

AGU FALL 2020

Permafrost Related Presentations





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INTRODUCTION

The following is a collection, compiled by the United States Permafrost Association (USPA) Communications Committee, of essentially all AGU Fall 2020 Conference Presentations related to permafrost. Presentations are in chronological order and were searched for on the [AGU Fall 2020 Meeting website](#) using the search terms listed below. The section, “First Author,” is sometimes represented by the presenting author if the first author is not presenting. This document is searchable for other key terms of interest (i.e. groundwater) using “Ctrl+F”. In addition, there are a total of 49 USPA members who are first authors in this compilation! This includes 14 students and the four recipients of the USPA-PYRN Educational Fund (UPEF) awards. Members and their USPA titles are denoted by red font.

To access the presentations, you will need to be registered for the virtual conference.

Please refer to the [AGU Fall 2020 website](#) and the [#AGU20 Know Before You Go](#) instructions for further assistance.

This document will be updated daily as needed on the [USPA website “Home” page](#) during the conference to make sure we collect any presentations that we may have missed. If you believe a presentation is missing from this document, or if you have any other questions, please send us an email at info@uspermafrost.org. We hope you enjoy the virtual conference!

SEARCH TERMS

- | | | |
|-----------------|----------------|-----------------------|
| ◇ permafrost | ◇ ice wedge | ◇ cryoplanation |
| ◇ frozen ground | ◇ solifluction | ◇ carbon + permafrost |
| ◇ frost action | ◇ tundra soil | ◇ rock glacier(s) |
| ◇ ground ice | ◇ cryosol | |
| ◇ ice level | ◇ periglacial | |

LEAD AUTHORS

Kristina Levine – Texas A&M University student, GWS Virtual Intern

Yirleny Arias – Universidad de Costa Rica student, GWS Virtual Intern

Jerry Brown – Chairman, USPA Membership Committee





DAILY PROGRAM

The table below outlines the amount and type of presentations in this document that will take place each day during the conference. Please note that there are no presentations taking place over the weekend of December 12th – 13th.

AGU 2020 DAILY COUNT OF PERMAFROST-RELATED PRESENTATIONS				
Date	Virtual Presentations	Poster Presentations	None-Type Presentations	Daily Total
7-Dec	11	19	0	30
8-Dec	40	48	1	89
9-Dec	11	20	0	31
10-Dec	5	3	0	8
11-Dec	13	21	0	34
12-Dec	0	0	0	0
13-Dec	0	0	0	0
14-Dec	17	20	1	38
15-Dec	19	9	0	28
16-Dec	20	17	0	37
17-Dec	5	0	0	5
Overall Abstract Total				300

This document will be updated daily as needed on the [USPA website "Home" page](#) during the conference to make sure we collect any presentations that we may have missed. If you believe a presentation is missing from this document, or if you have any other questions, please send us an email at info@uspermafrost.org. We hope you enjoy the virtual conference!





MONDAY, DECEMBER 7TH

VIRTUAL PRESENTATIONS, 6:00 – 21:24 CST

C001-01 Coordinated, continuous, and compelling shoreline mapping and monitoring to support Alaska communities' capacity to plan for and mitigate coastal hazards in the face of climate change

First author: Jacquelyn Overbeck

06:00 - 06:04 CST, Monday, December 7th

C001-02 Contrasting shoreline changes in the communities of Nunavik (northern Quebec, Canada), 1955 to 2020

First author: Antoine Boisson

06:04 - 06:08 CST, Monday, December 7th

GC001-02 Here's what 3°C looks like: Combining local observations, adaptations with western science in SW Alaska.

First author: Ryan Toohey

06:04 - 06:08 CST, Monday, December 7th

C001-04 Physics-based Simulation Can Facilitate Hypothesis Testing for Increasingly Dynamic Coastal Permafrost Systems

First author: Matthew A. Thomas

06:12 - 06:16 CST, Monday, December 7th

C001-05 Perceived Risks and Responses Related to Permafrost Thaw in three Arctic Sites

First author: Susanna Gartler

06:16 - 06:20 CST, Monday, December 7th

C001-06 Projections of Arctic Coastal Erosion Rates in CMIP6 Climate Scenarios

First author: David Marcolino Nielsen

06:20 - 06:24 CST, Monday, December 7th





C001-07 Initial Validation Results for the Arctic Coastal Erosion (ACE) Model

First author: Diana L Bull, **USPA Member**

06:24 - 06:28 CST, Monday, December 7th

C001-08 Arctic tsunami as an emerging threat for circumpolar coastal landscapes and communities- insight into Karrat Fjord 2017 tsunami wave impacts on Nuugaatsiaq settlement, western Greenland

First author: Matt C. Strzelecki and Marek W Jaskólski

06:28 - 06:32 CST, Monday, December 7th

H014-04 A parsimonious process-based regionalization of hydrologic response across Alaska

First author: Graham A Sexstone

07:42 - 07:46 CST, Monday, December 7th

H017-02 Leveraging soil moisture assimilation to improve land surface seasonal dynamics in permafrost regions

First author: Akhilesh Sivaraman Nair

12:34 - 12:38 CST, Monday, December 7th

IN005-08 Investigating the Arctic climate and ecosystem changes during the past decades by combining space and in situ measurements: A case study of Toolik Lake, Alaska, USA

First author: Lina Hao

21:21 - 21:24 CST, Monday, December 7th

POSTER PRESENTATIONS, 6:00 – 22:59 CST

B006-0005 From leaf to landscape: multi-scale measurements of solar-induced chlorophyll fluorescence in a tundra ecosystem

First author: Xi Yang

06:00 - 22:59 CST, Monday, December 7th





C003-0002 Impacts of changing Arctic hydrodynamics and wave conditions on maritime transportation

First author: Celso Ferreira

06:00 - 22:59 CST, Monday, December 7th

ED004-0032 Factors driving alpine glaciation in the Sierra Chacabuco and Cordillera Arturo Prat massifs, Patagonia, Chile, based on the analysis of geomorphological features and morphometric development

First Author: Cameron Markovsky

06:00 - 22:59 CST, Monday, December 7th

C003-0003 Hydrometeorological forcing of coastal dynamics in the Russian Arctic: link to erosion rates in the last decades

First author: Alisa Baranskaya

06:00 - 22:59 CST, Monday, December 7th

C003-0004 Towards a physics-based parameterization of pan-Arctic shoreline erosion

First author: Rebecca Rolph

06:00 - 22:59 CST, Monday, December 7th

C003-0005 Thermokarst primes subsea permafrost degradation and coastal change

First author: Michael Angelopoulos

06:00 - 22:59 CST, Monday, December 7th

C003-0006 Archival Photogrammetric Analysis of Permafrost Coastal Bluff Erosion Patterns Along the Arctic National Wildlife Refuge (ANWR) Using Structure-from-Motion (SfM)

First author: Stephen Michael Escarzaga

06:00 - 22:59 CST, Monday, December 7th





C003-0017 Wave-driven shoreline changes along the Beaufort and Chukchi coasts

First author: Lucia Hosekova

06:00 - 22:59 CST, Monday, December 7th

C003-0018 A pan-Arctic initiative on the spatial and temporal dynamics of Arctic coasts

First author: Anna M. Irrgang

06:00 - 22:59 CST, Monday, December 7th

C004-0003 Improvement of microwave emissivity of frozen Arctic soils using roughness measurements derived from automated computer vision photogrammetry.

First author: Julien Meloche

06:00 - 22:59 CST, Monday, December 7th

C004-0004 Developing Artificial Intelligence methods for addressing major challenges in cryosphere research: The AI-CORE project

First author: Andreas Dietz

06:00 - 22:59 CST, Monday, December 7th

C004-0008 Harnessing Commercial Satellite Imagery, Artificial Intelligence, and High Performance Computing to Characterize Ice-wedge Polygonal Tundra

First author: Md Abul Ehsan Bhuiyan

06:00 - 22:59 CST, Monday, December 7th

ED004-0007 Are Cyanobacterial Blooms Common in the Coastal Waters of Alaska?

