EMS and MCS macroseismic intensities assessed in Italy are equivalent?

Gianfranco Vannucci\(^1\), Paolo Gasperini\(^2\), Giulia Laura\(^3\), and Lolli Barbara\(^4\)
\(^1\)Istituto Nazionale di Geofisica e Vulcanologia, INGV-Bologna, Bologna, Italy (gianfranco.vannucci@ingv.it)
\(^2\)Università di Bologna, Dipartimento di Fisica, Bologna, Italy (paolo.gasperini@unibo.it)
\(^3\)Università di Bologna, Dipartimento di Fisica, Bologna, Italy (laura.gulia@unibo.it)
\(^4\)Istituto Nazionale di Geofisica e Vulcanologia, INGV-Bologna, Bologna, Italy (barbara.lolli@ingv.it)

The most of intensity assessments provided by the large (more than 100000 intensity observations) Italian macroseismic database (DBMI15) were made using the traditional Mercalli-Cancani-Sieberg (MCS) scale but in most recent macroseismic surveys in Italy even the European Macroseismic Scale (EMS) scale was used by some research groups. In principle, MCS and EMS scales should give almost the same intensities if only damage to traditional masonry buildings is considered for MCS estimates. Some doubts remain on this equivalence even if MCS and EMS intensities were actually used as they were coincident, as in the case of or the compilation of the CPTI15 catalog used for seismic hazard assessment in Italy. In this work we compared intensity estimates made using both scales for the traditional (expert) estimates made for the same localities of some recent earthquakes as well as community intensities provided by on line questionnaires “Hai Sentito Il Terremoto” (HSIT) collected by INGV. We computed linear regressions between the two sets of intensity estimates and also compared the earthquake parameters (locations magnitude and fault orientations) computed by the Boxer code, using independently the two sets of intensities.