



**U.S. Permafrost Association
Celebrating the First Twenty Years
(2002-2022)**





Front Cover and Inside Front Cover

The 35m-high Yedoma exposure, Ikillik River, northern Alaska. Yedoma is the ice- and organic-rich syngenetic permafrost, which accumulated in unglaciated regions during the late Pleistocene over vast regions of Eurasia and North America (Kanevskiy et al, 2011, Shur et al. 2022). These silty deposits formed as a result of predominantly eolian, fluvial, and slope sedimentation. They contain large ice wedges, which can reach up to 10 m in width and more than 40 m in vertical extent. Photographs and caption provided by Mikhail Kanevskiy, University of Alaska.

Back Cover and Inside Back Cover

During the Ninth Conference on Permafrost (NICOP) a new series of maps was produced to show the current state of understanding for Alaskan permafrost and other environmental factors (Jorgenson et al. 2008).

U.S. Permafrost Association Celebrating the First Twenty Years (2002-2022)

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June 2023

U.S. Permafrost Association, Fairbanks, Alaska

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Preface

This report has been prepared as documentation of the 20-year history (2002-2022) of the U.S. Permafrost Association. To facilitate activities and products related to the 20th anniversary, the USPA established the 20th Anniversary Ad hoc Committee (20COM). The 20COM activities included an exhibit booth and special permafrost session at the Fall Meeting of the American Geophysical Union in Chicago, an online presentation to the Interagency Arctic Research Policy Committee (IARPC) Permafrost Collaboration Team of the USPA history, a day-long engineering workshop in Anchorage, and a summary report of the 2022 USPA activities (see IPA Frozen Ground 46, page 28). Additional details of past and current activities and recognitions are present throughout this report.

In commemoration of the 20th Anniversary, we have asked Past Presidents (President's Council), current Board members, past Board members and Chairs, 20COM student team members and our long-term American Geosciences Association representative to provide testimonials related to, but not limited to, how the Association has helped advance the state of knowledge and cooperation among scientists and engineers, to encourage involvement of student and young professionals, and personal thoughts on how the Association has contributed to or highlighted the individual's career. Other members of the USPA community are invited to submit testimonials to be posted on the USPA website. The current contributions are presented at the end of the report and additional post-publication testimonials will be added to USPA website.

The 20COM membership included current 2022 Board members: John Thornley, Anna Wagner, Michael Lilly, Emma Lathrop, Fritz Nelson, Ed Yarmak, Katherine Schexneider, Ming Xiao, and non-Board Members: Larry Hinzman and Jerry Brown, Chair 20COM. Assisting the Ad hoc Committee were Student Members: Elizabeth Kubacki and Kristina Levine, Texas A&M University; Xiaohang Ji, Penn State University, and Kaytan Kelkar, University of Alaska Fairbanks. Initial review comments were provided by USPA Past Presidents John Zarling and Oliver Frauenfeld, and Katherine Schexneider, USPA Secretary. Additional editorial changes were provided by Mikhail Kanevskiy. Elizabeth Kubacki maintained the updated wiki versions of this document and Kristina Levine contributed to sections on Outreach and related activities. Ed Yarmak provided valuable information on professional recognition and the role that the American Society of Civil Engineers has played.

Michael R. Lilly, GW Scientific; Past Chair, Communications Committee
Jerry Brown, Chair, USPA 20th Anniversary Subcommittee; Past Chair, Membership Committee
Larry D. Hinzman, University of Alaska Fairbanks
Frederick (Fritz) E. Nelson, Michigan State University

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Introduction

The U.S. Permafrost Association (USPA) is a professional membership organization that currently consists of more than 270 individual scientists, engineers, students, agencies, university departments and institutes, and corporate members. The Association was incorporated in the State of Alaska on December 21, 2001. It was formally organized with its first Board of Directors in 2002; thus, we consider 2022 the Association's 20th Anniversary for the commemoration of its multi-decadal activities.

The primary objectives of the Association have been to foster the dissemination of knowledge concerning permafrost and promote cooperation among persons and local, national and international organizations engaged in permafrost investigations as related to science and engineering. The organization has also promoted better understanding of the role of permafrost in related studies on topics including climate, ecosystems, geophysics, geochemistry, hydrology, soil science, microbiology, social sciences, and many other investigations conducted in cold regions. The USPA has always strived to engage members from scientists and engineers of a wide range of disciplines to promote communication and understanding of permafrost among all professionals and students working in cold regions.

The mission of the Association is to provide a forum for the U.S. permafrost scientific and engineering communities and to provide input reflecting the views of Association members to the International Permafrost Association. The Association encourages scientific and engineering investigations on permafrost and related topics and the dissemination of results related to permafrost research and engineering. The USPA provides a platform for communication, collaboration, and coordination among researchers and practitioners to enhance permafrost science and engineering. The USPA also promotes development and activities of the Permafrost Young Researchers Network (PYRN). Activities of the Board of Directors and Association's committees are related to education, communications, membership support, and public outreach.

During our first two decades, major achievements of the Association focused on:

- developing and promoting national interest in permafrost science and engineering;
- organizing, supporting, and attending international and regional conferences of the International Permafrost Association;
- providing support to students and young scientists and engineers to participate in national and international conferences;
- developing and maintaining a program to provide easy access to and preserve, in a single location, the world's current and historical permafrost literature via Permafrost Monthly Alert (PMA) Program and the Cold Regions Bibliography (COLD);
- developing mutual working relations with national and international professional organizations and associations; and
- developing and maintaining a diverse membership of individuals, agencies, academic institutions and corporate organizations.

To celebrate the 20th anniversary, several major activities were organized in Fall 2022:

1. A workshop on permafrost science and engineering in Anchorage (November 4, 2022).

2. An Internet briefing to the Interagency Arctic Research Policy Committee (IARPC) Permafrost Collaboration Team (November 10, 2022).
<https://www.iarpccollaborations.org/members/events/22701>
3. Week-long activities at the Fall Meeting of the American Geophysical Union in Chicago (December 12-16, 2022).

The day-long Anchorage workshop brought together some 40 engineers and scientists to review past and current problems and approaches associated with permafrost under a warming climate.

The IARPC presentation was prepared by members of the 20th Anniversary Ad hoc Subcommittee led by Michael Lilly, Chair, Communications Committee and assisted by student team members. Larry Hinzman, a founding member, recounted the early activities leading up to the organization of the USPA (Figure 1). Select illustrations from the presentation are presented in this historical report.



Figure 1. International Permafrost Conferences leading up to the formation of the USPA.

In addition to the 2022 USPA Board meeting and DEI Committee mentoring lunch that included 21 participants (10 mentees and 11 mentors), a series of USPA commemorative activities were organized and took place during the Fall Meeting of the American Geophysical Union in Chicago.

For the first time, USPA organized a booth in the AGU Exhibit Hall (Figure 2). It was well-attended throughout the week and displayed current and past Association activities, and provided complimentary and saleable memorabilia.

1. The Annual meeting and awards ceremony and social event took place on the evening of December 13 and was attended by approximately 125 members and guests. Thirteen USPA-PYRN Educational Program (UPEF), Permafrost Engineering Education Program

(PEEP) and Slater student awards totaling \$10,000 were presented as well as awards to the 20COM student assistants.

2. On December 16, a series of 29 in-person and online oral presentations and posters were presented related to Alaskan permafrost and infrastructure (titles and authors are included in Appendix 1.) We estimate that there were well over 100 in-person and online attendees, in addition to those viewing the in-person poster session.

Schedules of these events and abstracts of the 417 permafrost-related presentations are contained in the AGU Fall 2022 Permafrost Guide: <https://www.uspermafrost.org/agu-permafrost-guides>.



Figure 2. USPA booth at Fall 2022 Meeting AGU meeting. Left to right: Ming Xiao, John Thornley, Ed Yarmak and Anna Wagner; seated is Elizabeth Kubacki (Communications Committee).

Organization

The proposed Association's activities during 2001 were focused primarily on establishing a non-profit organization, incorporating it in Alaska, and defining goals and by-laws. In Spring 2001 an initial survey was organized by Larry Hinzman, Water & Environmental Research Center (WERC), University of Alaska, to a wide-ranging group of scientists and engineers with permafrost interests. Gary Whitton volunteered to set up the initial USPA website (<https://uspermafrost.org>) and Michael Lilly, Geo-Watershed Scientific became the primary editor. By June, Golder Associates, Inc., Geo-Watershed Scientific and WERC had become the initial Corporate and Institutional members. Based on numerous favorable responses to form the organization, draft Bylaws were prepared by Hinzman assisted by Rupert "Bucky" Tart (Golder), Michael Lilly, and Jerry Brown. The new membership organization would strive to advance the understanding of permafrost-related subjects. Hinzman and Lilly prepared the Articles of Incorporation and Bylaws and submitted them to the State of Alaska. On Nov 19, 2001, the USPA was certified as a Non-Profit Corporation by the State of Alaska. This allowed for the organization to legally elect officers and begin its activities.

The new organization held its first meeting in December 2001 at the Annual Fall Meeting of the American Geophysical Union (AGU) in San Francisco, CA. Hinzman and Tart served as interim

officers until the first Board of Directors elections were completed in early 2002. The first elections were held in 2002, with Douglas Kane elected as the Association’s first president. Membership by March totaled 80.

In 2003, the USPA was unanimously elected by the American Geological Institute’s (AGI) Member Society Council as its 42nd Member Society (<https://www.americangeosciences.org/>). From its very beginning the USPA established and maintained close coordination with the American Society of Civil Engineers and its cold regions committees. In 2022, the USPA and the Arctic Research Consortium of the United States (ARCUS) formally exchanged organizational memberships.

Over the years annual meetings of the Board and Association members continued to be held in conjunction with the Fall Meetings of AGU in San Francisco (2001-2016, 2019), New Orleans (2017, virtual 2021), Washington DC (2018 and virtual 2020) and in Chicago (2022). These annual meetings entailed reports from the Association’s Board including results of the annual election, individual member reports, and a social gathering of members and guests of 100–150 participants. In the early years these meetings were held in the Marriott Hotel in San Francisco, but recently have been held in less formal venues: Thirsty Bear in San Francisco; Howling Wolf in New Orleans; Fado Irish Pub and Restaurant in DC, and Kroll’s South Loop in Chicago.

Officers and Committees

The Association’s Bylaws provide the framework for Officers and Board of Directors, committees and several categories of membership. The Officers of the Association are the President, President-Elect, Secretary, and Treasurer. The current Board of Directors (Association Board) consists of the four Officers of the Association, the Past-President of the Association, one appointed position by PYRN, four other regular Association members, a member on the International Permafrost Association (IPA) Executive Committee, and the two US representatives to the IPA Council. Officers and Board members are listed in Appendix 2 by year.

Every effort is made to alternate the Association’s Presidency between an engineer and scientist as demonstrated in Figure 3.

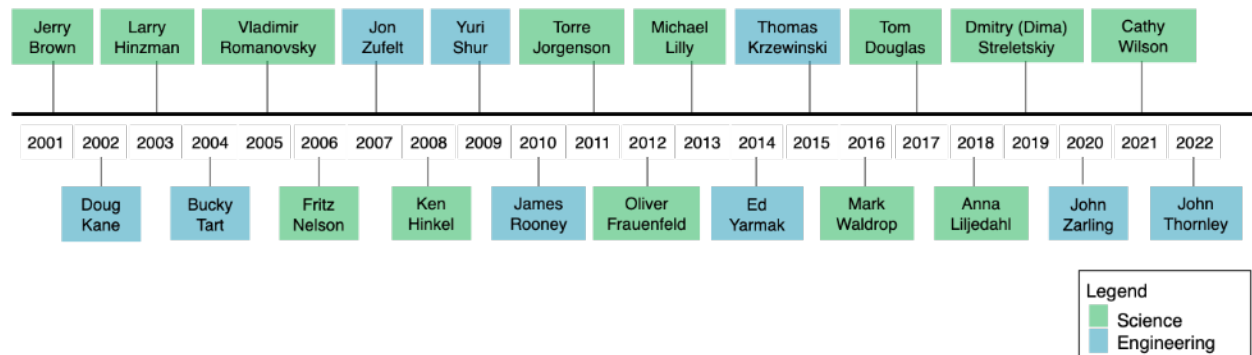


Figure 3. Past Presidents with designation as science or engineering.

A generic set of standing committees were defined in the Constitution's first Bylaws as approved on December 4, 2001. The Bylaws were modified eight times between 2005 and 2022 and included the designation of the following committees: Auditing, Membership, Nominating and Tellers, Program, Communications, Presidents Council, and Diversity, Equity and Inclusion Advisory (Appendix 3).

In the early years, the standing committees were relatively inactive because many of the activities were addressed by Ad-hoc committees focused on planning and conducting the 2008 Ninth International Conference on Permafrost (NICOP) and related efforts to develop membership. The exception was the annual Nominating and Tellers Committee required for the annual election of new Association Board members. Following NICOP, which officially ended in 2009, the Association started to focus on more strategic growth and development and committees began to function in a more formal manner.

Founded on financial reserves remaining from NICOP, two educational funds were setup in 2008 and followed in 2010 by the formation of two committees to manage each educational fund and its goals. The USPA-UAF Educational Fund (UPUAF) was developed in recognition of the important and strategic role the University of Alaska Fairbanks (UAF) played in co-hosting NICOP. The other fund started in 2010 was devoted to the USPA-PYRN Educational Program (UPEF). UPEF is ongoing as a long-term educational program that helps in strategic interactions with PYRN. During 2010, the USPA also formed the Permafrost Engineering Education Program (PEEP), and its committee remains active to date. Original PEEP funding was based on a major contribution from the Permafrost Technology Foundation, a non-profit that had a mission to educate the public, engineering, and the construction communities on home building designs on permafrost sites.

The Communications Committee (CCOM) was formed in 2010 to improve communication between the USPA membership and the public. CCOM developed and subsequently maintained the website through 2021, was responsible for a series of publications and programs that include: annual reports and summaries to the IPA's Frozen Ground News Bulletin, the Permafrost Monthly Alert (PMA) Program, the annual AGU Guide to permafrost-related presentations at annual meetings, and maintenance of the USPA wiki site, which serves as the historical and current virtual office for the USPA. CCOM also established USPA's social media presences on Facebook and most recently a LinkedIn USPA account. In 2022, The 20th Anniversary Subcommittee was established to develop and implement activities for the 20th Anniversary.

The President's Council was formed in 2014 to assist the Association with strategic planning, fund raising, and oversight review when needed. In 2019, the Association established the Diversity, Equity and Inclusion Committee. A short-term committee was formed in 2019 to support the University of Alaska during a period of critical funding challenges. A Public Relations Committee was approved in 2021, initially in support of the 2021 Regional Conference on Permafrost (RCOP). Adding Student Chapters to the Bylaws was discussed in late 2022, with the first Chapter proposed for the University of Alaska. Discussions of consolidating the activities of the Membership and Communications Committees and PR Ad-Hoc Committee were also initiated in 2022.

