

5<sup>th</sup> EUROPEAN CONFERENCE ON PERMAFROST

# EUCOP5

CHAMONIX MONT-BLANC  
22 June - 1 July /// FRANCE



## PROGRAM





**Program of the EUCOP 2018**

**Coordinators :** Local Organizing Committee (LOC)

**Design :** Nuun Agency - MMI Department, University of Savoie Mont-Blanc

**Layout :** Mélanie Ramusovic, M2 GEOSPHERES - IUGA/  
Laboratoire EDYTEM

**Financial support :** Labex ITEM

**Photographic Credits :** Cover by Marco Marcer, 2015 (Ecrins Massif) ; p.10 by Niels Weiss ; p.17 Sabin Tholen for «Mountain's fever» ; the portraits of the speakers are provided by themselves ; photos of social events are free of rights ; all other photos are protected and made by LOC members or come from the International Permafrost Association's web Gallery.





## Table of contents

Welcome to the EUCOP5 2018.....	4
Meeting Venue.....	5
General Conference Program.....	6
General Information.....	8
What was the PYRN Workshop.....	10
Meetings & Workshop.....	12
Social Events.....	14
Invited Keynotes.....	15
Public Conference.....	16
Daily Program Overview.....	18
Topical Session Program.....	22
Poster Program.....	46
Local Field Trip.....	48
Regional Field Trip.....	49
Organizing Committee.....	50



## Welcome to the EUCOP 2018



It is our pleasure to welcome you to the fifth European Conference on Permafrost (EUCOP 5) in Chamonix-Mont-Blanc, France, in June 2018.

EDYTEM lab (CNRS and Université Savoie Mont Blanc) has teamed up with PACTE (CNRS and Université Grenoble Alpes), ARPA Valley of Aosta (Italy) and the Universities of Lausanne and Fribourg (Switzerland) to organize this conference for you, permafrost scientists, at the foot of the summit of the European Alps, a hot spot of high mountain permafrost observation and research.

You are more than 400 attendees coming from all around the world and presenting nearly 500 communications within 25 sessions during three days. Two invited keynotes by Marcia Phillips and Gustaf Hugelius, a public conference by Wilfried Haeberli, and two days of exciting fieldtrips in the Mont Blanc massif complete this programme. Moreover, two days of workshops and field trip organized by the PYRN as well as several IPA and side meetings and workshops take place before and during the conference, while three regional two-day-long field trips in Valais, Aosta Valley and Ecrins will follow it. And last but not least, we hope you will never forget the two evening social events!

We would like to thank all of you for your participation to EUCOP 5, contributing to make this conference an ideal forum for high level scientific exchanges and an opportunity to meet former and new colleagues in a great venue.

**Philip Deline,**

*On behalf of the EUCOP 2018 Local Organizing Committee*



On behalf of the International Permafrost Association leadership, I am honored to welcome you to the 5th European Conference on Permafrost in Chamonix-Mont-Blanc, France. Given the wealth of permafrost research and engineering that has come out of the Alps, Chamonix is a natural location for our community to convene. This conference offers particularly excellent opportunities to engage with alpine permafrost, both in the sessions and on the excursions. As an organization, the IPA will utilize EUCOP5 to coordinate with our partners, plan future strategy, discuss collectively at two IPA Council Meetings, and elect two new members to the IPA Executive Committee.

The IPA extends our appreciation to the Local Organizing Committee for all their efforts in organizing this conference, and designing a program complete with interesting scientific sessions, opportunities for young researchers, social events, and both local and regional excursions. We are pleased that you choose to attend this IPA regional conference and be part in providing one of the approximately 500 oral and poster presentations during the 25 sessions on Monday, Tuesday, and Thursday. I hope that as a participant, you take advantage of all these opportunities and develop new research ideas and connections with your permafrost colleagues.

Sincerely,

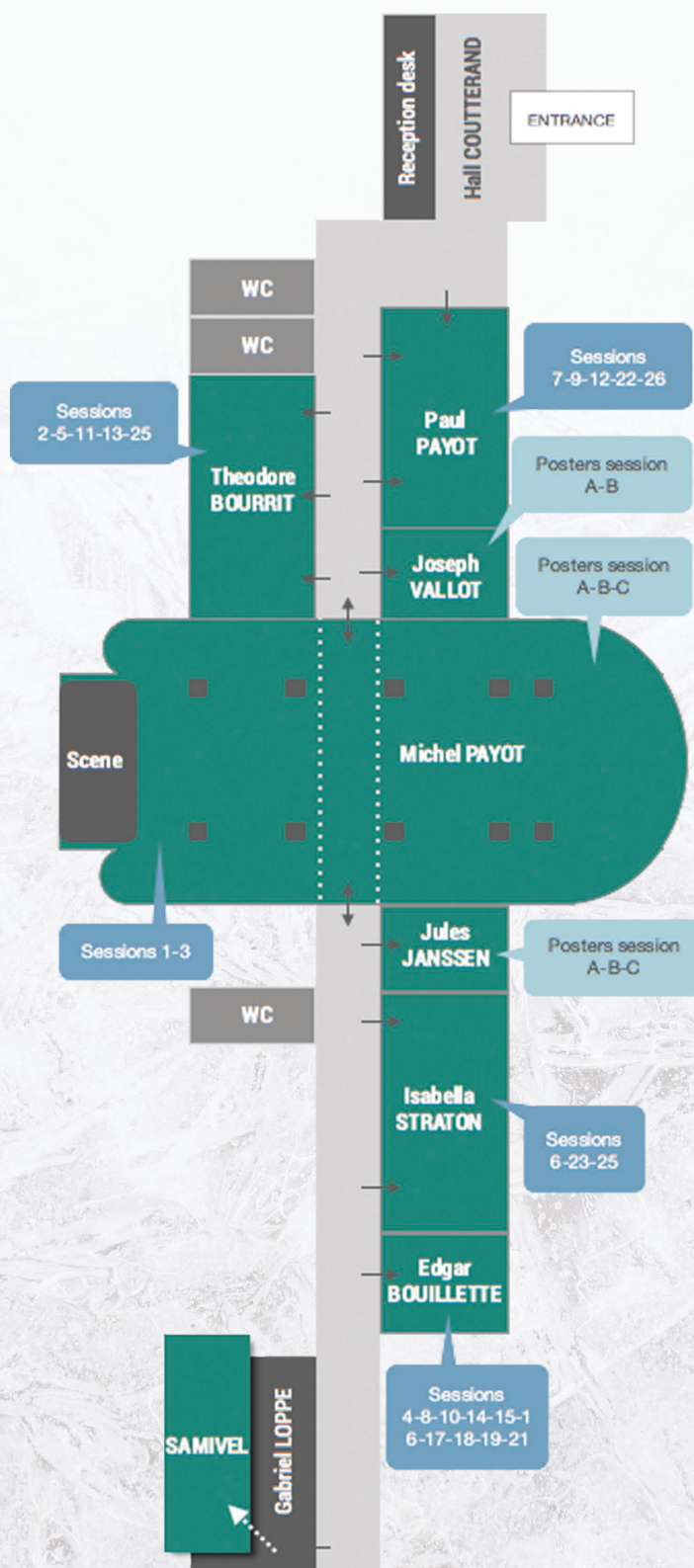
**Hanne H. Christiansen,**

*President, International Permafrost Association*



## Meeting venue

The meeting is held at the Majestic Congress Center In the north of the city center of Chamonix. The map below features the Majestic's rooms name's that will help you to find your way. Additional information will be at your disposal at the venue.







## General conference program

Time	FRIDAY 22/06	SATURDAY 23/06	SUNDAY 24/06	MONDAY 25/06	TUESDAY 26/06
08:00					
08:15					
08:30				Opening ceremony	Invited keynote
08:45					
09:00		Opening of the PYRN Workshop and Plenary Sessions	PYRN Workshop: plenary sessions	Session slot 1	Session slot 5
09:15					
09:30					
09:45					
10:00					
10:15		Coffee break			
10:30				Posters & Café	Posters & Café
10:45					
11:00		PYRN Workshop: Breakout sessions	Coffee break and transfer to local excursion	Session slot 2	Session slot 6
11:15					
11:30					
11:45					
12:00					
12:15					
12:30		Lunch		Lunch (downtown, with vouchers)	Lunch (downtown, with vouchers)
12:45					
13:00					
13:15					
13:30					
13:45			LUNCH AND LEARN : Introduction to the Mont Blanc environmental settings		
14:00		PYRN Workshop: Plenary sessions		Session slot 3	Session slot 7
14:15					
14:30					
14:45					
15:00					
15:15		PYRN Workshop: breakout session		Posters & Café	Posters & Café
15:30					
15:45					
16:00		Coffee break		Session slot 4	Session slot 8
16:15					
16:30		PYRN Workshop: breakout session			
16:45					
17:00	Opening of registrations for PYRN Workshop participants (Youth Hostel)			Posters & Apéro	Posters & Apéro
17:15		PYRN General Assembly			
17:30					
17:45					
18:00					
18:15					Group picture
18:30					
18:45					
19:00					
19:15	PYRN Ice-breaker (Youth Hostel)		EUCOP5 Ice-breaker		
19:30					
19:45					
20:00					
20:15					Quiz & Tartiflette
20:30					
20:45					
21:00					
21:15					
21:30					
21:45					



WEDNESDAY 27/06	THURSDAY 28/06	FRIDAY 29/06	SATURDAY 30/06	SUNDAY 01/07	Time
LOCAL EXCURSION	Invited keynote	LOCAL EXCURSION	Post Conference Field Trips	Post Conference Field Trips	08:00
					08:15
					08:30
					08:45
					09:00
					09:15
	Session slot 9				09:30
					09:45
					10:00
	Posters & Café				10:15
					10:30
					10:45
	Session slot 10				11:00
					11:15
					11:30
					11:45
					12:00
					12:15
	Lunch (downtown, with vouchers)				12:30
					12:45
					13:00
					13:15
					13:30
					13:45
					14:00
					14:15
					14:30
	Session slot 11				14:45
					15:00
					15:15
	Posters & Café				15:30
					15:45
					16:00
	Session slot 12				16:15
					16:30
					16:45
					17:00
					17:15
					17:30
	Posters & Apéro				17:45
					18:00
					18:15
					18:30
	Closing ceremony				18:45
					19:00
					19:15
	Info on regional excursion				19:30
					19:45
					20:00
					20:15
					20:30
					20:45
					21:00
					21:15
					21:30
					21:45
Public conference of W. Haerberli	Banquet & Concert				

Ceremonies
Session Slots
Breaks & Posters
Lunches
Social Events
Local Excursions
Regional Excursions





## General Information

### BANK

The closest banks are BNP-Paribas [111, rue du Docteur Paccard, 74400 Chamonix-Mont-Blanc], and LCL [76, rue du Docteur Paccard, 74400 Chamonix-Mont-Blanc]. You can also easily find other ones in the city center.

### POSTAL SERVICE

You can easily find post cards and stamped in the city center souvenir shops, then you could post it into postal box (yellow box) or in a poste office « La Poste ».

### PHARMACY

There is several pharmacy in Chamonix. The closest ones from the EUCOP are :

Pharmacie des Alpes [53, rue du docteur Paccard, 74400 Chamonix-Mont-Blanc] or Pharmacie du Mont-Blanc [1, place e l'Eglise, 74403 Chamonix-Mont-Blanc].

### POWER

Power is 228-230 V in France. Think of bringing your own adapters, the Majestic Congress Center will not be able to furnish it.

### SPEAKER PRESENTATION

You should upload your presentation before your session starts in each session room. Ideally, you can upload it on the early morning (07:30-09:00) of the day of your session or the day before. You can also upload it during the coffee breaks (10:30-11:00, and 15:15-15:45) and from 13:30 to 14:00, at the end of lunch time.

Presentation should be prepared using Powerpoint (ppt or pptx) formats. Image format should be standard (4:3), not widescreen (16:9). We are not accepting Apple Keynote or Prezi presentations. We advise you to prepare a PDF file in case of software or file format conflict. We will be using PC's running Microsoft Windows XP and 10. If you are using Prezi or a Mac, please convert your presentation to Powerpoint or PDF beforehand and test it on a PC. You will not be able to connect your mac to the projectors, so do not hope to rely on it.

### TELEPHONE

The country code for France is 33.

### TOURISM OFFICE

Tourism office can provides you in-formations and advices about the city, or you can referred to the Chamonix website [<https://www.chamonix.com/chamonix-mont-blanc,0,en.html>]



### REGISTRATION & BADGE

You can pick them up at the information desk during your registration.

### WEBSITE LINK

You can have an overview of the main informations about the EUCOP on the website [<https://eucop2018.sciencesconf.org>]



### WIFI

Name : MAJESTIC

Keyword : 74congress

### BUS

The closest bus station from the Majestic is «Chamonix center». All informations about the city-center bus is on this link : [https://www.montblancbus.com/media/upload/Chamonix/Le\\_reseau\\_Ete/Chamonix-Guide-ete2018-web-BD.pdf](https://www.montblancbus.com/media/upload/Chamonix/Le_reseau_Ete/Chamonix-Guide-ete2018-web-BD.pdf)



### ACCOMMODATION & CATERING

The map below shows in green the accomodation places, in purple the restaurants, and in red the Majestic Congress Center.

