

Curriculum Vitae

Nov. 2015

GAIL MARIE ATKINSON, Ph.D., P.Geo., FRSC

Professor, Dept. of Earth Sciences

NSERC/TransAlta/Nanometrics Industrial Research Chair in Hazards from
Induced Seismicity
University of Western Ontario
London, Ont. N6A 5B7

SYNOPSIS

Internationally-renowned engineering seismologist specializing in: (i) engineering ground motion; (ii) earthquake source and attenuation processes; (iii) induced seismicity; (iv) seismic hazard analysis; and (v) seismological processes in eastern North America. Canada Research Chair in Earthquake Hazards and Ground Motions (2007-2014). NSERC/TransAlta/Nanometrics Industrial Research Chair in Hazards from Induced Seismicity (2014-2019). Active on Canadian code committees responsible for developing seismic design regulations. Project leader for \$10 million POLARIS project, funded by Canadian Foundation for Innovation (1999-2013). Director of Ottawa-Carleton Earthquake Engineering Research Centre (2000-2004), President, Seismological Society of America (2001-2003). Chair of Advisory Committee, Southern California Earthquake Center (an NSF National Science Center). Scientific Management Committee, NSERC Canadian Seismic Risk Network (2008-2013). President, Canadian Geophysical Union, 2011-2013. Member, National Earthquake Prediction Evaluation Council (reporting to Director of the U.S. Geological Survey), 2015-present.

Education

B.Sc. Hons., Geology and Physics, Carleton University, 1978

M.Eng.Sc. Civil Engineering, Univ. of Western Ontario, 1981

Ph.D. Geophysics, Univ. of Western Ontario, 1993

Employment History

(2007-present). Professor, Department of Earth Sciences
University of Western Ontario

(1995-2006). Professor, Department of Earth Sciences
Carleton University

(1987 - 1995). Independent Consultant, Engineering Seismology
Waterloo, Ont.

(1985 - 1987) Engineering Seismologist
Acres International Ltd, Toronto, Ont.

(1983 - 1985) Visiting Fellow.

Earth Physics Branch - (Geological Survey of Canada) Ottawa, Ont.

(1983). Research Associate, Dept. Civil Engineering

University of B.C.

(1981 – 1983). Engineering Seismologist

Klohn Leonoff Ltd., Richmond, B.C.

Academic Honours and Awards

Fellow, Royal Society of Canada, 2014.

Industrial Research Chair in Induced Seismicity Hazards.

(NSERC/TransAlta/Nanometrics). Univ. of Western Ontario, 2014-2019.

NSERC Accelerator Award, 2007-2010. 2012-2015.

Bayer Canada “Science for a Better Life” Award, for innovative work in Earthquake Protection, 2013.

Canada Research Chair (Tier 1) in Earthquake Ground Motions, Univ. of Western Ontario, 2007-2014.

Best Paper Award, Earthquake Spectra, 2009 (co-winner, for paper by Abrahamson et al., 2008).

Keynote Lecturer: 15th World Conf. Earthq. Eng., Lisbon, Portugal, Sept. 2012; Canadian Nuclear Safety Comm. Conf. on Soil-Structure Interaction, Ottawa 2010; Australian National Earthquake Engineering Conference, 2006; World Conference on Earthquake Engineering, 2004; Canadian Geophysical Union Meeting, 2002; Geotechnical Society of Canada, 2000.

Benjamin Meaker Lecturer, Institute for Advanced Studies, Bristol, U.K., Oct. 2010

William B. Joyner Memorial Lecturer, 2007 (Seismological Society of America/ Earthquake Engineering Research Institute)

Premier’s Research Excellence Award. 2002-2007.

Jesuit Seismological Association Award for Contributions in Observational Seismology, Eastern Section of Seism. Soc. Am., 2003.

NSERC Women’s Faculty Award, 1995-2000.

Professional Honours and Contributions

Chair, Advisory Council for Southern California Earthquake Center, 2014-2016.

Member, National Earthquake Prediction Evaluation Council (reporting to Director of U.S. Geological Survey), 2015-present.

President, Canadian Geophysical Union, 2011-2013. (Vice-President, 2009-2011).

Theme Leader (Hazard Assessment) and Scientific Management Committee, Canadian Seismic Risk Network (2008-2013).

President, Seismological Society of America, 2001-2003 (Vice-President, 1998-2001).

Member NEPEC (National Earthquake Prediction Evaluation Council) Panel on Earthquake Hazards to the New Madrid Seismic Zone (reporting to U.S. National Science Advisor), 2011.

