

# CURRICULUM VITAE

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**Nationality:** USA

### Education:

- Ph.D., Geophysics, Colorado School of Mines, Golden, CO, USA, 2005. Thesis title: An investigation of sealing and episodic pulsing of fluids at a minibasin-bounding growth fault from seismic reflection images.
- B.Sc., Geophysical Engineering, Colorado School of Mines, Golden, CO, USA, 1999.

### Positions held:

- 2007-present Research Geophysicist, USGS Mendenhall postdoctoral fellow, Alaska Volcano Observatory, Anchorage, AK, USA. Research areas: ambient noise seismology, coda wave interferometry, location of volcanic tremor, surface wave inversion, modeling seismic instrument response, volcano seismology.
- 2007 Adjunct professor, University of New Mexico, Albuquerque, NM, USA. Volunteer instructor for UNIV 216-012, Careers in Science and Engineering, Spring semester.
- 2005-2007 Postdoctoral appointee, Geophysics Department, Sandia National Laboratories, Albuquerque, NM, USA. Research areas: reverse time migration and imaging, numerical modeling of rocks at the pore-scale, design of a fast layered medium synthetic seismogram code, numerical stability of finite-difference codes for models with strong density variations, field seismic data recording.
- 1999-2005 Research assistant, Center for Wave Phenomena, Geophysics Department, Colorado School of Mines, Golden, CO, USA. Research areas: understanding the effects of interference on multiple wave scattering, signal processing of magnetic data in the presence of remanent magnetization, seismic imaging of fault zones and the imprint of fluid flow on seismic images of fault zones.
- 2002 Summer intern, Geophysical Technology Department, Sandia National Laboratories, Albuquerque, NM, USA. Research project: detecting high porosity inclusions in the Central Basin Platform, a large oil and gas province in Eastern New Mexico and West Texas, through seismic methods, numerical simulation of seismic wave propagation, simulation of reverse time wave propagation.

- 1998 Summer intern, Phillips Petroleum Company, Houston, TX, USA. Research project: interpretation of faults and mapping of horizons from seismic data taken at the North Slope of Alaska, use of Syntool (a synthetic seismogram code) to tie well logs to seismic data.
- 1995 Summer intern, Center for Earthquake Research and Information (CERI), Memphis, TN, USA. Research project: installation and debugging of an automated earthquake phase picking code called Earthworm, assistance in updating local seismic network through installation of seismometers.

#### **Honors and Awards:**

- Society of Exploration Geophysicists J. Clarence Karcher Award 2007
- USGS Mendenhall Postdoctoral Fellowship 2007-2009
- NSF Grant to attend Mathematical Geophysics Summer School, Golden, CO, USA 2004
- NSF Grant to attend NATO-ASI conference, Corsica, France 2002
- John C. Hollister Award 1999
- Keck Scholarship 1995-1999
- SEG Scholarship 1996-1999

#### **Professional Activities:**

- membership in AGU, SEG, EAGE, and SSA
- peer reviewer for Geophysics, Geophysical Research Letters, Geophysical Journal International, Environmental Science and Technology, and USGS Professional Papers
- attendee at the Long Range Science Plan for Seismology (LRSPS), September 2008
- co-chair for session S43A at the 2005 AGU/SEG Joint Assembly entitled "Rocks and Fluids"
- panelist for DOE-BES Advanced Non-invasive Monitoring Techniques Workshop, October 2005
- co-chair for session S21B at the 2006 AGU Fall Meeting entitled "Surface waves: Someone's Noise is Another One's Signal"
- co-chair for session S19 at the 2007 AGU Fall Meeting entitled "Multiple Wave Scattering Across Length Scales in the Earth"

**Teaching Experience:**

- Adjunct Professor at the University of New Mexico and Instructor for UNIV 216-012, a sophomore seminar on "Careers in Science and Engineering", Spring 2007.
- Instructor for two classes of GP302 Continuum Mechanics at CSM Fall 2004.
- Graduate coursework at CSM included the class "Fundamentals of College Teaching" Fall 2003.

**Volcano Eruption Response Experience:**

- Pavlof, Alaska 2007
- Halema'uma'u crater, Kilauea, Hawaii 2008
- Okmok, Alaska 2008
- Kasatochi, Alaska 2008
- Redoubt, Alaska 2009

**Computer Skills:**

- FORTRAN, Matlab, Linux, Mac OS
- Seismic data processing using Seismic Un\*x
- Real-time seismic monitoring and analysis at volcanoes using Swarm
- Full-waveform simulation of seismic wave propagation using both serial and parallel implementations of 3D finite-difference codes at Sandia National Laboratories
- Author of the RAYLEE Matlab package of codes for Rayleigh wave inversion

**Publications:** see attached list of 15 internationally refereed publications, 3 publications accepted or under review, 3 publications in preparation, and 2 published reports.

