• FROZEN GROUND 36 • 2012





► TICOP 2012 ..... 3



UPCOMING EVENTS . . . . 8

### THE NEWS BULLETIN OF THE INTERNATIONAL PERMAFROST ASSOCIATION WWW.PERMAFROST.ORG

The first Frozen Ground under the new Executive Committee

## Word from the president

The International Permafrost Association will be 30 years old in 2013, but its roots go back a further 20 years to the First International Conference on Permafrost in 1963. In all that time, I don't think there's been a more challenging or a more exciting moment than now to be involved in permafrost science or engineering.

ermafrost has long been significant to northerners, but for most people, living in temperate areas well away from permafrost zones, it was at best a somewhat esoteric subject. At the start of my career, when I told people that I was studying permafrost, most responded disinterestedly, or asked, "What's that?" Today, when I say that I am researching the impact of climate change on permafrost, the most common reaction is, "Is there any left?" And people genuinely care about the answer. The irony is that it is not permafrost, but its potential loss, that has caused this change in reactions.

he interest expressed by politicians, decision-makers, the media and members of the public for permafrost issues, can be linked to the impact of permafrost on natural hazards. The prospects of debris flows or major landslides due to permafrost thaw in the European Alps caused a significant increase in permafrost funding and science in the 1980s and 1990s. A similar increase in interest in lowland permafrost developed as its characteristics and distribution began to be recognized as a means to track the impact of climate change. This activity led to the CALM program and the setting up of the Global Terrestrial Network on Permafrost, culminating in the IPA's Thermal State of Permafrost project as part of the Fourth International Polar Year from 2007-2009. Increasing signs of impacts on infrastructure through simple permafrost thaw, thermokarst processes or enhanced coastal erosion as the Arctic sea ice decreased in summer, have had further effects.

 $B^{\text{ut}}$  what has really changed the scientific landscape is the potential for loss of permafrost to lead to enhanced greenhouse gas emissions. We have realized that changes in permafrost caused by a warming climate have the potential to affect everyone on the planet, changing the scale of the hazard to global. Every newspaper article or a government report discussing changes to the Arctic environment now includes a reference to thawing permafrost. Many also raise the potential for positive feedback with climate warming, as organic matter currently stored in permafrost becomes available to be broken down into carbon dioxide or methane.

the IPA, its member or countries. its individual members and its executive, this means increasing demands and responsibility. The organization must remain as a reasoned voice and the source of scientific information about perennially ground. We must help organize and support the projects and networks necessary to answer the big scientific questions about permafrost. We must assist in the training of the next generation

of permafrost scientists and engineers to ensure that there is continual advancement in our field of study. And we must respond to an increasing frequency of demands by international organisations to represent the interests of the permafrost scientific and engineering community on the international stage.

Ground

he new IPA Executive Committee (see page 3) has been hard at work in these directions since its election in June 2012, building on the major changes to the Association that started in 2010. I would like to thank the previous executive, and especially Professor Hans-Wolfgang Hubberten (President 2008-2012) and Dr. Hugues Lantuit (Executive Director), for their outstanding leadership. In the following pages, you can read about the many activities in progress that show how far we have come in the 30 years since the IPA was founded, and more importantly, where we plan to go.

Antoni Lewkowicz PA President

### **TICOP** by Inga May

Over 500 participants from more than 25 different countries attented the Tenth International Conference on Permafrost, held in June 2012 in Salekhard, Russia

Tenth International he Conference on Permafrost, TICOP. was held from 25th - 29th of June 2012 in Salekhard, in the Yamal-Nenets Region in Russia. The title of the conference was 'Resources and Risks of Permafrost in a Changing World' and indeed the focus of many presentations was on the impact of global change on perennially frozen ground with a growing interest on how thawing permafrost may affect global change.

Many fruitful discussions and meetings took place besides the daily conference program and helped to foster existing collaborations as well as to create new joint projects. Thanks to the generous support of the government of the Yamal-Nenets Autonomous District, 150 young permafrost researchers from many countries were able to join the meeting, give presentations and co-chair sessions. In addition, a special pre-conference workshop with academic presentations and career advice by senior researchers was organized by the Permafrost Young Researchers Network (PYRN).

