

*Agreement INGV-DPC 2007-2009*

## **Project S1: Analysis of the seismic potential in Italy for the evaluation of the seismic hazard**

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(restricted access)*

**Deliverable # 3.12.1**

**A new version of DISS containing  
the scientific and technological updates  
stemming from the Project**

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## 1. Description of the Deliverable

The outcome of UR 3.12 will be a new version of DISS containing the scientific and technological updates stemming from the Project. Data produced by the UR are under review to become part of the new DISS release, the version 3.1.1, available online on the web interface and Google Earth version at <http://diss.rm.ingv.it/diss> (Fig.1).



Fig. 1: Screenshot of the main web page of DISS, restyled and now compliant to W3C requirements (html 4.01, css).

This UR focused on:

- a better characterization of the already existing seismogenic sources, both *Individual Sources* and *Composite Sources*; all sources now have their own commentary;
- inclusion in DISS of new significant bibliographic data, from 2235 records (v. 3.0.4, at the start of this Project) to 2424 (v. 3.1.0, at the end of phase 1 of the Project), and to 2620 (v. 3.1.1Beta, today);
- identification of several new *Composite* and *Individual Sources*, in the Southern Alps, Apennine chain, and Dinarides (Fig. 2), also thanks to several fruitful interactions with other RUs of this Project. The new tables of seismogenic sources are available, as usual, for download from the website (<http://diss.rm.ingv.it/diss>) in the most common GIS formats.
- implementation of a new layer containing information about *Debated Seismogenic Sources* (Fig. 3), concerning tectonic structures proposed by some authors to be seismogenic and not yet included in *DISS*. This new layer contains an original critical review of the available data.
- improvements of the web interface, and of the standalone version of the database;
- implementation of new thematic maps;
- interaction between the RUs of this Project.

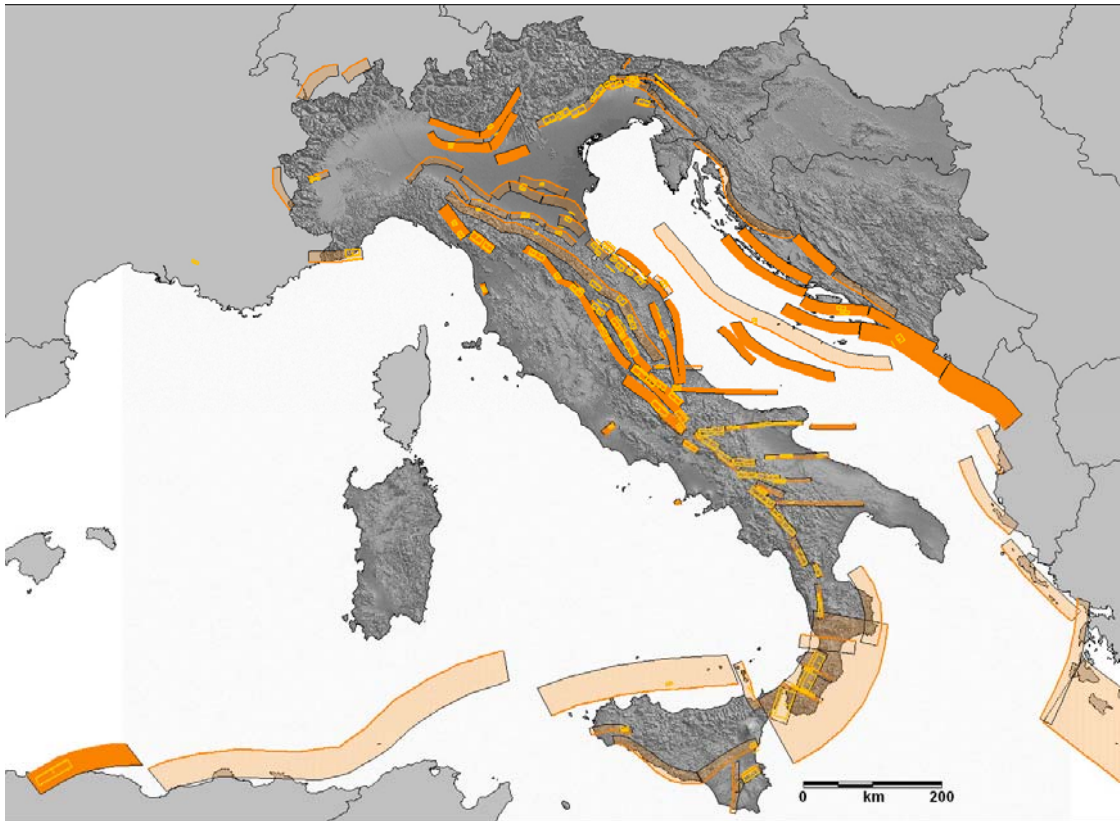


Fig. 2: *Individual Sources* in yellow and *Composite Sources* in orange. In dark orange you can see the new/modified *Composite Sources*.



Fig. 3: In blue, the *Debated Seismogenic Sources*.

## **2. Relevance for DPC and/or for the scientific community**

DISS is currently used as an effective tool to exchange quickly and easily data among different RUs. The new version will further increase such data exchange. Also, thanks to:

(a) its capability to supply a synoptic view of seismogenesis in the central Mediterranean area, (b) its contents that provide the user with a homogeneous database to quantify the tectonic strain and the seismogenic potential at the national scale, and

(c) its increased readability and degree of completeness,

DISS 3.1.1 can further serve as an outreach to scientific partners and the au-large community.

