



The improved broadband Real-Time Seismic Network in Romania

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Starting with 2002 the National Institute for Earth Physics (NIEP) has developed its real-time digital seismic network. This network consists of 96 seismic stations of which 48 broad band and short period stations and two seismic arrays are transmitted in real-time. The real time seismic stations are equipped with Quanterra Q330 and K2 digitizers, broadband seismometers (STS2, CMG40T, CMG 3ESP, CMG3T) and strong motions sensors Kinematics episensors (+/- 2g).

SeedLink and AntelopeTM (installed on MARMOT) program packages are used for real-time (RT) data acquisition and exchange.

The communication from digital seismic stations to the National Data Center in Bucharest is assured by 5 providers (GPRS, VPN, satellite communication, radio lease line and internet), which will assure the back-up communications lines. The processing centre runs BRTT's AntelopeTM 4.10 data acquisition and processing software on 2 workstations for real-time processing and post processing. The Antelope Real-Time System is also providing automatic event detection, arrival picking, event location and magnitude calculation. It provides graphical display and reporting within near-real-time after a local or regional event occurred. Also at the data center was implemented a system to collect macroseismic information using the internet on which macro seismic intensity maps are generated. In the near future at the data center will be install Seiscomp 3 data acquisition processing software on a workstation. The software will run in parallel with Antelope software as a back-up. The present network will be expanded in the near future. In the first half of 2009 NIEP will install 8 additional broad band stations in Romanian territory, which also will be transmitted to the data center in real time.

The Romanian Seismic Network is permanently exchanging real -time waveform data with IRIS, ORFEUS and different European countries through internet.

In Romania, magnitude and location of an earthquake are now available within a few minutes after the earthquake occurred. One of the greatest challenges in the near future is to provide shaking intensity maps and other ground motion parameters, within 5 minutes post-event, on the Internet and GIS-based format in order to improve emergency response, public information, preparedness and hazard mitigation