

Master subject:
Environmental seismology in glaciology: on the use of artificial intelligence to detect and classify microseismicity

Keywords: environmental seismology, glaciology, ambient seismic noise, natural hazards, mechanics

Profile and skills required

Master's degree or engineering degree in mechanics, physics, or geophysics, with strong interest in data processing. A broad interest in geosciences and/or natural hazards would be appreciated.

Project description

Within the national project on glacial and periglacial-related hazards, our team has deployed seismic sensors on various glaciers in the Alps. The goal is to better understand the mechanics of deformation and cracking of ice in glaciers and permafrost slopes, develop new imaging and monitoring tools for glacial and periglacial hazards, and develop early warning procedures to identify precursors and failure. The final goal is to help governmental and private stakeholders manage the risks.

During this project we will process continuous data obtained on or next to various glaciers. Micro-seismic detection can be performed with different algorithms, including emerging artificial intelligence-based new schemes. AI tools allow automatic classification of events that may be performed much faster than manual ones. Results will be compared to existing well-characterized catalogs.

Field experiments in the Alps will be part of the internship.

Please send your CV to : Eric.Larose@univ-grenoble-alpes.fr and Noelie.Bontemps@univ-grenoble-alpes.fr

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