The Membership Committee resumed many of its activities in 2019, including membership renewals, active solicitation of new members, preparation of semi-annual membership reports, and additional inputs to annual USPA and *Frozen Ground* reports. Prior to 2000, the IPA *Frozen Ground* News Bulletin was prepared in the United States and distributed internationally. Subsequently it was prepared by the IPA Secretariat in Norway, and currently by the Secretariat in Canada. Annual reports of US activities appear in *Frozen Ground*. (<https://www.permafrost.org/frozen-ground-newsletter/>)

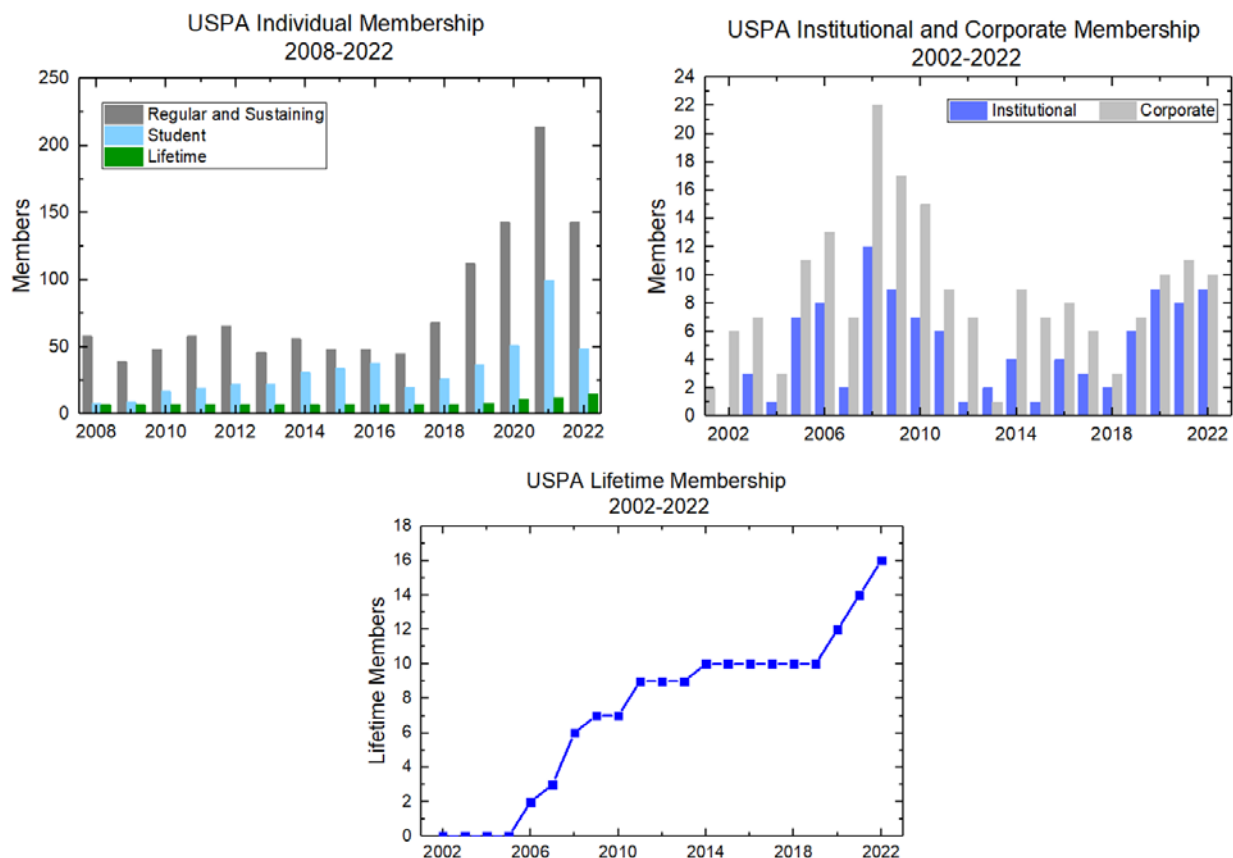
Beginning in 2002 and until mid-2021 USPA administrative and accounting activities were performed on an *in-kind* basis by GW Scientific, Inc. in Fairbanks, under the supervision of Michael Lilly. These included oversight of the development and maintenance of the website and internal wiki site, annual and five-year budgetary documentation, and maintenance of membership records and issuance of annual renewal notices. In mid-2021, MemberClicks Services were used for membership renewals and records and the Public Relations Ad-Hoc Committee redesigned the website. Some of these latter functions were in direct support of the 2021 RCOP conference. The elected USPA Treasurer is currently maintaining overall financial activities.

Membership

USPA serves its members and the scientific, engineering and public communities. Major categories of membership are: (1) Corporate and Institutional and (2) Individual members. Individual categories and annual fees are: Regular (\$30), Student (\$10), and Sustaining (\$250); and one-time fee for Lifetime (\$1000). The annual Corporate and Institutional fees are: Ice Vein (\$100), Ice Wedge (\$300) and Massive Ice (\$1000). In 2013, the Regular membership fee was increased from \$20 to \$30. Student membership fees have remained unchanged.

A one-time Corporate Lifetime membership was approved for Arctic Foundation in 2012 in recognition of its early and continuing substantial contributions to the Association.

The following diagrams in Figure 4 demonstrate membership trends and fluctuations over time.



Jerry Brown (2006)	C.W. Lovell (2008, deceased)
Billy Conner (2021)	Frederick Nelson (2006)
Tom Douglas (2020)	James Rooney (2009)
Larry Hinzman (2008)	Ted Schuur (2022)
Ben Jones (2023)	Donald (Skip) Walker (2021)
Torre Jorgenson (2011)	Melissa Ward Jones (2022)
Doug Kane (2007)	Ming Xiao (2020)
Michael Lilly (2014)	John Zarling (2011)
Erv Long (2008, deceased)	

Figure 4. Historical records of membership: Upper Left- Individual Membership (2008-2022); Upper Right -Institutional and Corporate (2002-2022); Middle Center - Graph of Lifetime Members and names by year.

Numbers of members in major categories have fluctuated depending in part on participation in major conferences. In recent years membership has become more interdisciplinary. Pre-2008 NICOP membership varied around 100 members. Recent membership numbers have increased from 170 in 2019 to more than 260. Membership temporarily peaked to 350 in late 2021 as a result of a reduced registration fee offered for the October 2021 RCOP. Over the past 20 years, memberships by corporations and companies have totaled 34 and academic, professional and government organizations have totaled 24 (see Appendix 4 for complete lists). In addition, numerous organizations and companies have sponsored Association activities including meetings

and conferences. See Figure 5 for a display of recent corporate and institutional members and sponsors.

Details of membership for the past four years are presented in the following table.

USPA	2019	2020	2021	2022
Membership Type				
Corporate	7	9	11	10
Institutional	6	9	8	10
Regular	110	142	213	158
Sustaining	2	1	2	1
Students	37	49	100	69
Lifetime	7	10	12	14
Lifetime Corporate	1	1	1	1
Total Members	170	221	351	263

Table 1. Membership categories for 2019 through 2022.

For the U.S. approximately 60 individual members of all ages and professional status are currently listed on the PYRN membership website (<https://pyrn.arcticportal.org/join-us/member-list>).



Figure 5. Recent Institutional and Corporate Member and Contributors.

Permafrost Young Researcher Network

Following the second European Conference on Permafrost held in Potsdam, Germany, in June 2005, Hugues Lantuit, then PhD student at the Alfred Wegener Institute for Polar and Marine Research, suggested to the IPA President, Jerry Brown, to create an organization of young researchers involved in permafrost studies. PYRN was officially founded in November 2005 at the International Conference on Arctic Research Planning (ICARP II) as an IPY education and outreach activity of the International Permafrost Association. PYRN's main objective was to offer a platform for young permafrost researchers to exchange knowledge and experience. The network was led and managed entirely by early career researchers. A kick-off workshop was held in Abisko in February 2007, followed by two workshops on scientific methods in partnership with the Association of Polar Early Career Scientists (APECS) in 2007 and 2008 at the Otto-Schmidt Laboratory in St. Petersburg. PYRN launched the funded PYRN-TSP (Thermal State of Permafrost) project in partnership with the IPA. PYRN also initiated the PYRN bibliography (PYRN-Bib) that inventoried over 1,000 theses and dissertations completed since the early 1950s by permafrost scientists and engineers. PYRN organized a series of events around the Ninth International Conference on Permafrost (NICOP) in 2008 in partnership with the USPA. PYRN was acknowledged as an outstanding component of the IPA's International Polar Year (IPY) legacy. PYRN travel awards were coordinated for both the Tenth and Eleventh International Conferences on Permafrost (ICOPs), and subsequent regional meetings and workshops convened at each and at the RCOP in 2021. In recognition of the importance of PRYN, a permanent, voting PRYN position was added to USPA Board of Directors in October 2008.

Current PYRN membership, as listed on the PYRN web site, is over 1,500 members from 40 countries. Currently there are approximately 125 US members listed as current and historical members of PYRN; but, as indicated elsewhere, an estimated 60 are currently active USPA members.

International and Regional Conferences on Permafrost

U.S. Organized Conferences

Organizing and participating in the international and regional conferences of the International Permafrost Association have been a major activity of the USPA. Proceedings of all International Conferences on Permafrost (ICOP) and abstract volumes of regional conference were made available over the years on the original USPA website and transferred to the existing Association's web site (<https://uspermafrost.org/conference-proceedings>). Highlights and extensive summaries of the USPA's involvement in both the International and Regional Conferences of the International Permafrost Association follow. The most recent regional conference took place in October 2021 and was co-organized by the USPA and the American Society of Civil Engineers as a virtual Regional Conference (details provided under Regional Conference).

In commemoration of the 50th Anniversary of the First ICOP held at Purdue University in November 1963, a small group of members of the USPA organized and with others attended a day-long celebration at Purdue University on November 15, 2013 (Figure 6). The technical presentations were well-attended by current staff and students. A dinner was hosted by Mrs. Mary Ellen Lovell, wife of deceased (2013) faculty member C.W. “Bill” Lovell and Lifetime USPA member.



2013: 50th ICOP Anniversary, Purdue University



Figure 6. Commemoration of the 50th anniversary of the First International Conference on Permafrost, November 15, 1963, Purdue University.

Visiting participants included (from left to right in photograph): Fritz Nelson, Ed Clarke, Ed Yarmak, Jess Walker (deceased), Tom Krzewinsjki (deceased), MaryEllen Lovell, Eric Muller, Dick Cameron (deceased), Ken Hinkel, and Jerry Brown (not in the photograph: Toni Lewkowicz).

Ninth International Conference on Permafrost

In 2003, the U.S. participated in the 8th International Conference on Permafrost (ICOP) in Zurich, Switzerland, that included 48 U.S. attendees, with 40 U.S. papers published in the proceedings, as well as nine extended abstracts. The official letter of invitation from the University of Alaska President Mark Hamilton to convene NICOP in 2008 at the University of Alaska Fairbanks was presented to the IPA Council in Zurich and was approved. Jerry Brown was elected President of the International Permafrost Association (2003–2008).

As indicated previously, the initial years of the USPA activities were mainly devoted to the preparation and convening of NICOP, held from 29 June to 3 July 2008 on the campus of the University of Alaska Fairbanks. NICOP preparations by both the local and national organizing committees involved program development, field trip organizations, publications and fund raising; essentially all on a volunteer basis. Staffs of the UAF Institute of Northern Engineering (INE), the International Arctic Research Center (IARC) and GW Scientific provided considerable in-kind support. The UAF IPY office and the EPSCoR program assisted in several capacities. In addition to staff and venue support, the University of Alaska contributed \$150,000 of direct financial support. Approximately 60 institutions, private companies, individuals, and government agencies provided financial support. Erv Long, on behalf of Arctic Foundations Inc. provided an early and generous donation of \$50,000. A comprehensive final report documents, in considerable detail, the planning, resources, conduct, and participants in the conference (Kane et al. 2009).

Ninth International Conference on Permafrost

Международная Конференция по Мерзлотоведению



国际冻土学大会

Celebrating 25 years (1983-2008)



Figure 7. NICOP banner commemorating the 25-year history of the International Permafrost Association.

The theme of NICOP was “Permafrost on a Warming Planet: Impacts on Ecosystems, Infrastructure, and Climate.” The conference was attended by 683 scientists and engineers representing 31 countries. Approximately 160 young investigators participated in the conference and 77 stipends were awarded to those who qualified, including members of PYRN. NICOP marked the 25th anniversary of the formation of the International Permafrost Association (IPA) and the first Alaskan ICOP (1983), both having taken place at the University of Alaska in Fairbanks (Figure 7). A special 40-page publication commemorating the 25th anniversary was

prepared and distributed to all participants (Brown et al. 2008). The year 2008 was also the Fourth International Polar Year (IPY), marking the 50th anniversary of the International Geophysical Year (IGY), and the 125th anniversary of the First International Polar Year (IPY). Three international permafrost programs, in part initiated and led by members of the USPA, were designated IGY/IPY permafrost legacy projects and remain active to the present, both in the U.S and internationally: Circumarctic Active Layer Monitoring (CALM), Thermal State of Permafrost (TSP), and Arctic Coastal Dynamics (ACD) (Brown 2010).



Figure 8. Opening ceremony of the Ninth International Conference on Permafrost, June 29, 2008.

Figure 8 shows participants from left to right: Hugues Lantuit, Coordinator, PYRN; Mead Treadwell, Chair, U.S. Arctic Research Commission; Brian Rogers, Interim Chancellor, University of Alaska Fairbanks; Larry Hartig, Commissioner Alaska Department of Environmental Conservation; Douglas Kane, NICOP Chair; Mark Hamilton (speaking), President University of Alaska; Larry Hinzman, Master of Ceremonies and Chair, Local NICOP Program Committee; Jerry Brown, President, International Permafrost Association; and Jim Whitaker, Mayor, Fairbanks North Star Borough. Not shown: U.S. Senator Lisa Murkowski via video message.

NICOP included five plenary sessions (20 presentations), 40 concurrent oral sessions (approximately 200 presentations), and three all-day poster sessions (306 posters formally scheduled) over five days. Publications included a two-volume set of 358 papers (2140 pages), an enclosed CD-ROM of the papers, and a volume of 184 extended abstracts and IPA reports (372 pages). A DVD containing papers of all proceedings of the nine ICOPs was produced and distributed to all delegates. A special issue of the journal *Permafrost and Periglacial Processes* (PPP) was produced and distributed. The special issue contained eight summary papers, several of which were the topic of plenary reports. Four workshops and three short courses were offered. Social events for participants included a reception, ice breaker, barbeque, dinner on a riverboat cruise, and a formal banquet.

The two-volume proceedings, coedited by Douglas Kane and Kenneth Hinkel, contained 358 peer-reviewed papers from 23 countries, including 19 plenary papers. A total of 675 abstracts were originally submitted to the NICOP Technical Program Committee and resulted in submission of 467 manuscripts for review. A five-day meeting was held in December 2007, in Menlo Park, California, the week prior to the AGU Fall Conference (Figure 9). The purpose of this meeting was to assemble the editors, and as many U.S. and international associate editors and reviewers together as possible (25 attended), to complete review of papers. It was an intense and very productive meeting.



Figure 9. Participants in the December 4-8, 2007 editorial review meeting.

Figure 9 participants shown from left to right. Front row: Jennifer Harden, Billy Connor, Michael Lilly, Huijun Jin, Steve Kokelj. Middle row: Kenneth Hinkel, Julie Brigham-Grette,

Douglas Kane, Fritz Nelson, Ma Wei, Bernd Etzelmüller, Donald Hayley, Max Brewer. Back row: Oliver Frauenfeld, Antoni Lewkowicz, Jerry Brown, Jon O'Donnell, Vladimir Romanovsky, Thomas Alton, Larry Hinzman, Guido Grosse.

PYRN sponsored three events: an evening social gathering, a meeting of national representatives, and a mentor's panel discussion enabling young scientists and engineers to become fully engaged in the discipline. A total of 77 young researchers received financial support for attendance at NICOP. One goal of the USPA was to manage the NICOP budget process so that surplus conference revenues would be available to support future USPA and PYRN education and outreach programs and the continued U.S. involvement in IPA and ICOP activities. The successful outcome of the conference resulted in the funding of two educational programs and funding to help in participation in the Tenth International Conference on Permafrost (TICOP).

A field trip along the Dalton Highway to Prudhoe Bay preceded the conference and was followed by six additional post-conference excursions in Alaska and Colorado. Draft guidebooks for the Alaskan field trips were prepared by field trip leaders and edited and produced by the Alaska Division of Geological and Geophysical Surveys. During the conference, 17 local field trips were offered to view various campus facilities, infrastructures built on permafrost, the Caribou-Poker Creek Research Watershed, the US Army CRREL permafrost tunnel, the Trans Alaska Pipeline System (TAPS) and local permafrost features (pingo, thermokarst features, peat deposits, thawing permafrost). A new series of maps of Alaskan permafrost characteristics was prepared and are shown on the back covers of this report (Jorgenson et al. 2008).

The Second Circumpolar Active Layer Monitoring (CALM) Workshop was held during the conference with 35 individual papers published in the NICOP Proceedings. The IPA's 26-member Council held several meetings, with the Presidency passing from Jerry Brown to Hans-W. Hubberten and the approval to convene the Tenth ICOP in Russia in 2012 (Figure 10). The publication of the ASCE book: *Frozen in Time: Permafrost and Engineering Problems*, by Siemon W. Muller and edited by Hugh French and Frederick Nelson (2008) was announced during the conference and at the special NICOP lunch. A post-conference workshop in honor of A. L. Washburn was held in the International Arctic Research Center.



Figure 10. Participants in the 2008 Council meetings of the International Permafrost Association in lobby of the International Arctic Research Center (photograph July 3, 2008).

2021 Regional Conferences on Permafrost and 19th International Conference on Cold Regions Engineering



The 12th International Conference on Permafrost was scheduled for China in 2020. Due to COVID-19, the conference was first postponed and then cancelled. As a result, the International Permafrost Association then approved the USPA request for a regional conference in the United States. The USPA and the American Society of Civil Engineers (ASCE) jointly organized and convened the IPA 2021 RCOP and 19th International Conference on Cold Regions Engineering (ICCRE) on October 24–29, 2021. Due to the ongoing COVID-19 pandemic, the U.S. organizers chose an all-virtual meeting platform. The virtual conference was organized on the University of Colorado Boulder campus by Kevin Schaefer (NSIDC) chaired by Tom Douglas (USA CRREL Fairbanks), program development by Anna Liljedahl and USPA, and web support by Peppi Croft.

Of the 416 registered participants from 20 countries, 237 were from the United States and 98 from Canada. A total of 280 plenary, oral, and poster presentations took place over the four days. PYRN held

its annual meeting the day prior to the opening ceremonies. It included presentations and breakout meetings on proposal writing, science communication, and work-life balance; four awards were made for best oral and poster presentations. The PEEP provided 11 awards and two additional ASCE awards were presented (see Appendix 5 for names). A book of 255 abstracts was published in 2022 (Douglas et al., 2022).

The ASCE's Cold Regions Engineering Division under the leadership of Jon Zufelt, published a special Conference volume of 34 papers (Zufelt, J., 2021. *Permafrost 2021: Merging Permafrost Science and Cold Regions Engineering*. American Society of Civil Engineers (ASCE), 381 p.).

