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# OGS improvements in 2012 in running the Northeastern Italy Seismic Network: the Ferrara VBB borehole seismic station

Damiano Pesaresi (1,2), Marco Romanelli (1), Carla Barnaba (1), Pier Luigi Bragato (1), and Giorgio Durì (1)

(1) Centro di Ricerche Sismologiche, Istituto Nazionale di Oceanografia e di Geofisica Sperimentale - OGS, Udine, Italy, dpesaresi@inogs.it, (2) Sismologia e Tettonofisica, Istituto Nazionale di Geofisica e Vulcanologia, Roma, Italy

The Centro di Ricerche Sismologiche (CRS, Seismological Research Center) of the Istituto Nazionale di Oceanografia e di Geofisica Sperimentale (OGS, Italian National Institute for Oceanography and Experimental Geophysics) in Udine (Italy) after the strong earthquake of magnitude M=6.4 occurred in 1976 in the Italian Friuli-Venezia Giulia region, started to operate the Northeastern Italy Seismic Network: it currently consists of 17 very sensitive broad band and 18 simpler short period seismic stations, all telemetered to and acquired in real time at the OGS-CRS data center in Udine. Real time data exchange agreements in place with other Italian, Slovenian, Austrian and Swiss seismological institutes lead to a total number of about 100 seismic stations acquired in real time, which makes the OGS the reference institute for seismic monitoring of Northeastern Italy.
The southwestern edge of the OGS seismic network stands on the Po alluvial basin: earthquake localization and characterization in this area is affected by the presence of soft alluvial deposits. OGS ha already experience in running a local seismic network in high noise conditions making use of borehole installations in the case of the micro-seismicity monitoring of a local gas storage site for a private company. Following the ML=5.9 earthquake that struck the Emilia region around Ferrara in Northern Italy on May 20, 2012 at 02:03:53 UTC, a cooperation of Istituto Nazionale di Geofisica e Vulcanologia, OGS, the Comune di Ferrara and the University of Ferrara lead to the reinstallation of a previously existing very broad band (VBB) borehole seismic station in Ferrara. The aim of the OGS intervention was on one hand to extend its real time seismic monitoring capabilities toward South-West, including Ferrara and its surroundings, and on the other hand to evaluate the seismic response at the site.
We will describe improvements in running the Northeastern Italy Seismic Network, including details of the Ferrara VBB borehole station configuration and installation, with first results.