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Thawing Ground

A Newsletter of the US Permafrost Association

Spotlight on the Future: PYRN

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

At AGU last month, Cryosphere Chair Asa Rennermalm led the discussion, "The end of the golden era of polar and cryosphere science in the United States?" Several luminaries in the field spoke, and while they denied that we're at an end, they very clearly stated that we need the upcoming generation to stay the course, to face every challenge with perseverance and optimism, and to continue the outstanding work of their predecessors. In permafrost, we have PYRN. I think they're up to the task. Read on to learn about the US branch of PYRN.

PYRN Mission Statement

PYRN is an international organization which fosters collaborations and seeks to recruit, retain and promote future generations of permafrost researchers. PYRN supports the multi-disciplinary talents of its members as a long-term approach towards meeting global awareness, knowledge and response of permafrost challenges in a changing climate.

The Active Layer

This just in from *Permafrost and Periglacial Processes:*
"Shrubs strongly influence snow properties in two subarctic watersheds"
https://doi.org/10.1002/ppp.2263

As we celebrate the fantastic work being done by Permafrost Young Researchers Network (PYRN), we use the Active Layer to discuss a 2025 article by several PYRN folks, most of whom are also USPA members.

The lynchpin between expansion of shrubs (and some taller vegetation) and potential drivers of permafrost instability (thawing, changing distribution, etc.) is snow. The duration of snow cover, the amount of snow insulation, the timing and duration of snowmelt, and average ground temperature were measured, analyzed and clearly linked to the presence or paucity of shrubs in a given study area. Lathrop and her colleagues measured these parameters in the Seward Peninsula at ~100 sites, divided into shrub patches and areas outside these patches. Their primary hypothesis was borne out. In shrubby areas, the ground surface temperature was 2.1C warmer, snow persisted 50 days longer, snow insulation was double, and the spring snowmelt period started later and lasted longer, when compared to non-shrubby areas. So how is shrub expansion actually impacting the carbon balance of permafrost? Well, we don't fully understand this yet. The authors offer some of their data and bring in some previous observations, and state that we need more research to obtain a clearer picture.

Strong work by some super PYRN folks! Check it out.

What did PYRN accomplish in 2025?

Well, plenty. Current president Natalie Arpin and others partnered with SEDNA, a student skills and networking program to help manage permaintern.org, an international platform connecting students, internship hosts, and university supervisors, with the goal of strengthening the pipeline of early-career permafrost scientists.

In June, past-president Emma Lathrop and colleagues held a workshop on effective planning and challenges of fieldwork with a panel of five experienced scientists and engineers sharing their wisdom. Webinars included sessions on ground ice in Canada, modelling and technology, permafrost and linear infrastructure, and a nuts and bolts "Permafrost 101."

Check out all the awesome stuff they've been up to on their Facebook page: https://www.facebook.com/PYRNofficial. Find out what a "Frostbyte" is and how well PYRN makes these.

What's the most impactful activity PYRN-US does?

Hailey Webb: "PYRN-US organizes is in-person meetings at large conferences like AGU. I've seen firsthand how bringing early-career permafrost researchers together in the same space fosters life-long friendships and professional connections. When many of us feel burnt out, these gatherings often reignite excitement for research, strengthen ongoing collaborations, and spark entirely new projects."

Roger Creel: "Beyond what Hailey said, PYRN's social media presence contributes meaningfully to the experience of young permafrost researchers internationally by serving as an aggregator for opportunities including conferences, webinars, fieldwork and more."

Natalie Arpin: "From a broader network perspective, collaboration between (int'l) PYRN and PYRN-US connects early-career researchers in the United States and around the world, which is essential in building networks and learning about the diversity of research being completed in this space."

Emma Lathrop: "It facilitates early career researchers making connections and networking outside their lab, company, institution, or country." Her executive committee meeting spanned all 24 time zones!

Julian Dann: "I believe the most impactful thing PRYN does is enable early career permafrost researchers to build their research networks that will sustain them throughout their academic careers."

What do you want to share with the wider permafrost community?

Hailey: "…engage with early-career researchers as much as possible. Mid- to late-career scientists… may not have the bandwidth to develop new projects or lead large synthesis efforts. However, many early-career researchers are eager to take on those challenges and would benefit from mentorship, collaboration, and leadership opportunities."

Roger: "The permafrost community, tight-knit as it is, can always benefit from cross-pollination with other scientific fields. So, I encourage permafrost researchers to build connections at conferences and even through cold-call emails with researchers outside our field to find novel research angles."

Emma: "Our generation of early career researchers have already endured significant challenges: pandemic, major geopolitical events, and significant funding cuts to science and research. Continued support from organizations like USPA and from established researchers is so important!"

Julian: Keep focusing on how science can be used to mitigate the impacts of and help communities to adapt to a changing environment. Don't forget your 'why'."

Natalie: "…the importance of building connections and a network in the permafrost community. Connecting and learning from others across disciplines is incredibly important when developing solutions to current and future challenges in the permafrost space. Creating spaces to connect both virtually, and more importantly, in person, is essential. I encourage senior members to support these efforts and include ECRs so we can learn and connect with one another in the future."

Next Steps: What's on Tap?

Hailey: "A lot of my PhD research has been conducted in collaboration with DoD's Cold Regions Research and Engineering Laboratory, and I really enjoy that type of applied, mission-driven science. Looking ahead, a career with CRREL would be exciting, particularly if they ever open an office in Colorado."

Roger: "I just started a new position as an Asst Prof. at Texas A&M, so I'm working to build my group and recruit bright PhD students. So, if you know anyone interested in geophysics research on coastal permafrost and its interactions with sea level, please reach out!"

Natalie: "I am looking forward to completing my term as President of PYRN and the last activities that we have planned. Along with completing my PhD this year and starting a new job in geotechnical engineering in July!"

Emma: "I'm excited to be finishing my Ph.D. this spring! I really enjoy teaching and mentoring undergraduates and I plan to stay in academia and continue my research in permafrost carbon cycling."

Julian: "I graduated with a Ph.D. in geophysics in December from UAF and am looking forward to taking some time to relax and recharge before diving back in. I am looking for research opportunities to contribute actionable science for communities and land managers. If you know of any, please reach out."

Portugal


Hailey Webb


Roger Creel

Natalie Arpin


Emma Lathrop


Julian Dann

How does one get involved?

The best way to connect with PYRN is to email them at contact@pyrn.org If you are looking for opportunities to get involved with the national network, nominations for the 2026-2028 committee will occur in the spring. Stay tuned for additional details. Natalie Arprin is the current president and would love to hear from you.

Permafun Corner

Twenty-six countries have PYRN national representatives. Which one does *not*?

A. Nigeria
B. Portugal
C. Chile
D. Spain

In other news…

Benjamin Jones and Phillip Wilson, USPA members and based at the Institute of Northern Engineering (INE) at the University of Alaska Fairbanks, are undertaking a ~1,600-mile snowmachine traverse called Collaborative Observations of the Arctic Shorezone: a Traverse for knowledge eXchange (COAST-X). COAST-X will travel from Bethel to Utqiaġvik along Alaska's western and northern coasts, linking communities and shore zones through shared observations and knowledge exchange in rapidly transforming Arctic environments. COAST-X is supported by NSF and CRREL and INE. To learn more and to track the journey in real time this spring, visit https://coast-x.alaska.edu/.

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