Panel Member, Applied Technology Council Project for “Improved procedures for selecting and scaling earthquake ground motions for performing time-history analyses”. 2010-2012. (ATC, Redwood City, California)

Technical Integration Team, “Next-Generation-Attenuation-East” Project. Pacific Earthquake Engineering Research Center, 2009-2015. (PEER, Richmond, California)

Organizing Committee, Canadian Geophysical Union Meeting, 2010, 2011, 2012.

Developer, “Next-Generation-Attenuation-West” Project. Pacific Earthquake Engineering Research Center, 2005-present. (PEER, Richmond, California)

President of POLARIS consortium, a \$15 million multi-institutional network of geophysical observatories (CU, UWO, UBC, UM, UA, GSC), funded by Canadian Foundation for Innovation, 1999-2013.

Member, Canadian code committee responsible for developing seismic design regulations for the National Building Code (Standing Committee on Earthquake Design). 1990-2014.

Member, Canadian code committee responsible for developing seismic design regulations for nuclear power plants (CSA N289). 2008-2011.

Associate Member for code committees for: (i) offshore structures (CSA S471); and (ii) LNG facilities (CSA Z276). 1984 – present.

Director, Ottawa-Carleton Earthquake Engineering Research Centre, 1999-2004.

Associate Editor, Bull. Seism. Soc. Am., 2005-2012.

Member, Advisory Committee for the Southern California Earthquake Center, 2005-2013. (SCEC is a major U.S. national center for earthquake science, funded by the National Science Foundation.). Advisory Council Chair, 2014-2016.

Member, Geological Survey of Canada Advisory Committee, reporting to the Assistant Deputy Minister for Natural Resources Canada, 2006-2009.

Regular reviewer for journals, including Bulletin of the Seismological Society of America, Seismological Research Letters, Pure and Applied Geophysics, Can. J. Civil Engineering, Can. J. Earth Sciences, Geophysics, Soil Dynamics and Earthquake Engineering, EOS, and Earthquake Spectra.

Consultant on engineering seismology aspects of major engineering projects including the Hibernia offshore platform, seismic safety review of major dams in Ontario, Quebec, Alberta, Saskatchewan and B.C., and the Darlington, Bruce, Pickering and Gentilly nuclear power plants.

Panel member for various U.S. research organizations, including ground motion panels of the Electric Power Research Institute and Lawrence Livermore National Labs. Member of grant selection panels for NEHRP (National Earthquake Hazards Reduction Program). Advisor to National Academy of Science Senior Seismic Hazard Analysis Committee. Past Member of U.S. National Academy of Science's NRC Committee on Seismology.

Teaching (2008 to 2015)

Undergraduate:

Engineering Seismology (4th year). Designed and taught course, 2008-2012, 2014-2015 Co-taught with Graduate Course (described below).

Earth Sciences 2222: Data Analysis and Signal Processing, 2009-2012. An introduction to data analysis techniques, including data types and analysis tools, statistical methods to characterize univariate, bivariate and multi-variate data, time series and signal processing. Updated course and designed course materials.

Undergraduate Theses Supervised (2008-2015): 8

Graduate:

Engineering Seismology GP9508. Designed and taught course, 2008-2012. 2014-2015. Seismological topics with engineering applications. Characterization of seismicity and seismic sources (areas and faults). Seismic hazard analysis.

Accelerated Masters Project. 2008-2012, 2014-2015. Coordinator of Masters Project Reports and Poster Presentation Session.

Graduate Supervisions (career total)

	Number successfully completed	Number in-progress
Doctoral thesis	11	1
Masters thesis	8	6
Accelerated Masters Projects	7	0
Post-doctoral fellows/associates	5	3
Number of PhD committees	12	8
Number of MSc committees	12	2

Titles of Research Theses Supervised

Doctoral

1. Site Amplification and Ground Motions in Ontario (in progress).
2. Comparison of earthquake characteristics in eastern and western North America (completed).
3. Statistical modeling of earthquake occurrence and hazard in eastern Canada (completed).
4. Generic global ground-motion prediction equations (completed).
5. Study of M9 Tohoku Ground Motions and site characterization in Japan (completed).

6. Source scaling and attenuation of earthquake ground motions: Tokachi-Oki Japan earthquakes (completed)
7. Use of stochastic finite-fault modeling to determine variable stress drop distribution (completed)
8. Ground motions and response of bridges in Chi Chi Taiwan earthquake (completed)
9. Ground motion relations for Puerto Rico (completed)
10. Earthquake ground motion processes in the Charlevoix seismic zone (completed)
11. Development of ShakeMaps for Ontario (completed)
12. Global comparisons of earthquake source spectra (completed)

