

FICHE NAVETTE: DOCTORANTS IDEX

SECTOR : Higher Education Institution

LOCATION: France, Grenoble

RESEARCH FIELD: **RISK MODELLING, ASSESSMENT AND MANAGEMENT, REMOTE SENSING, GEOMORPHOLOGY**

RESEARCHER PROFILE:

- *First stage researcher (Master Degree level required)*

INSTITUTION: Univ. Grenoble Alpes, University of Innovation

One of the major research-intensive French universities, Univ. Grenoble Alpes¹ enjoys an international reputation in many scientific fields, as confirmed by international rankings. It benefits from the implementation of major European instruments (ESRF, ILL, EMBL, IRAM, EMFL²). The vibrant ecosystem, grounded on a close interaction between research, education and companies, has earned Grenoble to be ranked as the 5th most innovative city in the world. Surrounded by mountains, the campus benefits from a natural environment and a high quality of life and work environment. With 7000 foreign students and the annual visit of more than 8000 researchers from all over the world, Univ. Grenoble Alpes is an internationally engaged university.

A personalized Welcome Center for international students, PhDs and researchers facilitates your arrival and installation.

In 2016, Univ. Grenoble Alpes was labeled "Initiative of Excellence". This label aims at the emergence of around ten French world class research universities. By joining Univ. Grenoble Alpes, you have the opportunity to conduct world-class research, and to contribute to the social and economic challenges of the 21st century ("sustainable planet and society", "health, well-being and technology", "understanding and supporting innovation: culture, technology, organizations", "Digital technology").

Key figures:

- + 50,000 students including 7,000 international students
- 3,700 PhD students, 45% international
- 5,500 faculty members
- 180 different nationalities
- 1st city in France where it feels good to study and 5th city where it feels good to work
- ISSO: International Students & Scholars Office affiliated to EURAXESS

¹ Univ. Grenoble Alpes

² ESRF (European Synchrotron Radiation Facility), ILL (Institut Laue-Langevin), IRAM (International Institute for Radio Astronomy), EMBL (European Molecular Biology Laboratory), EMFL (European Magnetic Field Laboratory)

MANDATORY REFERENCES:

CDP TITLE: **RISK@Univ. Grenoble Alpes**

SUBJECT TITLE: **Emerging risks related to the 'dark side' of the Alpine cryosphere**

PRIMARY SCIENTIFIC DEPARTMENT (LABORATORY'S NAME): **EDYTEM**

SECONDARY SCIENTIFIC DEPARTMENT (LABORATORY'S NAME): **IGE**

PRIMARY DOCTORAL SCHOOL (where the candidate will be registered): **TUE**

SECONDARY DOCTORAL SCHOOL: **SISEO**

SUPERVISOR NAME(S): **Xavier Bodin (EDYTEM), Antoine Rabatel (IGE)**

CO-SUPERVISORS: **Emmanuel Trouvé (LISTIC), Philip Deline (EDYTEM)**

SUBJECT DESCRIPTION:

The current and future vulnerability of Alpine territories to the emerging hazards related to the degradation of the mountain cryosphere is largely unknown. Spatially, we have few clues on where exactly is located this 'hidden' cryosphere, and on where ice thawing and surface movements are occurring. Associated to the slope destabilization that may be triggered on the upper part of the catchments (Bodin *et al.*, 2017), cascading phenomena propagating downslope are thought to generate complex situations in terms of hazards. Regarding the controlling factors, there is still a lot of uncertainty on the respective roles of the climate evolution (Deline *et al.*, 2015) and of the morpho-topographic conditions (Rabatel *et al.*, 2013). In parallel, a growing number of human infrastructure and activities are present directly on cryospheric terrains (skiing facilities, mountain huts, trails...) or on the slopes and near the streams where cryospheric-related phenomenon may propagate down-valley.

Through this PhD thesis project, we aim at

- 1) mapping at high resolution the present 'dark side' of the cryosphere in the French Alps (Mont Blanc, Vanoise, Ubaye massifs) based on geomorphological features and surface changes quantified by remote-sensing (horizontal/vertical displacements; e.g. Dehecq *et al.*, 2016);
- 2) characterising the recent evolution (< 100 years) of those terrains, and of their watersheds in terms of risk related to the hidden cryosphere; and
- 3) providing to the French public authorities and territory managers a detailed hazard evaluation at the catchment scale for selected watersheds (in Mont Blanc, Vanoise and Ubaye).

ELIGIBILITY CRITERIA

Applicants:

- must hold a Master's degree (or be about to earn one) or have a university degree equivalent to a European Master's (5-year duration),

REQUIRED SKILLS

Benefiting from the skills and expertise of several CNRS, UGA and USMB research groups involved in the PhD project, the successful candidate will work with the following methods:

- remote sensing, with optical high resolution imagery, but also potentially with SAR images;
- photogrammetry applied to ancient and present spatial, aerial and terrestrial (including drone) images to evaluate the processes involved in hazardous phenomena and their controlling factors;
- GIS and spatial analysis applied to glaciological and geomorphological fields, using (very) high-resolution DEMs for deriving spatio-temporal changes, for assessing connectivity and evaluating cascading processes.

- Language: A good level in French and English is an asset

APPLICATION PROCEDURE

Applicants will attach a file including:

- Their CV
- A cover letter / letter of motivation
- A summary of previous work done/publications in Master 1 and Master 2
- A record of the grades of Master 1 and Master 2
- A copy of their last diploma

Address to send their application: xavier.bodin@univ-smb.fr, antoine.rabatel@univ-grenoble-alpes.fr

SELECTION PROCESS

Application deadline: **May 31, 2018** at 17:00 (CET)

Applications will be evaluated through a three-step process:

1. Eligibility check of applications on **June 7, 2018**
2. Selection: the applications will be evaluated by a Review Board in June 2018
3. Results will be given by **July 12, 2018**.

TYPE of CONTRACT: temporary-3 years of doctoral contract

JOB STATUS: Full time

HOURS PER WEEK: 35

CONTRACT STARTING DATE: **October 1, 2018**

APPLICATION DEADLINE: **May 31, 2018**

Salary: 1768.55 € gross per month