#### Hôtel de l'Arve\*\*\*

60 impasse des Anémones  
74400 Chamonix-Mont-Blanc  
+33(0)4 50 53 02 31

#### Hôtel le Faucigny\*\*\*

118 place de l'Eglise  
74400 Chamonix-Mont-Blanc  
+33(0)4 50 53 01 17

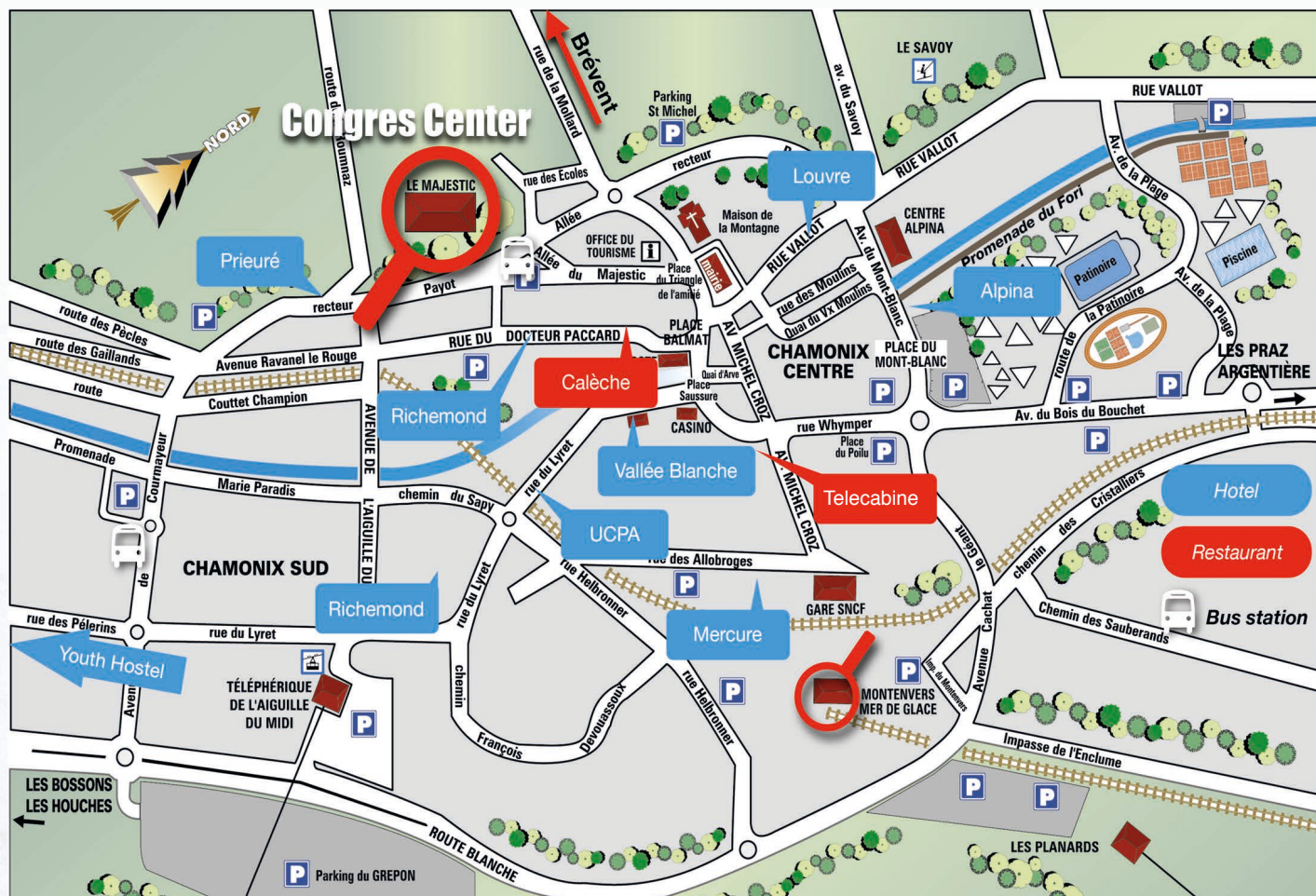
#### Hôtel Pointe Isabelle\*\*\*

165 avenue Michel Croz  
74400 Chamonix-Mont-Blanc  
+33(0)4 50 53 12 87

#### Chalet Hôtel Le Prieuré\*\*\*

149, allée du Recteur Payot  
74400 Chamonix-Mont-Blanc  
+33(0)4 50 53 20 72





Hôtel la Vallée Blanche\*\*\*  
36 rue du Lyret  
74400 Chamonix-Mont-Blanc  
+33(0)4 50 53 04 50

Hôtel Le Hameau Albert 1er\*\*\*\*  
38 rte du Bouchet  
74400 Chamonix-Mont-Blanc  
+33(0)4 50 53 05 09

Hôtel Mont-Blanc\*\*\*\*\*  
62 allée du Majestic  
74400 Chamonix-Mont-Blanc  
+33(0)4 50 53 05 64

Grand Hôtel des Alpes\*\*\*\*  
75 rue du Docteur Paccard  
74400 Chamonix-Mont-Blanc  
+33(0)4 50 55 37 80

Hôtel L'Heliopic Sweet & Spa\*\*\*\*  
50 place de l'Aiguille du midi  
74400 Chamonix-Mont-Blanc  
+33(0)4 50 54 55 56

Hôtel Mercure Chamonix Centre\*\*\*\*  
39 rue des Allobroges  
74400 Chamonix-Mont-Blanc  
+33(0)4 50 53 07 56

Le Morgane Boutique hôtel\*\*\*\*  
145 avenue de l'Aiguille du Midi  
74400 Chamonix-Mont-Blanc  
+33(0)4 50 53 57 15

Le Refuge des Aiglons\*\*\*\*  
270 avenue de Courmayeur  
74400 Chamonix-Mont-Blanc  
+33(0)4 50 55 90 93



## What was the PYRN Workshop ?



The PYRN Workshop was held between June 22nd and 24th and has gathered about 170 young researchers and 15 invited speakers. It aimed at giving the chance to young researchers to meet each other, to take advantage of senior scientists' experience and to develop their knowledge, technics and soft-skills. It was addressed to both researchers and engineers, and both polar and alpine scientists.

### Program

#### On June 22nd

The PYRN Workshop participants have met at the Chamonix Youth Hostel for the PYRN Ice breaker.

#### On June 23rd

They have attended to 4 plenary sessions covering various topics such as the challenge of permafrost degradation for the Arctic communities, how to use field data in global climate models, how to get prepared for field work and how to draw and achieve career perspectives. They had the opportunity to choose 4 out of 6 breakout sessions among which working for and with local communities, the use of remote sensing technologies to improve field work, writing proposals, linking science and engineering, teaching and communicating, as well as taking the challenges of leading creative and collaborative international projects. At the end of day, the PYRN General Assembly has taken place to let the PYRN members know about the PYRN activities during the past 2 years and to pass the torch to the new PYRN ExCom.

#### On Sunday 24th

An introduction to mountain permafrost researches and to the geotechnical challenges in mountain permafrost terrains has been given in 2 plenary sessions. Then, the final part of the workshop has taken place on top of the Brévent cable car where local scientists have offered an introduction to the local geological settings and morphodynamics, the researches in glaciology, the fluvial processes, the permafrost researches and the impact of permafrost degradation and deglaciation on the infrastructures and mountaineering practices.



## Organizing Committee

This Workshop has been organized by the PYRN ExCom and local young researchers: Florence Magnin, Simon Dumais, Justine Ramage, Helena Bergstedt, Caroline Coch, Joanne Heslop, Denis Frolov, Alexey Maslakov, Alevtina Evgrafova, Jannik Martens, Daniel Vecellio, Mingyi Zhang, Anna Bobrik, Pierre-Allain Duvillard, Jacques Mourey, Marco Marcer, Simon Meynier, Grégoire Guillet and Guilhem Marsy.

## Thanks

The workshop organizers are grateful to the speakers who have accepted to share their knowledge and experience : Louis-Philippe Roy, Sarah Chadburn, Jean-Paul Vanderlinden, Sebastian Westermann, Philip Bonnaventure, Mélissa J. Lafrenière, Jens Strauss, Guy Doré, Ylva Sjöberg, Margaretta Johansson, Martin Hoelzle, Lukas Arenson, Marco Giardino, Delphine Six and Johan Berthet.

## Sponsors

This Workshop was made possible thanks to the financial support of sponsors : the IPA, the UFA (Université Franco-Allemande), the IASC, the Nunataryuk project, the Fondation Petzl, the OSUG and the Lions club.







## Meetings & Workshops

### **IPA Executive Council Meeting**

Saturday June 23th 09:00-17:30 & Monday June 25th 17:00-19:00 /// **Room Bouillette**

#### **Meeting of the International Permafrost Association**

Organized by the IPA Executive Council Members.

For more informations, please contact the IPA Secretariat at [contact@ipa-permafrost.org](mailto:contact@ipa-permafrost.org).

### **IPA Council Meeting**

Saturday June 23th 09:00-17:30 & Monday June 25th 17:00-19:00 /// **Room Straton**

#### **Meeting of the International Permafrost Association**

Organized by the IPA Council Members.

For more informations, please contact the IPA Secretariat at [contact@ipa-permafrost.org](mailto:contact@ipa-permafrost.org).

### **Workshop «Isotopes in wedge ice database (IsoWID)»**

Sunday June 24th, 10:00-17:00 /// **Room Bouillette**

#### **Workshop of the IsoWIDWorking Group**

Open to the members of the Working Group.

More details and an agenda will be released shortly before the meeting (contact Thomas Opel: [T.Opel@sussex.ac.uk](mailto:T.Opel@sussex.ac.uk))

### **Workshop «GlobPermafrost»**

Sunday June 24th, 12:00-18:00 /// **Room Bourrit**

#### **Workshop of the ESA project GlobPermafrost**

Open to all EUCOP participants.

After the Welcome lunch at Le Bartavel restaurant in Chamonix at 12:00, the programme will propose presentations and discussion about Status of the GlobPermafrost information system, Progress in evaluation of permafrost modelling, Application of permafrost extent information in climate modelling, Continuation of services beyond GlobPermafrost, Time series product services, Interpretation of Landsat long-term trends, Overview of InSAR products, and Interpretation on rock glaciers

### **GTN-P meeting**

Sunday June 24th, 16:00-18:30 /// **Room Straton**

#### **General Meeting of the Global Terrestrial Network for Permafrost**

Organized by the GTN-P for National Correspondents and Young National Correspondents.

An agenda will be released shortly before the meeting (contact: [Boris.Biskaborn@awi.de](mailto:Boris.Biskaborn@awi.de))

### **IPA Council meeting**

Sunday June 24th 9:00-15:30 & Wednesday June 27th 17:00-19:00 /// **Room Straton**

#### **Meeting of the International Permafrost Association**

Organized by the IPA Council Members.

For more informations, please contact the IPA Secretariat at [contact@ipa-permafrost.org](mailto:contact@ipa-permafrost.org).



## Round-table «Natural hazards due to mountain permafrost degradation»

Monday June 25th 16:15 -17:45 /// Room Bourrit

A meeting between scientists and risk managers

For all EUCOP5 participants interested.

A panel discussion on permafrost related hazard issues with four invited speakers involved in hazard management authorities in the Swiss and French Alps.

## Annual meeting of the «Association Française du Périglaciaire»

Monday June 25th 20:00-22:00 /// Place to be announced...

The 2018 AFdP annual meeting

For AFdP members and friends.

## Closed meeting of journal editors

Tuesday June 26th 17:15 -18:15 /// Room Bourrit

Meeting of journal editors

For the Journal editors.

For more information, please contact Chris Burn.

## Workshop «Mapping arctic lakes from space»

Wednesday June 27th 10:30-12h & 13:30-16:30 /// Room Bourrit

A tutorial on Copernicus data access and processing

Morning: open to all EUCOP5 participants interested; afternoon: maximum 25 participants, subject to registration.

This training session will demonstrate the usage of the Open Tools (ESA SNAP; Orfeo Toolbox; QGIS; etc.) available within the RUS (Research and User support for Sentinel core products) environment for mapping water bodies using satellite data, focusing specifically on Arctic landscapes. During a theoretical lecture provided in the morning, concepts of water surface detection will be introduced. The theory part will also cover the introduction to the Copernicus missions with a focus on Sentinel-1 and Sentinel-2. A hands-on session consisting of SAR and optical data processing exercises will follow in the afternoon, based on Open tools developed within the ESA SEOM Programme (with a focus on the ESA SNAP Toolbox, STEP platform) in the RUS environment.

## Meeting «IPA Action Group Rock glaciers inventories and kinematics»

Thursday 28th June, 15:45-17:00 /// Room Bouillette

Kick-off meeting of the IPA Action Group on rock glaciers inventories and kinematics

For everyone interested in supporting the Action.

## IPA Education & Outreach Committee meeting

Thursday June 28th 17:00-18:00 /// Room Samivel

Meeting of the IPA Education & Outreach Committee

For the IPA Education & Outreach Committee Members.

For more information, please contact Anna E. Klene : [anna.klene@gmail.com](mailto:anna.klene@gmail.com)





## Social Events



### Exhibition : « La montagne a la fièvre / Mountain Fever »

Majestic & Casino

**WEDNESDAY 27/06 /// 18:00-20:30 & 21:30-23:00**

The Experimental School of Art Annecy Alps (ESAAA) and the Centre de la photographie Genève invite you to "Mountain Fever", a group exhibition that brings together artworks by Armin Linke, Sabin Tholen, and others.

Mountain Fever is the kickoff event for l'Effondrement des Alpes, a cross-border laboratory created by the ESAAA and the Centre de la photographie Genève (2018-2021).



### EUCOP Ice-Breaker

Majestic Congress Center

**SUNDAY 24/06 /// 18:30-21:00**

The EUCOP Ice-Breaker on Sunday evening is the ideal occasion to gather before the first session day of the conference, and to unwind after a long trip to Chamonix for many of you or the intensive two-day PYRN (Permafrost Young Researchers Network) workshop for many others. Food and drinks are offered for free to the registered participants.



### Group Picture

Place de L'Eglise (200 m from the Majestic)

**TUESDAY 26/06 /// 18:30-19:00**

The traditional permafrost conference group picture "session" will be take place in the centre of Chamonix, very close to the Majestic. As each of you would be sorry for not being in this great picture, please do not be late for this appointment: leave the poster session and its aperitif at 18.30 at the latest!



### Quiz & Tartiflette

Les Gaillands

**TUESDAY 26/06 /// 19:00-22:00**

The bar will open at 19.00 where you will find local beverages. The food will be served from 19.30 to 20.30 (help yourself directly to the pan). In between, you will have the chance to participate to a Quiz organized by the PYRN ExCom to win your dessert! The site is accessible :

- by foot from le Majestic Congress Center : about half an hour walk;
- by bus : Chamonix Centre to Les Gaillands by buses 1 and V1 or to Les Pèlerins by bus 2 ;
- by train of 19:15 from the Chamonix train station or 19:17 from the Aiguille du Midi train stop to Les Pèlerins train stop.

From Les Pèlerins train stop, walk 50 m to the NW and 300 m to the NE. We are near the climbing crag, on your left!

From Les Gaillands bus stop, walk 100m to the SW, we are on your right!



### Banquet & Concert

Cap Horn restaurant

**THURSDAY 28/06 /// 19:45-22:00**

The EUCOP5 gala dinner will be held at Cap Horn restaurant. As you know, the waters around Cape Horn are particularly hazardous, owing to strong winds, large waves, strong currents and icebergs. The great room of Cap Horn, the masterpiece of this great boat, is extended by a terrace with a view of a so-called «Mont Blanc» iceberg. For the second part of the evening, free to you to go down to the holds of the boat, that is to say to the dance floor of Les Caves of the restaurant...