The Conference opening plenary began with welcoming words and

speeches from invited representatives of the local government and Russian academics.

ach day of the main conference started with two plenary talks, which through the week covered the most important aspects of permafrost research and engineering. The main part of the conference consisted of 15 different sessions with more than 250 oral presentations and almost 200 posters. The venues for the talks were spread through a number of buildings in Salekhard within walking distance of each other. All the facilities were very modern with good screens, projectors and computer facilities. During the plenary lectures, as well as in all sessions and during the paper discussions, simultaneous translation was provided from Russian to English and vice versa. Poster sessions were held on Tuesday, Wednesday and Friday in dedicated time slots at the College Complex. These were important contributors to the conference and engendered vigorous discussion.

Great efforts were made to publish conference proceedings for all participants and needs.

olding а permafrost conference in a city where the inhabitants are constantly confronted with problems relating to frozen ground, permits the infrastructure and ecological challenges to be demonstrated directly. Five different local field trips were offered to the conference participants on Thursday afternoon, including examination of foundation engineering within Salekhard, a visit to a core storage facility, examination of Yamal natural resources, a trip to the Romantic Glacier in the Ural Mountains, and an excursion to explain permafrost soils.

The conference included a range of cultural and social events, covering the traditional customs of the indigenous people, the typical food of the region, as well as contemporary versions of the local music and art scene.

eedback regarding the conference was positive and most participants were pleased to have attended. The logistics were certainly very challenging, involving among other things five charter flights from Moscow and Tyumen to bring the 500+ participants, organizers and facilitators to Salekhard. Because there was not a single big conference center, but several smaller venues where the scientific sessions took place, shuttle buses moving between the different locations and the hotels were required. Although the conditions for a smooth course of the conference were rather complicated, almost everything ran without problems and the conference was definitely a success for the permafrost community.

## IPA Lifetime Achievement Award

The IPA is proud to announce Nikolai Ν. that Professor Rorecently received the manovskii 'IPA Lifetime Achievement Award'. This award was awarded during the TICOP conference to acknowledge the lifetime contribution of N. Romanovskii for his outstanding permafrost research.



## **PYRN** at **TICOP**

by Alexandre Nieuwendam

### Over 150 young permafrost researchers attended TICOP

Permafrost he Young Researchers Network (PYRN) facilitated the participation of more than 150 young permafrost researchers during TICOP. Stipends were provided by the government of the Yamal-Nenets Autonomous District and included conference registration fee, airfare, accommodation, meals and social events

A one-day workshop organized by PYRN was held prior to the conference and focused on research topics and transferable skills to support career development of PYRs. Antoni Lewkowicz, the new president of the IPA encouraged everybody to strengthen their efforts to investigate the urgent issues of permafrost science. Early career scientists Sarah Godsey and Ben Abbott presented excellent examples of what is interdisciplinary permafrost research, and one of the famous mentors, Kenji Yoshikawa, presented the latest episode of Tunnel Man – an education and outreach series for and with students to better understand permafrost.

ore than 20 senior permafrost researchers shared their experience with PYRs on the research topics: Natural and technogenic risks in permafrost zone, Natural and man-caused cryogenic processes, Distribution and thickness of permafrost, Geocryology is multidisciplinary research, Biotic contribution from ancient permafrost to current biodiversity; and on career skills: Efficient written communication: Research grants, reports & papers, Strategic early career planning &



families, Presenting you & your research: Conferences, websites & networking, Job searches: Applications, interviews and job talks, Negotiation & conflict resolution: From potential jobs to difficult situations, Finance Your



International Scientific Research. More than 20 PYRN session leaders worked together with invited senior scientists to strengthen the involvement of PYRs in permafrost science.

Among all registered PYRN

contributions, the most outstanding oral and poster presentations were awarded the traditional PYRN award.

he permafrost summer field school «Salekhard University Courses on Permafrost» was organized by IPA and PYRN in Polar Ural Mountains headed by V.I. Grebenez, Associate Professor of cryolithology and glaciology from Moscow State University. During 10 days, 37 PYRs these from Russia, China, USA, Austria, France and Germany visited the Romantikov Glacier, the hyperbasite massif Ray-Iz, the chromite mine "Tsentralnoye", the geological museum in the core warehouse of Labytnangi settlement and climbed the Chernaya Mountain with a panoramic overview of the biggest outcrop of mantle rocks in

the East-European–West-Siberian continental plates connection. The main topics were cryogenic processes, mountain permafrost, regional geology and Quaternary history, and geomorphological landforms and processes.

