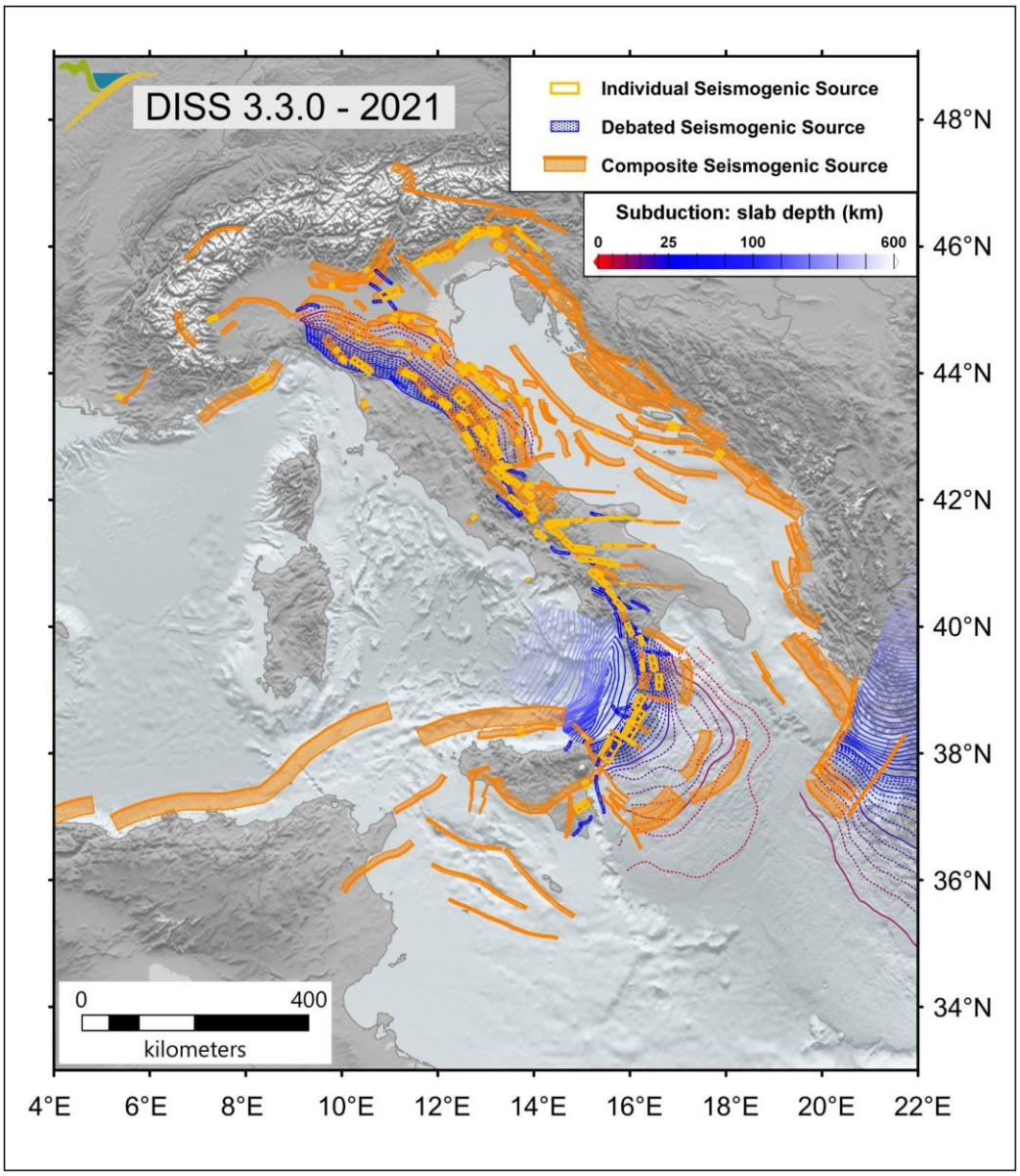
DISS 3.3.0 Accompanying Notes



DISS Working Group (2021). *Database of Individual Seismogenic Sources (DISS), Version 3.3.0: A compilation of potential sources for earthquakes larger than M 5.5 in Italy and surrounding areas*. Istituto Nazionale di Geofisica e Vulcanologia (INGV). https://doi.org/10.13127/diss3.3.0.

Last updated on 16/12/2021

Summary of main changes

In December 2021, we released version 3.3.0 of the *Database of Individual Seismogenic Sources*.

The 3.3.0 version of DISS features significant improvements and novelties with respect to previous versions. As for the contents, the new release:

1) introduces an M_w value for the Composite Seismogenic Sources (CSS) estimated from Leonard's (2014) scaling relations. The M_w value corresponds to the largest rupture area fitting inside the fault considering the geometric uncertainty and the aspect ratio implied by the scaling relation;

2) incorporates many research results that had appeared in the scientific literature between June 2016 (when the content of previous version was last updated) and December 2021;

3) introduces ITSD002, the interface between the Apennines chain in the upper plate and the Adriatic lithosphere in the lower plate in the eastern sector of central and northern Apennines;

4) includes a totally revised and much more detailed version of the subduction interface beneath the Calabrian Arc (ITSD001);

