Baskaran

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)



PRESENTATIONS

MONDAY , DEC 9TH

Capturing Arctic dynamics through the lens of multi-modal remote sensing strategies, flexible mobile platforms, and an integrated geospatial framework

Presenter: Elias J Deeb

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Characterizing the Complex Dielectric Properties of Permafrost Across Freeze-Thaw Cycles

Presenter: MD Mashfiquur Rahman

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Environmental Controls of Soil Respiration in High Latitudes

Presenter: Erin Morrison

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Evolution of the Last Deglaciaded Landscape Preserved at Camp Century, Greenland

Presenter: Nicolas Perdrial

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

HYPERFREEZE: Hyperspectral Monitoring and Modeling of Permafrost Dynamics

Presenter: Aviskar Giri

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)



PRESENTATIONS

MONDAY , DEC 9TH

Hyperspectral remote sensing studies of permafrost regions

Presenter: Christopher Ball

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Impacts of Vegetation Clumping on Regulating Runoff in Cold Regions

Presenter: Koutian Wu

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Improved Soil Carbon Mapping Using System-Specific Machine Learning Models Reveals Larger Global and Regional Carbon Stocks

Presenter: Cynthia Creze, PhD

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Improving Dynamic Arctic Vegetation Simulations for Carbon Balance Estimates Using the Functionally Assembled Terrestrial Ecosystem Simulator (FATES)

Presenter: Kirsten Paff

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Landscape Influence on the Microbial Activity of Coastal Southwestern Greenland Lakes

Presenter: Olivia Johnson

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)



PRESENTATIONS

MONDAY , DEC 9TH

Physics-Informed Remote Sensing Characterization of Permafrost Dynamics

Presenter: Tugce Baser

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Predictive and Explanatory Inference From Multi-station Boreal Methane Time Series to Inform Global-scale Mechanistic Models of Peatland Warming Feedbacks

Presenter: Laurel Larsen

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Quantifying the Impacts of Wildfires on Permafrost, Hydrology, and Carbon Dynamics in Northern High Latitudes

Presenter: Qianlai Zhuang

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Remote Sensing and Modeling of Seismic Exploration Impacts on Arctic Permafrost Ecosystems

Presenter: Julian Dann

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Seasonal surface displacement associated with freeze-thaw cycles in interior Alaska revealed by ALOS-2 InSAR

Presenter: Takahiro Abe

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)



PRESENTATIONS

MONDAY , DEC 9TH

Sensitivity of Yukon River Dissolved Organic Carbon (DOC) to Environmental Changes: Implications for Arctic Carbon Dynamics

Presenter: Amadini Mendis Jayasinghe

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Synthetic Aperture Radar (SAR) Monitoring of Arctic Coastal Erosion and Deterioration

Presenter: Xiong Bill Yu

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Weakened Permafrost's Resilience to Wildfires by Recent Heat Anomalies: A Case of Accelerated Post-wildfire Ground Subsidence Detected by InSAR in North Canada

Presenter: Mr. Zetao Cao

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Oral & Other Presentations

G11A-01 Pan-Arctic Volumetric Quantifications and Dynamics of Large Permafrost-thaw Driven Mass Wasting Events

Presenter: Chunli Dai

08:30 - 08:40

Marquis 1-2 (Marriott Marquis)



PRESENTATIONS

MONDAY , DEC 9TH

H11F-03 Stream Temperature Response to Increased Shading Due to Riparian Shrubification in Northern Latitudes

Presenter: Andras J. Szeitz

08:55 - 09:05

147 A (Convention Center)

C11B-07 Optimized Methods to Estimate Mountain Snow Depths with ICESat-2

Presenter: Karina Holmes Zikan

09:30 - 09:40

101 (Convention Center)

EP11A-05 Post-Glacial Erosional Response of a Permafrost Landscape Across Decadal to Millennial Timescales, Aklavik Range, Arctic Canada

Presenter: Bailey Nordin

09:30 - 09:42

146 C (Convention Center)

H12G-04 A deep-learning approach to capture the river temperature dynamics in ungauged rivers in Alaska

Presenter: Shuyu Y Chang

10:50 - 11:00

147 A (Convention Center)

P12A-04 Application of Earth thermal hydrology simulation tools to the subsurface hydrology of Mars

Presenter: Scott L Painter

10:55 - 11:05

Liberty N-P (Marriott Marquis)



PRESENTATIONS

MONDAY , DEC 9TH

B12D-05 Deploying a Wildfire Model for Prediction of Climate Change Impacts on Northern Permafrost

Presenter: Joshua Michael Rady

11:05 - 11:15

151 A (Convention Center)

EP12A-06 Postglacial canyon incision primes hillslopes for permafrost thaw-slumping in the ice sheet-marginal Canadian Arctic

Presenter: Alexander Getraer

11:10 - 11:18

146 C (Convention Center)

S12A-07 A comprehensive exploration of seismic data from dense station networks with self-supervised learning. Application to the monitoring of landslides and glaciers in the French Alps.

Presenter: Joachim Rimpot

11:20 - 11:30

209 A-C (Convention Center)

EP12A-09 Periglacial boulder dominated landscapes in the southern Appalachians

Presenter: Michelle Fame

11:40 - 11:48

146 C (Convention Center)

GC13U-02 Characterizing future projections of warm spells under SSP2-4.5 and SAI deployment

Presenter: Ivy Glade

14:20 - 14:30

Salon G (Convention Center)



PRESENTATIONS

MONDAY , DEC 9TH

GC13Y-02 Linking Ground Ice and Glacier Melting to Lake Storage Change in the Endorheic Tibetan Plateau

Presenter: Qiuhong Tang

14:20 - 14:30

Salon B (Convention Center)

GC13Y-03 Methane emissions from thermokarst lakes on the Qinghai-Tibet Plateau

Presenter: Cuicui Mu

14:30 - 14:40

Salon B (Convention Center)

GC13Y-07 Thawing Permafrost and its Water Resources on the Tibetan Plateau

Presenter: Lin Zhao

15:10 - 15:20

Salon B (Convention Center)

GC13Y-08 Pervasive permafrost thaw affects water sustainability and water security across the Tibetan Plateau

Presenter: Dr. Taihua Wang

15:20 - 15:30

Salon B (Convention Center)

H14G-03 Rusting of the Arctic: causes and consequences of metal mobilization from thawing permafrost to aquatic ecosystems

Presenter: Dr. Jonathan A O'Donnell

16:20 - 16:30

156 (Convention Center)



PRESENTATIONS

TUESDAY , DEC 10TH

Tuesday, December 10th

||■ Poster Presentations

A Novel Approach to Soil Frost Depth Prediction: Enhancing Accuracy with Large Language Models and Environmental Data Integration

Presenter: Md Faishal Yousuf

08:30 - 12:20

Hall B-C (Poster Hall) (Convention Center)

Advanced Arctic Terrestrial Data Assimilation: Integrating DVM-DOS-TEM with NCAR DART for Enhanced Ecological Modeling

Presenter: Chu-Chun Chang

08:30 - 12:20

Hall B-C (Poster Hall) (Convention Center)

Advancing Understanding of Climate Change Impacts on Seasonally Frozen Ground Hydrology Through Calibration Automation and Multi-Model Ensemble Sensitivity Assessments

Presenter: Ronald Strong

08:30 - 12:20

Hall B-C (Poster Hall) (Convention Center)

Arctic Coastal Dynamics: What Are the Emerging Frontiers?

Presenter: Emily Eidam

08:30 - 12:20

Hall B-C (Poster Hall) (Convention Center)



PRESENTATIONS

TUESDAY , DEC 10TH

Assessing the Accuracy of CMIP6 High-Latitude Soil Respiration with Machine Learning and Observational Data

Presenter: Kalyn Dorheim

08:30 - 12:20

Hall B-C (Poster Hall) (Convention Center)

Asymmetric Diurnal Warming Effects on Carbon Fluxes in The Tibetan Plateau Alpine Ecosystems

Presenter: Zhenhai Liu

08:30 - 12:20

Hall B-C (Poster Hall) (Convention Center)

Bridging the Divide: Integrating Topobathymetric Lidar to Understand Arctic Coastal Transitions

Presenter: Erin Trochim

08:30 - 12:20

Hall B-C (Poster Hall) (Convention Center)

Changes in Waves, Wind, and Sea Ice Along the Beaufort and Chukchi Sea Nearshore Waters for Years 1979-2023

Presenter: Anita Engelstad

08:30 - 12:20

Hall B-C (Poster Hall) (Convention Center)

Developing a parameterization for coastal erosion based on offshore and nearshore ocean typologies: North Slope of Alaska.