Masters Theses

1. Site response studies in Alberta (in progress).
2. Ground motion studies of induced earthquakes (in progress).
3. ShakeMap applications and site response in Southern Ontario (in progress).
4. Attenuation and source characteristics of induced earthquakes in Alberta (in progress).
5. Characterization of Induced Seismicity in Alberta (in progress).
6. Statistical analysis of seismicity in Alberta (in progress).
7. ShakeMap algorithms for southern Ontario (completed).
8. Comparison of ground motion processes from three well-recorded M5 earthquakes (in California, central U.S. and Quebec) (completed).
9. Scenario shaking maps for Ottawa (completed).
10. HAZUS-based earthquake damage estimates for Ottawa (completed)
11. Simulation of ground motions from Chi Chi earthquake (completed)
12. A comparative study of ground motions in Japan and the Cascadia region (completed)
13. Horizontal-to-vertical component ratios for rock sites in Canada (completed)
14. Global magnitude-recurrence relations (completed)

Publications

Career Summary: *Over 200 papers published in refereed journals. In addition, over 100 technical reports on aspects of seismic hazard to specific engineered projects such as dams, nuclear power plants, offshore facilities, and so on (technical reports not listed, for brevity). Web of Science h-index of 35. Google-scholar h-index of 49.*

Table of Peer-Reviewed Journal Publications:

Total	As First Author	As Principal co-author	As collaborator	Number of citations
206	98	67	40	9600

List of peer-reviewed publications in last 6 years (reverse chronological)

- Atkinson, G. (2015). Ground-motion prediction equation for small-to-moderate events at short hypocentral distances, with application to induced seismicity hazards. *Bull. Seism. Soc. Am.*, **105**, doi: 10.1785/0120140142.
- Atkinson, G. and K. Assatourians (2015). Implementation and validation of EXSIM (a stochastic finite-fault ground-motion simulation algorithm) on the SCEC broadband platform. *Seism. Res. L.*, **86**, 48-60.
- Atkinson, G., K. Assatourians, B. Cheadle and W. Greig (2015). Ground motions from three recent earthquakes in western Alberta and northeastern British Columbia and their implications for induced-seismicity hazard in eastern regions. *Seism. Res. L.*, **86**, 1022-1031.
- Atkinson, G., K. Assatourians, B. Hassani, S. Braganza, H. Ghofrani, A. Singh, and E. Yenier, (2015). Real-time ShakeMap systems for implementation in sparse networks, *Proc., 11th Canadian Conference on Earthquake Engineering*, Victoria, British Columbia, Canada, July 21-23 2015.
- Atkinson, G., Eaton, D., H. Ghofrani, D. Walker, B. Cheadle, R. Schultz, R. Shcherbakov, K. Tiampo, Y. Gu, R. Harrington, Y. Liu, M. van der Baan and H. Kao (2015). Hydraulic fracturing drives induced seismicity in the Western Canada Sedimentary Basin. *Seism.Res.L.*, submitted.
- Atkinson, G., H. Ghofrani and K. Assatourians (2015). Impact of Induced Seismicity on the Evaluation of Seismic Hazard: Some Preliminary Considerations. *Seism. Res. L.*, **86**, doi: 10.1785/0220140204.
- Atkinson, G., B. Hassani, A.Singh, E. Yenier and K. Assatourians (2015). Estimation of moment magnitude and stress parameter from ShakeMap ground-motions. *Bull. Seism. Soc. Am.*, **105**, 2572-2588.
- Bozorgnia, Y., J. Stewart, T. Kishida, D. Boore, K. Campbell, G. Atkinson, B. Chiou, I. Idriss, W. Silva, and R. Youngs (2015). Response to Discussion by P. Malhotra on NGA-West2 Research Project. *Earthquake Spectra*, **31**, 1879-1884.
- Daneshvar, P., N. Bouaanani, K. Goda and G. Atkinson (2015). Damping reduction factors for crustal, in-slab and interface earthquakes characterizing seismic hazard in southwestern British Columbia, Canada. *Earthquake Spectra*, **31**, doi [10.1193/061414EQS086M](https://doi.org/10.1193/061414EQS086M).
- Eshagi, A., K. Tiampo, H. Ghofrani, G. Atkinson and P. Gonzalez (2015). Real-time moment magnitude estimation from displacement spectral inversion. *Bull. Seism. Soc. Am.*, **103**, 2216-2226.
- Fereidoni, A. and G. Atkinson (2015). Correlation between Coulomb stress changes imparted by historic earthquakes and current seismicity in Charlevoix seismic zone, Canada. *Seism. Res. L.*, **86**, 272-284.
- Fereidoni, A. and G. Atkinson (2015). Reply to Comment on “Aftershock statistics for earthquakes in the St. Lawrence Valley”. *Seism. Res. L.*, **86**, in press.
- Ghofrani, H., G. Atkinson, L. Chouinard, P. Rosset and K. Tiampo (2015). Scenario Shakemaps for Montreal. *Can. J. Civil Eng.*, **42**, 463-476.
- Ghofrani, H., G. Atkinson, L. Chouinard, P. Rosset and K. Tiampo (2015). Scenario Shakemaps for earthquake risk studies in Montreal. *Proc. 11th Can. Conf. Earthq. Eng.*, Victoria, B.C., July 21-23, 2015.
- Goda, K., S. Kurahashi, H. Ghofrani, G. Atkinson and K. Irikura (2015). Nonlinear response potential of real versus simulated ground motions for the 11 March 2011 Tohoku-oki earthquake. *Earthquake Spectra*, **31**, 1711-1734.

