50th Anniversary of the
First International Conference on Permafrost
11–15 November, 1963 | Purdue University, USA
Guest Editorial

The 50th Anniversary of the First International Conference on Permafrost and Beyond

This year marks the 50th anniversary of the First International Conference on Permafrost (ICOP), held at Purdue University’s School of Civil Engineering in West Lafayette, Indiana, USA, 11–15 November 1963 (Woods and Leonard, 1964). The conference was a historic event in that it brought together, for the first time, leading researchers and practitioners from North America and other countries with diverse interests and activities in the study and applications of perennally frozen ground, cold regions engineering and related laboratory investigations. The 285 registered participants represented engineers, researchers, manufacturers and builders from the USA (231), Canada (42), the USSR (5), Sweden (3) and Argentina, Austria, Great Britain, Japan, Norway, Poland, Switzerland and West Germany.

The conference was organised by the Building Research Advisory Board of the US National Academy of Sciences–National Research Council (NAS-NRC). The carefully edited volume, published in 1966 by the NAS, is considered to be the first multinational, English-language collection of papers devoted entirely to permafrost topics. In addition, a special book prepared in the USSR containing 26 papers organised into nine topical themes.

Unlike most conferences, there were only plenary sessions, however, individual papers were not presented by the authors; instead, panels of experts discussed each paper, which was followed by audience responses. Preprints of papers were available. The 100 published papers followed closely the actual conference programme and panel discussions:

- soils and vegetation (9)
- massive ground ice (10)
- geomorphology (16)
- phase equilibrium and transition (8)
- thermal aspects (8)
- physico-mechanical properties (7)
- exploration and site selection (11)
- sanitary and hydraulic engineering (14)
- earthwork and foundations (17)

The closing session included summary reports by the panel moderators. These reports and discussions, published in the Proceedings, reflected the relevant issues of that period. Many of these are pertinent today and are recommended reading for students, young researchers and established professionals. Although the original printed Proceedings volume may no longer be readily available for purchase, it is accessible in many university and government libraries, and it is obtainable via the ICOP DVD (IARC, 2008) and on several permafrost web sites. Organisational details of the conference are available in the archives of the US National Academy of Sciences and include correspondence provided from the personal files of Troy L. Péwé, a co-chair of the panel on massive ground ice.

Participation of USSR delegates in the Purdue conference was among the first post-World War II contacts between permafrost researchers from the former eastern and western blocs, and was based on a formal 1962 letter of invitation by President Seitz of the US National Academy of Sciences-National Research Council to President Keldysh of the Academy of Sciences of the USSR (Brown, 2012). Three prominent USSR permafrost researchers participated: P.I. Melnikov, S.S. Vyalov and N.A. Tsytovich. The Proceedings included additional papers by well-known USSR authors who did not attend, including Baronov, Kudravtsev, Dostovalov, Nerseova, Popov, Shumskiy and Vtyurin.

The conference’s resolutions recommended that a second international conference be planned and held with the objectives of further interdisciplinary support and participation. The Purdue conference essentially broke the ‘ice’ between East and West permafrost researchers and set the stage for the Second ICOP. That conference, organised by P.I. Melnikov (Director of the Permafrost Institute in Yakutsk), was convened in 1973 and represented the first large international conference held in this restricted area of Siberia, and followed a smaller conference in 1969 (Brown, 2012). These achievements were the result of Academician Melnikov’s vision and leadership.

All subsequent permafrost conferences maintained the interdisciplinary principles set forth at the Purdue meeting, and had both plenary and special thematic sessions, but the review papers were not always published in the conference Proceedings. These conferences included two more in the USA (Fairbanks 1983, 2008), two in Canada (Edmonton 1978, Yellowknife 1998), one each in Trondheim, Norway (1988), Beijing, China (1993) and Zurich, Switzerland (2003), and a second conference in Russia (Salekhard 2012) (Table 1). Following the formation of the International Permafrost Association at the 1983 ICOP, subsequent conferences...
were coordinated under the auspices of the IPA. A review of
the first eight conferences is available (Brown and Walker,
2007) and in a NICOP (ICOP 9) brochure published in celebra-
tion of the 25th anniversary of IPA and commemoration of
the Fourth International Polar Year (Walker and Brown, 2008).
Starting with the NICOP conference, the Permafrost Young
Researchers Network (PYRN) participated in and contributed
to conference activities.

Because plenary papers and thematic reviews hold special importance as temporal benchmarks illustrating the
state of the science at the time of their appearance, it is
worth reviewing approaches employed for each conference
and the corresponding topics, and if these presentations
were actually published in the Proceedings. Table 2
contains a summary of the actual topics presented in
plenary, special or topical sessions for all ten conferences.
For most conferences these presentations were published
as part of the conference publications. Several topics appear
in a number of conferences, including ground ice, thermal
conditions, mountain permafrost and select engineering
topics, including pipelines and other linear construction.
More recently reviews related to coastal, subsea and
mountain permafrost, carbon, climate change, planetary
and Southern Hemisphere permafrost were presented and
published. Interest in the subject of ground ice remains
relevant as discussions increase on the topics of climate
change, thermokarst and carbon content of permafrost
terrains. For NICOP a special issue of this journal was
available at the conference and contained seven review
papers (Lewkowicz, 2008), in addition to the 17 plenary
papers published in the Proceedings.