Presenter: Alec P Bennett

08:30 - 12:20

Hall B-C (Poster Hall) (Convention Center)



PRESENTATIONS

TUESDAY , DEC 10TH

Electromagnetic Mapping of Saline Permafrost on the Arctic Coastal Plain of Alaska

Presenter: Andy Parsekian

08:30 - 12:20

Hall B-C (Poster Hall) (Convention Center)

Erosion and Sediment Yield Processes in Cold Regions: Modeling Algorithms Review

Presenter: Xing Xu

08:30 - 12:20

Hall B-C (Poster Hall) (Convention Center)

Generation Mechanism and Water Source of Hillslope Runoff in a Typical Permafrost Catchment on the Tibetan Plateau

Presenter: Chen Zeng

08:30 - 12:20

Hall B-C (Poster Hall) (Convention Center)

Gully erosion plays an important role in the Lhasa River Basin in the southern Tibetan Plateau

Presenter: Fan Zhang

08:30 - 12:20

Hall B-C (Poster Hall) (Convention Center)

Harnessing Geophysical Methods In Peatland Imaging – An Overview

Presenter: Emmanuel Aduse Poku

08:30 - 12:20

Hall B-C (Poster Hall) (Convention Center)



PRESENTATIONS

TUESDAY , DEC 10TH

Herbivore Impacts on Postfire Boreal Forest Trajectories May Not Scale to Impact Landscape Carbon Balance

Presenter: Katherine Hayes

08:30 - 12:20

Hall B-C (Poster Hall) (Convention Center)

Ice break-up to freeze-up: Morphological, hydraulic, and thermal evolution of an Arctic subterranean estuary along a coastal lagoon

Presenter: Cansu Demir

08:30 - 12:20

Hall B-C (Poster Hall) (Convention Center)

Integrated Assessment of the Changing Hydrology of Arctic Coastal Basins and Associated Impacts on Riverine Exports and Coastal Biogeochemistry in Northern Alaska

Presenter: Michael A Rawlins

08:30 - 12:20

Hall B-C (Poster Hall) (Convention Center)

Large-scale classification of Arctic coastal morphology derived from Arctic DEM using machine learning

Presenter: Marnie Bryant

08:30 - 12:20

Hall B-C (Poster Hall) (Convention Center)

Mapping of Arctic submarine permafrost, thermokarst, and potential evidence for paleothermokarst in regional subbottom profile data

Presenter: Maureen A L Walton

08:30 - 12:20

Hall B-C (Poster Hall) (Convention Center)



PRESENTATIONS

TUESDAY , DEC 10TH

Monitoring Snow Depth Using Small, Cheap, and Easy-to-Deploy Snow-Ground Interface Temperature Sensors

Presenter: Claire Bachand

08:30 - 12:20

Hall B-C (Poster Hall) (Convention Center)

Next steps and outlook for the Tipping Point Modelling Intercomparison Project (TIPMIP)

Presenter: Donovan Dennis

08:30 - 12:20

Hall B-C (Poster Hall) (Convention Center)

Periglacial dendroclimatology at Red Mountain, eastern Juneau Icefield, British Columbia

Presenter: Jeremy S Littell

08:30 - 12:20

Hall B-C (Poster Hall) (Convention Center)

Rain-on-snow processes and their impacts on snowpack and subsurface thermal regimes in sub-Arctic Alaska

Presenter: Lauren Thomas

08:30 - 12:20

Hall B-C (Poster Hall) (Convention Center)

Reducing Model Uncertainty of Arctic Carbon Dynamics Through Multi-Site Parameterization

Presenter: Valeria Briones

08:30 - 12:20

Hall B-C (Poster Hall) (Convention Center)



PRESENTATIONS

TUESDAY , DEC 10TH

Seafloor sediments and morphology of Harrison Bay in the Alaskan Beaufort Sea

Presenter: Emily Eidam

08:30 - 12:20

Hall B-C (Poster Hall) (Convention Center)

Sensitivity studies on erosion criteria for the Arctic Coastal Erosion (ACE) Model

Presenter: Elyce Bayat

08:30 - 12:20

Hall B-C (Poster Hall) (Convention Center)

Terrestrial carbon balance over the Tibetan Plateau

Presenter: Yilong Wang

08:30 - 12:20

Hall B-C (Poster Hall) (Convention Center)

The Response of Tibetan Plateau's Terrestrial Ecosystem to Climate Change from 850 to 2020

Presenter: Pengchao Zhang

08:30 - 12:20

Hall B-C (Poster Hall) (Convention Center)

The What If Modeling Intercomparison Project (WhatIfMIP): Exploring Consequences of Tipping Points

Presenter: Bette L Otto-Bliesner

08:30 - 12:20

Hall B-C (Poster Hall) (Convention Center)



PRESENTATIONS

TUESDAY , DEC 10TH

EP22B-06 River sediment dynamics in a warming Arctic

Presenter: Dongfeng Li

11:15 - 11:23

Hall B-C (Poster Hall) (Convention Center)

A model for thaw and erosion of permafrost riverbanks

Presenter: Dr. Madison Douglas

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

A sensor probe with active and passive humidity management for in-situ soil CO₂ monitoring

Presenter: Jacob Anderson

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

An Autoencoder Architecture for L-band Passive Spaceborne Microwave Retrieval of Landscape Freeze-Thaw Cycle

Presenter: Divya Kumawat

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Biophysical and Topographic Influences on Ice-wedge Degradation Patterns in Arctic Alaska

Presenter: Katherine Braun

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)



PRESENTATIONS

TUESDAY , DEC 10TH

Carbon Fluxes from Arctic Permafrost using a new Mobile Eddy Covariance Sensor Suite

Presenter: David S Sayres

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Carbon Storage in an Active Riverine Corridor on Continuous Permafrost

Presenter: Suzanne P Anderson

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Cryoplanation Terraces: Flights of Fancy or Quintessential Periglacial Landforms?

Presenter: Frederick E Nelson

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Determining the Snow Duration of Water Tracks and Thermoerosional Gullies on the North Slope of Alaska, USA

Presenter: Kaden Cusack

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Displacement Heterogeneity Contributes to Non-Zero Closure Phases in InSAR Observations of Permafrost Landscapes

Presenter: Rowan Biessel

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)



PRESENTATIONS

TUESDAY , DEC 10TH

Dynamics of Mountain Permafrost in the Eastern Italian Alps: a Perspective from the Cavaion Rock Glacier

Presenter: Costanza Morino

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Early Holocene wetland initiation and paleoecological history of Mid Atlantic periglacial landscapes following late Pleistocene permafrost thaw

Presenter: Adam J. Benfield

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Employing Spectral Signatures in Vegetation to Differentiate Hydrologic Features Above Continuous Permafrost

Presenter: Key Hatch

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

HIGH RESOLUTION SNOW MAPPING IN PALSA MIRES: AN INTEGRATED APPROACH USING LIDAR UAS DATA AND RANDOM FOREST

Presenter: Timo Kumpula

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

High rates of oxidative weathering in the Arctic driven by permafrost thaw

Presenter: Marisa Nicole Repasch

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)



PRESENTATIONS

TUESDAY , DEC 10TH

Hydro-stratigraphy of the active layer in riparian valley bottoms of an arctic watershed

Presenter: Sydney Villaruel

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

InSAR for Ground Deformation Mapping in the Periglacial Environment of the Central Himalayas

Presenter: Amrit Thapa

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Investigating Topographic Thresholds of Water Tracks and Other Permafrost Landforms

Presenter: Addison Greenfeld

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Marine and Terrestrial Sedimentation of the Pacific/Arctic Ocean Gateway and Bering Land Bridge

Presenter: Beth Caissie

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Modeling the drivers of thermokarst expansion and its impacts on vegetation dynamics and carbon cycling at the Scotty Creek Watershed

Presenter: Ian Shirley

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)



PRESENTATIONS

TUESDAY , DEC 10TH

Modeling thermal-hydro-mechanical processes in snow-soil interaction during shoulder seasons

Presenter: Incheol Kim

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

NOAA's emerging capabilities for tracking greenhouse gas emissions and removals from regional to global scales in the context of the US GHG Center

Presenter: Arlyn Andrews

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Near-surface drying of a continuous permafrost hillslope with water tracks following ground collapse

Presenter: Sarah G. Evans

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Permafrost Measurements at the NOAA's Barrow Atmospheric Baseline Observatory: System Overview & Initial Results

Presenter: Tania Mendoza Martinez

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Permafrost Microbial Characterization Along an Upland to Subsea Gradient From the Arctic Coastal Plain of Alaska

Presenter: Torin Scalora-Riley

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)



PRESENTATIONS

TUESDAY , DEC 10TH

Potential Microbial Recovery to Wildfires in Arctic Tundra Soils

Presenter: Alma Hernandez

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Rapid climate changes in the Northern Brooks Range during the late Pleistocene/early Holocene: preliminary results from Schrader Lake, Alaska

Presenter: Sam Mark

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Remote Sensing of Periglacial Trough Structure Variability and Connections to Ice-Wedge Degradation

Presenter: Dr. David F Richards IV PhD

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Role of permafrost degradation and cracking in shaping post-fire tundra ecosystems

Presenter: Rachel Badzioch

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Runoff Response to Frozen Ground Degradation: A Case Study on the Tibetan Plateau

Presenter: Zhuoyi Tu

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)



PRESENTATIONS

TUESDAY , DEC 10TH

SPATIAL DISTRIBUTION OF THAW DEPTH IN PALSAS USING UNMANNED AERIAL SYSTEMS AND FIELD OBSERVATIONS

Presenter: Timo Kumpula

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Separation of source water in the Lena River discharge by applying end-member mixing analysis using oxygen stable isotope ratio and tritium concentration

Presenter: Asaka Homma

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Setting the stage for longitudinal monitoring of permafrost thaw and erosional features in NW Greenland with drone photogrammetry and LiDAR

Presenter: Cameron Kuhle

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Snow, Slope, and Stone: Machine Learning Reveals Key Predictors of Rock Glacier Formation in the Wasatch Mountains of Utah, USA

Presenter: Matthew C Morriss

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Soil configurations that lead to retrogressive thaw slumps and thermoerosional gullies

Presenter: Cansu Culha

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)



PRESENTATIONS

TUESDAY , DEC 10TH

Soils within an anthropogenically impacted subarctic boreal forest site exhibit a heightened release of carbon

Presenter: Dragos A Vas

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Spatial variability in permafrost degradation after wildfires in the Kougarak area, Seward Peninsula, Alaska

Presenter: Go Iwahana

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Spectral Greening and Browning Trends of Water Tracks in Response to Disturbance in Arctic Permafrost Landscapes

Presenter: Aayla Kastning

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Stochastic Modelling of Thermokarst Lake Distributions

Presenter: Constanze Reinken

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Study of Post Fire Recovery in Permafrost Region Using InSAR

Presenter: Alexandre Lasalarie

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)



PRESENTATIONS

TUESDAY , DEC 10TH

The Bering Land Bridge During the Last Glacial Stage: Great Grazing or Buggy Bogs?