## Invited Keynotes

### Tuesday 26/06 | 08:15 - 09:00 // Invited keynote



#### **Marcia Phillips /// Room M. Payot**

WSL Institute for Snow and Avalanche Research SLF, Davos

#### **The role of permafrost in the 2017 Pizzo Cengalo rock slope failure**

Marcia Phillips studied Geography at Lausanne University, Switzerland, with a PhD on avalanche defence techniques in permafrost terrain. After doing a postdoctoral fellowship at Carleton University in Canada, she set up a widespread Alpine permafrost monitoring grid, which is part of the Swiss PERMOS network. At the Institute for Snow and Avalanche Research SLF in Davos and in collaboration with scientists from various disciplines, Marcia investigates mountain permafrost phenomena using diverse in-situ and remote sensing measurement techniques. Her research group 'Permafrost and Snow Climatology' at SLF focuses on monitoring and modelling changes in frozen substrates, the dynamics of Alpine permafrost features, their interaction with infrastructure and their consequences for society.

### Thursday 27/06 | 08:15 - 09:00 // Invited keynote



#### **Gustaf Hugelius /// Room M. Payot**

Department of Physical Geography and Bolin Centre of Climate Research, Stockholm University

#### **The carbon cycle in the northern permafrost region**

Gustaf Hugelius main scientific interest is how soils interact with the carbon cycle. He has particularly worked to improve the mapping of organic carbon stored in permafrost and peatlands of Arctic and Boreal ecosystems. At Stockholm University, he is a Senior Lecturer at the Department of Physical Geography and member of the Bolin Centre of Climate Research. He was the lead principal investigator of the EU JPI-Climate COUP consortium and is a one of the work package-leads within the new EU H2020 consortium Nunataryuk. As co-chair of the International Soil Carbon Network, manager of the Northern Circumpolar Soil Carbon Database and member of the Permafrost Carbon Network he works to facilitate international scientific networking and open data access.



## Public conference

**Wednesday 28/06 | 20:30 - 21:30 // Public conference**



### **Wilfried Haeberli /// Room M. Payot**

Department of Geography, University of Zurich

#### **Changement climatique : Les Alpes vont-elles nous tomber sur la tête ?**

Wilfried Haeberli is an environmental geoscientist with special interest concerning impacts from climate change on glaciers, permafrost, natural hazards and landscape evolution in high mountains. He obtained his PhD in Geography at the University of Basel (1974) with a thesis on mountain permafrost and his habilitation in glaciology and geomorphology at ETH Zurich (1985). From 1989 to 1995 he led the Glaciology Section at the Laboratory of Hydraulics, Hydrology and Glaciology of ETH Zurich, from 1995 to 2013 he was full professor of Physical Geography at the University of Zurich, from 1986 to 2010 he was the first director of the World Glacier Monitoring Service (WGMS) and in 1998–2003 he served as a vice president of the International Permafrost Association (IPA). Together with Colin Whiteman he recently published a comprehensive book on Snow and Ice Related Hazards, Risks and Disasters. Finally, Wilfried is recipient of the IPA Lifetime Achievement Award for 2018, that will be presented during the Opening Ceremony of the EUCOP on Monday 25 June.



**EUCOP5**  
CHAMONIX MONT-BLANC  
5th European Conference on Permafrost

# Changement Climatique

## Les Alpes vont-elles nous tomber sur la tête ?

L'état des recherches sur le permafrost de haute montagne

**MERCREDI**  
27 JUIN 2018  
**20h30**  
**Majestic**

**Wilfried**  
**HAEBERLI**  
UNIVERSITÉ DE ZURICH  
**Entrée gratuite**







## Daily Program Overview 25/06

TIME	Slot	Session	Title	Room
08:00			Opening ceremony	M. Payot
09:15 10:30	Session Slot 1	Session 15	The furthest frontier. Planetary Permafrost	Bouillette
		Session 11	Mass-wasting processes in periglacial environments	Bourrit
		Session 12	Thermal state of permafrost and active layer dynamics: from local observations to a global permafrost assessments	P. Payot
		Session 6	Linking terrestrial and freshwater ecosystems in the Arctic : Organic matter, nutrients and pollutants and their lateral transport from permafrost-affected soils	Straton
			Coffee break	
11:00 12:15	Session Slot 2	Session 19	Polar Coastlines in Transition: Arctic - Antarctic perspectives	Bouillette
		Session 11	Mass-wasting processes in periglacial environments	Bourrit
		Session 12	Thermal state of permafrost and active layer dynamics: from local observations to a global permafrost assessments	P. Payot
		Session 6	Linking terrestrial and freshwater ecosystems in the Arctic : Organic matter, nutrients and pollutants and their lateral transport from permafrost-affected soils	Straton
		Session 3	Permafrost engineering and the related risks	M. Payot
			Lunch	
14:00 15:15	Session Slot 3	Session 21	In situ permafrost sensing and monitoring technologies	Bouillette
		Session 24	Permafrost hazards in high mountains	Bourrit
		Session 12	Thermal state of permafrost and active layer dynamics: from local observations to a global permafrost assessments	P. Payot
		Session 6	Linking terrestrial and freshwater ecosystems in the Arctic : Organic matter, nutrients and pollutants and their lateral transport from permafrost-affected soils	Straton
		Session 3	Permafrost engineering and the related risks	M. Payot
			Coffee break	
15:45 17:00	Session Slot 4	Session 18	Deep permafrost - From local to global influences	Bouillette
		Session 24	Permafrost hazards in high mountains	Bourrit
		Session 9	Twenty years after the PACE-project: What do we know about the changing state of European permafrost?	P. Payot
		Session 6	Linking terrestrial and freshwater ecosystems in the Arctic : Organic matter, nutrients and pollutants and their lateral transport from permafrost-affected soils	Straton
		Session 3	Permafrost engineering and the related risks	M. Payot
17:00 18:30			Posters & Apéro	



# Daily Program Overview 26/06

TIME	Slot	Session	Title	Room
08:15 09:00	Invited Keynote			M. Payot
09:15 10:30	Session Slot 5	Session 8	Coupled heat transfer and fluid flow processes in permafrost regions	Bouillette
		Session 2	Paleo-permafrost reconstruction, from field to simulation	Bourrit
		Session 7	Understanding rockglacier dynamics	P. Payot
		Session 23	New developments and applications of geophysical techniques in permafrost terrain	Straton
		Session 3	Permafrost engineering and the related risks	M. Payot
Coffee break				
11:00 12:15	Session Slot 6	Session 8	Coupled heat transfer and fluid flow processes in permafrost regions	Bouillette
		Session 13	Past environments in permafrost regions	Bourrit
		Session 7	Understanding rockglacier dynamics	P. Payot
		Session 23	New developments and applications of geophysical techniques in permafrost terrain	Straton
		Session 3	Permafrost engineering and the related risks	M. Payot
Lunch				
14:00 15:15	Session Slot 7	Session 14	Permafrost peatlands in a changing climate - past, present and uncertain future	Bouillette
		Session 13	Past environments in permafrost regions	Bourrit
		Session 7	Understanding rockglacier dynamics	P. Payot
		Session 23	New developments and applications of geophysical techniques in permafrost terrain	Straton
		Session 3	Permafrost engineering and the related risks	M. Payot
Coffee break				
15:45 17:00	Session Slot 8	Session 14	Permafrost peatlands in a changing climate - past, present and uncertain future	Bouillette
		Session 13	Past environments in permafrost regions	Bourrit
		Session 22	Frost at the margins of permafrost / Frost related phenomena in non permafrost areas	P. Payot
		Session 23	New developments and applications of geophysical techniques in permafrost terrain	Straton
		Session 3	Permafrost engineering and the related risks	M. Payot
Posters & Apéro				
18:30 19:00	Group Picture			
19:00 22:00	Pétanque & Tartiflette			





## Daily Program Overview 28/06

TIME	Slot	Session	Title	Room
08:15 09:00	Invited Keynote			M. Payot
09:15 10:30	Session Slot 9	Session 4	Educating with Permafrost: Training the next generation permafrost specialists	Bouillette
		Session 5	Interdisciplinary approaches to conceptualize changes and feedbacks in permafrost landscapes	Bourrit
		Session 26	Open session on permafrost hydrology	P. Payot
		Session 25	Open session on mountain permafrost	Straton
		Session 1	Remote sensing of permafrost landscapes	M. Payot
Coffee break				
11:00 12:15	Session Slot 10	Session 16	Living with Permafrost: Culture and Communities in Research and Outreach	Bouillette
		Session 4	Educating with Permafrost: Training the next generation permafrost specialists	Bourrit
		Session 26	Open session on permafrost hydrology	P. Payot
		Session 25	Open session on mountain permafrost	Straton
		Session 1	Remote sensing of permafrost landscapes	M. Payot
Lunch				
14:00 15:15	Session Slot 11	Session 10	Thermokarst lake dynamics across multiple spatial and temporal scales	Bouillette
		Session 4	Educating with Permafrost: Training the next generation permafrost specialists	Bourrit
		Session 26	Open session on permafrost hydrology	P. Payot
		Session 25	Open session on mountain permafrost	Straton
		Session 1	Remote sensing of permafrost landscapes	M. Payot
Coffee break				
15:45 17:00	Session Slot 12	Session 17	Subsea Permafrost Dynamics	Bouillette
		Session 25	Open session on mountain permafrost	Straton
		Session 1	Remote sensing of permafrost landscapes	M. Payot
Posters & Apéro				
18:30 19:15	Closing ceremony			
19:15 19:45	Information on regional excursions			
19:45 22:00	Banquet & Concert			





## DETAILED SCHEDULE OF THE ORAL PRESENTATIONS



## Topical session program /// Monday 25 June

### Parallel sessions 1 | 09:15 - 10:30

#### Session 15

The furthest frontier: Planetary Permafrost

**Chairs :** A. Séjourné, S. Conway, E. Hauber /// **Room E. Bouillette**

Time	Speaker	Topic
09:15 09:30	Susan Conway	Erosion of impact craters on Mars: the role of permafrost processes
09:30 09:45	Sylvain Piqueux	Shallow Permafrost Mapping on Mars using Seasonal Thermal Infrared Observations
09:45 10:00	Ernst Hauber	Grid mapping of ice-related landforms in Acidalia Planitia, Mars
10:00 10:15	Axel Bouquety	Morphometrics evidence of glacial features in martian highlands: Dawes crater
10:15 10:30	Antoine Pommerol	Interpretation of the first CaSSIS/TGO observations of circum-polar Martian regions by means of laboratory measurements on icy analogues

#### Session 11

Mass-wasting processes in Cold environments

**Chairs :** C. Morino, M. Chiarle, P. Deline /// **Room T. Bourrit**

Time	Speaker	Topic
09:15 09:30	Mario Kummert	Connectivity and sediment transfer at the front of active rock glaciers
09:30 09:45	Daniel Draebing	Identification of periglacial processes and their link to rockfalls
09:45 10:00	Michael Krautblatter	Mechanical modelling strategies for warming permafrost rock slopes
10:00 10:15	Andrea Tamburini	The collapse of LIA moraines as a consequence of the Belvedere Glacier dramatic shrinkage (Italian Alps, Monte Rosa Range)
10:15 10:30	Melissa Ward Jones	Daily Monitoring of a Retrogressive Thaw Slump on the Fosheim Peninsula, Ellesmere Isl. Nunavut

#### Session 12

Thermal state of permafrost and active layer dynamics

**Chairs :** J. Nötzli, A. Maslakov, D. Streletsky /// **Room P. Payot**

Time	Speaker	Topic
09:15 09:30	Antoni Lewkowicz	Spatial and temporal trends in permafrost conditions across three discontinuous zones, Alaska Highway corridor, northwest Canada
09:30 09:45	Vladimir Romanovsky	Permafrost on the North Slope of Alaska may start thawing earlier than previously expected
09:45 10:00	Miguel Ramos	Effect of snow layer accumulation and glacial transition in a permafrost thermal regime (Livingston Island, Antarctica)
10:00 10:15	Fabian Kneier	Reconstructing temperature histories from GTN-P permafrost borehole temperature records
10:15 10:30	Emmanuel Thibert	Extracting the time signal in surface velocity changes along 3 decades at Laurichard rock glacier (French Alps)

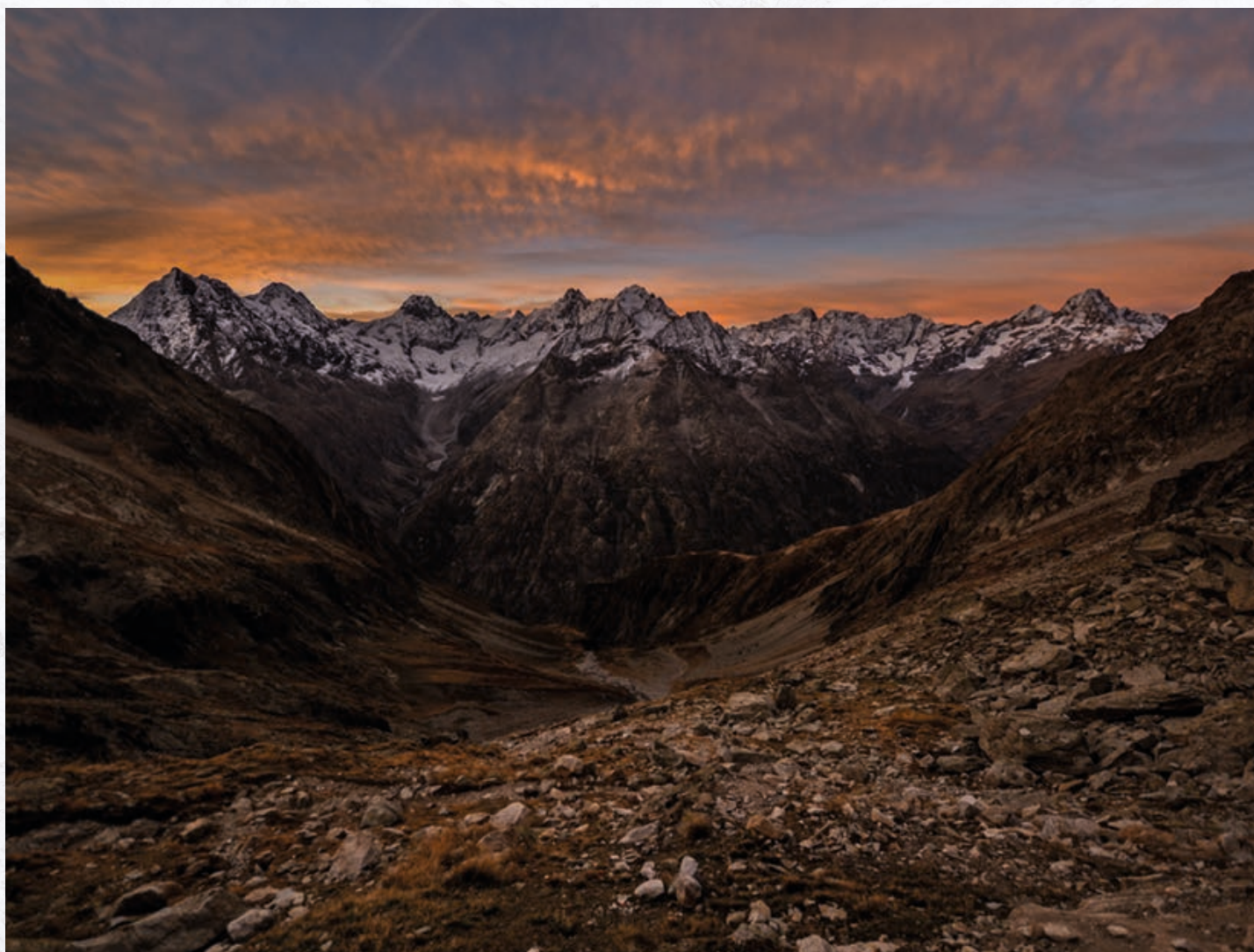


**Session 6**

Linking terrestrial and freshwater ecosystems in the Arctic: Organic matter, nutrients and pollutants and their lateral transport from permafrost-affected soils

