Istituto Nazionale di
Geofisica e Vulcanologia

Italian Parametric Earthquake Catalogue (Catalogo Parametrico dei Terremoti Italiani)

version CPTI15

release 1.5

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CPTI15 was compiled in the framework of INGV research line T3
"Pericolosità sismica e contributi alla definizione del rischio"
and it is a contribution to the activities of the Annex A to the
Framework Agreement INGV-DPC 2012-2021.

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Rovida A., Locati M., Camassi R., Lolli B., Gasperini P. (eds), 2016. CPTI15, the 2015 version of the Parametric Catalogue of Italian Earthquakes. Istituto Nazionale di Geofisica e Vulcanologia. doi:http://doi.org/10.6092/INGV.IT-CPTI15

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Foreword

Thirty years ago, in 1985, the compilation of the "Catalogo dei Terremoti Italiani dall'anno 1000 al 1980" (Catalogue of Italian Earthquakes from the year 1000 to 1980) in the framework of the "Progetto Finalizzato Geodinamica" was completed and published by Daniele Postpischl (Postpischl, 1985a). The Working Group that authored the catalogue had the goal of verifying the information on Italian earthquakes listed in different available catalogues, in particular the ENEL (1977) one, and compile a new, state-of-the-art catalogue. At the conclusion of that work, which had appeared as preliminary with respect to the initial goal, the entire, almost forgotten subject area of historical seismology had emerged and "the first concrete advancements in the still long course of the research, towards the development of final products" were represented by the catalogue and the monographs on large earthquakes collected in the "Atlas of isoseismal maps of Italian earthquakes" (Postpischl, 1985b).

The possibility of having final products was rapidly abandoned, as testified by the long process that has led to the current version of the Italian Parametric Earthquake Catalogue, which inherited that epoch. Through years the possibilities of improving the knowledge on earthquakes already known to the seismological tradition have been – and still are – manifold, and new research strategies have developed.

The new version of the Catalogue, after thirty years, is a further important contribution to the advancements of the understanding of the seismicity of the Italian territory, the definition of seismogenic processes, the identification and characterization of active structures and the improvements of seismic hazard assessment.

The first version of the Parametric Catalogue of Italian Earthquakes (Catalogo Parametrico dei Terremoti Italiani, CPTI99; CPTI Working Group, 1999) was published in July 1999. It aimed at unifying and homogenizing, by using the same parameterization procedures for all the events, the information on Italian earthquakes since then produced by different investigators or reported by different catalogues (NT4.1, Camassi and Stucchi, 1997; CFTI 1 and 2, Boschi et al., 1995; 1997).

In 2004, the second version CPTI04 (CPTI Working Group, 2004) was published as the catalogue to be used in the framework of the Italian seismic hazard assessment MPS04 (MPS Working Group, 2004; Stucchi et al., 2011). CPTI04 was indeed new only as concerns the 1981-2002 portion, the remaining portion being the same as CPTI99 with the exception of the conversion of Ms to Mw with empirical relationships. Some experimental and/or partial version were then released within INGV or to specific research projects.

The third published version, named CPTI11 (Rovida et al., 2011), was released in December 2011. Together with a remarkable update of the input data, both macroseismic (collected in the 2011 release of Italian Macroseismic Database DBMI11; Locati et la, 2011) and instrumental, the most important innovations with respect to previous versions regarded the catalogue structure, consisting of three sets of earthquake parameters, i.e. macroseismic, instrumental, and preferred ones, and the inclusion of records related to many fore- and after-shocks. Nonetheless, for time constraints only studies contributing macroseismic data published before 2007 were taken into account and neither the empirical conversion relations for homogenizing instrumental magnitudes to Mw nor the calibration used to assess parameters from macroseismic data - except the experimental application of the method by di Bakun e Wentworth (1997) to a few offshore earthquakes - were updated.

Thanks to the improved methodologies developed in the framework of some European projects and, mostly, to the wealth of new macroseismic data published in the last five years, together with revised calibrations of instrumental magnitudes, a new important update of the catalogue, as well as a new release of the companion macroseismic database DBMI, has been released as CPTI15.

1. Introduction

The new version of the Italian Parametric Catalogue CPTI15 (*Catalogo Parametrico dei Terremoti Italiani*) represents a significant innovation with respect to the previous ones, which are then outdated. Although the general compilation criteria are the same followed for the previous CPTI11 version, the catalogue content has been in-depth revised as concerns:

- the time coverage, extended from 2006 to the end of 2014;
- the associated macroseismic database (DBMI15; Locati et al., 2016), completely updated;
- the considered instrumental data, new and/or updated;
- the energy thresholds, lowered to intensity 5 or magnitude 4.0 (instead of 5-6 and 4.5, respectively);
- the determination of parameters from macroseismic data, based on a new calibration of the Boxer method;
- the instrumental magnitudes, resulting from new sets of data and new conversion relationships.

The catalogue covers almost the same area as CPTI11 (Figure 1), i.e. the entire Italian territory together with some neighbouring areas and seas, and counts 4584 earthquakes in the time period 1000-2014. The catalogue considers and harmonizes as much as possible input data of different type and origin.

The selected magnitude is moment magnitude (Mw), and for all the earthquakes the related uncertainty is provided. All the data and methods considered are clearly indicated in the catalogue, in order to guarantee the maximum transparency of the compilation procedures. As CPTI11, CPTI15 is not declustered, and contains all the foreshock and aftershocks available and known within the considered intensity and magnitude thresholds.

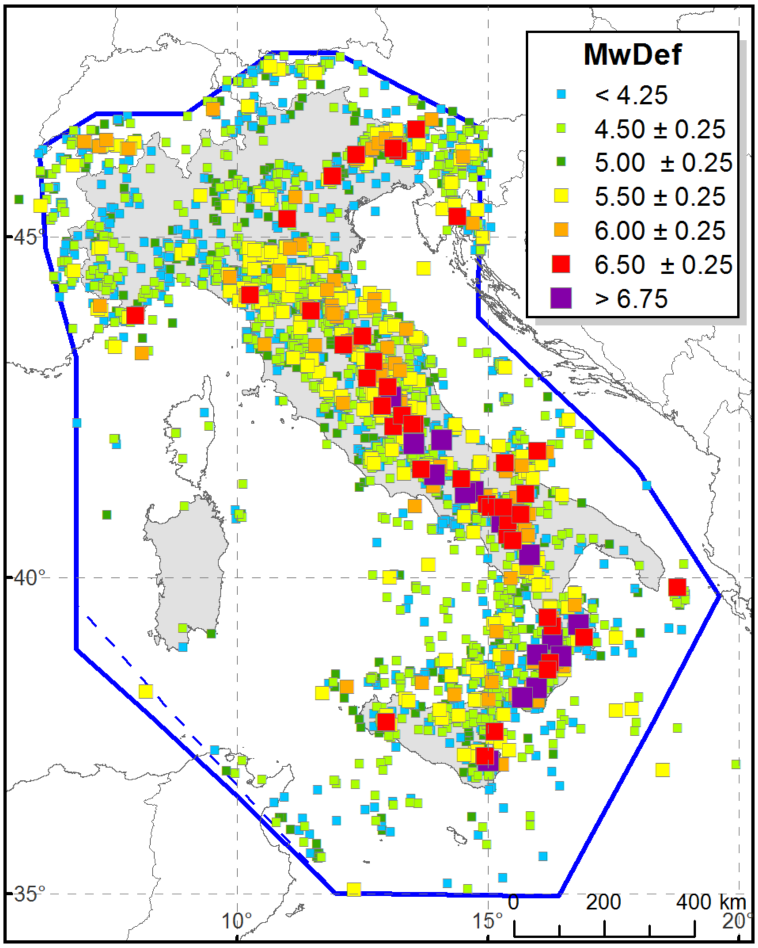

Figure 1. Map of the epicentres of the earthquakes listed in CPTI15, by Mw classes. The border of the new areal coverage is shown together with that of CPTI11 (dashed).

The catalogue contains earthquakes with maximum intensity greater than or equal to 5, together with those of instrumental magnitude equivalent (according to the adopted methods and conversions) to Mw 4.0 or larger. A few earthquakes with Mw < 4.0 are also included in the catalogue for the following reasons:

- for the earthquakes in the Etna volcanic region, according to the adopted conversions (see below), epicentral intensity 5 corresponds to Mw 2.6;
- for the earthquakes in the Phlegrean volcanic region, according to the adopted conversions (see below), epicentral intensity 5 corresponds to Mw 3.1;
- with the exception of some earthquakes in the Etna area and those assessed as fake, all the earthquakes listed in CPTI11 are included in the new version, even if new data or the new calibrations (or both) result in Mw < 4.0.

Figure 2 shows the catalogue content by bins of 0.5 magnitude units.

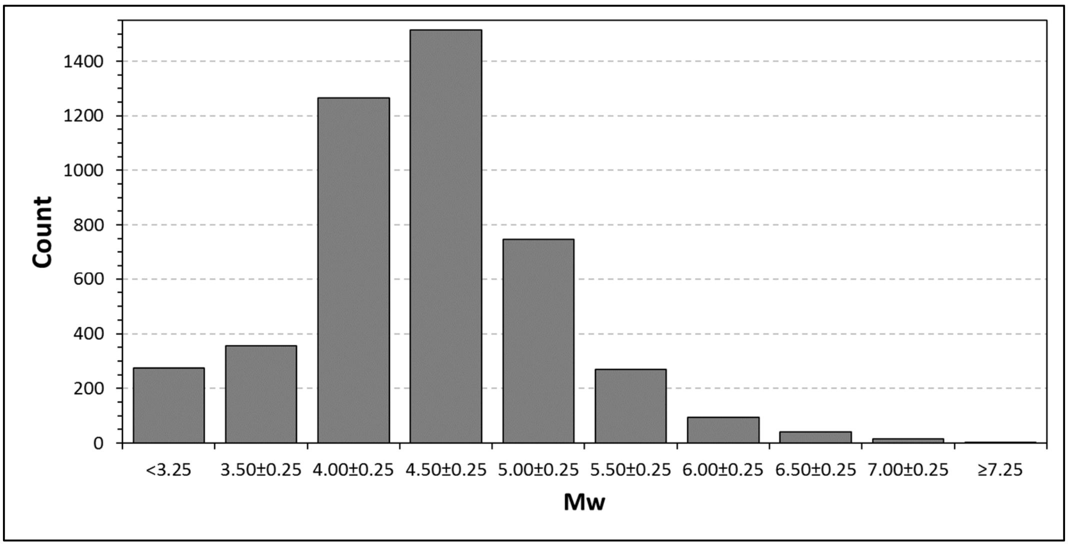

Figure 2. Mw distribution of the earthquakes in CPTI15.

2. Structure

As in CPTI11, data are organized in three sections, plus the general parameters (identifiers, origin time, epicentral or most affected area):

1. default parameters;
2. macroseismic parameters;
3. instrumental parameters.

The structure of the catalogue file is shown in Appendix 1.

The codes in the field "Sect" indicate four different geographical portions of the catalogue and identify the earthquakes of the Etna and Phlegrean volcanic areas (for which specific energy thresholds and parameterizations were adopted), and the deep subduction earthquakes of the Southern Tyrrhenian Sea and Calabrian Arc.

The origin time generally derives from the study or catalogue indicated in the field "MainRef".

Epicentral areas were revised and recompiled with homogeneous criteria, and the related field is compiled for all records.

2.1. Default parameters

Default parameters include the main reference to primary input data, i.e. the macroseismic study, the instrumental catalogue, or the parametric catalogue from which the epicentral location was determined.

<u>*2.1.1 Default location*</u>

The type of default location is indicated in the field "TLDef" and it is macroseismic (code "MM") or instrumental ("II") as available in the primary data, otherwise it is selected between the two possible alternatives ("MI" means the selection of the macroseismic location, "IM" the instrumental one). In the latter case, the macroseismic determination of the epicentre is preferred for earthquakes up to 1984, and the instrumental for later earthquakes. Several exceptions relate, for example, to earthquakes located at sea or close to the coast, for which it is generally selected the instrumental location. The macroseismic location is conversely preferred in areas where the coverage of the seismic network was in the past scarce. However, selections were as much as possible made taking into account the reliability of the available data. In general, for earthquakes located in bordering countries the epicentre proposed by the corresponding national catalogue (marked with "PC" in the field "TLdef") was preferred, with the exception of French earthquakes, for which the macroseismic data contained in the SisFrance (BRGM-EDF-IRSN/SisFrance, 2014) database were processed.

Macroseismic data of 84 earthquakes in DBMI15 were not considered reliable enough to be parametrized (e.g. those related to aftershocks); additional 26 records correspond to earthquakes for which neither macroseismic nor instrumental data are available, although they are well attested by the reference study.

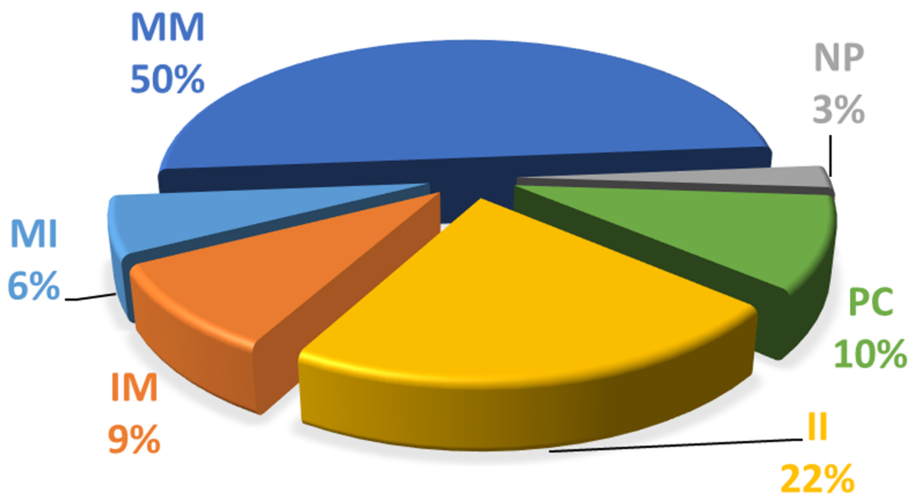

Figure 3. Type of default epicentral location in CPTI15. MI = macroseismic (alternative to instrumental); IM = instrumental (alternative to macroseismic); II = instrumental (only option); MM = macroseismic (only option); PC = from parametric catalogue; NP = not determined.

The hypocentral depth (field "DepDef") is compiled only when the selected epicentre is instrumental and it is provided by the reference catalogue.

<u>*2.1.2. Default epicentral intensity*</u>

Epicentral intensity is provided for 3424 earthquakes for which macroseismic data were processed with the Boxer method (2922 records, see Section 2.2), or from the reference parametric catalogue (421 records) when provided. For 81 earthquake of the Etna area, epicentral intensity is derived from the study referenced for macroseismic data, instead of having been calculated by Boxer.

<u>*2.1.3. Default magnitude*</u>

Default magnitude is assessed from macroseismic or instrumental data, according to the availability and following the procedures described in the following.

If both a macroseismic and an instrumental magnitude estimates are available for the same event, unless the instrumental magnitude is a genuine moment magnitude, the default magnitude is the average of the two values, weighted with the inverse of the square of the associated uncertainties. In such cases, the uncertainty is estimated as the square root of the inverse of the sum of the weights.

For records derived from catalogues of bordering countries, magnitude is obtained from epicentral intensity through the empirical relation described in the following (Equation 2), except for the Swiss catalogue ECOS-09 (Fäh et al., 2011), from which Mw values and related uncertainties were adopted. For 45 earthquakes an epicentral location was adopted either from instrumental data or from a catalogue, but no magnitude estimates were found in the literature. Figure 4 shows the proportion of each magnitude type in the catalogue.

