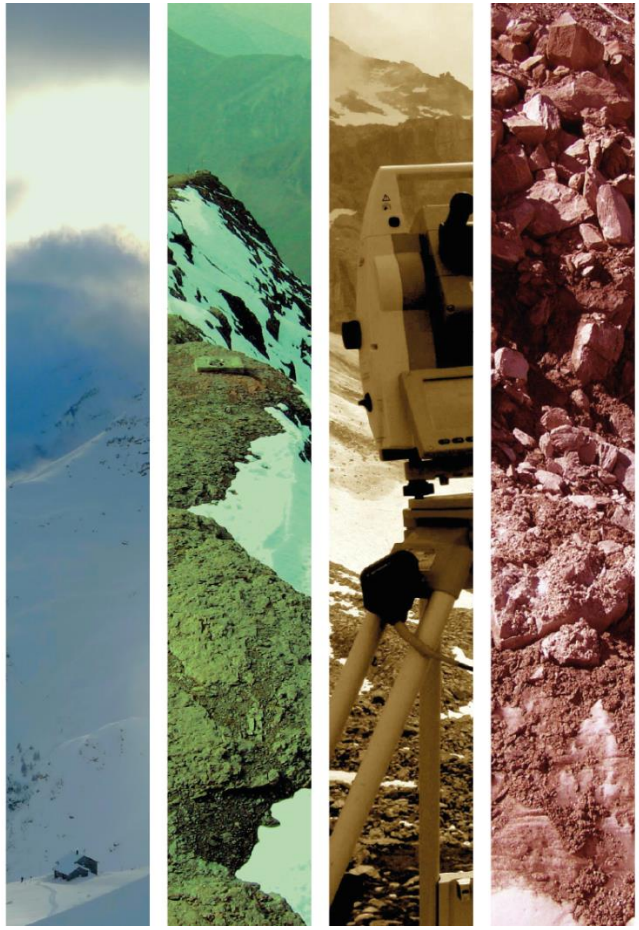

«The Evolution of Mountain Permafrost»

# Final Symposium of the TEMPS Project

## 4–5 February 2015

## Sion | Valais | Switzerland

– 2nd Circular –

The Evolution of Mountain Permafrost in Switzerland

## The TEMPS project

The SNF-funded SINERGIA project **The Evolution of Mountain Permafrost in Switzerland – TEMPS** consists of 4 subprojects TEMPS A-D and combines scientists from atmospheric and cryospheric sciences, geomorphology, geophysics, geography and remote sensing. Based on the Swiss permafrost monitoring network PERMOS, monitoring data were analysed and combined with model simulations using a dynamic process-oriented permafrost model and Regional Climate Model simulations. Plausible evolution scenarios for specific permafrost sites were created and interactions between atmosphere and permafrost were investigated focusing on the evolution of ground temperature, ice content and related degradation and creep processes.

The main objective of TEMPS and the final symposium is an improved understanding of the vulnerability of mountain regions to permafrost changes and to assess the current and future impacts on the Swiss Alps. The 2-day symposium will include the presentation of the main project results, invited lectures on mountain permafrost research and a specific practitioner's day (German/French) to strengthen the relation between science and practice. All permafrost interested practitioners and scientists are cordially invited to join the symposium.

## Programme

**4 February 2015: "Evolution of Mountain Permafrost: data, methods, modelling"**
Language: English | Oral sessions & poster session (Poster contribution open to everyone)

**5 February 2015: "Risks and challenges of permafrost degradation"**
Language: French / German | Oral sessions & final discussion

**6-7 February 2015: Excursion to the upper Réchy valley** (2 days, ski-touring)

## Registration | Venue | Contact

### Registration

www.temps-symposium.ch

**Deadline:** 9 Jan 2015

**Conference fee:** 100 CHF
(students/AHV: 50 CHF)

### Contact

Valentine Fasel, University of Fribourg
info@temps-symposium.ch

### Venue

University of Applied Sciences and Arts Western Switzerland (HES-SO) in Sion
(François-Xavier Bagnoud conference room)

**Address:**
HES-SO Valais, Haute Ecole d'Ingénierie
Route du Rawyl 47
1950 Sion 2 / Switzerland

**For more information see:** www.temps-symposium.ch

CANTON DU VALAIS
KANTON WALLIS

Département des transports, de l'équipement et de l'environnement
Service des forêts et du paysage

Departement für Verkehr, Bau und Umwelt
Dienststelle für Wald und Landschaft

# Programme

## 4 February 2015
## The evolution of mountain permafrost

### Introduction

10:00 **Intro & Welcome** | C. Lambiel (Uni Lausanne)

10:05 KEYNOTE: **Climate change and impact on mountain cryosphere in the Alps - an overview** | W. Schöner (Uni Graz)

10:40 **The TEMPS project: The evolution of mountain permafrost in Switzerland** | C. Hauck (Uni Fribourg)