**Chairs :** M. Fritz, J. Vonk, A. Evgrafova /// **Room I. Straton**

Time	Speaker	Topic
09:15 09:45	Steve Kokelj	Acceleration of thermokarst alters the nature of terrestrial-aquatic linkages in glaciated permafrost terrain, western Arctic Canada
09:45 10:00	Thomas Douglas	The source and fate of mercury in the snowpack of a watershed underlain by continuous permafrost near Utqiaġvik, Alaska
10:00 10:15	Michael Pope	Long-term mercury transport in High Arctic watersheds subject to permafrost degradation
10:15 10:30	Susan Tank	Changing biogeochemical function in thaw-disturbed freshwater networks of the Peel Plateau, western Canadian Arctic





## Topical session program /// Monday 25 June

### Parallel sessions 2 | 11:00 - 12:15

#### Session 19

Polar Coastlines in Transition: Arctic – Antarctic perspectives

**Chairs :** M. C. Strzelecki, L. Farquharson, B. Radosavljevic, V. Isaev /// **Room E. Bouillette**

Time	Speaker	Topic
11:00 11:15	Aart Kroon	Coastal changes in Greenland
11:15 11:30	Louise Farquharson	Coastal responses to changing sea-ice regime: an Arctic mega-transect
11:30 11:45	Ann Gibbs	Long-term retreat of coastal permafrost bluffs, Barter Island, Alaska
11:45 12:00	Nataliya Belova	Ground ice as a factor of coastal dynamics at south-western part of Kara Sea
12:00 12:15	Mateusz Strzelecki	Mechanisms controlling the evolution of rocky coasts in polar climates – examples from Arctic and Antarctic (Svalbard and South Shetland Islands)

#### Session 11

Mass-wasting processes in Cold environments

**Chairs :** C. Morino, M. Chiarle, P. Deline /// **Room T. Bourrit**

Time	Speaker	Topic
11:00 11:15	Jana Eichel	UAV-based mapping of turf-banked solifluction lobe movement and its relation to material, thermal and vegetation controls
11:15 11:30	Armelle Decaulne	What's up on Caribou slope, Wyâshâkimî lake, Nunavik, Canada?
11:30 11:45	Julie Wee	Dynamics of the Aget back-creeping push-moraine from 1998 to 2017
11:45 12:00	Justine Ramage	Contribution of Coastal Retrogressive Thaw Slumps to the Nearshore Organic Carbon Budget along the Yukon Coast
12:00 12:15	Michaela Kňázková	Quantification of Holocene nivation rates on deglaciated surfaces of James Ross Island, Antarctica

#### Session 12

Thermal state of permafrost and active layer dynamics

**Chairs :** J. Nötzli, A. Maslakov, D. Streletsky /// **Room P. Payot**

Time	Speaker	Topic
11:00 11:15	Andrey Abramov	Two Decades Of Permafrost Monitoring In North-Eastern Asia
11:15 11:30	-	-
11:30 11:45	Christopher Burn	Long-term (1996-2017) thaw subsidence above anti-syngenetic ice wedges at Illisarvik, western Arctic coast, Canada
11:45 12:00	Nikolay Shiklomanov	Temporal Variability of the Active-Layer Thickness on the North Slope of Alaska
12:00 12:15	Megan Balks	Variability in shallow permafrost temperature: results from 17 years of monitoring in the Ross Sea Region of Antarctica: latest data and trends



**Session 6**

Linking terrestrial and freshwater ecosystems in the Arctic: Organic matter, nutrients and pollutants and their lateral transport from permafrost-affected soils

**Chairs :** M. Fritz, J. Vonk, A. Evgrafova/// **Room I. Straton**

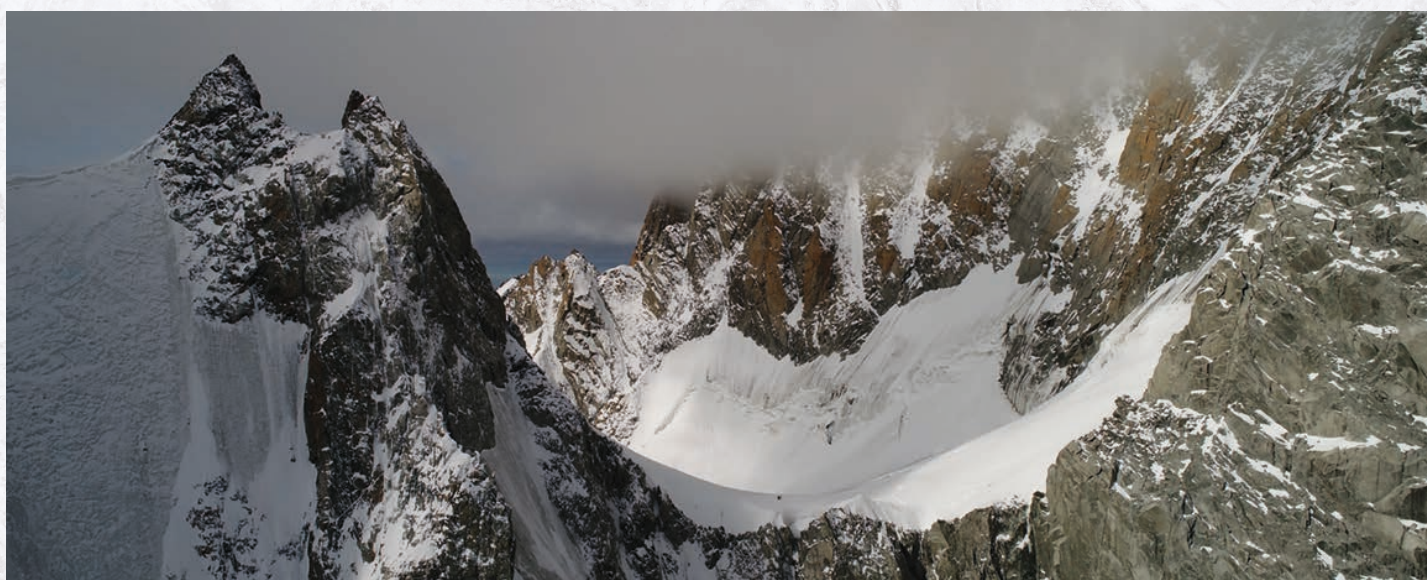
Time	Speaker	Topic
11:00 11:15	Lisa Bröder	Sources and degradation status of particulate organic carbon in the Kolyma River watershed
11:15 11:30	Anne Morgenstern	DOC export from Yedoma to rivers via thermo-erosional gullies and valleys in the Siberian Lena Delta
11:30 11:45	Isabel Prater	Composition and state of decay of soil organic matter in Cryosols of the Lena River Delta
11:45 12:00	Sandra Raab	Spatio-temporal patterns of POC, dissolved CO <sub>2</sub> , and CH <sub>4</sub> in warming permafrost: comparing results from a control and drained floodplain tundra site in NE Siberia
12:00 12:15	Nikita Tananaev	Water and DOC fluxes from a Subarctic catchment underlain by discontinuous permafrost

**Session 3**

Permafrost engineering and the related risks

**Chairs :** K. Bjella, G. Dore, E. Makarychev /// **Room M. Payot**

Time	Speaker	Topic
11:00 11:15	Fabrice Calmels	Assessing the impact of permafrost thaw on Yukon roads: Alaska Highway and Dempster Highway, YT, Canada
11:15 11:30	Xiangbing Kong	Thermal response of air convection embankment (ACE) over ice-rich permafrost at Beaver Creek experimental road site, Yukon, Canada
11:30 11:45	Fujun Niu	Cooling enhancement of a new crushed rock revetment embankment in a warm permafrost region
11:45 12:00	Yury Ramanouski	Simulation of Thermal Regime of Permafrost-Resistant Roads
12:00 12:15	-	-





## Topical session program /// Monday 25 June

### Parallel sessions 3 | 14:00 - 15:15

#### Session 21

In situ permafrost sensing and monitoring technologies

**Chairs :** A. Wagner, N. Lindsey, J. Ajo-Franklin /// **Room E. Bouillette**

Time	Speaker	Topic
14:00 14:15	Nate Lindsey	Signals before subsidence: seismic waves slow down during permafrost thaw
14:15 14:30	Aleksei Pugin	Thermal Monitoring of Frozen Wall Thawing at Petrikov Mine
14:30 14:45	Regina Pläskén	Systematic derivation of anchoring forces in permafrost affected bedrock
14:45 15:00	Alexander Kholodov	Establishment of a complex ecological observation network in the discontinuous permafrost zone of Interior Alaska
15:00 15:15	Sabine Kraushaar	Hydro-chemical detection of dead ice and permafrost degradation

#### Session 24

Permafrost hazards in high mountains

**Chairs :** M. Krautblatter, C. Huggel, M. Keuschnig /// **Room T. Bourrit**

Time	Speaker	Topic
14:00 14:15	Kristin Sæterdal Myhra	Modelling late Pleistocene and Holocene permafrost conditions in steep rock walls in Norway
14:15 14:30	Samuel Weber	Acoustic and micro-seismic signal of rockfall on Matterhorn
14:30 14:45	Paula Hilger	Do deformation patterns and initial failure timing of rock-slope instabilities in Norway relate to permafrost dynamics?
14:45 15:00	Benjamin Jacobs	Thermal and mechanical modelling of massive rock slope failure following fjord deglaciation
15:00 15:15	Philipp Mamot	A temperature- and stress-controlled failure criterion for ice-filled permafrost rock joints

#### Session 12

Thermal state of permafrost and active layer dynamics

**Chairs :** A. Maslakov, D. Streletskiy, J. Nötzli /// **Room P. Payot**

Time	Speaker	Topic
14:00 14:15	Jaroslav Obu	Remote-sensing based global map of permafrost
14:15 14:30	Matvey Debolskiy	Ecotype-based modeling of ground temperature dynamics in Alaska
14:30 14:45	Robert Way	Environmental controls on ground temperatures in Labrador, northeast Canada
14:45 15:00	Huiru Jiang	Investigating the sensitivity of soil freeze/thaw dynamics to environmental conditions in the Tibetan Plateau based on observations and satellite-based model simulations
15:00 15:15	Evan Wilcox	Comparing frost table depth with vegetation cover, snow, and microtopography using 3500 frost probe measurements from a shrub-tundra site

**Session 6**

Linking terrestrial and freshwater ecosystems in the Arctic: Organic matter, nutrients and pollutants and their lateral transport from permafrost-affected soils

**Chairs :** M. Fritz, J. Vonk, A. Evgrafova /// **Room I. Straton**

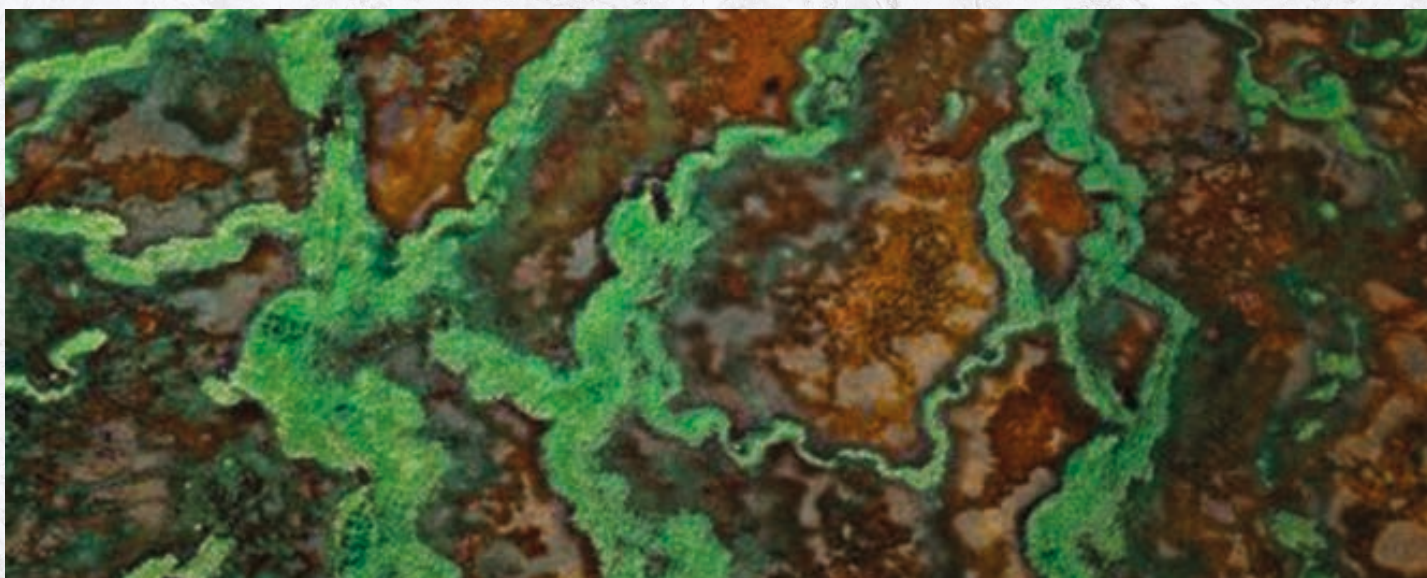
Time	Speaker	Topic
14:00 14:15	Yury Dvornikov	Hydrochemical features of gas-emission crater lakes embedded into marine deposits
14:15 14:30	Alexey Lupachev	Viable Ancient Protists in Cryosols and Permafrost: Possible Input to the Modern Arctic Ecosystems
14:30 14:45	Maud Van Soest	Biogeochemical impacts of dust deposition on Arctic soils, Kangerlussuaq, West Greenland
14:45 15:00	Sophie Opfergelt	The permafrost mineral reserve : Identify potential mineral nutrient hotspots upon thawing
15:00 15:15	Hugues Lantuit	NUNATARYUK-permafrost thaw and the changing Arctic coast, science for socio-economic adaptation