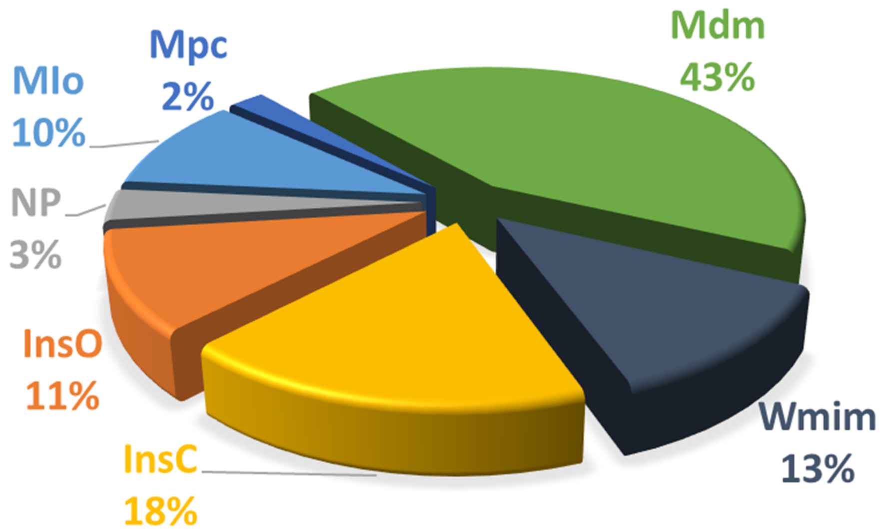

Figure 4. Types of default magnitude in CPTI15 (InsO = instrumental "genuine" Mw; InsC = proxy instrumental Mw; Mdm = macroseismic, from intensity data; MIo = macroseismic, from epicentral intensity; Mpc = from another parametric catalogue; Wmim = mean of macroseismic and instrumental values; NP = not parametrized).

2.2 Macroseismic parameters

Macroseismic data supporting CPTI15 are collected in the Italian macroseismic database DBMI15 (*Database Macrosismico Italiano*, version 2015; Locati et al., 2016), containing 122’701 intensity data related to 3212 earthquakes. Data derive from 185 studies, databases, reports, and bulletins published up to 2016 and listed in Appendix 2. The number of earthquakes with macroseismic data nearly doubled with respect to the previous version of the catalogue and database (from 1681 to 3212 earthquakes, corresponding respectively to the 53% and 70% of the earthquakes in the catalogue).

For each earthquake the reference macroseismic study has been selected among all the available ones, as described in Locati et al, (2016), which are collected, archived, and made available – when possible – through the portal of the Italian Historical Macroseismic Archive “ASMI” (*Archivio Storico Macrosismico Italiano*). Selected data generally derive from studies which are more recent than those considered for the previous versions DBMI11 and CPTI11, and include 54 new studies published between 2008 and 2016. Such new studies provide data on 1243 earthquakes, out of which 325 were not contained in CPTI11, 722 were not supported by intensity data, and 146 have an updated study.

2.2.1. Macroseismic location

Parameters of earthquakes with macroseismic data were mostly assessed by using the Boxer method (Gasperini et al., 1999; 2010).

A macroseismic epicentre was determined for 3005 earthquakes. Among the location methods available in the 4.0 version of the Boxer code, we selected “method 0” (Gasperini et al., 2010), which determines the epicentre as the barycentre of the data points with the highest intensities. Such a choice was driven by the verified stability of the method even with poor intensity distributions.

For 63 earthquakes with epicentres likely located offshore or in coastal areas the location “method 4” was preferred. Such method calculates the hypocentral location (latitude, longitude, and depth) and the expected epicentral intensity according to the relation by Pasolini et al. (2008), minimizing the sum of the square of the residuals (see Gasperini et al., 2010). For 34 earthquakes out of these 63, the macroseismic epicentre is selected as the default one.

The uncertainty associated with the epicentral coordinates, as calculated by Boxer with both "method 0" and "method 4" is available for 2029 earthquakes, i.e. with enough intensity data.

For 33 earthquakes the location by Boxer resulted inconsistent with the intensity distributions, and the epicentre was modified, in general either assuming it as coinciding with the point of maximum intensity or excluding from the processing one or more high-intensity data points (assumed to be outliers).

For 79 earthquakes in the Etna area the location proposed by the reference macroseismic study, based on observed coseismic surface faulting (see Azzaro et al., 2000), was preferred to that derived from the available macroseismic data points.

In addition to the 86 earthquakes with unreliable intensity data, for 96 earthquakes with macroseismic data, in any case included in DBMI15, macroseismic parameters are not considered as they are inconsistent with the available and reliable instrumental determinations.

2.2.2. Macroseismic magnitude

The majority (90%) of the 3004 macroseismic magnitudes are calculated with the Boxer method, 1614 with the isoseismal method and the new calibration described in the following, and 1096, related to poor intensity distributions, with the new Io-to-Mw relation (Equation 2).

For parametrization purposes, macroseismic data with intensity expressed as non-numerical codes ("HF", "SD", "D", "HD") were converted to numerical values as in DBMI15 and described in Locati et al. (2016), with the exception of "felt" ("F"), which has been calibrated as a separate intensity value (see section 2.2.3). For the 20 earthquakes for which the magnitude was derived from a non-numerical epicentral intensity the converted numerical value was rounded to the closest half degree (F = 4.0, HF = 5.0, SD = 5.5, D = 6.5, HD = 7.5).

The uncertainty associated to the macroseismic magnitude, with 0.10 as a minimum value, is always shown in the catalogue. The uncertainty associated to magnitudes derived from epicentral intensity through Equation 2 was assumed equal to 0.46, corresponding to the standard deviation of the distribution of the individual earthquakes in the calibration dataset.

For earthquakes in the Etna volcanic area, macroseismic magnitude was calculated with the empirical relationship between Io and ML by Azzaro et al. (2011), specifically calibrated for the area. The same relationship was applied also to the earthquake in the Phlegrean volcanic area, for which a specific relationship is not available in the literature. The ML values obtained from Io were then converted to Mw, by using the relationships by Tuvè et al. (2015), and Petrosino et al. (2008) respectively for the Etna and Phlegrean volcanic areas respectively. Earthquakes belonging to such areas (Figure 5) are marked in the field "Sect" of the catalogue (Appendix 1).

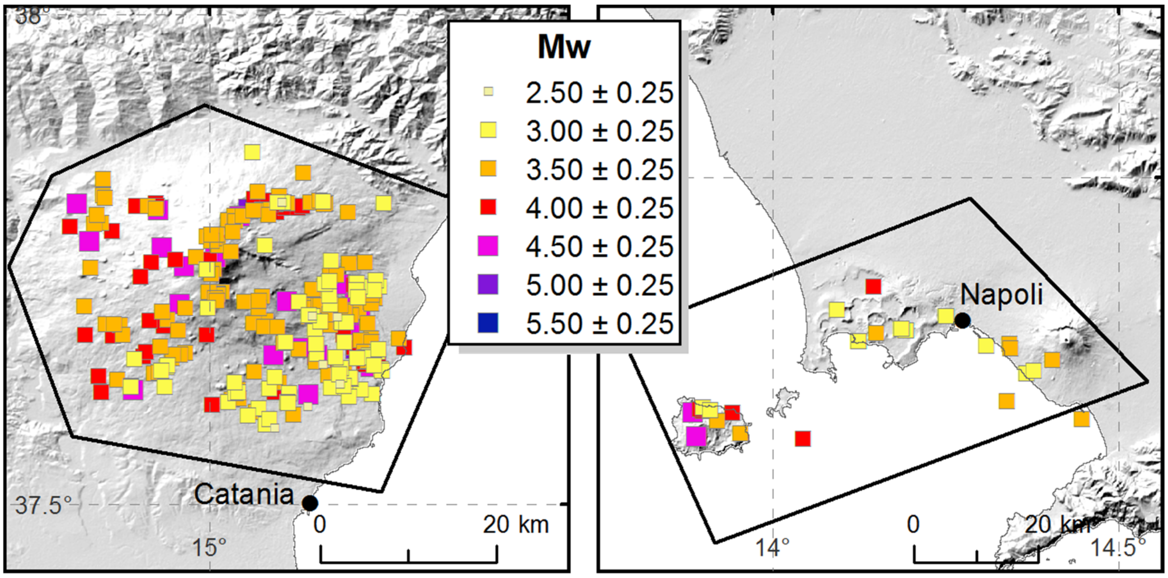

Figure 5. Etna (left) and Phlegrean (right) volcanic areas as defined for the purpose of CPTI15, and related seismicity.

2.2.3. Boxer calibration

The calibration of Boxer for calculating magnitude from macroseismic data was updated with respect to that used for CPTI11 (the same used for the 1980-2002 portion of CPTI04). Such new calibration derived from a dataset of 345 earthquakes with Mw between 2.8 and 7.1, selected among those with both macroseismic data (30138 data points, with intensity between 2 and 11 MCS) and instrumental magnitudes, either Mw or proxy (Figure 6). Earthquakes deeper than 30 km and earthquakes with less than 10 intensity data were not included in the calibration dataset, as well as some earthquakes with partial or incomplete intensity distributions (e.g. earthquakes at the border or at sea).

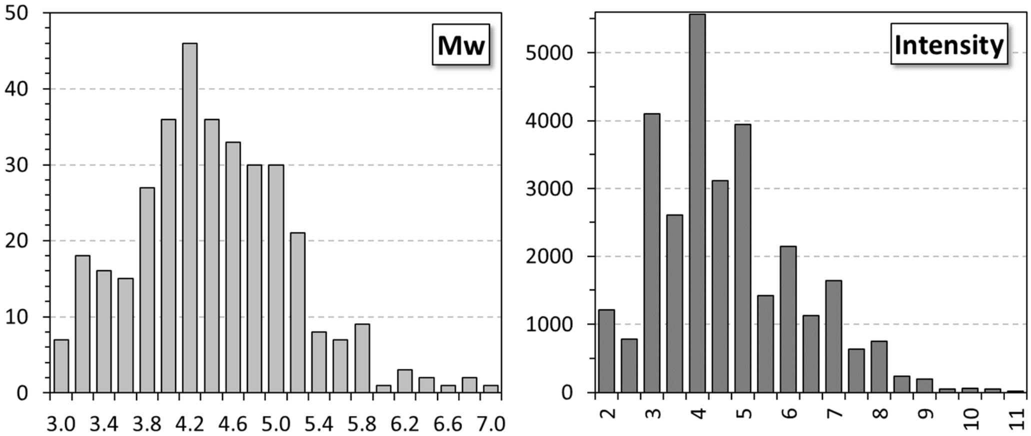

Figure 6. Magnitude and intensity distribution in the dataset used for calibrating Boxer.

Instrumental magnitudes used in the calibration were derived as described in the following section, and they include both moment magnitudes derived from moment tensor solutions and proxy values in order to ensure both a magnitude (or intensity) and temporal coverage as wide as possible. Sixteen intensity classes, i.e. those with intensity between 2 and 9 plus intermediate uncertain values and "felt" as an independent class, were calibrated to be used by Boxer in the formula by Sibol et al. (1987):

$$M_i = a_i + b_i \, log^2 \, (A_i) + c_i \, Io^2 \qquad (1)$$

where M is magnitude, A_i is the area of the *i-th* isoseismal, Io is epicentral intensity, and a_i, b_i, c_i are the coefficients shown in Table 1.

Intensity	a	b	c	std	Reg	df
2	3.12202	0.04414	0.02241	0.2611	10.4	82
2-3	3.01875	0.04769	0.02309	0.1805	10.7	43
3	2.94284	0.05239	0.02345	0.2482	17.9	211
3-4	2.89718	0.05662	0.02400	0.2194	16.4	139
F (3.9)	3.60901	0.02733	0.02374	0.2017	14.0	22
4	3.20351	0.05107	0.02218	0.2413	23.0	224
4-5	3.16818	0.04417	0.02667	0.2390	20.1	134
5	3.69208	0.02425	0.02462	0.2433	27.1	118
5-6	3.97257	0.01983	0.02254	0.2337	21.4	48
6	3.83759	0.03590	0.02196	0.2244	33.8	50
6-7	3.96044	0.03437	0.02104	0.2112	29.5	32
7	4.00027	0.06045	0.01794	0.1942	49.3	27
7-8	4.29349	0.03671	0.01825	0.1265	30.7	15
8	4.45795	0.05282	0.01579	0.1410	41.9	14
8-9	4.70681	0.04980	0.01462	0.0619	29.0	4
9	5.60472	0.14657	-	0.1350	23.1	5

Table 1. Coefficients obtained through the calibration of Boxer.

From the same calibration dataset, a new empirical relationship between epicentral intensity Io e moment magnitude Mw was derived:

$$Mw = (0.4667 \pm 0.0191) * Io + (1.8267 \pm 0.1571) \qquad (2)$$

$$std = 0.11;\ R^2 = 0.99$$

Equation 2 was applied also to epicentral intensity provided by other parametric catalogues, e.g. those of neighbouring countries, that were used in the lack of intensity data.

The calibration dataset was used also for deriving new coefficients (a, b), and the reference depth (h) of the relationship by Pasolini et al. (2008), used by Boxer location "method 4"

$a = 0.00289 \pm 0.00021$

$b = 1.24802 \pm 0.01918$

$h = 7.44523 \pm 0.27574$

2.3 Instrumental parameters

2.3.1. Instrumental location

Twenty-six catalogues, databases, and studies listed in Appendix 3A provided an instrumental location for 1725 earthquakes in the time-period 1904-2014.

When more than one instrumental determination of the epicentre was available for the same earthquake, the selection was generally performed according to the following temporal priority scheme:

- ISC (International Seismological Centre) Bulletin from 1963 to 1980
- CSTI1.1 (Catalogo strumentale dei Terremoti italiani; CSTI Working Group, 2005) from 1981 to 1996
- CSI1.1 (Catalogo della Sismicità Italiana; Castello et al., 2006) from 1982 to 2002
- INGV Bulletin from 2003 to 2012
- ISIDe (Italian Seismological Instrumental and parametric database) from 2012 to 2014.

The exceptions to the shown criteria are manifold. As an example, the ISC locations were preferred to others also in the period 1981-2012 (end of the Bulletin) for deep events in the Tyrrhenian Sea and for many earthquakes outside the coverage of the Italian seismic network (e.g. Central Adriatic Sea, Ionian Sea, Sicily Channel, Western Tyrrhenian Sea). Similarly, data from local catalogues and bulletins, such as the Bulletin of the OGS (Istituto Nazionale di Oceanografia e Geofisica Sperimentale) for the Friuli Venezia Giulia Region (NE Italy) or different instrumental catalogues for the Etna area (Patané et al., 2004; Distefano e Di Grazia, 2005; Barberi et al., 2015), as well as the instrumental catalogue of France (SI-Hex; Cara et al., 2015) and Slovenia (Živcic, 2009, for event after 1973), were selected in the respectively covered areas and time windows.

2.3.12. Moment magnitudes from moment tensor solutions

Following the criteria of Gasperini et al. (2012), all moment magnitude estimates provided by moment tensor catalogues were considered (Table 2), resulting in 740 Mw values for earthquakes between 1976 and 2014.

