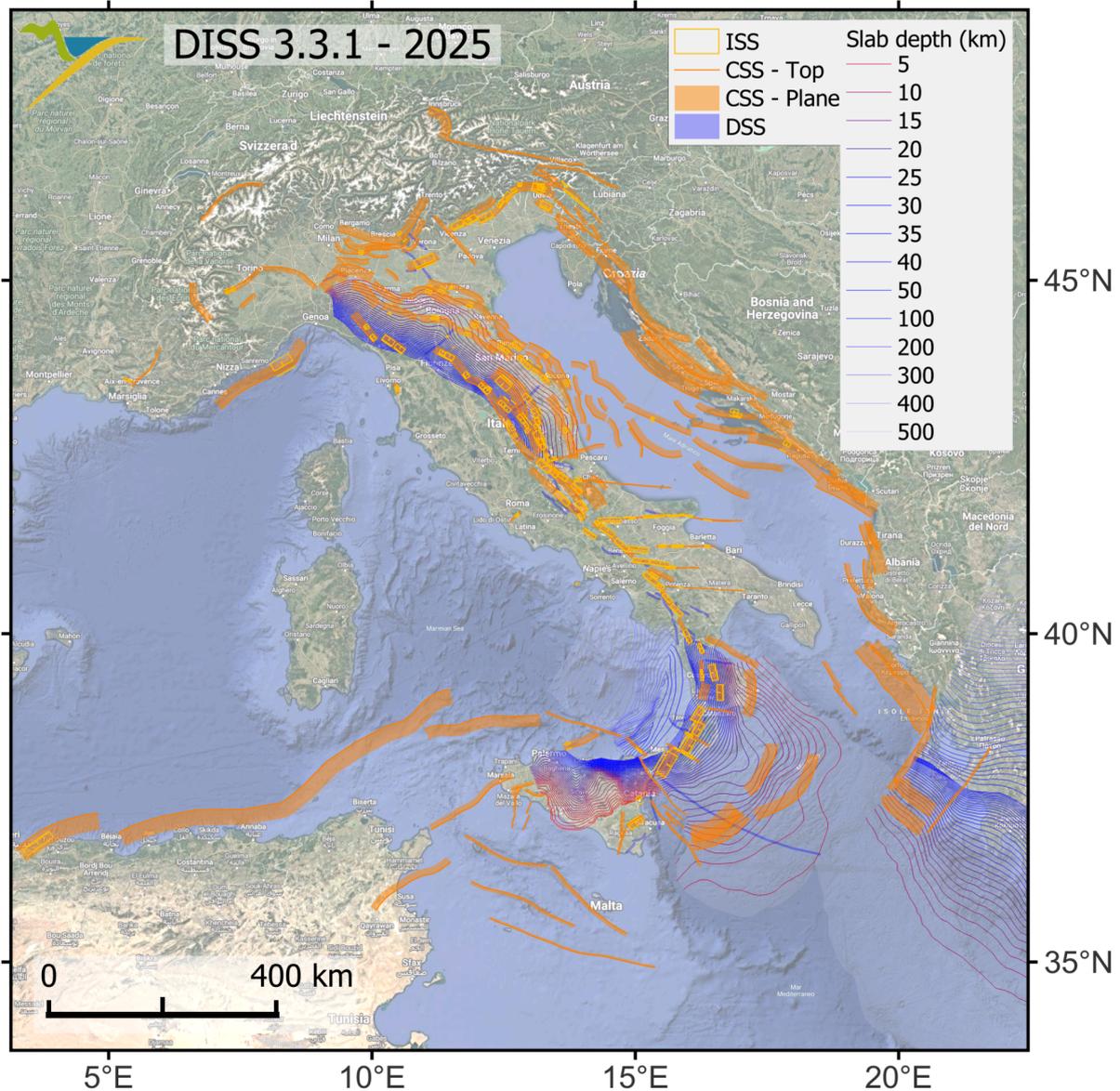




## DISS 3.3.1 Accompanying Notes



DISS Working Group (2025). *Database of Individual Seismogenic Sources (DISS), Version 3.3.1: A compilation of potential sources for earthquakes larger than  $M$  5.5 in Italy and surrounding areas.* [Dataset] Istituto Nazionale di Geofisica e Vulcanologia (INGV). <https://doi.org/10.13127/diss3.3.1>.



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## Summary of main changes

In March 2025, we released version 3.3.1 of the *Database of Individual Seismogenic Sources*.