First author: Anindita Das

06:00 - 22:59 CST, Monday, December 7th





EP002-0002 Carbon Stored as Large Wood in the Mackenzie River Delta, Northwest Territories, Canada

First author: Alicia Sendrowski

06:00 - 22:59 CST, Monday, December 7th

EP002-0012 Particulate dominance of organic carbon mobilization from thaw slumps: implications for stream systems and permafrost carbon release

First author: Sarah Shakil, **USPA Member**

06:00 - 22:59 CST, Monday, December 7th

EP003-0015 Geomorphometry of a Sorted Patterned Ground Field: Fluvial Processes and Cryoplanation Terrace Development

First author: Raven Jezell Mitchell, **USPA Member**

06:00 - 22:59 CST, Monday, December 7th

H011-0008 Decadal Changes in River Channel Water Storage Variation from Multi-Remote Sensed Data

First author: Stephen Paul Coss and Michael T Durand

06:00 - 22:59 CST, Monday, December 7th

P006-0002 Reactive gossans in permafrost as indicators of ancient hydrothermal activity on Mars

First author: Myriam Lemelin

06:00 - 22:59 CST, Monday, December 7th





TUESDAY, DECEMBER 8TH

VIRTUAL PRESENTATIONS, 6:00 – 21:40 CST

EP010-01 Soil drips and droplets: Solifluction patterns analogous to classic fluid instabilities

First author: Rachel Glade

06:00 - 06:04 CST, Tuesday, December 8th

B014-05 Mercury stocks and vulnerability in permafrost soils and lake sediments

First author: Lauren Thompson

06:16 - 06:20 CST, Tuesday, December 8th

C016-01 Thermal Transport by Rain into Thawing Permafrost Landscapes

First author: Rebecca Bergquist Neumann

09:00 - 09:04 CST, Tuesday, December 8th

C016-02 Increasing runoff trends throughout circumpolar regions

First author: Mikhail Mack

09:04 - 09:08 CST, Tuesday, December 8th

C016-03 Estimating permafrost thickness in the Yukon-Kuskokwim Delta using LIDAR

First author: Kevin M Schaefer, **IPA Representative on the USPA of Directors**

09:08 - 09:12 CST, Tuesday, December 8th

C016-04 InSAR Estimates of Active Layer Thickness in the Entire Continuous Permafrost Regions of Alaska

First author: Rishabh Dutta

09:12 - 09:16 CST, Tuesday, December 8th





C016-05 Progress in monitoring landcover and human presence in the Arctic based on satellite data

First author: Annett Bartsch

09:16 - 09:20 CST, Tuesday, December 8th

B023-06 What Drives Variability in Methane Concentrations of Arctic Ponds?

First author: Zoé Rehder

09:20 - 09:24 CST, Tuesday, December 8th

C016-06 Permafrost region disturbances in space and time: a pan-arctic perspective

First author: Ingmar Nitze

09:20 - 09:24 CST, Tuesday, December 8th

C016-07 Global Observation Data Show Variable but Increasing Active-Layer Thickness

First author: Dmitry A Streletskiy, **Past President of the USPA Board of Directors**

09:24 - 09:28 CST, Tuesday, December 8th

C016-08 The Permafrost Discovery Gateway: A web platform to enable knowledge-generation from big geospatial data

First author: Anna K Liljedahl, **USPA Member**

09:28 - 09:32 CST, Tuesday, December 8th

GC030-06 How Does the Proximity of Mountain Glaciers Affect the Microclimates of Adjacent Forests in Southeast Alaska?

First author: Julia Pearson

12:50 - 12:54 CST, Tuesday, December 8th

B025-09 Impacts of Wildfire on Active Layer Depth and Carbon Stocks of Permafrost Plateaus in the Sahtu Region of the Northwest Territories

First author: Jessica McCuaig

12:54 - 12:57 CST, Tuesday, December 8th





C018-01 Integrated modeling and observations of ice wedge degradation and thermokarst pool expansion

First author: Charles Abolt

18:00 - 18:04 CST, Tuesday, December 8th

C018-02 Understanding inundation and drainage patterns of ice-wedge polygons

First author: Dylan R Harp

18:04 - 18:08 CST, Tuesday, December 8th

C018-03 A Quantitative Graph-Based Assessment of Ice-Wedge Trough Dynamics in Polygonal Thermokarst Landscapes of the Anaktuvuk River Fire Scar

First author: Tabea Rettelbach

18:08 - 18:12 CST, Tuesday, December 8th

C018-04 Wildfire, permafrost, and vegetation interactions in a discontinuous permafrost region revealed by dual-frequency airborne radar observations

First author: Roger J Michaelides, **USPA Member**

18:12 - 18:16 CST, Tuesday, December 8th

C018-06 Spatial patterns of snow distribution in Arctic permafrost landscapes estimated from ground- and UAV-based observations

First author: Katrina E Bennett, **USPA Member**

18:20 - 18:24 CST, Tuesday, December 8th

C018-07 Impact of Abrupt Permafrost Thaw on Mineral Elements Release: Case Study in Peel Plateau, West Canadian Arctic.

First author: Maxime Thomas

18:24 - 18:28 CST, Tuesday, December 8th

C018-08 The Effects of Talik Formation on Non-Growing Season Carbon and Nitrogen Cycling in Permafrost Ecosystems

First author: Ian Shirley

18:28 - 18:32 CST, Tuesday, December 8th





B027-01 - Accounting for Subsidence Reveals 50% Deeper Permafrost Thaw and Double the Rate of Carbon Thaw in a Permafrost Warming Experiment (Invited)

First author: Heidi Rodenhizer

19:30 - 19:34 CST, Tuesday, December 8th

B027-02 Tundra Underlain by Thawing Permafrost Persistently Emits Carbon to the Atmosphere Over Fifteen Years of Measurements

First author: Edward Schuur

19:34 - 19:38 CST, Tuesday, December 8th

B027-03 Changes in trace gas radiative forcing of Stordalen Mire from 1970-2014

First author: Ruth K Varner

19:38 - 19:42 CST, Tuesday, December 8th

B027-04 Growing Season Methane Fluxes from High Arctic Tundra in Northwest Greenland

First author: Noah Sonnenberg

19:42 - 19:46 CST, Tuesday, December 8th

B027-05 Increased CO₂ and decreased CH₄ emissions in response to drying of northern peatlands: experimental observations vs. model simulations

First author: Min Jung Kwon

19:46 - 19:50 CST, Tuesday, December 8th

B027-06 - Tundra Vegetation Dynamics: Three Decades of Monitoring + Warming Experiments by the International Tundra Experiment

First author: Anne Bjorkman

19:50 - 19:54 CST, Tuesday, December 8th





B027-07 Progressive nitrogen limitation across the Tibetan alpine permafrost region

First author: Yuanhe Yang

19:54 - 19:58 CST, Tuesday, December 8th

B027-08 Subsea Permafrost Carbon Stocks and Climate Change Sensitivity Estimated by Expert Assessment

First author: Sayedeh Sara Sayedi, **USPA Member, USPA-PYRN Educational Fund (UPEF) Award**

19:58 - 20:02 CST, Tuesday, December 8th

B027-09 Permafrost Carbon Emissions from a Warming Arctic: What are the Implications for International Climate Goals?

First author: Rachael Treharne

20:02 - 20:06 CST, Tuesday, December 8th

B027-10 Solar Radiation Modification Reduces Soil Carbon Exposure to Decomposition in Northern Circumpolar Permafrost

First author: Yangxin Chen

20:06 - 20:10 CST, Tuesday, December 8th

B028-01 Permafrost Thaw Mechanisms and Talik Function in Discontinuous Permafrost Peatlands

First author: Elise Devoie

21:00 - 21:04 CST, Tuesday, December 8th

B028-02 Characterizing extreme thermokarst methane emissions in interior Alaska with implications for pan-Arctic source attribution

First author: Clayton Elder, **USPA Member**

21:04 - 21:08 CST, Tuesday, December 8th





B028-03 Examination of Current and Future Permafrost Dynamics across the North American Taiga-Tundra Ecotone

First author: Bradley Gay

21:08 - 21:12 CST, Tuesday, December 8th

B028-04 Fluids migration through permafrost and the pool of greenhouse gases in frozen soils

First author: Gleb Kraev

21:12 - 21:16 CST, Tuesday, December 8th

B028-05 Subjecting permafrost microorganisms to short-term warming

First author: Victoria Martin

21:16 - 21:20 CST, Tuesday, December 8th

B028-06 Estimating the Magnitude of Long-Term Net C Loss due to Permafrost Thaw in Boreal Peatlands

First author: Lorna I Harris

21:20 - 21:24 CST, Tuesday, December 8th

B028-07 Towards Linking Permafrost History to DOM Composition and Biodegradation across the Western Canadian Arctic

First author: Erin MacDonald, **USPA Member**

21:24 - 21:28 CST, Tuesday, December 8th

B028-08 Estimating iron oxidizing bacteria distribution from remote sensing in Alaskan tundra

First author: Remi Orion Masse

21:28 - 21:32 CST, Tuesday, December 8th





B028-09 Modeling Interactions of Iron Reduction, Methanogenesis, and Organic Matter Degradation in Permafrost Soils

First author: Benjamin N Sulman

21:32 - 21:36 CST, Tuesday, December 8th

B028-10 Why Do We Need to Care About the Evolution of Mineral-organic Carbon Interactions in Permafrost Upon Thawing?