Catalogue	Coverage	N. data
Italian CMT (The Italian CMT dataset from 1977 to the present; Pondrelli et al., 2001; 2006)	1976-2014	405
INGV TDMT (INGV Time Domain Moment Tensor Catalogue)	2004-2014	166
SED-MT (SED-ETHZ Reviewed Regional Moment Tensor Catalog)	1999-2005	105
Global CMT (Global Centroid Moment Tensor Project)	1976-2012	48
NEIC (National Earthquake Information Center. Moment tensor solutions)	1980-2009	16
Total	**1976-2014**	**740**

Table 2. Moment tensor catalogues considered for moment magnitude and related time coverage, together with the number of values adopted in CPTI15.

When different catalogues provide alternative Mw estimates for the same earthquake the different Mw values were combined and homogenized according to Gasperini et al. (2012). As a result, Mw estimates from moment tensor solutions, ranging from 3.9 to 6.8, are available for 494 earthquakes, representing the 11% of the catalogue (see also Figure 4). The uncertainty associated to Mw estimate was determined according to Gasperini et al. (2012), as well. The complete list of catalogues providing magnitude estimates is given in Appendix 3B.

2.3.3. Proxy moment magnitude

Lacking moment magnitude from moment tensor solutions, other types of instrumental magnitude of different origins were considered and converted to Mw, resulting in 1400 magnitude estimates.

For the main portion of the catalogue, in the time period from 1981 to 2014 different types of local magnitude provided by the CSTI1.1 (CSTI Working Group, 2005) and CSI1.1 (Castello et al., 2006) catalogues, and the Seismic Bulletin and ISIDe database of INGV were considered. Magnitudes from such catalogues were selected, converted to Mw, and combined according to Gasperini et al. (2013).

For the period between 1963 and 1980 Ms and mb values from the ISC Bulletin were mainly selected, and they were complemented with estimates from the catalogue by Margottini et al. (1993). Ms and mb values were treated and converted to Mw according to Lolli et al. (2014; 2015). Mw values derived from mb and Ms estimated by ISC were considered also in the period 1981-2012, either combined, through the average weighted with the inverse of the square of the uncertainty, with values derived from ML or preferred to them in case of earthquakes that are deep (mainly in the Southern Tyrrhenian sea area) or located out of the coverage of the Italian seismic network. The criteria above were not applied in the lack of the determination by one (or more) dataset in the period of its validity, or determinations with verified low reliability.

In the time period from 1972 to 1980 Wood-Anderson (WA) ML determined either by Monte Porzio observatory in Rome and contained in the ING Bulletin, or by Trieste station and published in Sandron et al. (2015) were also considered. The first ML WA values were converted to Mw by adding a fixed offset of 0.22 magnitude units (Lolli et al., 2016), for the latter the conversion proposed by Sandron et al. (2015) was adopted. Proxy Mw derived from ML WA were combined with those derived from ISC, when both available.

Lacking any other determination, ML values from the PFG catalogue (Postpischl, 1985a) were used considering them as equivalent to Mw, as deduced from the comparison with ISC data (Lolli et al., 2016). A few mb and Ms estimates from Margottini et al. (1993) were considered also for earthquakes occurred before 1963.

Table 3 summarizes the used datasets, their overall temporal validity, the provided magnitude type, and the relevant conversion to Mw.

Catalogue	Validity	N. data	M type	Conversion to Mw
CSTI1.1	1981-1996	330	Md, Ma, ML	Gasperini et al., 2013
CSI1.1	1997-2002	165	ML, Md	Gasperini et al., 2013
BSINGV	2003-2005	20	Md, ML	Gasperini et al., 2013
ISIDE	2005-2014	55	ML, Md	Gasperini et al., 2013
ISC	1964-1980	215	mb, Ms	Lolli et al., 2014; 2015
MARAL993	1903-1975	296	mb, Ms	Lolli et al., 2014; 2015
BSING	1972-1980	91	ML WA	*Mw = WA + 0.22*
POST985	1962-1978	8	ML	*Mw = ML + 0.07*
SANAL015	1977-1978	4	ML WA	Sandron et al., 2015

Table 3. Dataset providing instrumental magnitude to CPTI15, together with the time period and the number of data considered. The method used for their conversion to Mw is also indicated.

As a conclusion, the overall priority scheme for the selection of instrumental magnitudes is shown in Table 4.

Priority	M type	Period	Notes
1	Mw from moment tensor soutions	1976-2014	always selected if available, also as MwDef
2	Proxy ML	1981-2014	may be combined with 3
3	Proxy mb, Ms (ISC)	1963-2012	may be combined with 2 or 4
4	Proxy WA	1972-1980	may be combined with 3
5	Proxy mb, Ms (Margottini et al. 1993)	1903-1975	only if other types are missing
6	Proxy ML PFG	1962-1978	only if other types are missing

Table 4. Priority scheme followed in the selection of instrumental magnitude. Magnitudes other than Mw from moment tensor solutions (priority 1), are also combined with macroseismic estimates in the assessment of MwDef.

In addition, moment magnitudes derived by Bernardi et al. (2005) for 12 earthquakes with epicentres in Switzerland and by Pino et al. (2008) for the 28 December 1908 earthquake (Messina straits) were considered.

As for earthquakes in the Etna volcanic areas, apart from Mw from moment tensor solutions, instrumental magnitudes were selected from the available local catalogues and specific conversion relation as summarized in Table 5.

Catalogue	Validity	N. data	M type	Conversion to Mw
Distefano e Di Grazia, 2005	1980-1997	33	Md, ML	Tuvè et al. 2015 (Md-ML); Saraò et al., 2015 (ML-Mw)
Patané et al., 2004	1988-1998	14	Md, ML	Tuvè et al. 2015 (Md-ML); Saraò et al., 2015 (ML-Mw)
INGV Catania	1999-2014	98	Md, ML	Tuvè et al. 2015 (Md-ML); Saraò et al., 2015 (ML-Mw)
INGV Mediterranean Very Broadband Seismographic Network	1999-2002	7	ML	Saraò et al., 2015

Table 5. Datasets providing instrumental magnitudes for earthquakes in the Etna volcanic area, together with the time period and the number of data considered. The method used for their conversion to Mw is also indicated.

3. What is new with respect to CPTI11

As already mentioned, the new CPTI15 version of the catalogue represents a significant evolution with respect to the previous one, as far as both input data, macroseismic and instrumental, and parameters determination are concerned.

The time coverage of the catalogue was extended from 2006 to the end of 2014, with the addition of 275 earthquakes, 35 of them supported also by intensity data from macroseismic field surveys.

In the common time-period (1000-2006) CPTI11 and CPTI15 contain 3182 and 4298 earthquakes, respectively.

Fifty earthquakes in CPTI11, listed in Appendix 4, are not anymore in CPTI15 either because they turned out to be fake (32), not supported by reliable data (8), or for errors in the original data or in the compilation of CPTI11. As decided by the compilers of the related section, 3 earthquakes of the Etna area with intensity < 5 are not included in the catalogue.

As a result, CPTI15 contains 1192 more earthquakes than CPTI11. Most of such a difference is due to the lowering of the energy thresholds to intensity 5 and Mw 4.0, which accounts for the addition of 757 events to those in CPTI11. The remaining 435 earthquakes, with higher intensity and/or magnitude mostly derive form new historical macroseismic studies (e.g. Camassi et al., 2011; Molin et al., 2008, Castelli et al., 2016; Azzaro and Castelli, 2015; Guidoboni and Ciuccarelli, 2011), and parametric catalogues (Živcic, 2009; Fäh et al., 2011). In addition, 50 depth earthquakes in the Southern Tyrrhenian Sea area, not considered by CPTI11, were added.

The 3129 earthquakes in both CPTI11 and CPTI15, show differences in both location and magnitude.

Differences in epicentral location (Figure 7) are mainly due to the updated macroseismic input data, as macroseismic epicentres are computed with the same method used for CPTI11. An exception is represented by 21 earthquakes, for which the macroseismic epicentre in CPTI11 was determined with the method by Bakun and Wentworth (1997), and in CPTI15 is substituted by an instrumental determination (4 cases), or a Boxer "method 0" (6) or "method 4" (11) solution. Other significant differences are due to new instrumental solutions and, at a lesser extent, to the substitution of macroseismic epicentres with instrumental ones.

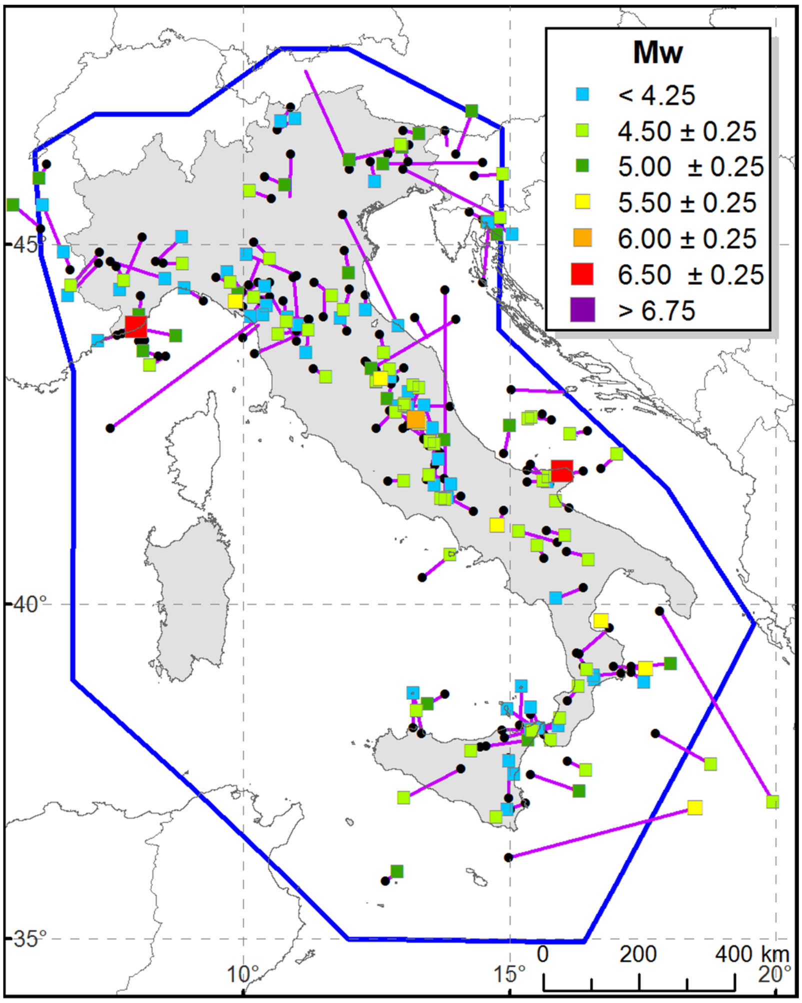

Figure 7. Main differences in between the epicentral locations (≥ 30 km) in CPTI15 (coloured squares) and in CPTI11 (black dots).

Differences in magnitude values may be due, apart from the differences in input data, also to the different parameterization of macroseismic data or the different conversions of the instrumental values, but also to a different combination of the two different data types.

Figure 8 shows the Mw differences between CPTI15 and CPTI11, according to the Mw type in CPTI15 (left: mean, from macroseismic data, from epicentral intensity; right: observed instrumental and proxy Mw).

As a general trend, Mw values in CPTI15 are lower than those in CPTI11, especially for small earthquakes. As for macroseismic magnitudes, it is clear the effect of the many values (about 882) now derived from intensity distributions and resulting in wide magnitude ranges instead of being clustered around the values obtained from the linear Io-Mw conversion. Macroseismic determinations also account for the variations observed for high magnitudes. Such differences are due to the substitution of some solutions from the method by Bakun and Wentworth (1997) for large offshore earthquakes with determinations by Boxer (homogeneous with all the rest of catalogue), or to the new intensity distributions, sometimes remarkably different form previous ones. Significant variations, again mainly towards low values, derive also from the adoption of the solutions proposed by the new Swiss catalogue ECOS-09 (Fäh et al., 2011), which is updated with respect to the version considered by CPTI11.

Instrumental magnitudes higher than 5.5 are substantially equivalent in the two catalogues, probably as a result of the few changes in the considered magnitude type for large earthquakes. For low magnitude values some differences are present, especially as far as proxy Mw are concerned. This probably results from the new homogenization and combination criteria adopted. Differences in low values of Mw from moment tensor solutions are due to the corresponding datasets, previously not considered.

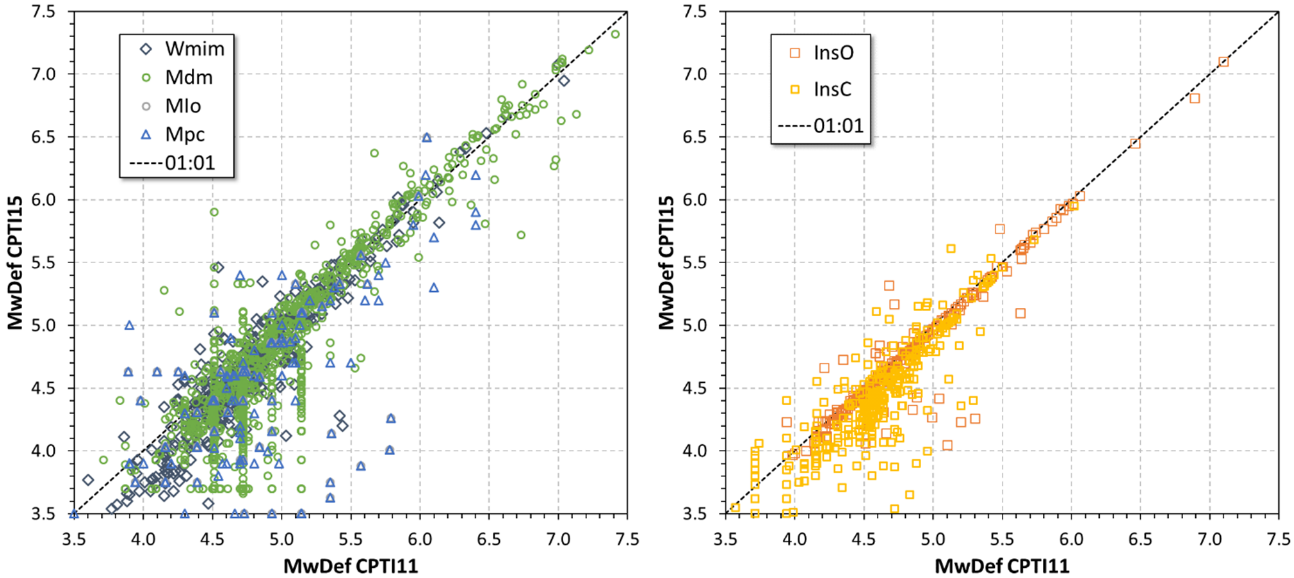

Figure 8. Comparison between CPTI15 and CPTI11 magnitudes. Magnitudes are shown according to their type in CPTI15. Left: Wmim = mean of instrumental and macroseismic determinations; Mdm = macroseismic, from intensity data; MIo = macroseismic, from epicentral intensity; Mpc = from parametric catalogue. Right: InsO = instrumental, Mw from moment tensor solutions; InsC = instrumental proxy Mw.

Figure 9 shows the distributions of magnitudes in CPTI11 and CPTI15 by classes of 0.25 magnitude units. The differences in low magnitude values shown in Figure 8 result in a much more homogeneous distribution of magnitudes from 4.50 to 5.25 in CPTI15 than in CPTI11.

