

Accompanying Notes

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On 1 October 2007 we released version 3.0.4 of the *Database of Individual Seismogenic Sources*. The new release is similar in structure to the previous releases of DISS 3, but its contents have been substantially extended and improved. In particular the new release:

- 1) acknowledges several new findings that came out following the completion of a 2-year research project named "Assessing the seismogenic potential and the probability of strong earthquakes in Italy " (hereinafter referred to as "Project") funded in 2005-2007 by the Italian Department for Civil Defense (<http://legacy.ingv.it/progettiSV/Progetti/Sismologici/S2.htm>);
- 2) incorporates research results that appeared in the scientific literature between mid-2006 and summer 2007;
- 3) features a general reappraisal of all database contents by its compilers based on their own published and unpublished results and on general internal consistency criteria.

Following is a description of the main changes between the current version and v. 3.0.2. Recall that v. 3.0.3 was released in July 2007 at the end of the Project to present ancillary results that were obtained in the project (new intensity-based seismogenic sources, improvements to the accompanying materials), but contained the same geologically-determined seismogenic sources as v. 3.0.2, used as a reference version during Year 2 of the Project. The current version thus acknowledges most of the work that was accomplished during Year 2.

The description will consider separately the Individual Seismogenic Sources and the Seismogenic Areas. For most sources, each brief description is accompanied by the name of the person(s) that compiled or modified the given seismogenic source, depending on whether it is a new source or a pre-existing source that has been modified. Each source is also accompanied by the name of the Research Unit (RU) of the Project that supplied new information (if applicable). For any further questions, please refer to the materials accompanying DISS or send an e-mail to: sorgenti@ingv.it.

All changes are summarized in the table supplied at the end of this text. Notice that, while the primary content of the database (Individual Seismogenic Sources and Seismogenic Areas) will not change until the release of the next version, support data and accompanying materials will be progressively improved without further notice.

Individual Seismogenic Sources

The new DISS release features 7 new Individual Seismogenic Sources, some of which replace 3 sources that have been removed. 17 additional sources have been modified, strengthened or otherwise improved. The description follows a geographic criterion moving from northeastern Italy (Slovenian border) all the way to Sicily. The current number of individual sources is 119.

