

BENEDIKT HALLDÓRSSON

- Research Associate Professor, Earthquake Engineering Research Centre, University of Iceland.
- Adjunct Professor, Faculty of Civil and Environmental Engineering, School of Engineering and Natural Sciences, University of Iceland.

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EDUCATION

- B.S. Geophysics. University of Iceland (1994)
- M.S. Civil and Structural Engineering. University of Iceland, (1997)
- Ph.D. Structural and Earthquake Engineering. University at Buffalo, the State University of New York. (2004)

PROFESSIONAL EXPERIENCE

- 1997-1999: Research Engineer, Engineering Research Inst., University of Iceland
- 1997-1999: Lecturer at the Dept. of Civil Eng., University of Iceland
- 1999-2004: Research Assistant, University at Buffalo, SUNY, New York, USA.
- 2004-2005: Postdoctoral Fellow. Multidisciplinary Centre for Earthquake Engineering Research (MCEER), Buffalo, New York, USA.
- 2006-2009: Project Manager, Earthquake Engineering Research Centre, University of Iceland.
- 2009-2011: Research Assistant Professor. Earthquake Engineering Research Centre, University of Iceland.
- 2009-present: Adjunct Professor, Faculty of Civil and Environmental Engineering, School of Engineering and Natural Sciences, University of Iceland.
- 2011-present. Research Associate Professor, Earthquake Engineering Research Centre, University of Iceland.

RESEARCH INTERESTS

My primary area of research is engineering seismology, which is the combination of of seismology and engineering and their practical applications in the field of earthquake engineering. Seeking a deeper understanding of the nature of earthquakes and their effects on engineering structures, I have focused my research on the modelling of the complex earthquake source processes, the seismic wave propagation through the heterogeneous crust and the localized site amplification effects. Recently I have expanded my research to include the design of dense strong-motion arrays for the purpose of investigating the complex incoherence aspects of the seismic wavefield, and its potential effects on critical lifeline systems of modern society.

AWARDS AND RECOGNITION

- "ECEES Award for Excellent Contribution by a Young Scientists". First European Conference on Earthquake Engineering and Seismology (1ECEES) [joint event of the European Seismological Commission (ESC) and the European Association of Earthquake Engineering (EAEE)], Geneva, Switzerland. (2006)
- Icelandic Scholarship Grant from the Memorial Fund of Mrs. Helga Jónsdóttir and Mr. Sigurliði. (2003).
- Graduate Tuition Scholarship Award. University at Buffalo, USA. (1999-2004)
- Graduation award for M.S. research. Icelandic Student Services. (1997)

RESEARCH PROJECTS

- 2006-2008 – *A comprehensive approach to the reliable estimation and modeling of spatially variable seismic waves for lifeline earthquake engineering applications.* Marie Curie International Re-Integration Grant. Human Resources and Mobility Activity. Sixth Framework Programme, European Commission. Role: Principal Investigator. (Budget €90.346)
- 2006-2009 – *Self-consistent Earthquake Source Analyses and Broad-band Strong Ground Motion Simulations for Earthquake Engineering Applications.* Research Grant, Icelandic Centre for Research (RANNIS). Role: Principal Investigator. (Budget: ISK 30.368.000)
- 2009-2011 – *The Ölfus Earthquake of 29 May 2008 in South Iceland.* Research Grant, Icelandic Centre for Research (RANNIS). Role: Principal Investigator. (Budget: ISK 27.496.000)

MAIN PUBLICATIONS IN SCIENTIFIC JOURNALS (2002-2012)