- Hassani, B. and G. Atkinson (2015). Referenced empirical ground-motion model for eastern North America. *Seism.Res.L.*, **86**, 477-491.
- Novakovic, M. and Atkinson, G. (2015) Preliminary evaluation of ground motions from earthquakes in Alberta. *Seism. Res. L.*, **86**, doi 10.1785/0220150059.
- Schultz, R., V. Stern, M. Novakovic, G. Atkinson and Y.Gu (2015). Hydraulic fracturing and the Crooked Lake sequences: Insights gleaned from regional seismic networks. *Geophys. Res., L.*, doi 10.1002/2015GL063455.
- Stewart, J., D. Boore, E. Seyhan and G. Atkinson (2015). NGA-West2 Equations for Predicting Vertical-Component Response Spectral Accelerations for Shallow Crustal Earthquakes. *Earthquake Spectra*, **31**, doi [10.1193/072114EQS116M](https://doi.org/10.1193/072114EQS116M).
- Tremblay, R., N. Bouaanani, P. Daneshvar, G. Atkinson, S. Kobaevic, and P. Leger (2015). Selection and scaling of ground motion time histories for seismic analysis using NBCC 2015. Proc. 11th Conf. Earthq. Eng., Victoria, July 21-23, 2015.
- Wang, R., Y. Gu, R. Schultz, A. Kim and G. Atkinson (2015). Source analysis of the June 13, 2015 earthquake near Fox Creek, Alberta, *Geophys.Res.L.*, submitted.
- Yenier, E. and G. Atkinson (2015). An Equivalent Point-Source Model for Stochastic Simulation of Earthquake Ground Motions in California. *Bull. Seism. Soc. Am.*, **105**, 1435-1455.
- Yenier, E. and G. Atkinson (2015). A regionally-adjustable generic GMPE based on stochastic point-source simulations. *Bull. Seism. Soc. Am.*, **105**, 1989-2009.
- Atkinson, G., K. Assatourians and M. Lamontagne (2014). Characteristics of the M4.5 May 17, 2013 Ladysmith, Quebec earthquake. *Seism. Res. L.*, **85**, 755-762.
- Atkinson, G., J. Bommer and N. Abrahamson (2014). Alternative approaches to modeling epistemic uncertainty in ground motions in Probabilistic Seismic Hazard Analysis. *Seism. Res. L.*, **85**, 1-3.
- Atkinson, G., W. Greig and E. Yenier (2014). Estimation of moment magnitude for small events ($M < 4$) on local networks. *Seism. Res. L.*, **85**, 1116-1124.
- Atkinson, G. and D. Boore (2014). The attenuation of Fourier amplitudes for rock sites in eastern North America. *Bull. Seism. Soc. Am.*, **104**, 513-528.
- Atkinson, G., B. Worden and D. Wald (2014). Intensity prediction equations for North America. *Bull. Seism. Soc. Am.*, **104**, 3084-3093.
- Boore, D., J. Stewart, E. Seyhan and G. Atkinson (2014). NGA-West2 Equations for Predicting the average horizontal component of PGA, PGV, and 5%-damped PSA at spectral periods between 0.01s and 10.0 s for shallow crustal earthquakes. *Earthquake Spectra*, **30**, 1057-1086. DOI 10.1193/070113EQS184M
- Bozorgnia, Y., N. Abrahamson, L. Al Atik, T. Ancheta, G. Atkinson, J. Baker, A. Baltay, D. Boore, K. Campbell, B. Chiou, R. Darragh, S. Day, J. Donahue, R. Graves, N. Gregor, T. Hanks, I. Idriss, R. Kamai, T. Kishida, A. Kottke, S. Mahin, S. Renaeian, B. Rowshandel, E. Seyhan, S. Shahi, T. Shantz, W. Silva, P. Spudich, J. Stewart, J. Watson-Lamprey, K. Wooddell, and R. Youngs (2014). NGA-West2 Research Project. *Earthquake Spectra*, **30**, 973-988. doi [0.1193/072113EQS209M](https://doi.org/10.1193/072113EQS209M)
- Eshagi, A., K. Tiampo, H. Ghofrani and G. Atkinson (2014). Magnitude estimation for the 2011 Tohoku-Oki earthquake using ground motion prediction equations. *PAGEOPH*, in press.
- Fereidoni, A. and G. Atkinson (2014). Some statistical features of aftershock temporal behavior in the St. Lawrence Valley. *Seism. Res. L.*, **85**, 1125-1136.
- Ghofrani, H. and G. Atkinson (2014). Duration of the 2011 Tohoku ground motions. *J. Seismology*, **18**, 1-17. doi: 10.1007/s10950-014-9447-y.