First author: Sophie Opfergelt

21:36 - 21:40 CST, Tuesday, December 8th

POSTER PRESENTATIONS, 6:00 – 22:59 CST

B019-0012 Identifying polygonal ground in arctic regions using GLCM texture features for support vector machine classification

First author: Nicolle Di Domenico, **USPA Member**

06:00 - 22:59 CST, Tuesday, December 8th

C012-0007 Estimating ice content of rock glaciers in Khumbu Valley, Nepal, using a surface-velocity-constrained model

First Author: Yan Hu

06:00 - 22:59 CST, Tuesday, December 8th

C012-0012 An aerial inventory of rock glacier distribution and activity level assessment in Banff and Jasper National Park, Alberta, Canada

First Author: Mish lle Wehbe

06:00 - 22:59 CST, Tuesday, December 8th

GC026-0020 *Multi-annual measures of rock glacier-wide volume change and surface kinematics in Great Basin National Park*

First Author: Forrest Scott Schoessow

06:00 - 22:59 CST, Tuesday, December 8th





B022-0002 Ecohydrologic modeling in a boreal deciduous forest: model evaluation for application in non-stationary climates

First author: Adrienne Michelle Marshall

06:00 - 22:59 CST, Tuesday, December 8th

B022-0003 Insights Into Fire-based Soil Temperature and Moisture Changes From a Long-term Data Set in Alaska

First author: Kristen Manies, **USPA Member**

06:00 - 22:59 CST, Tuesday, December 8th

B022-0004 Understory CO₂ emissions in tussock tundra of Imnavait Creek, Alaska

First author: Yongwon Kim

06:00 - 22:59 CST, Tuesday, December 8th

B022-0006 Differences of methanogenic community, potential CH₄ production and its determinants in active layer and permafrost deposits on the Tibetan Plateau

First author: Yutong Song

06:00 - 22:59 CST, Tuesday, December 8th

B022-0007 Mineral and climatic controls over soil organic matter stability across the Tibetan alpine permafrost region

First author: Kai Fang and Yuanhe Yang

06:00 - 22:59 CST, Tuesday, December 8th

B022-0008 Temperature Sensitivity of Permafrost Carbon Release Mediated by Mineral and Microbial Properties

First author: Shuqi Qin and Yuanhe Yang

06:00 - 22:59 CST, Tuesday, December 8th





B022-0010 Geochemical characteristics of frozen active layer and near-surface permafrost in the Anaktuvuk River Fire scar, Alaska

First author: Go Iwahana, **USPA Member**

06:00 - 22:59 CST, Tuesday, December 8th

B022-0013 Phosphorus regulates ecosystem carbon dynamics after permafrost thaw

First author: Guibiao Yang and Yuanhe Yang

06:00 - 22:59 CST, Tuesday, December 8th

B022-0014 Maps of Active Layer Thickness in Northern Alaska via Upscaling of P-band SAR Retrievals

First author: Jane Whitcomb

06:00 - 22:59 CST, Tuesday, December 8th

B022-0017 Microbe-substrate interactions following simulated microbial inoculation to thawed yedoma permafrost

First author: Joanne K. Heslop

06:00 - 22:59 CST, Tuesday, December 8th

B022-0018 Permafrost Arctic streams are effective pathways for the emissions of allochthonous and autochthonous greenhouse gases to the atmosphere during the open water season: a holistic study in Ambolikha river, Northeast Siberia.

First author: Karel Castro-Morales

06:00 - 22:59 CST, Tuesday, December 8th

B022-0019 Carbon and nitrogen co-cycling dynamics following discontinuous permafrost thaw in Northwest Territories, Canada

First author: Catherine M Dieleman

06:00 - 22:59 CST, Tuesday, December 8th





B022-0020 Stable carbon isotope emission patterns from high latitude landcover types: a synthesis of in-situ $\delta^{13}\text{C}$ -CH₄ and $\delta^{13}\text{C}$ -CO₂ from northern wetlands, lakes, and seasonally-inundated ecosystems

First author: Kathryn A Bennett, **USPA Member**

06:00 - 22:59 CST, Tuesday, December 8th

B022-0021 Understanding Composition and Decomposability of Arctic Soils by Integrating Laboratory Incubations with New Measurements and Models

First author: Roser Matamala

06:00 - 22:59 CST, Tuesday, December 8th

B022-0022 Permafrost in a Simple Carbon-Climate Model

First author: Dawn Woodard

06:00 - 22:59 CST, Tuesday, December 8th

B022-0023 Phylogenetic signal of bacterial growth in response to short-term and long-term warming of the arctic tundra

First author: Jeffrey Ryan Propster

06:00 - 22:59 CST, Tuesday, December 8th

C012-0001 A mixed-methods approach to assessing sub-seasonal retreat rates of retrogressive thaw slumps in the Eureka Area, Ellesmere Island, Nunavut, Canada

First author: Melissa Karine Ward Jones, **USPA Member**

06:00 - 22:59 CST, Tuesday, December 8th

C012-0003 Thermokarst initiation process after wildfire: case studies of the 2018, 2019 and 2020 fires near Batagay, Eastern Siberia

First author: Kazuki Yanagiya

06:00 - 22:59 CST, Tuesday, December 8th





C012-0004 A Conceptual Cryohydrogeological Model of a Degrading Permafrost Mound Near Umiujaq (Nunavik, Canada)

First author: Philippe Fortier

06:00 - 22:59 CST, Tuesday, December 8th

C012-0005 Long-Term Monitoring Records Generate a New Hypothesis: Active-Layer Variation as a Markovian Process

First author: Kelsey Nyland, **USPA Member, Chairperson, USPA-PYRN Educational Fund (UPEF)**

06:00 - 22:59 CST, Tuesday, December 8th

C012-0006 Temperature Monitoring Under Different Land Covers on the North Slope of Alaska

First author: Anna Zhu, **USPA Member**

06:00 - 22:59 CST, Tuesday, December 8th

C012-0007 Estimating ice content of rock glaciers in Khumbu Valley, Nepal, using a surface-velocity-constrained model

First author: Yan Hu

06:00 - 22:59 CST, Tuesday, December 8th

C012-0008 Iron Dynamics during Thermokarst Processes in the Yedoma Domain and Implications for Interactions between Iron and Organic Carbon

First author: Arthur Monhonval

06:00 - 22:59 CST, Tuesday, December 8th

C012-0010 Ability of thermal energy from rainfall to warm and thaw soils at a thermokarst site in south-central Alaska

First author: Joel Eklof, **USPA Member**

06:00 - 22:59 CST, Tuesday, December 8th





C012-0011 Patterns and rates of soil movement and shallow failures across several small watersheds on the Seward Peninsula, Alaska.

First author: Joel C Rowland, **USPA Member**

06:00 - 22:59 CST, Tuesday, December 8th

C012-0012 An aerial inventory of rock glacier distribution and activity level assessment in Banff and Jasper National Park, Alberta, Canada

First author: Mish lle Wehbe and Philip P Bonnaventure

06:00 - 22:59 CST, Tuesday, December 8th

C012-0013 Ground surface temperature and seasonal snow cover interactions in a Himalayan glacierized catchment (upper Langtang Valley, Nepal)

First author: Denis Samyn

06:00 - 22:59 CST, Tuesday, December 8th

C013-0001 Towards panarctic mapping of drained lake basins in permafrost regions

First author: Helena Bergstedt, **USPA Member**

06:00 - 22:59 CST, Tuesday, December 8th

C013-0003 Geophysical monitoring highlights the importance of hydro-thermal flow for talik formation

First author: Sebastian Uhlemann

06:00 - 22:59 CST, Tuesday, December 8th

C013-0004 A permafrost probability map for northwestern Canada's discontinuous permafrost zone

First author: Olivia Carpino

06:00 - 22:59 CST, Tuesday, December 8th





C013-0005 Drying active layer in Utqiagvik, Alaska revealed from the GPS-IR-measured seasonal subsidence during 2004–2019

First author: Jiahua Zhang

06:00 - 22:59 CST, Tuesday, December 8th

C013-0006 Long-term and seasonal surface displacement after wildfires in Mayya, Central Yakutia, revealed by ALOS-2 and Sentinel-1 SAR Interferometry

First author: Takahiro Abe

06:00 - 22:59 CST, Tuesday, December 8th

C013-0007 Spatial Variations in Seasonal Thaw Rates on a Subarctic Peat Plateau

First author: Mason Dominico

06:00 - 22:59 CST, Tuesday, December 8th

C013-0009 The Arctic Permafrost Geospatial Center – a portal for high-quality open access scientific permafrost datasets

