



EUCOP5

CHAMONIX MONT-BLANC

FRANCE

23th June - 1st July 2018

PYRN

WORKSHOP PROGRAM



EUCOP5
CHAMONIX MONT-BLANC

Table of contents

Welcome to PYRN Workshop at EUCOP 2018!.....	2
General information.....	3
Detailed program.....	4
Congress center.....	6
Plenary sessions.....	7
Breakout sessions.....	14
Access.....	17
Organizing committee and sponsors.....	18

Welcome to PYRN Workshop at EUCOP 2018!

We are excited to welcome you to this 2-day Permafrost Young Researchers Network Workshop on June 23rd and 24th in Chamonix, France. More than 150 young permafrost researchers from different backgrounds and based across the world are attending the workshop. We hope that this event will be a great opportunity for you to get to know each other and develop long-lasting professional relationships!

Over the course of this 1-day indoor workshop and 1-day local excursion, 15 junior and senior speakers will be sharing their knowledge and experience on diverse subjects ranging from scientific permafrost topics to soft skills development- and even local environmental sciences.

This workshop will also be an occasion for the current 2016-18 PYRN ExCom to reflect on the past two years of PYRN activities and pass the torch to the new PYRN 2018-20 ExCom, who are eager to help support permafrost science and promote young researchers in their activities.

We are very much looking forward to meeting you and sharing this time with you!

Sincerely,

Florence Magnin

On behalf of the PYRN ExCom

General information

The PYRN Workshop is held in conjunction with the EUCOP 5 and aims at bringing together permafrost students and young researchers. The workshop is free of charge. The program outlines are as follow:

Friday June, 22nd 2018

Opening of the registrations at 18.00 at the Chamonix Youth Hostel. Welcoming ice-breaker for PYRN participants starting at 18.30 at the Chamonix Youth Hostel (*see p.17 for access*).

Saturday June, 23rd 2018

Introduction to PYRN activities by the PYRN ExCom, plenary lectures and breakout sessions led by outstanding senior and junior scientists covering major permafrost topics, career planning, research perspectives, and soft-skills development from 8.45 to 18.00 (*see the detailed program p.4-5*).

Sunday June, 24th 2018

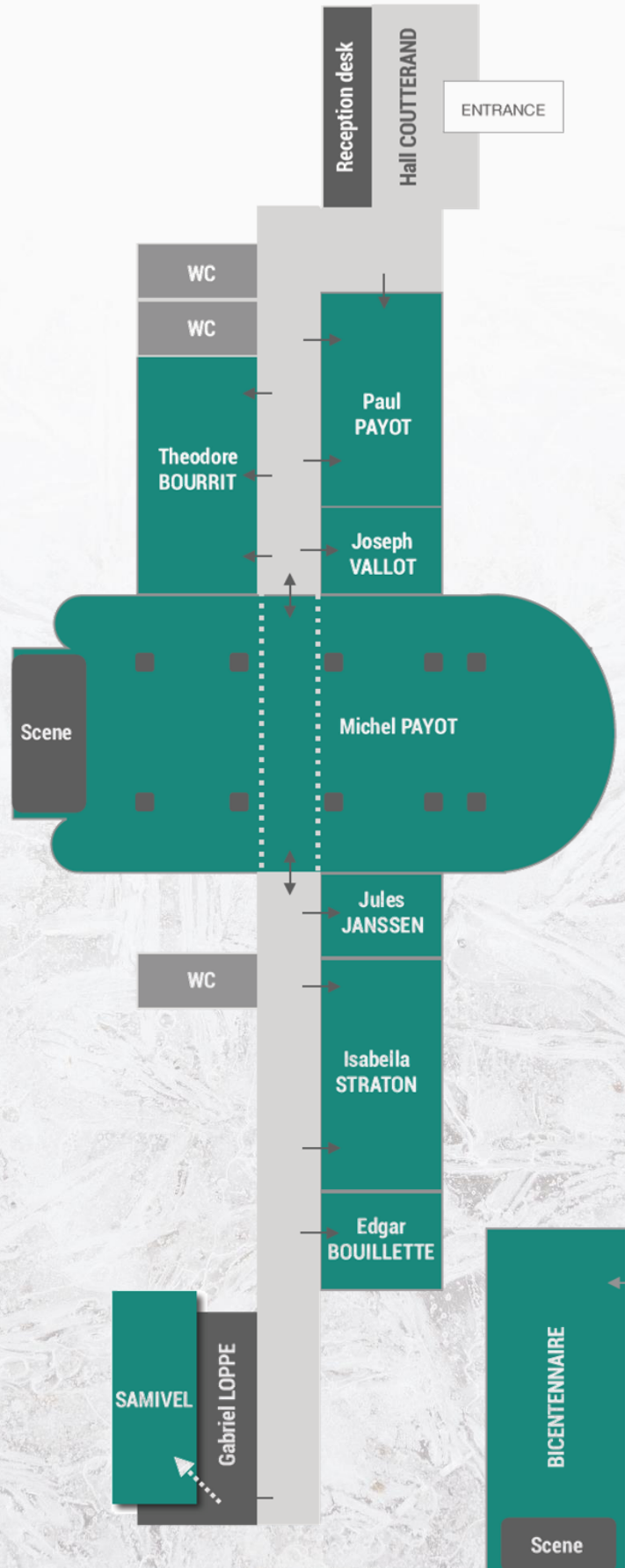
Introduction to mountain permafrost and engineering issues followed by a local excursion led by outstanding local researchers to learn about environmental settings and land-planning issues in the Mont Blanc massif.

