Second Announcement

CSNI Workshop on
Testing PSHA Results and Benefit of Bayesian Techniques for Seismic Hazard Assessment

Hosted by
EUCENTRE/IUSS
European Centre for Training and Research in Earthquake Engineering
University Institute for Advanced Studies

Pavia, Italy
4-6 February 2015

Deadline for registration: 10 January 2015
Deadline for Full Paper: 10 January 2015

Please send your registration to:
EUCENTRE Foundation
Via Adolfo Ferrata, 1 - 27100, Pavia - Italy
Phone (+39) 0382.5169833
Fax (+39) 0382.529131
E-mail: info@eucentre.it
Website: www.eucentre.it
1 ORGANISATION AND HOST

The CSNI workshop on Testing PSHA Results and Benefit of Bayesian Techniques for Seismic Hazard Assessment will be held from 4-6 February 2015 in Pavia, Italy, hosted by EUCENTRE and IUSS and coordinated by OECD/NEA, IAEA and EDF. This second announcement is to inform on the technical content of the workshop.

More information is available in the workshop webpages:
http://www.oecd-nea.org/nsd/workshops/psha2015/

2 OBJECTIVES OF THE WORKSHOP

The objective of this workshop is to foster exchanges between geologists, seismologists, statisticians and engineers so as to share experiences in progress related to developments in testing the methodologies of probabilistic seismic hazard analyses (PSHA) and the benefits of Bayesian techniques applied to seismic hazards. The goal is to address the current status of the regulatory arena, identifying and recommending good practices for member countries and exploring future research and development (R&D) to be developed on this topic.

In recent years, increasing efforts have been devoted to the assessment of the reliability of PSHA results. Different kinds of procedures have been tested and many papers have provided useful information on this subject. Consistent with the pattern of previous CSNI workshops, the deliverables and expected results will be the following:

- a description of the state-of-the-art in methodologies for testing the reliability of PSHA results;
- a description of application studies conducted in different areas concerning the testing of PSHA results versus available observations in order to get an objective comparison and to improve the confidence in the results;
- a description of the state-of-the-art in Bayesian techniques for seismic hazard assessment;
- a description of application studies conducted in different contexts to determine the benefit of Bayesian techniques for seismic hazard assessment;
- recommendations on:
  o which testing procedure is the most appropriate depending on the available data;
  o good practices and recommendations to implement the testing procedures of the PSHA results;
  o good practices for the implementation of Bayesian techniques in the field of seismic hazard assessment;
  o R&D activities to be developed on the subject.

The workshop will include presentations by international experts and technical sessions devoted to technical presentations by participants. A final session will summarize the discussions and develop conclusions and recommendations for possible further actions by the CSNI. All the participants are expected to take part in the discussion and in the formulation of conclusions in the final session.
3 TECHNICAL ORGANISATION OF THE WORKSHOP

Invited lecturers

Several international experts will give scientific presentations:

- Precarious rocks and related fragile geological features to test or to improve seismic hazard assessment. John Anderson. Nevada Seismological Laboratory, USA.

- Probabilistic Seismic Hazard Assessment: Combining Cornell-Like Approaches and Data at Sites through Bayesian Inference. Jacopo Selva. INGV, Italy.

- Statistical tests of PSHA models. Roger Musson. British Geological Surveil, UK

Technical sessions

List of abstracts accepted for full paper and presentation:

1. **U.S. Regulatory Perspectives on Model Testing**
   Brittain Hill
   Clifford Munson, Jon Ake - U.S. Nuclear Regulatory Commission

2. **Testing Probabilistic Seismic Hazard Estimates Against Accelerometric Data in two countries: France And Turkey**
   Hilal Tasan¹, Céline Beauval¹, Agnès Helmstetter¹, Abdullah Sandikkay², Philippe Guéguen¹.
   ¹ ISTerre, Université Grenoble Alpes, IRD, CNRS, OSUG, BP 53, F-38041 Grenoble, France
   ² METU, Department of Civil Engineering, Earthquake Engineering Research Center, Middle East Technical University, K6 Building, 06800 Ankara, Turkey