- SIGG002, Bovec-Krn.** This is the source of the 12 April 1998 Bovec earthquake. The source has been substantially modified based on data by RU 2.7 – Galadini. Modified by: Vanja Kastelic and Pierfrancesco Burrato.
- ITGG101, Montello.** The source has been substantially modified based on a detailed analysis of the subsurface geometry of the Montello thrust by means of seismic reflection data and modeling of surface geology and geomorphology features. The basic data were supplied by the RU 2.7 – Galadini. Modified by: Pierfrancesco Burrato.
- ITGG115, Conegliano.** This source has been removed following a reappraisal done by the database compilers based on data from RU 2.7 - Galadini.
- ITGG107, Mirandola.** The parameters of this source have been substantially modified based on new literature data and on a reassessment of the fault slip rate. Modified by: Pierfrancesco Burrato, Eugenio Carminati, Carlo Doglioni and Davide Scrocca.
- ITGG091, Casalecchio di Reno** (formerly Zola Predosa). The parameters of this source have been substantially modified on the basis of a reappraisal of geologic and earthquake intensity data. Modified by: Pierfrancesco Burrato, Paola Vannoli and Andrea Rovida.
- ITGG103, Crespellano.** This is a new source located along the frontal thrust of the northern Apennines. It is associated with the 20 April 1929, Bolognese earthquake (Mw 5.6). Compilers: Pierfrancesco Burrato, Paola Vannoli and Andrea Rovida.
- ITGG100, Bagnacavallo.** The parameters of this source have been modified based on new literature data and a reinterpretation of subsurface data (seismic profiles) by the RU 2.4 - Burrato. Modified by: Pierfrancesco Burrato.
- ITGG093, Faenza.** This is a new source based on data supplied by the RU 2.4 – Burrato. It is associated with the 4 April 1781, Faenza earthquake (Mw 5.8). Compilers: Pierfrancesco Burrato, Paola Vannoli and Andrea Rovida.
- ITGG085, Pontremoli.** The parameters of this source have been confirmed based on seismological data (relocated background seismicity) supplied by the RU 2.17 – Solarino and subsurface data (seismic profiles) supplied by the RU 2.14 - Scandone. Modified by: Pierfrancesco Burrato.
- ITGG067, Aulla.** This is a new source based on seismological data (relocated background seismicity) supplied by the RU 2.17 - Solarino. It is associated with the 7 May 1481, Lunigiana earthquake (Mw 5.8). Compiler: Pierfrancesco Burrato.
- ITGG087, Mugello West.** The parameters of this source have been slightly modified based on a reinterpretation of subsurface data (seismic profiles) and on new surface geology mapping by the RU 2.3 - Barchi. Modified by: Pierfrancesco Burrato.
- ITGG076, Poppi.** The existence of this source has been confirmed based on a reinterpretation of subsurface data (seismic profiles) and on new surface geology mapping by the RU 2.3 - Barchi. Its parameters have been slightly modified with respect to the previous hypotheses. Modified by: Pierfrancesco Burrato.
- ITGG064, Anghiari.** The parameters of this source have been slightly modified (the source has been shifted to the west) based on a reinterpretation of subsurface data (seismic profiles) supplied by the RU 2.3 - Barchi. Modified by: Pierfrancesco Burrato.
- ITGG063, Monterchi.** Also the parameters of this source have been slightly modified (the source has been shifted to the west) based on a reinterpretation of subsurface data (seismic profiles) supplied by the RU 2.3 - Barchi. Modified by: Pierfrancesco Burrato.
- ITGG017, Colfiorito North.** The parameters of this source have been slightly modified based on the literature that was published after 2001. Modified by: Roberto Basili and Gianluca Valensise.
- ITGG006, Ufita Valley.** This source is associated with the 29 November 1732 Irpina earthquake, that occurred in the Ufita Valley. Its parameters have been modified based on a reinterpretation of geomorphological, subsurface and intensity data from the RU 2.4 - Burrato and RU 2.15 - Siniscalchi. Modified by: Paola Vannoli and Pierfrancesco Burrato.
- ITGG088, Bisaccia.** This source is associated with the 23 July 1930 Irpina earthquake. Its parameters have been modified based on a reassessment of historical seismograms by a group of INGV scientists and on subsurface (magnetotelluric