Alaska Senator Lisa Murkowski opened the conference with a video presentation followed by Larry Hinzman of the White House Office of Science and Technology Policy. Other plenary presentations included the Eb Rice Lecture "Tears of a Rapper: The Science and History behind the Art of Frozen Debris Lobe Rap Videos" by Margaret Darrow and "Perspectives on Climate Change: On-the-Ground Impacts of Climate Change in Arctic Communities" by Darcy Peter of the Woodwell Climate Research Center. Jerry Brown received the IPA Lifetime achievement award presented by IPA President Chris Burn with Fritz Nelsen providing a tribute on Jerry's career accomplishments. The ceremonies included a tribute to Art Lachenbruch (1925–2021) and acknowledgement of other deceased members of our permafrost community.

Other International and Regional Conferences on Permafrost



The **Tenth International Conference on Permafrost (TICOP)** was held in Salekhard, Russia, June 25–29, 2012. The USPA played a significant role in the Conference. At a meeting of Russian, Canadian, and USPA members at AGU on December 14, 2010, it was agreed that the USPA would provide editorial review and production support for high quality English-language publications. A USPA TICOP Committee, with Ken Hinkel as editor, was organized to review papers that led to the camera-ready copy of the 87-paper Volume 1. A second camera-ready volume of 107 translated Russian papers was also prepared. Volumes 1 and 2, consisting of 1047 camera-ready pages were prepared at UAF by production editor Tom Alton and delivered to Russia for printing in time for the conference. In addition to Russian financial support, the TICOP Committee raised \$37,000 in private funding including \$10,000 from BP and \$5,000 from Arctic Foundations to help support travel for students and several teachers.

The TICOP Committee coordinated with the Polar Research Board in the formation of the U.S. TICOP Delegation. A total of 66 US participants attended the conference, of which 17 received travel grants from an NSF-grant to UAF and from USPA. Although not in attendance in person, Brown, as IPA Past President, provided a plenary presentation on “Permafrost: A half century of international collaboration with the Soviet Union and Russia.”



The **Eleventh International Conference on Permafrost** was held in Potsdam, Germany, June 20–24, 2016. Of the total 740 participants, 94 were from the United States. Although the U.S. did not have a major role in organizing the conference, a DVD compilation by country of all participants in the previous ten conferences was distributed and a slide show was presented in the reception hall of the conference based on the DVD prepared by Brown, McGraw, and Stanilovskaya (Figure 11).



Figure 11. Honor Roll of participants attending the ICOPs (1963-2012).

Regional IPA conferences started in Rome in 2001. Proceedings and abstract volumes of most conferences are listed on both the USPA and IPA websites.

- 2nd EUCOP: Potsdam, Germany, June 12–16, 2005
- 3rd EUCOP, Svalbard, Norway, June 13–17, 2010
- 4th EUCOP, Évora, Portugal, June 18–21, 2014
- 2nd Asian Conference on Permafrost, Sapporo, Japan, July 2–6, 2017
- 5th European Conference on Permafrost, Chamonix Mont-Blanc, France, June 22–July 1, 2018
- 1st SouthCOP, Queenstown, New Zealand, December 4–14, 2019

The First Asian Conference on Permafrost (ACOP) was convened in Lanzhou, China, August 7–9, 2006 (Figure 12). The conference was followed by a field excursion, August 10–16, 2006, that included crossing the Qinghai-Tibet Plateau by fast train. Principal conference organizers and co-sponsors were the State Key Laboratory of Frozen Soils Engineering (SKLFSE) of the Cold and Arid Regions Environmental and Engineering Research Institute (CAREERI), the Geographical Society of China (GSA), and the International Permafrost Association (IPA). The Conference was co-chaired by Academician Guodong Cheng, Chinese Academy of Sciences, and Jerry Brown (IPA). A total of 262 participants from 17 countries including some 40 participants from the USA.



Figure 12. Participants in the First Asian Conference on Permafrost (August 7-9, 2006) including several U.S. participants. Seated in the front row Max C. Brewer, Douglas Kane and Jerry Brown Photograph provided by: Zhaohui (Joey) Yang, University of Alaska Anchorage

Collaboration with Other Organizations

The USPA has developed cooperative working relations with several professional organizations. As indicated previously the USPA was unanimously elected by the American Geological Institute's (AGI) Member Society Council as its 42nd Member Society. The USPA and AGI started a strategic effort in 2012 that became the Permafrost Monthly Alert (PMA) Program. The PMA Program increased the number of permafrost related references available in GeoRef, the cold-regions public data base COLD, and on the USPA website. It also improved the timeliness of the information being available in these databases and to search engines linking Google and Bing.

From its very beginning the USPA established and maintained close coordination with the American Society of Civil Engineers (ASCE). Many USPA members belong to ASCE and chair or serve on its committees including: (a) Frozen Ground, (b) Hydrology and Hydraulics, (c) Structures and Foundations, and (d) Transportation and Infrastructure. The 2021 Regional Conference was an exemplary example of this close relationship between the ASCE and the USPA.

In 2022, the USPA Board approved official liaison positions for both AGI and ASCE representatives. Also in 2022, the USPA and the Arctic Research Consortium of the United States (ARCUS) implemented a Memorandum of Understanding (MOU) that formalized joint membership between the two organizations.

The U.S. Arctic Research Commission is a long-time USPA institutional member and provides valuable permafrost-related information on its Daily News Update.

Over the years USPA has participated in various Alaskan-based conferences, including those organized by the Alaska Section, American Water Resources Association and the International Circumpolar Remote Sensing Symposia (ICRSS). In 2016, the USPA partnered with the ICRSS organizing committee to provide administrative support for the symposium in Homer, AK, and this enhanced the opportunities for early-career participants involved in the remote sensing of permafrost.

Outreach

Several USPA activities have been providing relevant information and direct services to the permafrost communities and the public.

Websites

The original USPA website was set up in 2001 as a volunteer effort by Michael Lilly, GW Scientific and Gary Whitton, Engineering and Environmental Internet Solutions LLC (EEInternet) to assist the USPA during its initial formation. As the organization's financial situation improved and NICOP approached in 2008, EEInternet was contracted to provide hosting and maintenance of the website, and provide meeting support for NICOP and subsequent annual meetings of the organization. In 2010, the Communications Committee (CCOM) was formed to manage and coordinate website content and support activities with EEI and other organizations (AGI and others) and to help maintain the USPA website and keep it current and professional. Over the years the website grew to include many diverse activities, including illustrated listings of recipients of annual USPA awards, proceedings and publications of the International Permafrost Association (IPA), and many other resources of interest to wide-ranging national and international audiences. The usage of the website increased annually and by late 2020 web visitations were approximately 13,000, mainly to the PMA Program content. The Association also used an internal Wiki site for members, committees and the Board of Directors. Content was added by various volunteers and officers over time. After the Communication Committee was formed, it helped maintain the wiki and offered help to the Board of Directors and committees when requested. Over time this became the "virtual" office of the organization. Information was updated and added by various Board members and volunteers. This helped meet the USPA goals of member support, transparency, standard governance practices developed for the Association, and required legal standards.

In 2021 the USPA Board contracted with MemberClicks to organize registration and public information for the 2021 Regional Conference on Permafrost and to manage the USPA membership renewals and communications. This change also required the transfer of the USPA website and its current redesign. Much of the content of the original website was preserved, along with many of the historical activities of USPA committees. The new website was maintained by the Public Relations Ad-Hoc Committee, which was started to help promote the 2021 Regional Conference on Permafrost.

Social Media

In addition to the websites, the USPA Communications Committee created a Facebook page in 2011 that has since gained almost 1,400 followers and more than 500 posts. In 2016, the USPA started a Twitter page, which now has 869 followers and 779 posts. In 2022, the USPA Communication Committee started an official LinkedIn page for the association, which had garnered 74 followers with 30 posts by late 2022.

Permafrost Monthly Alert (PMA) Program

Starting in 2012, the USPA Communication Committee and the American Geosciences Institute (AGI), under the direction of Sharon Tahirkheli, developed the Permafrost Monthly Alert (PMA) program to enhance access and discovery of relevant and professionally reviewed international permafrost engineering and science literature on a regular monthly schedule. The PMA Program

utilizes the AGI reference database GeoRef that is updated continuously from reference sources from over 100 countries and 44 languages. Reference sources include journals, reference libraries, conferences, and other sources from over 8,000 national and international sources (Levine et al. 2022).

The monthly PMA results are made available on the internet including the USPA website and are regularly indexed by major search engines. The current ten-year collection (2012–2022) includes over 113 monthly and special updates containing over 8,600 citations. The vast majority of the references have abstracts. Monthly accessions are uploaded to the AGI’s publicly accessible database COLD (developed from the Bibliography of Cold Regions Science and Technology database). COLD is a publicly searchable database with more than 33,500 current and historical permafrost references, indexed by various search engines. The total PMA usage on the USPA website from 2012 through mid-2021 was over 89,000 inquiries. The content provided through this program also benefits other reference databases, such as the Canadian CanGeoRef Database and increased the content in GeoRef, benefiting a global audience of universities, agencies and research centers that subscribe to it.

Conference Guides

Annual compilations from permafrost-related conferences such as AGU and EGU are a recent addition to PMA. Starting in 2018, compilations of all relevant frozen ground abstracts from the Fall Meetings of the American Geophysical Union were prepared by Kristina Levine, a USPA student intern at Texas A&M, and other members of the Communications Committee. The goal was to provide USPA members and attendees with an easily accessible guide to permafrost-related presentations. The guides are compiled using a series of search terms that have increased to a total of 48 in 2022. Over 1,700 abstracts are cited in the five-year collection (including the 417 for the Fall 2022 Meeting) (Figure 13). These guides provide additional real-time resources to attendees and are then posted on the USPA web as additional historical records. The AGI also provides a compilation of relevant AGU abstracts that are entered into the historical PMA/COLD database. The AGI also accesses relevant frozen ground abstracts from other conferences such as the Geological Society of America and the European Geophysical Union.

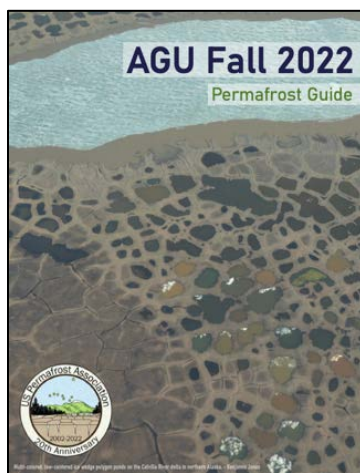


Figure 13. Example of the Communications Committee Permafrost Guide series. AGU Fall 2022 Meeting.

Outreach to K-12 Educators

The USPA website provides a listing of educational links about the Arctic and permafrost information for kids. Among these are FAQs, educational articles, survival guides, maps, information about indigenous peoples, galleries of Arctic images, and links to wildlife, and climate change, including global warming educational games and articles for kids. The USPA has also reached out to K-12 educators with online questionnaires about the kind of educational resources that would be helpful for their classrooms. Several other educational outreach activities were developed by Kenji Yoshikawa at the University of Alaska: a program for teachers and students to measure winter soil frost penetration using “frost tubes” and a permafrost video series featuring Tunnel Man (<https://polartrec.com/resources/video/tunnel-man-episode-1-ice-in-permafrost>). In 2012, the USPA Permafrost Engineering Education Fund (PEEP) committee funded an Alaskan K-12 science teacher to attend the Tenth International Conference on Permafrost (TICOP) and present a poster.

Support to Students and Young Researchers

From its inception the USPA has been committed to strengthening the future community of permafrost scientists and engineering professionals. This has been in large part through travel assistance to national and international conferences. Four categories of USPA awards have developed over the years: the USPA/PYRN Educational Fund (UPEF); Permafrost Engineering and Education Program (PEEP), the Erv Long Award and the Andrew Slater Award. Starting in 2008 with NICOP and continuing to the present, at least 160 awards have been administered, totaling more than \$95,000 (see Appendix 5 for list of recipients and amounts). The following graphs summarize the distribution over time of these awards (Figure 14).

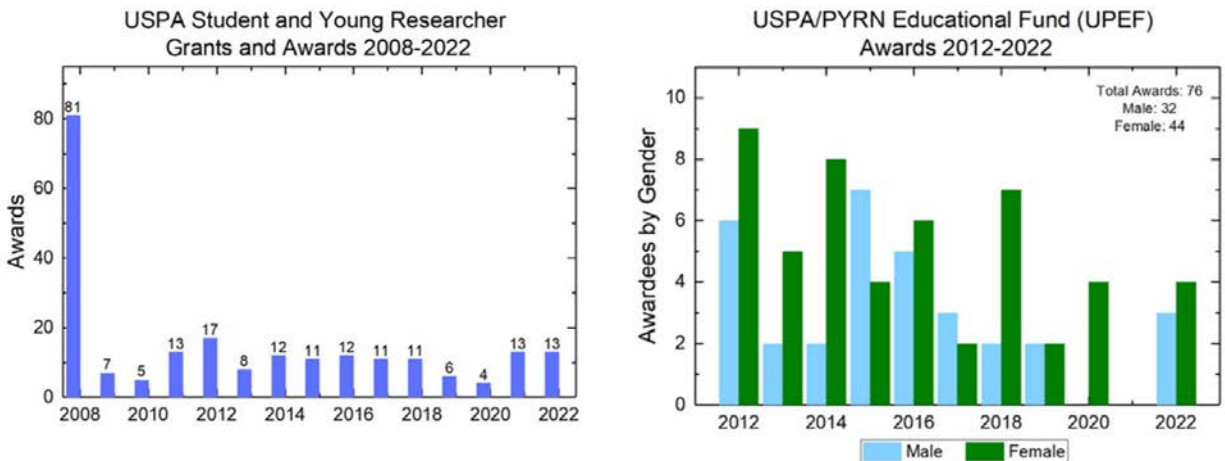


Figure 14. Left: Student and Young Researcher Awards (2008-2022) and Right: UPEF awards (2012-2022).

Financial Resources

USPA financial support is derived from membership dues, conference revenues, and donations. Although annual membership revenues are modest, they represent a significant and sustained income. Annual expenditures, primarily from educational funds, include travel support for early career scientists and engineers to national conferences and periodically for international conferences, support of the Permafrost Monthly Alert (PMA) Program, annual membership dues in the International Permafrost Association and general operational costs of the organization. Other expenses are related to annual meetings, special events, and activities, including publications and invited speakers to workshops. Residual income from USPA organized conferences have provided a much-needed supplement for these annual expenditures.

In 2001 and early 2002, the fiscal accounting activities were supported by staff at the University of Alaska Fairbank, Institute of Northern Engineering. In 2002, GW Scientific provided In-Kind support to the USPA for accounting and administrative staff, which continued through 2020, and partially through 2022. The fiscal activities in the first few years were relatively simple. Starting in 2005, fiscal activities of the Association increased building up to the Ninth International Conference on Permafrost, which was the largest conference event USPA has hosted, with a final budget of \$911,936. This budget represents the combined fiscal efforts by the USPA and the University of Alaska Fairbanks, which co-hosted the conference. The proceeds from the NICOP conference helped establish a series of education funds and helped USPA have a sound fiscal foundation to carry it forward into future years.

The first 5-year planning budget was developed in 2011 for the period 2012 – 2017. The budget planning committee was led by Michael Lilly. JJ Frost led the budget planning committee update to the 5-year budget in 2018 for the period 2018-2023. The USPA has received successful grants for NICOP from CRREL in 2008 and from the Permafrost Technology Foundation in 2010, the latter was used to help start the Permafrost Engineering Education Program. The USPA is also an IRS recognized 501(c)3 organization. The application process was led by Michael Lilly when USPA was initially formed. The USPA EIN number is 92-0176220.

Professional Recognition of Members

The following awards were bestowed on USPA members and colleagues since 2002; the majority of whom are or have been USPA members:

American Society of Civil Engineers (ASCE) Hal Peyton Award

Rupert G. (Bucky) Tart, Jr., Daniel W. Smith, John P. Zarling, Richard L. Berg, Edwin S. Clarke, Duane L. Miller, James W. Rooney, David C. Esch, Ted S. Vinson, Edward Yarmak, Jon E. Zufelt, Douglas L. Kane, Douglas J. Goering, Steven F. Daly, Sally A. Shoop, Orson P. Smith.

ASCE CAN-AM Civil Engineering Amity Award

Jon E. Zufelt, Steven T. Daly, Douglas L. Kane, Thomas Krzewinski, Billy G. Connor, Hannele Zubeck, Edward Yarmak, Jr.

**American Association of Geographers
Cryosphere Specialty Group's Matthes Award**

USPA members who have received the Lifetime Achievement Award are H. Jesse Walker, Roger G. Barry, Kenneth M. Hinkel, Jerry Brown, and Frederick E. Nelson.

Mel Marcus Award for Physical Geography

The Mel Marcus Award for Physical Geography was instituted in 1989. It was awarded most recently to Michigan State University Ph.D. student Raven J. Mitchell and her advisor, Frederick E. Nelson. Other previous permafrost awardees include: H. J Walker, J. Ross Mackay, and John D. Vitek.

