Optimizing the real-time automatic location of the events produced in Romania using an advanced processing system

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National Institute for Earth Physics (NIEP) operates a real time seismic network which is designed to monitor the seismic activity on the Romanian territory, which is dominated by the intermediate earthquakes (60-200 km) from Vrancea area. The ability to reduce the impact of earthquakes on society depends on the existence of a large number of high-quality observational data. The development of the network in recent years and an advanced seismic acquisition are crucial to achieving this objective. The software package used to perform the automatic real-time locations is Seiscomp3. An accurate choice of the Seiscomp3 setting parameters is necessary to ensure the best performance of the real-time system i.e. the most accurate location for the earthquakes and avoiding any false events. The aim of this study is to optimize the algorithms of the real-time system that detect and locate the earthquakes in the monitored area. This goal is pursued by testing different parameters (e.g., STA/LTA, filters applied to the waveforms) on a data set of representative earthquakes of the local seismicity. The results are compared with the locations from the Romanian Catalogue ROMPLUS.