5) includes five new Individual Seismogenic Sources (ISS), located in Central Italy: a) the ITIS144 Amatrice source, which is held responsible for the 24 August 2016, Mw 6.1, earthquake, b) the ITIS145 Visso source, that is held responsible for the 26 October 2016, Mw 5.9, earthquake, c) the ITIS146 Norcia source, that is held responsible for the 30 October 2016, Mw 6.5, earthquake, d) the ITIS147 Campotosto source, that is held responsible for the 18 January 2017, Mw 5.5, earthquake, and e) the ITIS148 Capitignano source, that is held responsible for the 9 April 2009, Mw 5.4, earthquake;

6) includes modified parameters for the geometry and kinematics of four ISS (ITIS047, ITIS049, ITIS055, and ITIS096);

7) attributes three pre-existing ISS (ITIS048, ITIS058, and ITIS135) to the new ITSD002;

8) includes 12 new CSS covering: a) the broad area of central Italy hit by the 2016-17 earthquake sequence, b) the northeastern periphery of the 2016-17 region, toward the northern inner Marche, c) the area between the 2016-17 sequence and that of the 2009 L'Aquila earthquake, d) the southeastern offshore of peninsular Italy, e) a strand of the Subduction Transform Edge Propagator (STEP) fault system bounding the Calabrian subduction zone to the SW, and f) the southwestern end of Sicily, including offshore;

9) includes modified parameters for the geometry and kinematics of 8 CSS (ITCS020, ITCS028, ITCS118, ITCS122, ITCS123, ITCS124, ITCS125, ITCS126);

10) removes 3 CSS (ITCS075, ITCS117, ITCS121);

11) includes three new Debated Seismogenic Sources (DSS) located in central Italy and Sicily (ITDS076, ITDS077, ITDS078);

12) proposes an improved characterization of several already existing ISS and CSS. All these sources feature improved commentaries, new pictures, and updated references.

Logbook

Version	Date	Significant Improvements	ISS[1]	CSS[1]	DSS[1]	SDZ[1]	Refs[2]	Images[3]	Texts[4]
3.3.0	Dec 2021	• New web portal • M_w from Leonard's (2014) scaling relations • Introduced Central-Northern Apennines Basal Thrust • Version dedicated to the 2020 update of the European Seismic Hazard Model (ESHM20)	132	197[l]	38	4[m]	4,057	1,192	~990
3.2.1	Apr 2018	• An improved version specifically dedicated to the construction of the new seismic hazard map of Italy (MPS16)	127[i]	188[j]	35[k]	3	3,690	2,440	~950
3.2.0	Jun 2015	• New web-server architecture • New website • New front-end allowing registered users to post comments and suggestions on database contents • Subduction layer introduced	126[h]	167	35	3	3,139	2,215	~870
3.1.1	Jul 2010	• Questionnaire for Debated Seismogenic Sources updated • Thematic maps updated	123[f]	118[g]	27	---	2,670	1,731	~730
3.1.0	Jun 2009	• Debated Seismogenic Sources introduced • Active Folds introduced • Thematic maps introduced • Web portal restyling	119[d]	98[e]	8	---	2,476	1,416	~660
3.0.4	Oct 2007	• Acknowledges the results of the research project "Assessing the seismogenic potential and the probability of strong earthquakes in Italy"	119[c]	92	---	---	2,218	859	~320
3.0.3	Jul 2007	• 25 new "Historical sources"	115	86	---	---	2,063	794	~300
3.0.2	Sep 2006	• Google Earth version implemented	115[b]	81	---	---	2,063	794	~300
3.0.1	Nov 2005	• Composite Seismogenic Sources introduced • Web-version implemented	107[a]	67	---	---	1,944	683	~270
3.0.0	Sep 2004	• Non-segmented, non-parameterized sources introduced • Graphic representation of fault kinematics • Qualifiers and Explanatory Notes introduced	100	---	---	---	1,720	550	~250

[1] Source types: ISS, Individual Seismogenic Source; CSS, Composite Seismogenic Source; DSS, Debated Seismogenic Source; SDZ, Subduction Zone.

[2] Total number of independent bibliographic references associated with the seismogenic sources.

[3] Total number of images (originals and from published literature) documenting the seismogenic sources.

[4] Total number of equivalent pages of original texts documenting the seismogenic sources.

[a] ISS: 14 added; 7 removed; parameters of 8 modified/improved.

[b] ISS: 9 added; 1 removed; parameters of 35 modified/improved.

[c] ISS: 7 added; 3 removed; parameters of 17 modified/improved.

[d] ISS: parameters of 20 modified/improved.

[e] CSS: 6 added; parameters of 24 modified/improved.

[f] ISS: 7 added; 3 removed; parameters of 5 modified/improved.

[g] CSS: 21 added; 1 removed; parameters of 29 modified/improved.

[h] ISS: 5 added; 2 removed.
[i] ISS: 2 added; 1 removed; parameters of 8 modified/improved.
[j] CSS: 24 added; 3 removed; parameters of 18 modified/improved.
[k] DSS: 2 added; 2 removed.
[l] CSS: 12 added; 3 removed; parameters of 8 modified/improved.
[m] SDZ: 1 added; 1 entirely revised.
[*]Introduced a new archiving method for the images which eliminates the duplicates. This is now the number of unique images in the database. In this version we added 89 new unique pictures.

Additional information

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Metadata associated with DISS 3.3.0 are at https://data.ingv.it/dataset/488

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