LEARNING SEISMIC SAFETY AT HIGH SCHOOL: 
THE SISIFO PROJECT

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Recent earthquakes in Italy and around the world have stressed, once more, the crucial role of education on seismic risk as a key point to raise awareness of seismic safety. After the 2002 San Giuliano di Puglia earthquake that caused the collapse of a school and the death of 26 children and their teacher, special attention was paid in Italy to the seismic safety of schools, mainly with regard to structural aspects. Little attention has been devoted to the possible and even significant damage to non-structural elements (collapse of ceilings, tipping of cabinets and shelves, escape routes, etc.). Students and teachers trained on these aspects may lead to a very effective preventive vigilance. Still the awareness of seismic safety in places of study, work and life can lead to improvements in the capacity to recognize safety issues and possible solutions. Since 2002 the project EDURISK (www.edurisk.it) proposed educational tools and training programs for schools, at primary and middle levels. More recently, a nationwide Italian campaign aimed to adults was launched with the extensive support of the Italian civil protection volunteers (see www.iononrischio.it for details).

The project SISIFO (https://sites.google.com/site/ogssisifo) was designed thinking to high school students. SISIFO is a multidisciplinary one-year project founded by the Italian government through MIUR (Ministero Istruzione Università e Ricerca) and it is aimed at the diffusion of scientific culture for achieving seismic safety at schools. The main goal of the project is to raise the teachers and students knowledge of seismic hazard, seismic response of foundation soils and building dynamics, and to increase awareness of seismic safety, including seismic hazard, seismic site response, seismic behavior of structural and non-structural elements and functional issues (escape ways, emergency systems, etc.). We considered this as a pilot experiment that could be replicated and properly integrated in training of young people in the next years. We started the activity for selected schools, with technical and scientific curricula, located in North East Italy (Fig. 1). During the first meeting of the project we reminded the teachers their fundamental role in making students familiar with the earthquake and the safety issues (Fig. 2). We gave them some hints on how to deal with students to raise awareness using the issues already present in their curricula.

While leaving to each class the freedom to develop a proper case study under the guidance of the teachers, we proposed some conceptual guidelines. Some paths were about best practice in seismic safety at school and outside, some on physics of the earthquake and on building’s response to shaking, other paths were on surveys on the risk perception. The class activity consisted in a combination of

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hands-on experiences, research and survey tasks, and of lectures by seismologists and engineers. Also specifically designed teaching materials were provided to the classes. In each school involved in the project, we installed a Quake-Catcher Network (QCN) sensor (http://qcn.stanford.edu) to improve earthquake awareness through the seismic monitoring and knowledge on earthquakes. Unlikely, for problem related to the Internet security process, only few schools registered on the QCN network.

The activities developed by the students were presented during a workshop held on 2014 April 7, in Udine (Italy). During this meeting students proudly presented their work and some hands-on activities (Fig. 3 and Fig. 4). The students of Mirandola, the small town struck by the Emilia 2012 May seismic events, described their experience with the earthquakes that damaged their school, involving the audience into deep emotion.

We do believe that this experience has been very educational for the students mainly, but not only, for issues related to the earthquake safety.

![Figure 1. Map with the high schools selected in North East Italy for the first year of SISIFO project (blue drops) and project proponent (red drops).](image1)

![Figure 2. Left: SISIFO website (https://sites.google.com/site/ogssisifo). Right: kick-off meeting of the project with teachers of the schools involved in the project.](image2)
Figure 3. Some shots of the student workshop held in Udine on 2014 April 7. Hands-on activities, survey’s results, best practice in seismic safety at school and outside were presented. Snapshots on history and philosophy were also addressed.

Figure 4. Examples of work presented by the students during the workshop.