

Homogenization of magnitude estimates in terms of M_w of Italian earthquakes occurred before 1981

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In the last two decades, several studies faced up to the revaluation and homogenization of Italian instrumental seismic catalog but all of them concerned the time interval since 1981 that is the starting date of the Catalogo Parametrico dei Terremoti Italiani (CPTI). At the time of its compilation (in 2003), CPTI was thought as a continuation of the catalog of the Progetto Finalizzato Geodinamica (PFG) but, over the time, the latter has been almost totally forgot and presently it is even difficult to get as it is not available from any web-site. In this work, we integrated a genuine copy of PFG (originally distributed on floppy disks), with locations from the bulletins of the Istituto Nazionale di Geofisica (ING, now known as INGV) and of the International Seismological Center (ISC) and with local magnitudes from two couples of Wood-Anderson seismometers operating in Italy in the 1970's and 1980's derived from a careful scrutiny of paper bulletins of the Osservatorio Geofisico Sperimentale (OGS, now known as INOGS) and ING. We restricted our analysis to the time interval from 1960 to 1980 because from various evidences we argued that within such period most instrumental magnitudes reported by the PFG catalog are reasonably coherent with Richter's definition. Magnitudes provided by the PFG catalog and other data-sources have been calibrated with respect to M_w by general orthogonal regressions. The dataset from 1960 to 1980 contains about 8800 events, about 5500 of which have an M_w magnitude estimate with related error. The analysis of the frequency-magnitude distribution indicates completeness about for $M_w \geq 4.0$.