



Enhancing international earth science competence in natural hazards through “geoNatHaz”

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“geoNatHaz” is a Transatlantic Exchange Partnership project (TEP 2009-2012) within the framework of the EU-Canada programme for co-operation in higher education, training, and youth. The project is structured to improve knowledge and skills required to assess and manage natural hazards in mountain regions. It provides student exchanges between European and Canadian universities in order to enhance international competence in natural hazard research. The university consortium is led by Simon Fraser University (Canada) and Università degli studi di Torino (Italy). Partner universities include the University of British Columbia, Queen’s University, Università di Bologna, Université de Savoie, and the University of Athens. Université de Lausanne (Switzerland) supports the geoNatHaz advisory board through its bilateral agreements with Canadian partner universities.

The geoNatHaz project promotes cross-cultural understanding and internationalization of university natural hazard curricula through common lectures, laboratory exercises, and field activities. Forty graduate students from the seven Canadian and European partner universities will benefit from the project between 2009 and 2012. Some students enrolled in graduate-level earth science and geologic engineering programs spend up to five months at the partner universities, taking courses and participating in research teams under the direction of project scientists. Other students engage in short-term (four-week) exchanges involving training in classic natural hazard case-studies in mountain regions of Canada and Europe. Joint courses are delivered in English, but complementary cultural activities are offered in the languages of the host countries. Supporting organizations offer internships and technical and scientific support. Students benefit from work-study programs with industry partners. Supporting organizations include government departments and agencies (Geological Survey of Canada; CNR-IRPI National Research Institute on Hydrogeological Hazards; Simon Fraser University Centre for Natural Hazard Research; Civil Protection of Regione Piemonte; Dipartimento Difesa del Suolo of Regione Valle d’Aosta; Environmental Protection, Civil Protection and Geological Survey of Regione Emilia-Romagna; Alberta Geological Survey), non-governmental and non-profit organizations (Fondazione Vaiont; Fondation Montaine Sure; Comitato Glaciologico Italiano; Tele-Rilevamento Europa; IMAGEO), and companies (MacDonald, Detwiller and Associates; TRE-Canada; BC Hydro; CVA).

Support programs to ensure that students fully benefit from their exchanges are in place in each of the participating universities. Exchanges of faculty and technicians will ensure that students’ educational experiences are challenging, rich, and intellectually rewarding. The exchanges also will facilitate development of up-to-date natural hazard courses shared by the seven partner universities and will catalyze collaborations among scientists participating in the project.

The centrepiece of the project is field-based courses in natural hazards and risk in high mountain environments. Six field courses will be offered over the three-year period of the project – three in Europe and three in Canada. Course topics include (1) impacts of climate change on natural hazards in high mountains, (2) deep-seated rock-slope deformation, (3) mitigation of landslide hazards in mountain valleys, (4) applications of new technologies in natural hazard research, (5) frequency-magnitude relations and risk assessment, and (6) earthquake hazards and risk in mountain regions. The courses are taught by faculty from each of the partner universities, with the assistance of graduate students and technicians. The field courses support and extend existing programs in geology, geomorphology, and engineering geology offered by the partner universities.