- Halldorsson, B., G. Dong and A. S. Papageorgiou (2002): Earthquake motion input and its dissemination via the Internet. *Journal of Earthquake Engineering and Engineering Vibration*, 1(1), 20-26.
- Halldorsson, B. and A. S. Papageorgiou (2005). Calibration of the Specific Barrier Model to Earthquakes of Different Tectonic Regions. *Bulletin of the Seismological Society of America*, 95(4), 1276-1300.
- Halldorsson, B., S. Olafsson, and R. Sigbjornsson (2007). A fast and efficient simulation of the far-field and near-fault earthquake ground motions associated with the June 17 and 21, 2000, earthquakes in South Iceland. *Journal of Earthquake Engineering*, 11(3), 343-370.
- Halldorsson, B., R. Sigbjornsson and J. Schweitzer (2009). ICEARRAY: the first small-aperture, strong-motion array in Iceland. *Journal of Seismology*, 13(1), 173-178.
- Halldorsson, B. and R. Sigbjornsson (2009). The M_w 6.3 South Iceland Earthquake of 15:45 UTC May 29 2008: ICEARRAY strong-motion recordings. *Soil Dynamics and Structural Engineering*, 29(6), 1073-1083.
- Sigbjornsson, R., J. Th. Snæbjornsson, S. M. Higgins, B. Halldorsson, S. Ólafsson (2009). A note on the M_w 6.3 earthquake in Iceland on 29 May 2008 at 15:45 UTC. *Bulletin of Earthquake Engineering*, 7(1), 113-126.
- Halldorsson, B. and H. Avery (2009). Converting strong-motion networks to arrays via common-triggering. *Seismological Research Letters*, 80(4), 572-578.
- Rupakheti, R., B. Halldorsson and R. Sigbjornsson (2010). Estimating coseismic deformations from near source strong motion records: Methods and case studies. *Bulletin of Earthquake Engineering* 8(4), 787-811
- Halldorsson, B., Mavroeidis, G. P., & Papageorgiou, A. S. (2011). Near-Fault and Far-Field Strong Ground Motion Simulation for Earthquake Engineering Applications Using the Specific Barrier Model, *ASCE Journal of Structural Engineering*, 137(3), 433-444.
- Halldorsson, B. & Papageorgiou, A. S. (2012). Variations of the Specific Barrier Model - Part I: Effect of Subevent Size Distributions, *Bulletin of Earthquake Engineering*, (accepted).
- Halldorsson, B. & Papageorgiou, A. S. (2012). Variations of the Specific Barrier Model - Part II: Effect of Isochron Distributions, *Bulletin of Earthquake Engineering*, (accepted).
- Foster, K.M., B. Halldorsson, R. Green & M.C. Chapman (2012). Calibration of the Specific Barrier Model to the NGA Dataset. *Seismological Research Letters* (in review).

PEER-REVIEWED CONFERENCE PAPERS AT MAJOR INTERNATIONAL CONFERENCES (2002-2012)

- Zhang, F., B. Halldorsson and A. S. Papageorgiou (2002): Study of the Rupture Process of Kilometric Size Earthquakes Using a New Family of Crack Models. *7th U.S. National Conference on Earthquake Engineering, Boston, Massachusetts (7NCEE)*, July 21-25. [Abstract, Paper]
- Halldorsson, B., G. Dong and A. S. Papageorgiou (2002): Calibration of the Specific Barrier Model to Eastern North America Earthquakes. *7th U.S. National Conference on Earthquake Engineering, Boston, Massachusetts (7NCEE)*, Boston, Massachusetts, July 21-25. [Abstract, Paper, Presentation]
- Halldorsson, B. and A. S. Papageorgiou (2006). Application of the Specific Barrier Model to the Simulation of Earthquake Strong Ground Motions. *Proceedings of The 8th U.S. National Conference on Earthquake Engineering (8NCEE)*, April 18-22, San Francisco, California, USA. Paper No. 1206. [Abstract, Paper, Presentation]
- Wanitkorkul, A., B. Halldorsson, A. S. Papageorgiou, and A. Filiatrault (2006). Application of the Specific Barrier Model to the Seismic Fragility Assessment of Critical Facilities. *Proceedings of The 8th U.S. National Conference on Earthquake Engineering (8NCEE)*, San Francisco, April 18.-21. 2006. Paper No. 227. [Abstract, Paper]
- Halldorsson, B., S. Ólafsson and R. Sigbjornsson (2006). A first look at the June, 2000, $M_6.5$ earthquakes in Iceland in terms of the Specific Barrier Model. *First European Conference on Earthquake Engineering and Seismology (1ECEES)*, September 3.-8., Geneva, Switzerland. Paper No. 1133. [Abstract, Paper, Presentation]
- Halldorsson, B. and A. S. Papageorgiou (2006). Spectral variations of the Specific Barrier Model from various isochron and subevent distributions. *First European Conference on Earthquake Engineering and Seismology (1ECEES)*, September 3.-8., Geneva, Switzerland. Paper No. 1137. [Abstract, Paper, Poster]
- Halldorsson, B. and H. Avery (2008). Optimising recording efficiency of a new strong-motion array (ICEARRAY) using common-triggering. *14th World Conference on Earthquake Engineering (14WCEE)*, October 12-17, Beijing, China. Paper No. 11-0105. [Abstract, Paper, Poster]
- Halldorsson, B. and R. Sigbjornsson (2008). Design and installation of ICEARRAY, a new small-aperture strong-motion array in South Iceland. *14th World Conference on Earthquake Engineering (14WCEE)*, October 12-17, Beijing, China. Paper No. 02-0097. [Abstract, Paper, Presentation]