3. **Validation of GMPE on very hard rock using global database**
   Hongjun Si
   Seismological Research Institute Inc., 705-6-525, Minami-Ohya, Machida City, Tokyo 194-0031, Japan

4. **Direct verification of seismic hazard maps**
   Sum Mak and Danijel Schorlemmer
   GFZ German Research Centre for Geosciences, Helmholtzstraße 6, 14467 Potsdam, Germany.

5. **Some steps forward in confronting probabilistic seismic hazard with observations in Italy**
   Laura Peruzza
   S2-2014 DPC-INGV Project Working Group, Italy

6. **Testing the reliability of seismic hazard assessments in Italy: a critical review**
   Roberto W. Romeo
   University of Urbino (Italy)

7. **The scoring test on Italian Probabilistic Seismic Hazard Estimates developed in the frame of S2-2012 DPC-INGV Project**
   D.Albarello, L.Peruzza, V.D’Amico
8. Thirty-Year Bayesian Updating of PHSA for Hinkley Point NPP PSHA testing
Gordon Woo
RMS, 30 Monument Street, London EC3R 8NB, England

9. Past is the Key of A Geological Principle as Bayesian Philosophy Applied for Seismic Hazard Analysis
José G. Sanchez¹, Cabañero; Raúl Pérez²; Maria J. Crespo³
¹ CSN, Consejo de Seguridad Nuclear, Geosciences Branch, Madrid, Spain
² IGME, Instituto Geológico y Minero de España, Geological Hazard Division, Madrid, Spain
³ PRINCIPIA Ingenieros Consultores, Madrid, Spain

10. Regulatory View on Challenges in PSHA in Low Seismicity Areas
Janne Laitonen and Jorma Sandberg
STUK – Radiation and Nuclear Safety Authority, Finland

Iunio Iervolino and Massimiliano Giorgio
Dipartimento di Strutture per l’Ingegneria e l’Architettura, Università degli Studi di Napoli Federico II, Naples, Italy.
Dipartimento di Ingegneria Industriale e dell’Informazione, Seconda Università di Napoli, Aversa, Italy

12. Bayesian update of a simplified PSHA model, comparison of different academic cases
L. Vaseux and J.M. Thiry
AREVA, France

13. A Bayesian methodology to update the Probabilistic Seismic Hazard Assessment
Ramon SECANELL¹, Christophe MARTIN¹, E. Vielle‡, Gloria SENFAUTE²
¹ GEOTER SAS, 3, rue Jean Monnet, 34830 Clapiers - France

14. A method for testing PSHA outputs against historical seismicity at the scale of a territory; example of France
Pierre Labbé
EDF Div Ingénierie Nucléaire, Paris, France.

15. Seismic hazard assessments: a comparative analysis
A. Peresan¹,²,³, A. Nekrasova²,³, V. Kossobokov²,³, G.F. Panza¹,²,³,⁴
¹ Department of Mathematics and Geosciences, University of Trieste – Italy. E-mail:
² The Abdus Salam International Centre for Theoretical Physics, SAND Group, Trieste
³ IEPT, Russian Academy of Sciences, Moscow, Russian Federation
⁴ International Seismic Safety Organization (ISSO)
⁵ Institute of Geophysics, China Earthquake Administration, Beijing

16. Metrics, observations, and biases in quantitative assessment of seismic hazard model predictions
Edward Brooks¹, Seth Stein¹, Bruce D. Spencer², Antonella Peresan³
17. Revision of earthquake catalogues on probabilistic terms: consequences on PSHA validation
M. Mucciarelli
CRS-OGS, Trieste
Scuola di Ingegneria, Università della Basilicata, Potenza

