

Pizzi Deneri Field Trips - Etna 2010-2014

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Laboratory exercises, field observations and field trips are fundamental parts of many earth and environmental science courses. In order to integrate theoretical and practical concepts of Earth Sciences, fieldwork plays a key role, representing an opportunity to experiment and evaluate new protocols and techniques which can solve common scientific problems in the field. Since the fieldwork is based on a great deal of research, it is considered to be vital for the development of students and helps them become qualified practitioners in all aspects of these disciplines. Despite the decreasing per capita educational resources in the earth and environmental science departments, both the number of students and the cost of fieldwork have increased.

Here, we present our experience of five summer field trips held on Etna volcano (Italy) conceived, designed and organized as an alternative to formal fieldwork with a reduction in cost. The basic ideas behind the organization were: to share scientific knowledge and experiences, to apply a multidisciplinary approach, to use local resources with a low-cost organization and, at last but not least, to have fun. The logistic base of the field trips was the "Volcanological Observatory of Pizzi Deneri", a picturesque building in a spectacular scenario. The observatory, sponsored by Aaroun Tazieff, was built in 1978 by CNR-IIV International Institute of Volcanology under the direction of Prof. Letterio Villari. It is located at the base of the N-E Crater at an altitude of 2850 m. a.s.l., on the rim of the Ellittico caldera. It lies in a strategic location for access to the summit and is one of the most important sites of the INGV - Osservatorio Etneo for volcanology monitoring and research activities. The participants were undergraduate, graduate, masters and PhD students, post-docs, young and senior researchers working on the scientific themes related to the geochemistry and volcanology. The field trips were organized in collaboration between the University of Palermo, the INGV of Palermo and Catania, the University of Heidelberg and the efforts of many colleagues and friends. The organization was carried out thanks to the support and the willingness of the INGV of Palermo (for the off-road vehicles) and Catania (for the hospitality at the observatory).



Figure 1. Participants to the Pizzi Deneri field trips, Etna 2010-2014.

The field trips were focused on the main ways to study volcanic emissions: direct sampling and remote sensing techniques. Several new instruments were tested for the first time in the field including a new in-situ CO₂ sensor, a new in-situ SO₂ sensor, as well as the application of updated MAX-DOAS instruments and SO₂ cameras. Data collected as a part of the five campaign campaigns carried out since 2010 formed the basis of 6 Bachelor and 5 Master . To date, 5 published article have been published [Aiuppa et al., 2011, Tassi et al., 2012; Tamburello et al., 2013; Pering et al., 2014; Wittmer et al., 2014], one is submitted [Gliss et al. sub], with others currently in preparation and several abstracts were presented at international conferences.

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