he TICOP PYRN summer school for young scientists provided the opportunity to meet colleagues from the whole of Russia and many other countries and to exchange knowledge and ideas while being exposed directly to permafrost conditions. The deep and diverse lectures by senior scientists and engineers provided great insights into natural geomorphological, geological, and hydrological processes in permafrost zones as well as the particularities of construction, mining and utilities under severe climate conditions and on perennially frozen ground. Lectures

were supported by real examples and our own field work during long and varied field trips provided a better understanding and was a strong basis for developing new scientific ideas. Hiking and lectures covered a wide range of natural phenomena and research themes. Bringing together young scientists from different fields of permafrost and associated research disciplines fueled extensive discussions and knowledge exchange. Such field trips have been proven to be essential steps in training young researchers to become future engineers, natural resource managers and research scientists.

Both, the workshop and the conference were fruitful due to the presence of outstanding senior permafrost researcher's and PYRN session leader's support.

## The new Executive Committee of the IPA

#### by Inga May

In June 2012 a new Executive Committee of the IPA was elected during the Council meeting of the TICOP in Salekhard Russia.

A new Executive Committee EC) was elected by the IPA Council during its first Council meeting at TICOP on June 24th. Two years ago, at EUCOP III in Longyearbyen, Antoni Lewkowicz, was designated as the new IPA President and has now replaced Hans-Wolfgang Hubberten.

Antoni Lewkowicz is a professor in the Department of Geography at the University in Ottawa, Canada. He has been involved in IPA activities for many years, including as Chair of the Working Group on Periglacial Processes and Environments, Chair of the Technical Program Committee for the Seventh International Permafrost Conference, Chair of the Interntional Advisory Committee and since 2008, as Vice-President.

**FROZEN GROUND** 

There were seven candidates for the five open positions on the Executive Committee and the elections took five rounds of voting by Council members using secret ballots. Hanne Christiansen, Vladimir Romanovsky and Ma Wei continue their work in the committee. Hugues Lantuit switched from the Executive Director to a full Committee member. Lothar Schrott from the University of Salzburg was elected. He is a professor of Physical Geography and head of the research group Geomorphology and Environmental Systems at the Department of Geography and Geology. Dmitry Drozdov left the committee after four years of service and the IPA would like to express its gratitude for his work and contribution to the IPA. In the first use of a clause in

the IPA revised constitution, Dmitry



New IPA EC from left to right: H. Lantuit, W. Ma, H. Christiansen, A. Lewkowicz, V. Romanovsky, D. Sergeev, I. May

Sergeev (Institute of Geoscience, RAS) was appointed to the new EC by the remaining members so that Russia would be represented. The new Executive Director, Inga May, who had been working in he position since February 2012, was officially appointed and approved by the Council. The new Executive Committee will govern the IPA for a four years period until the next ICOP, which will be held in June 2016 in Potsdam, Germany.

VOLUME 36, 2012

## **IPY conference**

by MIchael Angelopoulos

*In April 2012 the third IPY conference took place in Montréal, Canada. More than 2000 Arctic and Antarctic researchers attended the event.* 

he session "Permafrost on a Warming Planet" presented state-of-the-art research undertaken during and after the IPY with a special focus on the current state of ground thermal regimes in both polar regions and the role of permafrost in the Earth climate system. The implications of degrading permafrost for northern communities, industry, wildlife, as well as carbon and nitrogen fluxes were shown. Results from field process studies, monitoring remote programs, sensing, modelling, and interdisciplinary efforts to include local processes in global climate models and viceversa were an essential part of the program.

o showcase the very best in polar science, the session featured four invited speakers. Standing in front of more than 100 participants, Hans Hubberten from the Alfred Wegener Institute for Polar and Marine Research (Germany) kicked off the program with an engaging summary and outlook of IPY. Up next, Vladimir Romanovsky (University of Alaska Fairbanks) presented fresh data on permafrost changes in the Northern Hemisphere and what they mean for industry, as well as the environment. Because of the ever - increasing need to incorporate this type of data in global climate models, our third invited speaker, Isabelle Gouttevin (Laboratory of Glaciology and Environmental



Geophysics, France), discussed recent modelling advances and future challenges for permafrost warming projections. To close out the session, Wayne Pollard (McGill University, Canada) entertained our audience with a bi-polar comparison of ground ice (nature and stability).