Detailed program

Day	Time	Program		
Friday, 22 nd	18.00	Opening of the registrations at the Chamonix Youth Hostel		
	19.00	PYRN Ice-breaker		
	22.00	Shuttles to go back to Chamonix center		
Saturday, 23 rd	8.30	Introduction to the PYRN Workshop – Room M. Payot		
	8.45	Plenary 1/ Living on Permafrost–Stories from Arctic Communities <i>Louis Philippe Roy</i> – Room M. Payot		
	9.30	Plenary 2/ Permafrost in global climate models – Improving links between field researchers and modelers <i>Sarah Chadburn</i> – Room M. Payot		
	10.15	Coffee Break		
	10.45	Breakout 1 (to choose)		
		Conducting researches with and for local communities – intended and unintended consequences <i>Jean Paul Vanderlinden</i> Room Straton	Bringing remote sensing to the field: using new technologies to improve field-work <i>Sebastian Westermann</i> Room Bourrit	How to write a great proposal <i>Philip Bonnaventure</i> Room P. Payot
		Breakout 2 (to choose)		
	11.30	Conducting researches with and for local communities – intended and unintended consequences <i>Jean Paul Vanderlinden</i> Room Straton	Bringing remote sensing to the field: using new technologies to improve field-work <i>Sebastian Westermann</i> Room Bourrit	How to write a great proposal <i>Philip Bonnaventure</i> Room P. Payot
		12.15 Lunch (Hall Coutterand - Majestic congress center)		
	13.30	Plenary 3/ Field work preparedness: it's much more than the science <i>Mélissa J. Lafrenière</i> – Room M. Payot		
	14.15	Plenary 4/ The PhD and what comes next: opportunities in and beyond academia <i>Jens Strauss and Philip Bonnaventure</i> – Room P. Payot		
	15.15	Breakout 3 (to choose)		
		Bridging the gap between science and engineering <i>Guy Doré</i> Room Straton	Cartoons and international collaborative project for ERCs <i>Ylva Shöberg</i> Room Bourrit	Teaching and communicating effectively <i>Margaretta Johansson</i> Room P. Payot