First author: Sebastian Laboor

06:00 - 22:59 CST, Tuesday, December 8th

C013-0010 Detecting and Mapping Abrupt Landscape Change in Permafrost Regions of Siberia

First author: Tiffany Windholz

06:00 - 22:59 CST, Tuesday, December 8th

C013-0011 Shrub-associated thermokarst detection using high density UAV-based LiDAR

First author: Shannon Dillard

06:00 - 22:59 CST, Tuesday, December 8th

C013-0012 Characterizing the Distribution of Lakes on Arctic Deltas

First author: Lawrence M Vulis, **USPA Member**

06:00 - 22:59 CST, Tuesday, December 8th





C013-0013 Multi-Scale Mapping and Monitoring of Permafrost Conditions in a Canadian High Arctic Polar Desert

First author: Frances Amyot and Wayne H Pollard

06:00 - 22:59 CST, Tuesday, December 8th

C013-0014 Identification of Regions Susceptible to Thermokarst Initiation on the Alaska Arctic Coastal Plain Using Random Forest Models

First author: Bob Bolton, **USPA Member**

06:00 - 22:59 CST, Tuesday, December 8th

C013-0015 Integrating ICESat-2 and Sentinel-1 measurements to quantify thaw subsidence in Alaska

First author: Marnie Bryant

06:00 - 22:59 CST, Tuesday, December 8th

C014-0010 Mapping Bottomfast Sea Ice in Arctic Lagoons Using Sentinel-1 Interferometry

First author: Jacob Pratt

06:00 - 22:59 CST, Tuesday, December 8th

GC026-0020 Multi-annual measures of rock glacier-wide volume change and surface kinematics in Great Basin National Park

First author: Forrest Scott Schoessow

06:00 - 22:59 CST, Tuesday, December 8th

GC028-0003 Nanopore sequencing-based Metagenomic Study on High-altitude Permafrost and Glacier Aquatic Microbiome

First author: Yu Xia

06:00 - 22:59 CST, Tuesday, December 8th





GC028-0005 Understanding and Responding to Global Health Security Risks from Microbial Threats in the Arctic

First author: Lauren M Everett

06:00 - 22:59 CST, Tuesday, December 8th

NONE-TYPE PRESENTATIONS, 13:20 – 13:30 CST

U004-05 Monitoring the Dynamics of the Bering Glacier with Global Fiducials Imagery

First author: Kim Angeli

13:20 - 13:30 CST, Tuesday, December 8th

WEDNESDAY, DECEMBER 9TH

VIRTUAL PRESENTATIONS, 6:12 – 23:02 CST

GC036-04 MASON NorthLands Agent-Based Model of Climate Change and Human Migrations in the Boreal and Arctic Regions

First author: Claudio Cioffi-Revilla

06:12 - 06:16 CST, Wednesday, December 9th

EP017-06 Weathering Processes in Antarctica as an Analog for Planetary Systems

First author: Ronald S Sletten

06:15 - 06:18 CST, Wednesday, December 9th

C023-04 Historical Northern Hemisphere snow cover trends and projected changes in the CMIP-6 multi-model ensemble

First author: Chris Derksen

07:42 - 07:46 CST, Wednesday, December 9th





SY024-07 Co-Production of Knowledge and the delicate dance of physical and cultural distance to overcome.

First author: Julie Brigham-Grette

07:58 - 08:02 CST, Wednesday, December 9th

SY024-09 Knowledge Exchange among Local Residents and Earth Scientists on Alaska's Yukon-Kuskokwim Delta

First author: Gerald V Frost Jr, **USPA Member (contributor of cover page photograph)**

08:06 - 08:10 CST, Wednesday, December 9th

H072-03 The relation between age and transit time of biogeochemical cycling in ecosystems

First author: Carlos A Sierra

18:10 - 18:14 CST, Wednesday, December 9th

H071-06 Frozen soils, season and topography: N release, movement and slope ecosystem interactions in the permafrost landscape

First author: Laura Rasmussen

18:20 - 18:24 CST, Wednesday, December 9th

S025-06 Imaging of permafrost in the SW Svalbard by multiple geophysical methods – the result of two high arctic expeditions to Spitsbergen

First author: Artur Marciniak

19:48 - 19:51 CST, Wednesday, December 9th

GC049-05 Limiting the Risk to Ecosystems and Humanity of Methane Surges in Arctic Coastal Seas: An Analysis of Methods and Costs

First author: Peter Wadhams

22:46 - 22:50 CST, Wednesday, December 9th





GC049-06 Arctic Ice Restoration – A Policy Proposal

First author: Anthony W Strawa

22:50 - 22:54 CST, Wednesday, December 9th

B044-08 Tussocks enduring or shrubs greening: Alternate responses to changing fire regimes in the Noatak River Valley, Alaska

First author: Benjamin Gaglioti

22:58 - 23:02 CST, Wednesday, December 9th

POSTER PRESENTATIONS, 6:00 – 22:59 CST

B031-0018 Exploring Successional Dynamics and Permafrost Thaw Post-Fire in Siberian Arctic Boreal Forest

First author: Scott LaRocca

06:00 - 22:59 CST, Wednesday, December 9th

C021-0015 Simulating High-latitude Shrubs in the Canadian Land Surface Scheme Including Biogeochemical Cycles (CLASSIC)

First author: Gesa Meyer

06:00 - 22:59 CST, Wednesday, December 9th

NH013-0011 Recent advances to detect permafrost from electrical conductivity and induced polarization tomography in the French Alps

First Author: Florence Magnin

06:00 - 22:59 CST, Wednesday, December 9th

NH013-0006 Cryospheric Hazards in the Río Volcán Basin, Chilean Central Andes: One Region, Multiple Phenomena

First Author: Felipe Ugalde

06:00 - 22:59 CST, Wednesday, December 9th





EP020-0003 Floodplain architecture governs organic carbon storage for a meandering river in discontinuous permafrost

First author: Madison Douglas, **USPA Member**

06:00 - 22:59 CST, Wednesday, December 9th

GC038-0001 Glacial-interglacial methane cycle, what we know and don't know

First author: Michael Dyonisius

06:00 - 22:59 CST, Wednesday, December 9th

H057-0010 Lithologic and Periglacial Origins of Vernal Pools influence their Hydrologic Function in the Appalachian Mountain Section of Pennsylvania

First author: Taylor Blackman

06:00 - 22:59 CST, Wednesday, December 9th

H057-0011 Mapping of Permafrost Wetland Using Satellite Data and Its Importance on Dissolved Iron Concentration in Rivers, Russian Far East

First author: Yuto Tashiro

06:00 - 22:59 CST, Wednesday, December 9th

H064-0006 Disentangling the Contributions of Snow, Frozen Ground, Soil Moisture, and Water Table Fluctuations to GRACE-detected Seasonal TWS Variability in the Delaware River Basin

First author: Wes Zell

06:00 - 22:59 CST, Wednesday, December 9th

NH013-0002 Assessing movement of the Barry Arm landslide using multi-sensor repeat topographic and bathymetric surveys

First author: Gabriel J Wolken

06:00 - 22:59 CST, Wednesday, December 9th





NH013-0003 When Nature and Infrastructure Collide: Examining Frozen Debris Lobes and Their Impact on the Dalton Highway, Brooks Range, Alaska

First author: Margaret M. Darrow, **USPA Member**

06:00 - 22:59 CST, Wednesday, December 9th

NH013-0010 Modeling Rockwall Permafrost to Understand Periglacial Rock Slope Failures

First author: Florence Magnin

06:00 - 22:59 CST, Wednesday, December 9th

NH013-0011 Recent advances to detect permafrost from electrical conductivity and induced polarization tomography in the French Alps

First author: Florence Magnin

06:00 - 22:59 CST, Wednesday, December 9th

NH013-0012 Assessing Rock Wall Permafrost Changes in Colorado's Front Range and Their Implications for Rock Fall

First author: Mylene Fabienne Jacquemart

06:00 - 22:59 CST, Wednesday, December 9th

NH013-0013 Permafrost thaw dictates erodible landscapes and fluvial sediment dynamics on the Tibetan Plateau

First author: Dongfeng Li

06:00 - 22:59 CST, Wednesday, December 9th

NH013-0014 Four Ferocious Fighting Forces: Glaciers, Meltwater, Debris, and Rivers

First author: Jeffrey Kargel

06:00 - 22:59 CST, Wednesday, December 9th





NH013-0015 Sediment transport in the rapidly changing paraglacial zone of a high alpine catchment

First author: Kay Helfricht

06:00 - 22:59 CST, Wednesday, December 9th

PP016-0008 Deep Ocean storage of heat and CO₂ in the Arctic Mediterranean during the last glacial period