The 3.3.1 version of DISS features significant improvements and novelties with respect to previous versions. As for the contents, the new release:

- 1) incorporates many research results that appeared in the scientific literature between December 2021 (when the content of the previous version was last updated) and March 2025;
- 2) introduces ITSD003 *Sicily Eastern Arc* and ITSD004 *Sicily Central Arc*, two portions of the interface between the allochthonous units of the Sicilian Fold and Thrust Belt in the upper plate and the Hyblean platform in the lower plate; these two new sources replace the CSS ITCS006 *Sciacca-Gela* and ITCS029 *Gela-Catania*, and they include all the necessary geometric and kinematic parameter changes.
- 3) includes a more detailed version of the shallower part of the subduction interface beneath the Northern Apennines Arc (ITSD002);
- 4) includes one new Individual Seismogenic Source (ISS) located in the Adriatic Sea, off the northern Marche coast (central Italy): the ITIS149 *Pesaro offshore* source, which is held responsible for the 9 November 2022, 06:07:25 (UTC),  $M_w$  5.5 earthquake;
- 5) removes one ISS, the ITIS109 *Sequals* source;
- 6) includes modified parameters for the geometry and kinematics of six ISS (ITIS029, ITIS033, ITIS034, ITIS035, ITIS036, ITIS058);
- 7) attributes one pre-existing ISS (ITIS106 *Gravina di Catania*) to the new ITSD003;
- 8) includes 12 new CSS: a) three (ITCS181, ITCS182, and SICS021) straddling the Italy-Slovenia border, b) seven (ITCS223, ITCS224, ITCS225, ITCS226, ITCS228, ITCS230, and ITCS231) covering the area offshore central-northern Apennines outer thrusts, including the fault source responsible for the 9 November 2022, 06:07:25 (UTC),  $M_w$  5.5 earthquake, c) one (ITCS227) in the northern Apennines outer thrust in the western Po Plain, and d) one (ITCS229) in the southern Tyrrhenian offshore region west of the Eolian Islands;
- 9) includes modified parameters for the geometry and kinematics of 36 CSS (DZCS002, HRCS021, ITCS001, ITCS008, ITCS009, ITCS011, ITCS012, ITCS014, ITCS018, ITCS020, ITCS030, ITCS032, ITCS039, ITCS043, ITCS044, ITCS045, ITCS046, ITCS047, ITCS049, ITCS050, ITCS051, ITCS052, ITCS090, ITCS103, ITCS104, ITCS107, ITCS108, ITCS112, ITCS120, ITCS133, ITCS154, ITCS156, ITCS159, ITCS222, SICS003, TNCS008);
- 10) removes six CSS (ITCS031, ITCS062, ITCS067, ITCS106, ITCS155, and ITCS158) and moves two CSS (ITCS006 and ITCS029) into the Subduction layer.
- 11) includes six new Debated Seismogenic Sources (DSS) located in northern and central Italy and in the Ionian Sea (ITDS079, ITDS080, ITDS081, ITDS082, ITDS083, ITDS084);
- 12) proposes an improved characterisation of several already existing ISS and CSS. All these sources feature improved commentaries, new pictures, and updated references.