Outside the invited speakers, our top researchers included the recipient of the 2012 Permafrost and Periglacial Processes Prize for Excellence in Permafrost and Periglacial Research, Christopher Burn (Carleton University), 2010 J. Ross Mackay Award recipient Steve Kokelj (Indian and Northern Affairs Canada), and the soon to be appointed International Permafrost Association President Antoni Lewkowicz (University of Ottawa). The session was chaired by Dr. Hugues Lantuit (Alfred Wegener Institute for Polar and Marine Research) and young permafrost researcher Michael Angelopoulos (McGill University) with help from Bernd Etzelmuller (University of Oslo). In total, 28 talks and 54 posters were presented.

### GTN-P by Inga May

*In 2012 the Global Terrestrial network for Permafrost took substantial steps towards becoming an operational monitoring system* 

Progress was made in 2012 to redesign the Global Terrestrial Network on Permafrost (GTN-P) and transform it from a voluntary network to an operational monitoring service to meet the increasing expectations of the science community.

The first important step was the appointment of an Executive Committee (EC) during the TICOP conference in Salekhard, Russia in June. GTN-P is now governed by the EC chaired by Vladimir Romanovsky from the University of Fairbanks, Alaska and five additional members. (Jeannette Noetzli, Philippe Schoeneich, Sharon Smith, Dmitry Streletskiy, and Gonçalo Vieira). Inga May is currently responsible for the GNT-P Secretariat.

Thanks to the Page 21 project there is also funding for one and half positions to develop and maintain a GTN-P database. Hence, since 2012 ArcticPortal

employed Jean-Pierre Lanckman, an expert in database management, to develop the database structure. Working with Kirsten Elger from the Alfred-Wegener Institute, substantial progress was made on establishment of



the database which will soon be publicly available and accessible.

n November 2012, a two-day workshop was held in Hamburg, Germany. The 17 participants were introduced to the database structure and discussed next steps to proceed with GTN-P. National Correspondents were recently assigned for each country involved in the network and a workshop to bring them together for the first time is planned for May 2013 at the WMO headquarters in Geneva.



## Standing Committee on Outreach and Education

### by Kenji Yoshikawa

The Education and Outreach Standing Committee (SCEO) is responsible for leadership and co-ordination of education and outreach activities internationally supporting IPA goals.

he SCEO works collectively to balance responses to immediate needs with long-term planning. The SCEO works with various partners at multiple levels, e.g. site, network, organizational, community, and international. The SCEO's goals are to: 1] Ensure the presence and involvement of young researchers and educators in IPA activities, 2] Seek to develop educational products for nonspecialist audiences, including youth, teachers, journalists or policy-makers, 3] Support the development and maintenance of the International University Courses on Permafrost (IUCP) database, 4] Seek to develop permafrost in education curricula (by developing course syllabi, background literature suggestions, course presentation material, but also by collaborating with the relevant stakeholders on the development of permafrost courses), 5] Support and foster the development of field courses and summer schools on permafrostrelated topics, 6] Support PYRN and ensure that its activities are known in the permafrost community and beyond (e.g. APECS), 7] Make

recommendations to the permafrost community and the wider public to better publicize media and outreach products on permafrost.

ome highly relevant topics:

Develop and campaign or advertise IUCP (for more exposure of its contents using the Internet sites): http://ipa. arcticportal.org/resources/coursesiucp.html

Developed MoU with University of Arctic, APECS and PYRN.

K12 School based frost tube activities incorporated within GLOBE protocol.

Developments of permafrost knowledge promotion materials (including Tunnelman movies)

Develop a Thematic Network on Permafrost working with University of Arctic and other key partners.

### NEXT DEADLINE for Action Groups: 30th of April 2013



First Education and Outreach Meeting in Montreal, April 2012

# New Action Groups 2012

The IPA has been funding international Action Groups since 2011 with up to 2500 Euros per year for 2 years

Since 2011 the IPA has been funding its newly approved 'Action Groups'. An Action Group is an international Group with the involvement of at least three different countries. The aim of the IPA to fund such groups is to foster international collaboration and to stimulate permafrost research. An Action Group has to have clearly defined targets and outcomes, which must be drafted, together with a budget, in the application. After submission, the proposal is

examined by the IPA EC and if accepted it is funded wiith up to 2500 Euros/ per year.