First author: Mohamed Ezat

06:00 - 22:59 CST, Wednesday, December 9th

PP016-0009 Marine Aerosol Contribution to Ice-Wedge Geochemistry: Potential for Paleo-Sea Ice and Paleogeography Reconstructions in the Canadian Arctic

First author: Kira Michelle Holland

06:00 - 22:59 CST, Wednesday, December 9th

SY023-0020 Collaboration to better understand Arctic change

First author: Katrina E Bennett, **USPA Member**

06:00 - 22:59 CST, Wednesday, December 9th

THURSDAY, DECEMBER 10TH

VIRTUAL PRESENTATIONS, 6:15 – 22:42 CST

H082-06 Variability in surface water extent in northeastern Arctic Siberia in response to climatic extremes

First author: Paul James Haverkamp

06:15 - 06:18 CST, Thursday, December 10th

H093-07 Mapping Alpine Permafrost in High Mountain Asia Using Remotely Sensed Data

First author: Kyung Kim

07:48 - 07:51 CST, Thursday, December 10th





P038-02 Constraining Possible Glacial Reworking of Ancient Fluvial Channels on the Dichotomy Boundary at Equatorial Regions, Mars

First Author: Josh Williams

09:03 – 09:06 CST, Thursday, December 10th

T030-02 Plio-Pleistocene Paleoclimate and Paleoelevation in the Northern Tibetan Plateau: Implications for the Establishment of Alpine permafrost and its stability during global climate change

First author: Carmala N Garzione

19:34 - 19:38 CST, Thursday, December 10th

EP035-03 Erosion rates before and after the Mid-Pleistocene Transition in periglaciated central Appalachia

First author: Joanmarie Del Vecchio

22:38 - 22:42 CST, Thursday, December 10th

POSTER PRESENTATIONS, 6:00 – 22:59 CST

P032-0001 A Comparative Morphological and Geospatial Analysis of Terrestrial Pingos and Anomalous Hills on Ceres

First author: Kynan Hughson

06:00 - 22:59 CST, Thursday, December 10th

C029-0008 The Geography of Rock Glaciers in the American West

First Author: Allison Trcka, **USPA Member, USPA-PYRN Educational Fund (UPEF) Award**

06:00 - 22:59 CST, Thursday, December 10th

SY031-0007 - Periglacial Investigations in Louise Arner Boyd's American Geographical Society Expeditions to East Greenland, 1933 and 1937

First Author: Frederick E Nelson, **IPA Executive Committee Member on the USPA Board of Directors** and Raven Jezell Mitchell, **USPA Member, USPA-PYRN Educational Fund (UPEF) Award**

06:00 - 22:59 CST, Thursday, December 10th





SY031-0004 Arctic Environmental Data Narratives: Developing an interdisciplinary, co-productive approach for environmental data analysis and application

First author: Claire Griffin

06:00 - 22:59 CST, Thursday, December 10th

FRIDAY, DECEMBER 11TH

VIRTUAL PRESENTATIONS, 6:08 – 23:05 CST

B059-03 Siberia: An altered landscape that will act to transform the region and Earth

First author: Amber Jeanine Soja

06:08 - 06:12 CST, Friday, December 11th

PP028-05 Eolian sand dispersal via sea ice on the Antarctic continental margin during Pliocene deglaciation

First author: Sandra Passchier

06:19 - 06:23 CST, Friday, December 11th

B067-07 Estimating the Terrestrial Ecosystem CO₂ Flux Budget for the Arctic-boreal Zone Using a Synthesis of Field Observations and Statistical Upscaling

First author: Brendan M Rogers

07:54 - 07:58 CST, Friday, December 11th

H119-04 A Multivariate Hydrologic Benchmark for the WRF-Hydro-Based NOAA National Water Model over Experimental Alaskan Watersheds

First author: Aubrey L Dugger

09:12 - 09:16 CST, Friday, December 11th





GC078-02 Informal roads as social-ecological-technological systems (SETS): development, transformations and sustainability challenges

First author: Vera Kuklina

12:34 - 12:38 CST, Friday, December 11th

GC078-03 Closing the water budgets of the three great Siberian Rivers

First author: Ambroise Dufour

12:38 - 12:42 CST, Friday, December 11th

GC078-06 Remote Sensing approaches for assessing vegetation carbon stocks and fluxes in the Lena River Delta (Northern Yakutia, Russia)

First author: Birgit Heim

12:50 - 12:54 CST, Friday, December 11th

GC078-08 Periglacial vegetation dynamics in Arctic Russia: decadal analysis of tundra regeneration on landslides with time series satellite imagery

First author: Bruce C. Forbes, **USPA Member**

12:58 - 13:02 CST, Friday, December 11th

A128-16 Optimizing the design of the Arctic GHG monitoring tower network using synthetic data experiments.

First author: Martijn Pallandt

13:15 - 13:18 CST, Friday, December 11th

H127-05 Gatekeeper function of alpine aquifers for the resilience of headwater streams

First Author: Masaki Hayashi

19:39 - 19:42 CST, Friday, December 11th





OS034-08 Probabilistic Predictions of Offshore Gas Hydrate and Submarine Permafrost Distribution Along the Alaskan North Slope

First author: Jennifer Mary Frederick, **USPA Member**

20:00 - 20:04 CST, Friday, December 11th

IN027-05 A Sensor Network for Microclimatic Soil Variables on the Alpine Tundra

First author: James H R Gallagher

21:16 - 21:20 CST, Friday, December 11th

ED034-08 Make sure your audience understands that a “positive” feedback loop is not necessarily desirable

First author: Kim A Kastens

23:01 - 23:05 CST, Friday, December 11th

POSTER PRESENTATIONS, 6:00 – 22:59 CST

B060-0008 Global Winter Habitat Indices (WHIs) versus terrestrial biodiversity patterns

First author: David Gudex-Cross

06:00 - 22:59 CST, Friday, December 11th

B063-0001 Potential of full-polarimetric P-band SAR in characterizing subsurface soil profile in Arctic tundra

First author: Yonghong Yi

06:00 - 22:59 CST, Friday, December 11th

B063-0006 Improved calibration of absolute InSAR deformation estimates in support of permafrost active layer retrievals

First author: Yuhuan Zhao

06:00 - 22:59 CST, Friday, December 11th





B066-0015 Observation of CH₄ emission at the proglacial land surface, Gulkana Glacier, Alaska

First author: Keiko Konya

06:00 - 22:59 CST, Friday, December 11th

ED029-0007 Bringing the Arctic to the High School Classroom

First author: David Walker

06:00 - 22:59 CST, Friday, December 11th

GC070-0001 Assessment of Population Density in Southern Siberia Using Remote Sensing Data

First author: Evgeny Shvetsov

06:00 - 22:59 CST, Friday, December 11th

GC070-0002 Reindeer use of low Arctic tundra correlates with landscape structure

First author: Anna Skarin

06:00 - 22:59 CST, Friday, December 11th

GC070-0003 Modelling and Monitoring the Climate Induced Human Population Density over Russia During 21st Century

First author: Elena I. Parfenova

06:00 - 22:59 CST, Friday, December 11th

GC070-0006 The ice-rich permafrost exposures as a paleoenvironmental archive of the Kara Sea Region (Western Russian Arctic)

First author: Irina D. Streletskaya

06:00 - 22:59 CST, Friday, December 11th

GC070-0007 Vulnerability of Russian Arctic Settlements to Risks Associated with Permafrost

First author: Nadezhda Zamyatina

06:00 - 22:59 CST, Friday, December 11th





GC070-0008 Activation of Hazardous Permafrost Processes in the North of West Siberia Under the Technogenic Impact and Climate Changes

First author: Alexander I. Kizyakov

06:00 - 22:59 CST, Friday, December 11th

GC070-0009 Climate and Environmental Changes and its Impact on the Scythian Frozen Toms of the Altai Mountains, South Siberia, Russia.