AGU John F. Nye Lecture

Starting in 2002, the American Geophysical Union's John F. Nye Lecture has been presented annually and recognizes recent accomplishments and outstanding ability to present exciting scientific research and findings. Larry Hinzman presented the lecture in 2009 and Matthew Sturm in 2005.

**University of Alaska
Eb Rice Award**

James W. Rooney, Robert Carlson, Will Nelson, Ted Vinson, Douglas Goering, Orson Smith, Margaret Darrow, Yuri Shur.

Emil Usibelli Distinguished Teaching, Research and Service Award

The Emil Usibelli Distinguished Teaching, Research and Service Awards Established in 1992, and named in honor of Alaska pioneer Emil Usibelli who established the Usibelli Coal Mine. The following USPA members and other permafrost-related researchers at the University of Alaska have received the awards since 2002: Margaret Darrow (2022); Donald "Skip" Walker (2021); Katey Walter Anthony (2019); Hajo Eicken (2015); Elena Sparrow (2014); Kenji Yoshikawa (2012); Vladimir E. Romanovsky (2011); John E. Walsh (2009); John J. Kelley (2008); A. David McGuire (2007).

In Memoriam

We recognize those permafrost leaders in engineering and science who helped form our communities' foundations. Knowing our past will help guide our future. The following are names of U. S. permafrost scientists and engineers who made significant contributions to our understanding of frozen ground; many attended one or more of the eleven International Permafrost Conferences (Figure 15). This compendium is available as a PowerPoint and has been updated through 2022 by Molly McGraw and Jerry Brown. It is with deep sorrow we report that Thomas G. Krzewinski, USPA President 2017, died April 12, 2023. Tom's accomplishments will be remembered by the entire cold regions engineering community. Another long-time colleague, Samuel I. Outcalt died on February 17, 2023.

In Memoriam		
https://uspermafrost.org/members-memoriam.shtml		
Harl P. Aldrich, Jr. 1923-2014	Richard K. Haugen 1933-2006	Harold R. "Hal" Peyton 1928-1977
Amos J. Alter 1916-2000	David M. Hopkins 1921-2001	Charles H. Racine 1940-2014
Orlando B. Andersland 1929-2015	Hilton William Johnson 1935-1997	Hugh Raup 1901-1995
Duwayne M. Anderson 1927-2002	Harold Jorgenson 1912-1997	Elbert "Eb" Rice 1923-1982
Andrew Assur 1918-1991	Alfreds Jumikis 1908-1989	Florence Rooney 1938-2018
Roger Barry 1935-2018	Thomas G. Krzewinski 1949-2023	Drew Slater 1971-2016
Earl H. Beistline 1916-2012	Arthur Lachenbruch 1925-2021	George K. Swinzov 1915-2000
Robert F. Black 1918-1983	Edith Lachenbruch 1927-2016	Stephen Taber II 1882-1963
Max C. Brewer 1924-2012	Kenneth A. Linell 1913-1985	John C. F. Tedrow 1917-2014
Max E. Britton 1912-2004	Erwin L. Long 1920-2012	Wayne Tobiasson 1939-2020
Dieter Brunnschweiler 1923-1983	Charles W. "Bill" Lovell 1923-2013	Leslie A. Viereck 1930-2008
Richard L. Cameron 1930-2019	Michael Metz 1947-2017	Michael T. Walegur 1973-2018
Edwin Chamberlain 1938-2017	Robert D. Miller 1919-2011	H. Jesse Walker 1921-2015
Fredrick E. Crory 1928-2003	Siemon W. Muller 1900-1970	Albert Lincoln Washburn 1911-2007
Thomas Neil Davis 1932-2016	Yoshisuke Nakano 1939-2016	Tahoe Washburn 1910-2007
Louis De Goes 1914-1997	Samuel I. Outcalt 1936 – 2023	William Wayne 1921-2019
Kaye R. Everett 1934-1994	Henry M. Paynter 1923-2002	Tingjun Zhang 1956-2022
Oscar Ferrians 1928-2019	Mary Jean Péwé 1922-2010	

Figure 15. In Memoriam: U.S. colleagues.

Testimonials

In commemoration of the 20th Anniversary of the U.S. Permafrost Association, we have invited several representative groups to provide testimonials. These include, Past Presidents (President's Council), current and past Board members and Chairs, Lifetime members, the 20th Anniversary Committee Student Team, and organizational representatives. Individuals were invited to provide statements related to, but not limited to, how the Association has helped advance the state of knowledge and cooperation among scientists and engineers, to encourage involvement of student and young professionals, and personal thoughts on how the Association has contributed to or highlighted the individual's career.

The following testimonials are reported here:

Past Presidents

Jerry Brown
Thomas A. Douglas
Oliver Frauenfeld
Ken Hinkel
Larry Hinzman
M. Torre Jorgenson
Douglas Kane
Michael R. Lilly
Frederick (Fritz) Nelson
Jim Rooney
Dmitry (Dima) Streletskiy
John Thornley
Mark Waldrop
Ed Yarmak
John Zarling
Jon Zufelt

Current/Past Board Members/Chairs

Jessica Ernakovich (2023 General Board Member)
JJ Frost (Past Treasurer)
Kelsey Nyland (Past UPEF Chair)
Ming Xiao (2023 President Elect)

Lifetime Members

Ted Schuur

Students

Xiaohang Ju
Elizabeth Kubacki
Kristina Levine

American Geosciences Association

Sharon Tahirkheli (AGI)

Past Presidents



Jerry Brown (Honorary Past President 2002): Participating in the development and activities of the U. S. Permafrost Association over its first two decades has been one of the most rewarding personal experiences of my professional career. The highlight was the Ninth International Conference on Permafrost and the welcoming of the national and international permafrost communities as the President, International Permafrost Association. Our collective efforts in developing corporate financial support for NICOP provided the gateway for the continuing support. Throughout the years and more recently, encouraging and welcoming new members into the Association has been another rewarding experience. Membership has become more diverse; in disciplines, demography and geography. It has been gratifying to be part of an organization that has consistently supported students and young researchers with assistance to attend national and international conferences. The U. S. Permafrost Association, as a strictly voluntary organization, has developed outreach programs through the web development and access to the historical and current world literature. It has been a pleasure and honor to be part of this national permafrost legacy. On a more personal note, it has been gratifying to involve members of my family in many aspects of the IPA and USPA; my wife Celia attended all six ICOPs from 1983-2008, and both sons and family members participated in NICOP.



Thomas A. Douglas (President 2017): I started at the U.S. Army Cold Regions Research and Engineering Laboratory in 2001, around the same time the USPA was formed. As a young researcher trying to navigate around the permafrost and cryosphere communities, I found USPA an open and vibrant community unlike any I have been part of since. Many of the then creators and leaders of the USPA were so collaborative and that core spirit of an open and sharing community remains 20 years later. My early highlight was the 2008 Ninth International Conference on Permafrost which was a massive meeting held right in my hometown (Fairbanks). Soon thereafter, I joined the Board as an at large member. Board service was an amazing opportunity to meet other people at a variety of career levels, topics, and seniority. From there I served as Treasurer and eventually President. Though PYRN was not formed until far after I was eligible to be a PYRN member I have always supported their efforts and am proud of how they have expanded into a vibrant community. My most recent highlights with USPA are my becoming a Lifetime member and helping to organize the 2021 Regional Conference on Permafrost and 19th International Conference on Cold Regions Engineering. That meeting shifted to a virtual format but the amount of interest across the world's time zones and the variety of topics exemplified the strong connections we all have. Going forward, I am heartened to see initiatives focused on greater diversity and inclusion continue to expand. It is also heartening to see the balance between basic and applied researcher and engineers remains across the USPA's Board, Committees, membership, and meeting attendees.



Oliver Frauenfeld (President 2012, Secretary 2007–2010): The U.S. Permafrost Association has contributed to the success of many early-career researchers, something I can personally attest to. As a brand-new Ph.D. graduate and newcomer to permafrost science in 2003, the USPA not only welcomed but also substantively included me in many of its activities which was instrumental to my career. The opportunity to participate in the planning of 2008's Ninth International Conference on Permafrost in Alaska and especially including me in the review process of the conference proceedings as an associate editor was immensely beneficial. It allowed me to learn about the field, but also to meet and collaborate with many of the big names in permafrost science and engineering listed on these pages. Some years later I found myself traveling to Russia for the Tenth International Conference on Permafrost, this time as USPA's president and a co-chair of the U.S. delegation, bringing a fresh set of newcomers with us. During my earlier years in the USPA I was also involved in the Permafrost Young Researchers Network, for which the USPA was instrumental in its success. USPA embraced the network, supporting its U.S. members with a dedicated education fund for conference travel and award opportunities, even establishing an officer position on its own board of directors to ensure the voices of the upcoming generation of permafrost researchers are included. This fostering climate makes USPA an invaluable asset to our community.

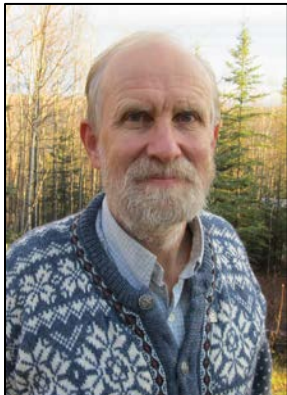


Ken Hinkel (President 2008): The USPA was established in 2002, largely to prepare for the Ninth International Conference on Permafrost that was scheduled to be held in Fairbanks in 2008. At the time, I naively thought that five years was more than sufficient time to organize the activities typical of a major international conference including scientific sessions, pre- and post-conference field trips, banquet, preparation of conference proceedings, daily activities, etc. I was sorely mistaken. A UAF local organizing committee was formed to address these and other aspects of the conference. Topical web-based committee meetings were held with increasing frequency, and major progress meetings held annually in conjunction with AGU Fall Meetings. NICOP was a massive undertaking but, in retrospect, planning seemed to flow relatively smoothly. The participation and leadership of many knowledgeable and experienced individuals made this possible. While Jerry Brown provided guidance gleaned from previous IPA conferences, Michael Lilly was instrumental in navigating us through the intricacies of NICOP budgets. A special meeting was chaired by Doug Kane at Menlo Park in 2007 to organize the editing of papers and abstracts contributed to the massive IPA Conference Proceedings. I have not experienced such an organized and focused effort since that time; it was truly a seminal learning experience.



Larry Hinzman (President 2003): The US Permafrost Association was created in response to a need for a venue to communicate within the U.S. permafrost community but also to interact with the international permafrost community. I was privileged to play a role in establishing the USPA and have remained engaged to this day. The USPA was an important organization upon its founding, but the value and benefits to science and engineering, and to our members, has grown as our understanding of the role of permafrost continues to grow. In the early years of the USPA, our focus was most often upon physical processes and developing strategies to make infrastructure more resilient to permafrost thaw. It was already apparent to most permafrost scientists and engineers that the climate was warming and permafrost was responding. In fact, the temperatures of deep boreholes in permafrost provided

some of the most convincing evidence that the climate was changing. Permafrost researchers were very concerned with the consequences of warming and thawing soils, thermokarst development, and impacts to ecosystems. Our focus expanded to include exploring the role of permafrost in vegetation distribution, carbon fluxes and regional climate feedbacks. The USPA has much to be proud of accomplishing, among which is promoting dissemination of information on the importance of permafrost. My personal greatest source of pride is for the support USPA has provided to early career researchers. We have strived to enhance their career by providing travel grants and elevating their stature in the research community. We tried to always pair an early career scientist with a more senior scientist in leading conference sessions, workshops, and other leadership roles. It makes my heart soar to see the students we engaged in USPA years ago still incorporating permafrost science or engineering into their flourishing careers.



M. Torre Jorgenson (President 2011): I am proud to have been associated with the USPA and its many efforts at promoting permafrost science and engineering through facilitating member collaboration, supporting conferences and conference proceedings, disseminating permafrost information, supporting students and early career scientists, and maintaining a history of permafrost-related activities and people. I made it to my first ICOP in 1988 in Norway, after missing the 4th ICOP in Fairbanks in 1983 because of work at Toolik. I first got involved in the USPA in a substantive way in preparation for the Ninth International Permafrost Conference in Fairbanks in 2008, through conference organization, assisting in the conference proceedings, and leading the post-conference tour of the Beaufort Sea Coast along with Jesse Walker and Ken Hinkel and 22 international participants. The USPA has helped foster an

upcoming generation of permafrost researchers through the USPA-Permafrost Young Researchers Network educational fund (since 2010), USPA-UAF Educational Fund (since 2010) and the Permafrost Engineering Education Program (since 2011), through fund-raising and travel grants. The USPA has been a major driver of the activities and focus of the International Permafrost Association, which has facilitated collaboration of permafrost scientists and engineers across many countries and disciplines. Much of this work is highlighted in the country activity reports submitted by the USPA to IPA's Frozen Ground publication. USPA members have made huge contributions toward the success of the International Permafrost Conferences through conference organizing, fund-raising, and editorial work on the conference proceedings. The USPA was a strong advocate for continuing the ICOP Proceedings. Involvement with the USPA has been hugely rewarding professionally and personally through collaboration with and learning from many eminent permafrost scientists and engineers. I have been a Life-time member and corporate donor through Alaska Ecoscience since 2015. I end with a tribute to the tireless efforts by Jerry Brown to help establish and guide the USPA through the last 20 years.



Douglas Kane (First President of USPA, Lifetime Member of USPA, and Chairman of the 2008 International Conference on Permafrost):

In 1968 I traveled to Alaska where I got hands on experience with permafrost. I worked on numerous projects and eventually pursued a PhD with my thesis on Aufeis. I attended my first International Permafrost Conference in 1973, in Yakutsk, Russia. Over the years, various countries took the lead in hosting the International Permafrost Conference. These international conferences are a lot of work and are getting much larger. The conferences were originally scheduled for every five years, but now it is every four years. The 2008 conference in Alaska that I chaired was attended by 733 scientists and engineers from 31 countries. Approximately 450 technical presentations were made (talks and posters). There were numerous other events such as pre and post field trips, both local at the Fairbanks permafrost tunnel, and extended such as those to oil fields. As can be surmised, conferences of this nature that

are only held occasionally require a considerable number of volunteers and funding, and we do not have a single government agency or university department that is able to handle this in addition to their everyday workload. One way to buffer this problem was to establish an entity that has members made up from federal and state agencies, university departments, and the private sector that benefit from the permafrost conference. In 2002, we established the United States Permafrost Association to benefit both senior and student researchers. USPA meets in connection of some large conferences (American Geophysical Union) in December each year to go over business details. This past year was the 20th for USPA. Another effort of USPA is the Permafrost Young Researchers Network (PYRN). This group is an effort to support young researchers to carry out funded research and interact among themselves. The success and continued existence of USPA and the International Conference on Permafrost is due to the generosity and work of many individuals.



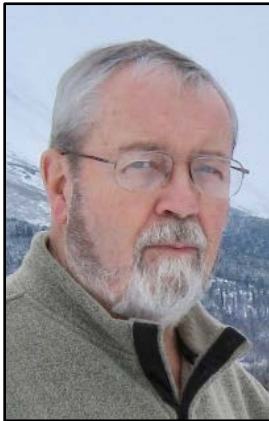
Michael R. Lilly (President 2013, Treasurer 2002-2008): I have been fortunate to have been asked in 2001 to help start the USPA at the very beginning. I knew that if we could bring together the science and engineering communities working on the varied permafrost issues, the public would benefit and we would develop a strong community of professionals. The diversity of the USPA was initially focused on bringing together science and engineering. The USPA supported students attending and presenting at conferences, helping start and promote the Permafrost Young Researchers Network (PYRN), and worked with the many active students and young professionals. This has increased our diversity over

time, and improved our community. It has been personally and professionally rewarding to be involved with the many senior members of the association, and those coming in to replace us when the time comes. Helping build the financial foundation of the USPA through the successful Ninth International Conference on Permafrost (NICOP), the formation of the various educational funds (UAF/USPA, UPEF, PEEP) and some of the early strategic committees (Communications, Membership) were all rewarding. Working with both my wife, Elizabeth, and kids (James and Sarah) during NICOP meant USPA was a family passion for an extended period of time. Helping develop the Permafrost Monthly Alert (PMA) Program has been particularly rewarding, given the significant impact it has made to the permafrost community and greater public. I look forward to USPA moving forward in the coming decades, growing its community by bringing in new members, continuing to value senior members and increasing the collaborative public benefits.



Frederick (Fritz) Nelson (USPA President 2006): Except in Alaska, U.S. permafrost scientists and engineers are institutionally far-flung, and for decades many operated in relative isolation. Establishment of the USPA in the early 2000s went far in relieving this everyday sense of separation from permafrost colleagues. Development of a dedicated web site, annual USPA meetings at American Geophysical Union conferences, a program of travel assistance for early-career scientists and engineers, a formal portal to the International Permafrost Association, and group involvement in the development of the Ninth International Conference on

Permafrost all produced substantial improvements in the position of permafrost research and education in the U.S. The Permafrost Monthly Alerts, produced by professional information specialists and disseminated through the USPA web site, provide an indispensable bibliographic tool for permafrost research and a global perspective on its progress. I'm proud to have served as a USPA president, Board member, and IPA Representative. The increasing visibility of permafrost within other disciplines and among the general public guarantees that recent increases in USPA membership will continue for the foreseeable future. USPA has always been a streamlined and collegial organization I hope that rapid growth will not lead to USPA becoming an increasingly bureaucratic and rule-bound organization.



