



The European experience of educational seismology

Aldo Zollo (1), Jean-Luc Berenguer (2), Antonella Bobbio (3), Françoise Courboulex (4), Paul Denton (5), Stefano Solarino (3), and Anne Sornette Sauron (6)

(1) University of Naples Federico II, Naples, Italy (aldo.zollo@unina.it), (2) Centre International de Valbonne, Valbonne, France (berenguer@unice.fr), (3) Istituto Nazionale di Geofisica e Vulcanologia, Italy (solarino@ingv.it), (4) Géoazur, OCA, CNRS, Nice, France (courboul@geoazur.unice.fr), (5) British Geological Survey, Keyworth, UK (pdenton@bgs.ac.uk), (6) Institut f. Geophysik, ETH, Zurich, Switzerland (anne.sornette@sed.ethz.ch)

Increasing our knowledge about the earthquake phenomena and their effects at the earth surface is an important step toward the education of population in high seismic risk regions (but not only) and can contribute to raise the awareness about the earthquake risk and possible mitigation actions. In this sense, seismology represents an efficient communication vehicle, allowing teaching and learning about the earthquakes and seismic wave impact through experimental practices and educational activities.

During the last two decades an innovative approach is being carried out and implemented in schools, research centres and scientific museums of several European countries, after the pioneering Princeton Earth Physics Project (PEPP) in the USA of the. This is grounded on the use of advanced technologies for seismic wave recording and visualization, and on the implementation and use of web-oriented and accessible tools, which provide a direct link with the modern seismological laboratory systems and data analysis and modeling. In this case, the end-users, e.g. students, teachers and large public, may have an active role in the knowledge process and they are trained to use the scientific laboratory practice by adopting the “learning by doing” modern approach of science communication. Across Europe, teachers and students are learning earthquake science in a variety of situations and contexts. Excellent tools and resources for classroom-based experiments which link well with national curriculums have been produced by individual groups and through European funded projects.

In France, the educational program “Sismos à l’Ecole” (managed by ‘Sciences à l’Ecole’ institution) focused on education on seismic risk through a scientific and technological approach. Sixty five French schools take part of the education seismology network, by hosting and managing a 3 components digital seismic station. Seismograms of local and worldwide earthquakes are accessible both in real time and on a friendly user database through a website dedicated to this school project (www.edusismo.org).

In southern Italy, about students and teachers from six high schools have been fully involved in yearly-based EduSeis (eduseis.na.infn.it) scholar programs. In this framework, the science museum Città della Scienza built and implemented a school lab (SISMALAB), an interactive exhibit for museum visitors and high school classes, where they had the possibility to perform seismological data analyses using the EduSeis network data-base and accessing to data from a real-time seismic station.

In UK, the school seismology project (UKSSP) developed a nation-wide educational seismology community where teachers and student run simple and inexpensive seismometer systems to be used for detecting earthquake signals, train to analyse the data, perform didactic activities on basic physics and earthquake recording instruments.

In Switzerland, the program “Seismo at School” provides with an integrated platform for seismic data and general information diffusion, including data from stations installed in Swiss schools and the broadband stations of the national SED network. The seismo-at-school platform is a general resource center for education activities in seismology, which distributes a rich collection of earthquake data, bibliographies, movies, various educational materials and software for seismic data analysis.

Recently the French and Swiss experiences met together and, with the cooperation of the Italian partners ARPA Piemonte and University of Genova contributed to the O3E project, a first attempt to have an European network of schools operating seismic instruments.

These and other European initiatives on educational seismology will actually merge in the EU project NERA where a specific workpackage is dedicated to networking school seismology programs. The ambitious target of the project is to build a dedicated facility necessary for a European-wide school seismology program, for the efficient sharing of data across national programs and for the scientific use of the data collected by this distributed infrastructure.