**Session 3**

Permafrost engineering and the related risks

**Chairs :** K. Bjella, G. Dore, E. Makarychev /// **Room M. Payot**

Time	Speaker	Topic
14:00 14:15	Ming Xiao	Developing a research coordination network to identify challenges of and solutions to permafrost related coastal erosion and its socioecological impact in the Arctic
14:15 14:30	Vasily Tolmanov	Investigations of the thermoerosion process on the Tazovskiy peninsula, north of Siberia
14:30 14:45	Nikolay Volkov	Cone penetration testing of permafrost soils
14:45 15:00	Oleg Plekhov	Coupled thermo-hydro-mechanical model of artificial ground freezing process
15:00 15:15	Alexander Nazarov	Temperature changes influence on slopes stability at the Baydara bay sites of Kara sea





## Topical session program /// Monday 25 June

### Parallel sessions 4 | 15:45 - 17:00

#### Session 18

Deep permafrost - From local to global influences

**Chairs :** J. Strauss, G. Hugelius, M. Ulrich /// **Room E. Bouillette**

Time	Speaker	Topic
15:45 16:00	Matthias Fuchs	Soil carbon and nitrogen stocks in Arctic river deltas: New data for three Northwest Alaskan deltas
16:00 16:15	Loeka Jongejans	Organic carbon stored in a thermokarst affected landscape on Baldwin Peninsula, Alaska
16:15 16:30	Anja Wotte	Vulnerability of Yedoma carbon to permafrost thaw – Insights from $^{14}\text{C}$ analysis
16:30 16:45	Jens Strauss	The nitrogen stock of the ice-rich yedoma domain
16:45 17:00	Dmitry Nicolsky	Unfrozen liquid water content and long-term permafrost degradation

#### Session 24

Permafrost hazards in high mountains

**Chairs :** M. Krautblatter, C. Huggel, M. Keuschnig /// **Room T. Bourrit**

Time	Speaker	Topic
15:45 16:00	Marco Marcer	Spatial footprint of degrading permafrost in the French Alps using destabilized rock glacier inventory and susceptibility modeling
16:00 16:15	Daniel Tobler	Permafrost Degradation as Key Factor for Process Chains and Prediction of Climate Change induced Mass Movements
16:15 16:30	-	-
16:30 16:45	-	-
16:45 17:00	-	-

#### Session 9

Twenty years after the PACE-project: What do we know about the changing state of European permafrost?

**Chairs :** K. Isaksen, C. Hauck, S. M. Strand /// **Room P. Payot**

Time	Speaker	Topic
15:45 16:00	Jeannette Noetzli	Long-term measurement of permafrost temperatures in the Swiss Alps
16:00 16:15	Ketil Isaksen	Long-term changes in permafrost temperature in Svalbard and Scandinavia
16:15 16:30	Bernd Etzelmüller	Permafrost dynamics observed in Norway and Iceland
16:30 16:45	Sarah Strand	High-Arctic permafrost thermal conditions in the SVALGREEN transect
16:45 17:00	Hanne Hvidtfeldt Christiansen	Permafrost warming in different landforms and active layer thickening in central and western Svalbard



**Session 6**

Linking terrestrial and freshwater ecosystems in the Arctic: Organic matter, nutrients and pollutants and their lateral transport from permafrost-affected soils

**Chairs :** M. Fritz, J. Vonk, A. Evgrafova /// **Room I. Straton**

Time	Speaker	Topic
15:45 16:00	Michael Fritz	Impacts of collapsing permafrost coasts: the fate of carbon, nutrients and sediments in the Arctic nearshore zone
16:00 16:15	Boris Radosavljevic	Fate of OC in the Arctic nearshore zone: Rapid removal and degradation due to hydrodynamic and ice-related sediment transport
16:15 16:30	George Tanski	Impetuous CO <sub>2</sub> release from eroding permafrost coasts
16:30 16:45	Benjamin Abbott	Could priming and nutrient effects from degrading permafrost alter dissolved organic matter dynamics in permafrost rivers?
16:45 17:00	Rebecca Frei	Untangling terrestrial and aquatic controls on carbon, nutrients, and microorganisms in Arctic stream networks

**Session 3**

Permafrost engineering and the related risks

**Chairs :** K. Bjella, G. Dore, E. Makarychev /// **Room M. Payot**

Time	Speaker	Topic
15:45 16:00	Hanna Lee	Vulnerability of permafrost thaw and the emerging risks for the Arctic infrastructure
16:00 16:15	Irina Chesnokova	Transformations of the Geomorphological and Geocryological Conditions in Areas of the Arctic Zone during Climate Changes
16:15 16:30	Alyona Shestakova	Engineering-Geocryological Mapping of the Republic of Sakha (Yakutia)
16:30 16:45	Dmitry Drozdov	Geocological risks associated with Permafrost in Russian Arctic
16:45 17:00	Dmitry Streletskiy	Towards Circumpolar assessment of climate change impact on population and infrastructure in Arctic permafrost regions



## Topical session program /// Tuesday 26 June

### Parallel sessions 5 | 09:15 - 10:30

#### Session 8

Coupled heat transfer and fluid flow processes in permafrost regions (including IPA Action Group InterFrost results)

**Chairs :** C. Grenier, E. Kuzentsova, V. Bense /// **Room E. Bouillette**

Time	Speaker	Topic
09:15 09:30	Karlis Rieksts	Heat transfer mechanisms of crushed rock materials
09:30 09:45	Yuanming Lai	Experimental and numerical analyses of the frost heaving mechanism and prevention technology of high-speed subgrade in seasonally frozen regions
09:45 10:00	Jianguo Lu	Variations of the thermal conductivity of a silty clay during a freezing-thawing process
10:00 10:15	Mikhail Semin	A Method for Calculating Heat Transfer in Water-Saturated Soils Using Temperature Measurements in Boreholes
10:15 10:30	Andrei Serafimovich	Upscaling surface energy fluxes over the North Slope of Alaska using airborne eddy- covariance measurements and environmental response functions

#### Session 2

Palaeo-permafrost reconstruction, from field to simulation

**Chairs :** P. Bertran, P. Antoine, D. Roche, C. Prud'Homme /// **Room T. Bourrit**

Time	Speaker	Topic
09:15 09:30	Vanda Khilimonyuk	Cryogenic hypothesis of the origin of the Yamal crater - results of detailed studies and modeling
09:30 09:45	Marek Ewertowski	Past thermal-contraction-crack polygons in central western Poland: distribution, classification and relationship with ice-sheet recession
09:45 10:00	Scott Lamoureux	Thaw slurry lake deposits: paleoenvironmental indicators of long term permafrost dynamics
10:00 10:15	Marc Saltel	Paleoclimate variations and impact on groundwater recharge in multi-layer aquifer systems using a multi-tracer approach (northern Aquitaine basin, France)
10:15 10:30	Alla Vasil'chuk	Pollen, trace elements and stable isotope plots of Late Pleistocene ice wedges of Seyaha yedoma, Eastern Yamal Peninsula

#### Session 7

Understanding rockglacier dynamics

**Chairs :** I. Gaertner-Roer, A. Kellerer-Pirklbauer, L. Hartl /// **Room P. Payot**

Time	Speaker	Topic
09:15 09:30	Line Rouyet	Investigating a destabilized permafrost landform, Ádjet rock glacier, Norway: a multi-disciplinary remote sensing approach
09:30 09:45	Xavier Bodin	Regional evaluation of rock glacier activity in the semi-arid Andes using optical and radar satellite imagery
09:45 10:00	Sebastian Vivero	Benefits of UAVs and structure from motion in the study of rock glacier kinematics: Examples from the Western Swiss Alps
10:00 10:15	Antoine Guillemot	Seismologic monitoring of rock glaciers: first results on Gugla-Breithorn site
10:15 10:30	Aldo Bertone	Interannual and subseasonal rock glacier displacement by exploiting different SAR techniques -



**Session 23**

New developments and applications of geophysical techniques in permafrost terrain

**Chairs :** Hau. Christian, Hal. Christian, T. Ingeman-Nielsen /// **Room I. Straton**

Time	Speaker	Topic
09:15 09:30	Burke Minsley	Multi-scale geophysical mapping of deep permafrost change after disturbance in interior Alaska, USA
09:30 09:45	Stephan Gruber	Spectral Induced Polarization Surveys to Infer Ground Ice in a Peatland and a Lithalsa in Warm Permafrost Near Yellowknife, Canada
09:45 10:00	Adrian Flores-Orozco	Measurements of the Induced Polarization effect in alpine permafrost using Transient Electromagnetic and Complex Resistivity methods
10:00 10:15	Leonid Tsibizov	Magnetic prospecting of ice wedge polygons: the case of Kurungnakh ice complex in Lena delta
10:15 10:30	Sergei Velikin	Application of 3D interpretation technologies to solving foundation monitoring problems at hydroprojects in permafrost regions

**Session 3**

Permafrost engineering and the related risks

**Chairs :** K. Bjella, G. Dore, E. Makarychev /// **Room M. Payot**

Time	Speaker	Topic
09:15 09:30	Svet Milanovskiy	Geophysical methods of monitoring of permafrost on the objects of economic activity
09:30 09:45	Dmitrii Shesternev	Influence of urbanization on engineering properties of soils in the geocryological environment under climate change and technical loading
09:45 10:00	Thomas Ingeman-Nielsen	Multidisciplinary site investigations for improved infrastructure design in Qaanaaq, North Greenland
10:00 10:15	John Thornley	Newtok Village Relocation Project – A Geotechnical and Permafrost Engineering Perspective of the New Village Site at Mertarvik
10:15 10:30	-	-



## Topical session program /// Tuesday 26 June

### Parallel sessions 6 | 11:00 - 12:15

#### Session 8

Coupled heat transfer and fluid flow processes in permafrost regions (including IPA Action Group InterFrost results)

**Chairs :** C. Grenier, E. Kuzentsova, V. Bense /// **Room E. Bouillette**

Time	Speaker	Topic
11:00 11:15	Christophe Grenier	Validation of Cryohydrogeological codes: the InterFrost project
11:15 11:30	Michelle Walvoord	Permafrost conditions and groundwater flow in boreal headwater catchments, interior Alaska (USA)
11:30 11:45	John Molson	Numerical Simulations of Groundwater Flow and Permafrost Thaw in a Discontinuous Permafrost Zone, Umiujaq, Québec, Canada
11:45 12:00	Laurent Orgogozo	Numerical investigation of evapotranspiration processes in a forested watershed of Central Siberia
12:00 12:15	Zhi Wen	The role of increasing precipitation on permafrost on the Qinghai-Tibetan plateau

#### Session 13

Past environments in permafrost regions

**Chairs :** M. Oliva, M. Fritz, S. Cable /// **Room T. Bourrit**

Time	Speaker	Topic
11:00 11:30	Mikhail Kanevskiy	Ice-Wedge Thermokarst: Past, Present, and Future
11:30 11:45	Juliane Wolter	Timing and drivers of mid- to late Holocene ice-wedge polygon development in the Western Canadian Arctic
11:45 12:00	Hanno Meyer	Potential and challenges to use the stable isotope composition of ice wedges as winter climate archives
12:00 12:15	Alexandre Chiasson	May the frost be with you : An ice-wedge polygons story

#### Session 7

Understanding rockglacier dynamics

**Chairs :** I. Gärtner-Roer, A. Kellerer-Pirklbauer, L. Hartl /// **Room P. Payot**

Time	Speaker	Topic
11:00 11:15	Bernd Etzelmüller	Active rock glacier at sea level in Finnmark, Northern Norway?
11:15 11:30	Chloé Barboux	Twenty years of rock glaciers and periglacial slope movements analysis in the Bas-Valais (Swiss Alps)
11:30 11:45	Andreas Kellerer-Pirklbauer	Interannual variability of rock glacier flow velocities in the European Alps
11:45 12:00	Catalina Pino	Analysis of climate change on rock glaciers of semi-arid Andes and its possible hydrological consequences
12:00 12:15	Jan Blöthe	Assessing rock glacier horizontal movement in the Cordón del Plata range, Central Andes of Argentina



**Session 23**

New developments and applications of geophysical techniques in permafrost terrain

**Chairs :** Hau. Christian, Hal. Christian, T. Ingeman-Nielsen /// **Room I. Straton**

Time	Speaker	Topic
11:00 11:15	Hrbacek Filip	GPR measurement of active layer thickness on CALM-S site, James Ross Island, Antarctic Peninsula
11:15 11:30	Marat Sadurtdinov	Permafrost mapping within Pechora-river delta (European North) with seismic and ground penetrating radar
11:30 11:45	Albane Saintenoy	Overcoming data scarcity of active layer thicknesses using geophysics
11:45 12:00	Ivan Khristoforov	Using GPR spectral signal analysis to search for taliks in the Shestakovka River basin in the continuous permafrost zone
12:00 12:15	Kjersti Gleditsch Gislås	Geophysical investigations of permafrost ground as a basis for hazard mitigation planning in Longyearbyen, Svalbard