Jim Rooney (President 2010): In the summer of 1963, I was hired by the Alaska Department of Highways and had to report for work from the "lower 48" by October 1st. I had planned to attend the First International Permafrost Conference, at Purdue University, in November, and truly regretted not being able to do so. The conference proceedings provided me with my early introduction to permafrost issues and that helped shape my career. Initial personal experiences with frozen ground began in 1965 while working out of Valdez. In 1983, my wife Florence and I, attended FICOP in Fairbanks, AK. It was apparent to me back then that the US involvement, while positive, was in need to become more organized. Fortunately, that occurred with the eventual development of the USPA back in 2001/2002. This finally allowed the many disciplines involved with permafrost issues to have access to the now established organization! It has been an interesting and rewarding involvement for me over

the past years as the need to better understand and address global warming impacts on our infrastructure and environment have evolved. My experience as President was most rewarding, all while we were focusing on our upcoming participation in the, 2012 ICOP, conference being held in Salekhard, Russia. Much of our effort was focused on fund raising for potential US participants while providing technical review of proposed US papers for the conference. This was our fourth career IPA conference that included China, Russia and both the 1983 and 2008 sessions in Fairbanks. The 2012 ICOP conference then provided Flo and I the opportunity to return to Siberia to again travel the Baikal Amur Mainline (BAM) that we first did with the same Russian technical personnel back in 1992. A most fortunate opportunity for us to revisit the region and get to review climate and economic impacts that were occurring 20 years later along the rail route! All of these experiences for us would never have happened without my involvement with IPA and USPA throughout my career.



Dmitry (Dima) Streletskiy (President 2019): Over the last twenty years USPA played a major role in building a community of researchers and engineers by promoting permafrost research through permafrost monthly alerts (PMA), organizing meetings and conferences, and supporting the next generation of scientists and engineers through travel awards. One of these awards enabled me to attend the ICOP as a graduate student back in 2012. So, it was my great pleasure to give back to the community and to serve on the USPA Board 2018-2020 and to lead the efforts of the USPA. Continued student support, partnership with AGI, increase in membership, promoting diversity, equity and inclusion, and preparation for RCOP were major priorities over that time. Working with the many leaders of the Association provided many opportunities and valuable lessons. These experiences later helped me to navigate various collaborative efforts in research and education, including my continued involvement as a Chair of the GTN-P. Some memorable experiences were Board meetings in Anchorage, representing USPA at the AAAS and NAS Polar Research Board in Washington, DC, and taking the international class of students to Alaska in July 2019. Thanks to the many USPA members from UAF, CRREL and numerous engineering organizations, the students were able to get the first-hand experience in permafrost research and engineering. Several USPA members also attended SouthCOP in New Zealand, and that was certainly an unforgettable experience. It is very rewarding to see the continued growth in membership and diversity of the Association.



John Thornley (President 2022): The US Permafrost Association is an energetic and exciting organization that aims to bring together scientists and engineers who are working in permafrost regions. This organization is growing and continues to develop new ways to achieve its aims. As a general member, Board member (2017-2019), and President (2022), I have had the opportunity to witness remarkable changes supported by vibrant volunteers. As President Elect, I was able to participate in the development of the USPA Regional Conference on Permafrost (2021) and learn from Cathy Wilson, Tom Douglas, and Anna Liljedahl (all now Past Presidents) and others such as Kevin Schaefer, who masterfully pulled off a major virtual conference on permafrost during the COVID pandemic. As I watch current President, Anna Wagner, deftly grow and continue to improve the organization, and I see so many tireless volunteers work to continue the goal of engaging scientists and engineers I know we are in good hands. While we enjoy looking back on our more than 20 years of history, I know the next 20 years will be transformative as we work to expand the ways we connect our members. I look forward to continuing to support the mission and goals of the USPA and look to continue to assist in maintaining relationships between the USPA and organizations such as the American Society of Civil Engineers (ASCE) and their Cold Regions Engineering Division (CRED). I am encouraged by the past and present activities of the organization and am excited to see where the future takes our organization.



Mark Waldrop (President 2016): Involvement with the U.S. Permafrost Association has been a great way to connect with colleagues, communicate permafrost science and engineering to multiple groups, and engage with the international permafrost community. I have enjoyed meeting new people from various sectors of permafrost research. The inclusion of both science and engineering into one group is one of USPA's strengths. Moreover, publishing long-form abstracts and conference proceedings has allowed those who do not normally publish in peer reviewed literature, but have important stories to tell, to do so. Annual meetings by the USPA are something I look forward to

and is a great way to reacquaint myself with colleagues. I appreciate that the USPA has been a supporter of students and early career scientists through travel and other types of awards. I have seen a strong expansion in the size of the USPA membership, and that is encouraging as permafrost science is also on the rise. The connectivity between USPA and the International Permafrost Association is also a strength of this organization, since permafrost science involves so many regions, countries, and continents. I was happy to serve on the Board and as President of USPA, and I look forward to many more great years



Ed Yarmak (President 2014): When people ask me if I've lived in Alaska my whole life, my answer is, "Not yet." As a 3rd generation Alaskan living in Anchorage, I grew up with permafrost being an integral part of life in the North. Although there was no permafrost underfoot at home, I hunted, fished, and camped in permafrost environments with my family. This included a lot of time with Erv Long (inventor of the Thermopile) and his boys after they moved into our neighborhood in 1966. We skied, snowshoed, and hiked the Chugach Mountains on a regular basis.

Permafrost engineering was not an undergraduate class at UAF when I attended in the mid- 1970's, but the Civil Engineering faculty included lessons learned from the Arctic and Subarctic wherever they could. When I was a newly minted professional engineer, Erv asked me if I would go to work for him at Arctic Foundations, Inc. (AFI). That was just over 42 years ago, and I'm still employed at AFI working in this challenging and never boring environment. As a young engineer, I attended my first International Conference on Permafrost in 1983 in Fairbanks, Alaska. It was an amazing time, rubbing shoulders with internationally renowned engineers and scientists and witnessing the birth of the International Permafrost Association (IPA). The camaraderie among international participants from countries that were at political odds was truly wonderful. I learned that collaboration between engineering and science was key to working in the permafrost world. Fast forward to about 2006 or 2007 when the planning for the NICOP was ongoing; Erv agreed that AFI would become one of the premier sponsors. This is when my association with the USPA began. AFI has continued to support conferences and activities that were sponsored by the USPA. During my tenure on the USPA Board of Directors, I am most proud of the support that USPA has provided to students because that's where our future lies. I am pleased to have been helpful in making the Annual Membership Meeting a premier networking event for permafrost enthusiasts. Additionally, through AFI, I have supported the PMA (Permafrost Monthly Alerts) program to assist the public with finding the latest in permafrost research. I don't know how many times I've provided links to proceedings from past conferences available on the USPA website and at no charge to the public. I look forward to continuing my service to the permafrost community with my work on the USPA Board of Directors, continued participation in the International Permafrost Association, and AFI's financial support of key USPA programs.



John Zarling (Treasurer 2009-2011; President 2020): I was invited to serve as Treasurer in 2009 and then was elected for another 2-year term. I was elected as President-elect in 2019 serving another three-year term on the BOD. During this tenure work was initiated on creating a new website and membership system with Peppi Bolz, Susan Wilson and Kathy Wilson leading the way. Also, two at-large positions were added to the BOD in 2020. Tom Douglas, Kevin Shaefer, Anna Liljedahl and Kathy Wilson began the preliminary planning for the RCOP held in 2021. Jerry Brown kept me on my toes with his frequent emails and valuable guidance. In 1975 I was offered a faculty position in the mechanical engineering department at the University of Alaska Fairbanks (UAF). My office at UAF was next door to Professor Eb Rice's office and he served as a mentor to me. Eb was known for his experience in all aspects of arctic engineering including the challenges of building on permafrost. I became enchanted with the cold regions engineering and pursued learning about permafrost and the engineering required for successful foundation designs. This included attending and participating in International Permafrost Conferences (ICOP) through reviewing papers, publishing papers and networking with others working in the field of arctic engineering. Soon I was teaching courses in Arctic heat and mass transfer and Arctic Engineering at UAF and University of Alaska Anchorage (UAA), and participating in teaching the cold regions engineering short course at University of Washington. Many of the students in these courses were practicing engineers and I learned much from them, and hopefully I was able to pass along some knowledge as well. The Cold Regions Research and Engineering Laboratory provided me with a home for two sabbatical leaves from UAF. I had the good fortune to have many stimulating discussions with Don Haynes, Virgil Lunardini, Frank Sayles, Ed Chamberlain, Wayne Tobiasson, and others at CRREL. Following retirement from fulltime teaching at UAF in the early 90's the Alyeska Pipeline Service Company retained me as a consultant which exposed me to the realm of engineering of the Trans Alaska Pipeline System with a focus on the above-ground pipeline with the supporting VSMs and "heat pipes" used to support the pipeline where it crosses non-thawed stable permafrost. The teaching, research and consulting experiences, including the USPA, have been such a great blessing in my professional life.



Jon Zufelt (President 2007): I was invited to join the Board of Directors of the U.S. Permafrost Association in 2005 to assist with the preparations for the Ninth International Conference on Permafrost. Being a Research Hydraulic Engineer at the U.S. Army Cold Regions Research and Engineering Laboratory (CRREL), I wasn't spending much time in frozen soils research, but I had connections to many researchers and engineers within CRREL and the American Society of Civil Engineers (ASCE) Technical Council on Cold Regions Engineering (TCCRE). That partnership of USPA/ASCE cooperation in publications and conferences has made both organizations stronger, as evidenced by the 2021 Regional Conference on Permafrost and 19th International Conference on Cold Regions Engineering. I have personally gained so much knowledge on permafrost from the many researchers and engineers that I have interacted with over the years, the big names as well as the up and coming "newbies". The endless energy of Jerry Brown, the financial dedication to USPA of Michael Lilly, and the wealth of knowledge and stories from Bucky, Fritz, Jim, Yuri, Vlad, Torre, Tom, Ed, and so many more are an inspiration to always keep learning. As editor, I relied upon many to provide peer reviews for articles in the Journal of Cold Regions Engineering. The success of the NICOP initiated the opportunity to provide educational grants for students to travel and participate in international conferences as well as fostering the PYRN. I look forward to continued opportunities to promote the importance of permafrost research and engineering through USPA and ASCE.

Current/Past Board Members/Chairs



Jessica Ernakovich (Board Member 2021-2024): I joined the USPA as a graduate student in 2012. Initially I joined because the USPA afforded me the opportunity to attend AGU with a student travel award. But, while receiving the award during the USPA annual meeting, I realized that I was among future friends and colleagues, and I became more invested in the USPA. The USPA also enabled me to attend ICOP in Salekhard, Russia, which was a definitive turning point in my career, as I met many permafrost researchers who took me under their wing to enter the permafrost research community. During my graduate degree I had the luck and good fortune to

consult with many USPA members as I designed and executed my research project. Following the successful completion of my PhD studying the microbial ecology and soil organic matter chemistry of permafrost soils, I paused Arctic science for my postdoctoral research in Australia. However, I reengaged with USPA once I became a faculty member to network with other permafrost professionals. I was invited to serve on the Board of Directors in 2020. I have since served 1.5 terms. I also actively engage with the USPA DEI committee and was one of its founding members and co-chair from 2020-2022. I am proud to be part of an organization whose primary function is to facilitate networks to accelerate the understanding of permafrost systems through science and engineering. I am even more proud to be an active participant working to make the USPA more diverse and inclusive—to bring in more voices, disciplines, beliefs, and peoples. I hope that this launches an ethos oriented around solutions and society for the next 20 years of the US Permafrost Association.



JJ Frost (PYRN Representative 2013, Treasurer 2014-2019): I joined the U.S. Permafrost Association community as a graduate student in the late 2000s and served on the Board of Directors from 2014-2019. As a young member, I enjoyed and benefited from opportunities to connect with a community united by a shared interest and passion in permafrost science and engineering, at AGU and at International Conferences on Permafrost, among others. Throughout its existence, USPA has served to advance the permafrost knowledge base and capabilities within the United States, and to build

bridges connecting U.S.-based students, researchers, and professionals to the international permafrost community. Many of USPA's early leaders distinguished themselves in navigating the Cold War-era "deep freeze" in relations with the then Soviet Union, blazing a trail for collaboration and dissemination of knowledge under adverse circumstances. History has a way of repeating itself, or at least rhyming, and we must now find our way through another freeze ushered in by the Russo-Ukrainian War. Today, a rising generation of permafrost researchers and engineers come into the game, many of whom have enjoyed benefits and opportunities that USPA provides as part of its core mission.



Kelsey Nyland (UPEF Chair 2019-2022; Membership Committee 2020-2022): The USPA has been an invaluable support system throughout my education and as an early-career permafrost scientist. I joined the association as an undergraduate student before attending the 10th International Conference on Permafrost. It was through USPA-sponsored events at that meeting and later ones that I met senior scientists and engineers who offered scientific feedback, professional advice, and several of my academic advisors, employers, and collaborators. The USPA also supported me financially through a series of travel and research awards. I have since had the honor to serve in capacities including the Permafrost Young Researchers Network (PYRN) representative to the USPA-PYRN Education

Fund, then chair of the Education Fund, and on the Membership Committee. The USPA has fostered a sense of community and professional civics for student and early career members like myself. I am very grateful for the professional support, tools, and colleagues the USPA has afforded me.



Ming Xiao (President Elect 2023): Being a Lifetime member of USPA is both a privilege and an opportunity. I am fortunate to get to know and work with the pioneers in permafrost science and engineering, to learn from them, and even to contribute to this field! I am passionate about education; and being the Chair of USPA's Permafrost Engineering Education Program has given me the opportunity to make impact on K-12 students, undergraduate and graduate students, and early-career professionals. It is so great to see more people become interested in permafrost and appreciate how permafrost system interacts with the society. It is also satisfying to work with the members and friends of the USPA, knowing our collective efforts can make positive impacts.

Lifetime Members



Edward (Ted) Schuur (Lifetime member 2022): I came to Alaska as a junior scientist in the late 1990s with an interest in carbon and climate change. I knew that boreal forest and tundra contained a large fraction of the world's soil carbon, but at that time had little knowledge of the role that permafrost played in structuring those ecosystems. I found the USPA and its leaders and members to be a source of this new knowledge and was eager to learn. I became exposed to the world of permafrost science through early workshops on permafrost and carbon attended by USPA core members, and notably through the Ninth International Conference on Permafrost held in

Fairbanks. These experiences and connections with USPA provided a platform for me to develop the Permafrost Carbon Network, which aimed to link the biogeosciences community to the world of permafrost. Multiple people represented in this testimonial supported this effort to spread the word about how permafrost affects people everywhere. I joined as a Lifetime member as an acknowledgement of the key role of the USPA in supporting early career researchers and look forward to helping the progression of the next decade of permafrost science.

20COM Student Team Members



Xiaohang Ji (20COM, PEEP, OpsCom): I started participating in various chapters of the US Permafrost Association (USPA) since 2022, with the opportunity to serve for USPA 20th Anniversary, Permafrost Engineering Education Program (PEEP) Committees and OpsCom. I have been working with excellent permafrost professionals and volunteers in the permafrost community and education field, including helping with 20th Anniversary documents and managing PEEP website pages. USPA also provided me a great channel to meet with other professionals, researchers, and peers, to strengthen the connections within the permafrost community, as well as to learn more about permafrost-related knowledge. These experiences and knowledge from USPA and its members inspired and encouraged me to continue with my permafrost career path. It is a precious, rewarding and sustainable journey for me to contribute to USPA on a long-term basis.



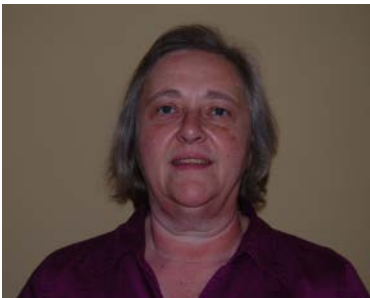
Elizabeth Kubacki (Communications Committee (2021-2023), 20COM Student Team): I joined the USPA in 2021 as a member of the Communications Committee. I enjoyed the two years I spent on that Committee, helping with the PMA program, social media accounts for the USPA, and the AGU Annual Meeting Guides. As a member of the 20COM Student Team with Kristina, Kaytan, and Xiaohang, I helped with preparations for the 20th Anniversary activities, including this History Report. At the AGU Fall 2022 meeting, I was able to finally meet people involved with the USPA in person. I had a great week helping with the USPA exhibit booth and answering questions from attendees about the USPA and permafrost in general. While at the booth, I got to meet with 20COM members and student award winners. I learned a lot about different permafrost-related topics at the oral session and the poster session. Within the USPA and PYRN, I have been able to meet other students studying permafrost. I found hearing about their research and what they were involved in to be super helpful in figuring out what my next steps will be when I finish my undergraduate studies.



