

GNDT-MAE-SAFERR (GMS) Conference
26-28 May 2003
Erice, Italy



Seismic Risk in Urban Areas
Organization and Final Program

Conference Chairmen

Claudio Eva, University of Genova – GNDT, Italy and Dan Abrams, University of Illinois - MAE Center, USA

Conference Executive Committee

Amr Elnashai, University of Illinois – MAE Center, USA (+SAFERR)
Glenn Rix, Georgia Institute of Technology – MAE Center, USA
Arch Johnston, University of Memphis – MAE Center, USA
Barry Goodno, Georgia Institute of Technology – MAE Center, USA
Steve French, Georgia Institute of Technology – MAE Center, USA
Michele Calvi, University of Pavia – SAFERR+GNDT, Italy
Michael Fardis, University of Patras – SAFERR, Greece
Alain Pecker, *Geodynamiques et Structures* – SAFERR, France
Andre Plumier, University of Liege – SAFERR, Belgium
Edoardo Cosenza, University of Naples – GNDT, Italy
Sergio Lagomarsino, University of Genova – GNDT, Italy
Mauro Dolce, University of Basilicata – GNDT, Italy

Keynote Lecturers

Pairing of US and European authors and speakers is intended to provide a joint overview of the development in the field and to encourage future cooperation

Rapporteurs Write up

A summary of the session papers and the overview of the subject developed by the Rapporteurs will be a valuable addition to the keynote papers.

Publication

Pre-prints will be ready at the conference. The MAE Center will sponsor a special issue of the Journal of Earthquake Engineering. The **keynote lectures and the Rapporteurs notes** will be published in this special issue. **Authors of papers other than keynote papers are urged to submit their manuscripts as regular papers in the Journal of Earthquake Engineering.**

Program

Day 1 Morning 26 May 2003

- 08:00 08:30 Welcome Address by Claudio Eva and Dan Abrams**
- 08:30 13:00 Vulnerability of Urban Areas – Structures – Session I (Chairs: Jack Bouwkamp and Barry Goodno)**
- 08:30 09:00 Keynote lecture 1: Advances in Seismic Codes in the USA and Europe**
Roberto Leon, Georgia Institute of Technology, USA
Michael Fardis, University of Patras, Greece
- 09:00 09:20 Seismic regulations for masonry structures in low seismicity regions,
Ema Coelho, LNEC, Portugal
- 09:20 09:40 Shaking table tests on masonry houses, *Jack Bouwkamp,*
Technical University of Darmstadt, Germany
- 09:40 10:00 Full scale test of a MAE Center masonry building, *Roberto Leon, USA*
- 10:00 10:20 Refined numerical modeling of masonry, *Armelle Antoine, JRC, EU*
- 10:20 10:45 Break**
- 10:45 11:05 Modeling strategies for the 3-D seismic behavior of RC structural walls with limited reinforcement, *Dr. Nicholas Ile, INSA Lyon, France*
- 11:05 11:25 A multilevel approach to the vulnerability assessment of RC buildings,
Edoardo Cosenza, Gaetano Manfredi, Maria Polese, Gerardo Verderame, University of Naples “Federico II”, Italy
- 11:25 11:45 Pushover and dynamic analysis of URM buildings by a non-linear macro-element model, *Andrea Penna, University of Genova, Italy*
- 11:45 12:05 Seismic vulnerability of Italian buildings drawn from large data-bases,
Mauro Dolce, University of Basilicata and Giuliano Zuccaro, University of Naples “Federico II”, Italy
- 12:05 12:35 Rapporteur (Michele Calvi+Barry Goodno) and Discussions
- 12:35 14:00 Lunch**

Day 1 Afternoon 26 May 2003

- 14:00 18:25 Inventory Technologies, GIS and Earthquake Education – Session II (Chairs: Gaetano Manfredi and Steve French)**
- 14:00 14:30 Keynote lecture 2: Using Remote Sensing and Data Mining Techniques to Improve Earthquake Risk Inventories**
Steve French, Georgia Institute of Technology, USA
- 14:30 14:55 Demonstration of the MAE Center Damage Visualization Module, *by all MAE researchers in attendance, USA*
- 14:55 15:20 A multi-objective GIS application: the TRAIANO Project,
Rocco Papa, Romano Fistola, University of Naples “Federico II”, Italy
- 15:20 15:45 Statistical Modeling versus Neural Networks for Identifying Structure Inventories, *Steve French, USA*
- 15:45 16:10 The implementation of vulnerability models in GIS environment: some examples at urban and regional scales, *Sonia Giovinazzi, University of Genova, Italy.*
- 16:10 16:40 Break**
- 16:40 17:05 Assessment of HAZUS loss estimation procedures and user interface,
Altug Erberik and Amr Elnashai, University of Illinois, USA
- 17:05 17:30 Integrated risk assessment of industrial facilities and GIS implementation, *Gaetano Manfredi, Giovanni Fabbrocino, Iunio Iervolino, University of Naples “Federico II”, Italy*
- 17:30 17:55 Journey through the traces of past earthquakes: A tool for earthquake

education strategies, *Vera Pessina, INGV, Italy*
17:55 18:25 Rapporteur (Steve French+Gaetano Manfredi) and Discussions

Day 2 Morning 27 May 2003

08:30 13:00 Vulnerability of Urban Areas – Regional Risk and Networks (including bridges) – Session III (Chairs: Andre Plumier and Dan Abrams)

08:30 09:00 Keynote lecture 3: Developments in Seismic Damage to Networks in the USA and Europe

