

The Infrastructure Of URBAN-INCERC (Romania) For Strong Motion Recording

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The strong motion network of the National Institute for Research and Development in Construction, Urban Planning and Sustainable Territorial Development "URBAN-INCERC" was established in Romania in 1967. Its paramount utility for a seismic country was proved when the unique recording of March 4, 1977 earthquake was obtained in INCERC Bucharest station.

At present, the network consists of approximately 55 accelerometers, located in 45 localities in Romania. Of these, 11 accelerometers are located in Bucharest and 44 are distributed all over the country, particularly in the extra-Carpathian area, which is the most exposed to the Vrancea seismic source.

The goals of the network and of the pertaining infrastructure are manifold, aiming not only at ground motion recording, but also, in a larger perspective, at the improvement of the security and resilience of building stock to earthquakes and extreme actions. In this respect, a system for monitoring and displaying recorded ground motion data in real time is envisaged, in conjunction with data provided by SHM devices from instrumented buildings.

Recently, a plan for real-time transmission of the recorded seismic data was developed in collaboration with the Romanian Special Telecommunication Service. Accordingly, starting from November 15th, 2015, 32 seismic stations, of which 4 in Bucharest and 28 distributed throughout the country, were connected to real-time data transmission. This is provided both for stations located in free field-type conditions and for monitored building structures.

The goals for the near future are the extended integration and collaboration within major European infrastructures in the field, as the European Plate Observing System, EPOS. This implies further standardization of instrumentation and operational procedures, establishment of permanent communication channels for data exchange, upgrading of obsolete equipment, increasing the number of real-time stations and of seismic stations in general and development of the communication, IT and software infrastructure.