**Session 3**

Permafrost engineering and the related risks

**Chairs :** K. Bjella, G. Dore, E. Makarychev /// **Room M. Payot**

Time	Speaker	Topic
11:00 11:15	Shunji Kanie	Flexible and ductile pipeline: Innovative structure in permafrost regions under the climate change
11:15 11:30	Erika Grechishcheva	Comprehensive study of the geocryological conditions and geological structure of the dam for the design of engineering protection measures
11:30 11:45	Elizaveta Makarycheva	Methods of Main Oil Pipeline Geotechnical Monitoring in Permafrost Zone
11:45 12:00	Julie Malenfant-Lepage	Critical shear stress of frozen and thawing soils
12:00 12:15	Zurun Yue	Eliminating the Frost Uplift of Foundation by Cone-shaped Pile



## Topical session program /// Tuesday 26 June

### Parallel sessions 7 | 14:00 - 15:15

#### Session 14

Permafrost peatlands in a changing climate – past, present and uncertain future

**Chairs :** B. Sannel, Y. Sjöberg, S. Westermann /// **Room E. Bouillette**

Time	Speaker	Topic
14:00 14:15	Hui Zhang	Carbon accumulation in Arctic permafrost peatlands: a special focus on the response to global warming
14:15 14:30	Najat Bhiry	Timeline of permafrost peatland formation in subarctic Quebec (Canada)
14:30 14:45	Adam Kirkwood	Microbial greenhouse gas production in permafrost peatlands of the Hudson Bay Lowlands, Canada
14:45 15:00	Sarah Chadburn	Methane emissions from high latitude peatlands: Constraining models with observations.
15:00 15:15	Tatiana Minayeva	Peatland and permafrost in Mongolia: management options for climate change mitigation and adaptation

#### Session 13

Past environments in permafrost regions

**Chairs :** M. Oliva, M. Fritz, S. Cable /// **Room T. Bourrit**

Time	Speaker	Topic
14:00 14:15	Daniel Fortier	Late Pleistocene yedoma in south-western Yukon (Canada): a remnant of Eastern Beringia ?
14:15 14:30	Alexandre Nieuwendam	Reconstructing cold climate paleo-environments from micro-morphological analysis of slope deposits (Serra Da Estrela, Central Portugal)
14:30 14:45	Vladimir Sheinkman	Frozen but non-glaciated area as a characteristic feature of the Pleistocene development of Northwestern Siberia
14:45 15:00	Roxanne Frappier	Retrogressive thaw slumps: Indicators of Holocene climate changes
15:00 15:15	Jannik Martens	East Siberian Shelf slope sediments suggest permafrost carbon mobilization during the last glacial termination

#### Session 7

Understanding rockglacier dynamics

**Chairs :** I. Gärtner-Roer, A. Kellerer-Pirklbauer, L. Hartl /// **Room P. Payot**

Time	Speaker	Topic
14:00 14:15	Christophe Lambiel	Investigating ages and kinematics of two rock glaciers in the Southern Alps of New Zealand
14:15 14:30	Alessandro Cicoira	Investigating the influence of temperature and liquid water on variations in rockglacier flow
14:30 14:45	Luisa Pruessner	Near-surface ventilation as a key for modelling the thermal regime of coarse blocky rock glaciers
14:45 15:00	Charles Ribeyre	The Col du Lou event (French Alps) – an active layer detachment at the front of a destabilized rock glacier
15:00 15:15	Reynald Delaloye	Rock glacier inventories and kinematics: a new IPA Action Group



**Session 23**

New developments and applications of geophysical techniques in permafrost terrain

**Chairs :** Hau. Christian, Hal. Christian, T. Ingeman-Nielsen /// **Room I. Straton**

Time	Speaker	Topic
14:00 14:15	Dina Kvon	Petrophysical approach of ERI data interpretation for various salinity deposits in permafrost areas
14:15 14:30	Evgeny Zerkal	ERI surveys of embankment dam with petrophysical aspects of data interpretation
14:30 14:45	Alexey Faguet	3D numerical modeling of two thermokarst lakes and their probably connecting taliks as seen on ERT data
14:45 15:00	Sonia Tomaskovicova	Coupled thermo-geophysical inversion for permafrost monitoring
15:00 15:15	Mohammad Farzamian	Monitoring the active layer using Electrical Resistivity Tomography: daily, weekly and monthly variability at Crater Lake, Deception Island, Antarctica

**Session 3**

Permafrost engineering and the related risks

**Chairs :** K. Bjella, G. Dore, E. Makarychev /// **Room M. Payot**

Time	Speaker	Topic
14:00 14:15	Mu Yanhu	Zero curtain effect of ponded water on thermal regime of railway embankment in continuous permafrost area, the Qinghai - Tibet Plateau
14:15 14:30	Ilya Komarov	Thermal resistance of engineering constructions soil foundation
14:30 14:45	Vladimir Gordiychuk	Permafrost temperature simulation using sequentially coupled explicit-implicit finite-difference method
14:45 15:00	Adil Binal	The Modelling of Solifluction Behaviour of Freezing-Thawing Soils
15:00 15:15	Gleb Gribovskii	The comparison of numerical and analytical solution of the Stefan problem



## Topical session program /// Tuesday 26 June

### Parallel sessions 8 | 15:45 - 17:00

#### Session 14

Permafrost peatlands in a changing climate – past, present and uncertain future

**Chairs :** B. Sannel, Y. Sjöberg, S. Westermann /// **Room E. Bouillette**

Time	Speaker	Topic
15:45 16:00	Jean Holloway	Persistence of permafrost after 55 years of climatic warming and fire disturbance in the sporadic discontinuous zone
16:00 16:15	Fouché Julien	Dissolved organic carbon export and its contribution to the carbon budget in a boreal peat landscape undergoing rapid permafrost thaw
16:15 16:30	Laure Gandois	Evolution of dissolved organic matter origin and methanogenesis processes in degrading palsa of North Siberia
16:30 16:45	Léo Martin	Modelling the thermal stability of peat plateaus and palsas in Northern Norway
16:45 17:00	Kjetil Aas	Simulating Permafrost Peatlands under Climate Change with Laterally Coupled Tiles in a Land Surface Model

#### Session 13

Past environments in permafrost regions

**Chairs :** M. Oliva, M. Fritz, S. Cable /// **Room T. Bourrit**

Time	Speaker	Topic
15:45 16:00	Cameron Roy	Holocene permafrost evolution in marine sediments along the Eureka Sound Lowlands, NU, Canada
16:00 16:15	Lasse Sander	Characteristics of wave-built sedimentary archives in Buor Khaya Bay (71°N/130°E), Siberian Arctic, Russia.
16:15 16:30	Kseniia Ashastina	Hard work of ground squirrels pays off 26 ka later: the last cold stage vegetation of the Yana Highlands
16:30 16:45	Benjamin Amann	Seasonality matters: Past winter climate from the Canadian High Arctic
16:45 17:00	Marc Oliva	Permafrost conditions in the Mediterranean region since the Last Glaciation

#### Session 22

Frost at the margins of permafrost / Frost related phenomena in non permafrost areas

**Chairs :** R. Delaloye, V. Jomelli, C. Pellet /// **Room P. Payot**

Time	Speaker	Topic
15:45 16:00	Philippe Schoeneich	Seasonal frost in the French Alps
16:00 16:15	Joseph Drevon	Spatiotemporal mapping of the evolution of ground temperature on a cold scree slope at Pellafol, Devoluy, Isère, France
16:15 16:30	Simon Meynier	Cold scree slopes environments: unusual ecological processes highlighted by humus forms
16:30 16:45	Stéphanie Huc	Plant species indicative of cold screes at low altitudes in the French Alps
16:45 17:00	Stuart Harris	Cryogenic earth hummocks developed in mineral substrates



**Session 23**

New developments and applications of geophysical techniques in permafrost terrain

**Chairs :** Hau. Christian, Hal. Christian, T. Ingeman-Nielsen /// **Room I. Straton**

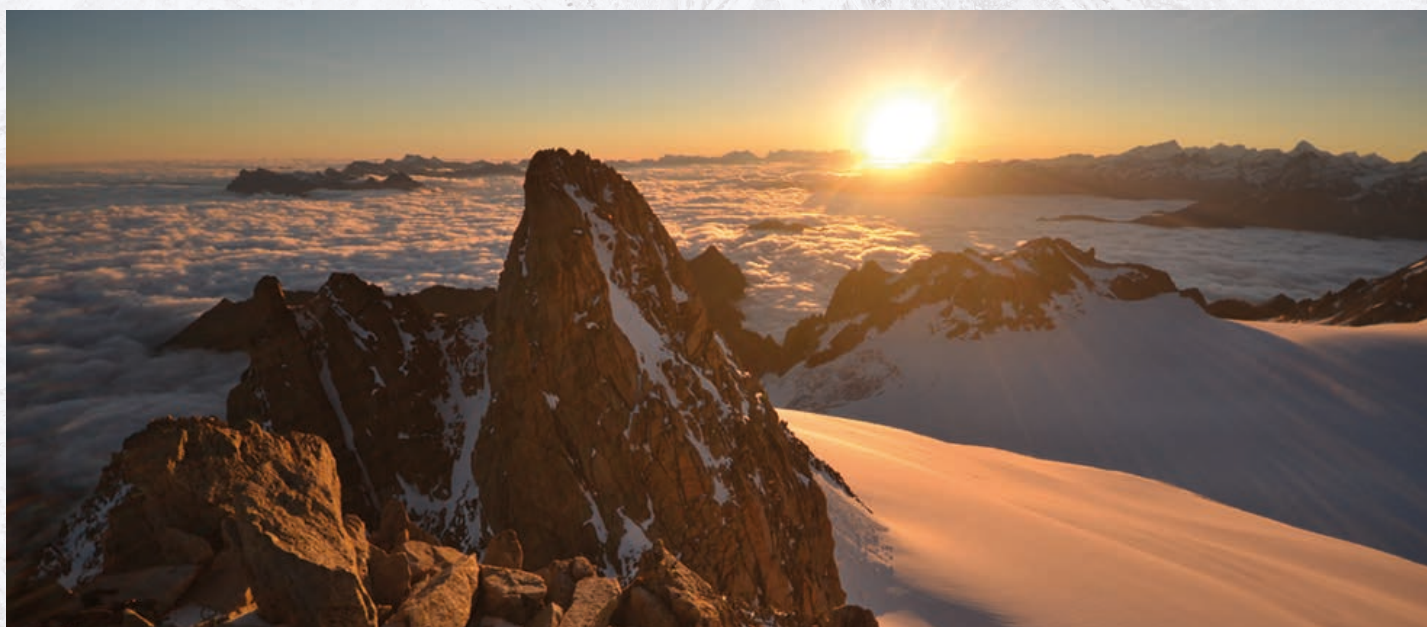
Time	Speaker	Topic
15:45 16:00	Christian Halla	Volumetric ice content in active rock glaciers derived from geophysical modeling (Central Andes of Argentina)
16:00 16:15	Coline Mollaret	Ice and liquid water saturations jointly inverted from electrical and refraction seismic datasets in mountain permafrost
16:15 16:30	Matthias Steiner	3D refraction seismic tomography investigations in alpine permafrost at Hoher Sonnblick (Austria)
16:30 16:45	Pierre-Allain Duvillard	3D inversion of resistivity and induced polarization on an alpine rock glacier supporting unstable cable-car
16:45 17:00	Anastasya Goreyavcheva	Contribution of electrical resistivity tomography measurements in the Study permafrost: Examples from the Altai Mountains

**Session 3**

Permafrost engineering and the related risks

**Chairs :** K. Bjella, G. Dore, E. Makarychev /// **Room M. Payot**

Time	Speaker	Topic
15:45 16:00	Sun Gaochen	Fractal characteristics of microstructural changes before and after warm frozen soil stabilizing
16:00 16:15	Pavel Kotov	Selection of equations for long-term strength calculation of frozen saline soils
16:15 16:30	Marte Nybo	An experimental study of unfrozen water content in fine grained permafrost soils
16:30 16:45	Zhemini You	Experimental study on the damage deterioration of cracks of coal samples subjected to freeze-thaw cycles
16:45 17:00	-	-



## Topical session program /// Thursday 28 June

### Parallel sessions 9 | 09:15 - 10:30

#### Session 4

Educating with Permafrost: Training the next generation permafrost specialists

**Chairs :** H. Christiansen, I. Streletskaya, Y. Sjöberg /// **Room E. Bouillette**

Time	Speaker	Topic
09:15 09:30	Koichiro Harada	Frost depth measuring program in Japan
09:30 09:45	Vladislav Isaev	Engineer-geocryological scientific-educational field work of Moscow university Master of Science students at polar regions of european russian arctic
09:45 10:00	Hanne Hvidtfeldt Christiansen	FROZEN CANOES: Landscape and infrastructure dynamics in frozen environments undergoing Climate Change in Canada, Norway and Svalbard
10:00 10:15	Katrin Kohnert	Communicating Permafrost Research and Arctic Climate Change: a Modular Concept for Student Workshops
10:15 10:30	Kenji Yoshikawa	Education with Permafrost: Expanding permafrost specialists

#### Session 5

Interdisciplinary approaches to conceptualize changes and feedbacks in permafrost landscapes

**Chairs :** T. A. Douglas, B. W. Abbott, Y. Fan /// **Room T. Bourrit**

Time	Speaker	Topic
09:15 09:30	Frederick Nelson	The cartography of permafrost continuity
09:30 09:45	Merritt Turetsky	Interdisciplinary approaches to understanding the initiation and lateral expansion of thermokarst in peat-rich regions
09:45 10:00	James Craig	Numerical Simulation of Lateral Permafrost Thaw in Northwest Territories
10:00 10:15	Samuel Gagnon	Climate change and ecological interactions affecting permafrost temperature regime and ice-wedge activity in the Narsajuaq river valley, Nunavik, Canada
10:15 10:30	Artem Khomutov	Thermal denudation due to climate fluctuations as a driver for relief transformation in central Yamal, Russia

#### Session 26

Open session on permafrost hydrology

**Chairs :** W. L. Quinton, R. F. Connon, C. Spence /// **Room P. Payot**

Time	Speaker	Topic
09:15 09:30	Jennifer Hickman	Identification of patterns in hydrological conditions governing flow in an unregulated river basin in the Northwest Territories, and implications for downstream hydroelectric power generation
09:30 09:45	Baptiste Dafflon	Quantifying the Interactions Between Subsurface Hydro-Thermal Characteristics, Permafrost Distribution, Soil Physical Properties and Landscape Structure in an Arctic Watershed
09:45 10:00	Nataliia Nesterova	Assessment of aufeis role in hydrological regime of the North-Eastern Russia
10:00 10:15	Lukas Arenson	Characterization of Runoff Within a Periglacial Micro-Watershed of the Andes Containing Rock Glaciers
10:15 10:30	-	-