Kristina Levine (Communications Committee (2018-2023), 20COM Student Team): Since my involvement with the USPA began in 2018, the support and knowledge I've received while volunteering has been engaging and inviting. As a member of the Communications Committee, I was able to work directly on a team with other geoscience professionals on a multitude of activities, such as the USPA's annual AGU Permafrost Guides, the analyzation of references in the Permafrost Monthly Alert (PMA) Program, the association's website editing, and social media outreach. When analyzing the references in the PMA Program, I was trusted to lead the development of a computer program to improve the analyzation process, and when the program was complete, we went on to

present our findings at conferences. This was my first time working on a computer program with a team like this, and I learned so many valuable communication, teamwork, and leadership skills along the way. The USPA also supported me with a travel grant that helped me attend the 2022 AGU Fall Meeting, where I was able to discover many new perspectives on permafrost research. I was also fortunate enough to be a member of the 20th Anniversary Committee Student Team this past year, where we delved into the history of the USPA and learned about how permafrost communities have been changing and growing over the years. My team and I were able to meet so many wonderful, knowledgeable people throughout our involvement, and the entire process boosted my confidence in my ability to collaborate with students and professionals alike towards a shared goal. All in all, the people I've met and experiences I've gained through the USPA have been invaluable to me, and I'm so grateful for the support and guidance I've received from everyone along the way.

American Geosciences Institute



Sharon Tahirkheli (American Geosciences Institute representative, Communications Committee 2012-2022): Working with USPA has been one of the most rewarding activities during my career at the American Geosciences Institute (AGI). My work with AGI has often involved working with its forty-five plus member societies and my perception has been that the members of USPA are some of the most dedicated, active and engaged. When AGI assumed responsibility for the continued updating of the database containing the Bibliography of Cold Regions Science and Technology (otherwise known as the CRREL

bibliography) and the Antarctic Bibliography in 2001, I began to work closely with organizations whose members both produced and used the information being compiled in the online database. USPA quickly became one of the most active and essential groups. Members provided insight into the permafrost literature and information about conferences. In 2008, with significant encouragement from USPA organizers, I attended the NICOP and reported on the coverage of the permafrost literature in these bibliographies. The database of references grew to more than 300,000 references by the end of 2011 when NSF funding ended; however, in 2012, USPA and AGI worked together to develop the PMA (Permafrost Monthly Alert). The Alert provided USPA members with monthly reports of new publications and resulted in the continued updating of the COLD database (the combined CRREL bibliography and the Antarctic Bibliography) making these publications more accessible to a global audience. Overall, between 2012 and 2022, the Alert provided more than 8900 references to the permafrost literature. My congratulations to USPA on its first twenty years!

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Appendices

Appendix 1. Fall AGU Alaska Permafrost Session; December 16, 2022

This appendix contains information on the presentations and presenters for the Fall 2022 AGU Alaska Permafrost Session.

Impacts of a Changing Climate on Alaska's Permafrost Landscapes and Infrastructure
Convenors and Co-chair*: Anna M. Wagner, Jerry Brown, Emma Lathrop and Larry Hinzman*

Oral On-line Presentations

Disparate permafrost landscape changes following the 2015 Sagavanirktok River Flood, Alaska -
Presenter: Simon Zwieback

Secrets of the North Slope: Hydroclimate Influences on Pingo Development in Northern Alaska -
Presenter: Logan Wieland

Understanding Permafrost Landscape Evolution: Ice-Wedge Trough Network Change Detection
from Historical Aerial Imagery using Convolutional Neural Networks and Graph
Analysis - Presenter: Elias Manos

Oral In Person Session

Next Generation Permafrost Map for Alaska - Presenter: Torre Jorgenson (video)

Warming and Thawing Permafrost in Alaska - Presenter: Vladimir E Romanovsky

Trans-Alaska Pipeline System - Adapting to Permafrost Warming - Presenter: Wendy Mathieson

Results of Long-term Active Layer Monitoring in Permafrost-Affected Areas of Alaska. -
Presenter: Nikolay I Shiklomanov

Permafrost and Climate Change: Carbon Cycle Feedbacks from the Warming Arctic - Presenter:
Edward Schuur

A Field-Based Rainfall Simulator Tests the Influence of Vegetation on Soil Biogeochemistry and
Hydrothermal Properties in Discontinuous Permafrost - Presenter: Shannon Dillard

Extending the Life of Foundations on Permafrost Relying on Thermosyphons in Alaska -
Presenter: Edward Yarmak

An Analysis of Alaskan Permafrost Literature and its Relation to Climate Change and Infrastructure - Presenter: Kristina Levine

Poster Session

60 Years of Near-Surface Permafrost Monitoring in Utqiagvik, Alaska - Presenter: Kelsey E Nyland

Assessing Landscape Vulnerability to Permafrost Thaw, Wildfires, and Hydrologic Changes on Boreal Alaska - Presenter: Helene Genet

Assessing Micrometeorological Differences Related to the Built Environment in Utqiagvik, Alaska - Presenter: Mirella Shaban

Environmental Controls on Subsurface Temperature and Permafrost Thaw Progression at a Discontinuous Permafrost Site in Interior, AK – Presenter: Joel Eklof

Estimating Rates of Permafrost Degradation and their Impact on Ecosystems across Alaska: Arctic and Subarctic Engineering Design Tool. - Presenter: Sergey S Marchenko

High-Resolution Soil Moisture for the Northern Latitude Regions to Monitor Permafrost Critical for Climate Change Studies - Presenter: Ehsan Jalilvand

Ice-wedge Degradation and Stabilization in the Prudhoe Bay Oilfield, Alaska (2011-2022) - Presenter: Mikhail Z Kanevskiy

Laboratory Testing of Thermosyphon Fin Designs - Presenter: Anna M Wagner

Multiphysics Model for Local Water and Ice Contents in Thawing Permafrost: Model Description and Verification - Presenter: Yeong Min Kim

Rapid and gradual permafrost thaw: A tale of two sites - Presenter: Burke J Minsley

Remotely sensing 71 years of Permafrost Soil Cultivation in Fairbanks, Alaska, USA - Presenter: Benjamin M Jones

Spatial Autocorrelation Analysis of a 28 Year Active Layer Thickness Record from North-Central Alaska – Presenter: Vasiliy Andreevich Tolmanov

Tensile Capacity of a Single Helix Helical Pile under Changing Environmental Conditions - Presenter: Tugce Baser

The stable water isotope, carbon and nitrogen, and trace metal composition representing the most recent 40,000 years of Interior Alaska permafrost- implications for formation and thaw processes - Presenter: Thomas A Douglas

Thermokarst processes observed by remote sensing and ground surveys at intact and disturbed tundra on the North Slope, Alaska - Presenter: Go Iwahana

Appendix 2. Board Membership 2002–2022

The following tables show the USPA Board of Directors membership from 2002-2022. From 2002-2020, the IPA Executive Committee Position was not a formal voting member of the Board.

Year	President	President-Elect	Past President	Secretary	Treasurer	IPA Executive Committee	IPA Representative	PYRN Representative	General Board Members
2002	Douglas Kane	Larry Hinzman	Jerry Brown	Lynn Everett	Michael Lilly	Jerry Brown	Rupert (Bucky) Tart	--	Ted Vinson, Barbara Sotirin
2003	Larry Hinzman	Rupert (Bucky) Tart	Douglas Kane	Lynn Everett	Michael Lilly	Jerry Brown	Rupert Tart, Larry Hinzman	--	Ted Vinson, Frederick Nelson
2004	Rupert (Bucky) Tart	Vladimir Romanosky	Larry Hinzman	Lynn Everett	Michael Lilly	Jerry Brown	Larry Hinzman	--	Alexandre Tsapin, Frederick Nelson
2005	Vladimir Romanosky	Frederick (Fritz) Nelson	Rupert (Bucky) Tart	Jon Zufelt	Michael Lilly	Jerry Brown	Larry Hinzman	--	Alexandre Tsapin, J. David Norton
2006	Frederick (Fritz) Nelson	Jon Zufelt	Vladimir Romanosky	Ken Hinkel	Michael Lilly	Jerry Brown	Larry Hinzman	--	Jennifer Harden, J. David Norton
2007	Jon Zufelt	Ken Hinkel	Frederick (Fritz) Nelson	Oliver Frauenfeld	Michael Lilly	Jerry Brown	Larry Hinzman	--	Jennifer Harden, Yuri Shur
2008	Ken Hinkel	Yuri Shur	Jon Zufelt	Oliver Frauenfeld	Michael Lilly	Jerry Brown	Larry Hinzman	--	Anna Klene, Jennifer Harden
2009	Yuri Shur	Jim Rooney	Ken Hinkel	Oliver Frauenfeld	John Zaring	Jerry Brown	Frederick Nelson, Thomas Krzewinski	Anna Liljedahl	Anna Klene, Tom Douglas
2010	Jim Rooney	Torre Jorgenson	Yuri Shur	Oliver Frauenfeld	John Zaring	Jerry Brown	Frederick (Fritz) Nelson, Thomas Krzewinski	Anna Liljedahl	Nikolay Shiklomanov, Tom Douglas

Year	President	President-Elect	Past President	Secretary	Treasurer	IPA Executive Committee	IPA Representative	PYRN Representative	General Board Members
2011	Torre Jorgenson	Oliver Frauenfeld	Jim Rooney	Anna Liljedahl	John Zarling	Jerry Brown	Frederick (Fritz) Nelson, Thomas Krzewinski	Margaret Cysewski	Nikolay Shiklomanov, Michael Lilly
2012	Oliver Frauenfeld	Michael Lilly	Torre Jorgenson	Anna Liljedahl	Tom Douglas	Vladimir Romanosky	Frederick (Fritz) Nelson, Thomas Krzewinski	Margaret Cysewski	Mark Waldrop, Molly McGraw
2013	Michael Lilly	Ed Yarmak	Oliver Frauenfeld	Molly McGraw	Tom Douglas	Vladimir Romanosky	Frederick (Fritz) Nelson, Thomas Krzewinski	Gerald (JJ) Frost	Mark Waldrop, Mark Demitroff
2014	Ed Yarmak	Thomas Krzewinski	Michael Lilly	Molly McGraw	Gerald (JJ) Frost	Vladimir Romanosky	Frederick (Fritz) Nelson, Thomas Krzewinski	Jennifer Frederick	Mark Waldrop, Mark Demitroff
2015	Thomas Krzewinski	Mark Waldrop	Ed Yarmak	Molly McGraw	Gerald (JJ) Frost	Vladimir Romanosky	Frederick (Fritz) Nelson, Thomas Krzewinski	Jennifer Frederick	Margaret Darrow, Mark Demitroff
2016	Mark Waldrop	Tom Douglas	Thomas Krzewinski	Molly McGraw	Gerald (JJ) Frost	Vladimir Romanosky	Frederick (Fritz) Nelson, Thomas Krzewinski	Jennifer Frederick	Margaret Darrow, Mark Demitroff
2017	Tom Douglas	Anna Liljedahl	Mark Waldrop	Molly McGraw	Gerald (JJ) Frost	Vladimir Romanosky	Frederick (Fritz) Nelson, Thomas Krzewinski	Daniel Vecellio	Margaret Darrow, Mark Demitroff
2018	Anna Liljedahl	Dima Streletskiy	Tom Douglas	Molly McGraw	Gerald (JJ) Frost	--	Frederick (Fritz) Nelson, Thomas Krzewinski	Daniel Vecellio	John Thornley, Mark Demitroff
2019	Dima Streletskiy	John Zarling	Anna Liljedahl	Susan Wilson	Gerald (JJ) Frost	--	Frederick (Fritz) Nelson, Thomas Krzewinski	Matthew Whitley	John Thornley, Cathy Wilson
2020	John Zarling	Cathy Wilson	Dima Streletskiy	Susan Wilson	Peppi Croft	Frederick (Fritz) Nelson	Thomas Krzewinski	Matthew Whitley	Torsten Mayrberger, Mark Bennett
2021	Cathy Wilson	John Thornley	John Zarling	Susan Wilson	Peppi Croft	Frederick (Fritz) Nelson	Ed Yarmak, Kevin Schaefer	Helena Bergstedt	Torsten Mayrberger, Jessica Ernakovich, Michelle Walvoord, Anna Wagner
2022	John Thornley	Anna Wagner	Cathy Wilson	Molly McGraw	Eva Stephani	Frederick (Fritz) Nelson	Ed Yarmak, Kevin Schaefer	Emma Lathrop	Michael Lilly, Jessica Ernakovich, Michelle Walvoord, Peppi Croft

Appendix 3. USPA Constitution and Bylaws (November 29, 2022)



Constitution and Bylaws United States Permafrost Association Modified November 29, 2022

CONSTITUTION

The United States Permafrost Association is formally constituted to provide a forum within the United States of America for permafrost science and engineering and to provide input reflecting the views of our members to the International Permafrost Association.

BYLAWS

The United States (US) Permafrost Association (Association) functions under the following Bylaws:

ARTICLE I - Name

Section 1. The name of this organization is the United States Permafrost Association. The United States Permafrost Association will be referred to as the “Association” throughout the remainder of the Bylaws.

ARTICLE II - Territory

Section 1. The Association shall include and be limited to all of the United States of America, except as provided in Article V, Section 3.

ARTICLE III - Location

Section 1. The Headquarters of the Association shall be the address designated by the elected Secretary.

ARTICLE IV - Objectives

Section 1. The objectives of the Association are:

To foster the dissemination of knowledge concerning permafrost and promote cooperation among persons and local, national and international organizations engaged in permafrost investigations related to science and engineering.

To provide a common forum in which to discuss and exchange ideas related to permafrost science and engineering.

To cooperate with Federal, State, and local agencies, educational institutions, foundations, private companies, and with local sections and chapters of national organizations concerned with permafrost science and engineering.

To be responsible for representing US engineering and scientific permafrost communities in various professional organizations, including paying annual dues to the International Permafrost Association.

To incorporate the values of Diversity, Equity, and Inclusion (DEI) in its governance and operations as stated in the Association's DEI Policy.

ARTICLE V - Membership

Section 1. There shall be four classes of individual memberships: regular, student, sustaining and lifetime. Regular memberships are for individuals. Student memberships are intended for students enrolled in a university degree program. Sustaining memberships are a form of regular memberships for individuals that wish to contribute more to the Association and its activities. Life memberships are a form of regular membership for individuals, which require a one-time membership payment.

There shall be four classes of institutional and corporate memberships: Ice Vein, Ice Wedge, Massive Ice and Permafrost (Lifetime). Institutional members are educational institutes or departments thereof, or a Federal, State, Local or Tribal government agency. Corporate members are a business, corporation, or nonprofit organization or group interested in any aspects of the objectives of the Association. Institutional and corporate members may have one voting representative designated at the beginning of membership or renewal. All voting activity by institutional and corporate member representatives will be made in the name of the corporate or institutional member.

Section 2. Membership becomes effective upon payment of the annual dues. In the case of dues being paid for a following year, the term of the active membership will begin at the beginning of the Calendar year for which dues were paid. All members may vote and serve on committees or other designated groups. Members may not vote if dues payments are outstanding.

Section 3. An eligible person residing outside the United States may be member of the Association. An eligible person is current with their membership dues and has not had their membership revoked by the Association Board for not following any of the policies of the Association.

Section 4. Membership in the Association will be terminated upon failure to pay Association dues for a 12-month period, upon voluntary resignation, or if the Association Board finds, by a two-thirds or more vote, that a member has engaged in a practice or has acted in a manner that discredits the Association.

ARTICLE VI - Officers and Duties

Section 1. The officers of the Association shall be a President, a President-Elect, a Secretary, and a Treasurer. Any regular member of the Association can serve in an officer position. Elections will be held in accordance with Article VI, Section 7.

Section 2. The President shall preside at meetings; shall, in consultation with the Association Board, appoint all committees; and shall perform all other duties incident to the office. The President shall prepare, in collaboration with Secretary, an annual written report of the Association's activities to be presented to the annual meeting of the Association. The President is a one-year position.

Section 3. The President-Elect shall perform the duties of the President in the temporary absence or disability of the President, and serve as the President's principal assistant in conducting the business of the Association. The President-Elect shall have general responsibilities of the activities of ad hoc committees and represent the Association Board on Standing Committees. The President-Elect will customarily succeed the President at the expiration of the President's term. The President-Elect is a one-year position.

Section 4. The Secretary shall keep the Minutes of the Association meetings, and shall perform all other duties incident to the office. The Secretary is a two-year term position. The Secretary position shall be elected for terms beginning in odd-numbered years.

Section 5. The Treasurer shall be responsible for the oversight of all funds of the Association and payment of dues to the International Permafrost Association. The Treasurer's accounts shall be audited at the close of each year as directed by the President. The Treasurer shall prepare an annual report and financial statement for presentation at the annual membership meeting. At the end of each year, the Treasurer shall present an annual planning budget and a revised five-year financial plan to the Association Board for the Association Board review and approval. The Treasurer is a two-year term position. The Treasurer position shall be elected for terms beginning in even-numbered years.

Section 6. The Officers of the Association Board shall serve for two years and may, with the exception of the President and President-Elect, succeed themselves. The position of President-Elect serves for one year, then succeeds the President, and then remains on the Association Board one more year as Past-President. Their terms of office shall commence upon election at the annual membership meeting and terminate upon election and ratification of successors at the annual membership meeting. If no successor(s) is (are) elected at the annual meeting corresponding with the end of their term, the position(s) will remain open, until the Association Board assigns a temporary officer(s).

