



The geoNatHaz project: enhancing international Earth Science competence in Natural Hazards research by integration of traditional field-based activities a Geomatics techniques

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The “geoNatHaz” project is a Transatlantic Exchange Partnership (TEP) devoted to “Enhancing International Earth Science Competence in Natural Hazards Research”. The university consortium is led by Simon Fraser University (Canada) and Università degli studi di Torino (Italy). Partner universities include: University of British Columbia, Queen’s University, Alma Studiorum Università di Bologna, Université de Savoie, and University of Athens. Université de Lausanne (Switzerland) supports the geoNatHaz advisory board through its bilateral agreements with Canadian partner universities.

In its first year, the “geoNatHaz” project advanced towards its main objective of offering a unique, innovative curriculum on natural hazards by undertaking 4 major lines of activity:

1) Research documentation for the organization and recognition of didactic activities

Classic natural hazards case studies have been selected and evaluated in order to be included in problem-based learning units. Classroom-, laboratory- and field-based activities have been then organized and offered to Earth Sciences and Engineering Geology students.

2) Student and staff exchanges.

GeoNatHaz project, after a selection through the procedures of the Annual call for application, supported students and faculty members within the EU-Canada consortium of universities. The participants were involved in the activities the Annual EU and Canadian summer schools, focused on analysis of classic natural hazards and mitigation case studies in the mountain environments of Mont Blanc (Italy-France), and the Coast and Cordillera ranges (British Columbia and Alberta, Western Canada). Long-term students developed their grad thesis being involved in geomorphological mapping activities on landslides, geo-structural analysis of Deep-seated Gravitational Slope Deformations, digital photogrammetry of unstable slopes.

3) Development of transferable technical skills and cultural competence on Natural Hazards.

The established international partnerships among university, government, and private-sector scientists offered expertise and material support to didactic activities. The geoNatHaz “Supporting Organizations” provided their high technical value and live connections to the territories of NW-Italy and Western Canada where field activities have been performed. The GIS and Geomatic Laboratory (Geositlab) of the University of Turin and the Geotechnics and Photogrammetry laboratory at Simon Fraser University, trained participants in mapping and digital representation of natural hazards, and provided innovative software and hardware, such as the SRG2 application, an affordable mobile GIS for Palm-PC. Thanks to some “lucky circumstances”, the distinction between hazard and risk and the environmental differences between Canada and Europe have been “lively” analyzed during the summer schools, without suffering harmful consequences of active instabilities. The effects of a high-magnitude hazard have been experienced by participants in the Mount Meager area, an uninhabited sector of the Coast Mountains of British Columbia. Here, the second largest rock avalanche ever occurred in Canada happened just one week before the geoNatHaz field trip, leaving an available, open-air laboratory for large slope instabilities. In contrast, geoNatHaz students could cross-examine the high risk area of Mount Blanc, either in the upper glacial part of the mountain or at the lower elevations of Courmayeur, where natural hazards have a higher probability to cause injury to inhabitants and tourists, or damage to infrastructures.

4) Dissemination of outcomes and implementation of sustainability of the project.

The geoNatHaz project have been presented at scientific meetings and conferences and its activities have been publicized through the electronic and print media. Project resulted to be of considerable interest both to

scientists or professionals, and to the general public. Quality improvement of services for exchange students and sustainability of geoNatHaz activities beyond the funding period have been pursued through the collection of financial and logistical contributions from bank foundations, regional governments and supporting organization.