Assessment of early warning system performance and improvements since it is in operational phase in Romania

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Earthquake represents a major natural disaster for Romanian territory. The main goal following the occurrence of a strong earthquake is to minimize the total number of fatalities. A rapid early warning system (REWS) was developed in Romania in order to provide 25-35 seconds warning time to Bucharest facilities for the earthquakes with M>5.0. The system consists of four components: a network of strong motion sensors installed in the epicentral area, a redundant communication network, an automatic analyzing system located in the Romanian Data Centre and an alert distribution system. The detection algorithm is based on the magnitude computation using strong motion data and rapid evaluation and scaling relation between the maximum P-wave acceleration measured in the epicentral area and the higher ground motion amplitude recorded in Bucharest. In order to reduce the damages caused by earthquakes, the exploitation of the up to date technology is very important. The information is the key point in the disaster management, and the internet is one of the most used instrument, implying also low costs. The Rapid Early Warning System was expanded to cover all countries affected by major earthquakes originating in the Vrancea seismic area and reduce their impact on existing installations of national interest in neighbouring Romania and elsewhere. REWS provides an efficient instrument for prevention and reaction based on the integrated system for seismic detection in South-Eastern Europe. REWS has been operational since 2013 and sends alert the authorities, hazardous facilities in Romania and Bulgaria (NPP, emergency response agencies etc.) and to public via twitter and some smartphone applications developed in the house. Also, NIEP is part of the UNESCO initiative case on developing a platform on earthquake early warning systems (IP-MEP) that aims to promote and strengthen the development of earthquake early warning systems in earthquake-prone regions of the world by sharing scientific knowledge, capacity building and international cooperation.