Day	Time	Program		
Saturday, 23 rd	16.00	Coffee Break		
	16.30	Breakout 4 (to choose)		
		Bridging the gap between science and engineering <i>Guy Doré</i> Room Straton	Cartoons and international collaborative project for ERCs <i>Ylva Shöberg</i> Room Bourrit	Teaching and communicating effectively <i>Margaretta Johansson</i> Room P. Payot
17.30	PYRN General Assembly and information for the local excursion Room M. Payot			
Sunday, 24 th	9.00	Plenary 5/ Overview of mountain permafrost research: past developments and future challenges <i>Martin Hoelzle</i> – Room M. Payot		
	9.45	Plenary 6/ Engineering and geotechnical challenges in mountain permafrost areas <i>Lukas Arenson</i> – Room M. Payot		
	10.30	Coffee break		
	11.00	Grab your lunch and move to the cable car station		
	11.20	Cable car lift to the top of the Brevent		
	12.00	Plenary 7/ Regional geological and local morphodynamics approaches to the Mont Blanc <i>Marco Giardino</i>		
	12.45	Plenary 8/ Glaciological observations in the Mont Blanc massif <i>Delphine Six</i>		
	13.30	Plenary 9/ 200 years of geomorphic history of the Arveyron of the Mer de Glace <i>Johan Berthet</i>		
	14.00	Plenary 10/ Introduction to the permafrost and hanging glaciers studies in the Mont Blanc massif and their impact on the mountain infrastructures and practices <i>Florence Magnin, Marco M. Marcer, Pierre-Allain Duvillard, Jacques Mourey and Grégoire Guillet</i>		
	15.00	Free time to the discover the Brevent site		
16.00	Last return trip to Chamonix			

Congress center



Plenary sessions

Living on Permafrost - Stories from Arctic Communities

M.Sc. Louis-Philippe Roy, Yukon Research Center, Whitehorse, Canada



With our warming climate, the thawing of permafrost is modifying the ecosystems and changing how northerners interact with their environment. In this presentation, we will talk about the challenges and the realities of the people and communities living on permafrost.

Permafrost in global climate models: Improving links between field researchers and modelers

Dr. Sarah Chadburn, University of Exeter, UK



As most PYRN members know, permafrost plays an important role in the Arctic, but also in the Earth System as a whole. This is motivating major efforts to include permafrost processes in the latest Earth System Models. Modelling permafrost on a global scale is a huge challenge. Most of the important processes happen below the ground, and so to develop, constrain and evaluate realistic models, on-the-ground data is vital. This presents challenges on both sides: global modellers are often used to using global data products, so discovering how to use local-scale observations in large-scale modelling is a new challenge for us. From the other side, most field campaigns are designed to answer particular scientific questions and can miss out key measurements that make the data valuable for modelling. To realise the full potential of large-scale permafrost modelling is a joint effort. We need to talk and learn from each other, and the best results come from working directly together. I will discuss some great examples of successful collaborations and consider what we can do to improve on this in future.

Field work preparedness: it's much more than the science

Prof. Melissa J., Lafrenière, Department of Geography and Planning, Queen's University, Kingston, Canada



When planning for our field studies, we often start conceptualizing and laying the ground work for the science many months (sometimes even years) in advance. Although careful study design and logistics planning are essential, these are not necessarily the most important aspects of field work preparedness. A successful field season also depends heavily on being prepared for many other critical aspects of field research: permitting, field safety, team planning, and follow up amongst other key elements. This session will review and discuss the critical elements that are required for being prepared

for the science, safety, and psychology required to carry out a successful field research in remote locations.

The PhD and what comes next: opportunities in and beyond academia

Dr. Jens Strauss, Alfred Wegener Institut, Potsdam, Germany

Dr. Philip Bonnaventure, University of Lethbridge, Canada

A subjective view on opportunities for young scientist continuing their science



Finishing a PhD is a big milestone: you proved to work successfully in dealing with one topic on a defined timeframe. But, how to continue after the PhD? In this talk, I would like to share my experiences to continue in academia and explain how I got a post-doc position. I will briefly show how I acquired money for my own position, but also for other people working with me. Overall, I would like to share my view on how to continue research with own projects, to deal with more and more management tasks and to work on different projects at the same time.

The journeyman grind of the modern scientist post Ph.D.



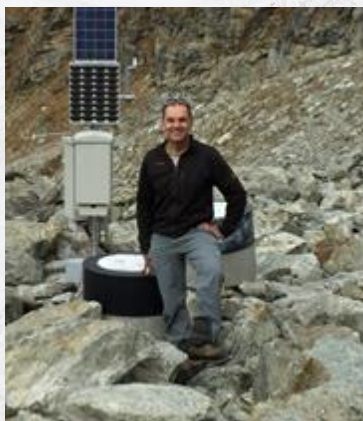
Applying for positions in academics, government or industry following your Ph.D. is a time consuming, regularly frustrating process often leaving you with many unanswered questions. This talk will focus on trying to understand how the process works and how to build your team of supporters for success in today's postgraduate climate. This talk will draw from my personal experience post PhD examining the ups and downs that come in the academic world... to this point at least.

