

Report of ESC/EAAE Working Group 2
on
STRONG-MOTION DEVELOPMENT AND
RESEARCH IN EUROPE

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This short report summarises the activities of the European Association of Earthquake Engineering Working Group 2 over the past four years. It also summarises a project which is currently being undertaken by the Working Group and the Working Groups thoughts for the future.

During the past four years Working Group 2 has concentrated on improving the accessibility to high-quality European strong-motion data. In the past strong-motion data has been difficult, if not impossible, to obtain and has meant European earthquake engineers and engineering seismologists have had to use strong-motion data from the USA or Japan, which may not be appropriate for use in Europe.

CD ROM ‘Dissemination of European Strong-Motion Data’

In September 2000 at the General Assembly of the European Seismological Commission in Lisbon, the CD ROM ‘Dissemination of European Strong-Motion Data’ was released. This CD ROM was the product of a European Commission funded project (ENV4-CT97-0397) with four European partners: Imperial College of Science, Technology and Medicine (United Kingdom); Ente Nazionale per l'Energia Elettrica (ENEL, now Società Gestione Impianti Nucleari and Servizio Sismico Nazionale) (Italy); Ente per le Nuove Tecnologie, l'Energia e l'Ambiente (ENEA) (Italy); and Institut de Protection et de Sûreté Nucléaire (IPSN, now Institut de Radioprotection et de Sûreté Nucléaire) (France). The project ran from September 1998 to August 2000. The CD ROM provides a databank of 1,068 strong-motion records and their associated parameters. It includes a Windows based program with an easy-to-use search and visualization facility so that the data can be easily accessed and used.

Internet Site for European Strong-Motion Data (ISESD)

In March 2002, the Internet Site for European Strong-Motion Data (ISESD) went online with mirror sites at four European institutes. The URLs are: <http://www.isesd.cv.ic.ac.uk>, <http://www.isesd.hi.is>, <http://smbase.itsak.gr> and <http://seismo.univ.trieste.it/>. These websites were the product of a European Commission funded project (EVR1-CT-1999-40008) with four European partners: Imperial College of Science, Technology and Medicine (United Kingdom); University of Iceland (Iceland); University of Trieste (Italy); and Institute of Engineering Seismology and Earthquake Engineering (Greece). The project ran from April 2000 to March 2002. ISESD is an extension of the CD ROM ‘Dissemination of European Strong-Motion Data’

project and provides a website where users can freely download European and Middle Eastern strong-motion data and their associated parameters. An easy-to-use search facility is provided on ISESD so that users can find strong-motion data that fulfill their criteria, such as magnitude and distance ranges, soil type and faulting mechanism. Currently almost 2,000 strong-motion records are provided on ISESD but because ISESD is based on a relational database the database is easy to expand and update. In fact, almost 300 new records have been collected in the past few months and incorporated into the relational database and they will be placed on ISESD within the next couple of weeks. ISESD continues to be supported by the four partners however this work is currently without funding.

New CD ROM

In early 2004, we plan to release a new CD ROM of strong-motion data and associated parameters of European and Middle Eastern earthquakes. This CD ROM will include only those high-quality strong-motion data about which much information exists on the earthquake source and local site conditions at the recording station. In addition each of the time-histories will be individually corrected so that the acceleration, velocity and displacement time-histories and the associated strong-motion parameters are as reliable as possible for seismological and engineering purposes. We plan to include a subset of the ISESD database on the CD ROM of about 500 records with much more information than is provided on ISESD or on the original CD ROM. In addition, the CD ROM will include a number of useful tools to enable the user to make full use of the data provide. These tools are likely to include a tool to find time-histories that match a target response spectrum, the ability to plot design spectra on the response spectra of recorded time-histories and to find those records that fulfil a number of strong-motion parameter criteria. We hope that the new CD ROM will be a reliable source of strong-motion data for many purposes in Europe.

The partners in this new project (which officially started on 1st March 2002) are: Imperial College of Science, Technology and Medicine (United Kingdom); Institut de Radioprotection et de Sûreté Nucléaire (IRSN) (France); Ente per le Nuove Tecnologie, l'Energia e l'Ambiente (ENEA) (Italy); University of Iceland (Iceland); and University of Trieste (Italy).

The future

In the next four years Working Group 2 would like to permanently establish the Internet Site for European Strong-Motion Data as a growing source of reliable strong-motion data and associated parameters for European and Middle Eastern earthquakes. Operators of strong-motion networks in Europe are keen to contribute data to ISESD, however, currently ISESD is unfunded and its future operation relies on the goodwill of the partners. A constant source of funding would be required for ISESD to continue operating and growing. Much of the infrastructure (the website itself, the associated computer programs and the contacts with network operators) required has been developed and so only limited funded is required. The estimated number of people required for the day-to-day upkeep and updating of the database, databank and the website is about one person working full time. However, it is thought best if this could be composed of two or three people working part-time.