The project

With the aim of improving ground motion models and reducing associated uncertainties within seismic hazard assessment studies, the use of both, high quality ground motion recordings and high quality seismic parameters is of primary importance for both, scientists and engineers.

In this framework, RESORCE database is created with the aim of being a reference seismic ground motion database in Europe for the development and the test of European ground motion prediction models to be used for seismic hazard studies.

RESORCE database is a freely accessible platform for accessing and retrieving reliable ground motion data and associated seismological parameters for European earthquakes.

RESORCE database is the last result of subsequent efforts carried out during the past decades by the European seismological community in terms of both, manwork as well as financial support. The first successful attempt of gathering strong-motion data in and around Europe was led by prof. Ambraseys through FP4 and FP5 (and earlier) projects. This first European strong-motion database has been sporadically updated until 2008 and is freely accessible through both, a CDROM and the net as the ISESD (Internet Site for European Strong-motion Data) database. During the last years, countries like Turkey and Italy have improved their strong-motion databases through national projects. These databases as well as other strong-motion datasets (e.g., NGA, Kik-Net etc) are brought together within the framework of SHARE (Seismic HARmonization in Europe) project. Strong-motion recordings from Middle East, Iran, Pakistan, Caucuses and Central Asia are also included in the SHARE strong-motion database thanks to EMME and EMCA projects. The following table shows the seven main databases that were used to gather the SHARE database:

ESMD	European strong-motion database
NGA	Next Generation Attenuation
TNSMP	Turkish national strong-motion project
ISESD	Internet site for European strong-motion data
AB10	Akkar & Bommer (2010), a modified version of Ambraseys et al. (2005)
Bommer et al, 2007	European strong-motion data compiled for the specific purposes of Bommer et al. (2007)
ITACA	Italian accelerometric archive

The SHARE strong-motion database does not consider any improvement in the metadata information of the collected data. No implementation of a data access and distribution node is planned within SHARE. On the other end, the most important focus of RESORCE database is the improvement of meta-parameters and the homogenization of data processing.

RESORCE will be continuously updated and improved over the duration of SIGMA project. Each version of the database that will be used to derive ground motion prediction models (GMPEs) will be frozen in order to ensure researchers the possibility of getting back to a given GMPE at any time.

Future versions of RESORCE database will be updated in terms of content (new seismic events with associated meta-data, as well as updated meta-parameters of past events), and will include lower magnitude ground motion records.

RESORCE is implemented in the framework of SIGMA 2011-2015 research project on the improvement of seismic hazard in Europe. SIGMA project is founded by a consortium of four European power companies: EDF (France), Areva (France), CEA (France), ENEL (Italy) with the support of the Electric Power Research Institute (United States).

The 2011 database

RESORCE database is a homogeneous compilation of high-quality European seismic ground motion recordings, associated with complete and uniformly defined meta-data information. The result is a single integrated database constructed with high standards and only verified data.

RESORCE database is based on the 2010 version of the European subset of the SHARE database, to which the databases collected by the Bommer et al. (2007) and by the Akkar & Bommer (2010) studies were integrated. Within the framework of SIGMA project, additional work have been done on this original database in order to check the waveform quality, remove all duplicated data due to overlapping records in different databases and significantly improve and homogenize the meta-data associated to ground motion recordings.

During 2011, significant work has been done for improving source-to-distance calculations, lots of which resulted to be affected by inconsistencies in the original database. The improvements are based on literature information on individual events and updates from earthquake catalogs. This allowed as well the improvement of source geometry information for a few events.

The 2011 version of RESORCE database consists in 5115 strong-motion recordings from 1685 earthquakes, as well as their associated meta-parameters. The following table illustrates the countries contributing to RESORCE database in its 2011 version. The number of events and the associated number of recording are quantified.

EQ COUNTRY	RECORD#	EVENT#	EQ COUNTRY	RECORD#	EVENT#
Turkey	2032	763	Croatia	10	9
Italy	1390	294	Norway	10	7
Greece	498	278	Syria	10	1
Iran	396	44	Egypt	9	3
Iceland	212	48	Macedonia	9	3
Portugal	125	60	Serbia	9	9
Montenegro	58	21	Austria	7	3
Georgia	43	11	Israel	6	3
Armenia	38	13	Albania	5	4
Romania	32	4	Kyrgyzstan	5	2
Slovenia	32	14	Liechtenstein	4	1
Germany	31	9	Bulgaria	3	3
Uzbekistan	30	13	Netherlands	3	1
Algeria	28	22	United Kingdom	3	3
France	28	12	Cyprus	1	1
Spain	20	11	Hungary	1	1
Bosnia and Herzegovina	13	7	Lebanon	1	1
Switzerland	13	6			

Data access

This section allows interactive querying of the RESORCE ground-motion database. Selected ground motion recordings and associated meta-parameters can be downloaded.

The search criteria are based on earthquake information, station information and waveform information. The 2011 version is a simplified trial version with few search parameters. The 2012 version is expected to have an improved search engine.

Contacts

We greatly appreciate any comments, suggestions or feedback concerning RESORCE database, the internet site and its use. Suggestions might also include modification, update or extension of records and associated parameters. Please forward your comments, suggestions or feedback regarding the CD-ROM to the project or technical coordinator.

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Italian accelerometric archive (ITACA, itaca.mi.ingv.it/ItacaNet)

Global Centroid Moment Tensor Catalog Search (GCMT, globalcmt.org)

European strong-motion database (Ambraseys et al. 2004b)

The Next Generation Attenuation Project (NGA, Power et al. 2008)

The Swiss Seismological Service (SED, seismo.ethz.ch)

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