- observations) data supplied by the RU 2.15 - Siniscalchi. Modified by: Pierfrancesco Burrato, Umberto Fracassi and Paola Vannoli.
- ITGG068, Casamicciola.** This source has been made smaller and shallower following a reconsideration of the magnitude of the associated 1883 earthquake. Modified by: Paola Vannoli.
- ITGG010, Melandro-Pergola.** Following a reappraisal of the intensity pattern of the 1857 earthquake and of contemporary chronicles, this source has been reinterpreted as having ruptured during an early sub-event of the 1857 shock. The data were supplied by RU 2.4 – Burrato. Modified by: Pierfrancesco Burrato.
- ITGG008, Agri Valley.** The parameters of this source have been validated through paleoseismological and high resolution geophysical studies performed along its surface expression. Following a reappraisal of the intensity pattern of the 1857 earthquake and of contemporary chronicles, this source has been reinterpreted as having ruptured during a late sub-event of the 1857 shock. The data were supplied by RU 2.4 – Burrato and RU 2.15 Siniscalchi. Modified by: Pierfrancesco Burrato.
- ITGG009, Castrovillari.** The location of this source has been slightly modified based on a reassessment of the exact location of the corresponding fault and on data supplied by the RU 2.9 - Lavecchia. Modified by: Pierfrancesco Burrato.
- ITGG097, Luzzi.** This is a new source located along the eastern flank of the Crati valley. It is based on geological, geomorphological, geochemical and intensity data from the literature and on original observations. It is associated with the 14 July 1767, Cosentino earthquake (Mw 5.8). Compilers: Mara Monica Tiberti, Paola Vannoli and Gianluca Valensise.
- ITGG098, Castiglione Cosentino.** This is also a new source aligned with the previous one and located to the south of it. It is based on geological, geomorphological, geochemical and intensity data from the literature and on original observations. It is associated with the 12 October 1835, Cosentino earthquake (Mw 5.9). Compilers: Mara Monica Tiberti, Paola Vannoli and Gianluca Valensise.
- ITGG099, Dipignano.** This is further new source aligned with the previous two ones and located to the south of them. It is based on geological, geomorphological, and intensity data from the literature and on original observations and is associated with the 12 February 1854, Cosentino earthquake (Mw 6.1). Compilers: Mara Monica Tiberti, Paola Vannoli and Gianluca Valensise.
- ITGG056, Southern Tyrrhenian.** The location of this source has been modified based on a reinterpretation of subsurface (seismic profiles) data supplied by the RU 2.6 - Doglioni. Modified by: Mara Monica Tiberti, Paola Vannoli and Roberto Basili.
- ITGG106, Gravina di Catania.** This is a new source that was established following a reinterpretation of the complexity of the 11 January 1693 earthquake in eastern Sicily and based on modelling of surface geological and geomorphological observations. The reinterpretation includes the hypothesis that the 11 January 1693 earthquake was characterized by the nearly simultaneous occurrence of two spatially independent shocks occurring at 40-50 km distance. The new source is based on data supplied by the RU 2.4 - Burrato and RU 2.5 - Catalano. Compilers: Pierfrancesco Burrato, Paola Vannoli and Gianluca Valensise.
- ITGG074, Monte Lauro.** This source has been significantly modified following a reinterpretation of the complexity of the 11 January 1693 earthquake in eastern Sicily and based on modelling of surface geological and geomorphological observations. The reinterpretation includes the hypothesis that the 11 January 1693 earthquake was characterized by the nearly simultaneous occurrence of two spatially independent shocks occurring at 40-50 km distance. The new source is based on data supplied by the RU 2.4 - Burrato. Modified by: Pierfrancesco Burrato, Paola Vannoli and Gianluca Valensise.
- ITGG072, Ragusa.** Following the reassessment that led to the creation of the ITGG074 and ITGG106 sources, this source has been eliminated.
- ITGG075, Gravina di Catania.** Following the reassessment that led to the creation of the ITGG106 source, this source has been eliminated.

Seismogenic Areas

The new DISS release features 13 new Seismogenic Areas, most of which belong to seismogenic zones located outside the Italian borders. One Seismogenic Area has been removed; 22 have been slightly modified, strengthened or otherwise improved; 22 have been more substantially modified. Most changes and improvements reflect changes in the corresponding individual sources. The description follows a geographic criterion moving from northeastern Italy (Slovenian border) all the way to Sicily and then to the Adriatic offshore. The current number of SA-type sources is 92.

