



Rigorous noise test and calibration check of strong-motion instrumentation at the Conrad Observatory in Austria.

R. Steiner (1), G. Costa (2), W. Lenhardt (1), N. Horn (1), and P. Suhadolc (2)

(1) Central Institute for Meteorology and Geodynamics, Vienna, Austria, (2) Mathematic and Geosciences Department, University of Trieste, Trieste, Italy (costa@units.it)

In the framework of the European InterregIV Italy/Austria project: "HAREIA – Historical and Recent Earthquakes in Italy and Austria" the Central Institute for Meteorology and Geodynamics (ZAMG) and Mathematic and Geosciences Department of University of Trieste (DMG) are upgrading the transfrontier seismic network of South-Eastern Alps with new 12 accelerometric stations to enhance the strong motion instrument density near the Austria/Italy border. Various public institutions of the provinces Alto Adige (Bolzano Province), Veneto (ARPAV) and Friuli Venezia Giulia (Regional Civil Defense) in Italy and in the Austrian province of Tyrol are involved in the project. The site selection was carried out to improve the present local network geometry thus meeting the needs of public Institutions in the involved regions. In Tyrol and Alto Adige some strategic buildings (hospitals and public buildings) have been selected, whereas in Veneto and Friuli Venezia Giulia the sites are in the free field, mainly located near villages.

The instruments will be installed in an innovative box, designed by ZAMG, that provides electric and water isolation.

The common choice regarding the instrument selection has been the new Kinometrics Basalt[®] accelerograph to guarantee homogeneity with the already installed instrumentation and compatibility with the software already in use at the different seismic institutions in the area. Prior to deployment the equipment was tested at the Conrad Observatory and a common set-up has been devised. The Conrad Observatory, seismically particularly quiet, permits to analyze both the sensor and the acquisition system noise. The instruments were connected to the network and the data sent in real-time to the ZAMG data center in Vienna and the DMG data center in Trieste. The data have been collected in the database and analyzed using signal processing modules PQLX and Matlab.

The data analysis of the recordings at the ultra-quiet Conrad Observatory pointed out some differences in the seismic response of the 12 instruments, mainly within the tolerance stated by the factory, and an optimization of a few sensors can be carried out in order to guarantee compatible high quality measurements.