**Session 25**

Open session on mountain permafrost

**Chairs :** M. Hoelzle, S. Vivero /// **Room I. Straton**

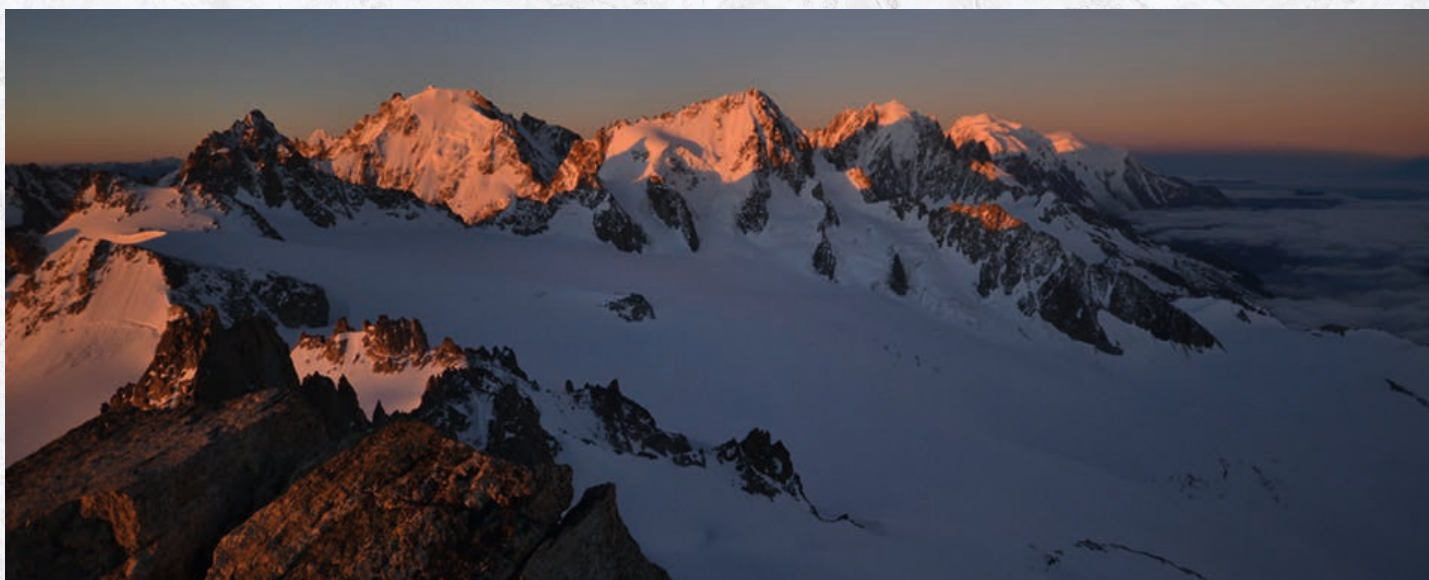
Time	Speaker	Topic
09:15 09:30	Pierre Dalban Canassy	Combined rock temperatures modelling and glaciological survey on the Jungfrauoch (Switzerland)
09:30 09:45	Anna Haberkorn	Influences of snow on the temperature regime of steep frozen rock walls
09:45 10:00	Grégoire Guillet	Fracture kinematics in steep bedrock permafrost, Aiguille du Midi (3842 m a.s.l., Chamonix Mont-Blanc, France)
10:00 10:15	Florence Magnin	Monitoring and statistical modelling of permafrost in steep slopes of Norway
10:15 10:30	Joel Fiddes	Complex model simulations of permafrost in remote regions improved by data assimilation using a particle batch smoother

**Session 1**

Remote sensing of permafrost landscapes

**Chairs :** S. Baumann, A. Khomutov, I. Nitze /// **Room M. Payot**

Time	Speaker	Topic
09:15 09:30	Tobias Bolch	Evolution of rock glaciers in northern Tien Shan, Central Asia, 1971 – 2016
09:30 09:45	Benjamin Jones	Spying on tundra beavers with times series remote sensing data
09:45 10:00	Sebastian Westermann	Active layer thickness and ground temperature through assimilation of remote sensing data in permafrost models
10:00 10:15	Alexander Kizyakov	Dynamics of gas emission craters on Yamal and Gydan Peninsulas, Russia, analysis of stereo pairs of very-high resolution satellite images
10:15 10:30	Hannah Prantl	Using remotely sensed data to identify perennial snow patches in northern Iceland



## Topical session program /// Thursday 28 June

### Parallel sessions 10 | 11:00 - 12:15

#### Session 16

Living with Permafrost: Community engagements and outreach products

**Chairs** : M. Ulrich, J. Lenz, Y. Sjöberg, I. Streletskaia /// **Room E. Bouillette**

Time	Speaker	Topic
11:00 11:15	Joaquin Alvarado	After the Thaw: Permafrost, People and a new narrative approach to community engagement.
11:15 11:30	Louis-Philippe Roy	Lessons Learned from Mapping Permafrost Vulnerability in Northern Communities
11:30 11:45	Darya Anderson	Bakeapple picking in a changing physical and social landscape
11:45 12:00	Kenji Yoshikawa	Living with Permafrost: Community engagements and outreach products
12:00 12:15	Hugues Lantuit	Permafrost Research Priorities

#### Session 5

Interdisciplinary approaches to conceptualize changes and feedbacks in permafrost landscapes

**Chairs** : T. A. Douglas, B. W. Abbott, Y. Fan /// **Room T. Bourrit**

Time	Speaker	Topic
11:00 11:15	Mamoru Ishikawa	Multiple-scaled observations of marginal permafrost over Mongolia
11:15 11:30	Altug Ekici	Coupling ground subsidence and surface wetlands
11:30 11:45	Anna Tarbeeva	Beaded streams in Alaska and Siberia: similarities and differences
11:45 12:00	Jan Nitzbon	A scalable approach to model the ground thermal and hydrological dynamics of polygonal tundra
12:00 12:15	Thomas Schneider Von Deimling	The impact of lateral heat and water fluxes from thermokarst lakes on tundra landscape dynamics and permafrost degradation

#### Session 26

Open session on permafrost hydrology

**Chairs** : W. L. Quinton, R. F. Connon, C. Spence /// **Room P. Payot**

Time	Speaker	Topic
11:00 11:15	Melissa Lafreniere	Hydrologic connectivity is a key control on the impacts of permafrost disturbance on fluvial fluxes
11:15 11:30	Casey Beel	High Arctic Sediment Yield Responses to Geomorphic and Permafrost Change in a Transitioning Climate
11:30 11:45	William Quinton	Hydrological change trajectories in the southern Taiga Plains, Canada
11:45 12:00	Elise Devoie	Taliks, a tipping point in permafrost degradation
12:00 12:15	Marion Cochand	Monitoring the Hydrogeochemical Evolution of Groundwater in a Small Watershed in a Discontinuous Permafrost Zone, Québec, Canada



**Session 25**

Open session on mountain permafrost

**Chairs :** M. Hoelzle, S. Vivero /// **Room I. Straton**

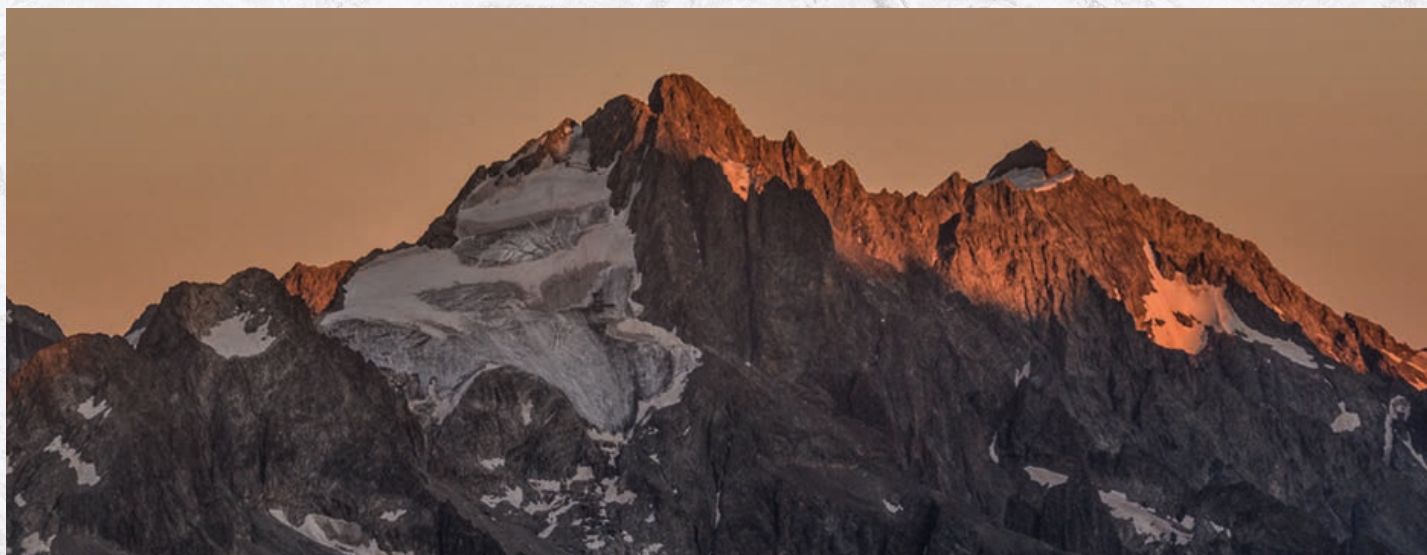
Time	Speaker	Topic
11:00 11:15	Duoying Ji	Tibetan permafrost change during the past five decades
11:15 11:30	Dongliang Luo	Difference in surface temperatures and their influences on the permafrost temperatures on the Qinghai-Tibet Plateau
11:30 11:45	John Wani	Frozen ground in the cold-arid Himalaya: a case study from upper Ganglass catchment, Leh
11:45 12:00	-	-
12:00 12:15	Wojciech Dobiński	CTS-PB and GS-PT as two surfaces integrating glacial and periglacial permafrost

**Session 1**

Remote sensing of permafrost landscapes

**Chairs :** S. Baumann, A. Khomutov, I. Nitze /// **Room M. Payot**

Time	Speaker	Topic
11:00 11:15	Thomas Schmid	Developing site specific spectral libraries for characterizing and monitoring surface features within ice-free areas of the South Shetland Islands (Antarctica)
11:15 11:30	Daria Aleksyutina	Contribution of the permafrost phenomena and processes to coastal erosion at Baydaratskaya Bay, Kara Sea
11:30 11:45	Annett Bartsch	Estimating shrub height as indicator for snow depth and permafrost modelling
11:45 12:00	Nikolay Lashchinskiy	Relief and vegetation patterns in connection with permafrost features in Lena Delta (Eastern Siberia)
12:00 12:15	-	-





## Topical session program /// Thursday 28 June

### Parallel sessions 11 | 14:00 - 15:15

#### Session 10

Thermokarst lake dynamics across multiple spatial and temporal scales

**Chairs :** J. Lenz, F. Bouchard, B. M. Jones /// **Room E. Bouillette**

Time	Speaker	Topic
14:00 14:15	Pascale Roy-Leveillee	The influence of vegetation structure on the geomorphic evolution of thermokarst lakes, Old Crow Flats, Yukon
14:15 14:30	Antoine Séjourné	Reconstruction of the development of a retrogressive thaw slump on the bank of a thermokarst lake in Central Yakutia using dendrochronology
14:30 14:45	Alexandra Veremeeva	Past and present thermokarst lake dynamics in the Yedoma Ice Complex region of North-Eastern Yakutia
14:45 15:00	Alexey Victorov	Stochastic models of dynamic balance in cryolithozone landscapes and its significance for nature hazard assessment
15:00 15:15	Vladimir Istomin	Thermodynamic calculation of freezing temperature of gas-saturated pore water in talik zones
15:15 15:30	Ingmar Nitze	Lake dynamics across latitudinal permafrost transects

#### Session 5

Interdisciplinary approaches to conceptualize changes and feedbacks in permafrost landscapes

**Chairs :** T. A. Douglas, Be. W. Abbott, Y. Fan /// **Room T. Bourrit**

Time	Speaker	Topic
14:00 14:15	Gleb Kraev	Features of methane showings in disturbed cryogenic strata 280 km SE from the new Yamal crater Erkatayakha
14:15 14:30	Marina Leibman	Main results of 4-year gas-emission crater study
14:30 14:45	Svetlana Evgrafova	Field incubation study of greenhouse gas release from buried soil in the Lena River Delta, Siberia
14:45 15:00	Yuanhe Yang	Spatially-explicit estimation of soil nitrogen stock and its comparison with Community Land Model across Tibetan alpine permafrost
15:00 15:15	Christina Schaedel	Divergent patterns of experimental and model derived variables of tundra ecosystem carbon exchange in response to arctic warming

#### Session 26

Open session on permafrost hydrology

**Chairs :** W. L. Quinton, R. F. Connon, C. Spence /// **Room P. Payot**

Time	Speaker	Topic
14:00 14:15	Michael Braverman	An experimental study of permafrost restoration under the seismic line in the wetland-dominated zone of discontinuous permafrost, Northwest Territories, Canada
14:15 14:30	Wei Cao	Main controlling factors of the permafrost soil-moisture on the slope of the Qinghai-Tibet Plateau
14:30 14:45	Sean Carey	High frequency data reveals new insights into hydrological and biogeochemical processes in a discontinuous permafrost watershed
14:45 15:00	Liudmila Lebedeva	Distribution of suprapermafrost taliks in the Shestakovka River catchment, continuous permafrost zone
15:00 15:15	Ryan Connon	New insights into snowfall and snow accumulation trends and patterns across the Northwest Territories



**Session 25**

Open session on mountain permafrost

**Chairs :** M. Hoelzle, S. Vivero /// **Room I. Straton**

Time	Speaker	Topic
14:00 14:15	Justyna Czekirda	Transient modelling of permafrost distribution in Iceland
14:15 14:30	Philip Bonnaventure	Improved sensitivity analysis of permafrost models to projected changes in continentality, Yukon, Canada
14:30 14:45	Robert Kenner	Distinguishing ice-rich and ice-poor permafrost to map ground temperatures and -ice content in the Swiss Alps
14:45 15:00	Carla Tapia	Permafrost probability model for debris surfaces in the Central Andes (29° to 33° SL, Argentina)
15:00 15:15	Jordan Harrington	A distributed temperature sensing approach to mapping mountain permafrost