Slightly modified sources

- SISA002, Tolmin-Idrja.** Modified by: Vanja Kastelic and Pierfrancesco Burrato.
- ITSA002, Spino d'Adda-Bagnolo Mella.** Modified by: Pierfrancesco Burrato.
- ITSA051, Novi-Poggio Renatico.** Modified by: Pierfrancesco Burrato.
- ITSA012, Malalbergo-Ravenna.** Modified by: Pierfrancesco Burrato.
- ITSA026, Lunigiana-Garfagnana.** Modified by: Pierfrancesco Burrato.
- ITSA041, Selci-Lama.** Modified by: Pierfrancesco Burrato.
- ITSA027, Bore-Montefeltro-Fabriano-Laga.** Modified by: Pierfrancesco Burrato.
- ITSA056, Gubbio Basin.** Modified by: Pierfrancesco Burrato.
- ITSA020, Southern Marche.** Modified by: Pierfrancesco Burrato.
- ITSA075, Pietracamela-Montesilvano.** Modified by: Umberto Fracassi.
- ITSA059, Tocco Casauria-Tremiti.** Modified by: Umberto Fracassi.
- ITSA058, San Marco in Lamis-Mattinata.** Modified by: Umberto Fracassi.
- ITSA079, Campo di Giove-Campomarino.** Modified by: Umberto Fracassi.
- ITSA077, Pescolanciano-Montagano.** Modified by: Umberto Fracassi.
- ITSA004, Castelluccio dei Sauri-Trani.** Modified by: Umberto Fracassi.
- ITSA057, Pago Veiano-Montaguto.** Modified by: Umberto Fracassi.
- ITSA089, Rapolla-Spinazzola.** Modified by: Umberto Fracassi.
- ITSA003, Ripabottoni-San Severo.** Modified by: Umberto Fracassi.
- ITSA005, Baragiano-Palagianello.** Modified by: Umberto Fracassi.
- ITSA034, Irpinia-Agri Valley.** Modified by: Umberto Fracassi.
- ITSA033, Pollino.** Modified by: Pierfrancesco Burrato.
- ITSA014, Southern Tyrrhenian.** Modified by: Mara Monica Tiberti and Roberto Basili.

Substantially modified sources

- ITSA062, Maniago-Sequals.** This source has been modified following new data from RU 2.7 – Galadini. Modified by: Pierfrancesco Burrato.
- ITSA064, Tramonti-Montemaggiore.** This source has been shortened to the east following an updated interpretation of the Polovnik area in Slovenia. Modified by: Pierfrancesco Burrato and Vanja Kastelic.
- ITSA060, Montebelluna-Montereale.** This source has been extended to the northeast to include the Cansiglio and Polcenigo-Montereale thrust faults. Modified by: Pierfrancesco Burrato.
- ITSA044, Portalbera-Cremona.** This source has been revised based on subsurface geological data. Modified by: Pierfrancesco Burrato.
- ITSA018, Rivanazzano-Stradella.** This source has been revised based on subsurface geological data. Modified by: Pierfrancesco Burrato.
- ITSA009, Busseto-Cavriago.** This source has been revised based on subsurface geological data. Modified by: Pierfrancesco Burrato.
- ITSA045, San Giorgio Piacentino-Fornovo di Taro.** This source has been revised based on subsurface geological data. Modified by: Pierfrancesco Burrato.
- ITSA046, Langhirano-Sassuolo.** This source has been revised based on subsurface geological data. Modified by: Pierfrancesco Burrato.