Talk learning goals:

- Is a career in academics realistic for you?
- How do I build an application for a position in today's academic climate?
- How to survive in academics post postdoc.
- Learning how to lose out on a position and being alright with it.
- How to build your team of supporters.

Overview of mountain permafrost research: past developments and future challenges

Prof. Martin Hoelzle, University of Fribourg, Switzerland



Mountain permafrost is very sensitive to climatic changes, potential consequences of its evolution on surface processes, landscape dynamics and natural hazards in high-alpine environments makes knowledge about the temporal and spatial processes fundamentally important also for human beings living in highly populated mountain environments. However, the discussed research field is still a relatively young research topic starting its main activities as recently as in the 1970/80s. Though, during the last 30 to 40 years the combination of new technologies (such as geophysics or remote sensing), mid-to long-term monitoring with different modelling approaches improved our general process understanding and allows today to answer current highly relevant research questions related to surface processes and natural hazard. The paper will discuss some important past developments and tries to outline some future challenges.

Engineering and geotechnical challenges in mountain permafrost areas

Dr. Lukas Arenson, BGC Engineering Inc., Vancouver, Canada



Historically, the design of infrastructure is based on standard factors of safety that have been developed using past information and experience. However, in response to climate change, rapid changes in the permafrost environment in the mountains around the world result in this traditional approach being potentially unsafe. Therefore, new design concepts and strategies are required that consider potential changes in the foundation condition as the permafrost warms and unprecedented climate events. This presentation will highlight these challenges and introduce a risk-based approach for geotechnical site investigations and the design of infrastructure in mountain permafrost.

Regional Geological and Local Morphodynamic approaches to the Mont Blanc

Prof. Marco Giardino, Department of Earth Sciences, University of Torino, Italy



The field trip to the Brévent summit (2530 m a.s.l., Aiguilles Rouges massif) is a live introduction to the alpine landscape and the (geo)physical characteristic of the Mont Blanc massif. A twofold analysis of the relationships between geology and geomorphology of the massif will be proposed: a regional geological approach (RGA) and a local morphodynamic approach (LMA).

Application of the RGA analysis of large-scale, long-term geomorphological, lithological and structural features of the Aiguille Rouges and Mont Blanc Massif will start during the 1500 m ascent by cable car to the Brévent, when perceiving the high energy relief of the area and the powerful morphogenetic work occurred up to the present-day modeling of this imposing alpine landscape. The litho-structural units (Variscan polymetamorphic rocks, Mont Blanc Granite, Carboniferous schists, Dauphinois and Helvetic sedimentary covers), the km-wide Mont Blanc Shear Zone and other main tectonic discontinuities (thrusts and faults) will be described first as paleogeographic and tectonic markers of long-term evolutionary stages in the history of the external part of the Europe-verging Alpine chain. Therefore, lithological characters and general structure of the Massif (a series of listric wedges separated by steep fault zones) will be interpreted as general conditioning factors for modeling and stability of the mountain relief. In the long-term “geological” perspective, they represent independent variables, offering a “static” conditioning to the regional geomorphological system (e.g. constraints on hydrographic network, predisposition to natural instability as “internal” causes, lowering shear strength of slopes material).

Application of the LMA approach will follow, when describing the panoramic view of the NW side of the Mont Blanc massif. Some of its main summits over 4000 m in altitude (Aiguille Verte, Grandes Jorasses), the beautiful peaks of the Dru and the Aiguilles de Chamonix (Grands Charmoz, Blaitière, Plan), and other impressive landforms of the glacially sculpted massif will be observed. Remote recognition of local features (small scale heterogeneity of geomechanical properties, landforms indicating active geomorphological processes) will offer some relevant clues for: 1) understanding recent and present day mechanisms of relief evolution, 2) interpreting dynamic factors of natural instabilities (e.g. “external” causes of slope instability, increasing shear stress), and 3) contributing to process modelling and hazards assessment in this fragile high mountain environment, deeply affected by climate change.

