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In situ data: the seismic records of Mt. Etna

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Three kinds of seismic data recorded in the Etna area during the time span 2005-2011 have been selected to be shared with MED-SUV users: i) raw continuous signals from permanent broad band digital stations; ii) an earthquake catalogue, concerning the hypocentre of local shocks calculated by expert personnel at Osservatorio Etneo (INGV-OE) by means of off-line analysis of digital seismograms; iii) the RMS amplitude value of the continuous background seismic signal. For preparing the first type of data, we considered the original seismic records of the INGV-OE seismic network. Due to these records are stored as compressed files from the original SUDS format, to achieve our objective several work phases are necessary: 1) copying data from the INGV-OE repository to an intermediate data storage; 2) decompression of data files; 3) extracting the records of selected seismic stations; 4) converting data from SUDS to SAC format; 5) moving the obtained SAC files into the MED-SUV repository. This chain of operations is large time consuming. Up to date, we converted, and shared, about two years of continuous raw data which correspond to about 1 TB. The earthquake catalogue reports parametric information (latitude, longitude, depth, magnitude, etc.) of the hypocentre of ca 800 earthquakes. This catalogue refers to shocks with magnitude greater than or equal to 2.0 and error threshold not greater than fixed values (e.g., horizontal and vertical hypocentral errors less than or equal to 2.0 km, RMS travel-time residual less than or equal to 0.35s, etc.). These data are shared in ASCII format. The RMS amplitude value of the continuous background seismic signal has been calculated by an automatic tool which processes the on-line signal from remote seismic stations. The amplitude data are calculated both in the whole unfiltered continuous signal, and in frequency bands 1 Hz wide, between 0.5 and 15 Hz. The format of data is ASCII. For treatment and characterization of each type of data, we also defined appropriate metadata. As regards the metadata related to the continuous raw data time series, any useful technical specifications, along with the geographical position of the seismic stations selected have been collected. For each station we reported this information in specific files coded in standard SEED format (SEED data less). Metadata of the earthquake catalogue are provided in a separate ASCII format file and they concern mainly the parametric information of the hypocentres.