

*Join us!*

### APGO's Networking Event

Hosted by Doug Cater, P.Geo.

November 17, 2016

5:30 pm - 8:30 pm

Western University

Biological & Geological Sciences Bldg. (BGS)

Room 1053

1151 Richmond Street, London, ON



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### Guest Speaker: Dr. Gail Atkinson, Ph.D.

Professor and Canada Research Chair, Department of Earth Sciences

Western University

### Impact of Induced Seismicity from Oil and Gas Activity on Earthquake Hazards

#### About Dr. Gail Atkinson

Gail Atkinson, Professor of Geophysics at Western University, has devoted her career to working at the engineering-seismology interface. She has authored more than 200 research articles on the subjects of earthquake ground motions and seismic hazards; among these are well-known prediction equations for ground-motion amplitudes as a function of magnitude and distance that have been incorporated into building codes and used in earthquake hazard and risk assessments around the world. She has been responsible for seismic hazard analyses for dozens of major engineering projects, and participates in committees responsible for developing seismic design regulations for buildings and critical structures such as dams and nuclear power plants. Professor Atkinson has served as President of both the Seismological Society of America and the Canadian Geophysical Union, and is a Fellow of Royal Society of Canada. She is currently the NSERC/TransAlta/Nanometrics Industrial Research Chair in Hazards from Induced Seismicity, exploring new seismic hazard concerns related to induced seismicity from unconventional oil and gas development.

#### About the Presentation

In the central U.S. induced-seismicity sources are mostly wastewater disposal wells, whereas in western Canada much of the seismicity is associated with hydraulic fracturing. A small percentage (~1%) of hydraulic fracture wells will be associated with earthquakes of  $M > 3$  in some parts of western Canada. Due to the shallow focus of induced events, ground motions can be very strong for moderate events very close to the epicentre. In areas of low-to-moderate seismicity, this can dramatically increase the seismic hazard, particularly for critical infrastructure. The hazard can be modeled by treating the activity as an added seismic source zone in the context of a probabilistic seismic hazard analysis; for a future source, the hazard is conditioned on the probability of activation. The induced-seismicity hazard depends on the activation probability, the magnitude recurrence parameters of the initiated sequence, and the ground-motion prediction equations. Uncertainty in the value of the key parameters implies large uncertainty (more than an order of magnitude) in the likelihood of strong shaking.

Thursday, Nov 17, 2016

APGO Update and Guest Speaker's Presentation

5:30 p.m. to 7:00 p.m.

#### **Networking @ 7:00 p.m. - 8:30 p.m.**

All attendees are invited to join us at the Grad Club for beer and hors d'oeuvres. 1 complimentary drink by APGO.

Cash bar.

#### REGISTRATION

Members: \$20

Non-members: \$50

Geoscience Students: Free

Click on this [link](#) to register online.

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