



Improving real-time monitoring system in Galati Area, Romania

Cristian Neagoe, Eduard Nastase, and Constantin Ionescu

National Institute for Earth Physics, Magurele, Romania

On September 23, 2013 an unusual seismic swarm started close to Galati city, in Izvoarele region, Romania and lasted until November 12, 2013. During that time a number of 406 earthquakes were recorded with magnitude M_L between 0.2 and 3.9. Therefore, complex measurements have taken place in the epicentral area and in the nearby regions shortly after the swarm triggering. New seismic stations were installed in order to increase the quality of localizing and recording low-magnitude events. Recorded data is sent in real time to the National Data Center in Magurele. The stations are equipped with broadband sensors (CMG40T, CMG3ESP, KS2000), short period sensors (Mark L4C, S13) and accelerometers (Episensor). In addition, three new seismic stations equipped with borehole episensors were installed. The processing software used by the Romanian Seismic Network are Antelope and Seiscomp3. Along with the seismic equipment 7 GPS campaign measurement points have been installed (in addition to the three existing reference stations in the area). The GPS Permanent stations have mixed equipment. A vast majority of them being equipment's produced by Leica Company: SR530, GRX 1200 GGPro, GRX1200 + GNSS, GR10 and the newest GR30 receivers type and antenna models used are LEIAT504, LEIAT504GG, LEIAR10, LEIAX1202GG and 2 stations Septentrio. Their main purpose was and continues to be determining the crustal deformation rate and direction within the study area. 4 years of continuous monitoring along with the solutions obtained from the 5 GPS measuring campaigns (2013-2017) are combined in order to obtain a relevant interpolation and to be able to establish a final length and direction of displacement for each GPS measurement point. Data acquisition is made in real time in RAW DATA format using the programs: Leica GNSS Spider and Septentrio Rx.