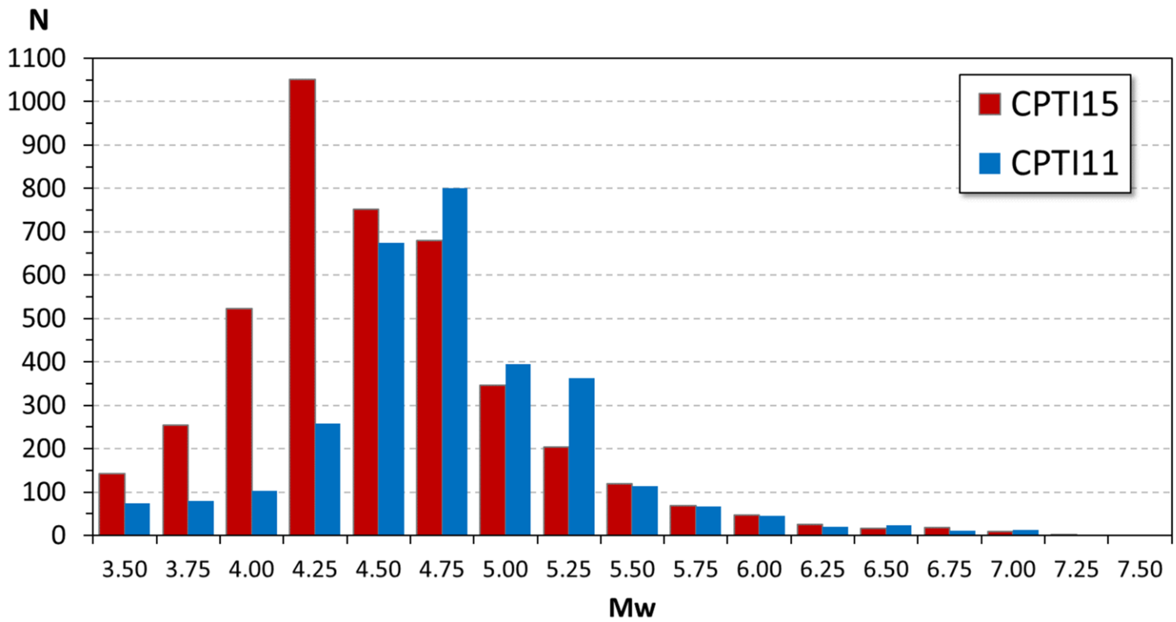

Figure 9. Comparison between magnitude distributions in CPTI15 and CPTI11 according to classes of 0.25 magnitude units (classes are centered on the shown value).

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Appendix 1 – CPTI15 file format.

Field	Description
N	Record number (in chronological order)
Sect	Catalogue section, related to a specific seismological context MA = main NV = Phlegraean volcanic area EV = Etna volcanic area CA = Calabrian arc (subduction)
Year	Origin time: year
Mo	Origin time: month
Da	Origin time: day
Ho	Origin time: hour
Mi	Origin time: minutes
Se	Origin time: seconds
EpicentralArea	Epicentral area or area of the largest macroseismic effects
MainRef	Main bibliographical reference: - equal to RefM when TLdef = MM, MI, ND - equal to RefIns when TLdef = II o IM - code of the reference parametric catalogue when TLDef = PC
TLDef	Type of default location: - MI = macroseismic (alternative to instrumental) - IM = instrumental (alternative to macroseismic) - II = instrumental (only choice) - MM = macroseismic (only choice) - PC = from parametric catalogue - NP = location not defined
LatDef	Default epicentral latitude (WGS84)
LonDef	Default epicentral longitude (WGS84)
DepDef	Default depth in km (instrumental; only when TLDef = II or IM)
IoDef	Default epicentral intensity
TIoDef	Source of the default epicentral intensity: - bx = from macroseismic data, determined using Boxer - pc = from parametric catalogue - dm = from macroseismic data according to the referenced study (RefM)
MwDef	Default moment magnitude
ErMwDef	Error associated to the default moment magnitude
TMwDef	Default moment magnitude determination code: - InsO = instrumental, recorded - InsC = instrumental, converted from other magnitude scales - Mdm = macroseismic, from intensity data - MIo = macroseismic, converted from epicentral intensity - Mpc = from the source parametric catalogue - Wmim = mean of MwIns and MwM, weighted with the inverse of the related variances
RefM	Reference code of the macroseismic dataset
MdpN	Number of macroseismic data
Imax	Maximum intensity
LatM	Epicentral latitude: macroseismic determination (WGS84)
LonM	Epicentral longitude: macroseismic determination (WGS84)
ErrLatM	Error associated to the latitude, determined using Boxer [km]
ErrLonM	Error associated to the longitude, determined using Boxer [km]
TepiM	Method for the determination of the macroseismic epicentre: - bx0: determined by Boxer, method 0 - bx4: determined by Boxer, method 4 - bxM: determined by Boxer (method 0), and modified - dm: from macroseismic data according to the procedures described in the referenced study (RefM)

Field	Description
Io	Epicentral intensity
MwM	Moment magnitude: macroseismic determination
ErMwM	Error associated to the macroseismic moment magnitude
TMwM	Method for the determination of moment magnitude from macroseismic data: - bxn = calculated by Boxer using the isoseismals method - bxi = calculated by Boxer using epicentral intensity - Io = converted from Io with the same relation used by Boxer - IoV1 = converted from Io using relations for the Etna volcanic area - IoV2 = converted from Io using relations for the Phlegraean volcanic area
RefIns	Reference code of the source of the instrumental epicentre
LatIns	Epicentral latitude: instrumental determination (WGS84)
LonIns	Epicentral longitude: instrumental determination (WGS84)
DepIns	Hypocentral depth [km]
MwIns	Instrumental moment magnitude
ErMwIns	Error associated to the instrumental moment magnitude
TMwIns	Instrumental magnitude origin: - MwMT = from moment tensor solution - Swa = from S-waves amplitude - SM = from spectral method - Pry_ml = converted from local magnitude - Pry_mdml = converted from local magnitude derived from duration magnitude - Pry_mlmsmb = mean of Mw values converted from Ml, Ms, and mb estimates, weighted with the weighted with the inverse of the related variances - Pry_msmb = mean of Mw values converted from Ms and mb estimates, weighted with the weighted with the inverse of the related variances - Pry_msmbWA = mean of Mw values converted from Ms, mb, and Ml Wood-Anderson estimates, weighted with the weighted with the inverse of the related variances - Pry_WA = converted from Ml Wood-Anderson
RefMwIns	Reference code(s) of the source of the instrumental magnitude
EqID	Earthquake identifier (not chronologically ordered)
CPTI11id	Record identifier in CPTI11

Appendix 2 – Macroseismic datasets.

The table shows the code used in the CPTI15 file (field "RefM") and the corresponding reference of the studies contributing macroseismic data to the catalogue. The number of considered earthquakes, and macroseismic data from each study is also indicated.

Code (RefM)	Reference	N. earthq.	MdpN
ALBAL003	Albini P., Migliavacca P. and Moroni A., 2003. Studio di alcuni terremoti di intensità epicentrale moderata in Italia settentrionale. Rapporto tecnico, INGV-MI, 58 pp. + appendices.	23	175
ALBAL994a	Albini P., Bellettati D., Camassi R., Moroni A., Stucchi M. and Zerga A. (eds.), 1994a. Revisione dei terremoti di interesse per il territorio della Provincia di Trento. Rapporto tecnico per la Provincia Autonoma di Trento, IRRS-CNR, Milano, 210 pp.	7	251
ALBAL994c	Albini P., Cecic I., Morelli G., Sovic I. and Živcic M., 1994c. A preliminary investigation of the January 4th, 1802 earthquake. In: P. Albini and A. Moroni (eds.), Materials of the CEC project "Review of Historical Seismicity in Europe", CNR, Milano, vol. 2, 205-214.	1	8
ALBI001	Albini P., 2001. Studio preliminare di alcuni terremoti di energia medio-bassa nell'area di Vittorio Veneto (sec. XIX). Rapporto tecnico INGV-MI per il Progetto GNDT "Scenari di danno in area veneto-friulana", Milano, 6 pp.	5	73
ALBRV010	Albini P., Rovida A., 2010. The 12 May 1802 earthquake (N Italy) in its historical and seismological context. J. Seismol., 14, 629-651, http://doi.org/10.1007/s10950-010-9187-6.	1	94
ALEX990	Alexandre P., 1990. Les séismes en Europe occidentale de 394 à 1259. Nouveau catalogue critique. Observatoire Royal de Belgique, Série Geophysique, Bruxelles, 267 pp.	1	2
AMGNDT995	Archivio Macrosismico GNDT, 1995. Studi preliminari di terremoti attraverso i repertori sismologici. Archivio macrosismico del GNDT, Milano.	241	7561
ARCAL010	Arcoraci L., Berardi M., Castellano C., Leschiutta I., Maramai A., Rossi A., Tertulliani A. and Vecchi M., 2010. Rilievo macrosismico del terremoto del 15 dicembre 2009 nella Valle del Tevere e considerazioni sull'applicazione della scala EMS98. Quaderni di Geofisica, 82, INGV, Roma, 21pp.	1	26
ARCAL012a	Arcoraci L., Berardi M., Brizuela B., Castellano C., Del Mese S., Graziani L., Maramai A., Rossi A., Sbarra M., Tertulliani A., Vecchi M., Vecchi S., Bernardini F., Ercolani E., 2012. Rilievo macrosismico degli effetti del terremoto del 25 gennaio 2012 (Pianura Padana). Rapporto tecnico QUEST, INGV, Roma, 9pp.	1	25
ARCAL013	Arcoraci L., Bernardini F., Brizuela B., Ercolani E., Graziani L., Leschiutta I., Maramai A., Tertulliani A., Vecchi M., 2013. Rapporto macrosismico sul terremoto del 21 giugno 2013 (ML 5.2) in Lunigiana e Garfagnana (province di Massa-Carrara e di Lucca) (aggiornato al 30 giugno 2013). Rapporto tecnico QUEST, INGV, Roma, 5 pp.	1	27
AZZA995	Azzaro R., 1995. Studio macrosismico dei terremoti di Trapani del 29 maggio e di Filicudi del 23 luglio 1995. Atti 14°Convegno Nazionale GNGTS, 1, 197-204.	2	103
AZZAL000	Azzaro R., Barbano M.S., Antichi B. and Rigano R., 2000. Macroseismic catalogue of Mt. Etna earthquakes from 1832 to 1998. Acta Vulcanol., 12, 1-2, 3-36 + CD	183	3579
AZZAL002	Azzaro R., D'Amico S., Mostaccio A., Scarfì L., 2002. Terremoti con effetti macrosismici in Sicilia orientale - Calabria meridionale nel periodo Gennaio 1999 - Dicembre 2001. Quaderni di Geofisica, 27, INGV, Roma, 59 pp.	16	711
AZZAL003a	Azzaro R., Camassi R., D'Amico S., Mostaccio A., Scarfì L., 2003. Il terremoto di Palermo del 6 settembre 2002: effetti macrosismici. Quaderni di Geofisica, 31, INGV, Roma, 15 pp.	1	132
AZZAL006	Azzaro R., D'Amico S., Mostaccio A., Scarfì L., Tuvè, T. 2006. Terremoti con effetti macrosismici in Sicilia orientale nel periodo Gennaio 2002 - Dicembre 2005. Quaderni di Geofisica, 41, INGV, Roma, 62 pp.	15	319
AZZAL009	Azzaro R., D'Amico S., Mostaccio A., Scarfì L., Tuvè T., 2009. Terremoti con effetti macrosismici in Sicilia orientale nel periodo gennaio 2006 - dicembre 2008. Quaderni di Geofisica, 72, INGV, Roma, 39 pp.	9	233
AZZAL012	Azzaro R., D'Amico S., Scarfì L., Tuvè T., 2012. Aggiornamento al rilievo macrosismico degli effetti prodotti dal terremoto del Pollino del 26 ottobre 2012 alle ore 01:05 locali. Rapporto tecnico QUEST, INGV, Roma, 5 pp.	1	40

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AZZAL014	Azzaro R., D'Amico S., Mostaccio A., Scarfì L., Tuvè T., Manni M., 2014. Terremoti con effetti macrosismici in Sicilia orientale nel periodo Gennaio 2009 - Dicembre 2013. Quaderni di Geofisica, 120, INGV, Roma, 57 pp.	16	532
AZZBA000	Azzaro R., Barbano M.S., 2000. Analysis of the seismicity of Southeastern Sicily: a proposed tectonic interpretation. Ann. Geofis., 43, 1, 171-188, http://doi.org/10.4401/ag-3628	3	87
AZZBA995	Azzaro R., Barbano M.S., 1995. The Pollina (northern Sicily-Italy) earthquake of 26 June 1993: an application of the new European Macroseismic Scale 1992. Nat. Haz., 12, 289-301, http://doi.org/10.1007/BF00596223.	1	47
AZZCA015	Azzaro R., Castelli V., 2015. Materiali per un catalogo di terremoti etnei dal 1600 al 1831. Quaderni di Geofisica, 123, INGV, Roma, 284 pp.	11	23
BARAL001	Barbano M.S., Rigano R., Cosentino M. and Lombardo G., 2001. Seismic history and hazard in some localities of South-Eastern Sicily. Boll. Geof. Teor. Appl., 42, 1-2, 107-120.	1	6
BARAL980	Barbano M.S., Cosentino M., Lombardo G. and Patané G., 1980. Isoseismal maps of Calabria and Sicily earthquakes (Southern Italy). CNR-PFG, pubbl. 341, Catania, 116 pp.	19	743
BARAL986	Barbano M.S., Gentile G.F., Riggio A.M., 1986. Il terremoto dell'Alpago-Cansiglio del 18.10.1936: metodologia e problematiche legate allo studio di eventi recenti. Atti del 5° Convegno Annuale del GNGTS, Roma, I, 47-60.	1	269
BARAL990	Barbano M.S., Riggio A.M., Catalan T., Sclippa P. and Toffoli D., 1990. Revisione di alcuni terremoti dell'Italia nord-orientale nella prima metà del XX secolo. GNDT, Rapporto interno, Udine, 349 pp.	4	594
BARAL996	Barbano M.S., Azzaro R., Birritta P., Castelli V., Lo Giudice E. and Moroni A., 1996. Stato delle conoscenze sui terremoti siciliani dall'anno 1000 al 1880: schede sintetiche. GNDT, Rapporto interno, Catania, 287 pp.	19	62
BDMFC015	BCSF, 2015. BD-MFC, Base de Données Macrosismiques Françaises Contemporaines. Le Bureau Central Sismologique Français, Ecole et Observatoire des Sciences de la Terre.	2	832
BDMFC016	BCSF, 2016. BD-MFC, Base de Données Macrosismiques Françaises Contemporaines. Le Bureau Central Sismologique Français, Ecole et Observatoire des Sciences de la Terre.	1	701
BERAL000	Bernardis G., Poli M.E., Snidarcig A., Zanferrari A., 2000. Seismotectonic and macroseismic characteristics of the earthquake of Bovec (NW Slovenia: April 12, 1998). Bollettino di Geofisica Teorica ed Applicata, 41(2), pp.133-148.	1	28
BERAL003	Bernardini F., Camassi R., Castelli V., Ercolani E., Frapiccini M., Vannucci G., Giovani L., Tertulliani A., 2003. Rilievo macrosismico degli effetti prodotti dalla sequenza sismica iniziata il 14 settembre 2003 (Appennino Bolognese). Rapporto tecnico QUEST, Bologna, INGV, Roma, 10 pp.	1	133
BERAL005	Bernardini F., Camassi R., Castelli V., Del Mese S., Ercolani E., Giovani L., Massucci S., Milana G., Rossi A., Tertulliani A., Vecchi M., 2005. Rilievo macrosismico del terremoto del Garda del 24 novembre 2004. Ingegneria Sismica, XXII, 2, 44-58.	1	176
BERAL011	Bernardini F., Ercolani E., Del Mese S., 2011. Rapporto macrosismico sul terremoto torinese del 25 luglio 2011. Rapporto tecnico QUEST, INGV, Roma, 5 pp.	1	105
BERAL013	Bernardini F., Castelli V., Camassi R., Caracciolo C.H., Ercolani E., 2013. A "forgotten" earthquake rediscovered: the 1948-1949 Monti Reatini (central Apennines) seismic sequence. Bollettino di Geofisica Teorica ed Applicata, 54(3), p.229-244, http://doi.org/10.4430/bgta0111	3	105
BERER011	Bernardini F., Ercolani E., 2011. Rilievo macrosismico degli effetti prodotti dal terremoto del 17 luglio 2011 nella Pianura Padana lombardo-veneta (province di Rovigo, Mantova, Modena e Ferrara). Rapporto tecnico QUEST, INGV, Roma, 6 pp.	1	73
BERN014	Bernardini F., 2014. Il terremoto dell'11 luglio 1987 nella Bassa Modenese. Rapporto interno, Istituto Nazionale di Geofisica e Vulcanologia, 3 pp.	1	15
BMING000a	Gasparini C., Tertulliani A., Riguzzi F., Anzidei M., Maramai A., Murru M., De Rubeis V., Vecchi M., Del Mese S., Vannucci C., Conte S., Massucci A., Saraceni A.M., 2000a. Bollettino macrosismico - Primo quadrimestre 1996. Istituto Nazionale di Geofisica, Roma, 104 pp.	11	1375