ARTICLE VII - Board of Directors

Section 1. The Board of Directors (Association Board) shall consist of the Officers of the Association, the International Permafrost Association Executive Committee member, the US representative(s) to the Council of the International Permafrost Association, the past-President of the Association, one appointed position by the Permafrost Young Researchers Network (PYRN), and four regular Association members. The Past-President position is a one-year position. If for some reason, this position is not filled, it shall be filled with a regular member who has previously served on the Association Board as President.

Section 2. The International Permafrost Association has an Executive Committee, which has always had one US member. The Association nominates a US candidate(s) for this position, when requested by the International Permafrost Association. A US candidate must be a regular member of the Association in good standing and a US citizen or US lawful permanent resident. The US Executive Committee member serves on the Association Board as a regular voting member for the term served on the Executive Committee.

Section 3. Additionally, the US representative(s) to the Council of the International Permafrost Association can serve as concurrent officers of the Association, and/or fill one of the other Board positions. The US representative(s) must be a regular member of the Association in good standing and a US citizen or US lawful permanent resident. The goal of the US representative(s) position is to have one representative for permafrost engineering, and one US representative for permafrost science. These Association Board positions are voting positions assigned by the Association Board for a period of four years, or following the organizational guidelines of the International Permafrost Association (IPA). The positions will be filled by the Association Board at the annual board meeting directly preceding an IPA

International Conference on Permafrost (ICOP). The term of the position(s) shall begin and end at the IPA Council meeting held at each ICOP.

Section 4. The PYRN position is a two-year position, alternating with odd-numbered years. The PYRN representative will be a US member of PYRN, residing in the US, and also an Association member in good standing. PYRN representatives will submit a candidate name(s) to the Association Board for their regular meeting scheduled the year before the position rotates. The Association Board will vote for the candidate to be on the Board, or request the PYRN representatives to submit an additional name(s). A majority vote is required to place the PYRN candidate on the Board. The term will start with regular Board meetings at the beginning of the calendar year. The goal of the PYRN position is to maintain dialogue and coordination with PYRN. In the event a vacancy develops on the Association Board (except for the PYRN and International Permafrost Association related positions), the remaining members of the Association Board shall be authorized to appoint someone to fill the vacancy for the unexpired term.

Section 5. The regular Association Board members will serve two-year terms, with two members elected in odd and two members elected in even years, and may serve a renewal for up to two consecutive terms.

Section 6. Each Association Board member shall review and follow the Diversity, Equity, and Inclusion policy adopted by the Association Board and sign the annual Association Board Expectations Letter at the beginning of each calendar year.

Section 7. The Association Board shall manage the affairs of the Association including administration, program development, supervision of financial affairs including approving a one-year planning budget and a five-year financial plan at the beginning of each year, and nominate the candidates to represent the US on the Council of the International Permafrost Association. A quorum for an Association Board meeting shall be a simple majority of the Association Board members.

Section 8. In the event a vacancy develops on the Association Board, the remaining members of the Association Board are authorized to appoint an Association member to fill the vacancy for the unexpired term.

Section 9. Candidates for election to the Association Board shall be nominated by the Nominating and Tellers Committee appointed by the President, with the advice of the Association Board. Members of the Nominating and Tellers Committee should be diverse and the charge to the Nominating Committee members includes following the Association's Diversity, Equity and Inclusion policy. All candidates for election shall have reviewed the Association Board Expectations letter and agree to abide by it if elected to the Association Board. Before a name is placed in nomination, the Nominating and Tellers Committee shall be assured that the nominee will agree to serve if elected.

Voting for Association Board members will be held via email or secure electronic polling interface exclusively. Ballots listing the nominations, and identifying the voting process, shall be emailed to each Association member at least ten days prior to the Annual Association Meeting. Ballots will be due via return email not less than three before the Annual Association Meeting, in order to allow for tabulating votes, and to notify successful candidates. A plurality of the votes is required for electing Association Board members. All Association Board member terms start on the beginning of the Calendar year following the annual meeting and stop at the end of the Calendar year completing their term.

It is the responsibility of each individual Association member to maintain an up-to-date email address with the Secretary in order to ensure timely ballot distribution in accordance with this section.

Section 10. Association Board members may assign a proxy for an individual motion vote. A proxy must be a member in good standing. Notification of a proxy for an Association Board member is sent to the Association Board as a whole.

Article VIII - Committees and Groups

Section 1. The following Standing Committees may be appointed each year, unless ongoing, by the President of the Association with the approval of the Association Board. The committees and their duties shall be as indicated

1. Auditing Committee - shall audit the accounts of the Treasurer of the Association.
2. Membership Committee - shall promote membership in the Association and shall recruit new Members. The Committee will follow the Membership Policy approved by the Association Board and shall regularly update and maintain the Association membership records.
3. Nominating and Tellers Committee - shall nominate qualified candidates for the offices of the Association in accordance with the provisions of Article IV and to count and report the results of the Association balloting. The charge of the Nominating Committee members includes following the Association's Diversity, Equity and Inclusion policy.
4. Program Committee - shall make arrangements for all meetings of the Association.
5. Communications Committee - shall help provide content for the Association website and other media on a regular basis by informing Association members of the activities of the Association and to furnish news, both personal and professional, of interest to the members of the Association. The Association website is the primary communications medium for the organization. The Committee will operate under an Association Board approved charter, which can be revised by the Committee and accepted by simple majority vote of the Association Board.
6. Presidents Council - shall provide support to the President and Association Board. The Council can aid the Association in numerous formal and informal ways through the experience and knowledge of past Presidents. The Presidents Council is comprised of past Presidents of the Association. Other distinguished members of the Association may be invited to join the Council in recognition of past significant contributions to the USPA. The Presidents Council operates under its organizational charter, which can be changed by the Council and accepted by simple majority vote of the Association Board.
7. Diversity, Equity, and Inclusion (DEI) Committee - shall review and revise the Association's DEI Policy as needed. The Committee shall provide annual reports to the Board and membership to help inform the Association of DEI objectives and progress. The Diversity, Equity, and Inclusion Committee will operate under an Association Board approved charter, which can be changed by the Committee and accepted by simple majority vote of the Association Board.

Section 2. The Association Board may recommend and appoint individuals to the Working Parties of the International Permafrost Association and as representatives to other national and international organizations.

Section 3. The President shall appoint Ad Hoc committees, in addition to those listed under Article VIII Section 1 as he/she deems necessary, with the approval of the Association Board.

Section 4. No committee or individual shall expend or obligate funds of the Association unless authorized by the Association Board.

Article IX Meetings

Section 1. Meetings of the Association will be convened at irregular intervals at local, national or international meetings. The Association will hold an annual membership meeting in the fall of each year. Electronic communications will be the main form of communications to Association members.

Section 2. The order of business and procedures shall be in accordance with Robert’s Rules of Order.

Article X Dues and Funds

Section 1. The Association Board shall set annual dues for the Association’s membership.

ARTICLE XI - Dissolution

Section 1. This Association may be dissolved by two-thirds vote of all members in good standing through mail balloting.

Section 2. If dissolution is favorably acted upon, all just debts shall be paid out of the funds of the Association. All remaining monies and assets shall be transferred to the International Permafrost Association. All records, correspondence, and other papers shall be archived in the University of Alaska Fairbanks Polar Archives.

ARTICLE XII - Amendment

Section 1. These Bylaws may be amended by a two-thirds vote of the Association Board.

Board Member Representative:



Anna Wagner, USPA President-Elect, 11/29/2022

USPA Bylaws Revision History

- First Adopted December 4, 2001
- Modified December 6, 2005
- Modified December 9, 2007
- Modified October 22, 2008
- Modified December 15, 2010
- Modified December 7, 2011
- Modified December 16, 2014
- Modified June 20, 2019
- Modified November 29, 2022

Appendix 4. Corporate-Institutional Membership (2001–2022)

The following tables show the Corporate and Institutional Membership for the USPA. Normal text shows Ice Vein Membership (\$100/year), italicized text shows Ice Wedge Membership (\$300/year), and bold text shows Massive Ice Membership (\$1000/year). Arctic Foundations is a Lifetime Member.

USPA Organizational and Corporate Membership (2001-2022)	
Companies, Consultants and Corporations	Years Membership (\$100, \$300, \$1000)
Alaska Ecoscience	2009-2011; <i>2015-2022</i>
Alyeska Pipeline	2008
ABR, Inc.	2002-2006; 2021-2022
Arctic Foundation	2005, 2007, 2012 (life)
BeadedStream	2008-2010, 2015, <i>2016</i> , 2017
BP Exploration	2008-2010
BTS Professional	2005
Campbell Scientific	2005,2006, 2008 ,2009, 2014-2016
CH2M Hill Alaska	2008-2011
Conoco Phillips	2008
Design Alaska	2002, 2005-2011, 2013-2014
Dowl LLC	2008, 2014
EE Internet	2005,2006, 2008
Fairbanks Gold Mining	2008
Golder Associates, Inc.	2001-2010, 2014, 2021-2022
GW Scientific	2001,2003,2005,2006,2008-2011, 2014, 2015, <i>2017</i> , 2018, <i>2019-2022</i>
Hawk Consultants	2006-2010
Lounsbury & Associates	2002, 2004-2006, 2008-2012, 2014-2016
Michael Baker Jr. Inc.	2008-2012
Northern Engineering & Scientific	2008, 2012, 2016
Northern Geotechnical Engineering Inc	2008-2012, 2018, <i>2020-2022</i>
NUNA Technologies	2008
Onset Computer Corporation	2003, 2020, 2021
PND Engineers, Inc	2002, 2003, 2005- 2010, 2014, 2016, 2017, <i>2020- 2022</i>
R & M Consultants	2006-2010, <i>2012</i> , 2014 , <i>2015-2017</i> , <i>2020-2022</i>
R. A. Kreig & Associates	2008-2011, <i>2012</i> , 2014, 2015
Resource Data, Inc	2008
Shannon & Wilson	2008-2012, 2016, 2020-2022
Syngen	<i>2021</i> , <i>2022</i>
Ukpeagvik Inupiat Corporation Science	2021 , 2022
URS Corporation	2008, 2009
Soils Alaska	2002, 2003, 2005-2007
VECO	2005, 2006
3rd Rock Consulting Inc.	2020

Normal text shows Ice Vein Membership (\$100/year), italicized text shows Ice Wedge Membership (\$300/year), and bold text shows Massive Ice Membership (\$1000/year).

Institutional and Governmental Members	Years Membership (\$100, <i>\$300</i> , \$1000)
Alaska Department of Natural Resources	2003
American Geosciences Institute	2003, 2005, 2006, 2008-2011, 2019-2022
Arctic National Wildlife Refuge	2005
Arctic Research Commission	2008-2011, 2018-2025
Barrow Alaska Science Consortium	2005-2007
Byrd Polar Research	2003, 2006, 2008-2011
Cold Climate Housing Research Center	2005, 2006, 2008-2011
Center for Snow and Avalanche Studies	2020
Denali Commission	2008, 2010
Geophysical Institute Permafrost Laboratory, UAF	2021, 2022
Houston Advanced Research Center	2008, 2009
International Arctic Research Center, UAF	2004-2006, 2008, 2009, <i>2016</i> , <i>2020-2022</i>
International Permafrost Association	2008
Institute of Northern Engineering (WERC), UAF	2009, 2010, 2019-2022
Permafrost Carbon Research Coordination Network	2012-2014
United States Geological Survey (Ferrians)	2005, 2006, 2008
University of Colorado, National Snow and Ice Data Center	2002, 2005-2008, 2011, <i>2014</i> , 2016, 2017, 2019-2022
University of Delaware	2006
University of Maine, School of Earth & Climate Sciences	2022
University of Texas El Paso, Systems Ecology Lab	2019, 2020
University of Virginia, Department of Environmental Sciences	<i>2022-2022</i>
Usibelli Foundation	2008-2011, 2014, 2016
Water and Environmental Research Center, UAF	2008, 2009, <i>2017</i>
Woodwell Climate Research Center	<i>2019-2022</i>

Appendix 5. Awardees by individual, year and type

The following tables show scholarship awardees by individual, year, and amount type. The last table is a summary of the different award types.

Last Name	First Name	Gender	Year	Award*	Amount
Braun	Katherine	F	2022	UPEF	\$600
Guinn	Nicole	F	2022	UPEF	\$800
Gay	Bradley	M	2022	UPEF	\$600
Schaefer	Sean	M	2022	UPEF	\$600
Tolmanov	Vasily	M	2022	UPEF	\$800
Lekso	Anna	F	2022	UPEF	\$800
Levine	Kristuna	F	2022	UPEF	\$800
Eklof	Joel	M	2022	PEEP	\$500
Sakhalkar	Soumitra	F	2022	PEEP	\$500
Huang	Lincao	M	2022	PEEP	\$1,000
Tourei	Ahmad	M	2022	PEEP	\$1,000
Arcuri	Josephine	F	2022-21	Slater	\$1,000
Robert	Zena	M	2022-21	Slater	\$1,000
Manos	Elias	M	2021	RCOP	\$100
Levine	Kristina	F	2021	RCOP	\$100
Schwaber	Jaimy	M	2021	RCOP	\$100
Liew	Min	F	2021	RCOP	\$100
Vulis	Lawreance	M	2021	RCOP	\$100
Kelkar	Kaytan	M	2021	RCOP	\$100
Manos	Elias	M	2021	RCOP	\$500
Levine	Kristina	F	2021	RCOP	\$300
Liew	Min	F	2021	RCOP	\$600
Vulis	Lawreance	M	2021	RCOP	\$400
Schwaber	Jaimy	N	2021	RCOP	\$400
Schwaber	Jaimy	N	2021	RCOP-ASCE	\$250
Zhao	Yue	N	2021	RCOP-ASCE	\$250
Sayedi	Sayadeh Sara	F	2020	UPEF	\$550
Mitchel	Raven	F	2020	UPEF	\$550
Trcka	Allison	F	2020	UPEF	\$550
Farina	Mary	F	2020	UPEF	\$550