Presenter: Sarah J Fowell

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

The Contribution of Dynamic Climatic and Geomorphic Processes to the Distribution of Alpine Permafrost in the High Dry Andes, San Juan, Argentina

Presenter: Michael C Powers

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

The response of Arctic soils to ex-situ storm simulations

Presenter: Erin VanderJeugd

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Thermal Characteristics of a Thawing Permafrost Peatland: Insights from Unmanned Aerial System Time Series over Stordalen Mire

Presenter: Marlo Wilcox

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Tracing Water Tracks: Building Predictive Models for Locating Permafrost Flowpaths Using Machine Learning

Presenter: Noah Rupert

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)



PRESENTATIONS

TUESDAY , DEC 10TH

Trends of Carbon and Nutrient Loads in Arctic Rivers of North America from 2000 to 2023

Presenter: Xiaochuang Bu

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Understanding the Coupling Impacts of Climate and Landscape Changes on Runoff Variation in a Large Glaciated Basin of the Tibetan Plateau

Presenter: Jiarong Wang

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Using UAS Imagery to Monitor Permafrost Thaw and Vegetation Dynamics in a Northern Peatland

Presenter: Piper Cobak

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Oral & Other Presentations

B21E-02 Multi-scale remote sensing of post-fire vegetation energy fluxes and recovery in an Arctic tundra ecosystem

Presenter: Daryl Yang

08:40 - 08:50

150 A (Convention Center)



PRESENTATIONS

TUESDAY , DEC 10TH

EP21B-02 Identifying Historical Retrogressive Thaw Slump Activity in Two Regions of Northern Alaska Using Lake Sediment Archives

Presenter: Melissa L Chipman

08:45 - 08:53

146 C (Convention Center)

B21E-03 Carbon combustion losses from the Scotty Creek NWT wildfire using field calibrated pre- and post-fire airborne lidar data

Presenter: Laura Chasmer

08:50 - 09:00

150 A (Convention Center)

EP21B-03 Widespread and rapid activities of retrogressive thaw slumps on the Qinghai-Tibet Plateau from 2016 to 2022

Presenter: Lin Liu

08:55 - 09:03

146 C (Convention Center)

EP21B-04 Modeling cohesion and landslide hazard in frozen hillslopes from laboratory rheology experiments

Presenter: Lucille Baker-Stahl

09:05 - 09:13

146 C (Convention Center)

B21E-05 Climate Change Doesn't Bode Well for Boreal Alaska Given Projected Increases in Area Burned, Rate of Reburning, Dominance by Deciduous Species, and Permafrost Thaw

Presenter: Melissa Lucash

09:10 - 09:20

150 A (Convention Center)



PRESENTATIONS

TUESDAY , DEC 10TH

EP21B-05 Tracking Permafrost Thaw with Remote Thermal Imagery

Presenter: Ari Koeppel

09:15 - 09:23

146 C (Convention Center)

EP21B-06 The Temperature-(In)dependence of Erosion in the High European Alps

Presenter: Donovan Dennis

09:25 - 09:33

146 C (Convention Center)

B21A-07 Monitoring methane emission from thawing permafrost in the boreal region using UAS

Presenter: Jay Tomlin

09:30 - 09:40

150 B (Convention Center)

NS21A-07 Temperature-dependent groundwater quantification through petrophysically-coupled fusion of geophysical data

Presenter: Matthias Steiner

09:30 - 09:40

147 B (Convention Center)

EP21B-08 Uneven subsidence caused by melting ground ice is projected to lead to drier conditions in polygonal tundra

Presenter: Scott L Painter

09:45 - 09:57

146 C (Convention Center)



PRESENTATIONS

TUESDAY , DEC 10TH

B22E-01 Airborne Monitoring of Arctic Ecosystem Change 2017 – 2024

Presenter: Charles E Miller

10:20 - 10:30

150 A (Convention Center)

EP22B-01 Lake Area Change Across the Northern Permafrost Zone

Presenter: Elizabeth Webb

10:20 - 10:32

146 C (Convention Center)

B22E-02 Local scale Mapping of Soil Organic Carbon in the Permafrost Active Layer Using Polarimetric Radar and a Physics-Based Computational Algorithm

Presenter: Kazem Bakian Dogaheh

10:30 - 10:40

150 A (Convention Center)

EP22B-02 Comparing the Magnitude of Hillslope and Channel Erosion in Continuous and Discontinuous Permafrost Areas in Alaska

Presenter: Emrah Ozpolat

10:35 - 10:43

146 C (Convention Center)

EP22B-03 Ground Subsidence and Active Layer Physical Properties Resolved with Sentinel-1 Interferometric Synthetic Aperture Radar, Yukon-Kuskokwim Delta

Presenter: Roger J Michaelides

10:45 - 10:53

146 C (Convention Center)



PRESENTATIONS

TUESDAY , DEC 10TH

B22E-04 Quantifying Methane Emissions in High-Latitude North America: A Geostatistical Inverse Modeling Approach Using Multi-Source Atmospheric Measurements

Presenter: Hanyu Liu

10:50 - 11:00

150 A (Convention Center)

B22A-04 Identifying Spatial Patterns in Greenhouse Gas Fluxes from an Arctic Tundra Snowpack

Presenter: Gabriel Hould Gosselin

10:50 - 11:00

150 B (Convention Center)

S22C-04 Source and trend of microseisms in Alaska and their environmental significance

Presenter: Sebin John

10:50 - 11:00

206 (Convention Center)

EP22A-03 Efficient sand transport from the delta front to deep water at a prograding Arctic delta

Presenter: Brandee Carlson

10:50 - 11:02

146 B (Convention Center)

EP22B-04 Quantifying changes in gully abundance using repeat high-resolution LiDAR and an Arctic gully identification method

Presenter: Brandon Yokeley

10:55 - 11:03

146 C (Convention Center)



PRESENTATIONS

TUESDAY , DEC 10TH

B22A-05 Shifting Sources and Sinks of Atmospheric Nitrous Oxide During Deglaciation.

Presenter: Madison Flint

11:00 - 11:10

150 B (Convention Center)

B22E-05 Feedback processes between hydrologic disturbance and the energy budget in Arctic landscapes affected by permafrost degradation

Presenter: Mathias Goeckede

11:00 - 11:10

150 A (Convention Center)

EP22B-05 Impacts of Thermal Conditions on Sediment Transport in Arctic Rivers

Presenter: Irina Overeem

11:05 - 11:13

146 C (Convention Center)

B22E-06 Glacial History Modifies Permafrost Controls on the Distribution of Arctic-Boreal Lakes and Ponds

Presenter: Eric Levenson

11:10 - 11:20

150 A (Convention Center)

EP22C-07 Is There a Landscape Signature of Permafrost?

Presenter: Joanmarie Del Vecchio

11:20 - 11:28

152 A (Convention Center)



PRESENTATIONS

TUESDAY , DEC 10TH

IN23D-01 Pan-Arctic Permafrost Landform Feature Detection with Vision Transformers

Presenter: Amal Perera

14:10 - 14:13

eLightning Theater 6 (Convention Center)

GC24B-01 Limiting Global Temperature Rise Requires Better Accounting for Rising GHG Emissions from Warming Ecosystems

Presenter: Peter C Frumhoff

16:00 - 16:10

Salon B (Convention Center)

ED24B-01 Polar Explorer: A Place-Based Virtual Learning Environment to Improve STEM Undergraduate Education

Presenter: Deborah N Huntzinger

16:02 - 16:13

Independence A-C (Marriott Marquis)

EP24B-02 Thermodynamic channelization of suprapermfrost flows

Presenter: Kasia Warburton

16:10 - 16:18

146 C (Convention Center)

A24H-05 Project FOCI - Non-CO2 Forcers and Their Climate, Weather, Air Quality and Health Impacts: Modelling system for Chemistry-Climate Interactions Across the Scales

Presenter: Tomas Halenka

16:12 - 16:15

eLightning Theater 1 (Convention Center)



PRESENTATIONS

TUESDAY , DEC 10TH

GC24L-06 The Lost Carbon of the Maya Anthropocene: Four Millennia of Carbon Cycle Impacts

Presenter: Sheryl Luzzadder-Beach

16:15 - 16:18

eLightning Theater 5 (Convention Center)

EP24B-04 Insights into the rheology of frozen granular materials

Presenter: Behrooz Ferdowsi

16:30 - 16:38

146 C (Convention Center)

GC24G-04 Evaluation of Seasonal Variations of CO₂ Fluxes and SOCC in Peatlands of Bayanzurkh Soum in Khuvsgul, Mongolia

Presenter: Dr. Saruulzaya Adiya, Ph.D

16:30 - 16:40

140 A-B (Convention Center)

NS24A-04 Unsaturated time-domain electromagnetic relaxation response of metallic particles at the laboratory scale

Presenter: Dan R Glaser II

16:39 - 16:51

146 A (Convention Center)

GC24J-05 The Arctic permafrost as a tipping element of the climate system

Presenter: Victor Brovkin

16:45 - 16:55

103 A-B (Convention Center)



PRESENTATIONS

TUESDAY , DEC 10TH

EP24A-06 High-Spatial-Resolution Coastal Hazard Mapping for Four North Slope Borough Communities in Alaska

Presenter: Ming Xiao

16:50 - 16:58

146 B (Convention Center)

SY24A-06 Pan-Arctic Transmission Line Planning: A Novel Cost-Based Approach for Sustainable Energy Futures

Presenter: Erin Trochim

16:55 - 17:05

Independence D (Marriott Marquis)

EP24A-07 Submarine thermokarst and pingo morphology along Arctic Margins: A presence and absence case study

Presenter: Jeffrey Obelcz

17:00 - 17:08

146 B (Convention Center)

B24D-07 Machine learning modeling of the rapidly changing Arctic-boreal carbon fluxes