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BMING000b	Gasparini C., Tertulliani A., Riguzzi F., Anzidei M., Maramai A., De Rubeis V., Tosi P., Vecchi M., Del Mese S., Vannucci C., Conte S., Massucci A., Saraceni A.M., 2000b. Bollettino macrosismico - Secondo quadrimestre 1996. Istituto Nazionale di Geofisica, Roma, 83 pp.	5	205
BMING001a	Gasparini C., Tertulliani A., Riguzzi F., Anzidei M., Maramai A., De Rubeis V., Tosi P., Vecchi M., Del Mese S., Vannucci C., Conte S., Massucci A., Saraceni A.M., 2001a. Bollettino macrosismico - Terzo quadrimestre 1996. Istituto Nazionale di Geofisica, Roma, 79 pp.	8	496
BMING001b	Gasparini C., Tertulliani A., Riguzzi F., Anzidei M., Maramai A., De Rubeis V., Tosi P., Vecchi M., Del Mese S., Vannucci C., Conte S., Massucci A., Saraceni A.M., 2001b. Bollettino macrosismico - Primo e secondo quadrimestre 1997. Istituto Nazionale di Geofisica, Roma, 119 pp.	8	607
BMING001c	Gasparini C., Tertulliani A., Riguzzi F., Anzidei M., Maramai A., De Rubeis V., Tosi P., Vecchi M., Del Mese S., Vannucci C., Conte S., Massucci A., Saraceni A.M., 2001c. Bollettino macrosismico - Terzo quadrimestre 1997. Istituto Nazionale di Geofisica, Roma, 154 pp.	16	2535
BMING002a	Gasparini C., Tertulliani A., Riguzzi F., Anzidei M., Maramai A., De Rubeis V., Tosi P., Vecchi M., Del Mese S., Vannucci C., Conte S., Massucci A., Saraceni A.M., 2002a. Bollettino macrosismico - Primo quadrimestre 1998. Istituto Nazionale di Geofisica, Roma, 92 pp.	13	1439
BMING002b	Gasparini C., Conte S., Rocchetti E., Saraceni A. M., Vannucci C., Vecchi M., 2002b. Bollettino macrosismico - Secondo quadrimestre 1998. Istituto Nazionale di Geofisica, Roma, 63 pp.	11	683
BMING002c	Gasparini C., Conte S., Rocchetti E., Saraceni A. M., Vannucci C., 2002c. Bollettino macrosismico - Terzo quadrimestre 1998. Istituto Nazionale di Geofisica, Roma, 58 pp.	1	29
BMING003	Gasparini C., Conte S., Rocchetti E., Saraceni A. M., Vannucci C., 2003. Bollettino macrosismico 1999. Istituto Nazionale di Geofisica, Roma, 99 pp.	12	631
BMING982	AA.VV., 1984. Bollettino macrosismico 1980. Istituto Nazionale di Geofisica, Roma, 47 pp.	2	65
BMING983	Spadea M.C., Vecchi M., Del Mese S., 1983. Bollettino macrosismico 1981. Istituto Nazionale di Geofisica, Roma, 10 pp.	7	136
BMING984	Spadea M.C., Vecchi M., Del Mese S., 1984. Bollettino macrosismico 1982. Istituto Nazionale di Geofisica, Roma, 23 pp.	10	157
BMING985	Spadea M.C., Vecchi M., Del Mese S.1985. Bollettino macrosismico 1983. Istituto Nazionale di Geofisica, Roma, 25 pp.	9	188
BMING986	Spadea M.C., Vecchi M., 1986. Bollettino macrosismico 1984. Istituto Nazionale di Geofisica, Roma, 59 pp.	11	275
BMING987a	Spadea M.C., Vecchi M., 1987a. Bollettino macrosismico 1985. Istituto Nazionale di Geofisica, Roma, 29 pp.	11	257
BMING987b	Vecchi M., Del Mese S., 1987b. Bollettino macrosismico 1986. Istituto Nazionale di Geofisica, Roma, 34 pp.	7	152
BMING988	Gasparini C., Anzidei M., Maramai A., Murru M., Riguzzi F., Tertulliani A., Cardoni M., Del Mese S., Vannucci C., Vecchi M., Massucci A., 1988. Bollettino macrosismico 1987. Istituto Nazionale di Geofisica, Roma, 47 pp.	14	899
BMING990	Gasparini C., Tertulliani A., Riguzzi F., Anzidei M., Maramai A., Murru M., Vecchi M., Del Mese S., Vannucci C., Massucci A., 1990. Bollettino macrosismico 1988. Istituto Nazionale di Geofisica, Roma, 134 pp.	12	894
BMING991a	Gasparini C., Tertulliani A., Riguzzi F., Anzidei M., Maramai A., Murru M., Vecchi M., Del Mese S., Vannucci C., Massucci A., 1991a. Bollettino macrosismico 1989. Istituto Nazionale di Geofisica, Roma, 163 pp.	16	1805
BMING991b	Gasparini C., Tertulliani A., Riguzzi F., Anzidei M., Maramai A., Murru M., Vecchi M., Del Mese S., Vannucci C., Conte S., Massucci A., Saraceni A.M., 1991b. Bollettino macrosismico 1990. Istituto Nazionale di Geofisica, Roma, 210 pp.	22	2303
BMING994	Gasparini C., Tertulliani A., Riguzzi F., Anzidei M., Maramai A., Murru M., De Rubeis V., Vecchi M., Del Mese S., Vannucci C., Conte S., Massucci A., Saraceni A.M., 1994. Bollettino macrosismico 1991. Istituto Nazionale di Geofisica, Roma, 285 pp.	22	2121

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BMING995	Gasparini C., Tertulliani A., Riguzzi F., Anzidei M., Maramai A., Murru M., Vecchi M., Del Mese S., Vannucci C., Conte S., Massucci A., Saraceni A.M., 1995. Bollettino macrosismico - Primo semestre 1992. Istituto Nazionale di Geofisica, Roma, 95 pp.	11	377
BMING996	Gasparini C., Tertulliani A., Riguzzi F., Anzidei M., Maramai A., Murru M., Vecchi M., Del Mese S., Vannucci C., Conte S., Massucci A., Saraceni A.M., 1996. Bollettino macrosismico - Secondo semestre 1992. Istituto Nazionale di Geofisica, Roma, 84 pp.	8	352
BMING997	Gasparini C., Tertulliani A., Riguzzi F., Anzidei M., Maramai A., Murru M., De Rubeis V., Vecchi M., Del Mese S., Vannucci C., Conte S., Massucci A., Saraceni A.M., 1997. Bollettino macrosismico - Primo quadrimestre 1993. Istituto Nazionale di Geofisica, Roma, 73 pp.	3	162
BMING998a	Gasparini C., Tertulliani A., Riguzzi F., Anzidei M., Maramai A., Murru M., De Rubeis V., Vecchi M., Del Mese S., Vannucci C., Conte S., Massucci A., Saraceni A.M., 1998a. Bollettino macrosismico - Secondo quadrimestre 1993. Istituto Nazionale di Geofisica, Roma, 110 pp.	9	1040
BMING998b	Gasparini C., Tertulliani A., Riguzzi F., Anzidei M., Maramai A., Murru M., De Rubeis V., Vecchi M., Del Mese S., Vannucci C., Conte S., Massucci A., Saraceni A.M., 1998b. Bollettino macrosismico - Terzo quadrimestre 1993. Istituto Nazionale di Geofisica, Roma, 56 pp.	5	277
BMING998c	Gasparini C., Tertulliani A., Riguzzi F., Anzidei M., Maramai A., Murru M., De Rubeis V., Vecchi M., Del Mese S., Vannucci C., Conte S., Massucci A., Saraceni A.M., 1998c. Bollettino macrosismico - Primo quadrimestre 1994. Istituto Nazionale di Geofisica, Roma, 87 pp.	7	491
BMING998d	Gasparini C., Tertulliani A., Riguzzi F., Anzidei M., Maramai A., Murru M., De Rubeis V., Vecchi M., Del Mese S., Vannucci C., Conte S., Massucci A., Saraceni A.M., 1998d. Bollettino macrosismico - Secondo quadrimestre 1994. Istituto Nazionale di Geofisica, Roma, 71 pp.	5	418
BMING999a	Gasparini C., Tertulliani A., Riguzzi F., Anzidei M., Maramai A., Murru M., De Rubeis V., Vecchi M., Del Mese S., Vannucci C., Conte S., Massucci A., Saraceni A.M., 1999a. Bollettino macrosismico - Terzo quadrimestre 1994. Istituto Nazionale di Geofisica, Roma, 68 pp.	2	107
BMING999b	Gasparini C., Tertulliani A., Riguzzi F., Anzidei M., Maramai A., Murru M., De Rubeis V., Vecchi M., Del Mese S., Vannucci C., Conte S., Massucci A., Saraceni A.M., 1999b. Bollettino macrosismico - Primo quadrimestre 1995. Istituto Nazionale di Geofisica, Roma, 73 pp.	6	195
BMING999c	Gasparini C., Tertulliani A., Riguzzi F., Anzidei M., Maramai A., Murru M., De Rubeis V., Vecchi M., Del Mese S., Vannucci C., Conte S., Massucci A., Saraceni A.M., 1999c. Bollettino macrosismico - Secondo quadrimestre 1995. Istituto Nazionale di Geofisica, Roma, 109 pp.	3	207
BMING999d	Gasparini C., Tertulliani A., Riguzzi F., Anzidei M., Maramai A., Murru M., De Rubeis V., Vecchi M., Del Mese S., Vannucci C., Conte S., Massucci A., Saraceni A.M., 1999d. Bollettino macrosismico - Terzo quadrimestre 1995. Istituto Nazionale di Geofisica, Roma, 126 pp.	10	901
BMINGV	Istituto Nazionale di Geofisica e Vulcanologia. Bollettino macrosismico mensile.	7	1330
BMINGV004a	Gasparini C., Conte S., Rocchetti E., Saraceni A.M., Vannucci C., 2000b. Bollettino macrosismico - Primo semestre 2000. Istituto Nazionale di Geofisica e Vulcanologia, Roma, 120 pp.	12	1604
BMINGV004b	Gasparini C., Conte S., Rocchetti E., Saraceni A.M., Vannucci C., 2000b. Bollettino macrosismico - Secondo semestre 2000. Istituto Nazionale di Geofisica e Vulcanologia, Roma, 68 pp.	12	1232
BMINGV011	Gasparini C., Conte S., Vannucci C. (ed), 2011. Bollettino macrosismico 2001-2005. Istituto Nazionale di Geofisica e Vulcanologia, Roma. CD-ROM.	64	10598
BOSGU001	Boschi E., Guidoboni E., 2001. Catania terremoti e lave dal mondo antico alla fine del Novecento. INGV-SGA, Bologna, 414 pp.	9	31
BOSGU003	Boschi E., Guidoboni E., 2003. I terremoti a Bologna e nel suo territorio dal XII al XX secolo. INGV-SGA, Bologna, 597 pp.	12	73

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BSIAL002	Bosi V., Galli P., Gallipoli M.R., Del Mese S., Massucci A., Rossi A., Camassi R., Ercolani E., Piccarreda C., Bernardini F., Tertulliani A., Vecchi M., Maramai A. and Mucciarelli M., 2002. Rilievo degli effetti prodotti dalla sequenza sismica molisana dell'ottobre-novembre 2002. Rapporto tecnico QUEST, INGV, Roma, 13 pp.	1	51
CAMA001a	Camassi R., 2001a. Indagini storiche per la definizione della stabilità degli effetti di sito nell'area colpita dal terremoto del 9 settembre 1998 (Basilicata). Rapporto tecnico, 59 pp.	9	260
CAMA001b	Camassi R., 2001b. Terremoti storici. In: Peruzza et al. (ed), Studio urgente del rischio geologico residuo nel comune di Erto e Casso. INOGS, Rel. 25/01 - OGA4 - CRS3, Trieste, 2-36.	17	215
CAMA014	Camassi R., 2014. Revisione della sismicità storica del Lodigiano. Rapporto interno, Istituto Nazionale di Geofisica e Vulcanologia, 26 pp.	2	189
CAMA995	Camassi R., 1995. Indagine speditiva sugli effetti del terremoto dell'Appennino bolognese del 24 agosto 1995, GNDT, Rapporto Tecnico Interno GNDT, Bologna, 4 pp.	1	56
CAMAL003	Camassi R., Del Mese S. and Piccarreda C., 2003. Rilievo macrosismico degli effetti prodotti dal terremoto della Valle Scrivia dell'11 aprile 2003. Rapporto tecnico QUEST, INGV, Roma, 6 pp.	1	78
CAMAL008	Camassi R., Bernardini F., Castelli V. and Meletti C., 2008. A 17th Century Destructive Seismic Crisis in the Gargano Area: Its Implications on the Understanding of Local Seismicity. Journal of Earthquake Engineering, 12, 8, 1223-1245, http://doi.org/10.1080/13632460802212774.	3	39
CAMAL011a	Camassi R., Rossi A., Tertulliani A., Pessina V. and Caracciolo C. H., 2011. Il terremoto del 30 ottobre 1901 e la sismicità del versante occidentale del Garda. Quaderni di Geofisica, 88, INGV, Roma, 36pp.	2	33
CAMAL011b	Camassi R., Castelli V., Molin D., Bernardini F., Caracciolo C. H., Ercolani E. and Postpischl L., 2011. Materiali per un catalogo dei terremoti italiani: eventi sconosciuti, rivalutati o riscoperti. Quaderni di Geofisica, 96, INGV, Roma, 53pp.	247	1233
CAMAL011c	Camassi R., Caracciolo C. H., Castelli V. and Slejko D., 2011. The 1511 Eastern Alps earthquakes: a critical update and comparison of existing macroseismic datasets. J. Seismol., 15, 191-213, http://doi.org/10.1007/s10950-010-9220-9	11	144
CAMAL012	Camassi R., Caracciolo C.H., Castelli V., Ercolani E., Bernardini F., Albini P., Rovida A., 2012. Contributo INGV al WP2 del progetto HAREIA - Historical and Recent Earthquakes in Italy and Austria: Studio della sismicità storica del Friuli Venezia-Giulia, Veneto e Alto Adige. Rapporto finale, Bologna, 23 pp. + 5 Allegati	34	161
CAMAL015	Camassi R., Castelli V., Caracciolo C.H., Ercolani E., Bernardini F., 2015. Revisione speditiva di alcuni terremoti di area nord occidentale. Rapporto interno, Istituto Nazionale di Geofisica e Vulcanologia, 27 pp.	10	97
CAMAL996	Camassi R., Azzaro R., Carocci C., Cova E., Martello S., Meloni F., Molin D., Moroni A., Peruzza L., Stucchi M. and Zerga A., 1996. Il terremoto emiliano del 15 ottobre 1996: uno sguardo al passato e al contesto sismologico. Atti del 15° Convegno Nazionale del GNGTS, Roma 11-13 novembre 1996	1	135
CAMAL997b	Camassi R., Coppari H., Frapiccini M., Monachesi G., Del Mese S., Giovani L., Maramai A., Massucci A., Tertulliani A., Molin D., 1997b. Rilevamento macrosismico dell'area interessata da danni agli edifici in occasione di recenti terremoti. Interventi congiunti GNDT-ING-SSN per scopi di Protezione Civile. Assemb. Gen. GNDT, settembre 1997, Roma. Poster.	1	57
CAMER003	Camassi R., Ercolani E. (ed.), 2003. Rilievo macrosismico del terremoto del 26 gennaio 2003 ore 20:15 (GMT) [agg. ore 14:00 del 29.01.2003]. Rapporto tecnico QUEST, INGV, Roma, 5 pp.	1	35
CAMER999	Camassi R., Ercolani E., 1999. Indagine speditiva sul terremoto del Frignano del 7 luglio 1999. Rapporto Tecnico Interno GNDT, Bologna, 3 pp.	1	32
CAMMO994	Camassi R. and Molin D. (eds.), 1994. I terremoti bolognesi del 1929. Comune di Bologna, Assessorato all'Ambiente e Territorio, Bologna, 175 pp.	24	650
CARA014	Caracciolo C.H., 2014. Il terremoto di Clana del 1 marzo 1870. Rapporto interno, Istituto Nazionale di Geofisica e Vulcanologia, 5 pp.	3	39