Glaciological observations in the Mont Blanc massif

Dr. Delphine Six, University Grenoble-Alpes, CNRS, IRD, INP-G. IGE, Grenoble, France



Glacier monitoring in the Mont-Blanc massif is of major interest for both scientists and local communities. On the French side of the Massif, two glaciers have been routinely monitored for decades, the Mer de Glace and the Argentière glacier. Mass balances, ice velocity, thicknesses, lengths are measured annually on these glaciers. They are very good indicators of the climate. On the other hand, natural hazards of the glaciers of Tête Rousse and Tacconnaz are followed in a more episodic way. Sites, techniques, measurements and rapid results will be presented to the audience.

200 years of geomorphic history of the Arveyron of the Mer de Glace

Dr. Johan Berthet, Styx4D company, EDYTEM Lab., CNRS, University of Grenoble-Alpes, University of Savoie Mont-Blanc, CNRS, Le Bourget du Lac, France



Present Mer de Glace shrinking is fast and outstanding. Beyond the impact on the landscape, the retreat of the glacier tongue has deep and concrete effects downstream on the Arveyron of the Mer de Glace which is the emissary of the glacier. Moraines which are discovered by the ice could be a strong risk since they represent a potential volume of sediment which could increase the geomorphic activity of the stream. However, the results of our researches are counterintuitive. Since end of the Little Ice Age, 200 years ago, the Mer de Glace retreat has implied a

decreasing activity of the Arveyron because of the longer distance between the valley bottom and the active proglacial margin. At the early 19th century, the glacier's tongue reached the Chamonix valley bottom, 2.5 km away from the downtown. Thus, the level of sediment connectivity between the proglacial margin and the Arve River, which is the trunk stream of the valley, was very high as illustrated by the existence of several emissaries, which are now totally extinct. Presently, the end of the Mer de Glace takes place in a hanging valley, more than 5 km away from Chamonix. The proglacial margin is very active, especially because of the erosion of the large right lateral moraine, but this geomorphic activity hasn't spread downstream. Consequently, the level of sediment connectivity with the Arve River is now very low, even if the current evolution of the Arveyron is also linked to the presence of a unique hydropower plant, which withdraws the main part of the water flow below the Mer de Glace. However, this global trend doesn't exclude high magnitude events, such as the – not famous but highly morphogenic – 1920's water pocket outburst flood.

Introduction to the permafrost and hanging glaciers studies in the Mont Blanc massif and their impact on the mountain infrastructures and practices

Dr. Florence Magnin, Department of Geosciences, University of Oslo, Norway

M.Sc. Marco M. Marcer, Institut de Géographie Alpine, Université Grenoble Alpes, Grenoble, France

M.Sc. Jacques Mourey, Université Grenoble Alpes, Université Savoie Mont-Blanc, EDYTEM Lab., CNRS, Le Bourget du Lac, France

M.Sc. Pierre-Allain Duvillard, IMSRN, Université Grenoble Alpes, Université Savoie Mont-Blanc, EDYTEM Lab., CNRS, Le Bourget du Lac, France

M.Sc. Grégoire Guillet, IMSRN, Université Grenoble Alpes, Université Savoie Mont-Blanc, EDYTEM Lab., CNRS, Le Bourget du Lac, France



Permafrost investigations in the Mont Blanc massif have started in the mid-2000s, together with the systematic investigation of rock falls which frequency have remarkably increased over the past two to three decades, especially during hot summers. The Aiguille du Midi (3842 m a.s.l) has become a pilot site in the study of rock wall permafrost, with temperature sensors installed at the rock surface and in three 10 m deep boreholes, as well as many other monitoring instruments (automatic cameras, extensometers, ...). Various permafrost models and maps have been produced to investigate the current permafrost distribution and changes over the past and next centuries. Recent studies are focusing on the risks of destabilizations of the mountain infrastructures, on the effect of permafrost degradation and deglaciations on mountain practices as well as on hanging glaciers, which interactions with the steep slope permafrost is not known, and which destabilization also constitute a source of risk for infrastructures and people. During this talk, we will give you an overview of the permafrost researches in the Mont Blanc massif and on the investigations of its impacts on infrastructures and mountain practices.