First author: Sergey S Marchenko, **USPA Member**

06:00 - 22:59 CST, Friday, December 11th

GC070-0010 Operation of permafrost conditions as a basis of stability of the urban Arctic territories

First author: Valery I Grebenets, **USPA Member**

06:00 - 22:59 CST, Friday, December 11th

GC070-0011 Formation of a "new reality" of the landscape-permafrost environment along the transport systems of the Arctic regions

First author: Fedor D Iurov

06:00 - 22:59 CST, Friday, December 11th

GC070-0012 Impact of permafrost factor in ecological disasters due to spills of fuel and lubricants in the cryolithozone (with Norilsk region as an example)

First author: Sergey A Sokratov

06:00 - 22:59 CST, Friday, December 11th

GC070-0013 Methane Seeps in West Siberian Middle Taiga River Floodplains: Origin and Fluxes

First author: Aleksandr Sabrekov

06:00 - 22:59 CST, Friday, December 11th





H111-0016 Testing an Implementation of WRF-Hydro for the Chena River (AK) watershed

First author: Vladimir A Alexeev

06:00 - 22:59 CST, Friday, December 11th

OS029-0002 Probabilistic Predictions of Gas Hydrate Formation near Blake Ridge using Dakota and PFLOTRAN

First author: William Karl Eymold

06:00 - 22:59 CST, Friday, December 11th

OS029-0011 Approximate reduced permeability of marine sediments due to hydrate growth using a floating random walk method

First author: Jiangzhi Chen

06:00 - 22:59 CST, Friday, December 11th

P042-0006 Glacier-driven Chemical Alteration of Volcanic Rock: Implications for an Icy Low-Temperature Geochemical Cycle on the Surface of Mars

First author: Alicia M Rutledge

06:00 - 22:59 CST, Friday, December 11th

P042-0011 Classification of Martian chaos terrains using imagery machine learning: Implications for ground ice distributions and dynamics

First author: Hiroki Shozaki

06:00 - 22:59 CST, Friday, December 11th

MONDAY, DECEMBER 14TH

VIRTUAL PRESENTATIONS, 6:00 – 18:16 CST

EP045-01 Ice-Dominated Deltas

First author: Anastasia Piliouras

06:00 - 06:04 CST, Monday, December 14th





NH030-0017 Dendro-geomorphological Analysis of the Slate Creek Landslide, Alaska.

First author: Mackenzie Young

06:00 - 22:59 CST, Monday, December 14th

B074-06 Modeling the acquisition of newly thawed deep nitrogen and its impact on vegetation dynamic and ecosystem carbon cycle.

First author: Helene Genet

06:20 - 06:24 CST, Monday, December 14th

B083-01 Thermokarst Landscape Evolution Recorded by n-Alkanes in a Deep Sediment Core from Bykovsky Peninsula, Northeast Siberia

First author: Loeka Jongejans

07:30 - 07:33 CST, Monday, December 14th

B083-02 Biogeochemical risks and impacts of Arctic permafrost degradation

First author: Kimberley Rain Miner

07:33 - 07:36 CST, Monday, December 14th

B084-01 Arctic plant/climate coupling across space and time

First author: Marc Macias-Fauria

09:05 - 09:20 CST, Monday, December 14th

B084-03 Comparing the ability of UAVs and high-resolution satellite data to resolve post-fire patterns of permafrost thaw and vegetation in Siberian larch forests

First author: Michael M Loranty, **USPA Member**

09:25 - 09:30 CST, Monday, December 14th

B084-04 Drivers of Spatial and Temporal Variability in Vegetation Productivity on the Yamal Peninsula, Siberia, Russia

First author: Morgan Tassone and Howard E Epstein, **USPA Member**

09:30 - 09:35 CST, Monday, December 14th





B085-01 Characterizing wildfire activity across northeastern Siberia 2001-2020

First author: Anna Talucci, **USPA Member**

10:35 - 10:40 CST, Monday, December 14th

P059-04 An Overview of Terrestrial Analogue Sites in India as Potential Training Grounds for Crewed and Robotic Exploration of Moons and Planets

First author: Siddharth Pandey

10:39 - 10:42 CST, Monday, December 14th

B085-07 - The increasing trend in warm-season net CO₂ uptake outweighs that in cold-season emissions from the Alaskan Arctic tundra under a warming climate

First Author: Jing Tao, **USPA Member**

11:10 - 11:15 CST, Monday, December 14th

B085-08 The resilience and vulnerability of the regional carbon sink in Alaska and Canada

First author: Mary Farina, **USPA Member, USPA-PYRN Educational Fund (UPEF) Award**

11:15 - 11:20 CST, Monday, December 14th

B085-09 Synthesis of Arctic-Boreal region biogenic methane fluxes, model-data mismatch and knowledge gaps

First author: Luke D Schiferl

11:20 - 11:25 CST, Monday, December 14th

B086-06 The role of changing temperature in microbial metabolic processes during permafrost thaw

First author: Robyn Barbato, **USPA Member**

13:50 - 13:54 CST, Monday, December 14th





B086-08 Linking glacial melt to downstream ecosystem function and health in the Canadian High Arctic

First author: Kyra St. Pierre

13:58 - 14:02 CST, Monday, December 14th

C051-04 Impacts of anthropogenic emissions on tropospheric reactive chlorine: Implications for Greenland ice core records of chlorine

First author: Shuting Zhai

18:12 - 18:16 CST, Monday, December 14th

POSTER PRESENTATIONS, 6:00 – 22:59 CST

B075-0002 Thermokarst Ponds Drive Landscape-Level Carbon Greenhouse Gas Fluxes in a Dynamic Ice-Rich Arctic Ecosystem Over Decadal Time Scales

First author: Kimberly Wickland

06:00 - 22:59 CST, Monday, December 14th

NH030-0024 The Impacts of Rapid Climate Change on Mass Movements in Denali National Park, Alaska

First Author: Zena V Robert, **USPA Member**

06:00 - 22:59 CST, Monday, December 14th

B075-0004 The role of inland freshwaters in summer CO₂, CH₄ and N₂O emissions from north-eastern Siberian Arctic tundra

First author: Melanie Martyn Rosco

06:00 - 22:59 CST, Monday, December 14th

B075-0005 Riverine Inorganic Carbon Subsidy Drives CO₂ Evasion and Metabolic Processes in Arctic Alaskan Lagoon

First author: Alina Spera and Vanessa Lougheed

06:00 - 22:59 CST, Monday, December 14th





B075-0007 Multidecadal landscape studies of methane fluxes in a high Arctic valley

First author: Johan Scheller

06:00 - 22:59 CST, Monday, December 14th

B075-0010 In situ Winter Soil Respiration Measurements in High Arctic Environments

First author: Jacqueline KY Hung and Neal A Scott

06:00 - 22:59 CST, Monday, December 14th

B075-0013 Overwinter Accumulation of Nitrous Oxide in Snow-Covered Sub-Arctic Boreal Soils

First author: Melanie Burnett

06:00 - 22:59 CST, Monday, December 14th

B075-0014 Process-oriented study on events of unusual winter time CO₂ fluxes at the Bayelva site, Spitsbergen

First author: Katharina Jentzsch

06:00 - 22:59 CST, Monday, December 14th

B078-0002 Decomposition signals of warming in Arctic soils identified by FTICR and NMR

First author: Cameron Kyle McMillan

06:00 - 22:59 CST, Monday, December 14th

B080-0003 Using a Bayesian Network Framework to Predict Permafrost Thaw in the Arctic

First author: Katherine Elizabeth Beall

06:00 - 22:59 CST, Monday, December 14th





B080-0004 Improving Arctic-Boreal Ecosystem Processes in Earth System Models with NASA ABoVE Data

First author: Cody Nguyen

06:00 - 22:59 CST, Monday, December 14th

B080-0005 Performance of Carbon Flux Models Across the ABoVE Domain Using Eddy Covariance Measurements

First author: Jeralyn M Poe

06:00 - 22:59 CST, Monday, December 14th

B080-0006 Methane Emissions in the North Slope: Identifying the Source of Model and Observation Disagreement

First author: Shannon Reault

06:00 - 22:59 CST, Monday, December 14th

B080-0007 The Influence of Arctic Tundra Fires on Methane Hotspot Distribution in the Yukon-Kuskokwim Delta, Alaska

First author: Elizabeth Yoseph

06:00 - 22:59 CST, Monday, December 14th

B080-0009 Detecting ecosystem changes by merging multiple satellite remote sensing platforms across the Arctic-boreal zone

First author: Stefano Potter

06:00 - 22:59 CST, Monday, December 14th

B080-0020 Integrating tall shrubs into an individual-based boreal forest gap model to capture vegetation dynamics at the tundra-taiga ecotone

First author: Elise Heffernan

06:00 - 22:59 CST, Monday, December 14th





B080-0024 Inventorying retrogressive thaw slump geomorphology using remotely piloted aircraft systems and evaluating associated downstream impacts

First author: Kevin W Turner, **USPA Member**

06:00 - 22:59 CST, Monday, December 14th

C044-0005 Evaluation of ice nucleating particles and their sources in the central Arctic during the Multidisciplinary drifting Observatory for Study of Arctic Climate (MOSAIC) experiment

First author: Jessie Creamean

06:00 - 22:59 CST, Monday, December 14th

GH007-0012 The COVID-19 Outbreak Initially Improved Air Quality, Reduced Nitrogen Oxide and Carbon Emissions, and Later Reduced the Incidence of Respiratory Diseases in China

First author: Qingqing Sun

06:00 - 22:59 CST, Monday, December 14th

H137-0002 Automated Mapping of Arctic Floodplains to Improve Estimates of Sediment and Carbon Fluxes

First author: Ian Pamerleau

06:00 - 22:59 CST, Monday, December 14th

NONE-TYPE PRESENTATIONS, 13:59 – 14:02 CST

U016-09 Floodplain architecture and organic carbon storage in discontinuous permafrost

First author: Madison Douglas, **USPA Member**

13:59 - 14:02 CST, Monday, December 14th





TUESDAY, DECEMBER 15TH

VIRTUAL PRESENTATIONS, 9:25 – 22:45 CST

B099-03 Beavers engineer vast arctic tundra lowlands of Alaska

First author: Ken D Tape

09:25 - 09:30 CST, Tuesday, December 15th

B099-05 As above, so below: Linkages between ground-layer plant communities and subsurface permafrost characteristics in interior Alaska lowlands.