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CARAL009	Caracciolo C.H., Camassi R., Castelli V., 2009. Revisione e integrazione sistematica di terremoti che interessano il territorio della Pianura Padana centro-orientale. Rapporto interno, Istituto Nazionale di Geofisica e Vulcanologia, 26 pp.	6	269
CARAL015	Caracciolo C.H., Camassi R., Castelli V., 2015. Il terremoto del 25 gennaio 1348 (Alpi orientali). Rapporto interno, Istituto Nazionale di Geofisica e Vulcanologia, 12 pp.	1	89
CASAL008	Castelli V., Galli P., Camassi R. and Caracciolo C.H., 2008. The 1561 earthquake(s) in Southern Italy: New Insights into a Complex Seismic Sequence. Journal of Earthquake Engineering, 12, 7, 1054-1077, http://doi.org/10.1080/13632460801890356.	3	59
CASAL016	Castelli V., Camassi R., Cattaneo M., Cece F., Menichetti M., Sannipoli E. A., Monachesi G., 2015. Materiali per una storia sismica del territorio di Gubbio: terremoti noti e ignoti, riscoperti e rivalutati. Quaderni di Geofisica, 133, 200 pp.	7	45
CASAL996	Castelli V., Monachesi G., Moroni A. and Stucchi M. (eds.), 1996. I terremoti toscani dall'anno 1000 al 1880: schede sintetiche. GNDT, Rapporto interno, Macerata-Milano, 314 pp.	45	877
CASBE006	Castelli V., Bernardini F., 2006. Unearthing earthquakes in the Sienese Crete: how we improved the seismic catalogue of a low seismicity area. Proc. First European Conference on Earthquake Engineering and Seismology, Geneva, Switzerland, 3-8 September 2006, Paper Number: 837, 9 pp.	1	26
CAST002	Castelli V., 2002. Il terremoto del 1789 a Città di Castello: ricostruzione dell'impatto e della distribuzione dei danni a partire da documenti inediti. Ingegneria Sismica, 1, 78-85.	1	73
CAST003b	Castelli V., 2003b. Revisione delle conoscenze sui terremoti del 1558 (Valdambra), 1561 (Campania-Basilicata), 1639 (Amatriciano) e 1747 (Nocera Umbra-Gualdo Tadino). Rapporto tecnico INGV-MI, Milano, 16 pp.	4	115
CAST004b	Castelli V., 2004b. Between Tevere and Arno. A preliminary revision of seismicity in the Casentino-Sansepolcro (Tuscany, Italy). Boll. Geof. Teor. Appl., 45, 1-2, 25-49.	3	3
CAST015	Castelli V., 2015. Il terremoto del 13 giugno 1494 (Alpi marittime). Rapporto interno, Istituto Nazionale di Geofisica e Vulcanologia, 4 pp.	1	2
CAST997	Castelli V., 1997. Analisi attraverso i repertori di terremoti verificatisi in area campana, matese e lucana prima del 1691. 11 ottobre 1125 - Benevento. Rapporto interno, Istituto Nazionale di Geofisica e Vulcanologia, 7 pp.	1	1
CECI015	Cecic I., 2015. Earthquakes in Tuhinj Valley (Slovenia) in 1840. Journal of Seismology, 19, 469-490, http://doi.org/10.1007/s10950-015-9477-0	2	52
CECI998a	Cecic I., 1998a. Investigation of earthquakes (1400-1899) in Slovenia. Internal report for the BEECD project, Seismological Survey, Ljubljana.	1	810
CECI998b	Cecic I., 1998b. Potres v Ljubljani 15. julija 1897. In: J. Lapajne (ed.), Potresi v Slovenji leta 1997, URSG, Ljubljana, 43-57.	1	325
CFTI3	Boschi E., Guidoboni E., Ferrari G., Mariotti D., Valensise G., Gasperini P. (eds), 2000. Catalogue of Strong Italian Earthquakes from 461 B.C. to 1980. Annali di Geofisica, 43, 4, 609-868.	2	931
CFTI4med	Guidoboni E., Ferrari G., Mariotti D., Comastri A., Tarabusi G., Valensise G., 2007. CFTI4Med, Catalogue of Strong Earthquakes in Italy (461 B.C.-1997) and Mediterranean Area (760 B.C.-1500). INGV-SGA. http://storing.ingv.it/cfti4med	560	28155
CONAL990	Conversini P., Lolli O., Molin D., Paciello A. and Pagliacci S., 1990. Ricerche sulla sismicità storica della provincia di Perugia. Quaderni Regione dell'Umbria, Collana Sismica, Perugia, vol. 1b, 56 pp.	1	2
CONVAL014	Convertito V., Cubellis E., Marturano A., Obrizzo F., Petrazzuoli S.M., 2014. Terremoto del 29 dicembre 2013 nel Matese (Mw = 5.0). Indagine speditiva degli effetti nell’area epicentrale e analisi preliminare della sequenza sismica. Rapporti Tecnici, Istituto Nazionale di Geofisica e Vulcanologia, Roma, 38pp.	1	16
COSEN983	Cosentino P., 1983. Indagine macrosismica sul terremoto del 7 giugno 1981. In: Bollettino macrosismico. Istituto Nazionale di Geofisica, Roma.	1	50
DAMAL014	D'Amico S., Mostaccio A., Scarfì L., Tuvè T., 2014. Relazione preliminare sull'indagine macrosismica relativa al terremoto dell'acese del 25/09/2014 - ore 18:33 locali. Rapporto tecnico QUEST, INGV, Catania, 3 pp.	1	20
DEMO980	Dell'Olio A., Molin D., 1980. Catalogo macrosismico del Lazio dall'anno 1000 al 1975. ENEA, Rapporto interno, Roma, 143 pp.	20	451

Code (RefM)	Reference	N. earthq.	MdpN
DILAL995	Di Loreto E., Liperi L., Narcisi B.M., Riguzzi F. and Tertulliani A., 1995. Terremoto del litorale romano dell'1 novembre 1895. In: R. Funiciello (Ed.), La Geologia di Roma, Memorie descrittive della Carta Geologica d'Italia, Servizio Geologico Nazionale, Roma, 353-356.	1	94
ENEL985	ENEL, 1985. Studi e indagini per l'accertamento della idoneità tecnica delle aree suscettibili di insediamento di impianti nucleari per le Regioni Piemonte, Lombardia e Puglia: indagini di sismica storica. Rapporti tecnici predisposti da ISMES-SGA, Roma.	41	571
ENEL988	ENEL, 1988. Ricerca di sismica storica per la Garfagnana. Rapporto interno, Pisa.	6	274
ENEL995	ENEL, 1995. Ricerche sui terremoti dell'area di Latera (VT). Rapporto interno, IRRS-OGSM, Milano-Macerata, 274 pp.	28	732
ERCAL009	Ercolani E., Rossi A., Vecchi M., Leschiutta I., Bernardini F., Del Mese S., Camassi R., Pondrelli S. and Tertulliani A., 2009. Rilievo macrosismico del terremoto emiliano del 23 dicembre 2008. Quaderni di Geofisica, 71, INGV, Roma, 41pp, ISSN 1590-2595.	1	291
ESPAL988	Esposito E., Guerra I., Marturano A., Luongo G., Porfido S., 1988. Il terremoto dell'8 gennaio 1988 (ML=4.1) in Calabria Settentrionale. Atti 7°Convegno Nazionale GNGTS, 3, 1637-1646, 10 pp.	1	169
FERPO982	Ferrari G., Postpischl D., 1982. Il terremoto di Valfabbrica del 17 ottobre 1982. CNR-GNDT, Pubblicazione n. 1, Bologna, 7 pp.	1	32
FIMA002	Figliuolo B., Marturano A., 2002. Terremoti in Italia Meridionale dal IX all'XI secolo. In: Marturano A. (ed.), Contributi per la storia dei terremoti nel bacino del Mediterraneo (secc. V-XVIII), Laveglia, Salerno, 33-67.	5	5
FREAL988	Frezzotti M., Molin D. and Narcisi B., 1988. Correlazione tra caratteri strutturali e sismicità storica dell'area di Roccamonfina. Memorie della Società Geologica Italiana, 41, 1307-1316.	2	54
GALAL001	Galli P., Molin D., Camassi R. and Castelli V., 2001. Il terremoto del 9 settembre 1998 nel quadro della sismicità storica del confine calabro-lucano. Possibili implicazioni sismotettoniche. Il Quaternario, 14, 1, 31-40.	1	37
GALAL002	Galli P., Molin D., Galadini F. and Giaccio B., 2002. Aspetti sismotettonici del terremoto irpino del 1930. In: S. Castenetto e M. Sebastiano (eds.), Il "terremoto del Vulture" 23 luglio 1930, VIII dell'Era fascista. Roma, 217-262.	1	547
GALCA009	Galli P. and Camassi R. (eds.), 2009. Rapporto sugli effetti del terremoto aquilano del 6 aprile 2009. Rapporto tecnico QUEST, DPC-INGV, Roma, 12 pp.	1	316
GALMO007	Galli P., Molin D., 2007. Il terremoto del 1905 della Calabria Meridionale. Studio Analitico degli effetti ed ipotesi sismogenetiche. Published online, 124 pp. Prima edizione giugno 2008, seconda edizione novembre 2010, 112 pp.	1	895
GALNA008	Galli P., Naso G., 2008. The “taranta” effect of the 1743 earthquake in Salento (Apulia, southern Italy). Bollettino di Geofisica Teorica ed Applicata, 49(2), p. 177-204.	1	84
GALNA009	Galli P., Naso J.A., 2009. Unmasking the 1349 earthquake source (southern Italy): paleoseismological and archaeoseismological indications from the Aquae Iuliae fault. Journal of Structural Geology, 31, 128-149, http://doi.org/10.1016/j.jsg.2008.09.007	1	24
GISAL005	Gisler M., Weidmann M., Fäh D., 2005. Erdbeben in Graubünden: Vergangenheit, Gegenwart, Zukunft. Verlag Desertina, Chur, 136 pp.	2	3
GIZZI012	Gizzi F.T., 2012. Il "Terremoto Bianco" del 21 Agosto 1962. Aspetti macrosismici, geologici, risposta istituzionale. Zaccara editore, 736 pp., ISBN: 9788895508443.	1	562
GUICI011	Guidoboni E., Ciuccarelli C., 2011. The Campi Flegrei caldera: historical revision and new data on seismic crises, bradyseisms, the Monte Nuovo eruption and ensuing earthquakes (twelfth century 1582 AD). Bulletin of Volcanology, 73, 655–677, http://doi.org/10.1007/s00445-010-0430-3	29	60
GUICO005	Guidoboni E., Comastri A., 2005. Catalogue of earthquakes and tsunamis in the Mediterranean area from the 11th to the 15th century. INGV-SGA, Bologna, 1037 pp.	1	2
HAMM008	Hammerl Ch., 2008. Studies on 1000-1750 earthquakes in Austria. NERIES NA4 collaboration's report. ZAMG, Vienna.	1	3
HAMM015	Hammerl C., 2015. The four strongest earthquakes in Tyrol/ Austria during XVIth and XVIIth centuries: from archival sources to macroseismic intensities. Acta Geodaetica et Geophysica, 50, 1, 39-62, http://doi.org/10.1007/s40328-014-0083-3.	3	43
IAMO978	Iaccarino E., Molin D., 1978. Raccolta di notizie macrosismiche dell'Italia Nord-orientale dall'anno 0 all'anno 1976. CNEN, RT/disp (78)/7.	7	315

