


The historical earthquake catalogue of Mt. Etna volcano (Southern Italy): a long-term dataset to investigate local seismotectonics and seismic hazards

D'Amico, S. ; Azzaro, R. ; Castelli, V. ; Mostaccio, A. ; Scarfi, L. ; Tuvè, T.

Historical activity of Mt. Etna is well documented by a large amount of documentary sources that, since the late 1600s, report accounts and descriptions on the seismic and volcanic phenomena occurring on the volcano. A so large dataset of historical information is not frequent worldwide and comparable, in Italy, to that of Vesuvius, although on this volcano the frequency of eruptions and earthquakes is much lower than at Etna. Ten years ago the first release of the historical catalogue of Mt. Etna earthquake from 1832 to 1998 has been published on the basis of macroseismic data, and since then it is regularly updated (CMTE, Azzaro et al., 2000). The catalogue, listing 1790 earthquakes, reports for each event the following parameters: epicentral location, maximum and epicentral intensity, macroseismic magnitude, associated coseismic surface faulting and, if possible, seismogenic fault. A database of intensities expressed in terms of the European macroseismic scale (Grünthal, 1998) is associated to each event, from which the earthquake parameters are derived. Instrumental data, such as magnitude, location and focal depth, are also reported since 1980s. In the framework of the INGV Working Group on historical catalogues, CMTE has become the main data source for the Etna area for compiling the new release of the Italian parametric catalogue (CPTI08), sharing the same geographic directory for felt localities and procedure for deriving earthquake parameters. The extension of CMTE as far back 1600s is the main present effort. The systematic historical analysis has revealed 136 earthquakes in the time-span from 1650 to 1831 (prior to CMTE), 32 of which partially known in the literature. A general problem for this period is that the interpretation of the historical accounts in terms of intensity values as well as the reliability of locations and magnitudes of the events, may be very doubtful in some cases. Using all the potential of historical analysis, CMTE represents a complete and homogeneous seismic dataset over a considerably long time-span, useful to investigate seismotectonics and seismic hazard in the populated region of Mt. Etna. References Azzaro R., Barbano M.S., Antichi B. and Rigano R. (2000): Macroscopic catalogue of Mt. Etna earthquakes from 1832 to 1998. *Acta Volcanol.*, 12 (1/2), 3-36 with CD-ROM. Upgrade to 2008 available on the web at <http://www.ct.ingv.it/Sismologia/macro>. Grünthal, G. (Ed.) (1998): European Macroscopic Scale 1998 (EMS-98). European Seismological Commission, subcommission on Engineering Seismology, working Group Macroscopic Scales. Conseil de l'Europe, Cahiers du Centre Européen de Géodynamique et de Séismologie, 15, Luxembourg, 99 pp.

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 Feedback/Corrections?