First author: William Cox

09:35 - 09:40 CST, Tuesday, December 15th

B099-06 Assessing recruitment age and climate sensitivity of deciduous shrubs in tundra disturbed by retrogressive thaw slump thermokarst in the Alaskan Low Arctic

First author: Diane C Huebner

09:40 - 09:45 CST, Tuesday, December 15th

B100-02 Understanding the Drivers of Variability in Forest Structure and Composition in North American Boreal Forest

First author: Amanda Hildt Armstrong

10:40 - 10:45 CST, Tuesday, December 15th

B100-07 Monitoring changes over time in thaw pond size with unmanned aerial systems (UAS): connections to ebullitive methane emissions

First author: Sophia A Burke

11:05 - 11:10 CST, Tuesday, December 15th





B100-09 Comparison of in situ ground temperatures and active layer depths with the ESA CCI+ Permafrost Mean Annual Temperature and Active Layer Thickness products

First author: Mareike Wieczorek

11:15 - 11:20 CST, Tuesday, December 15th

NS006-03 The role of water and ice beneath the surface: insights into the Cryosphere from Near-Surface Geophysical observations

First author: Stephanie R. James, **USPA Member**

12:08 - 12:12 CST, Tuesday, December 15th

B102-01 Analysis of Synthetic Aperture Radar (SAR) over the Seward Peninsula using Machine Learning Techniques

First author: Julian Dann, **USPA Member**

13:30 - 13:33 CST, Tuesday, December 15th

B102-02 Estimating soil moisture in the active layer of the Arctic Foothills using spaceborne InSAR surface deformation data

First author: Yue WU

13:33 - 13:36 CST, Tuesday, December 15th

B102-04 Using space borne Synthetic Aperture Radar (SAR) to detect superseeps in Alaskan lakes

First author: Natalie Tyler

13:39 - 13:42 CST, Tuesday, December 15th

NS007-05 Validation of two resistivity mixing models for determining the unfrozen water content in active layer and permafrost from time lapse electrical resistivity soundings.

First author: Sona Tomaskovicova

13:46 - 13:50 CST, Tuesday, December 15th





NS007-06 Comparative Characterization of a Thermokarst Pond in Nunavik and an Analog Circular Pond in France by Multi-Method Geophysical Approach

First author: Léa Bussière

13:50 - 13:54 CST, Tuesday, December 15th

NS007-08 Measurement metrics as a cause of soil freezing curve hysteresis: Simulating the geophysical observation of soil freeze-thaw

First author: Renato Pardo

13:58 - 14:02 CST, Tuesday, December 15th

B102-11 Gaseous Loss of Nitrogen from Boreal Soils

First author: Tamara Harms

14:00 - 14:03 CST, Tuesday, December 15th

C059-02 Assessing climate change and glacier status in the high Andes of central Chile

First author: Gino Casassa

19:34 - 19:38 CST, Tuesday, December 15th

C059-05 Groundwater in Tibet – invisible and restless

First author: Shemin Ge, **USPA Member**

19:46 - 19:50 CST, Tuesday, December 15th

H186-06 Interdecadal variability of streamflow driven by atmospheric circulation in the Hudson Bay lowlands watersheds

First author: Olivier Champagne

19:50 - 19:54 CST, Tuesday, December 15th

NS012-01 Advances in Marine Electromagnetic Instrumentation

First author: Steven Constable

22:30 - 22:34 CST, Tuesday, December 15th





NH036-02 Permafrost hazard mapping in the discontinuous permafrost zone of Alaska

First author: Dmitry Nicolsky, **USPA Member**

22:40 - 22:45 CST, Tuesday, December 15th

POSTER PRESENTATIONS, 6:00 – 22:59 CST

B091-0012 Reconstruction of metagenome-assembled genomes involved in methane cycling from ancient Siberian permafrost sediments

First author: Danxian Liu

06:00 - 22:59 CST, Tuesday, December 15th

C056-0002 Alpine glacier resilience and Neoglacial fluctuations in the Teton Range, Wyoming linked to Holocene snowfall trends in the western U.S.

First Author: Darren Jon Larsen

06:00 - 22:59 CST, Tuesday, December 1

GC101-0003 Impacts of high-latitude vegetation dynamics on ecosystem carbon turnover under future climate

First author: Zelalem Amdie Mekonnen

06:00 - 22:59 CST, Tuesday, December 15th

H163-0014 A three-dimensional groundwater flow simulation of Granger Basin, Yukon, Canada

First author: Audrey Woo

06:00 - 22:59 CST, Tuesday, December 15th

H167-0013 Evaluation of soil layer discretization in HYPE to analyse water balance components for Nelson Churchill River Basin under changing climate

First author: Ajay Ratna Bajracharya

06:00 - 22:59 CST, Tuesday, December 15th





NH033-0003 Playing the odds: using remotely sensed data to assess risk from wildfire and permafrost thaw in the Arctic

First author: Jennifer Schmidt

06:00 - 22:59 CST, Tuesday, December 15th

NS003-0013 Geophysical Investigations of Drained Lake Basin Taliks, North Slope, Alaska

First author: Rodrigo Correa Rangel, **USPA Member**

06:00 - 22:59 CST, Tuesday, December 15th

NS003-0015 Mass Fluxes through Small River Systems on the Alaskan North Slope in Response to Spatial and Temporal Thermodynamic Variations

First author: Shawn Glenn Gallaher

06:00 - 22:59 CST, Tuesday, December 15th

P065-0015 Subsurface Volume Loss and Collapse due to Surface Infiltration of Osuga Valles' Catastrophic Floods, Mars

First author: Roy Naor

06:00 - 22:59 CST, Tuesday, December 15th

WEDNESDAY, DECEMBER 16TH

VIRTUAL PRESENTATIONS, 6:00 – 22:59 CST

H215-0013 Runoff and Climate Change at the Field-Scale: Comparing Projections and Observations Across Regions

First author: Will Puer

06:00 - 22:59 CST, Wednesday, December 16th





B120-01 Empirical model for estimating hydraulic properties of the organic-rich arctic permafrost soils

First author: Kazem Bakian Dogaheh

10:30 - 10:33 CST, Wednesday, December 16th

B120-03 Ocean-aquifer exchange in a warmer Arctic

First author: Julia Guimond

10:36 - 10:39 CST, Wednesday, December 16th

B120-04 Nearshore Submarine Groundwater Discharge to an Arctic Lagoon

First author: Cansu Demir

10:39 - 10:42 CST, Wednesday, December 16th

B120-05 Phosphorus bioavailability as a function of increasing permafrost thaw and surface ponding in Abisko, Sweden

First author: Maximilian Barczok, **USPA Member**

10:42 - 10:45 CST, Wednesday, December 16th

B120-06 Modeling reactive solute transport in permafrost-affected groundwater systems

First author: Aaron Mohammed

10:45 - 10:48 CST, Wednesday, December 16th

B120-08 Catchment Controls on Solute Exports in a Small Headwater Catchment Underlain with Discontinuous Permafrost

First author: Nathan Alec Conroy

10:51 - 10:54 CST, Wednesday, December 16th

B120-09 Snowmelt Water Retention and Associated Nitrate Redistribution using UAV in Arctic Tundra

First author: Andreas Westergaard-Nielsen

10:54 - 10:57 CST, Wednesday, December 16th





B120-10 Surface Water Biogeochemistry In and Material Fluxes Through Small Rivers on the North Slope of Alaska During the Open Water Season from Spring-to-Fall

First author: Joseph P P Smith

10:57 - 11:00 CST, Wednesday, December 16th

B120-11 Mineral Element and Organic Carbon Transport from Permafrost Soils to a Headwater Stream under Contrasting Flow Regimes and Permafrost Degradation

First author: Catherine Hirst

11:00 - 11:03 CST, Wednesday, December 16th

B120-13 Heterogeneity and photoreactivity of organic carbon from yedoma permafrost and thermokarst influenced aquatic systems in interior Alaska.