Code (RefM)	Reference	N. earthq.	MdpN
LAMAL994	Lambert J., Moroni A. and Stucchi M., 1994. An intensity distribution for the 1564, Maritime Alps earthquake. In: Albini P. e Moroni A. (eds.), Materials of the CEC project "Review of Historical Seismicity in Europe", CNR, Milano, vol. 2, 143-152.	1	15
MAMO983	Margottini C., Molin D., 1983. Risultati preliminari delle ricerche di sismica storica condotte nell'Appennino tosco-emiliano. ENEA, PAS-ISP BR (83)2, Roma, 120 pp.	6	350
MARG984	Margottini C., 1984. Il terremoto del 1470 a Castel di Casio. CNEN, PAS-ISP-GEOL BR (84)1, 8 pp.	1	1
MARI995	Mariotti D., 1995. An unknown destructive earthquake in 18th century Sicily. In: E. Boschi, R. Funiciello, E. Guidoboni and A. Rovelli (eds.), Earthquakes in the past: multidisciplinary approaches. Ann. Geofis., 38, 5-6, 551-554, http://doi.org/10.4401/ag-4060	1	5
MARTE996	Maramai A. e Tertulliani A., 1996. Indagine macrosismica del terremoto del 10 ottobre 1995 in Lunigiana. Atti del 15° Convegno Nazionale del GNGTS, Roma 11-13 novembre 1996.	1	341
MEAL988	Meloni F., Molin D. and Rossi A., 1988. Indagine macrosismica sui terremoti "profondi" del 27 ottobre 1914 e 25 ottobre 1972. Atti del 7° Convegno Annuale del GNGTS, Roma, 1, 221-236.	2	858
MELAL988	Meletti C., Patacca E., Scandone P. and Figliuolo B., 1988. Il terremoto del 1456 e la sua interpretazione nel quadro sismotettonico dell'Appennino meridionale. In: Figliuolo B. (ed), Il terremoto del 1456, Napoli, I, 1, 71-108.	1	199
MELMO985	Meloni F., Molin D., 1985. I terremoti garganici del 6 dicembre 1875 e 8 dicembre 1889. Atti del 4° Convegno Annuale del GNGTS, Roma, 1, 297-312.	3	292
MELMO987	Meloni, F., Molin D., 1987. Il terremoto padano del 13 gennaio 1909. Atti del 6° Convegno Annuale del GNGTS, Roma, 1, 269-294.	1	867
MOLAL002	Molin D., Rossi A., Tertulliani A. and Verrubbi V., 2002. Studio della sismicità dell'alto Bacino dell'Aniene (Appennino centrale - Italia) e catalogo sismico di area. Quaderni di Geofisica, 24, INGV, Roma, 85 pp.	9	187
MOLAL008	Molin D., Bernardini F., Camassi R., Caracciolo C.H., Castelli V., Ercolani E., Postpischl L., 2008. Materiali per un catalogo dei terremoti italiani: revisione della sismicità minore del territorio nazionale, Quaderni di Geofisica, 57, INGV, Roma, 75pp.	748	11972
MOLAL999a	Molin D., Galadini F., Galli P., Mucci L. and Rossi A., 1999a. Catalogo macrosismico della zona del Fucino. In: S. Castenetto e F. Galadini (eds.), 13 gennaio 1915. Il terremoto nella Marsica, Roma, Appendice A, 569-629, ISBN 978-88-240-3648-1.	33	701
MOLAL999b	Molin D., Galadini F., Galli P., Mucci L. and Rossi A., 1999b. Terremoto del Fucino del 13 gennaio 1915. Studio macrosismico. In: S. Castenetto e F. Galadini (eds.), 13 gennaio 1915. Il terremoto nella Marsica, Roma, 321-340; 631-661, ISBN ISBN 978-88-240-3648-1.	1	1041
MOLI979b	Molin D., 1979b. Il terremoto di Riva del Garda del 13 dicembre 1976. Carta delle isosisme. CNEN-RT/AMB (79) 4, 8 pp.	2	132
MOLI981	Molin D., 1981. Sulla sismicità storica dei Colli Albani. CNEN, RT/AMB (81)11, Roma, 104 pp.	4	103
MOLMA981	Molin D., Margottini C., 1981. Il terremoto del 1627 nella Capitanata settentrionale. In: Contributo alla caratterizzazione della sismicità del territorio italiano, Memorie presentate al Convegno annuale del PFG sul tema "Sismicità dell'Italia: stato delle conoscenze scientifiche e qualità della normativa sismica", Commissione Enea-Enel, Udine, 12-14 maggio 1981, 251-279.	1	40
MOLMU992	Molin D., Mucci L., 1992. Il terremoto di Senigallia del 30 Ottobre 1930. Risposta dell'area urbana di Ancona. Atti del 9° Convegno Annuale del GNGTS, Roma, 1, 31-45.	1	268
MOLRO990	Molin D., Rossi A., 1990. Il terremoto molisano del 4 ottobre 1913. ENEA, rapporto interno, Roma, 12 pp.	1	205
MOLRO994	Molin D., Rossi A., 1994. Terremoto di Roma del 22 marzo 1812: studio macrosismico. Atti del 12° convegno annuale del GNGTS, Roma, 1, 279-286.	1	1
MONA987	Monachesi G. (ed.), 1987. Revisione della sismicità di riferimento per i comuni di Cerreto d'Esi (AN), Esanatoglia (MC), Serra San Quirico (AN). Osservatorio Geofisico Sperimentale, Macerata, Internal report, 240 pp.	15	453

Code (RefM)	Reference	N. earthq.	MdpN
MONCA992	Monachesi G. and Castelli V. (eds.), 1992. Sismicità dell'area aquilano-teramana dalla "analisi attraverso i cataloghi". Rapporto tecnico per la Regione Abruzzo, Osservatorio Geofisico Sperimentale, Macerata, 245 pp.	4	13
MORO001	Moroni A., 2001. Ricerche di fonti storiche per la compilazione del catalogo dei terremoti con repliche dell'Italia settentrionale; riorganizzazione delle informazioni storico-macrosismiche sui maggiori terremoti della Toscana e dell'Emilia Romagna. Rapporto tecnico INGV-MI, Milano, 68 pp.	1	1
PATIM987	Patané G., Imposa S., 1987. Tentativo di applicazione di un modello reologico per l'avampaese Ibleo ed aree limitrofe. Mem. Soc. Geol. It., 38, 341-359.	1	122
PESAL013	Pessina V., Tertulliani A., Camassi R., Rossi A., Scardia G., 2013. The revision of the October 30, 1901 earthquake, west of Lake Garda (northern Italy). Bollettino di Geofisica Teorica ed Applicata, 54(1), p.77-110, http://doi.org/10.4430/bgta0083	3	425
PORAL988	Porfido S., Esposito E., Luongo G. and Marturano A., 1988. I terremoti del XIX secolo dell'Appennino Campano-Lucano. Mem. Soc. Geol. It., Roma, 41, II, 1105-1116.	1	13
POST990	Postpischl D. (ed.), 1990. Valutazione del rischio sismico per il territorio della Repubblica di San Marino. Istituto di Topografia, Geodesia e Geofisica Mineraria, Università di Bologna, RPT/TGGM/1/90, 826 pp.	23	152
RIGU999	Riguzzi F., 1999. Intensity field of the 19 June 1975 Gargano (Southern Italy) Earthquake. Physics and Chemistry of the Earth, Part A: Solid Earth and Geodesy, 24, 6, 489-493, http://doi.org/10.1016/S1464-1895(99)00059-9	1	61
ROSAL005	Rossi A., Tertulliani A., Vecchi M., 2005. Studio macrosismico del terremoto dell'aquilano del 24 giugno 1958. Il Quaternario, 18(2), 2005, 101-112.	1	222
ROSTE015	Rossi A., Tertulliani A., 2015. I terremoti del 24 e 26 dicembre 1885 in Molise e Basilicata. Rapporto interno, Istituto Nazionale di Geofisica e Vulcanologia, 6 pp.	2	35
SAVAL011	Savarese F., Tertulliani A., Galadini F., 2011. Le fonti sul terremoto del 10 settembre 1881 in provincia di Chieti: revisione critica e nuove conoscenze. Bullettino della Deputazione Abruzzese di Storia Patria, Annata CII (CXXIII dell'intera collezione), L'Aquila, pp.155-177.	1	43
SCHAL004	Schwarz-Zanetti G., Deichmann N., Fäh D., Masciadri V., Goll J., 2004. The earthquake in Churwalden (CH) of September 3, 1295. Eclogae Geol. Helv., 97, 2, 255-264.	1	17
SCIAL006	Scionti V., Galli P., Chiodo G., 2006. The Calabrian seismicity during the Viceroyalty of Naples: sources silence or silenct sources? The case of the strong 1744 earthquake. Bollettino di Geofisica Teorica e Applicata, 47 (1-2), 53-72.	3	36
SGA002	SGA, 2002. Ricerche, revisioni e confronti. Terremoti storici. Rapporto Tecnico, Incarico INGV-MI, 01/2002, 25 gennaio 2002, RPT 248/02, Bologna, 214 pp. + CD-ROM.	9	387
SISFR014	BRGM-EDF-IRSN/SisFrance, 2014. Histoire et caractéristiques des séismes ressentis en France. http://www.sisfrance.net	114	5661
SPAAL985c	Spadea M.C., Vecchi M., Gardellini P. and Del Mese S., 1985c. The Rieti earthquake of June 28, 1898. In: Postpischl D. (ed.), Atlas of isoseismal maps of Italian earthquakes, Quaderni della Ricerca Scientifica, 114, 2A, Roma, 110-111.	1	186
SPAAL985d	Spadea M.C., Vecchi M., Gardellini P. and Del Mese S., 1985d. The Palombara Sabina earthquake of April 24, 1901. In: Postpischl D. (ed.), Atlas of isoseismal maps of Italian earthquakes, Quaderni della Ricerca Scientifica, 114, 2A, Roma, 112-113.	1	44
STAL008	Stucchi M., Galadini F., Rovida A., Moroni A., Albini P., Mirto C. and Migliavacca P. (2008). Investigation of pre-1700 earthquakes between the Adda and the middle Adige river basins (Southern Alps). In: J. Fréchet, M. Meghraoui, M. Stucchi (eds.), Historical Seismology, Interdisciplinary Studies of Past and Recent Earthquakes, Springer, 93-129, http://doi.org/10.1007/978-1-4020-8222-1_5	2	12
STAL988	Stucchi M., Albini P., 1988. Studi di sismica storica. In: ISMES, Studio di sismica storica e strumentale per l'Alta Valtellina, rapporto ASP-3946/RAT-URM-009, Bergamo, 1-194.	10	168
STUAL993	Stucchi M., Albini P. e Bellettati D. (eds.), 1993. Valutazione della attendibilità dei dati sismologici di interesse per il territorio della Regione Lombardia. Rapporto tecnico per la Regione Lombardia, IRRS-CNR, Milano, 185 pp.	1	1
STUC988	Stucchi M. (ed.), 1988. Revisione della sismicità storica dell'area anconetana. Rapporto tecnico per il Comune di Ancona, Milano, 138 pp.	6	81

Code (RefM)	Reference	N. earthq.	MdpN
TERAL003	Tertulliani A., Rossi A. and Di Giovambattista R., 2003. Reappraisal of the 22 October 1919 Central Italy Earthquake. Bull. Seismol. Soc. Am., 93, 3, 1298-1305, http://doi.org/10.1785/0120020004.	1	142
TERAL005	Tertulliani A., Massucci A. and Rossi A., 2005. Terremoto del 22 agosto 2005 costa laziale. Rapporto tecnico QUEST, INGV, Roma, 3 pp.	1	57
TERAL006	Tertulliani A., Galadini F., Mastino F., Rossi A. and Vecchi M., 2006. Studio macrosismico del terremoto del Gran Sasso (Italia centrale) del 5 settembre 1950: implicazioni sismotettoniche. Il Quaternario, 19, 2 195-214.	2	480
TERAL008	Tertulliani A., Rossi A., Castelli V., Vecchi M. and Gottardi F., 2008. Terremoti dispersi al confine tra Marche, Umbria e Lazio nel 1941-1943. Quaderni di Geofisica, 58, INGV, Roma, 23pp, ISSN 1590-2595.	4	117
TERAL009	Tertulliani A., Rossi A., Cucci L., Vecchi M., 2009. L'Aquila (Central Italy) Earthquakes: The predecessors of the April 6, 2009 Event. Seismological Reaserach Letters, 80(6), 1008-1013, http://doi.org/10.1785/gssrl.80.6.1008	1	8
TERAL012	Tertulliani A., Arcoraci L., Berardi M., Bernardini F., Brizuela B., Castellano C., Del Mese S., Ercolani E., Graziani L., Maramai A., Rossi A., Sbarra M, Vecchi M., 2012. The Emilia 2012 sequence: a macroseismic survey. Annals of Geophysics, supplement to vol.55, N. 4., 679-687, http://doi.org/10.4401/ag-6140	2	140
TERAL012a	Tertulliani A., Cucci L., Rossi A., Castelli V., 2012. The 6 October 1762 Middle Aterno Valley (L'Aquila, Central Italy) Earthquake: New Constraints and New Insights. Seismological Research Letters, 83, 6, http://doi.org/10.1785/0220120048	1	13
TERAL015	Tertulliani A., Castelli V., Rossi A., Vecchi M., 2015. Reappraising a wartime earthquake: the October 3, 1943 event in the southern Marches (central Italy). Annals of Geophysics, 57, 6, http://doi.org/10.4401/ag-6645.	1	170
TERCU014	Tertulliani A., Cucci L., 2014. Presentazione e analisi critica dei dati storici di base del terremoto dell'8 gennaio 1693 nel Pollino. Quaderni di Geofisica, 117, INGV, Roma, 44 pp.	1	16
TERT015	Tertulliani A., 2015. Il terremoto del 12 giugno 1995 a Roma. Rapporto interno, Istituto Nazionale di Geofisica e Vulcanologia, 7 pp.	1	125
TERT990	Tertulliani A.,1990. Indagine sugli effetti del terremoto del Canavese 11 febbraio 1990. Rapporto interno ING, Roma, 4 pp.	1	201

Appendix 3 – Instrumental datasets.

A) The table shows the code used in the CPTI15 file (field "RefIns"), the corresponding reference of the studies contributing instrumental epicentres to the catalogue. The number of considered earthquakes is also indicated.

Code (RefIns)	Reference	N. earthq.
ALPAL015	Alparone S., Maiolino V., Mostaccio A., Scaltrito A., Ursino A., Barberi G., D'Amico S., Di Grazia G., Giampiccolo E., Musumeci C., Scarfì L., Zuccarello L., 2015. Instrumental seismic catalogue of Mt. Etna earthquakes (Sicily, Italy): ten years (2000-2010) of instrumental recordings. Annals of Geophysics, 58, 4, S0435, http://doi.org/10.4401/ag-6591	2
BCIS	Bureau Central International de Séismologie. Bulletin Mensuel, Strasbourg (France).	3
BCSF-BS	Bureau Central Sismologique Français - Réseau National de Surveillance Sismique. Bulletin BCSF. http://renass.unistra.fr	2
BSING	Istituto Nazionale di Geofisica. Bollettino sismico mensile.	48
BSINGV	Istituto Nazionale di Geofisica e Vulcanologia. Bollettino sismico Italiano. http://bollettinosismico.rm.ingv.it/	153
CACAL015	Caciagli M., Camassi R., Danesi S., Pondrelli S., Salimbeni S., 2015. Can We Consider the 1951 Caviaga (Northern Italy) Earthquakes as Noninduced Events? Seismological Research Letters, 86, 5, 1335-1345. doi: 10.1785/0220150001	1
CECAL005	Cecic I., Živcic M., Jesenko T. and Kolar J., 2005. Potresi v Sloveniji leta 2004. In: R. Vidrih J., Potresi v letu 2004, URSG, Ljubljana, pp. 16-41	1
CECAL999	Cecic I., Živcic M., Gosar A. and Jesenko T., 1999. Potresi v Sloveniji leta 1998. In: J. Lapajne (Ed.), Potresi v letu 1998, URSG, Ljubljana, pp. 11-48	1
CSI1.1	Castello B., Selvaggi G., Chiarabba C. and Amato A., 2006. CSI Catalogo della sismicità italiana 1981-2002, versione 1.1. INGV-CNT, Roma. http://csi.rm.ingv.it/	236
CSTI1.1	Gruppo di Lavoro CSTI, 2005. Catalogo Strumentale dei Terremoti Italiani dal 1981 al 1996 (Versione 1.1). http://gaspy.df.unibo.it/paolo/gndt/Versione1_1/Leggimi.htm	272
DPCV3015	Barberi G., Cocina O., Maiolino V., Scarfì L., 2015. Parametric catalogue of Mt. Etna earthquakes from 1999 to 2015: a relocated dataset by 3D velocity model and tomoDDPS code. DPC-INGV V3 Project, 2012-2015 volcanological programme, RU 1 report, , Miscellanea INGV, 29, https://sites.google.com/a/ingv.it/volcpro2014/	114
INGVCT	Gruppo Analisi Dati Sismici, 2016. Catalogo dei terremoti della Sicilia Orientale - Calabria Meridionale (1999-2016). INGV, Catania, http://www.ct.ingv.it/ufs/analisti/catalogolist.php	1
ISC	International Seismological Centre. Reviewed On-line Bulletin. Thatcham, United Kingdom. http://www.isc.ac.uk	570
ISIDE	ISIDe Working Group. Italian Seismological Instrumental and parametric database. Istituto Nazionale di Geofisica e Vulcanologia, Rome. http://iside.rm.ingv.it	92
ISS	International Seismological Summary (ISS), Earthquake Catalog (1918-1963). Edinburgh.	18
MICAL006	Michelini A., Lomax, A., Nardi A., Rossi A., 2006. La localizzazione del terremoto della Calabria dell'8 settembre 1905 da dati strumentali. In: Guerra I., Savaglio A. (eds.): 8 settembre 1905, terremoto in Calabria. Regione Calabria, Università della Calabria, Deputazione di Storia Patria per la Calabria, pp. 225-240.	1
NEIC-PDE	National Earthquake Information Center - NEIC, Preliminary Determinations of Epicenters, Monthly Listing. http://earthquake.usgs.gov/earthquakes/search/	16
OGS-BFVG	Istituto Nazionale di Oceanografia e di Geofisica Sperimentale - Centro di Ricerche Sismologiche. Bollettino della Rete Sismometrica del Friuli Venezia Giulia. http://www.crs.inogs.it/bollettino/RSFVG/	22
PATAL004	Patané D., Cocina O., Falsaperla S., Privitera E., Spampinato S., 2004. Mt. Etna volcano: a seismological framework. In: Bonaccorso A., Calvari S., Coltelli M., Del Negro C. & Falsaperla S. (ed.), "Mt. Etna: volcano laboratory", American Geophysical Union, Geophysical monograph, 143, pp. 147-165 + CD, doi: http://doi.org/10.1029/143GM10	15
PINAL008	Pino N.A., Palombo B., Ventura G., Perniola B. and Ferrari G., 2008. Waveform modelling of historical seismograms of the 1930 Irpinia earthquake provides insight on "blind" faulting in Southern Apennines (Italy). J. Geoph. Res., 113, http://doi.org/10.1029/2007JB005211	1
SANAL014	Sandron D., Renner G., Rebez A., Slejko D., 2014. Early instrumental seismicity recorded in the eastern Alps. Bollettino di Geofisica Teorica ed Applicata, 34pp., http://doi.org/10.4430/bgta0118	59