## **3. Changes with respect to the original plans and reasons for it**

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## **4. References**

Basili, R., Valensise, G., Vannoli, P., Burrato, P., Fracassi, U., Mariano, S., Tiberti M.M., Boschi, E., 2008. The Database of Individual Seismogenic Sources (DISS), version 3: summarizing 20 years of research on Italy's earthquake geology. *Tectonophysics*, 453: 20-43, doi:10.1016/j.tecto.2007.04.014.

## **5. Key publications/presentation**

Basili, R., Kastelic, V., Valensise, G., DISS Working Group, 2009. DISS3 tutorial series: Guidelines for compiling records of the Database of Individual Seismogenic Sources, version 3. *Rapporti Tecnici INGV*, 108: 20 p. <http://portale.ingv.it/produzione-scientifica/rapporti-tecnici-ingv/archivio/rapporti-tecnici-2009/>

Di Bucci, D., Burrato, P., Vannoli, P., Fracassi, U., Valensise, G., *submitted*. Seismogenic faults and their surface signature: insights from the 2009 L'Aquila earthquake (Central Apennines, Mw 6.3) for the understanding of adjacent areas. *Terra Nova*.

Di Bucci, D., Ridente, D., Fracassi, U., Trincardi, F., Valensise, G., 2010. Marine paleoseismology from Very High Resolution seismic imaging: the Gondola Fault Zone (Adriatic foreland). *Terra Nova*, 21: 393-400. doi: 10.1111/j.1365-3121.2009.00895.x.

### ***Web site***

DISS Working Group 2009 (Barba, S., Basili, R., Burrato, P., Fracassi, U., Kastelic, V., Tiberti, M.M., Valensise, G., Vannoli, P.), 2009. Database of Individual Seismogenic Sources (DISS), Version 3.1.0: A compilation of potential sources for earthquakes larger than M 5.5 in Italy and surrounding areas. <http://diss.rm.ingv.it/diss/>, June 2009.

DISS Working Group 2010 (Barba, S., Basili, R., Burrato, P., Fracassi, U., Kastelic, V., Tiberti, M.M., Valensise, G., Vannoli, P.), 2010. Database of Individual Seismogenic Sources (DISS), Version 3.1.1: A compilation of potential sources for earthquakes larger than M 5.5 in Italy and surrounding areas. <http://diss.rm.ingv.it/diss/>, July 2010.

### ***Meetings***

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Burrato, P., De Martini, P.M., Poli M.E., Zanferrari, A., 2009. Geometric and kinematic modeling of the thrust fronts in the Montello-Cansiglio area from geologic and geodetic data (Eastern Southalpine Chain, NE Italy). *Rendiconti online Soc. Geol. It.*, 5: 48-50.

- Burrato, P., Valensise, G., 2008. Osservazioni geomorfologiche e di sottosuolo nella Pianura Padano-Veneta per l'identificazione di thrust attivi della catena sudalpina: in cerca di indizi della sorgente del terremoto di Verona del 1117. Convegno "Il terremoto di Verona del 1117 e la sismicità dell'Italia nord orientale", Verona (Italy), September 11-13 2008.
- Di Bucci, D., Ridente, D., Fracassi, U., Campiani, E., Fogliini, F., Trincardi, F., Valensise, G., 2009. New data assessing fault activity in the easternmost portion of the Gondola Fault Zone (Adriatic Sea, Italy), Abstract presented at EGU 2009 Meeting, Vienna (Austria), April 19-24 2009.
- Di Bucci, D., Burrato, P., Vannoli, P., Fracassi U., Valensise, G., 2009. Surface faults, seismogenic sources and their morphotectonic signature: lessons from the 6 April 2009 L'Aquila earthquake and applications to adjacent areas (Middle Aterno). Abstract presented at Geoitalia 2009, VII Forum Italiano di Scienze della Terra, Rimini (Italy), September 9-11 2009.
- Kastelic, V., Burrato, P., Vrabec, M., 2009. Influence of inherited geometry and fault history on the recent seismogenic activity and potential of strike-slip fault systems in NW Slovenia: the case study of the Ravne Fault. *Rendiconti online Soc. Geol. It.*, 5: 108-110.
- Kastelic, V., Barba, S., Basili, R., Burrato, P., Fracassi, U., Tiberti, M.M., Valensise, G., Vannoli, P., 2009. Seismogenic sources of the Adriatic domain: an overview from the Database of Individual Seismogenic Sources (DISS 3.1.0). Abstract presented at the "Natura e Geodinamica della Litosfera nell'Alto Adriatico" meeting, Venice (Italy), November 5-6 2009. *Rendiconti online Soc. Geol. It.*, 2: 1-3.
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- Ridente, D., Di Bucci, D., Trincardi, F., Fogliini, F., Campiani, E., Fracassi, U., Valensise, G., 2009. Geomorphic evidence and lateral variability of the Gondola Fault Zone in the south Adriatic Sea. Poster presented at the "Convegno annuale dei progetti sismologici, Convenzione-Quadro tra Dipartimento della Protezione Civile e Istituto Nazionale di Geofisica e Vulcanologia – Triennio 2007-09", Rome (Italy), October 19-21 2009.
- Toscani, G., Bonini, L., Di Bucci, D., Burrato, P., Lucchesi, S., Seno, S., Valensise, G., 2009. Recent and present-day kinematics along the triangle zone between Southern Alps and Emilian Arc (Northern Apennines). Abstract presented at the Convegno FIST-GeoItalia 2009 Meeting, Rimini (Italy), September 9-11 2009.
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