



Homogenization in terms of M_w of local magnitudes of Italian earthquakes that occurred before 1981

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In the last two decades, several studies addressed the revaluation and homogenization of the Italian instrumental seismic catalog but all of them refer to the time interval from 1981, i.e. the starting year of the Catalogo Strumentale dei Terremoti Italiani (CSTI). At the time, the CSTI was conceived as the continuation of the catalog of the Progetto Finalizzato Geodinamica (PFG) but, over time, the PFG catalog was almost totally forgotten and presently it is even difficult to obtain as it is not provided by any website. In this work, we integrate a genuine copy of PFG, with additional 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 (WA) seismometers operational in Italy in the 1970's and 1980's, mostly derived from a careful scrutiny of paper bulletins of the Osservatorio Geofisico Sperimentale (OGS) and of the ING. We restrict our analysis to the time interval from 1960 to 1980 because, based on various evidences, we can infer that within such period most instrumental magnitudes reported by the PFG catalog are reasonably coherent with the Richter's definition. Magnitudes provided by WA stations and other data sources are calibrated with respect to M_w by general orthogonal regressions. The final catalog from 1960 to 1980 contains 8536 earthquakes, for 6407 of which we compute a true or proxy M_w magnitude with related uncertainty. The analysis of the frequency-magnitude distribution indicates completeness for about $M_w \geq 4.0$. This work extends the time coverage of the Italian instrumental catalog to about 55 years before the present, allowing the statistical study of some important seismic periods that occurred, for example, in 1962 (Irpinia), 1968 (Belice Valley), 1976 (Friuli), 1979 (Umbria) and 1980 (Irpinia).