



**THE SOCIETY FOR EARTHQUAKE AND CIVIL
ENGINEERING DYNAMICS**

AN ASSOCIATED SOCIETY OF THE INSTITUTION OF CIVIL ENGINEERS

EVENING MEETING

AT THE

**INSTITUTION OF CIVIL ENGINEERS
ONE GREAT GEORGE STREET, WESTMINSTER, LONDON SW1P 3AA**

ON

WEDNESDAY 31ST OCTOBER 2007, 6PM

**PREDICTING EARTHQUAKE GROUND
MOTIONS: Myths and Mysteries
2007 William B Joyner Memorial Lecture**

Speaker:

Gail M Atkinson

University of Western Ontario, Canada

SYNOPSIS OVERLEAF

NON-MEMBERS OF THE SOCIETY ARE WELCOME TO ATTEND

Please note that there is no charge to attend.
Seats are allocated on a first come, first served basis.
Tea and biscuits will be served from 5.30pm - 6pm.

For further information please contact Pauline Arundel, Engineering Dept, at the ICE on
Tel: 020 7665 2236, or **Fax** 020 7799 1325 or **Email:** Pauline.arundel@ice.org.uk
Visit the SECED website at <http://www.seced.org.uk>

Synopsis

The goal of ground motion prediction is to compute the earthquake ground motions that are expected at a site, so that engineered structures can be designed to withstand them. Ground-motion predictions may be required for a specific fault rupture scenario, or may be needed for a specified probability of occurrence. Specific rupture scenarios usually involve ground-motion simulations, which utilize a range of techniques from deterministic to stochastic. Probabilistic ground-motion estimates are performed within a seismic hazard analysis, in which the ground-motion prediction takes the form of an equation relating ground-motion amplitude to earthquake magnitude and distance.

Within the overall ground-motion prediction framework, there are a number of “myths” and “mysteries”. Professor Atkinson will explore three aspects of ground-motion mythology:

1. Is there a maximum earthquake magnitude?
2. Are national seismic hazard maps “conservative”?
3. Can ground motion distributions be truncated at two (or more) standard deviations?

Prof. Atkinson will present three mysteries that invite further consideration:

1. Can uncertainty be modelled with a logic-tree analysis?
2. Are deterministic/broadband modelling techniques more accurate or reliable than simpler stochastic simulation techniques?
3. Do felt intensity data provide quantitative information on earthquake ground motions?

Acknowledgement and investigation of the myths and mysteries underlying our analysis tools may lead to improved ground-motion predictions in the future.

The William B Joyner Memorial Lecture

The William B Joyner Memorial Lectures were established by the Seismological Society of America (SSA) and the Earthquake Engineering Research Institute (EERI) to honour the career of Bill Joyner and his commitment to the exchange of information at the interface of earthquake science and earthquake engineering. Gail Atkinson is the fourth lecturer in the series; the first lecturer was Lloyd Cluff in 2004, followed by Allin Cornell in 2005, and Norm Abrahamson in 2006. The Lecture is presented at the annual meetings of SSA and EERI, and sometimes at other meetings in the USA. SECED is proud to host this presentation of the Lecture in the UK.