**Session 1**

Remote sensing of permafrost landscapes

**Chairs :** S. Baumann, A. Khomutov, I. Nitze /// **Room M. Payot**

Time	Speaker	Topic
14:00 14:15	Jie Chen	Sentinel-1 InSAR measurements of surface elevation changes over yedoma uplands on Sobo-Sise Island, Lena Delta
14:15 14:30	Line Rouyet	SAR Interferometry investigating Seasonal Heave and Subsidence in a Continuous Permafrost Landscape, Adventdalen, Svalbard
14:30 14:45	Ashley Rudy	Evaluating DInSAR displacement products using fine-scale geomorphological mapping and field based studies along the Inuvik to Tuktoyaktuk Highway corridor, western Canadian Arctic
14:45 15:00	Reginald Muskett	The Importance of L-Frequency SAR Volume Scattering On Lowland Tundra in the Arctic
15:00 15:15	Tazio Strozzi	Surface Deformation Monitoring in High-Latitude Permafrost Areas with Sentinel-1 SAR Interferometry





## Topical session program /// Thursday 28 June

### Parallel sessions 12 | 15:45 - 17:00

#### Session 17

Subsea Permafrost Dynamics

**Chairs :** M. Stendel, P. Overduin, M. Puglini /// **Room E. Bouillette**

Time	Speaker	Topic
15:45 16:00	Natalia Shakhova	Investigating current state and mechanisms of subsea permafrost degradation and associated methane emissions in the East Siberian Arctic Shelf
16:00 16:15	Matteo Puglini	Reactive-transport model on Arctic shelves: a focus on subsea permafrost affected sediments
16:15 16:30	Pier Overduin	Submarine permafrost development modelled at the circum-Arctic scale
16:30 16:45	Christian Rodehacke	Subsea Permafrost Climate Modeling – From uncertainty estimates to estimates of future permafrost degradation
16:45 17:00	Michael Angelopoulos	Geophysical surveys of sub-aquatic permafrost: talik dynamics and the influence of a freshwater to saltwater lake transition
17:00 17:15	Birgit Wild	Organic matter composition across subsea permafrost thaw horizons

#### Session 25

Open session on mountain permafrost

**Chairs :** M. Hoelzle, S. Vivero /// **Room I. Straton**

Time	Speaker	Topic
15:45 16:00	Elisa Giaccone	Debris size classification of alpine landforms using high-resolution images
16:00 16:15	Christin Hilbich	Towards accurate quantification of ice content in permafrost of the Central Andes – results from geophysical campaigns in 3 different regions
16:15 16:30	Theresa Maierhofer	Modelling of Ground Penetrating Radar in alpine Permafrost at Hoher Sonnblick Summit
16:30 16:45	Cécile Pellet	Seasonal and inter-annual variability of soil moisture in permafrost terrains
16:45 17:00	-	-

#### Session 1

Remote sensing of permafrost landscapes

**Chairs :** S. Baumann, A. Khomutov, I. Nitze /// **Room P. Payot**

Time	Speaker	Topic
15:45 16:00	Soraya Kaiser	Detection and quantification of lateral thermokarst lake expansion processes in periglacial landscapes based on Sentinel and RapidEye imagery
16:00 16:15	Tobias Ullmann	Characterization of Polar Permafrost Landscapes by Means of Multi-Temporal and Multi-Scale Remote Sensing, and In-Situ Measurements (SMART)
16:15 16:30	Huw Mithan	Automated mapping of landforms in high Arctic mountains
16:30 16:45	-	-
16:45 17:00	-	-





# DISTRIBUTION OF THE POSTERS PER SESSION, DAY AND ROOM

## **EUCOP5**

CHAMONIX MONT-BLANC

## Poster program

### Poster sessions A

Day	Session number	Session theme	Posters number	Room
MONDAY 25	3	Permafrost engineering and the related risks.	22	M Payot
	9	Twenty years after the PACE-project.	3	M. Payot
	12	Thermal state of permafrost and active layer dynamics.	24	M. Payot
	19	Polar Coastlines in Transition: Arctic - Antarctic perspectives.	7	M. Payot
	6	Linking terrestrial and freshwater ecosystems in the Arctic.	11	J. Vallot
	15	The furthest frontier: Planetary Permafrost.	2	J. Vallot
	21	In situ permafrost sensing and monitoring technologies.	8	J. Vallot
	11	Mass-wasting processes in periglacial environments.	13	J. Janssen
	18	Deep permafrost - From local to global influences.	2	J. Janssen
	24	Permafrost hazards in high mountains.	6	J. Janssen

### Poster sessions B

Day	Session number	Session theme	Posters number	Room
TUESDAY 26	2	Palaeo-permafrost reconstruction, from field to simulation.	13	M. Payot
	3	Permafrost engineering and the related risks.	22	M. Payot
	7	Understanding rockglacier dynamics.	6	M. Payot
	13	Past environments in permafrost regions.	13	M. Payot
	8	Coupled heat transfer and fluid flow processes in permafrost regions.	9	J. Vallot
	23	Geophysical techniques in permafrost terrain.	7	J. Vallot



Day	Session number	Session theme	Posters number	Room
TUESDAY 26	14	Permafrost peatlands in a changing climate.	11	J. Janssen
	22	Frost at the margins of permafrost.	5	J. Janssen

## Poster sessions C

Day	Session number	Session theme	Posters number	Room
THURSDAY 28	1	Remote sensing of permafrost landscapes.	14	M. Payot
	4	Educating with Permafrost.	6	M. Payot
	5	Conceptualize changes and feedbacks in permafrost landscapes.	10	M. Payot
	10	Thermokarst lake dynamics.	6	M. Payot
	16	Living with Permafrost: Culture and Communities.	6	M. Payot
	17	Subsea Permafrost Dynamics.	1	M. Payot
	25	Open session on mountain permafrost.	9	J. Janssen
	26	Open session on permafrost hydrology.	7	J. Janssen
	24	Permafrost hazards in high mountains.	6	J. Janssen



## Local Field Trips



### Montenvers-Mer de Glace-Brévent

27 June - 29 June

At the Montenvers, you will admire the glacier tongue of the Mer de Glace and get information about the rock instabilities in the West face of the Drus since several decades. After a short trip with a small cable car, you will be able – if you wish – to go down to the glacier to visit its carved ice cave. Once climbed the 130-m relief through the very long stair, the cable car will bring you back to the Montenvers terrace, from where you could possibly visit the nice, close Glaciorium.

From the Brévent, you will enjoy the panorama on the entire Mont Blanc massif. You will be informed about the studies and monitoring carried on at the Aiguille du Midi, one of the few high-elevated sites worldwide where rock wall permafrost is studied. Rockfall frequency related to permafrost degradation and cold-based glacier monitoring will be at the “menu” too.

*This field trip is organized by Ludovic Ravel and Philip Deline.*



### The Dérochoir rock glacier

27 June - 29 June

Overlooking Les Houches, the Dérochoir active rock glacier evacuates its material in the Griaix torrent. The torrential activity of the watershed causes serious threat for the population downslope, and the national forest service is actively managing this risk since more than 120 years, after a strong geomorphological crisis at the end of the 19th century.

Since 2009, ground temperature and surface displacement are monitored, and the rock glacier internal structure and geomorphological settings have been investigated in details. The upslope-downslope interactions and the particular at-risk context make this site of great interest for leading research on the responses of socio-evosystems to global change.

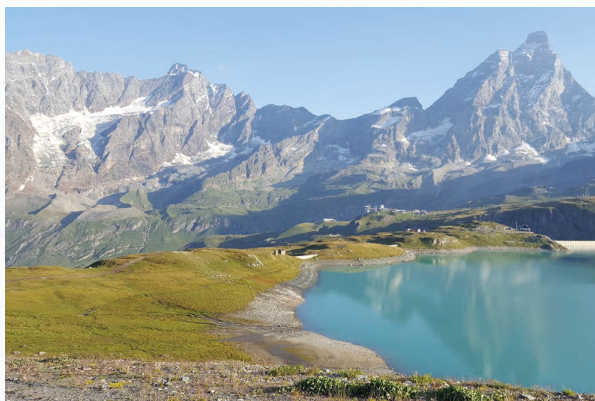
Through this excursion, you will benefit from an original panorama of natural risks in the Chamonix valley.

*This field trip is organized by Philippe Schoeneich and Xavier Bodin.*



## Regional Field Trips

EUCOP5 is proud to host several post-conference field trips on permafrost in the Alps.



### **Aosta Valley : from Mont Blanc to Matterhorn**

30 June - 01 July

This field trip will take the participants to the discovery of the south side of Mont Blanc and Matterhorn by crossing the beautiful Aosta Valley, a small Italian region surrounded by the highest peaks of the Alps. During the trip the participants will have the opportunity to observe and discuss the impacts of climate change on mountain slopes dynamics, glaciers, geohazards and natural resources.

*This field trip is organized by ARPAVdA, the Regional Agency for the Environmental Protection of the Aosta Valley. The program could slightly change in case of bad weather. Contact : Paolo Pogliotti..*



### **Mountain permafrost in the Valais Alps : between Verbier and Zermatt**

29 June (afternoon) - 01 July (late evening) / 02 July

The field trip aims at visiting various periglacial geomorphic systems (glacier forefields, rock glaciers, landslides) in the Valais Alps. While enjoying wonderful view of highest peaks of the Swiss Alps, it is intended to present and discuss the permafrost monitoring system spread out in the Swiss Alps, some human infrastructures in mountain permafrost, and hazards related to permafrost sites.

*This field trip is organized by Christophe Lambiel from the Institute of earth surface dynamics, University of Lausanne, Switzerland and Reynald Delaloye from the Department of Geosciences, Geography, University of Fribourg, Switzerland.*



### **Alpine permafrost at 45°N: monitoring activities and investigations in the Ecrins massif**

29 June (late afternoon) - 01 July

The field trip aims at visiting some of the main monitoring sites of the PermaFRANCE network, the French permafrost observing system, mainly : rock glaciers, seasonal frost and borehole sites. The excursion will take place along the Northern side of the breathtaking Ecrins massif and National Park. The scientific part will focus on long term monitoring, impact of climate change on rock glacier dynamics, ski infrastructures on permafrost and on monitoring techniques.

*This field trip is organized by Philippe Schoeneich, from the Institute of Alpine Geography and Urbanism Univ. Grenoble Alpes, France, and Xavier Bodin from EDYTEM, CNRS / Univ. Savoie Mont Blanc, France. Modifications of the program may arise because of weather conditions.*





## Organizing Committee

The EUCOP5 is the result of the effort of many individuals organized in a Local Organizing Committee.

- Chloé BARBOUX, *University of Fribourg, Switzerland*
- Xavier BODIN, *EDYTEM Lab, France*
- Edoardo CREMONESE, *ARPA Valle d'Aosta, Italy*
- Reynald DELALOYE, *University of Fribourg, Switzerland*
- Philip DELINE, *EDYTEM Lab, France*
- Christophe LAMBIEL, *University of Lausanne, Switzerland*
- Florence MAGNIN, *University of Oslo, Norway*
- Umberto MORA DI CELLA, *ARPA Valle d'Aosta, Italy*
- Paolo POGLIOTTI, *ARPA Valle d'Aosta, Italy*
- Ludovic RAVANEL, *EDYTEM Lab, France*
- Philippe SCHOENEICH, *Université Grenoble Alpes, France*

## Special Thanks

This event was possible thanks to the many people who invested time and energy :  
A motivated team of volunteers :

Anthoni BARBE, Bastien CHARONNAT, Joseph DREVON, Pierre-Allain DUVILLARD, Thomas ECHE-LARD , Grégoire GUILLET, Antoine GUILLEMOT, Marco MARCER, Guilhem MARSY, Tamara MATHYS, Simon MEYNIER, Jacques MOUREY, Renée OBREGON, Mélanie RAMUSOVIC, Dilan RECH, Maxence Reggazzoni, Sebastin RUIZ, Hideyuki TAKADAMA, Maria WINTERBERGER.

The *Bureau des Congrès de Chamonix* team, and especially Maud RAVANEL.



## International scientific committee

- Ben Abbott, *Michigan State University, USA and Observatoire des Sciences de l'Univers de Rennes, CNRS, France*
- Michel Allard, *Centre d'Etudes Nordiques, Université Laval, Québec, Canada*
- Lukas Arenson, *BGC Engineering Inc., Vancouver, Canada*
- Annett Bartsch, *Zentralanstalt für Meteorologie and Geodynamik, Wien, Austria*
- Pascal Bertran, *Institut National de Recherches en Archéologie Préventive, Pessac, France*
- Hanne Christiansen, *President of IPA, Arctic Geology Department, University Centre in Svalbard, Norway*
- François Costard, *Département des Sciences de la Terre, Université Paris-Sud, Orsay, France*
- Mauro Guglielmin, *Dipartimento di Scienze Teoriche e applicate, Università degli Studi dell'Insubria, Varese, Italy*
- Christian Hauck, *Department of Geosciences, University of Fribourg, Switzerland*
- Atsushi Ikeda, *School of Life and Environmental Sciences, University of Tsukuba, Japan*
- Hugues Lantuit, *Helmholtz Centre for Polar and Marine Research, Alfred Wegener Institute, Potsdam, Germany*
- Alexey Maslakov, *Department of Cryolithology and Glaciology, Lomonosov Moscow State University, Russia*
- Jeannette Noetzli, *WSL Institute for Snow and Avalanche Research SLF, Davos, Switzerland*
- Britta Sannel, *Institutionen för Naturgeografi, Stockholms Universitet, Sweden*
- Dmitri Sergeev, *Sergeev Institute of Environmental Geoscience, Moscow, Russia*
- Dario Trombotto, *IANIGLA, CONICET, Mendoza, Argentina*
- Petru Urdea, *Departamentul de Geografie, Universitatea de Vest Timișoara, Romania*
- Gonzalo Vieira, *Instituto de Geografia e Ordenamento do Território, Universidade de Lisboa, Portugal*
- Sebastian Westermann, *Department of Geosciences, University of Oslo, Norway*



5<sup>th</sup> EUROPEAN CONFERENCE ON PERMAFROST

# EUCOP5

CHAMONIX MONT-BLANC