11:00 COFFEE BREAK

### Session I: Long-term permafrost monitoring

11:30 KEYNOTE: **Permafrost monitoring on the summit of Mt. Fuji, Japan** | A. Ikeda (University of Tsukuba)

12:05 **Permafrost Monitoring in Switzerland: the concept of PERMOS** | J. Noetzli (Uni Zürich/PERMOS)

12:25 **Key messages from observational mountain permafrost research** | B. Staub (Uni Fribourg)

12:45 LUNCH BREAK

### Session II: Permafrost kinematics & processes

13:45 **Kärpf landslide - the role of ice filled fractures on deep seated rock slope deformations** | F. Amman (ETH Zürich)

14:05 **Rockglacier Landform Evolution - A modelling approach** | J. Müller (Uni Zürich)

14:25 **An extensive kinematic analysis of a rock glacier in the Swiss Alps** | T. Buchli (ETH Zürich)

14:45 **Short term variability of diverse mountain permafrost slope movements** | V. Wirz (Uni Zürich)

15:05 COFFEE BREAK

### Session III: Climate change and modelled permafrost evolution

15:35 KEYNOTE: **Permafrost modeling across different scales** | S. Westermann (Uni Oslo)

16:10 **Climate scenarios for the Alpine space I: Overview** | S. Kotlarski (ETH Zürich)

16:30 **Climate scenarios for the Alpine space II: Downscaling and bias correction** | J. Rajczak (ETH Zürich)

16:50 **Multi-sites long-term modelling of mountain permafrost in Switzerland: from calibration to projection** | A. Marmy (Uni Fribourg)

### Session IV: Poster session (with beer/wine & apero)

17:15 – 18:45 **Poster contribution open to everyone**

20:00 CONFERENCE DINNER

## 5 February 2015
## Risks and challenges of permafrost degradation

### Session V: Climate change and thawing permafrost: risks and challenges

09:00 **Le permafrost et son évolution dans les Alpes Suisse – les résultats du projet TEMPS en regard de la pratique** | R. Delaloye (Uni Fribourg)

09:15 **Permafrost et glace de sous-sol dans les dépôts sédimentaires de haute montagne** | C. Lambiel (Uni Lausanne)

09:30 **Glaciers rocheux déstabilisés dans les Alpes valaisannes: exemples et causes possibles**| L. Braillard (Uni Fribourg)

09:45 **2005-2015: 10 ans de questionnements sur les écroulements rocheux et le permafrost dans le massif du Mont Blanc** | L. Ravanel (Uni Savoie)

10:00 **Infrastruktur und Bauen im Permafrost** | M. Phillips (SLF Davos)

10:15 **Discussion**

10:40 COFFEE BREAK

### Session VI: New methods for permafrost investigation

11:10 **Systemauswahl und Konzepte für geodätische Überwachungsmessungen im Permafrost** | R. Kenner (SLF Davos)

11:25 **Echtzeit Permafrost Monitoring im Mattertal** | J. Beutel (ETH Zürich)

11:40 **Geophysikalische Methoden zur Beobachtung von Tauprozessen und Eisgehaltsquantifizierung im Permafrost** | C. Hilbich (Uni Fribourg/ Uni Zürich)

11:55 **Methodische Fortschritte zur Überwachung instabiler, hochalpiner Felswände** | M. Keuschnig (alpS Innsbruck)

12:10 **Discussion**

12:45 LUNCH BREAK

### Session VII: Case studies

13:45 *To be announced* | H. Rovina (Rovina + Partner)

14:00 **Permafrostveränderungen und Instabilitäten in steilem Fels** | L. Fischer (Geotest)

14:15 **Permafrost – Eine Schlüsselgrösse in der Gefahrenhinweiskarte Periglazial** | P. Mani (Geo7)

14:30 **Systemwechsel in Wildbächen nach Felssturz im Periglazialbereich des Einzugsgebiets - Zwei Fallbeispiele aus dem Berner Oberland** | N. Hählen (Kanton Bern)

14:45 **Discussion**

15:00 COFFEE BREAK

### Session VIII: Synthesis & discussion

15:30 **Synthèse pour l'opérationnel: lien entre recherche et pratique** | E. Bardou (CREALP)

15:45 **Discussion**

17:00 END OF SYMPOSIUM

## 6-7 February 2015
## Excursion

**Programme:** 2-day ski-touring excursion to the Becs-de-Bosson and Tsavolires rock glaciers (permafrost kinematics monitoring site) in the upper Réchy valley. Overnight stay in a mountain hut at ~3'000 m asl.

**Day 1:** Access to the area, ski-touring to the permafrost sites and access to the hut / **Day 2:** Ski-touring excursion with a long final downhill part / End of excursion: early afternoon in Sion

**Organisation:** Reynald Delaloye, reynald.delaloye@unifr.ch

**Costs:** 150 CHF (including transportation from and to Sion, cable-car, hut accommodation, dinner and breakfast, mountain guide)

**Registration deadline:** 9 Jan 2015 / max. 20 participants
Further details are provided on the website.