- Ghofrani, H. and G. Atkinson (2014). Ground-motion prediction equations for interface earthquakes of M7 to M9 based on empirical data from Japan. *Bull. Earthq. Eng.*, DOI10.1007/s10518-013-9533-5.
- Ghofrani, H. and G. Atkinson (2014). Site condition evaluation using horizontal-to-vertical spectral ratios of earthquakes in the NGA-West2 and Japanese databases. *J. Soil Dyn. And Earthq. Eng.*, **67**, 30-43. doi: 10.1016/j.soildyn.2014.08.015.
- Goda, K. and G. Atkinson (2014). Variation of source-to-site distances for mega-thrust subduction earthquakes: effects on ground motion prediction equations. *Earthquake Spectra*, **30**, 845-866.
- Goda, K., S. Kurahashi, H. Ghofrani, G. Atkinson and K. Irikura (2014). Inelastic seismic demand of as-recorded and synthesized strong motion records for the 2011 Tohoku earthquake: constant strength approach. *Proc. 2nd Euro.Conf.Earthq.Eng. and Seism.*, Istanbul, Aug25-29, 2014.
- Goda, K., S. Kurahashi, H. Ghofrani, G. Atkinson and K. Irikura (2014). Nonlinear response potential of real versus simulated ground motions for the 11th March 2011 Great East Japan earthquake. *Earthquake Spectra*, **30**, doi/abs/10.1193/071213EQS201M
- Gregor, N., N. Abrahamson, G. Atkinson, D. Boore, Y. Bozorgnia, K. Campbell, B. Chiou, I. Idriss, R. Kamai, E. Seyhan, W. Silva, J. Stewart and R. Youngs (2014). Comparison of NGA-West2 GMPEs. *Earthquake Spectra*, **30**, 1179-1198.
- Kurzon, I., F. Vernon, Y. Ben-Zion and G. Atkinson (2014). Ground-motion prediction equations in the San Jacinto fault zone – effects of rupture directivity and fault zone amplification. *Pure and Appl. Geophys.*, **171**. DOI 10.1007/s00024-014-0855-2.
- Mohammed, T., G. Atkinson and K. Assatourians (2014). Uncertainty in recurrence rates of large magnitude events due to short historic catalogs. *J. Seismology*, **18**, 565-573.
- Tehrani, P., K. Goda, D. Mitchell, G. Atkinson and L. Chouinard (2014). Seismic response prediction of bridges using incremental dynamic analysis with subduction zone and crustal ground motion records. *Proc. 10th U.S. Natl. Conf. Earthq.Eng.*, July 21-25, 2014, Anchorage, Alaska.
- Yenier, E. and G. Atkinson (2014). Point-source modeling of moderate-to-large magnitude earthquakes and associated ground-motion saturation effects. *Bull. Seism. Soc. Am.*, **104**, 1458-1478. DOI 10.1785/0120130147.
- Assatourians, K. and G. Atkinson (2013). EqHaz – An open-source probabilistic seismic hazard code based on the Monte-Carlo simulation approach. *Seism. Res. L.*, **84**, 516-524.
- Atkinson, G. (2013). Empirical evaluation of aleatory and epistemic uncertainty in eastern ground motions. *Seism. Res. L.*, **84**, 130-138.
- Atkinson, G. and J. Adams (2013). Ground motion prediction equations for application to the 2015 national seismic hazard maps of Canada. *Can. J. Civil Eng.*, **40**, 988-998.
- Atkinson, G. and A. Babaie Mahani (2013). Estimation of moment magnitude from ground motions at regional distances. *Bull. Seism. Soc. Am.*, **103**, 107-116.
- Atkinson, G. and D. Motazedian (2013). Ground motion amplitudes for earthquakes in Puerto Rico. *Bull. Seism. Soc. Am.*, **103**, 1846-1859.