Breakout sessions

Conducting researches with and for local communities - intended and unintended consequences

Prof. Jean-Paul Vanderlinden, University of Versailles, Saint-Quentin-en-Yvelines, France



If one projects oneself further into the twenty-first century, taking stock of what is known today about the future, one quickly recognizes the need to develop new strategies to face the rapid changes that arctic will be going through. Adaptation, at a pace rarely known to humankind, even in the arctic, may very well be the most challenging endeavor for local communities. Using adaptation to climate change as a case study, we explore, in various settings, arctic and non-arctic - with and without permafrost -, how research with and for local communities is currently occurring. Through the analysis of our fieldwork we show that so-called transdisciplinary science making does have consequences, some of which are unintended. We will extrapolate these results to the challenge of analyzing the local risks associated to permafrost thaw.

Bringing remote sensing to the field: using new technologies to improve fieldwork

Prof. Sebastian Westermann, Department of Geosciences, University of Oslo, Norway



Freely available satellite data products are great tools to remotely characterize the climate and environment in permafrost regions. They are highly useful for planning field work, keeping track of conditions between field visits and upscaling results in space and time. In this workshop, we will go through basic principles of different remote sensing techniques and present a range of free data portals. Towards the end, we will try to remotely check out field conditions for (some of) the participants' field sites (depending on internet connection).

How to write a great proposal

Dr. Philip Bonnaventure, University of Lethbridge, Canada



Proposal writing can be one of the most difficult parts of the scientific process, but at the same time forces one to examine the details of the proposed research in a way that is not common on a day-to-day basis and is truly advancing. As a result, this process can help shape and define the research program and vision of a scientist. This session will help young scientists understand how to concentrate and apply the vision they have into a research grant that studies and builds on what defines their scientific curiosity.

Bridging the gap between science and engineering

Dr. Guy Doré, Department of Civil Engineering, Laval University, Québec City, Canada



Scientists seek to understand phenomena, the behavior of matter and the interaction between the components of complex systems. They find satisfaction in the development of new knowledge. Engineers plan, design, build, manage and maintain the works needed for human activities. They make decisions based on reliable properties and models. They find satisfaction in the development of safe and high-quality infrastructure. Scientists and engineers need each other but don't always speak the same language and get along easily. Can we help to bridge the gap?

Teaching and communicating effectively

Dr. Margareta Johansson, Department of Physical Geography and Ecosystem Science, Lund University, Sweden



Many of us teach as part of our PhD. Few of us have actually received extensive training in teaching methods. Teaching is a difficult but also joyful and very important task. In this BS session we get together to discuss different approaches to teaching, problems and strategies we have found to efficiently communicate our research and science.

Cartoons and international collaborative projects for ECRs

Dr. Ylva Sjöberg, Department of Physical Geography, Stockholm University, Sweden



What is it like to work in an IPA action group? How can you work with artists to communicate permafrost research to the public? In this session, we will talk about advantages and challenges for early career scientists taking the lead in international collaborative communication projects, based on experiences from the Frozen Ground Cartoon project. Some active, collaborative, and creative engagement from the participants will be demanded during the session. The aim is that after the session, participants will be inspired to take charge creative projects, and have some tools and new international connections for doing so.

Access

PYRN Ice-Breaker

The PYRN Ice breaker will be held at the Chamonix Youth Hostel
127 Montée Jacques Balmat, 74400 Chamonix-Mont-Blanc
+33 4 50 53 14 52

<http://www.hifrance.org/auberge-de-jeunesse/chamonix-mont-blanc.html> :

Bus Line 2 (from about 7.00 to 20.30) Stop: «Auberge de Jeunesse»

<http://chamonix.montblancbus.com/en/bus-lines>

It is 10-15 min walking distance from the Pèlerin train station

Majestic Congress Center

The indoor workshop activities will be held in the Majestic congress center.
241 allée du Majestic, 74400 Chamonix-Mont-Blanc
+33(0) 4 50 53 80 83