Presenter: Anna- Maria Virkkala

17:02 - 17:12

149 A-B (Convention Center)

EP24A-08 Time and Frequency Domain Analysis of Coastal Signal Propagation Through a Supra-Permafrost Aquifer

Presenter: Bay Berry

17:10 - 17:18

146 B (Convention Center)



PRESENTATIONS

TUESDAY , DEC 10TH

EP24A-09 Permafrost Thaw Subsidence, Sea-Level Rise, and Coastal Erosion are Transforming the Alaska North Slope

Presenter: Roger Creel

17:20 - 17:28

146 B (Convention Center)



PRESENTATIONS

WEDNESDAY , DEC 11TH

Wednesday, December 11th

|| Poster Presentations

A Global Assessment of Potential Human Interventions to Reduce Forest Biomass Losses and Mitigate Climate Change

Presenter: Luca L Morreale

08:30 - 12:20

Hall B-C (Poster Hall) (Convention Center)

Advancements in Calibrating High-Latitude Ecosystem Models: Integrating Vegetation and Soil Heterogeneity to Improve Carbon Cycle Predictions in Permafrost Regions

Presenter: Elchin E Jafarov

08:30 - 12:20

Hall B-C (Poster Hall) (Convention Center)

Analysis of Field Procedures for Unmanned Aerial Systems VLF-EM

Presenter: Chanh Park

08:30 - 12:20

Hall B-C (Poster Hall) (Convention Center)

Estimating soil carbon sequestration deficit with mid-infrared spectra and interpretable machine learning

Presenter: Yang Hu

08:30 - 12:20

Hall B-C (Poster Hall) (Convention Center)



PRESENTATIONS

WEDNESDAY , DEC 11TH

ForeC: Monitoring and Early Warning Systems for Cascading Mountain Hazards in the Himalayan Region

Presenter: Basanta Raj Adhikari

08:30 - 12:20

Hall B-C (Poster Hall) (Convention Center)

High Resolution Active Layer Monitoring: UAV-Lidar Change Detection in Discontinuous Permafrost in interior Alaska.

Presenter: Robert Van Alphen III

08:30 - 12:20

Hall B-C (Poster Hall) (Convention Center)

Investigating Controls on Rock Glacier Kinematics in Grand Teton National Park, WY

Presenter: Olivia Montoya

08:30 - 12:20

Hall B-C (Poster Hall) (Convention Center)

Land use moderates the impacts of changing snow regimes on soil freeze-thaw and soil greenhouse gas losses

Presenter: Cristhian dos Santos Teixeira

08:30 - 12:20

Hall B-C (Poster Hall) (Convention Center)

Multisensor Monitoring of Rock Glacier Morphology and Debris Deformation Sheds Light on Effects of Dynamic Surface Processes

Presenter: Tyler Meng

08:30 - 12:20

Hall B-C (Poster Hall) (Convention Center)



PRESENTATIONS

WEDNESDAY , DEC 11TH

Network Analysis and Causal Inference Identify the Critical Controls on Variations in Methane Production and Pathways in a Permafrost Fen

Presenter: Qiong Wu

08:30 - 12:20

Hall B-C (Poster Hall) (Convention Center)

Quantifying the Seismic and Elastic Properties of High Ice Content Ottawa Sand as an Analog for Lunar Permafrost

Presenter: Reid Jansen

08:30 - 12:20

Hall B-C (Poster Hall) (Convention Center)

Substrate-explicit Modelling of Sulfide Production in Fractured Granitic Media

Presenter: Paolo Trinchero

08:30 - 12:20

Hall B-C (Poster Hall) (Convention Center)

The Tipping Point Modelling Intercomparison Project (TIPMIP)

Presenter: Ricarda Winkelmann

08:30 - 12:20

Hall B-C (Poster Hall) (Convention Center)

Understanding the Impact of High Mountain Asia Glacier Changes to River Basin Hydrology using GRACE Satellite Data and Output Products from Climate Models

Presenter: Swetha Cherukuri

08:30 - 12:20

Hall B-C (Poster Hall) (Convention Center)



PRESENTATIONS

WEDNESDAY , DEC 11TH

1990 – a Critical Year for Discontinuous Permafrost Peatlands in Western Siberia?

Presenter: Agnieszka Halaś

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

A Decade of Advances (and Retreats) in Optical Remote Sensing for Mountain Hazard Monitoring and Disaster Risk Reduction

Presenter: Jeffrey S Kargel

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

A Subsurface Modeling Framework to Inform Methane Flux Predictions from Arctic Soils

Presenter: Lisa A Bigler

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

ARTS: a scalable data set for Arctic Retrogressive Thaw Slumps

Presenter: Jackie Dean

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Accounting for variation in ground ice content in InSAR-derived Active Layer Thickness Retrievals

Presenter: Alexander Nguyen

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)



PRESENTATIONS

WEDNESDAY , DEC 11TH

Advancing Seafloor Research with an Innovative Seafloor Probe and Buoy System for Real-Time In-Situ Data Acquisition

Presenter: Trilby A Hill

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Ages and origins of the Lost Jim Lava Flow and Camille Flow in the Imuruk Lake Volcanic Field, Seward Peninsula, Alaska

Presenter: Jessica F Larsen

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Applying Ground Penetrating Radar and Electrical Resistivity Tomography to Assess Permafrost Heterogeneity in Utqiagvik, Alaska

Presenter: Valentina Ekimova

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Assessing Vegetation Shifts in Boreal Alaska by Integrating Landsat Imagery with Spatial Modeling

Presenter: Wesley Rancher

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Assessing the potential of uncrewed airborne electromagnetic-sounding surveying of rock glaciers and similar ice-rich permafrost landforms

Presenter: Achille Capelli

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)



PRESENTATIONS

WEDNESDAY , DEC 11TH

Changes in Permafrost as a Barometer for Wildfire Variations

Presenter: Xiaowei Nie

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Changes in runoff composition with permafrost thaw under future climate in the Mackenzie River Basin

Presenter: Dr. Mohamed Elshamy MSc PhD

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Characterization of Warm Permafrost Sites and their Seismic Site Responses

Presenter: Yue Zhao

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Characterizing Permafrost and Microbial Communities Using X-ray Microscopy (XRM)

Presenter: Caleb Tilton

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Characterizing the Detectability of Explosively Formed Craters in Permafrost in the Russian Arctic

Presenter: Chris Carr

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)



PRESENTATIONS

WEDNESDAY , DEC 11TH

Climate drivers of annual tree ring growth for black and white spruce in Alaska and northwestern Canada.

Presenter: Elise Heffernan

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Coastal Monitoring Applications of NASA's ICESat-2 Satellite on Isolated Shorelines

Presenter: Copeland Nowell

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Comparing environmental parameters between high- and low- centered ice wedge polygon systems at the Teshekpuk Lake Observatory, Alaska

Presenter: Melissa Ward Jones

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Complex Conductivity Hysteresis during Freezing and Thawing of Soils

Presenter: Alejandro Garcia

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Cumulative Plastic Strain and Critical Dynamic Stress of Frozen Clay under Principal Stress Rotation

Presenter: Dayan WANG

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)



PRESENTATIONS

WEDNESDAY , DEC 11TH

Deep Learning-Based Building and Road Detection Reveals Higher Permafrost Thaw-Related Damage Costs Than Previously Estimated for Alaska

Presenter: Elias Manos

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Designing and Testing a Water Track Field Identification Protocol for Permafrost Hillslopes on the North Slope of Alaska, USA

Presenter: Lauren Best

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Drivers of spring-time sap flow and transpiration vary by tree species and permafrost presence in a boreal ecosystem

Presenter: Heather Kropp

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Experimental Boreal Droneborne and Airborne Summer Albedo and Forest Structure

Presenter: Birgit Heim

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Exploring the North American Regional Hydroclimate Projects

Presenter: Peter J van Oevelen

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)



PRESENTATIONS

WEDNESDAY , DEC 11TH

First observations of ice wedge networks in warm permafrost terrain in Bethel, Alaska

Presenter: Benjamin M Jones

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Forcing an Apparent Heat Capacity Model with Remotely Sensed Land Surface Temperatures across the Himalayas to Assess Permafrost Trends

Presenter: Kyung Yoon Kim

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

From Alaska to Mars: measuring methane released from permafrost environments to understand climate feedback and habitability

Presenter: Mahmooda Sultana

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Frost boils increase rates of permafrost degradation in northern Alaska

Presenter: Mark J Lara

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Gas flow in synthetic and field core permafrost specimens

Presenter: Tanner Mills

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)



PRESENTATIONS

WEDNESDAY , DEC 11TH

Global estimation of spatially explicit maximum soil organic carbon storage in undisturbed soils

Presenter: Maria Macfarlane

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Groundwater Recharge to Cold Region Aquifer Using Process-Based Models

Presenter: Hesham Mahmoud

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

How will watershed-scale thaw and drainage of permafrost soils impact methane fluxes?