- Babaie Mahani, A. and G. Atkinson (2013). Regional differences in ground-motion amplitudes of small-to-moderate earthquakes across North America. *Bull. Seism. Soc. Am.*, **103**, 2604-2620.
- Boore, D., J. Stewart, E. Seyhan and G. Atkinson (2013). NGA-West2 Equations for Predicting Response Spectral Accelerations for Shallow Crustal Earthquakes. Report to Pacific Engineering Research Center. Feb. 2013. 104pp.
- Eshagi, A., K. Tiampo, H. Ghofrani and G. Atkinson (2013). Using Borehole Records to Estimate Magnitude for Earthquake and Tsunami Early Warning Systems. *Bull. Seism. Soc. Am.*, **103**, 2216-2226.
- Ghofrani, H., G. Atkinson and K. Goda (2013). Implications of the 2011 M9.0 Tohoku Japan earthquake for the treatment of site effects in large earthquakes. *Bull. Earthq. Eng.*, **11**, 171-203.
- Ghofrani, H., G. Atkinson, K. Goda and K. Assatourians (2013). Stochastic finite-fault simulations of the 11th March Tohoku, Japan earthquake. *Bull. Seism. Soc. Am.*, **103**, 1307-1320.
- Mereu, R., S. Dineva and G. Atkinson (2013). The application of velocity spectral stacking to extract information on source and path effects for small-to-moderate earthquakes in southern Ontario, *Seism. Res. L.*, **84**, 899-916.
- Shcherbakov, R., K. Goda, A. Ivanian and G. Atkinson (2013). Aftershock statistics of major subduction earthquakes. *Bull. Seism. Soc. Am.*, **103**, in press, doi: 10.1785/0120120337.
- Tehrani, P., K. Goda, D. Mitchell, G. Atkinson and L. Chouinard (2013). Effects of different record selection methods on the transverse seismic response of a bridge in southwestern British Columbia. *J. of Earthq. Eng.*, **18**, 611-636.
- Atkinson, G. (2012). The integration of emerging trends in engineering seismology. *Proc. 15th World Conf. Earthq. Eng.*, Lisbon, Sept. 24-29, 2012.
- Ghofrani, H., G. Atkinson and K. Goda (2012). Implications of the 2011 M9.0 Tohoku Japan earthquake for the treatment of site effects in large earthquakes. *Bull. Earthq. Eng.*, DOI 10.1007/s10518-012-9413-4.
- Ghofrani, H., K. Goda and G. Atkinson (2012). Ground motions and site effects from the 2011 M9.0 Tohoku, Japan, earthquake. *Proc. 15th World Conf. Earthq. Eng.*, Lisbon, Sept. 24-29, 2012.
- Babaie Mahani, A. and G. Atkinson (2012). Evaluation of functional forms for attenuation of small-to-moderate earthquake spectral amplitudes in North America. *Bull. Seism. Soc. Am.*, **102**, 2714-2726.
- Liu, T., G. Atkinson, H. Hong and K. Assatourians (2012). Intraevent spatial correlation characteristics of stochastic finite-fault models. *Bull. Seism. Soc. Am.*, **102**, 1740-1747.
- Goda, K. and G. Atkinson (2012). Probabilistic Seismic Hazard Analysis. in *Seismic Risk Analysis and Management of Civil Infrastructure Systems* (ed. Tesfamariam and Goda). Woodhead Publishing, London, UK.
- Atkinson, G. (2012). Evaluation of attenuation models for the northeastern U.S./Southeastern Canada. *Seism. Res. L.*, **83**, 166-178.