Four Action Groups have been funded since 2011 and two new ones were accepted in October 2012.

nformation, documents and reports can be found at: www.permafrost.org -> activities



# **EUCOP4**

### 4th European Conference on Permafrost

Regional Conference of the International Permafrost Association 18-21 June 2014 | Évora - Portugal

The Organizing Committee of EUCOP4 warmly invites you to bring permafrost science to Southern Portugal in a great setting of culture and tradition.

Plenary lectures | Oral and Poster sessions | PYRN Workshops | IPA Council Meetings | Field Trips | Social Events

www.eucop4.org



What are the implications of rapid environmental change in Canada and the circumpolar North caused by thawing permafrost conditions? How will we cope? These are the central questions driving this newly funded research program during a time of unprecedented economic development across the Arctic.

ADAPT builds on the experience and knowledge derived from the International Polar Year, and brings together a team of 15 Canadian Arctic researchers with national and international collaborators (additional collaborations are welcome) to define how changing permafrost and snow affect tundra landscapes,

## ADAPT

by W. F. Vincent and M. Lemay

Arctic Development and Adaptation to Permafrost in Transition

water and wildlife, and the implications for Northern communities and industries who depend on these resources.

he aim is to produce an «Integrated Permafrost Systems» framework that will help guide sustainable development and adaptation strategies, all in the increasingly urgent context of accelerated environmental change. ADAPT combines diverse expertise from within Canada and abroad, in engineering as well as the natural sciences, and will apply a broad suite of experimental, laboratory, field and modelling approaches. The numerous research sites extend across northern Canada, from the Yukon to Labrador via the Northwest Territories, Nunavut, the shores of Hudson Bay, Nunavik and Nunatsiavut.

DAPT will thereby generate pan-Canadian view of permafrost dynamics which will be integrated via international collaborations into a broader circumpolar perspective. This theoretical and applied approach will also lead to a variety of coupled physical-biological models for Arctic landscapes that can be used as a framework for understanding what makes these systems so critical to the Earth System, and the implications of their rapid transition to higher energy states.



At AGU: Signing the MoU with CliC and IPA

## Partnerships 2012

by I. May

In 2012 the IPA signed 2 more MoUs and renewed an old one.

In 2012 the IPA signed two memoranda of understanding, both to nurture the outreach activities and to encourage capacity building. One is with the University of the Arctic (UArctic) and the other with the Association of Early Polar Career Scientists (APECS) and the Permafrost Young Researchers Network (PYRN).

Additionally at the AGU conference in San Franciscio in December the Memorandum of Understanding with the Climate and Cryosphere Program (CLiC) was renewed.

With these official partnerships the IPA hopes to foster itd collaborations cooperations at the international level.



Monitoring Site of the GRENE-TEA project of taiga- tundra boundary ecosystem along Kryvaya river (photo: A. Sugimoto

> (GRENE RENE-TEA **J**Terrestrial Ecosystem of the Arctic) is a research project formally entitled "Change in the terrestrial ecosystems of the pan-Arctic and effects on climate" under Green Network of Excellence Arctic Climate Change Research (http://www.nipr.ac.jp/ Program grene/e/index.html). It is supported by Ministry of Education, Culture, Sports, Science & Technology, Japan (MEXT) for the period from 2011-2015. Japan is not an arctic country, however its importance

# **GRENE-TEA**

by A. Sugimoto

More than 50 Japanese researchers working on Arctic Terrestrial Ecosystem get together and will cooperate with permafrost researchers around the world.

is currently recognized because a change in the Arctic environment could affect Japan 's weather and also because of a possibility of northern sea route.

he GRENE-TEA project aims to understand the state of the arctic terrestrial system under a rapidly changing environment, and to know the global influences. We are conducting field observations on frozen soil, vegetation, production of ecosystems, carbon storage, snow cover and albedo. and methane emission, etc. Our research sites are Svalbard. Fenoscandinavia transect, central and eastern Siberia, Alaska, and Canada, where we will cooperate with researchers from many countries. Studying the interrelationships of permafrost, surface soil moisture, vegetation, and material cycling (production, nutrient cycle, GHG emission, CO2/H2O/Energy fluxes) and is one of the foci of GRENE-TEA. Cooperative works among modeling, field observations, and satellite and meteorological data analysis are also important challenges in GRENE-TEA. We are planning GTMIP (GRENE-TEA Model Inter-comparison) using the data obtained from our field observations. We will also want to set up a permafrost observation network in northern Canada where observation site are sparse.