Presenter: David Fukuyama

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Ice Patterns and Trends of Teshekpuk Lake: Alaska's Longest Seasonally Ice-covered Freshwater System

Presenter: Allen C Bondurant

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Impact of Summer Extreme Precipitation and Wildfires on Dissolved Organic Carbon Dynamics in Permafrost-Affected Sub-Watersheds of the Mackenzie River

Presenter: Qiwei Huang

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)



PRESENTATIONS

WEDNESDAY , DEC 11TH

Impact of shading effect on the hydrothermal processes on a permafrost hillslope

Presenter: Lin Chen

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Impacts of land clearing and common agricultural practices on ground temperatures and permafrost in Fairbanks and Bethel, Alaska

Presenter: Melissa Ward Jones

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Inferring Permafrost Response to Extremely Warm Summers from Sentinel-1 and ALOS-2 InSAR

Presenter: Jie Chen

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Key role of moss in satisfying the elevated vegetation nitrogen demand upon experimental warming in permafrost ecosystem

Presenter: Yuxuan Bai

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Large-scale Mapping of Soil Organic Carbon in the Northern Alaskan Tundra by Upscaling High-Resolution Swaths of SOC from P-Band PolSAR Imagery

Presenter: Jane Whitcomb

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)



PRESENTATIONS

WEDNESDAY , DEC 11TH

Microbial Assembly and Succession Patterns During Permafrost Thaw Impacts C Cycling

Presenter: Lyndsey Marquez

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Modeling ground temperature dynamics around three communities on the Alaska North Slope

Presenter: Dmitry Nicolsky

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Molecular Simulation of Film Water Thickness and Dynamic Properties in Unsaturated Frozen Soils

Presenter: Shuting Ji

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Permafrost Carbon Emissions and Geochemical Changes in a Warmer Climate

Presenter: Riley Garrett

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Permafrost Carbon Emissions and Geochemical Changes in a Warmer Climate

Presenter: Riley Garrett

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)



PRESENTATIONS

WEDNESDAY , DEC 11TH

Pore-scale Unfrozen Water Connectivity in Saline Sand Visualized with Micro-CT

Presenter: Xiangbo Gao

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Potential Controls of Ground Collapse Along a Water Track, North Slope, Alaska

Presenter: Emma Ferm

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Purpose-built modeling to inform climate impact mitigation.

Presenter: Ethan Coon

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Quantifying Arctic Coastal Erosion Through ICESat-2 Observations

Presenter: Rafael Bendo Paulino

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Revealing the Arctic's Hidden Layers: Circumarctic Zero-Curtain Mapping with Radar Polarimetry, Thermal Imaging, and Quantum AI Technology

Presenter: Bradley Gay

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)



PRESENTATIONS

WEDNESDAY , DEC 11TH

Salty Pingos: Pingo Subsurface Structures Revealed by Ground Penetrating Radar and Electrical Methods

Presenter: Austin Routt

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Simulated potential impacts of a warming climate on wetland systems over Canadian Western Boreal forest

Presenter: Danqiong Dai

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Temporal Geophysical Assessment of a Discontinuous Permafrost Site in Interior Alaska

Presenter: Anna M Wagner

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

The Effects of Climate Change, Fire and Shrubification on Permafrost Peatlands. A Case Study from Yakutia, Eastern Siberia

Presenter: Harry Roberts

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

The New Global Terrestrial Network for Permafrost (GTN-P) Database – the Primary Platform for Permafrost Essential Climate Variable (ECV)

Presenter: Dmitry A Streletskiy

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)



PRESENTATIONS

WEDNESDAY , DEC 11TH

Three-Dimensional Subsurface Structure of Canada's Largest Pingo, Ibyuk

Presenter: Jerusalem Sintayehu

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Using DAS to Monitor Ice-Wedge Cracking Dynamics in Utqiagvik, Alaska

Presenter: Gabriel Rocha dos Santos

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Water tracer model-assessed contributions of snow and permafrost to changing Arctic River discharge

Presenter: Hotaek PARK

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

What controls the rapid Arctic warming since 1980?

Presenter: Mx. Ash Gilbert

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Oral & Other Presentations

NG31A-06 Evaluating Community Well-being and Resilience via Agent-Based Models

Presenter: Aslan Noorghasemi

08:45 - 08:48

eLightning Theater 6 (Convention Center)



PRESENTATIONS

WEDNESDAY , DEC 11TH

GC31H-04 High-salinity liquid water as a source of uncertainty in bedfast lake ice mapping

Presenter: Helena Bergstedt

09:15 - 09:30

152 B (Convention Center)

B31D-07 Identifying Bacterial and Fungal Taxa Associated with Soil Organic Matter and Exudate Degradation in Rhizosphere and Permafrost Communities Using Quantitative Stable Isotope Probing (qSIP)

Presenter: Sean Schaefer

09:30 - 09:40

150 B (Convention Center)

EP31A-07 Bed turnover in braided rivers

Presenter: Safiya Alpheus

09:32 - 09:40

146 B (Convention Center)

NS32A-01 Autonomous Geophysical Monitoring of Near-Surface Ground Ice Dynamics in Continuous Coastal Permafrost

Presenter: Taylor Sullivan

10:22 - 10:32

146 A (Convention Center)

B32D-02 Decadal-Scale Arctic Carbon Exchange Measurements and Global Geopolitics Threats

Presenter: Edward Schuur

10:30 - 10:40

150 A (Convention Center)



PRESENTATIONS

WEDNESDAY , DEC 11TH

NS32A-02 Elucidating the Thermo-Hydrogeological Controls of a Coastal Open-System Pingo Formation (Adventdalen Valley, Svalbard) Through Multi-Method Geophysical Investigation

Presenter: Daria Pankova

10:32 - 10:42

146 A (Convention Center)

H32G-06 Characterising and Evaluation Of SWOT HR Pixel Cloud Product For Water Surface Elevation Retrieval In The Canadian Thermokarst Lakes

Presenter: Shamsudeen Yekeen

10:35 - 10:38

eLightning Theater 2 (Convention Center)

NS32A-04 Revealing the thawing mechanism of unfrozen water in thawing frozen soil based on NMR method

Presenter: Chi Zhang

10:52 - 11:02

146 A (Convention Center)

PP32B-05 Radiocarbon Age Offsets Between Macrofossils and Bulk Sediment from Arctic Lake Sediments

Presenter: Leah Marshall

11:00 - 11:10

102 A-B (Convention Center)

B32D-06 Fluxes, compositions, and transformations of dissolved organic carbon (DOC) in the Upper Mackenzie River watershed and Great Slave Lake

Presenter: Cedric G Fichot

11:10 - 11:20

150 A (Convention Center)



PRESENTATIONS

WEDNESDAY , DEC 11TH

B32D-07 Methane hotspots around landscape-scale permafrost disturbances

Presenter: Latha Baskaran

11:20 - 11:30

150 A (Convention Center)

EP32B-09 Soil Carbon and River Delta Profiles

Presenter: John Shaw

11:40 - 11:48

146 C (Convention Center)

Mechanisms and Influencing Factors of Gas Blowout Craters in Warming Permafrost

Presenter: Yu Zhao

13:40 - 17:30

149 A-B (Convention Center)

G33C-01 From Tectonics to Climate Change: Applying Large-scale InSAR Mapping to More than What We Are Used to

Presenter: Qi Ou

14:10 - 14:20

Marquis 1-2 (Marriott Marquis)

B33J-01 Soil carbon in CMIP6 Earth System Models

Presenter: Rebecca Varney

14:12 - 14:20

149 A-B (Convention Center)



PRESENTATIONS

WEDNESDAY , DEC 11TH

B33K-01 Soil microbial stress metabolism linked to shifting nutrient cycles under rapid, year-round environmental change

Presenter: Jennifer M Bhatnagar

14:13 - 14:23

151 B (Convention Center)

B33I-05 Boreal Wildfire Management to Protect Carbon, Permafrost and Human Health: A Pilot Project on the Yukon Flats National Wildlife Refuge

Presenter: Kayla Cerise Mathes

14:50 - 15:00

151 A (Convention Center)

B33J-07 Integrating Field and Laboratory Data into a Microbially-Explicit Soil Carbon Model to Predict Post-Fire Boreal Forest Soil Carbon Fluxes

Presenter: Dana Johnson

15:04 - 15:12

149 A-B (Convention Center)

NH33E-05 Global Landslide Survey in Permafrost Regions Using Molards as a Geomorphological Landmark

Presenter: Costanza Morino

15:10 - 15:25

Capitol/Congress (Marriott Marquis)

B34E-01 Carbon Flux Dynamics in an Interior Alaskan Fen: Leveraging Decadal In Situ Water Table and Chamber Flux Measurements to Understand a Changing System

Presenter: Eleanor Serocki

16:00 - 16:03

eLightning Theater 3 (Convention Center)



PRESENTATIONS

WEDNESDAY , DEC 11TH

B34E-03 Drone Based Electromagnetic Geophysical Surveys of Permafrost in Utqiagvik, Alaska

Presenter: Ming Xiao

16:06 - 16:09

eLightning Theater 3 (Convention Center)

EP34C-03 Defrosting riverbanks: impacts of freezing and thawing processes on bank retreat rates

Presenter: Marijke de Vet

16:06 - 16:09

eLightning Theater 4 (Convention Center)

B34B-02 How initial conditions-, structural-, and parameter-based model uncertainty interact and influence predictions of Arctic carbon balance

Presenter: Hannah Mevenkamp

16:10 - 16:20

150 A (Convention Center)

EP34C-06 A Variational Principle of Landscape Formation: From First-Order Valleys to Self-Similar Drainage Networks

Presenter: Shashank Kumar Anand

16:15 - 16:18

eLightning Theater 4 (Convention Center)

B34E-07 Tall Shrub Expansion as a Driver of Rapid Permafrost Loss in Thermokarst Lakes

Presenter: Darko Radakovic

16:18 - 16:21

eLightning Theater 3 (Convention Center)



PRESENTATIONS

WEDNESDAY , DEC 11TH

U34A-05 Cryospheric Science with NISAR

Presenter: Ian R Joughin

16:45 - 16:55

Ballroom A (Convention Center)

B34A-06 Ecosystem disturbances and landscape modifications drive changes in microbial community structure and function in boreal ecosystems

Presenter: Mario Muscarella

16:46 - 16:54

149 A-B (Convention Center)



PRESENTATIONS

THURSDAY , DEC 12TH

Thursday, December 12th

||■ Poster Presentations

A transformative system of systems for quantifying soil carbon and greenhouse gas sinks and sources

Presenter: Keith Paustian

08:30 - 12:20

Hall B-C (Poster Hall) (Convention Center)

Changes in Methane Flux and Isotopic Composition During Landcover Transitions in a Thawing Permafrost Peatland.