18. PSHA updating technique with a bayesian framework: innovations
Nicolas Humbert
EDF, Centre d'Ingénierie Hydraulique Structure / Génie Civil, France

19. Constraints on Long-Term Seismic Hazard From Vulnerable Stalagmites
G. BOKELMANN\textsuperscript{1}, K. GRIBOVSKIZ\textsuperscript{1,2}
\textsuperscript{1} Department of Meteorology and Geophysics, University of Vienna
\textsuperscript{2} Geodetic and Geophysical Institute, Hungarian Academy of Sciences

20. Testing PSHA while there are large uncertainties in input data
Yong Li
U.S. Nuclear Regulatory Commission

21. Testing & Evaluation in the Global Earthquake Model
Danijel Schorlemmer, Sum Mak, Thomas Beutin, Robert Clements, Max Schneider, Fabrice Cotton, Jochen Zschau

22. Bayesian Estimation of the Earthquake Recurrence Parameters for Seismic Hazard Assessment
Merlin KELLER\textsuperscript{1}, Marine MARCILHAC\textsuperscript{2}, Thierry YALAMAS\textsuperscript{2}, Ramòn SECANEL\textsuperscript{3}, Gloria SENFAUTE\textsuperscript{1}
\textsuperscript{1} EDF R&D Departement / CEIDRE-TEGG
\textsuperscript{2} PHIMECA
\textsuperscript{3} GEOTER, France

23. Non-Ergodic Seismic Hazard: Using Bayesian Updating for Site-Specific and Path-Specific Effects for Ground-Motion Models
Nicolas Kuehn\textsuperscript{1}, Norman Abrahamson\textsuperscript{2}
\textsuperscript{1} University of California, Berkeley
\textsuperscript{2} Pacific Earthquake Engineering Research Center - Pacific Gas and Electric Company

24. Testing and centering of ground motion models for use in PSHA based on available intensity data
Philippe L.A. Renault and Luis A. Dalguer.
Swissnuclear, P.O. Box 1663, 4601 Olten, Switzerland

25. Comparison of psha results with historical macroseismic observations in south-east France
Annalisa ROSTI, Maria ROTA, Andrea PENNA, Emilia FIORINI and Guido MAGENES
EUCENTRE, Pavia.
4 LOGISTICS

Registration

Participants to the Workshop are kindly invited to fill in and submit the attached registration form to the Eucentre Secretariat. If you need assistance of any kind (registration form, accommodation, travelling directions, etc.), please do not hesitate to contact our staff at info@eucentre.it.

A 200 Euros fee is required from the attendees, to cover the workshop fees and the cost of reception, coffee/lunch breaks (and seminar dinner). Payment of the workshop fees can be carried out through bank transfer to:

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<th>Beneficiary:</th>
<th>CENTRO EUROPEO DI FORMAZIONE</th>
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<td>Bank:</td>
<td>Banca Popolare Commercio e Industria - Strada Nuova 61/C, 27100 Pavia</td>
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Please indicate the title of the workshop and participant name in the subject of the bank transfer. The organising committee will confirm the acceptance of registration for the workshop.

Location and accommodation: The workshop will be held at EUCENTRE (and at IUSS) in Pavia, Italy. Details will be provided later.

Language

All presentations and discussions will be in English, and good command of the English language will be necessary to fully benefit from the workshop.

Organising Committee

The organising committee organized the sessions and the final program for the workshop.

The following persons form the organising committee of the workshop:

Mr. Pierre Labbe, EDF, France, Chair
Mr. Paolo Bazzurro, EUCENTRE/IUSS, Italy, Chair
Mrs. Gloria Senfaute, EDF, France
Mr. Emmanuel Viallet, EDF, France
Mr. Gian-Michele Calvi, EUCENTRE/IUSS, Italy
Mr. Yoshimitshu Fukushima, IAEA, International
Mr. Olli Nevander, OECD/NEA, International

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