- Fereidoni, A., G. Atkinson, M. Macias and K. Goda (2012). CCSC09: Composite seismicity catalog for earthquake hazard studies for major Canadian cities. *Seism. Res. L.*, **83**, 179-189.
- Pal, J. and G. Atkinson (2012). Scenario ShakeMaps for Ottawa, Canada. *Bull. Seism. Soc. Am.*, **102**, 650-660.
- Ghofrani, H. and G. Atkinson (2011). Fore-arc versus back-arc attenuation of earthquake ground motion. *Bull. Seism. Soc. Am.*, **101**, 3032-3045.
- Atkinson, G., K. Goda and K. Assatourians (2011). Comparison of nonlinear structural responses for accelerograms simulated from the stochastic finite-fault approach versus the hybrid broadband approach. *Bull. Seism. Soc. Am.*, **101**, 2967-2980.
- Atkinson, G. and D. Boore (2011). Modifications to existing ground-motion prediction equations in light of new data. *Bull. Seism. Soc. Am.*, **101**, 1121-1135.
- Goda, K., G. Atkinson and H. Hong (2011). Seismic loss estimation of wood-frame houses in southwestern British Columbia. *Structural Safety*, **33**, 123-135.
- Goda, K., G. Atkinson, J. Hunter, H. Crowe and D. Motazedian (2011). Probabilistic liquefaction hazard analysis for Canadian cities. *Bull. Seism. Soc. Am.*, **101**, 190-201.
- Stewart, J., F. Naeim, C. Comartin, M. Mehraian, M. Lew, N. Abrahamson, G. Atkinson, D. Boore, Y. Bozorgnia, K. Campbell, I. Idriss, J. Moehle and T. Sabol (2011). Representation of bi-directional ground motions for design spectra in building codes. *Earthquake Spectra*, **27**, 927-937.
- Atkinson, G., N. Kraeva and K. Assatourians (2011). Ground-motion attenuation at short hypocentral distances (<50 km) near Sudbury, Ontario, *Bull. Seism. Soc. Am.*, **101**, 433-437.
- Atkinson, G. and K. Goda (2011). Effects of seismicity models and new ground motion prediction equations on seismic hazard assessment for four Canadian cities. *Bull. Seism. Soc. Am.*, **101**, 176-189.
- Atkinson, G. (2011). An empirical perspective on uncertainty in earthquake ground motions. *Can.J.Civil Eng.*, **38**, 1-14. DOI:10.1139/110-120.
- Assatourians, K., and G. Atkinson (2010). Database of processed time series and response spectra for Canada: An example application to study of the 2005 MN5.4 Riviere du Loup, Quebec earthquake. *Seism. Res. L.*, **81**, 1013-1031.
- Atkinson, G. (2010). Seismological considerations for the analysis of soil-structure interaction. *Proc. Workshop on Soil-Structure Interaction*. Can. Nuclear Safety Comm., Ottawa, Oct. 2010.
- Atkinson, G. and K. Assatourians (2010). Attenuation and source characteristics of the June 23, 2010 Val-des-Bois, Quebec, earthquake. *Seism. Res. L.*, **81**, 849-860.
- Atkinson, G. and K. Goda (2010). Inelastic seismic demand of real versus simulated ground-motion records for Cascadia subduction earthquakes. *Bull. Seism. Soc. Am.*, **100**, 102-115.
- Atkinson, G. and N. Kraeva (2010). Ground motions on surface compared to those underground: A Case Study for Sudbury, Ontario. *Bull. Seism. Soc. Am.*, **100**, 1293-1305.

- Goda, K., and Atkinson, G. (2010). Non-iterative equivalent linearization of inelastic SDOF systems for earthquakes in Japan and California, *Earthq. Eng. Struct. Dyn.*, (in press). DOI: 10.1002/eqe.990
- Goda, K., H. Hong and G. Atkinson (2010). Impact of using updated information on seismic hazard in Western Canada. *Can. J. Civil Eng.*, **37**, 562-575.
- Goda, K. and G. Atkinson (2010). Intra-event spatial correlation of ground-motion parameters using SK-net data. *Bull. Seism. Soc. Am.*, **100**, 3055-3067.
- Goda, K. and G. Atkinson (2010). Seismic performance of wood-frame houses in southwestern British Columbia. *Earthq. Eng. Struct. Dyn.*, in press. DOI: 10.1002/eqe.1068
- Goda, K. and G. Atkinson (2010). Seismic vulnerability assessment of wood-frame houses in southwestern British Columbia. *Proc. 14th European Conf. Earthq. Eng., Ohrid, Macedonia.*
- Goda, K. and G. Atkinson (2010). Quantitative seismic risk assessment of wood frame buildings in Richmond, B.C. 9thU.S./10thCdn.Conf.Earthq.Eng., Toronto, July 2010.
- Atkinson, G. (2010). Impact of recent developments in ground motion prediction equations on probable ground motions for Canadian cities. *Proc. 9thU.S./10thCdn.Conf.Earthq.Eng.*, Toronto, July 2010.
- Atkinson, G. (2010). Ground motion prediction equations for Hawaii from a referenced empirical approach. *Bull. Seism. Soc. Am.*, **100**,751-761.
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- Atkinson, G. and K. Goda (2009). Inelastic seismic demand of real versus simulated ground-motion records for Cascadia subduction zone earthquakes. *Bull. Seism. Soc. Am.*, **99**, 3284-3299.
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- Atkinson, G. and M. Morrison (2009). Regional variability in ground motion amplitudes along the west coast of North America. *Bull. Seism. Soc. Am.*, **99**, 2393-2409.
- Goda, K. and G. Atkinson (2009). Inter-period dependence of ground-motion prediction equations: A copula perspective. *Bull. Seism. Soc. Am.*, **99**, 922-927.