Presenter: Hannah DeFelice

08:30 - 12:20

Hall B-C (Poster Hall) (Convention Center)

Characterization of Landscape Freeze-thaw Cycles from Satellite-estimated Brightness Temperatures

Presenter: Laxmi Prasad

08:30 - 12:20

Hall B-C (Poster Hall) (Convention Center)

Circumarctic Zero-Curtain Mapping: A Multimodal Approach Using Radar Polarimetry, Thermal Imaging, and Quantum AI

Presenter: Bradley Gay

08:30 - 12:20

Hall B-C (Poster Hall) (Convention Center)



PRESENTATIONS

THURSDAY , DEC 12TH

Dissolved Methane and Ebullitive Emissions from Water Bodies in a Thawing Permafrost Peatland

Presenter: Brayden King

08:30 - 12:20

Hall B-C (Poster Hall) (Convention Center)

Emergence of Arctic Extremes

Presenter: James E Overland

08:30 - 12:20

Hall B-C (Poster Hall) (Convention Center)

Escalated Fire Risk in Alaska under a Warming Climate due to Enhanced Winter Precipitation

Presenter: Jueun Lee

08:30 - 12:20

Hall B-C (Poster Hall) (Convention Center)

Exchangeable manganese regulates the carbon storage in boreal forest humus layer

Presenter: Yunyu Zhang

08:30 - 12:20

Hall B-C (Poster Hall) (Convention Center)

Methanotrophic Potential of a Northern Fen Peatland

Presenter: Dr. Ruth K Varner, PhD

08:30 - 12:20

Hall B-C (Poster Hall) (Convention Center)

Satellite Imagery and GeoAI in Action at Pan-Arctic Scale

Presenter: Chandi Witharana

08:30 - 12:20

Hall B-C (Poster Hall) (Convention Center)



PRESENTATIONS

THURSDAY , DEC 12TH

Spatial Variations in Summer Dissolved Organic Carbon Concentrations, Sources, and Fluxes Across the Canning River Watershed in Northeastern Alaska

Presenter: Craig T Connolly

08:30 - 12:20

Hall B-C (Poster Hall) (Convention Center)

Strontium as Tracer of Hydrologic Connectivity of Thaw Ponds to Local Hydrology in Thawing Subarctic Landscapes

Presenter: Alanna A. Nenadich Alvarez

08:30 - 12:20

Hall B-C (Poster Hall) (Convention Center)

The impact of permafrost thaw on carbon dioxide exchange, vegetation composition, and below-ground DOC across Stordalen Mire, a high latitude permafrost peatland

Presenter: Evelyn Kent

08:30 - 12:20

Hall B-C (Poster Hall) (Convention Center)

Trace elements indicate changes to hydrologic connectivity in thawing subarctic peatland

Presenter: Cal Distelcamp

08:30 - 12:20

Hall B-C (Poster Hall) (Convention Center)

C42A-02 Water-energy feedback at the atmosphere-soil boundary accelerated permafrost thaw in Canada

Presenter: Dr. Liming He

10:32 - 10:44

Hall B-C (Poster Hall) (Convention Center)



PRESENTATIONS

THURSDAY , DEC 12TH

A New Synthesis of Arctic-Boreal Carbon Fluxes (ABCflux v2) for Improved Carbon Budget Estimates

Presenter: Isabel Wargowsky

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

A full-year analysis of carbon dynamics for a subarctic fen in Churchill, Manitoba

Presenter: Danielle Trangmoe

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Antecedent moisture of permafrost surface peat influences carbon dioxide and nitrous oxide responses to gradual drying

Presenter: Cynthia Kallenbach

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Carbon cycle simulation in Alaskan permafrost regions using CLM5.0 model

Presenter: Xiaodong Wu

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Changes in Mineral-Associated Organic Matter Stability with Deeper Snow in Two Different Arctic Tundra Soils

Presenter: You Jin Kim

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)



PRESENTATIONS

THURSDAY , DEC 12TH

Comparative Evaluation of Frozen Hydraulic Conductivity for Sandy Soil Using Analytical, Numerical, and Experimental Methods

Presenter: Ali Behdad

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Compositional changes of soil organic matter along thaw transects of permafrost peat plateaus in Finnmark, Norway

Presenter: Mats Ippach

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Depth-Specific Greenhouse Gas Emission Responses to Abrupt Permafrost Thaw

Presenter: Emily Stuchiner

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Does soil carbon content explain inter-site differences in ecosystem respiration across the permafrost region?

Presenter: Frans-Jan W Parmentier

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Dual Roles of Microbes in Mediating Soil Carbon Dynamics in Response to Warming

Presenter: Shuqi Qin

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)



PRESENTATIONS

THURSDAY , DEC 12TH

Evaluating Water Pathways Between Ecological, Hydrological, and Meteoric Sources Using Stable Isotopes in Interior Alaska's Boreal Forest

Presenter: Samuel Dempster

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Geochemical Effects of Summer Precipitation in High Arctic Watersheds

Presenter: Logan Wieland

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Geochemical Evaluation of Rusting Rivers in Arctic Alaska

Presenter: Taylor Evinger

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Greenhouse Gas Emission Potentials from Thawing Permafrost Peatlands in Northern Norway

Presenter: Anfisa Pismeniuk

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Impact of Landscape Position on Soil Organic Matter Composition and Degradation in the Arctic Foothills of Alaska

Presenter: Roser Matamala

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)



PRESENTATIONS

THURSDAY , DEC 12TH

In Situ Validation of Regional Climate Model Runoff over Two Watersheds in Northwest Greenland

Presenter: Sarah Esenther

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Influence of Snow Cover Dynamics and Infiltration Patterns on the Subsurface Thermal and Moisture Regimes in Discontinuous Permafrost Environments

Presenter: Philippe Fortier

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Investigating Environmental Controls on Seasonal Lake Occurrence in Alaska

Presenter: Madeline Huelbig

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Investigating the Spatial Variability of Carbon Stabilization with Metals in Arctic Lake Sediments

Presenter: Chelsea Smith

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Late season carbon fluxes from two new high Arctic sites

Presenter: Patrick Murphy

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)



PRESENTATIONS

THURSDAY , DEC 12TH

Leveraging a microbial systems approach to understand priming effects on carbon in permafrost soils

Presenter: Hannah Holland Moritz

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Linking Carbon and Nitrogen Stocks of Arctic Coastal Lowland Soils to Ice-Wedge Polygon Development, Geomorphology, and Parent Material

Presenter: Julie D Jastrow

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Linking Hillslope Failures to River Suspended Sediment Concentrations in Permafrost Landscapes

Presenter: Christian M. Erikson

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Modeling carbon transport in permafrost-affected groundwater systems

Presenter: Alexandra Hamm

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Modeling of freezing and melting in heterogeneous soil during water infiltration

Presenter: Homa Khanahmadi Bafghi

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)



PRESENTATIONS

THURSDAY , DEC 12TH

Numerical analysis of artificial ground freezing technology.

Presenter: Hirotaka Saito

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

PermHg: A Database of Mercury Concentrations in Northern Permafrost Regions

Presenter: Christine Olson

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Permafrost Thaw Effects on Arctic Ecosystems: Insights from Common Substrate Decomposition at ACCLIMATE in Healy, Alaska, USA

Presenter: Megan McGroarty

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Shrub expansion: impacts on organic soil and permafrost stability on the North Slope of Alaska

Presenter: Allison M Welch

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Soil moisture regulates decade-long warming effects on soil respiration in a boreal forest

Presenter: Guopeng Liang

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)



PRESENTATIONS

THURSDAY , DEC 12TH

Sources and Transformations of Mercury on Jan Mayen

Presenter: Amina N. Youssef

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Sourdough Peak Rock Glacier Monitoring with DSInSAR.

Presenter: Qingyu Sui

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Spatial and Vertical Heterogeneity of Alaskan Soil C and N Stocks and C:N Relationships

Presenter: Joshua Minai

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Spatiotemporal Variability of Carbon Fluxes in Response to Warming and Climatic Factors at a Tussock Tundra Site near Council, Alaska

Presenter: Kelcy Kent

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Temporal Variations in Permafrost Methane Fluxes: A 9-Year Time Series from an Upland Tundra Thaw Gradient

Presenter: Julia Warren

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

The State of the Art of Modeling Permafrost Carbon Dynamics

Presenter: Anna Laure Gagné-Landmann

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)



PRESENTATIONS

THURSDAY , DEC 12TH

The role of initial ice morphology in controlling the thaw behavior of a permafrost soil column

Presenter: Prof. Xiaojing Fu

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Trace metals in soil and surface water of mountain and tundra watersheds in Arctic Alaska yield insights into unique sources and sinks

Presenter: Thomas A Douglas

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Understanding the Lateral Carbon Transport Process within Freeze-Thaw Cycles in a Permafrost Hillslope

Presenter: Chen Ding

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Warming reduced methane emission due to changes in methanogens and methane oxidizers in tussock tundra and dry heath in Björkliden, Sweden

Presenter: Jinhyun Kim

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Wildfires Accelerate Permafrost Area Loss via Reducing Soil Organic Matter

Presenter: Dan Zhu

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)



PRESENTATIONS

THURSDAY , DEC 12TH

Winter Climate Change Fundamentally Alters Soil Biogeochemistry and Carbon Cycling

Presenter: Joanna Ruth Ridgeway

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Oral & Other Presentations

B41E-01 Estimates of Future Carbon Emissions from Gradual Permafrost Thaw, Abrupt Thaw, and High-latitude Wildfire: Impact on Paris Agreement Temperature Goals

Presenter: Brendan M Rogers

08:30 - 08:40

149 A-B (Convention Center)

B41D-02 The Global Soil Carbon Sink: Evidence and Uncertainties from Repeated Soil Carbon Measurements

Presenter: Ruofei Jia

08:40 - 08:50

150 B (Convention Center)

B41E-02 A Probabilistic Framework for Quantifying the Carbon Budget in the Northern Terrestrial Permafrost Region