<https://www.chamonix.com/centre-des-congres-le-majestic,48-63803,en.html>

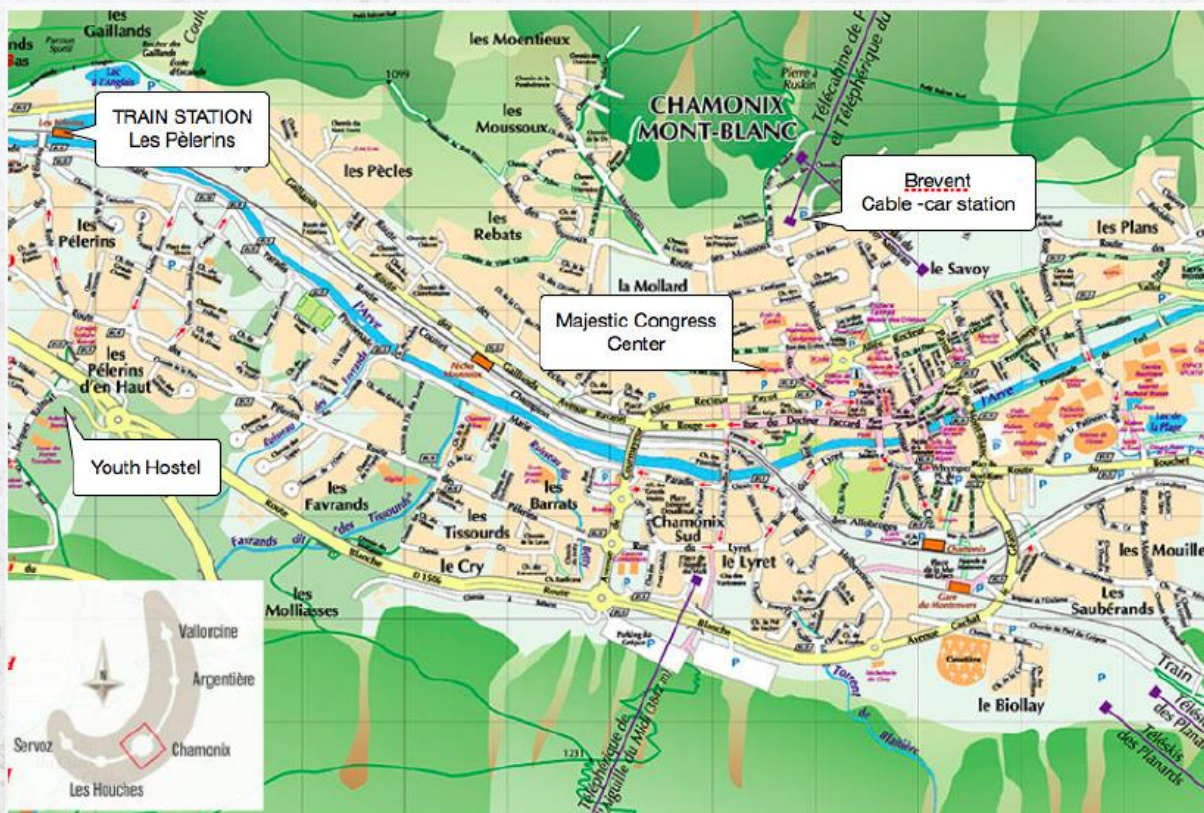
Bus stop is "Chamonix Centre"

Brevent Cable car

The local excursion will take place on top of the Brevent cable car.

Departure station is 5-10 min walking from the Majestic congress center at:
29 Route Henriette d'Angeville, 74400 Chamonix-Mont-Blanc

<https://www.chamonix.com/planpraz-brevent,82,en.html>



Organizing committee and sponsors

The EUCOP 2018 is the result of the effort of many individuals organized in an international organizing committee.

PYRN ExCom

Simon Dumais	Justine Ramage	Florence Magnin
Helena Bergstedt	Caroline Coch	Joanne Heslop
Alexey Maslakov	Denis Frolov	Alevtina Evgrafova
Jannik Martens	Daniel Vecellio	Mingyi Zhang
Anna Bobrik		

Local Young Researchers

Florence Magnin	Pierre-Allain Duvillard	Jacques Mourey
Marco M. Marcer	Grégoire Guillet	Guilhem Marsy
Simon Meynier		

The PYRN Workshop is made possible through the financial and in-kind support of sponsors:



Université
franco-allemande
Deutsch-Französische
Hochschule