## Logbook

Version	Date	Significant Improvements	ISS <sup>1</sup>	CSS <sup>1</sup>	DSS <sup>1</sup>	SDZ <sup>1</sup>	Refs <sup>2</sup>	Images <sup>3</sup>	Texts <sup>4</sup>
3.3.1	Apr 2025	<ul style="list-style-type: none"> <li>Introduced the source of the 9 November 2022, Pesaro offshore earthquake, <math>M_w</math> 5.5, and the Sicily Basal Thrust</li> <li>Revisited the <math>M_w</math> for scaling relations, adopting those by Leonard (2014) for crustal faults and continental subduction and Hallen and Hayes (2017) for oceanic subduction</li> </ul>	132 <sup>n</sup>	201 <sup>o</sup>	44	6	4,138	1,192	~1080
3.3.0	Dec 2021	<ul style="list-style-type: none"> <li>New web portal</li> <li><math>M_w</math> from Leonard's (2014) scaling relations</li> <li>Introduced Central-Northern Apennines Basal Thrust</li> <li>Version dedicated to the 2020 update of the European Seismic Hazard Model (ESHM20)</li> </ul>	132	197 <sup>l</sup>	38	4 <sup>m</sup>	4,057	1,192*	~990
3.2.1	Apr 2018	<ul style="list-style-type: none"> <li>An improved version specifically dedicated to the construction of the new seismic hazard map of Italy (MPS16)</li> </ul>	127 <sup>i</sup>	188 <sup>j</sup>	35 <sup>k</sup>	3	3,690	2,440	~950
3.2.0	Jun 2015	<ul style="list-style-type: none"> <li>New web-server architecture</li> <li>New website</li> <li>New front-end allowing registered users to post comments and suggestions on the database contents</li> <li>Subduction layer introduced</li> </ul>	126 <sup>h</sup>	167	35	3	3,139	2,215	~870
3.1.1	Jul 2010	<ul style="list-style-type: none"> <li>Questionnaire for Debated Seismogenic Sources updated</li> <li>Thematic maps updated</li> </ul>	123 <sup>f</sup>	118 <sup>g</sup>	27	---	2,670	1,731	~730
3.1.0	Jun 2009	<ul style="list-style-type: none"> <li>Debated Seismogenic Sources introduced</li> <li>Active Folds introduced</li> <li>Thematic maps introduced</li> <li>Web portal restyling</li> </ul>	119 <sup>d</sup>	98 <sup>e</sup>	8	---	2,476	1,416	~660
3.0.4	Oct 2007	<ul style="list-style-type: none"> <li>Acknowledges the results of the research project "Assessing the seismogenic potential and the probability of strong earthquakes in Italy"</li> </ul>	119 <sup>c</sup>	92	---	---	2,218	859	~320
3.0.3	Jul 2007	<ul style="list-style-type: none"> <li>25 new "Historical sources"</li> </ul>	115	86	---	---	2,063	794	~300
3.0.2	Sep 2006	<ul style="list-style-type: none"> <li>Google Earth version implemented</li> </ul>	115 <sup>b</sup>	81	---	---	2,063	794	~300
3.0.1	Nov 2005	<ul style="list-style-type: none"> <li>Composite Seismogenic Sources introduced</li> <li>Web-version implemented</li> </ul>	107 <sup>a</sup>	67	---	---	1,944	683	~270
3.0.0	Sep 2004	<ul style="list-style-type: none"> <li>Non-segmented, non-parameterised sources introduced</li> <li>Graphic representation of fault kinematics</li> <li>Qualifiers and Explanatory Notes introduced</li> </ul>	100	---	---	---	1,720	550	~250

<sup>1</sup> Source types: ISS, Individual Seismogenic Source; CSS, Composite Seismogenic Source; DSS, Debated Seismogenic Source; SDZ, Subduction Zone.

<sup>2</sup> Total number of independent bibliographic references associated with the seismogenic sources.

- <sup>3</sup> Total number of images (originals and from published literature) documenting the seismogenic sources.
- <sup>4</sup> Total number of equivalent pages of original texts documenting the seismogenic sources.
- <sup>a</sup> ISS: 14 added; 7 removed; parameters of 8 modified/improved.
- <sup>b</sup> ISS: 9 added; 1 removed; parameters of 35 modified/improved.
- <sup>c</sup> ISS: 7 added; 3 removed; parameters of 17 modified/improved.
- <sup>d</sup> ISS: parameters of 20 modified/improved.
- <sup>e</sup> CSS: 6 added; parameters of 24 modified/improved.
- <sup>f</sup> ISS: 7 added; 3 removed; parameters of 5 modified/improved.
- <sup>g</sup> CSS: 21 added; 1 removed; parameters of 29 modified/improved.
- <sup>h</sup> ISS: 5 added; 2 removed.
- <sup>i</sup> ISS: 2 added; 1 removed; parameters of 8 modified/improved.
- <sup>j</sup> CSS: 24 added; 3 removed; parameters of 18 modified/improved.
- <sup>k</sup> DSS: 2 added; 2 removed.
- <sup>l</sup> CSS: 12 added; 3 removed; parameters of 8 modified/improved.
- <sup>m</sup> SDZ: 1 added; 1 entirely revised.
- <sup>n</sup> ISS: 1 added; 1 removed; parameters of 6 modified/improved.
- <sup>o</sup> CSS: 12 added; 8 removed; parameters of 36 modified/improved.
- \*Introduced a new archiving method for the images, which eliminates duplicates. This is now the number of unique images in the database.

## Additional information

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Metadata associated with DISS 3.3.1 is at <https://data.ingv.it/dataset/1000>

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