



The North East Italy (NI) broadband seismic network run by OGS: experience in improving the long period performances

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The NI broadband seismic network is designed to monitor regional seismic activity of North East Italy and surroundings as well as to provide high quality data for various research projects in regional and global broadband seismology, like moment tensor determination.

The network, grown during the last 30 years within local Civil Defence agencies and neighbouring scientific institutions cooperation, currently consists of 11 digital broadband stations equipped with Streckeisen STS-2 and STS-1, Nanometrics Trillium 40 and Guralp CMG-3T seismometers with 120 and 40 seconds long period corners; most of the seismic stations are also equipped with accelerometers.

Waveforms and parametric data of the NI seismic network are transmitted in real time to the Friuli-Venezia Giulia, Veneto and Provincia di Trento Civil Defence Agencies, to the Italian National Institute for Geophysics and Volcanology (INGV) and to the Earth Science Department (DST) of the Trieste University in Italy, to the Austrian Central Institute for Meteorology and Geodynamics (ZAMG) in Vienna, Austria and to the Environmental Agency of the Republic of Slovenia (ARSO) in Ljubljana, Slovenia to support emergency management and seismological studies in the whole Alps–Dinarides junction zone. The commercial Antelope software suite from BRTT has been chosen as the common basis for real time data exchange, rapid location of earthquakes and alerting.

In order to guarantee high quality installations, we sustain a continuous effort that involves searches for appropriate sites, away from sources of long period noise, improvements in installation procedures and insulation techniques, maintenance of transfer function files and routine monitoring of noise conditions at individual existing station. The quality of the seismic data is checked through the noise Power Spectral Density (PSD) analysis. The insulation equipment that we designed for our network is a local adaptation of the pressure-thermal insulation experimented and routinely used by the world wide GEOFON seismic network and the German regional seismic network: examples and performances of a typical OGS installation will be shown.