First author: Jennifer Guerard

11:06 - 11:09 CST, Wednesday, December 16th

B120-14 Landscape connectivity and dissolved organic matter in a degrading permafrost polygonal landscape

First author: Claire Griffin

11:09 - 11:12 CST, Wednesday, December 16th

B120-15 Dissolved Organic Carbon in Permafrost Soils: Where, When, and How Much Will be Released?

First author: Liam Heffernan

11:12 - 11:15 CST, Wednesday, December 16th

B123-01 The Deh Cho Aboriginal Aquatic Resources and Oceans Management program – linking indigenous peoples and academic researchers for monitoring of aquatic resources in a region of rapid permafrost loss

First author: Mike Low

13:30 - 13:34 CST, Wednesday, December 16th





B123-02 Factors influencing hydrogeochemistry in two permafrost watersheds in the Seward Peninsula, Alaska, USA

First author: Emma Lathrop, **USPA Member**

13:34 - 13:38 CST, Wednesday, December 16th

B123-03 Influence of Thawing Permafrost on Soil-Plant Mineral Element Transfer: Case Study in Interior Alaska

First author: Elisabeth Mauclet

13:38 - 13:42 CST, Wednesday, December 16th

B123-05 Are Water Tracks Wetting or Drying as Arctic Permafrost Thaws?

First author: Sarah G. Evans, **USPA Member**

13:46 - 13:50 CST, Wednesday, December 16th

B123-06 More methane: making the case for explicitly modelling microtopography in permafrost landscapes

First author: Noah Smith

13:50 - 13:54 CST, Wednesday, December 16th

B123-07 Tracing particulate organo-mineral export by a large glacio-nival river and a small headwater stream in Zackenberg valley, Greenland

First author: Lisa Bröder

13:54 - 13:58 CST, Wednesday, December 16th

B123-08 Emerging role of summer rainfall events in driving High Arctic terrestrial-aquatic connectivity

First author: Casey Robert Beel

13:58 - 14:02 CST, Wednesday, December 16th





POSTER PRESENTATIONS, 6:00 – 22:59 CST

B110-0010 Predominance of organic versus inorganic carbon exports from glacier and permafrost watersheds in Qinghai-Tibet Plateau

First author: Congrong Yu and Ying Li

06:00 - 22:59 CST, Wednesday, December 16th

B111-0009 The Role of Viruses in the Carbon Cycle Along a Permafrost Thaw Gradient

First author: Christine Ling Sun

06:00 - 22:59 CST, Wednesday, December 16th

B112-0001 Exploring Stream-Lake Interaction Impacts on the Biogeochemistry of a Lake-Dominated Arctic Watershed

First author: Emma Haines

06:00 - 22:59 CST, Wednesday, December 16th

B112-0002 Investigating Microbial Phosphorus Acquisition in the Presence of Iron across a Permafrost Thaw Gradient in Abisko Sweden.

First author: Chelsea Smith

06:00 - 22:59 CST, Wednesday, December 16th

B112-0003 Soil Characteristics and Plant Functional Groups across Successional Stages of Ice-wedge Degradation and Re-stabilization in the Tundra of Northern Alaska

First author: Kelcy Kent

06:00 - 22:59 CST, Wednesday, December 16th

B112-0005 Exploring linkages between dissolved organic matter and dissolved silicon in Arctic rivers influenced by a gradient of permafrost degradation

First author: Joanna Carey

06:00 - 22:59 CST, Wednesday, December 16th





B113-0003 Novel Metagenome-Assembled Genomes from Siberian Marine Sediment Expand the Diversity of Candidatus Coatesbacteria Phylum

First author: Abigail Baskind

06:00 - 22:59 CST, Wednesday, December 16th

C063-0011 The role of snow timing in permafrost degradation

First author: Ahmad Jan and Scott L Painter

06:00 - 22:59 CST, Wednesday, December 16th

GC115-0021 Surface Moisture Budget of Tundra and Boreal Ecosystems in High Latitudes: Variations and Drivers

First author: Sarah Thunberg

06:00 - 22:59 CST, Wednesday, December 16th

GC116-0012 DON Cycling in the Eastern Canadian Arctic Archipelago from Isotopic Data

First author: Holly Westbrook

06:00 - 22:59 CST, Wednesday, December 16th

GC116-0014 Model Simulations of Arctic Biogeochemistry and Permafrost Extent Are Sensitive to the Implemented Snow Scheme

First author: Alexandra Pongracz

06:00 - 22:59 CST, Wednesday, December 16th

H194-0002 Modelling Evolution of Discontinuous Permafrost Landscapes and Hydrology

First author: Shaghayegh Akbarpour

06:00 - 22:59 CST, Wednesday, December 16th





MR017-0007 Testing the temperature dependence of high-alpine erosion with in situ cosmogenic ^{14}C - ^{10}Be - ^3He

First author: Donovan Dennis

06:00 - 22:59 CST, Wednesday, December 16th

NS014-0008 Three-dimensional seismic structure of Shale Hills watershed: evidence of hydrologic and lithologic imprints on deep Critical Zone Structure

First author: Wei Wang

06:00 - 22:59 CST, Wednesday, December 16th

PP047-0003 Glacial-to-interglacial fire-vegetation-climate feedbacks during marine isotope stages 11 and 12: a multi-fire proxy study using sediments of Lake El'gygytgyn, NE Siberia

First author: Elisabeth Dietze

06:00 - 22:59 CST, Wednesday, December 16th

PP047-0008 Fire and climate in the eastern Siberia over the past 500 years (1500-2010 CE)

First author: Guobao Xu

06:00 - 22:59 CST, Wednesday, December 16th

PP047-0010 The Role of Paleoecology in Elucidating the Spatiotemporal Dynamics of Tundra Fires

First author: Melissa L Chipman, **USPA Member**

06:00 - 22:59 CST, Wednesday, December 16th





THURSDAY, DECEMBER 17TH

VIRTUAL PRESENTATIONS, 6:00 – 9:28 CST

H221-01 What can we learn from existing satellites about Arctic river discharge: a new 30-year reanalysis

First author: Dongmei Feng

06:00 - 06:04 CST, Thursday, December 17th

MR029-02 Stress and Strain Resulting from Water Adsorption on an Induced Tensile Fracture in Fine Grained Granite

First author: Kerry Leith

07:38 - 07:42 CST, Thursday, December 17th

H225-04 Impact of Changing Frozen Ground Regimes on Groundwater Recharge

First author: Katrina Rabeler and Steven P Loheide III

07:39 - 07:42 CST, Thursday, December 17th

H225-14 Modeling the spatial variability of the snow cover in a high Arctic tundra with continuous permafrost using a physically based model

First author: Hadi Mohammadzadeh Khani

08:09 - 08:12 CST, Thursday, December 17th

EP069-09 Constraints on Geologic Carbon Release at the End of the Last Ice Age From the Planetary Radiocarbon Budget

First author: Ryan Green

09:25 - 09:28 CST, Thursday, December 17th



PERMAFROST MONTHLY ALERTS (PMA)

In addition to this year's permafrost compilation, we welcome you to check out the [USPA Permafrost Monthly Alert \(PMA\) Program](#), an online database of permafrost publications maintained by the [American Geosciences Institute \(AGI\)](#) and the [USPA](#). You will find the references in this publication located in our planned 2021 PMA Special Alert for the [#AGU20](#) Fall Meeting. This will be a continuation of our successful Special Alerts in 2018 and 2019 for the annual AGU Fall Meetings. Please see these and other Alerts on the links provided below. For more information on our PMA Program, see our 2019 AGU Fall Meeting poster session.

If you do not see a publication you have written, or know of one that should be included, be sure to contact us with full details on the recommended publications. Please share the PMA Program links with friends and colleagues.

Enjoy the [#AGU20](#) Fall Meeting.... Michael Lilly, USPA Communications Committee Chair

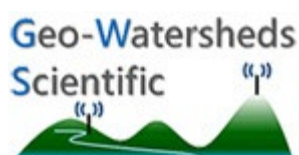
PMA PROGRAM LINKS

How does The PMA Program work? See our [2019 AGU Poster](#) to find out!

Where can you find permafrost abstracts? Check out the [PMA Program page](#).

Want to be a 2020 PMA sponsor? Fill out the [2020 PMA Program Sponsorship form](#).

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