- Sigbjörnsson, R., J.Th. Snæbjörnsson, S.M. Higgins, S. Ólafsson and B. Halldórsson (2008). Probabilistic hazard assessment of fault displacements. *14th World Conference on Earthquake Engineering (14WCEE)*, October 12-17, Beijing, China. Paper No. 07-0096. [Abstract, Paper]
- Sigbjörnsson, R., J.Th. Snæbjörnsson, S.M. Higgins, S. Ólafsson and B. Halldórsson (2008). Mapping of inelastic effects and structural behaviour factors for EUROCODE 8: A case study for Iceland. *14th World Conference on Earthquake Engineering (14WCEE)*, October 12-17, Beijing, China. Paper No. 01-0042. [Abstract, Paper]
- Sigbjörnsson, R., S.M. Higgins, S. Ólafsson, B. Halldórsson and J.Th. Snæbjörnsson (2008). Comparative study of uniform hazard spectra derived using different ground motion estimation model: A case study. *14th World Conference on Earthquake Engineering (14WCEE)*, October 12-17, Beijing, China. Paper No. 07-0099. [Abstract, Paper, Poster]
- Chanerley, A., N. Alexander and B. Halldórsson (2009). On fling and baseline correction using quadrature mirror filters. *12th International Conference on Civil, Structural and Environmental Engineering Computing (CC2009)*, B.H.V. Topping, L.F. Costa Neves and R.C. Barros, (Editors), Funchal, Madeira, Portugal, 1-4 September 2009. Civil-Comp Press, Stirlingshire, UK.. [Abstract, Paper]
- Halldórsson, B., R. Sigbjörnsson, A. A. Chanerley and N. A. Alexander (2010). Near-fault strong-motion array recordings of the Mw6.3 Ölfus earthquake on 29 May 2008 in Iceland. *9th US National and 10th Canadian Conference on Earthquake Engineering (9USN/10CCEE)*, 25-29 July, Toronto, Canada. [Abstract, Paper]
- Douglas, J. and B. Halldórsson (2010). On the use of aftershocks when deriving ground-motion prediction equations. *9th US National and 10th Canadian Conference on Earthquake Engineering (9USN/10CCEE)*, 25-29 July, Toronto, Canada. [Abstract, Paper]
- Chanerley, A. A., N. A. Alexander, B. Halldórsson, R. Sigbjörnsson & Perryman (2010). Baseline correction made easier using an automated method based on the Wavelet transform, *9th US National and 10th Canadian Conference on Earthquake Engineering (9USN/10CCEE)*, 25-29 July, Toronto, Canada. [Abstract, Paper]
- Halldórsson, B., R. Sigbjörnsson, A. A. Chanerley and R. Rupakhety (2010). Extreme near-fault strong-motion of the M6.3 Ölfus earthquake of 29 May 2008 in South Iceland. *14th European Conference on Earthquake Engineering (14ECE)*, Ohrid, Macedonia, August 31 -- September 2. [Abstract, Paper]

TEACHING AND SUPERVISION EXPERIENCE

Lecturer: University of Iceland. Department of Civil and Environmental Engineering.

- Continuum Mechanics (undergraduate)
- Computational Mechanics (undergraduate)
- Natural Catastrophes (graduate)

Advisor: MS Thesis supervisor of one student (graduated from Virginia Tech University, Blacksburg, Virginia, USA).

MAIN PUBLICATIONS RELATED TO ENGINEERING EDUCATION

- Ragnar Sigbjörnsson & Benedikt Halldórsson (1997): The finite element method. Introduction to energy methods and computational mechanics. Trusses. *Engineering Research Institute, University of Iceland, report No. 97002*, 143 pages (In Icelandic).
- Ragnar Sigbjörnsson & Benedikt Halldórsson (1999): The finite element method. Introduction to energy methods and computational mechanics. Beams, Frames and Plates. *Engineering Research Institute, University of Iceland, report No. 99001* (In Icelandic).