- ITSA047, Castelvetro di Modena-Castel San Pietro Terme.** This source has been revised based on subsurface geological data. Modified by: Pierfrancesco Burrato.
- ITSA049, Reggio Emilia-Rolo.** This source has been revised based on subsurface geological data. Modified by: Pierfrancesco Burrato.
- ITSA050, Poggio Rusco-Migliarino.** This source has been revised based on subsurface geological data. Modified by: Pierfrancesco Burrato.
- ITSA012, Malalbergo-Ravenna.** This source has been revised based on subsurface geological data. Modified by: Pierfrancesco Burrato.
- ITSA001, Castel San Pietro Terme-Meldola.** This source has been revised based on subsurface geological data. Modified by: Pierfrancesco Burrato.
- ITSA037, Mugello-Sansepolcro-Trevi.** This source has been revised following a reinterpretation of subsurface data (seismic profiles) and based on new surface geology mapping by the RU 2.3 - Barchi. Modified by: Pierfrancesco Burrato.
- ITSA024, Miranda-Apice.** This source has been modified to reflect the new interpretation of the 29 November 1732 northern Irpinia earthquake and based on data from RU 2.4 – Burrato and RU 2.20 – Zuppetta. Modified by: Umberto Fracassi.
- ITSA084, Mirabella Eclano-Monteverde.** This source has been profoundly revised based on new geological and seismological data supplied by the RU 2.4 – Burrato and RU 2.15 – Siniscalchi. The revision is consistent with a new interpretation of the 29 November 1732 earthquake in northern Irpinia. Modified by: Umberto Fracassi and Paola Vannoli.
- ITSA015, Crati Valley.** This source is based on the interpretation of the 14 July 1767, 12 October 1835 and 12 February 1854 earthquakes in the Crati Valley. The update is also based on seismological data from RU 2.11 – Mucciarelli. Modified by: Mara Monica Tiberti, Paola Vannoli and Gianluca Valensise.
- ITSA035, Ragusa-Palagonia.** This source has been modified based on a new interpretation of the 11 January 1693 earthquake in eastern Sicily and of its geodynamic setting. The update is also based on seismological data from RU 2.12 – Neri. Modified by: Pierfrancesco Burrato and Paola Vannoli.
- ITSA036, Monte Lauro.** This source has been modified based on a new interpretation of the 11 January 1693 earthquake in eastern Sicily and of its geodynamic setting. The update is also based on seismological data from RU 2.12 – Neri. Modified by: Pierfrancesco Burrato, Gianluca Valensise and Paola Vannoli.
- ITSA029, Gela-Catania.** This source has been modified based on a new interpretation of the 11 January 1693 earthquake in eastern Sicily and of its geodynamic setting. It also relies on data from the RU 2.4 - Burrato and RU 2.5 - Catalano. Modified by: Pierfrancesco Burrato and Paola Vannoli.
- ITSA017, Scicli-Giarratana.** This source has been modified based on a new interpretation of the 11 January 1693 earthquake in eastern Sicily and of its geodynamic setting. The update is also based on seismological data from RU 2.12 – Neri. Modified by: Pierfrancesco Burrato and Paola Vannoli.
- ITSA006, Castelvetro-Gela.** This source has been modified to account for a new broader hypothesis on the seismogenic potential of southern Sicily. Modified by: Pierfrancesco Burrato and Paola Vannoli.

New sources

- SISA003, Polovnik.** This source has been established following a new interpretation of the tectonic and structural map of western Slovenia and of historical and instrumental seismicity. Compilers: Vanja Kastelic and Pierfrancesco Burrato.
- SISA004, Branik-Ilirska Bistrica.** This source has been established following a new interpretation of the tectonic and structural map of western Slovenia and of historical and instrumental seismicity. Compilers: Vanja Kastelic and Pierfrancesco Burrato.
- SISA005, Cividale-Nova Gorica.** This source has been established following a new interpretation of the tectonic and structural map of western Slovenia and of historical and instrumental seismicity. Compiler: Pierfrancesco Burrato.

