

Relationships between Climate Change, permafrost and ecosystems in alpine periglacial, proglacial and glacial environments

Research Keywords: Climate Change, Permafrost, Periglacial ecosystems

Reference ERCs (*): PE10_13 Physical geography, PE10_18 Cryosphere, dynamics of snow and ice cover, sea ice, permafrosts and ice sheets, PE10_4 Terrestrial ecology, land cover change

Reference SDGs ():** GOAL 13: Climate Action, GOAL 15: Life on Land

Reference person: Guglielmin Mauro (mauro.guglielmin@uninsubria.it)

Host University: University of Insubria
Scienze Teoriche ed Applicate

Research topic

The research will be focused on the analyses of the impacts of the climate change on the high mountain environment with particular regard to the permafrost and the periglacial, proglacial and glacial environment and the related ecosystems. In these areas permafrost is thawing almost everywhere as well as glaciers are retreating, thinning and covering by debris, both these processes are changing deeply the alpine landscape and are triggering surface instability that interacts with the evolution of the ecosystems and with the CO₂ fluxes. The research will be focused on these complex and dynamic relationships.

Research team and environment

This PhD is within the framework of Climate Change Research Center of Insubria University where it will be possible to work in a multidisciplinary team including the Cryosphere Lab (resp. Prof. Mauro Guglielmin) with a Post Doc (Dr. S. Ponti, expert in remote sensing) and two other PhD (Dr. Alessandro Longhi, expert in soils) and Dr. Silvia Picone (expert in debris flows). This group interacts with the Botany and Climate Change Lab (Resp. Prof. Nicoletta Cannone) in which other experts of vegetation and terrestrial ecology of alpine and polar areas are working and with the Ecology and Ecotoxicology Lab (Resp. Prof. Roberta Bettinetti) where other experts are working on aquatic ecology. The Climate Change Research Center of Insubria will have since 2022 the possibility to use the International Branch of Insubria at Barrow (USA, Alaska). The team is working in cooperation of many national and international institutions like the British Antarctic Survey, the Alfred Wegener Institute, the CNR-ISP, the Trieste University and many other foreign universities.

Suggested skills

The candidate should have basic knowledge on the climate change, on the climate change impacts on the cryosphere and on the ecosystems of periglacial, proglacial and glacial environment. Basic knowledge on GIS and statistical analyses are also welcome. The candidates should be ready to work in a dynamic, international context with an important field work activity in high mountain environment.