Vegetation monitoring at Ny-Alesung in Svalbard (photo: M. Uchida)

GRENE-TEA project reached an agreement for cooperation with PAGE21, whose goals are similar. We would like to exchange young researchers and collaborate with permafrost researchers in the Arctic around the world.

# IPA in China

In 2012 A. Lewkowicz (President IPA) and I. May (Executive Director IPA) visited different universitites and institutes in China in order to spread the word about permafrost and the IPA.

n 2012 A. Lewkowicz (President IPA) and I. May (Executive Director IPA) had the opportunity to visit China in order to spread the word about permafrost and the IPA, thanks to the generous financial support of CAREERI (Cold and Arid Regions Environmental and Engineering Research) in active at the international level. Therefore A. Lewkowicz spent nearly a week in late November in Lanzhou.

. May travelled for over three weeks across China. She was invited to 11 institutions where she reported about permafrost, the IPA, GTN-P and PYRN.



Lanzhou. China and other countries in Central and High Asia have the largest high-elevation permafrost communities and are sensitive and vulnerable to climate changes.

China has the fourth largest annual fee to the IPA (after Canada, Russia and the US). However, individual memberships from Asiatian countries are limited in number, even though there are many excellent permafrost scientists and engineers and an abundance of very interesting and relevant research projects underway.

Hence, together with W. Ma and H. Jin from CAREERI in Lanzhou, China the idea was born to raise awareness of international permafrost initiatives in Central and High Asia, China in particular, and to motivate Chinese and other Asian permafrost researchers, in particular cold regions scientists and engineers, to become more

C he started her trip on the 26th Oof December with first stop in Lanzhou. There she visited Lanzhou University and CAREERI, where she gave her presentation but also discussed future outreach projects in China with H. Jin and W. Ma. Her second stop was Xi'an, where she met with other geoscientists followed by a stay in Changchun. There she had the chance to tour the laboratories of the NEGAE (Northeast Institute of Geography and Agroecology) and to give presentations at the Jilin University and the Northeast Normal University. In early 2013 she travelled further to Harbin, where she was invited to go skiing at -30° C and where she went to the famous Harbin International Ice and Snow Sculpture Festival. She also visited the Harbin Institute of Technology, the Heilongjiang University, the Heilongjiang

buildings of science and research institute in cold regions and the Heilongjiang Provincial hydraulic research institute. She gave talks and had some good

discussions with the professors and students of the respective departments. With Professor Dai Chang-lei from the Heilongjiang University she also discussed the upcoming 10th International Symposium on Permafrost Engineering, which will be held in Harbin in August 2014.

The last week I. May spent in Shanghai and Beijing. In Shanghai she was invited to the Tongji University and the Shanghai Normal University. In Beijing



she visited the Beijing Jiaotong Universisty and the Institute of Tibetan Plateau Research Chinese Academy of Sciences.

Overall, the visits of A. Lewkowicz and I. May to the different institutions were a success. With the 10 presentations I. May gave during her stay she reached a broad audience and raised awareness of permafrost research, the necessity for international collaborations, and encouraged the cooperation with China.



## **IPA on Facebook**

The IPA also has a facebook site now, where all the important news are posted. Have a look at http://www.facebook.com/ipapermafrost?ref=hl



## **UPCOMING EVENTS**

### 2013

Arctic Science Summit Week 2013 14--20 April 2013 Krakow, Poland

#### Symposium on Cold Regions ISCORD 2013 02-05 June 2013 Anchorage, Alaska,USA

*IAG* 27-31 August 2013 Paris, France Earth Cryology: XXI Century 29 September-3 October 2013 Pushchino, Russia

### 2014

Arctic Science Summit Week 2014 07- 12 April 2014 Helsinki, Finland XXXIII SCAR and Open Science Conference 25 -29 August 2014 Auckland, New Zealand

**10<sup>nd</sup> International Symposium on Permafrost Engineering** 20-22 August 2014 Harbin, China

### NEXT IPA Conferences

EUCOP IV 18-20 June 2014 Évora, Portugal

ICOP 2016 20 - 24 June 2016 Potsdam, Germany

## INTERNATIONAL PERMAFROST ASSOCIATION

The mission of the International Permafrost Association is to promote research in permafrost and permafrost-related fields within the global scientific and engineering communities, to support the activities of researchers in these disciplines, and to disseminate findings concerning permafrost to the decision-makers, the general public and educators.

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