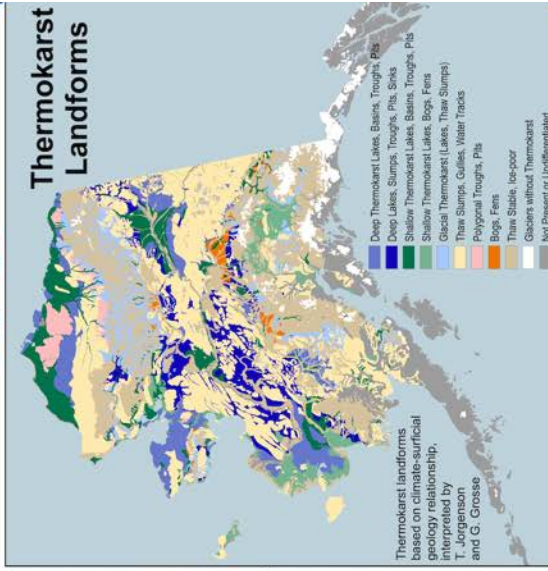
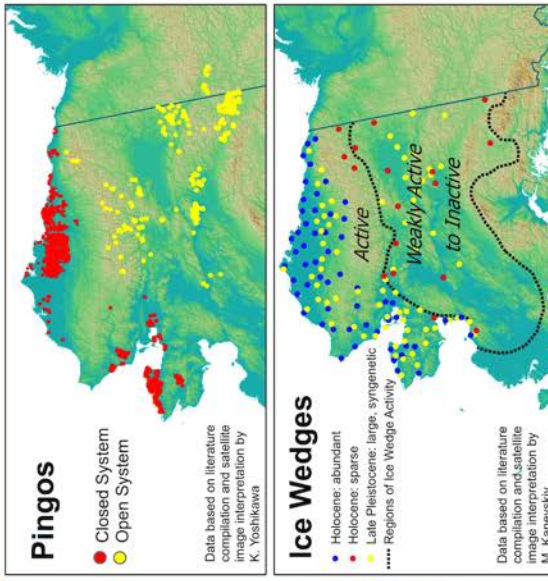
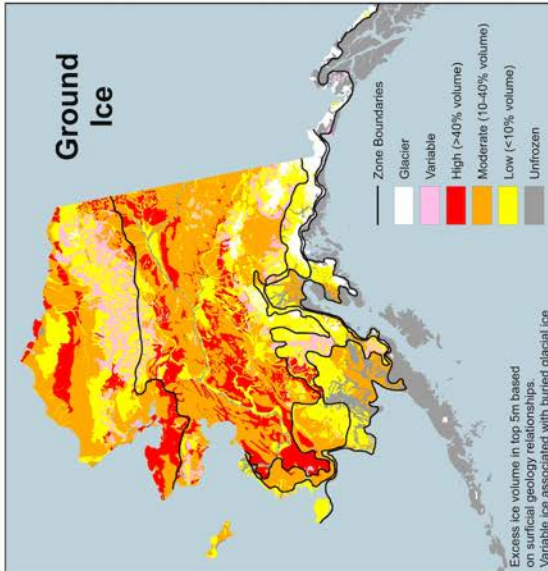
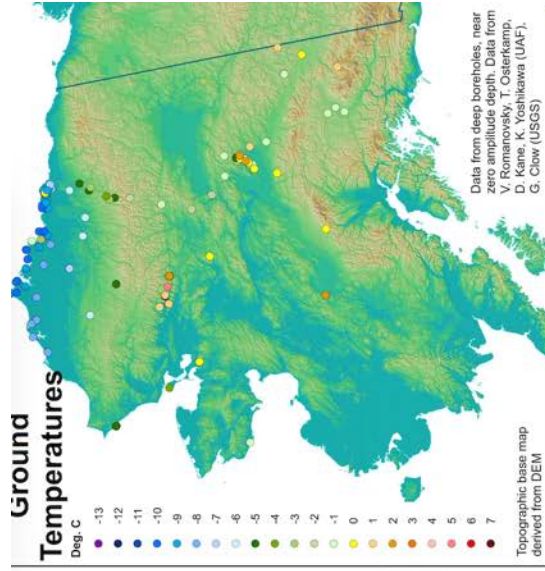
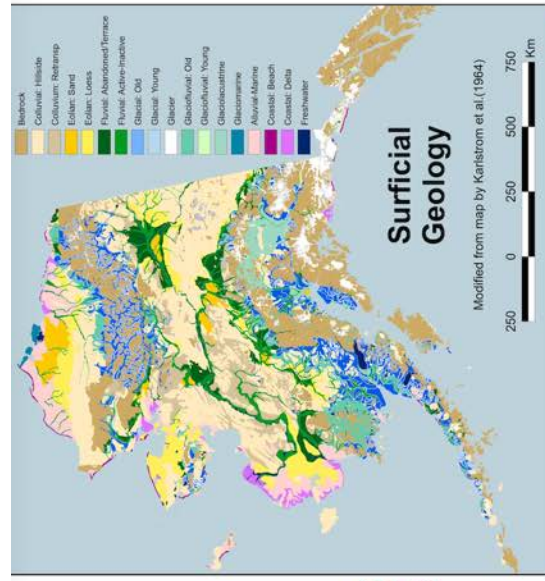
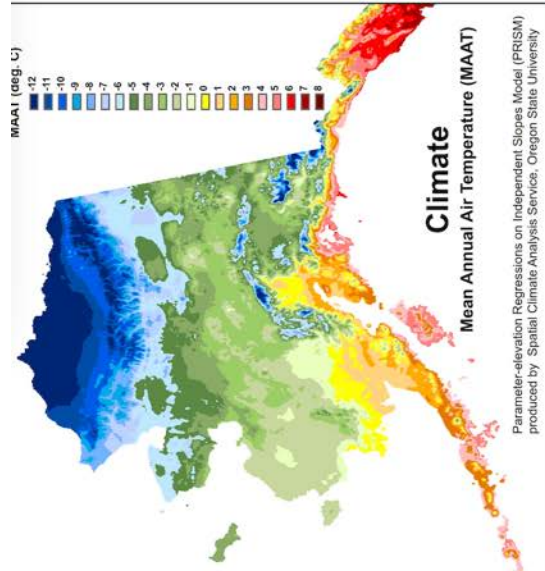
Last Name	First Name	Gender	Year	Award*	Amount
Stephani	Eva	F	2019	PEEP	\$750
Schwarber	Jaimy	M	2019	PEEP	\$250
Eklof	Joel	M	2019	UPEF (PYRN)	\$500
Rangel	Rodrigo	M	2019	UPEF (PYRN)	\$500
Rooney	Erin	F	2019	UPEF (PYRN)	\$500
Sanders	Aquanette	F	2109	UPEF (PYRN)	\$500
Foley	Neil	M	2018	UPEF (PYRN)	\$500
Queen	Clayton	M	2018	UPEF (PYRN)	\$500
Debolskiy	Matvey	N	2018	UPEF (PYRN)	\$500
Frei	Rebecca	F	2018	UPEF (PYRN)	\$500
Madoff	Risa	F	2018	Slater	\$1,000
Arvizu	Mia	F	2018	UPEF (PYRN)	\$500
James	Sephanie	F	2018	UPEF (PYRN)	\$500
Mitchell	Raven	F	2018	UPEF (PYRN)	\$500
Nyland	Kelsey	F	2018	UPEF (PYRN)	\$500
Rick	Brianna	F	2018	UPEF (PYRN)	\$500
Rodriguez-Cardona	Blanca	F	2018	UPEF (PYRN)	\$500
Queen	Clayton	M	2017	UPEF (PYRN)	\$500
Bogard	Matthew	M	2017	UPEF (PYRN)	\$500
Jacquemart	Mylene	F	2017	UPEF (PYRN)	\$500
Emerson	Joanne	F	2017	UPEF (PYRN)	\$500
Burkert	Alex	M	2017	UPEF (PYRN)	\$500
Gaedeke	Anne	F	2017	UPEF (PYRN)	\$500
Bristol	Emily	F	2017	UPEF (PYRN)	\$500
Jardine	Laura	F	2017	UPEF (PYRN)	\$500
Lindsey	Nate	M	2017	UPEF (PYRN)	\$500
Pedron	Shawn	M	2017	UPEF (PYRN)	\$500
Rodenhizer	Heidi	F	2017	Slater	\$500

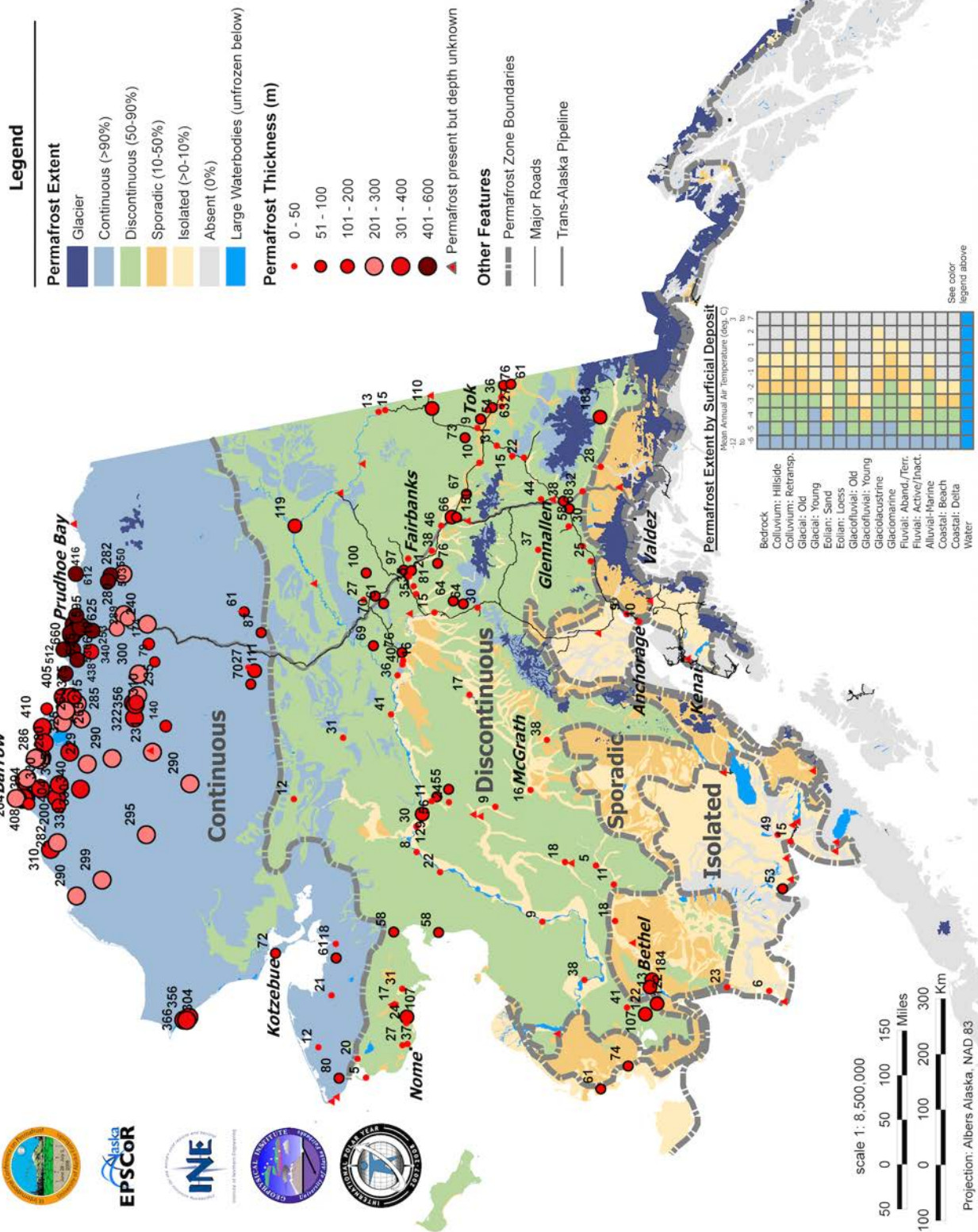
Last Name	First Name	Gender	Year	Award*	Amount
Watts	Jennifer	F	2016	JSPA Potsdam	\$2,000
Stephani	Eva	F	2016	JSPA Potsdam	\$2,000
Farquharson	Louise	F	2016	JSPA Potsdam	\$2,000
Rudolf (Cysewski)	Margaret	F	2016	USPS Potsdam	\$2,000
Eckhardt	Bridget	F	2016	UPEF (PYRN)	\$500
Emerson	Joanne	F	2016	UPEF (PYRN)	\$500
Connolly	Craig	M	2016	UPEF (PYRN)	\$500
Gaedeke	Anne	F	2016	UPEF (PYRN)	\$500
Garnello	Anthony	M	2016	UPEF (PYRN)	\$500
Jacobs	Nicole	F	2016	UPEF (PYRN)	\$500
Nyland	Kelsey	F	2016	UPEF (PYRN)	\$500
Whitley	Matthew	M	2016	UPEF (PYRN)	\$500
Hoyt	Alisson	F	2015	UPEF (PYRN)	\$1,100
Elder	Clayton	M	2015	UPEF (PYRN)	\$950
Debolskiy	Matvey	F	2015	UPEF (PYRN)	\$950
Balser	Andrew	M	2015	UPEF (PYRN)	\$500
Behnke	Megan	F	2015	UPEF (PYRN)	\$500
Jafarov	Ekchin	M	2015	UPEF (PYRN)	\$500
Elder	Clayton	M	2015	UPEF (PYRN)	\$500
Nyland	Kelsey	F	2015	UPEF (PYRN)	\$500
Panda	Santosh	M	2015	UPEF (PYRN)	\$500
Pastick	Neal	M	2015	UPEF (PYRN)	\$500
Pegoraro	Elaine	F	2015	UPEF (PYRN)	\$500
Frederick	Jennifer	F	2014	UPEF (PYRN)	\$1,500
Farquharson	Louise	F	2014	UPEF (PYRN)	\$1,500
Moreaux	Virninie	F	2014	UPEF (PYRN)	\$1,500
Deleon	Kristine	F	2014	USPA	\$500
Demitroff	Mark	M	2014	USPA	\$500
Holden	Sandra	F	2014	USPA	\$500
Hough	Maria	F	2104	USPA	\$500
Kalhuri	Aram	F	2014	USPA	\$500
Mauritz	Marguerite	F	2014	USPA	\$500
Salmon	Verita	F	2014	USPA	\$500
Seth Spawn	Seth	M	2014	USPA	\$500
Trubl	Gary	M	2014	USPA	\$500

Last Name	First Name	Gender	Year	Award*	Amount
Hann	Lee		2013	Eary career	\$2,000
Rushlow	Caitlin	F	2013	USPA	\$500
Goswami	Santonu	M	2013	USPA	\$500
Ludwig	Sarah	F	2013	USPA	\$500
Webb	Elizabeth	F	2013	USPA	\$500
Farquharson	Louise	F	2013	USPA	\$500
Ernakovich	Jessica	F	2013	USPA	\$500
Demitroff	Mark	M	2013	USPA	\$500
Lathrop	Karri	F	2012	PEEP TICOP Teacher	\$500
Lathrop	Karri	F	2012	PEEP TICOP Teacher	\$500
Frost	Gerald	M	2012	TICOP	\$500
Panda	Sandoash	M	2012	TICOP	\$500
Nyland	Kelsey	F	2012	TICOP	\$1,000
Streletskiy	Dmitry	M	2012	TICOP	\$1,000
Minsley	Burke	M	2012	TICOP	\$1,000
Xiong	Xiaozhen	M	2012	TICOP	\$1,500
Abbot	Benjamin	M	2012	TICOP	\$750
Amanda	Amanda	F	2012	UPEF TICOP	\$500
Barnhart	Katherine	F	2012	UPEF TICOP	\$500
Ernakovich	Jessica	F	2012	UPEF TICOP	\$500
Johnston	Carmel	F	2012	Long TICOP	\$500
Lee	Hann		2012	Long TICOP	\$500
Lamb	Erica	F	2012	Long TICOP	\$500
Schaedel	Christina	F	2012	PEEP TICOP	\$500
Stephani	Eva	F	2012	PEEP TICOP	\$500
Lundell	Corrine	F	2011	PEEP	\$500
Barker	Amanda	F	2011	UPEF	\$250
Abbot	Benjamin	M	2011	UPEF	\$250
Bennett	Katrina	F	2011	UPEF	\$250
Jones	Miriam	F	2011	UPEF	\$250
Jafarov	Elchin	M	2011	UPEF	\$250
Barker	Amanda	F	2011	Long	\$250
Abbot	Benjamin	M	2011	Long	\$250
Bennett	Katrina	F	2011	Long	\$250
Jones	Miriam	F	2011	Long	\$250
Jafarov	Elchin	M	2011	Long	\$250
Natali	Susan	F	2011	UPEF	\$250
Natali	Susan	F	2011	Long	\$250

Last Name	First Name	Gender	Year	Award*	Amount
IARC Suumer	students		2010	Long	\$2,750
IARC summer	students		2010	UPEF	\$2,750
Cable	Jessica	F	2010	UPEF	\$500
Farquharson	Louise	F	2010	UPEF	\$500
Godsey	Sarah	F	2010	UPEF	\$500
Panda	Santosh	M	2009	UPEF (PYRN)	\$200
Sebastian	Westermann	M	2009	UPEF (PYRN)	\$200
Jafarov	Elchin	M	2009	UPEF (PYRN)	\$500
Johnson	Benjamin	M	2009	UPEF (PYRN)	\$500
Kriege	Kacy	F	2009	UPEF (PYRN)	\$500
O' Donnell	Jonathan	M	2009	UPEF (PYRN)	\$500
Tong	Jinjun	M	2009	UPEF (PYRN)	\$500
Aguirre	Adrian	M	2008	NICOP US	
Bjella	Kevin	M	2008	NICOP US	
Bryant	Christina	F	2008	NICOP US	
Chiu	Chun-Mei		2008	NICOP US	
De Pascale	Gregory	M	2008	NICOP US	
Demitroff	Mark	M	2008	NICOP US	
Kim	Koui		2008	NICOP US	
Kopczynski	Sarah	F	2008	NICOP US	
Lee	Hanna	F	2008	NICOP US	
Levy	Joseph	M	2008	NICOP US	
Lynn	Lorene	F	2008	NICOP US	
Mazeas	Olivier	M	2008	NICOP US	
Omelon	Christopher	M	2008	NICOP US	
Sharkhuu	Anarmaa	F	2008	NICOP US	
Streletskiy	Dmitry	M	2008	NICOP US	
Wallace	Jesse		2008	NICOP US	
Winston	Barry	M	2008	NICOP US	

Funding Source	Totals Awardees	Notes
Early Career	1	
Slater	4	
Erv Long	10	incl 3 TICOP
NICOP Conference	18	
2021 RCOP Conf.	13	
UPEF	76	incl 3 TICOP
TICOP Conference	7	
PEEP	11	incl 4 TICOP
USPA General	20	incl 4 TICOP
Total	160	



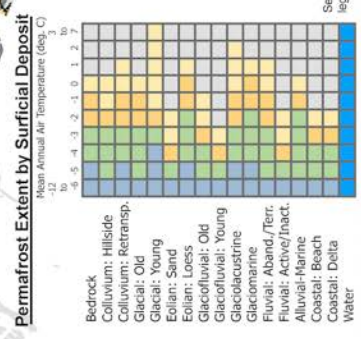


Legend

- Permafrost Extent**
- Glacier
 - Continuous (>90%)
 - Discontinuous (50-90%)
 - Sporadic (10-50%)
 - Isolated (>0-10%)
 - Absent (0%)
 - Large Waterbodies (unfrozen below)

- Permafrost Thickness (m)**
- 0 - 50
 - 51 - 100
 - 101 - 200
 - 201 - 300
 - 301 - 400
 - 401 - 600
 - Permafrost present but depth unknown

- Other Features**
- Permafrost Zone Boundaries
 - Major Roads
 - Trans-Alaska Pipeline



scale 1: 8,500,000

50 0 50 100 150 Miles

100 0 100 200 300 Km

Projection: Albers Alaska, NAD 83

See color legend above