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- Ploeger, S., G. Atkinson and C. Samson (2009). Applying the HAZUS-MH software tool to assess seismic risk in downtown Ottawa, Canada. *Natural Hazards Journal*, in press. DOI 10.1007/s11069-009-9408-x (published online June 5, 2009)

Over 140 Abstracts/Presentations at Professional meetings (avg. 8/year 2008-2015; not listed individually for brevity)

Research Funding (2008-present)

- NSERC/TransAlta/Nanometrics Industrial Research Chair in Hazards from Induced Seismicity. 2014-2019. \$2.16 million over 5 years.
- NSERC Collaborative Research and Development Grant, Induced Seismicity Processes, with TransAlta. 2014-2019. \$1.28 million over 5 years (split with 5 researchers).
- NSERC/Montpelier Re Collaborative Research and Development Grant, Linking Hazard, Exposure and Risk. 2015-2019. \$289,000 over 5 years.
- SNC-Lavalin. Seismic hazard studies in Quebec. \$12,000. 2014.
- Geol.Surv.Canada/Dept.Defense. Prompt Evaluation of Seismic Risk (collaborative with Civil Engineering at Western, and with U. Waterloo and ETS Montreal). 2014-2017. Western portion is \$260,000. over 3 years, split between Atkinson and El Neggar.
- Southern Ontario Seismographic Network (SOSN- OPGN). 2015. \$157,000.
- NSERC Accelerator Supplement, 2012-2014. \$40,000/year
- NSERC Discovery Grant, 2012-2017. \$54,000/year
- NSERC Collaborative Research and Development Grant, Real-time Ground-Motion Tools for Seismic Hazard Management, with Ontario Power Generation Nuclear, 2012-2017. \$1.42 million over 5 years.
- Bruce Borehole Seismic Monitoring Project (Nuclear Waste Management Organization). 2015-2016. \$80,000.
- Southern Ontario Seismographic Network (SOSN- OPGN). 2014. \$154,000.
- Bruce Borehole Seismic Monitoring Project (Nuclear Waste Management Organization). 2013-2014. \$100,000.
- CFI Operating Fund (IOF) – internal Western funds. 2012-2014. \$12,000/year.
- Southern Ontario Seismographic Network (SOSN- OPGN). 2013. \$151,000.
- Southern Ontario Seismographic Network (SOSN- OPGN). 2012. \$148,000.
- Canada Research Chair, Earthquake Hazards and Ground Motions, 2007-2014, Univ. of Western Ontario. \$200,000/year (including salary and research funds)

NSERC Strategic Network: Reducing Urban Seismic Risk, 2008-2013. One of three theme-leaders in a 26-researcher national-level project, with \$5million total funding (\$313,000. in funding for Western).

Darlington Seismic Station Relocation and Upgrade (OPGN). 2011. \$63,000.

Bruce Borehole Seismic Monitoring Project (Nuclear Waste Management Organization). 2011-2012. \$73,000.

Darlington Seismic Monitoring Project (Ontario Power Generation). 2010-2011. \$35,000.

CFI (Canada Foundation for Innovation), 2008-2011. Engineering Seismology Toolbox, University of Western Ontario. \$465,000.

Bruce Borehole Seismic Monitoring Project (Nuclear Waste Management Organization). 2009-2011. \$75,000.

POLARIS Underground Project at SNO (Nuclear Waste Management Organization), 2009-2010. \$95,000.

POLARIS Underground Project at SNO (Nuclear Waste Management Organization), 2008-2009. \$75,000.

NSERC Discovery Grant, 2007-2012. \$48,000/year

NSERC Accelerator Supplement, 2007-2010. \$40,000/year

NSERC Major Research Access Grant for POLARIS, 2008-2014. \$78,000/year (continuing operation of POLARIS; this grant administered from Carleton)

NSERC Major Facilities Access Grant for POLARIS, 2006-2008. Lead Applicant. \$88,350/year (for operation of POLARIS)

University Administrative Contributions (2008-present)

Faculty Search Committee (2014-2015).

Graduate Committee, 2007-present. Accelerated Masters Coordinator.

Annual Performance and Evaluation Committee (2013-2014).

Appointments Committee (2013-2014).

Standing University Committee on Priorities and Academic Development (SUPAD), 2009-2012. Evaluates all ADF grant applications for the University. Chair of the Physical Sciences/Engineering Panel, 2010-2012.

Decanal Selection Committee, 2010-2011. Conducts review of the operations of the Faculty of Science and makes recommendations on the Dean of Science position. 2011 Search Committee member for Dean of Science.

Chair of Ad hoc Committee on Accelerated Masters Program, 2007-2012.

Ad hoc Committee on First-Year Science Program, 2009-2011.

Tenure and Promotions Committee, 2010-2012.

Awards Committee, 2007-2010.

Technical and Teaching Resources Committee, 2007-2010.

Earth Sciences Chair Search Committee, 2007-2008.

Project Leader, POLARIS, 2000-2014.

Community Service

Member of regulatory committees to ensure safety of buildings and other engineered structures as outlined in Professional Activities above.