Geophysical Research Abstracts
Vol. 21, EGU2019-19079, 2019
EGU General Assembly 2019

Seismic microzonation of the municipalities affected by the 2016-2017 seismic sequence in central Italy

Massimiliano Moscatelli (1), Dario Albarello (2), Gabriele Scarascia Mugnozza (3), Floriana Pergalani (4), Francesco Stigliano (1), Marco Amanti (5), Stefano Catalano (6), Salvatore Martino (1), Alessandro Pagliaroli (7), Giuseppe Cosentino (1), Vincenzo Di Fiore (8), Giuseppe Lanzo (9), Lucia Luzi (10), Enrico Priolo (11), and Paolo Messina (1)

(1) Institute of Environmental Geology and Geoengineering, CNR, Rome, Italy (massimiliano.moscatelli@igag.cnr.it), (2) Department of Physical Sciences, Earth and Environment, University of Siena, Italy, (3) Department of Earth Sciences, Sapienza University of Rome, Italy, (4) Polytechnic University of Milan, Italy, (5) ISPRA, Italian Institute for Environmental Protection and Research, Rome, Italy, (6) Department of Biological, Geological and Environmental Sciences, University of Catania, Italy, (7) Department of Engineering and Geology, University "G. d'Annunzio" of Chieti-Pescara, Italy, (8) Institute of Marine Sciences, CNR, Naples, Italy, (9) Department of Structural and Geotechnical Engineering, Sapienza University of Rome, Italy, (10) National Institute of Geophysics and Volcanology, Milan, Italy, (11) OGS, National Institute of Oceanography and Applied Geophysics, Trieste, Italy

The Mw 6.0 Amatrice earthquake struck central Italy in August 24th 2016, causing hundreds of deaths and injuries, and the almost complete destruction of many historical villages. Unfortunately, the subsequent long-lasting seismic sequence left behind a widespread damage across a wide territory distributed in four Regions.
After the emergency period, the Italian Government Commissioner for the reconstruction funded an ambitious project, devoted to the seismic microzonation of 533 urban areas in 138 municipalities, and involving more than 500,000 citizens. The main request of the Government Commissioner was to provide information for urban planning and reconstruction in the municipalities struck by the earthquakes.
The project involved several authorities, researchers and freelance consultants, and its scientific coordination was entrusted to the Italian Centre for Seismic Microzonation (CentroMS), an association of 25 research institutions and university departments providing expertise in geology, applied geophysics, engineering-seismology, geotechnical earthquake-engineering, and engineering-geology.
The main project activities concerned:
• geological surveys and in situ geotechnical testing for the identification of the engineering-geological units;
• geophysical surveys for the characterization of the sub-surface units in terms of dynamic properties;
• geotechnical laboratory testing for the estimation of the non-linear behavior of the units under cyclic and/or dynamic conditions;
• numerical simulations for the estimation of local seismic response (LSR);
• seismological analysis for i) retrieval of waveforms compatible with the building code to be used as seismic input for the numerical simulations, ii) calibration of numerical simulations, and iii) empirical determination of LSR.
This work presents the main results of the project, aimed at improving the level of knowledge of the territory for reconstruction, and building up the expertise of CentroMS for coordinating future seismic microzonation activities.