Throughout the 50-year history of International Conferences
on Permafrost, publication of Proceedings has been the major
legacy of each conference. Although the publishers and editors
for each Proceedings differed between conferences, standards
were generally maintained in terms of scientific rigour,
originality and format, requiring two formal peer reviews per
paper, and a limit of six pages. The period from submission,
through review, to actual presentation varied from 9 months to
1.5 years, depending on procedures utilised by the hosting
country and, more recently, on use of electronic resources and
the Internet to replace conventional publishing procedures and
postal services. Over the course of the 50 years more than
2000 papers in English were published in the ICOP
Proceedings, involving the efforts of many hundreds of reviewers
(Table 1). Each Proceedings had one or more dedicated
editors and a responsible organisation. Beginning with the
Eighth ICOP, a second form of publication was initiated
involving Extended Abstracts. One of the rationales for the
Extended Abstracts was to make available timely results that
would not have been available in the multiyear publication
process. These abstracts were limited to two pages, were
generally submitted within 6 months of the conference and
did not undergo outside technical review.

For the most recent conference (TICOP), a third form of
publication was proposed and appeared as the Transactions
of the IPA in the April 2013 issue of this journal (Burn, 2013). At
Table 2 Conference topics for plenary, special and/or theme sessions and related papers published in the Proceedings.

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*Not in Proceedings.*
the IPA Council meetings in Svalbard in June 2010, following lengthy discussions about Proceedings publications, C.R. Burn proposed that the IPA initiate a ‘Transactions’ intended to summarise developments in various subfields of geocryology through the publication of review papers. The Transactions also would be available at the time of the each ICOP and ideally a lead author would present a summary in a plenary session, as has been the case with review papers at many ICOPs. Presumably, the Transactions also would be available electronically to all conference participants and serve as a permanent record of each ICOP.

Six review papers were published in this first Transactions and are downloadable free of charge. These papers cover several major permafrost topics: coasts, carbon, mountains, geophysics, geochemistry and thermokarst. The nine TICOP plenary presentations included the following topics (Table 2): engineering guidelines, recent advances in engineering and mountain permafrost, carbon budget, coastal and subsea permafrost, thermokarst and three regional topics (Russian mapping, Norwegian thermal monitoring and Antarctic permafrost). Thus, four topics were common to both the Transactions and plenary presentations, with only one topic (mountain permafrost) presented by the same lead author. For the record, the TICOP Proceedings and Extended Abstract volumes were available in both paper and digital format at the conference (Drozdov, 2012; Hinkel, 2012; Melnikov et al., 2012).

The production of this first Transactions admittedly was more challenging than originally anticipated, and therefore the publication was not available for the TICOP. As reported by Burn (2013), important lessons were learned and this experience needs to be codified for future productions. The current Transactions partially fulfilled the precedents for conference state-of-the-art reviews, but lacked engineering topics. In the future, the Transactions reviews, presented in ICOP plenary sessions, ideally would continue to follow the heritage and recommendation of the 1963 ICOP to convene ‘interdisciplinary’ conferences, and thus cover both permafrost science and engineering. This would require coordination between the Transactions’ editor(s) and the conference organisers so that plenary presentations reflect the main topics of the Transactions and vice versa. Such a process would require planning of 2 years or more in advance of the actual conference. As Transactions become more sustained, one would expect that the title of each volume would be readily identified with the actual numbered ICOP.

There still remains some discussion as to whether or not the Transactions and Extended Abstracts volume adequately replace the production and benefits of the more traditional, peer-reviewed Proceedings. Although the majority of IPA member countries prefer not to have peer-reviewed Proceedings, any future host country may presumably still have the option as to the type of publications it produces. Although many among the younger generation prefer journal publications over traditional Proceedings, the engineering community among other researchers favours Proceedings as a form of professional recognition and distribution of peer-reviewed results. For example, publications of engineering papers in proceedings are included for recent conferences in Calgary (GEO, 2010) and in Anchorage, Alaska, in June 2013; the 10th International Symposium on Cold Region Development (ISCORD) with the Proceedings produced by the American Society of Civil Engineers as the host organisers (Zufelt, 2013).

The International Permafrost Association remains the lead permafrost organisation, representing collectively both the international permafrost scientific and engineering communities. Preparation of internationally, peer-reviewed conference publications would continue to enhance this unique leadership and ensure comprehensive and timely reporting on a regular 4-year basis. As the character of our science and engineering evolves, I urge the members of IPA to reconsider the values of the more traditional, peer-reviewed Proceedings.

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REFERENCES


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