Geophysical Research Abstracts
Vol. 15, EGU2013-5450, 2013
EGU General Assembly 2013

Research school focusing on natural hazards

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Abstract: The Swedish government has launched state funded Research schools for teachers (K-12) to improve the education and study results in schools.
The research school for teacher focusing on Natural Hazards is a possibility for 12 teachers all over Sweden to improve their knowledge and skills in geoscience parallel with their ordinary educational assignment. The different projects range over volcanoes, landslides, earthquakes and tsunamis. When the projects are finished we hope to bring a more scientific way of working back to our schools together with our specific knowledge in our research areas.
Two of the projects are associated to volcanoes on the Azores. The area is geologically young and volcanically active. One project (1) focus on the crater lake Lagoa das Furnas located on São Miguel. It is regarded as one of the high-risk areas concerning natural hazards in Europe. The project will try to describe the occurrence of recent tectonic events and signs of present volcanic activity in the crater lake itself. The method is to map the lake floor and its uppermost sediment stratigraphy using high resolution geophysical acoustic mapping methods, such as echo sounders and side scan sonar.The other project(4) on the Azores is to relate layers of volcanic ash recovered from marsh sediments to historical records of volcanic eruptions on the Azores, e.g. Furnas, 1630 and Faial, 1957-58. The ultimate goal of this project is to improve our ability to predict the spread of volcanic ash from future eruptions.
Northern Iceland is the spot of a project (2) associated with earthquakes. This project investigates the coupling between earthquakes and groundwater chemistry and this has been an ongoing research since 2002. Groundwater samples have been taken on a weekly basis in a borehole at the depth of 1500 m. In addition the project contains analyzes of elements in minerals that form when fissures are opened after an earthquake. The ultimate goal is to be able to predict earthquakes
Two of the projects concerns tsunamis. The recent tsunami in Thailand (December 26, 2004) is in focus of the first project (3). The method is to use amateur videos and photographs to build quantitative reconstructions of its coastal impact (tsunami height, velocity and direction). The ultimate goal of this project is to provide quantitative data needed to verify computer simulations of tsunamis which are used to guide mitigation efforts during the critical time interval following a potentially tsunamigenic earthquake. The second tsunami project (5) is focusing on potential tsunami triggering by subsurface slope failures in the Lake Vättern, Sweden. By using sediment cores, echo-sounding sediment profiles and bathymetric data there are possibilities to describe properties of past landslides/tsunamis and furthermore contribute to a risk analysis concerning landslides in Lake Vättern.