Anne Kiremidjian, Stanford University, USA and

Paolo Pinto, University of Rome “La Sapienza”, Italy

09:00 - 09:25 Criteria for evaluation of seismic risk of regional hospital system; a case study: the Abruzzo region, *Camillo Nuti, University of Rome “3” Italy*

09:25 09:50 Seismic Reliability of Electric Power Networks, *Ivo Vanzi, University of Chieti, Italy*

09:50 10:15 Overview of MAE Center Networks Research, *Dan Abrams or Amr Elnashai, University of Illinois, USA*

10:15 10:40 Effects of axial force variation on the response of isolated bridges, *Michele Calvi and Chiara Casarotti, University of Pavia, Italy*

10:40 11:15 Break

11:15 11:40 Relevance of spatial variability of ground motion on seismic design of bridges, *Paolo Franchin, Alessio Lupoi, Giorgio Monti and Paolo Pinto, University of Rome “La Sapienza”, Italy*

11:40 12:05 Design of non-engineered structures in low seismicity regions, *Andre Plumier, University of Liege, Belgium*

12:05 12:30 Assessment and strengthening of rectangular-hollow bridge piers: Experimental & numerical studies, *George Tsionis and Artur Pinto, JRC, EU*

12:30 13:00 Rapporteur (Anne Kiremidjian+Edoardo Cosenza) and Discussions

13:00 14:00 Lunch

Day 2 Afternoon 27 May 2003

14:00 18:25 Seismic Loss Assessment, Decision-Making and Socio-Economics – Session IV (Chairs: Sergio Lagomarsino and Amr Elnashai)

14:00 14:30 Keynote lecture 4: Estimating Potential Socioeconomic Impacts of Earthquakes

Carla Prater, Texas A & M; Hazard Reduction-Recovery Center, USA

14:30 14:55 A seismic risk study on 4km² of the city of Liege, *André Plumier, University of Liege, Belgium*

14:55 15:20 Implementation of general methodology for seismic loss assessment and applications to infilled RC frames, *Matjaz Dolsek and Peter Fajfar, University of Ljubljana, Slovenia*

15:20 15:45 Vulnerability functions for RC structures based on observational data from recent earthquakes and implications on field data collection, *Tiziana Rossetto and Amr Elnashai, Imperial College, UK/University of Illinois, USA*

15:45 16:10 Decision Support for Seismic Risk Reduction through Structural Rehabilitation, *Junam Park, Leonardo Dueñas-Osorio, Barry Goodno, Ann Bostrom and Jim Craig, Georgia Institute of Technology, USA*

16:10 16:40 Break

16:40 17:05 Reducing Earthquake Consequences through Advanced Technologies, *Dan Abrams, University of Illinois, USA*

- 17:05 17:30 Typological and mechanical based methods for the vulnerability analysis of buildings at urban scale, *Sergio Lagomarsino, University of Genova, Italy*
- 17:30 17:55 Regional Fragility Calculations for Low rise Steel Frame Buildings Using Metamodeling Techniques, *Pirnan Tawashiraporn, Leonardo Dueñas-Osori, Jim Craig and Barry Goodno, Georgia Institute of Technology, USA*
- 17:55 18:25 Rapporteur (Mauro Dolce + Carla Prater) and Discussions

Day 3 Morning 28 May 2003

- 08:30 13:00 Seismic Hazard – Session V (Chairs: Claudio Eva and Alain Pecker)**
- 08:30 09:00 Keynote lecture 5: Site Characterization and Response Issues for Hazard Analysis**
Glenn Rix, Georgia Institute of Technology, USA and Kyriazis Pitilakis, Aristotle University of Thessaloniki, Greece
- 09:00 09:25 Influence of the spatial variability of non-linear soil properties on ground surface response spectra, *Alain Pecker and Laura Scandella, GDS, France*
- 09:25 09:50 Attenuation relationship for low magnitude earthquake using standard seismometric records, *Marco Frisenda, Marco Massa, Daniele Spallarossa, University of Genova, Italy*
- 09:50 10:15 Structural significance of near-source features in strong-motion from two recent earthquakes, *Amr Elnashai, University of Illinois, USA*
- 10:15 10:40 An overview of seismic hazard studies in Italy, *Claudio Eva and Daniele Spallarossa, University of Genova, Italy*
- 10:40 11:15 Break**
- 11:15 11:40 Comparison of Synthetic Ground Motions for the New Madrid Seismic Zone, *Glenn Rix, Georgia Institute of Technology, USA*
- 11:40 12:05 The 31st October 2002 Molise Earthquake: site effects determined using anomalous acceleration and velocity records. The case study of Ripobottoni site, *Claudio Eva, Luana Isella, Marco Pasta, Daniele Spallarossa, University of Genova, Italy*
- 12:05 12:30 Seismic hazard zonation based on long period displacement response spectral ordinates: an application to the Calabrian Arc region (Southern Italy), *Julian Garcia Mayordomo, Politecnico di Milano, Italy*
- 12:30 13:00 Rapporteur (Glenn Rix+Alain Pecker) and Discussions
- 13:00 14:00 Lunch**

Day 3 Afternoon 28 May 2003

- 14:00 15:30 Closing Session**
Discussion on future activities of the Tripartite Group
Scope, date and venue for the Second Workshop
Resolutions

Stand-Bye Paper (in case presenters of papers listed above are not able to contribute)

Experimental evidence of the effectiveness of advanced technologies for structural rehabilitation, *Dolce et al, University of Basilicata, Italy*