



Seismic noise workshops for highschool students: improving Earth science literacy and regional understanding.

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During the installation of a seismic network aimed at performing seismic noise tomography in the southern region of Tenerife island, in the framework of the project “Development of geothermal energy in Tenerife”, local highschools, which collaborated with the project, asked the INVOLCAN team to give some lectures about the scientific work that was being carried out. With the aim of answering to this request and improving Earth science literacy and regional understanding in highschool students the team involved in the project developed didactic workshops where the students took an active part in the learning process.

These didactic workshops lasted 1.5 hours each and were meant for the three last courses of secondary education students. The contents were adapted to the current Spanish and Canarian education laws. The method used for this workshops combined deductive and inductive teaching, a hybrid method which fits with the limited time, the contents taught and an active way of learning.

For the first part of the workshop, an interactive master class was given, where the basis of the scientific project were explained: why and what for this study (search for geothermal resources) is being developed; and the methodology used. Between the minor units of this first part, little activities were introduced: using “human molecules” to explain seismic waves displacement; production of seismic waves and their detection with a tablet accelerometer; and the detection of earthquakes in real seismograms and spectrograms. This activities reinforce the contents shown and avoid students to lose attention. For the second part, inductive teaching techniques such as case-based or problem-based learning (PBL) and role-playing were used. The students were divided into different groups, representing the diversity of Canarian society, and a discussion topic was raised: to build a geothermal energy station or not. Each group choose a representative to present their opinion to the other groups. Finally, a summary was done with all the reasonable points the students have explained. Then, it was highlighted by the INVOLCAN staff that science must have a “why” (scientific questions) and a “what for” (social implications), reaching a point: society and science are not isolated from each other and one should influence the other. After all, an autoevaluation process was carried out: highschool teachers were asked to fill a questionnaire in order to improve these workshops.

To sum up, these activities enhance the relationship between science and society and improved the Earth science literacy of the students (which tends to be at low rates in Spain), prevent vandalism in the devices deployed on the field and highlight the regional resources and spaces and, specifically in this case, the importance of geothermal energy in the society.