Presenter: Eleanor J Burke

08:40 - 08:50

149 A-B (Convention Center)



PRESENTATIONS

THURSDAY , DEC 12TH

H41A-02 Development of permafrost watershed hydro-thermodynamic modeling capability in GSSHA with WMS interface and user guidelines

Presenter: Nawa Raj Pradhan

08:40 - 08:50

140 A-B (Convention Center)

GC41G-05 Investigating the effects of spatial resolution on process-level upscaling from heterogeneous systems and contributions to atmospheric enhancements of methane and carbon dioxide

Presenter: Sarah Ludwig

08:42 - 08:45

eLightning Theater 3 (Convention Center)

B41C-02 Insights into Sources and Mobility of Mercury in Arctic and Subarctic Soils from Mercury Stable Isotopes

Presenter: Bridget A Bergquist

08:45 - 09:00

150 A (Convention Center)

B41E-03 Linear trends in carbon variable responses to air and soil warming in Warming Permafrost Model Intercomparison project (WrPMIP) models

Presenter: Christina Schaedel

08:50 - 09:00

149 A-B (Convention Center)

B41E-04 Pan-Arctic respiration responses with temperature under experimental warming

Presenter: Jeralyn M Poe

09:00 - 09:10

149 A-B (Convention Center)



PRESENTATIONS

THURSDAY , DEC 12TH

B41E-05 Improvements to the Arctic Boreal Carbon Flux Network and Remaining Gaps

Presenter: Kyle Andreas Arndt

09:10 - 09:20

149 A-B (Convention Center)

B41E-07 Declining Growing Season Carbon Uptake of Siberian Tundra: 20 years of Carbon Dioxide Flux Observations from the Lena River Delta

Presenter: Lars Kutzbach

09:30 - 09:40

149 A-B (Convention Center)

B41C-05 Multi-year atmospheric mercury air-surface exchange measurements in the Canadian High Arctic

Presenter: Katrina Macsween

09:30 - 09:45

150 A (Convention Center)

B41E-08 Bridging the gap: Comparing terrestrial and aquatic emissions of carbon and nitrogen in an evolving permafrost-associated boreal peatland in northeastern Canada.

Presenter: Melanie S Burnett

09:40 - 09:50

149 A-B (Convention Center)

B42D-01 Interactions between plants, microbes, and minerals tilt the carbon balance in permafrost-affected soils: a holistic view developed across three priming experiments

Presenter: Jessica Gilman Ernakovich

10:20 - 10:30

149 A-B (Convention Center)



PRESENTATIONS

THURSDAY , DEC 12TH

H42D-01 Potential feedbacks between climate change and groundwater hydrology along an Arctic coastline

Presenter: Julia Guimond

10:20 - 10:30

Salon C (Convention Center)

C42A-01 Hysteresis in permafrost response to increase and decrease of CO2 emissions

Presenter: Natsuki Watanabe

10:20 - 10:32

Salon I (Convention Center)

B42B-01 Metals on the Move: Oxidation-Reduction Processes in Arctic Watersheds

Presenter: Dr. Amanda J Barker

10:20 - 10:35

150 A (Convention Center)

B42D-02 Changes in Microbial Community Structure, Function, and Soil Organic Carbon are Decoupled During Permafrost Thaw

Presenter: Rachel Mackelprang

10:30 - 10:40

149 A-B (Convention Center)

B42B-02 Implications of Permafrost Thaw for Hydrological and Biogeochemical Changes within Thermo-Erosion Gully Streams in Interior Alaska, USA

Presenter: Zena V Robert

10:35 - 10:45

150 A (Convention Center)



PRESENTATIONS

THURSDAY , DEC 12TH

B42D-03 How Organo-Mineral Interactions Affect the Priming of Permafrost Soil Upon Thaw

Presenter: Caitlin Hicks Pries

10:40 - 10:50

149 A-B (Convention Center)

H42D-03 The influence of cryo-hydrological processes on the young water fraction in Arctic hillslopes drained by water tracks and thermoerosional gullies

Presenter: Rebecca Josephine Frei

10:40 - 10:50

Salon C (Convention Center)

C42A-03 Scaling laboratory- and site-scale process understanding to permafrost catchments using a physically based cryohydrology simulator

Presenter: Scott L Painter

10:44 - 10:59

Salon I (Convention Center)

B42B-03 Recent onset of acid-rock drainage and metal release in permafrost catchments of the Tombstone Water Observatory, Yukon

Presenter: Elliott K Skierszkan

10:45 - 10:55

150 A (Convention Center)

C42A-04 Impacts of climate conditions on groundwater flow and reactive solute transport in supra-permafrost aquifers

Presenter: Neelarun Mukherjee

10:59 - 11:11

Salon I (Convention Center)



PRESENTATIONS

THURSDAY , DEC 12TH

B42D-05 Change in soil organic carbon age and fractions during a permafrost warming experiment

Presenter: Emma Lathrop

11:00 - 11:10

149 A-B (Convention Center)

B42D-06 Tracking the Release of Ancient Carbon from River Surfaces across Arctic Tributaries and Delta of the Mackenzie River System

Presenter: Sanjeev Dasari

11:10 - 11:20

149 A-B (Convention Center)

H42D-06 Understanding the interaction and influence of cryosphere changes on river discharge in High Arctic Greenland

Presenter: Eric S Klein

11:10 - 11:20

Salon C (Convention Center)

C42A-05 Constraining the Sources and Limits of Seabed Methane Emissions Following the Flooding of the Arctic Permafrost

Presenter: Kehua You

11:11 - 11:26

Salon I (Convention Center)

B42D-07 Enhanced response of soil respiration to experimental warming upon thermokarst formation

Presenter: Yuanhe Yang

11:20 - 11:30

149 A-B (Convention Center)



PRESENTATIONS

THURSDAY , DEC 12TH

H42D-07 Simulating variably-saturated subsurface flow and reactive solute transport in thawing permafrost environments

Presenter: Aaron Mohammed

11:20 - 11:30

Salon C (Convention Center)

H42B-06 Headwater fluxes of dissolved organic matter in permafrost dominated catchments

Presenter: Sarah Ellen Johnston

11:21 - 11:36

143 A-C (Convention Center)

C42A-06 Summer versus Winter Microbial Activity and Greenhouse Gas Fluxes from Thermokarst Taliks

Presenter: Mark P Waldrop

11:26 - 11:38

Salon I (Convention Center)

B42D-08 Exploring Greenhouse Gas Dynamics in Abrupt Permafrost Thaw: Potential C production in the Transition from Permafrost to Post-Thaw Soils

Presenter: Mackenzie Baysinger

11:30 - 11:40

149 A-B (Convention Center)

H42B-07 Arctic Alaska River Chemistry Controlled by Topography, Vegetation, and Seasonality across Headwater Catchments

Presenter: Jay P Zarnetske

11:36 - 11:48

143 A-C (Convention Center)



PRESENTATIONS

THURSDAY , DEC 12TH

C42A-07 Dynamics of Greenhouse Gas Fluxes and Microbial Communities Associated with Warming of Subsurface Permafrost Cores

Presenter: Prof. Renxing Liang

11:38 - 11:50

Salon I (Convention Center)

A43T-01 A Multi-Decadal Re-Analysis of the Global Methane Budget, is it Useful for Policy?

Presenter: Lori Bruhwiler

14:10 - 14:20

144 A-C (Convention Center)

C43F-01 Advances in Processing of Synthetic Aperture Radar Data at C-Band for Benchmarking Passive Microwave Derived Surface State

Presenter: Annett Bartsch

14:10 - 14:22

102 A-B (Convention Center)

C43G-04 Dissolved Organic Matter in Arctic Coastal Groundwater: Composition, biodegradability, and transformations across a subterranean estuary

Presenter: Dr. Emily M Bristol, PhD

14:45 - 14:55

101 (Convention Center)

C43F-04 Forty Years of Changes in Ground Temperature in the Greater Toolik Lake Station Area (Invited)

Presenter: Dr. Vladimir E Romanovsky, PhD

14:46 – 15:01

102 A-B (Convention Center)



PRESENTATIONS

THURSDAY , DEC 12TH

B43K-05 Modeling how redox interactions drive variability in wetland greenhouse gas production, consumption, and surface emissions from site to continental scales

Presenter: Benjamin N Sulman

14:50 - 15:00

151 A (Convention Center)

C43F-05 Estimation of potential of thermokarst development at the coastal areas in the region of Yukon-Kuskokwim delta.

