

Vol 2, Issue 1

Thawing Ground

A Newsletter of the US Permafrost Association



New Board Members and Artificial Intelligence

The mission of USPA is to advance permafrost science and engineering, support career development for students and early-career professionals, and facilitate international collaborations.

USPA Contacts

Eva Stephani, President **new**

Jonathan O'Donnell,
President-elect **new**

Wendy Presler, Treasurer
Wendy.presler@shanwil.com

Katherine Schexneider,
Secretary
secretary@uspermafrost.org



Eva, at work for USGS

The Active Layer

A Dangerous Dynamic

Currently in pre-print for *Earth System Science Data*, check out “Permafrost-wildfire interactions: Active layer thickness estimates for paired burned and unburned sites in northern high-latitudes.” Authored by Woodwell Climate’s Anna Talucci and several colleagues, including USPA’s new president-elect, Jonathan O’Donnell, this work offers extensive detail on the dangerous effect of wildfires, which we know are on the rise, on permafrost thaw and active layer thickness. Their publicly available FireALT data set shows well-matched pairs of sites—burned and unburned—for clear comparison to demonstrate the impact of wildfires. Covering the US, Canada, and Russia, and a timeline of 122 years, the data include nearly 48,000 ALT estimates to lay out a very comprehensive survey and analysis of a dynamic this planet hardly needs. Read the article here:

<https://doi.org/10.5194/essd-2024-526>

Vladimir Romanovsky Wins 2025 IASC Medal

IASC has awarded our board member and permafrost’s incredible scientist, researcher and promoter of international collaboration with its annual medal. We could not be more proud. Or surprised. USPA and the broader community are so fortunate to have him in our midst. Read all about it here:

<https://iasc.info/capacity-building/medal>

What did we learn at AGU?

There were many informative sessions on permafrost at AGU 2024 and a wide range of perspectives.

In SAR, Julian Dann spoke on remote sensing and modeling to evaluate seismic impacts. Another remote sensing paper was Tugce Baser’s, emphasizing the importance of physical understanding of the permafrost environment as we seek a unified picture of it.

Presenters gave us a wide geographic picture of the state of permafrost. Huiru Jiang used LANDSAT to generate a new NDVI dataset and described conditions in the Tibetan plateau. Tatyana Sidorova kept us up to date on the urban impact of permafrost in two Russian Cities, and Qianlai Zhuang looked at wildfire impact in No. America and Northern Eurasia.

Joshua Rady also covered wildfires, addressing the impact on GHG emissions. Dan Zhu looked at the effect of wildfires on soil organic carbon. Carbon cycling received extensive treatment from Helene Genet (a circumpolar study) and Daniel Peters (NW Canada focus).

NOAA’s Tania Mendoza Martinez shared an early warning system for destabilization at the Barrow Observatory.

What kind of research does new President, Eva Stephani, do?

In 2022, Eva co-authored a research paper on the challenges of developing services and transportation in northern Canada, specifically around the presence of permafrost and its continuing instability. Her work outlined the features of permafrost dynamics including climate, surface, subsurface, and infrastructure considerations. Check it out: <https://journalhosting.ucalgary.ca/index.php/sppp/article/view/73187/55832>

Quotes

“The inputs of metals are so large, we can see them from space.”

Brett Poulin, Asst Prof, UC Davis, talking about the influx of metals into Alaskan streams and rivers due in part, we believe, to thawing of permafrost. Watch the 5 min video on this topic:

Alaska's Rusting Rivers: The Alarming Impact of Permafrost Thaw on Arctic Rivers

<https://www.youtube.com/watch?v=sBFhsGAFlaw>

What's Next for (Permafrost) Science?

Well, my guess is AI. Researchers have already published on model development. LANL's Thaler and his USPA colleagues Rowland, Schwenk and Bennett, describe a model for the Seward Peninsula:

<https://doi.org/10.1029/2023EA003015>

In *Env Res Letters*, Gay *et al.* discuss permafrost carbon dynamics in Alaska:

<https://doi.org/10.1088/1748-9326/ad0607>. And Google has awarded

\$5M to Woodwell Climate Research Center to study AI and permafrost. Former USPA president, Anna Liljedahl, leads this project.

My question is: Is AI just an incremental step in technological advance in permafrost science, or is it a seismic shift? What do you think?

Jerry Brown Receives USPA Lifetime Achievement Award.

At the USPA Annual Meeting and Social during AGU (Dec 9, 2024), President Ming Xiao was proud to present founding member Jerry Brown its first Lifetime Achievement Award. Jerry's been a huge force in permafrost science and engineering for half a century, and we are so grateful for his superior work and ongoing support even as he approaches his 90th birthday. Thank you, Jerry!

President Ming Xiao with Jerry Brown at the AGU Meeting



New Board Members:

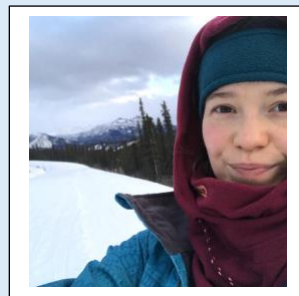
Jon O'Donnell is our new president-elect. An ecologist for the National Park Service in Anchorage, he studies the effects of permafrost thaw on aquatic ecosystems (see Active Layer article). His recent work has focused on the rusting of Arctic rivers, and Jon has discussed these issues with several media outlets (thank you!!). Check out his recent radio interview and his current NPS project:

[Radio](#)

[Project](#)



Alena Giesche is a new general member. A geologist for the US Geological Survey in Anchorage, she studies paleoclimate and environmental landscapes from the distant past into the future and works on permafrost mapping from surficial geologic deposits. Alena has studied in New Zealand, Switzerland and the University of Cambridge (OK, we're jealous!) Here's her recent work: [Dataset](#)



Permafun Corner



During what period did Jerry Brown serve as the IPA Secretary General and President?

- A. 1992-1995
- B. 2017-2020
- C. 2003-2008
- D. 2007-2014

UAF-IARC Booth -AGU



Membership Renewal Reminder

Haven't renewed your membership yet? Please do. Here is the link:

<https://uspa.memberclicks.net/join-now->

It was 20023-2008, and in 2020, Jerry received Lifetime recognition from IPA for his six decades of work!

A HUGE THANK YOU TO OUR CORPORATE AND INSTITUTIONAL MEMBERS!



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