ESC2016-481-1, 2016
35th General Assembly of the European Seismological Commission

ISMD 2.0: the real time INGV Strong Motion Database

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The INGV (Italian National Institute for Geophysics and Volcanology) Strong Motion Database (ISMD, http://ismd.mi.ingv.it) was designed in the last months of 2011 in cooperation among different INGV departments, with the aim to organize the distribution of the INGV strong-motion data using standard procedures for data acquisition and processing. The first version of the web portal was published soon after the occurrence of the 2012 Emilia (Northern Italy), Mw 6.1, seismic sequence. At that time ISMD was the first European real time web portal devoted to the engineering seismology community. After four years of successfully operation, the thousands of accelerometric waveforms collected in the archive need necessary a technological improvement of the system in order to better organize the new data archiving and to make more efficient the answer to the user requests. For this reason, ISMD 2.0 was based on PostgreSQL (www.postgresql.org), an open source object-relational database. As in the version 1.0 (Massa et al., 2014), the main purpose of ISMD is to archive, process and distribute few minutes after the origin time the accelerometric waveforms and related metadata of the Italian earthquakes with ML$\geq$3.0. Data are provided both in raw SAC (counts) and automatically processed ASCII (cm/s2) formats. The web portal also provides, for each event, a detailed description of the ground motion parameters, data converted in velocity and displacement, response spectra up to 10.0 s and general maps concerning the recent and the historical seismicity of the area together information about its seismic hazard. The focal parameters of the events are provided by the INGV National Earthquake Center (CNT, http://cnt.rm.ingv.it). Moreover, the database provides a detailed site characterization for each strong motion station, based on geological, geomorphological and geophysical information. At present (i.e. May 2016), ISMD includes 630 ($\sim$ 70.000 waveforms) Italian earthquakes with ML $\geq$ 3.0, recorded since the 1st January 2012, besides 181 accelerometric stations belonging to the INGV strong motion network and regional partners.