

NEAR REAL TIME ESTIMATION OF THE MACROSEISMIC INTENSITY IN CASE OF 5.3 MW VRANCEA INTERMEDIATE DEPTH EARTHQUAKE

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Romania is one of the most seismic-prone countries in Europe due to the periodically occurrence of strong intermediate-depth earthquakes (Marmureanu et al., 2010). These types of earthquakes, unique in Europe, appear in Vrancea seismogenic zone. This area is located beneath the South-Eastern Carpathian Arc bend, at the contact between the East - European plate and the Intra-Alpine and Moesian sub-plates (continental collision). An intense seismic activity is recorded in the mantle, within a narrow, almost vertical descending volume between 60 and 180 km depth (Radulian et al., 2000).

In the last decade, many efforts were done to predict the macroseismic intensity in case of felt Vrancea earthquakes and additionally an online environment was developed for the automatic approximation of the intensity from people feedback.

Earthquakes with magnitudes larger than 5.0 (Mw) and macroseismic effects exceeding V MMI degrees, on extended populated area occur in Vrancea seismic zone, with a return period of 3 years. Besides the extended scientific studies, the near real time estimation of the macroseismic intensity recently became mandatory for the insurance companies to cover some of the losses and damage that earthquakes might cause to houses, belongings, and other buildings.

In this study, the procedure is shown for the last 5.3 Mw intermediate-depth earthquake occurred on September 24, 2016 at 91 km depth in Vrancea area, and felt on the extra-Carpathian region. The proposed procedure is using the online feedback, the available equations for conversion of peak ground acceleration in macroseismic intensity and the ground motion predicted equations. The automatic intensity estimation code from the online feedback proposed by Wald (1999) and adopted by Ionescu and Dragoicea (2010) for the Romanian earthquakes was improved and used for this study.

Keywords: Intensity maps, Vrancea, Earthquakes.

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