Code (RefIns)	Reference	N. earthq.
SIHEX015	Cara M., Cansi Y., Schlupp A., Arroucau P., Béthoux N., Beucler E., Bruno S., Calvet M., Chevrot S., Deboissy A., Delouis B., Denieul M., Deschamps A., Doubre C., Fréchet J., Godey S., Golle O., Grunberg M., Guilbert J., Haugmard M., Jenatton L., Lambotte S., Leobal D., Maron C., Mendel V., Merrer S., Macquet M., Mignan A., Mocquet A., Nicolas M., Perrot J., Potin B., Sanchez O., Santoire J., Sèbe O., Sylvander M., Thouvenot F., Van Der Woerd J., Van Der Woerd K., 2015. SI-Hex: a new catalogue of instrumental seismicity for metropolitan France. Bulletin de la Societe Geologique de France, 186(1), pp.3-19, http://doi.org/10.2113/gssgfbull.186.1.3.	21
SLEAL999	Slejko D., Neri G., Orozova I., Renner G. and Wyss M., 1999. Stress field in Friuli (NE Italy) from fault plane solutions of activity following the 1976 mainshock. Bull. Seism. Soc. Am. 89, 1037-1052.	35
UNICT005	Distefano G., Di Grazia G., 2005. Database localizzazioni ipocentrali terremoti Etna dal 1977 al 2001. Progetto DPC-INGV V3, Convenzione INGV-DPC 2004-2006, Task 4-deliverable 4.2.2, http://progettosv.rm.ingv.it/Progetti/Vulcanologici/V3.htm	34
WEST993	Westaway R., 1993. Fault rupture geometry for the 1980 Irpinia earthquake: a working hypothesis. Ann. Geof. 36, 51-70.	1
ZIVC009	Živcic M., 2009. Earthquake Catalogue of Slovenia. Data file available at http://gis.arso.gov.si/atlasokolja/profile.aspx?id=Atlas_Okolja_AXL@Arso	6

B) The table shows the code used in the CPTI15 file (field “RefMwIns”), the corresponding reference of the catalogues and studies contributing instrumental magnitudes to the catalogue.

Code (RefMwIns)	Reference
BENAL005	Bernardi F., Braunmiller J. and Giardini D., 2005. Seismic Moment from Regional Surface-Wave Amplitudes: Applications to Digital and Analog Seismograms. Bull. Seism. Soc. Am. 95, 408-418, http://doi.org/10.1785/0120040048.
BSING	Istituto Nazionale di Geofisica. Bollettino sismico mensile.
BSINGV	Istituto Nazionale di Geofisica e Vulcanologia. Bollettino sismico Italiano. http://bollettinosismico.rm.ingv.it/
CSI1.1	Castello B., Selvaggi G., Chiarabba C. and Amato A., 2006. CSI Catalogo della sismicità italiana 1981-2002, versione 1.1. INGV-CNT, Roma. http://csi.rm.ingv.it/
CSTI1.1	Gruppo di Lavoro CSTI, 2005. Catalogo Strumentale dei Terremoti Italiani dal 1981 al 1996 (Versione 1.1). http://gaspy.df.unibo.it/paolo/gndt/Versione1_1/Leggimi.htm
GLOBCMT	Global Centroid Moment Tensor Project. http://www.globalcmt.org
INGVCT	Gruppo Analisi Dati Sismici, 2016. Catalogo dei terremoti della Sicilia Orientale - Calabria Meridionale (1999-2016). INGV, Catania, http://www.ct.ingv.it/ufs/analisti/catalogolist.php
INGVTDMT	Istituto Nazionale di Geofisica e Vulcanologia. Catalogo Time Domain Moment Tensor. http://cnt.rm.ingv.it/tdmt
ISC	International Seismological Centre. Reviewed On-line Bulletin. Thatcham, United Kingdom. http://www.isc.ac.uk
ISIDE	ISIDe Working Group. Italian Seismological Instrumental and parametric database. Istituto Nazionale di Geofisica e Vulcanologia, Roma. http://iside.rm.ingv.it
ITACMT	The Italian CMT dataset from 1977 to the present (updated to 2014). http://www.bo.ingv.it/RCMT/Italydataset.html
MARAL993	Margottini C., Ambraseys N.N. and Screpanti A., 1993. La magnitudo dei terremoti italiani del XX secolo. ENEA, rapporto interno, Roma, 57 pp.
MEDN-INGV	Mediterranean Very Broadband Seismographic Network.
NEIC	National Earthquake Information Center. Moment tensor solutions. http://earthquake.usgs.gov/earthquakes/search/
PATAL004	Patané D., Cocina O., Falsaperla S., Privitera E., Spampinato S., 2004. Mt. Etna volcano: a seismological framework. In: Bonaccorso A., Calvari S., Coltelli M., Del Negro C. & Falsaperla S. (ed.), "Mt. Etna: volcano laboratory", American Geophysical Union, Geophysical monograph, 143, pp. 147-165 + CD
PINAL000	Pino N.A., Giardini D. and Boschi E., 2000. The December 28, 1908, Messina Straits, Southern Italy, earthquake: waveform modelling of regional seismograms. J. Geoph. Res. 105, B11, 25473-25492

Code (RefMwIns)	Reference
POST985	Postpischl D., 1985. Catalogo dei terremoti italiani dall'anno 1000 al 1980. Quaderni della Ricerca Scientifica, 114, 2B, Bologna, 239 pp.
SANAL015	Sandron D., Gentile G.F., Gentili S., Saraò A., Rebez A., Santulin M., Slejko D., 2015. The Wood-Anderson of Trieste (Northeast Italy): One of the Last Operating Torsion Seismometers. Seismological Research Letters 86, 6, 1-10
SED-MT	Schweizerische Erdbebendienst - ETH Zürich. Reviewed Regional Moment Tensor Catalog. http://www.seismo.ethz.ch/prod/tensors/mt_oldcat
UNICT005	Distefano G., Di Grazia G., 2005. Database localizzazioni ipocentrali terremoti Etna dal 1977 al 2001. Progetto DPC-INGV V3, Convenzione INGV-DPC 2004-2006, Task 4-deliverable 4.2.2, http://progettosv.rm.ingv.it/Progetti/Vulcanologici/V3.htm

Appendix 4 – Earthquakes in CPTI11 not in CPTI15.

List of earthquakes in CPTI11 not anymore in CPTI15, and reason for the exclusion.

N	Year	Mo	Da	Ho	Mi	Ax	Rt	Lat	Lon	Mw	Reason
29	1197					Brescia	Guidoboni et al., 2007				Fake according to ENEL (1985)
34	1223					Gargano	Guidoboni et al., 2007	41.873	15.981	5.78	Fake according to Camassi et al. (2012)
43	1268	11	4			Trevigiano	Guidoboni et al., 2007	45.735	12.079	5.35	Fake according to Camassi et al. (2012)
52	1279	4	24	17		Cividale del Friuli	Guidoboni et al., 2007				Fake according to Camassi et al. (2012)
72	1310					Villa S. Giovanni	Postpischl, 1985	38.250	15.667	5.14	Fake according to Molin et al., (2008)
89	1346	2	22	11		Ferrara	Guidoboni et al., 2007	44.836	11.618	4.93	Fake according to Camassi e Castelli (2013)
167	1461	6				Castelcivita	Postpischl, 1985	40.500	15.250	5.14	Fake according to Molin et al., (2008)
215	1502	9	23			Cuneo	Guidoboni et al., 2007				Fake according to SGA (2002)
264	1549	5	3			Savona	Arch.Mac.GNDT, 1995	44.307	8.480	4.93	Fake according to Camassi et al. (2015)
288	1571	11	1			Tirol	Van Gils & Ley., 1991a	47.300	11.400	5.14	Fake according to Hammerl (2015)
404	1687					Castel Bolognese	Postpischl, 1985	44.333	11.750	4.72	Fake according to Molin et al., (2008)
421	1691	7	14			Bovolenta	Postpischl, 1985	45.333	11.833	4.72	Fake according to Molin et al., (2008)
659	1780	1	3			Monte Oliveto	Arch.Mac.GNDT, 1995			4.00	Fake according to Camassi et al. (2011)
839	1831	4	9			Stilo	Postpischl, 1985	38.500	16.500	4.93	Fake according to Molin et al., (2008)
890	1839	8	18	1		Cosenza	Postpischl, 1985	39.300	16.250	4.72	Fake according to Molin et al., (2008)
974	1858	8	6	12	15	Ricigliano	Postpischl, 1985	40.750	15.550	5.14	Fake according to Molin et al., (2008)
1208	1889	6	30	21	15	Basso Tirreno	Postpischl, 1985	38.583	14.583	5.14	Fake according to Molin et al., (2008)
1336	1897	5	15	5	57	Ljubljana	Cvijanovic, 1981	46.000	14.500	5.57	Fake according to Molin et al., (2008)
1355	1898	2	17	6	2	S. Sofia	Postpischl, 1985	43.917	11.917	4.72	Fake according to Molin et al., (2008)
1403	1901	1	15	14	30	CIVITAQUANA	Postpischl, 1985	42.267	13.900	4.72	Fake according to Molin et al., (2008)
1485	1905	9	14	5		TERME BRENNERO	Postpischl, 1985	47.000	11.500	4.51	Fake according to Molin et al., (2008)
1581	1909	11	2	3	44	RIJEKA	Postpischl, 1985	45.200	14.200	4.72	Fake according to Molin et al., (2008)
1643	1913	6	28	2	47	VILLA S.GIOVANNI	Postpischl, 1985	38.167	15.583	4.51	Fake according to Molin et al., (2008)
1986	1934	11	9	23	9	SPEZZANO	Postpischl, 1985	39.283	16.333	4.93	Fake according to Molin et al., (2008)
2041	1940	2	4	19	25	ABBADIA	Postpischl, 1985	42.883	11.617	4.72	Fake according to Molin et al., (2008)
2121	1949	12	9	13	45	Reggio Calabria	Boll. Strum. ING	38.117	15.583	4.43	Fake according to Molin et al., (2008)
2211	1957	12	3	16	20	NORCIA	Postpischl, 1985	42.783	13.100	4.72	Fake according to Molin et al., (2008)
2274	1962	9	12	22		ALVITO	Boll. Strum. ING	41.667	13.717	4.50	Fake according to Molin et al., (2008)
2286	1963	5	20	4		M.LETO	Boll. Strum. ING	43.400	12.500	4.70	Fake according to Molin et al., (2008)
2306	1965	3	15	8	56	CAPRIATA	Postpischl, 1985	44.700	8.700	4.51	Fake according to Molin et al., (2008)
2395	1970	5	5	12	49	PAVULLO	Postpischl, 1985	44.350	10.850	4.72	Fake according to Molin et al., (2008)
2410	1970	12	30	5	16	PARTANNA	Postpischl, 1985	37.700	12.900	4.51	Fake according to Molin et al., (2008)
1071	1877	1	25	3	53	Valbruna	OGS, 1987	46.450	13.300	4.93	Not confirmed by any other source
1757	1918	1	14	6	44	ARETINO	Camassi & Stu., 1997	43.500	11.800	4.90	Not confirmed by any other source
1826	1923	1	1	17	55	NOTRANJSKO	Cvijanovic, 1981	45.900	14.400	4.93	Not confirmed by any other source
2012	1937	2	26			Medio Adriatico	Boll. Strum. ING	43.900	13.100	4.43	Not confirmed by any other source
2082	1946	2	18	23		PIONE	Boll. Strum. ING	44.600	9.600	4.70	Not confirmed by any other source
2089	1947	4	14	14	53	Medio Adriatico	Boll. Strum. ING	42.500	15.000	4.77	Not confirmed by any other source
2319	1966	5	26	18	7	Monteveglio	Int. Seism. Sum. Cat.	44.500	11.200	4.70	Not confirmed by any other source
2330	1967	9	24	22	27	Lecchese	ISC Bull.	45.750	9.390	4.52	Not confirmed by any other source
2676	1983	1	19	8	8	Alto Ionio	Castello et al., 2006	39.031	18.873	4.64	Duplication
3046	2000	8	21	17	24	Monferrato	Castello et al., 2006	44.740	8.422	5.04	Duplication
317	1600					Palazzuolo	Castelli et al., 1996	44.113	11.548	5.35	Compilation error
2668	1982	10	17	10	56	Tirol	GdL CSTI, 2005	47.489	11.172	4.80	Compilation error
2680	1983	5	7	22	9	Penisola Salentina	GdL CSTI, 2005	40.062	17.890	4.96	Compilation error
2689	1983	11	8	18	21	Mar Ionio	GdL CSTI, 2005	38.983	17.420	5.37	Compilation error
2711	1984	6	19	1	27	Adriatico centrale	GdL CSTI, 2005	42.869	15.290	4.56	Compilation error
2732	1985	8	15	4	45	ZONA LUBIANA	GdL CSTI, 2005	46.160	14.339	4.47	Compilation error
2757	1986	7	22	7	13	Isole Tremiti	GdL CSTI, 2005	42.057	15.729	4.56	Compilation error
2855	1993	11	6	23	21	ZONA RAVENNA	GdL CSTI, 2005	44.253	12.038	4.47	Compilation error

References in the column "Reason"

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