ITACA 2.0

The accelerometric data base ITACA v 2.0 contains the strong motion data and the relevant metadata acquired by the main strong motion networks operating in Italy from 1972 to December 2013.

The main modification with respect to the release of ITACA 1.0 (July 2010) are listed below:

Data from the main Italian networks

Accelerometric data from the major networks of Italy have been added. A huge contribution comes from the entire data set (about 7500 waveforms) of the Italian Seismic Network operated by INGV (238 stations belonging to the permanent network IV, 19 to the temporary network TV and 9 to the permanent network MN).

Network code	Network name
IT	Rete Accelerometrica Nazionale
NI	North-East Italy Broadband Network
TV	Temporary INGV network
E	Rete accelerometrica ENEA
RF	Friuli Venezia Giulia Accelerommetric Network
IV	Rete Sismometrica Nazionale
IX	Irpinia Seismic Network
RF	Friuli Venezia Giulia Accelerommetric Network (RAF)
MN	Mednet
BA	Rete sismica Università della Basilicata
ST	Rete sismica della provincia di Trento
ZN	Seismovalp project
GU	Rete sismica dell'Università di Genova

Database architecture and web

The database architecture has been partially modified in order to make the database more flexible to host data from other countries than Italy. In particular all the fields strictly related to the Italian territory have been changed into more generic fields.

The station table has been split into two separate tables, one containing the attributes and the other containing images (photos,

maps, etc.), in order to make the data retrieval faster through the web.

The map showing all station / events of the database has been added to the station / event query pages. The fault projection on the surface obtained from the DISS 3.0 catalogue has been added for major events and the station symbols have been coloured according to the PGA values.

File names

Following the standard of the Seed manual v 2.4 (www.iris.edu), the file names have the following structure:

net_code.station_code.location_code.channel_code.D.date.time.processing_type.waveform_type.format

where:

'net_code' is the international network code (2 characters)

'station_code' is the station code (3 to 5 characters)

'location_code' is the code which indicates whether the station is installed at ground level (empty), or at different ground levels (codes from 01 to 10)

'channel_code' indicates the waveform type and the component and has 3 digits:

   1) 1 digit for the band code (in our case H = High Broad Band)

   2) 1 digit to indicate the waveform type: N, L, G = unprocessed acceleration (the codes are the ones used by different networks)

   3) 1 digit to indicate the orientation code: Z N E (Traditional Vertical, North-South, East-West); 1 2 3 Orthogonal components but non traditional orientations

'date' is the event date as YYYYMMDD

'time' is the event origin time as hhmmss

'processing_type' is either X (unprocessed) or C (processed)

'waveform_type' is either ACC (acceleration) VEL (velocity) DIS (displacement) SA (acceleration spectrum) PSV (pseudo-velocity spectrum) SD (displacement spectrum)

'format' is the file format (.FSEED, .SAC and .ASC for ascii format)

Example: the acceleration recorded by the Department of Civil Protection network (IT) at S. Giuliano di Puglia (SGIUB), NS component, on 2002/11/12 at 09:27:00 GMT, unprocessed, ASCII format with header, will have the following name:

IT.SGIUB..HNN.D.20021112.092700.X.ACC.ASC

Metadata revision

1. 1976 Friuli sequence: focal mechanisms, locations and fault strike and dip are derived from Slejko et al (1999) or specific studies

2. 1997-98 Umbria Marche sequence: location focal mechanisms and fault strike and dip are derived from Chiaraluce et al (2004) or specific studies

3. 2009 L'Aquila sequence: location focal mechanisms and fault strike and dip are derived from Chiaraluce et al (2011) or specific studies

4. The rest of focal mechanisms and Mw (1997 – 2012) are derived from RCMT (http://www.bo.ingv.it/RCMT/searchRCMT.html)

5. For the events that are not in the previous cases focal mechanisms and fault strike and dip are derived from Frepoli et al. (1997) and Frepoli and Amato (2000)

6. The coordinates of Tolmezzo diga stations (TLM1, TLM2 and TLB) and the site classification has been revised

7. The coordinates of the Maiano temporary and permanent stations (MAA, MAT, MAP, MJS, MAI and MAJ) have been revised

8. The EC8 soil classification of several sites equipped with accelerometers since 2007 have been revised, on the base of the geological map at 1:100.000 scale (see further information in: Di Capua, S. Peppoloni, M. Amanti, C. Cipolloni, G. Conte, D. Avola, A. Del Buono, E. Borgomeo, C. Negri Arnoldi, and S. Scrivieri (2011), Il Progetto SEE-GeoForm: uno strumento per la consultazione di dati geologici e di pericolosità sismica riferiti all'intero territorio nazionale, Proceedings of the XIV conference ANIDIS, Bari 18-22 September 2011)

9. Location and local magnitudes of seismic events are updated from Bollettino Sismico (http://bollettinosismico.rm.ingv.it/)

New tools

The administrative levels are now codified according to the Google reverse geocoding which allow to distinguish 4 levels (Region,

Province, Municipality and closest address) for a pair of geographic coordinates (station or events).

Pseudovelocity and displacement response spectra

The pseudovelocity and displacement response spectra (5% damping) are now available for download.

Rexelite

The Focal mechanism of seismic events has been added as an additional parameter for waveform selection, in agreement with the new Italian building code and the National guidelines for seismic microzonation.

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