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How real-time seismological data can be used at school

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The feasibility and possible implementation of real time-earthquake risk reduction systems focused on the decrease of the building vulnerability and people exposure, are important issues of the EU projects REAKT (Strategies and tools for Real Time Earthquake RisK ReducTion) and NERA (Network of European research infrastructures for earthquake risk assessment and mitigation). Both projects aim at developing methodologies based on earthquake forecasting, early-warning and real-time vulnerability systems, to establish best practices for their use for risk mitigation actions. In this framework, it is important to apply real-time mitigation actions to different situations (trains, industries, hospitals, bridges, schools, and so on). For schools, advanced seismic stations are being installed in different European countries, to enable rapid and user-friendly analysis, data modeling and interpretation. All of these activities will be performed by teachers and students.

In Italy three high-schools located in the Irpinia region (Southern Italy), and two in the Naples outskirts are involved in such projects. The schools host a strong-motion station which is integrated in the earthquake Early-Warning System (EWS) network deployed along the southern Apenninic chain. Data streams are analyzed in real-time by the software platform PRESToPlus, which provides both threshold based regional and on-site early-warning. The early-warning application for the schools could be defined as ‘passive’ because they will receive the alert from the PRESToPlus EWS. However, it will be also possible to monitor the ground-shaking really experienced at these sites, so to update the information flowing into the EEW system from the whole network.

Educational activities involving both teachers and students are planned for the schools which participate in the early-warning projects. These activities are aimed at providing a basic knowledge about seismology in general, and on seismic early-warning, including the management and maintenance of the instruments installed in the schoolhouses. In particular, modules dedicated to the use of data available at each single-station have been designed. They aim at estimating earthquake source parameters (location and magnitude) of local and regional, moderate magnitude seismic events through the analysis of the recorded waveforms.