Presenter: Alexander L Kholodov

15:01 - 15:13

102 A-B (Convention Center)

C43G-06 Microbial activity and weathering reactions in Arctic retrogressive thaw slumps

Presenter: Alexander B Michaud

15:05 - 15:15

101 (Convention Center)

C43F-06 Unfrozen Permafrost: Soil Freezing Characteristic Curves in Warming Cryotic Soils

Presenter: Elise Devoie

15:13 - 15:28

102 A-B (Convention Center)

C43G-07 Subsea Methane Seeps Revealed by Tidewater Glacier Retreat on Svalbard

Presenter: Gabrielle Kleber

15:15 - 15:25

101 (Convention Center)



PRESENTATIONS

THURSDAY , DEC 12TH

EP43E-08 Permafrost Formation and Vegetation Succession in a Meandering River Floodplain

Presenter: Dr. Madison Douglas

15:20 - 15:28

147 B (Convention Center)

A43T-08 Permafrost, Peatland and Agricultural Regions Key to Reconciling Top-Down and Bottom-Up Estimates of North American Carbon Uptake

Presenter: Kelsey T Foster

15:20 - 15:30

144 A-C (Convention Center)

C43F-07 Hypergravity Testing of Thawing Rates in Permafrost

Presenter: Michael Gardner

15:28 - 15:40

102 A-B (Convention Center)

C44B-03 How to Handle Glacier Area Irregularities in Cryospheric Remote Sensing

Presenter: Caitlyn Florentine

16:09 - 16:12

eLightning Theater 6 (Convention Center)

B44A-03 Improved understanding of Arctic carbon dynamics: a role of soil moisture

Presenter: Tamara Emmerichs

16:20 - 16:30

150 A (Convention Center)



PRESENTATIONS

THURSDAY , DEC 12TH

B44D-05 Headwater Stream DIC Dynamics in a Boreal Forest Watershed

Presenter: Kristin Kraus

16:42 - 16:52

150 B (Convention Center)

B44C-07 Opportunities for a hybrid soil carbon modeling approach emerging from the Hawai‘i Climate-Smart Partnership

Presenter: Hayley Peter-Contesse

17:02 - 17:12

149 A-B (Convention Center)

B44A-08 Discovering Emergent Soil Carbon Mechanisms with a Biogeochemistry-Informed Neural Network (BINN)

Presenter: Haodi Xu

17:10 - 17:20

150 A (Convention Center)

B44A-09 Estimation of above- and below-ground ecosystem parameters for the DVM-DOS-TEM model

Presenter: Elchin E Jafarov

17:20 - 17:30

150 A (Convention Center)



PRESENTATIONS

FRIDAY , DEC 13TH

Friday, December 13th

■ Poster Presentations

Associations Between Tardigrade Abundance and Hantzschia and Luticola Turnover in the Freshwater Streams in the Dry Valleys

Presenter: Natalie Aranda

08:30 - 12:20

Hall B-C (Poster Hall) (Convention Center)

Decomposition studies for worldwide comparison of biogeochemical cycling

Presenter: Beth Middleton

08:30 - 12:20

Hall B-C (Poster Hall) (Convention Center)

Disentangling the Ice Flow Deformation History and Cause of the Radio Echo Free Zone to Better Understand the Holocene Ice Core Climate Record from Begguya, Denali National Park, Alaska

Presenter: Emma Skelton

08:30 - 12:20

Hall B-C (Poster Hall) (Convention Center)

Evidence of deep long-lasting frost at temperate latitudes with climate change

Presenter: Cansu Culha

08:30 - 12:20

Hall B-C (Poster Hall) (Convention Center)



PRESENTATIONS

FRIDAY , DEC 13TH

First data from the transect of pro- and sub- Greenland Ice Sheet bedrock cores from the GreenDrill project: Potential and limitations of this novel archive of ice-sheet vulnerability and ice-sheet models

Presenter: Joerg M Schaefer

08:30 - 12:20

Hall B-C (Poster Hall) (Convention Center)

Geochemical phosphorus sequestration in tundra soils impedes delivery of bioavailable phosphorus to an Arctic headwater river – regional and pan-Arctic implications

Presenter: William B Bowden

08:30 - 12:20

Hall B-C (Poster Hall) (Convention Center)

Impacts of buried pipelines on soil nutrients in the right-of-way (ROW) in northern Da Xing'anling Mountains in Northeast China

Presenter: Xiaoying Jin

08:30 - 12:20

Hall B-C (Poster Hall) (Convention Center)

Radiocarbon Age-Offsets from Two Lakes in Arctic Alaska Suggest Warming Leads to Predominance of Young Organic Carbon Rather Than Permafrost-Derived Materials

Presenter: Hailey Sinon

08:30 - 12:20

Hall B-C (Poster Hall) (Convention Center)

Shift in Hydrochemical Regime over the Past Four Decades in the Green Lakes Valley, Colorado Front Range, USA

Presenter: Fengjing Liu

08:30 - 12:20

Hall B-C (Poster Hall) (Convention Center)



PRESENTATIONS

FRIDAY , DEC 13TH

The Evolution of Methane Emissions from Young to Mature Thermokarst Lakes

Presenter: Orit Sivan

08:30 - 12:20

Hall B-C (Poster Hall) (Convention Center)

The Next Generation NASA Airborne Imaging Radar (AIRSAR-NG) under development in support of Surface Topography and Vegetation Targeted Observable Incubation

Presenter: Yunling Lou

08:30 - 12:20

Hall B-C (Poster Hall) (Convention Center)

ALOS-2 L-band InSAR for Ground Motion Mapping in Norway, with Focus on Landslides and Periglacial Processes

Presenter: Tom Rune Lauknes

08:30 - 12:20

Hall B-C (Poster Hall) (Convention Center)

GC41G-05 Investigating the effects of spatial resolution on process-level upscaling from heterogeneous systems and contributions to atmospheric enhancements of methane and carbon dioxide

Presenter: Sarah Ludwig

08:30 - 12:20

Hall B-C (Poster Hall) (Convention Center)

Atmospheric methane variability through the Last Glacial Maximum and deglaciation mainly controlled by tropical sources

Presenter: Ben RiddellYoung

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)



PRESENTATIONS

FRIDAY , DEC 13TH

Bridging Spatial Scales of Permafrost Methane Flux Measurements with Open Path Dual Comb Spectroscopy

Presenter: Elijah Miller

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Constraining the Glacier to Rock Glacier Transition in the Northern Colorado Rockies

Presenter: Simon Pendleton

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Coupling large-eddy simulations with UAV measurements through inversion technique to estimate patch-level fluxes from heterogeneous tundra landscapes

Presenter: Theresia Yazbeck

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Dating recent aqueous activity on Mars

Presenter: Marissa M Tremblay

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Did permafrost thaw contribute to the deglacial rise in greenhouse gases?

Presenter: Miriam Jones

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)



PRESENTATIONS

FRIDAY , DEC 13TH

EVALUATING METHANE FLUX SENSITIVITIES AND UNCERTAINTIES IN A TERRESTRIAL BIOSPHERE MODEL

Presenter: Benjamin Maglio

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Effects of Water Ice on the Angle of Repose of Regolith in Lunar PSRs

Presenter: Nina De Castro

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Effects of extreme climatic events on freeze-thaw dynamics in the source region of the Yellow River

Presenter: Hao Chen

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

High Variability Observed in the Internal Structure of Arctic Pingos: Implications for Hydrologically Derived Icy Landforms Across the Solar System

Presenter: Kynan Hughson

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Impact of Soil Moisture Initialization on WRF Model Simulation of Precipitation and Evapotranspiration over the Tibetan Plateau

Presenter: Hu Li

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)



PRESENTATIONS

FRIDAY , DEC 13TH

Interpreting Periglacial Processes, Erosion Rates, and Morphometry in the Valley and Ridge, USA

Presenter: Joanmarie Del Vecchio

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

It's Not About What It Is, It's About What It Can Become: A Meta-Analysis Of Bacterial Community Changes Following Permafrost Thaw Across the Globe

Presenter: Mark McDonald

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Modeling the Thermal Dynamics of Rock Glaciers

Presenter: Juliana Ruef

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Northern Peatland Microbial Networks Exhibit Resilience to Warming and Acquire Electron Acceptor from Soil Organic Matter

Presenter: Joel E Kostka

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Significant Positive Surface Air Temperature Trends in East Siberia: Dominant Time Scales Influencing the Trends

Presenter: Nasrin Salehnia

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)



PRESENTATIONS

FRIDAY , DEC 13TH

Soil Organic Matter Concentration is a Critical Regulator of the Response of Decomposers to Soil Temperature in Alaskan Interior Boreal Forest Soils

Presenter: Jason A Shabaga

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

The three-dimensional land-water model development in Yellow River Source Region

Presenter: Lele Shu

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Thermal Acclimation of Peatland Methane Emissions to Rising Temperature

Presenter: Weinan Chen

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Oral & Other Presentations

B51D-03 Assessing the Impacts of Ecosystem Disturbance on Carbon Emissions from Arctic and Amazon Ponds with Floating Autochambers

Presenter: Zoë Alexandra Dietrich

08:50 - 09:00

151 A (Convention Center)



PRESENTATIONS

FRIDAY , DEC 13TH

EP52C-01 Viewing lobate patterns on Earth and Mars as climate-modulated fluid-like instabilities

Presenter: Rachel Glade

10:20 - 10:28

146 C (Convention Center)

B52B-06 Characterizing Boreal Forest Successional Stages and Disturbance Impacts on Forest Structure Using UAV LiDAR and Multispectral Data across Alaska and Canada

Presenter: Lea Enguehard

11:10 - 11:20

150 A (Convention Center)

B53J-01 Biogeochemical Diversity of Permafrost-Hosted Perennial Hypersaline Cold Spring hosted Methane Seeps as Analogues for Mars

Presenter: Haley M Sapers

14:10 - 14:20

149 A-B (Convention Center)

GC54E-01 Cryospheric Science Activities Towards Achieving NASA's Surface Topography and Vegetation Targeted Observable

Presenter: Brooke Medley

16:00 - 16:10

Salon H (Convention Center)

GC54E-01 Cryospheric Science Activities Towards Achieving NASA's Surface Topography and Vegetation Targeted Observable

Presenter: Brooke Medley

16:00 - 16:10

Salon H (Convention Center)



PRESENTATIONS

FRIDAY , DEC 13TH

H54B-01 Assessing Changing River System and the Cryosphere in Canada: Results from the Global Water Futures Modelling Synthesis.

Presenter: Alain Pietroniro

16:00 - 16:10

145 B (Convention Center)

OS54B-05 Periodic states and their implications in natural gas hydrate dynamics

Presenter: Shubhangi Gupta

16:45 - 17:00

147 B (Convention Center)

EP54B-06 Minimal Ruleset for the Emergence of Mima Mounds

Presenter: Matthew W Rossi

16:50 - 17:00

146 C (Convention Center)

OS54B-06 Modeling of Secondary Hydrate Formation in Presence of Memory Effect of Water

Presenter: Emre Arslan

17:00 - 17:10

147 B (Convention Center)



LET'S MEET *in Alaska!*

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AWRA 2025 SPRING CONFERENCE:

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