- ITSA061, Trasaghis-Taipana.** This source has been established following a new interpretation of the tectonics of the Venetian Alps piedmont. Compilers: Pierfrancesco Burrato.
- ITSA071, Andreis-Forgaria nel Friuli.** This source has been established following a new interpretation of the tectonics of the Venetian Alps piedmont. Compiler: Pierfrancesco Burrato.
- ITSA052, Mid-Adriatic offshore.** This source has been established following an updated interpretation of seismogenic processes along the easternmost fronts of the Marche Apennines. Compilers: Umberto Fracassi, Davide Scrocca and Carlo Doglioni.
- ITSA070, Gargano offshore.** This source accounts for the activity and seismogenic potential of the E-W sector of the Gondola Fault zone and is based on data from RU 2.4 – Burrato. Compiler: Umberto Fracassi.
- ITSA069, Southern Calabria.** This source follows a reinterpretation of most of the major seismicity of southern Calabria as due to the activity on the upper portion of the subduction plane that lies beneath Calabria. The source is also based on seismological data from RU 2.12 – Neri. Compiler: DISS Working Group.
- ALSA002, Northern Albania offshore.** This source accounts for the activity and seismogenic potential of the westernmost thrust fronts of the Albanides and is largely based on seismic profiles. Compilers: Mara Monica Tiberti, Roberto Basili and Umberto Fracassi.
- ALSA001, Southern Albania offshore.** This source accounts for the activity and seismogenic potential of the westernmost thrust fronts of the Albanides and is largely based on seismic profiles. Compilers: Mara Monica Tiberti, Roberto Basili and Umberto Fracassi.
- MESA001, Montenegro offshore.** This source accounts for the activity and seismogenic potential of the westernmost thrust fronts of the Dinarides and is largely based on seismic profiles. Compilers: Mara Monica Tiberti, Roberto Basili and Umberto Fracassi.
- GRSA002, Northern Greece offshore.** This source accounts for the activity and seismogenic potential of the westernmost thrust fronts of the Hellenides. Compilers: Mara Monica Tiberti, Roberto Basili and Umberto Fracassi.
- GRSA003, Kephallonia-Lefkada.** This source accounts for the major earthquake activity of the Kephallonia-Lefkada shear zone. Compilers: Mara Monica Tiberti and Roberto Basili.

Eliminated sources

- ITSA010, Copparo-Comacchio.** Compiler: Pierfrancesco Burrato.

	DISS 3.0.0	DISS 3.0.1	DISS 3.0.2	DISS 3.0.3	DISS 3.0.4
Date Released	<i>Sep</i> 2004	<i>Nov</i> 2005	<i>Sep</i> 2006	<i>Jul</i> 2007	<i>Oct</i> 2007
Significant improvements	<ul style="list-style-type: none"> • New categories of sources introduced: non-segmented, non parameterized • Graphic representation of fault kinematics • All parameters are assigned Qualifiers & Explanatory Notes 	<ul style="list-style-type: none"> • Seismogenic Areas introduced • Web version implemented 	<ul style="list-style-type: none"> • Google Earth version implemented 	<ul style="list-style-type: none"> • 25 new "Historical sources" (Well-constrained, Poorly-constrained, Deep) based on latest Italian reference catalogue for all earthquakes of Mw 5.3 and larger 	<ul style="list-style-type: none"> • Acknowledges the results of the research project "Assessing the seismogenic potential and the probability of strong earthquakes in Italy"
GG sources ¹	100	107*	115**	115	119***
SA sources ¹	-	67	81	86	92
Support data: References ²	1,720	1,944	2,063	2,063	2,235
Support data: Images ³	550	683	794	794	810
Support data: Texts ⁴	~250	~270	~300	~300	~320
Additional materials	<ul style="list-style-type: none"> • 41 "Previous fault compilations"⁵ • 12 Additional data⁶ 	<ul style="list-style-type: none"> • 41 "Previous fault compilations"⁵ • 16 Additional data⁶ 	<ul style="list-style-type: none"> • 41 "Previous fault compilations"⁵ • 20 Additional data⁶ 	<ul style="list-style-type: none"> • 41 "Previous fault compilations"⁵ • 20 Additional data⁶ 	<ul style="list-style-type: none"> • 41 "Previous fault compilations"⁵ • 20 Additional data⁶

¹ Source types: GG, Geological-Geophysical; SA, Seismogenic Areas.

² Number of independent references attached to the seismogenic sources.

³ Number of independent images (original from published literature) documenting the seismogenic sources.

⁴ Number of equivalent pages of original texts documenting the seismogenic sources.

⁵ Previous fault compilations: georeferenced fault maps from previous papers/authors.

⁶ Additional data: georeferenced sets of geophysical, geological data from various authors.

* GG sources: 14 added; 7 removed; parameters of 8 modified/improved.

** GG sources: 9 added; 1 removed; parameters of 35 modified/improved.

*** GG sources: 7 added; 3 removed; parameters of 17 modified/improved.