



ISMD: INGV REAL TIME STRONG-MOTION DATA WEB PORTAL

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The INGV Strong-Motion Data web portal (ISMD), published at <http://ismd.mi.ingv.it/ISMD/> (figure 1), was designed in the last months of 2011 thanks to an agreement among different INGV departments. The main idea was to uniform and regulate the distribution of the INGV (and Italian partners) strong-motion data through a common web portal, after homogeneous data acquisition and processing procedures. ISMD, developed and published during 2012, represents the first example of Italian (and European) real time web portal devoted to the engineering seismology community. The main scope of ISMD is to archive, process and disseminate the accelerometric waveforms and their metadata few minutes after the origin time of the event.

In particular the automatic system on which the new web portal is based:

- i) checks the quality of the raw accelerograms recorded by INGV strong-motion network;
- ii) archives and processes data in real time in order to provide fast estimations of the main strong motion parameters of an earthquake;
- iii) disseminates in real time high quality strong-motion waveforms and related metadata;
- iv) collects and distributes all available information (i.e. geological, morphological, geophysical, geotechnical) about the recording sites;
- v) checks, updates and homogenizes the information (i.e. coordinates, instrumentation etc.) related to the INGV strong-motion stations installed on the whole Italian territory at present;
- vi) publishes on the web site <http://ismd.mi.ingv.it/ISMD/>, some minutes after an earthquake occurs, the real time report of the event (including event and waveform metadata, seismic response of recording sites, comparison between observed and predicted data etc.), jointly providing the binary-SAC uncorrected data (i.e. SEED raw signals converted in a new data format), the ASCII corrected accelerograms (i.e. binary-SAC converted in ASCII format and then processed), as well as the velocity and displacement time series and the related response spectra.

ISMD, whose beta version was published during the May-June 2012, ML 5.9, Emilia (Northern Italy) seismic sequence (Massa et al., 2012), at present archives about 16.000 3-component strong-motion records regarding about 250 Italian events with $M_L \geq 3.0$ occurred from 1st January 2012 until today

ISMD analyses and disseminates data related to the Italian earthquakes with $M_L \geq 3.0$. At present data in the archive are recorded by the ~ 150 permanent strong-motion stations installed in the whole Italian territory. In case of earthquakes with $M_L \geq 5.0$ occurring on the Italian territory, ISMD also publishes the data recorded by the real time temporary accelerometric stations installed in the epicentral area soon after the event occurrence (Moretti et al., 2012).

After producing the corrected waveforms, the system calculates standard strong motion parameters such as peak ground acceleration (PGA), peak ground velocity (PGV), peak ground displacement (PGD), Arias Intensity (I_a ; Arias 1970) and Housner Intensity (H_i ; Housner, 1952). The

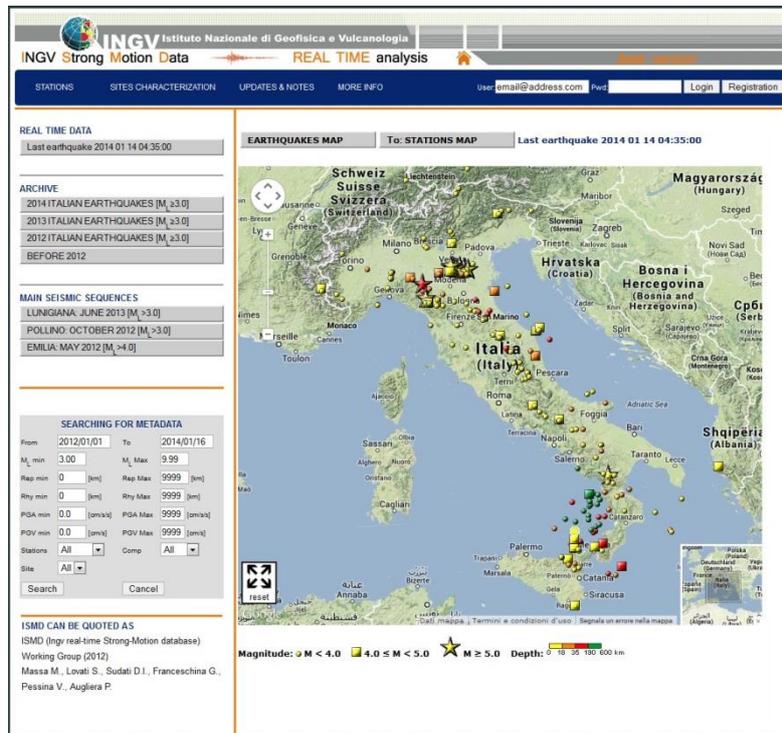
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last parameter is computed after calculation of the 5% damping acceleration (SA), pseudo velocity (PSV) and displacement (Sd) response spectra. Moreover, for each recording station the Horizontal-to-Vertical Spectral Ratios (HVSr) are computed considering 10 s of signal selected in correspondence of the strong motion phase and 10 s of signal selected in correspondence of the S-coda.

At present the ISMD includes 266 Italian earthquakes with ML ranging from 3.0 to 5.9 (the 20th May, 2012, Emilia mainshock), for a total of about 16.000 3-components strong motion records directly downloadable from the web site.

Figure 1. ISMD home page, <http://ismd.mi.ingv.it/ISMD/>



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