**Conference Proceedings:** see attached list of 35 proceedings from international conferences.

**Presentations:** see attached list of 13 oral presentations at international conferences, 8 oral presentations to internationally recognized research groups, and 7 poster presentations at international conferences.

**Funded projects to date:**

- Haney, M. M. and Aldridge, D. F., Quantitative Interpretation of Seismic Reflection Data for Subsurface Fluids via Full-Waveform Modeling, New Mexico Small Business Assistance Office, \$76,500, 2006 (renewable for two additional years).
- Haney, M., Prejean, S., Power, J., and Thurber, C., Operating expenses for the Mendenhall postdoctoral project "Interferometric monitoring and imaging of recent activity at Mount Spurr Volcano, Alaska", USGS, \$20,000, 2007.

- Haney, M., Prejean, S., Power, J., and Thurber, C., Operating expenses for the Mendenhall postdoctoral project “Interferometric monitoring and imaging of recent activity at Mount Spurr Volcano, Alaska”, USGS, \$17,500, 2008.

**Projects pending:**

- Haney, M., Prejean, S., Power, J., and Thurber, C., Operating expenses for the Mendenhall postdoctoral project “Interferometric monitoring and imaging of recent activity at Mount Spurr Volcano, Alaska”, USGS, \$15,000, 2009.

**Error corrected in published literature:**

- Thurston, J. B., 2004, Reply to the discussion, *Geophysics*, **69**, 1570; this article describes a fundamental error found by M. Haney and Y. Li in a paper by J. B. Thurston.

## References:

- Roel Snieder  
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# PUBLICATIONS

## PEER-REVIEWED

1. Haney, M. and Snieder, R., 2003, Breakdown of wave diffusion in 2D due to loops, *Physical Review Letters*, **91**, 93902.
2. van Wijk, K., Haney, M., and Scales, J., 2004, 1D energy transport in a strongly scattering laboratory model, *Physical Review E*, **69**, 36611.
3. Haney, M. M, van Wijk, K., and Snieder, R., 2005, Radiative transfer in layered media and its connection to the O'Doherty-Anstey formula, *Geophysics*, **70**, T1-T11.
4. Haney, M., Snieder, R., and Sheiman, J., 2005, Further thoughts on the stacking response in seismic data processing, *First Break*, **23**, 35-38.
5. Haney, M. M., Snieder, R., Sheiman, J., and Losh, S., 2005, A moving fluid pulse in a fault zone, *Nature*, **437**, 46.
6. Dewangan, P., Tsvankin, I., Batzle, M., van Wijk, K., and Haney, M., 2006, PS-wave moveout inversion for tilted TI media: a physical-modeling study, *Geophysics*, **71**, D135-D143.
7. Losh, S. and Haney, M., 2006, Episodic Fluid Flow in an Aseismic Overpressured Growth Fault, northern Gulf of Mexico, in: "Earthquakes: Radiated Energy and the Physics of Faulting", *AGU Geophysical Monograph 170*, R. E. Abercrombie, A. McGarr, G. Di Toro, and H. Kanamori, eds., 199-206.
8. Haney, M. M. and van Wijk, K., 2007, Modified Kubelka-Munk equations for localized waves inside a layered medium, *Physical Review E*, **75**, 036601.
9. Snieder, R., Hubbard, S., Haney, M., Bawden, G., Hatchell, P., Revil, A., and the DOE Geophysical Monitoring Working Group, 2007, Advanced non-invasive geophysical monitoring techniques, *Annual Review of Earth and Planetary Sciences*, **35**, 653-683.
10. Haney, M. M., Snieder, R., Ampuero, J.-P., and Hofmann, R., 2007, Spectral-element modeling of fault-plane reflections arising from fluid pressure distributions, *Geophysical Journal International*, **170**, 933-951.
11. Haney, M. M., 2007, Generalization of von Neumann analysis for a model of two discrete halfspaces: the acoustic case, *Geophysics*, **72**, SM35-SM46.
12. Snieder, R., van Wijk, K., Haney, M., and Calvert, R., 2008, The cancellation of spurious arrivals in Green's function extraction and the generalized optical theorem, *Physical Review E*, **78**, 036606.
13. Mikesell, D., van Wijk, K., Calvert, A., and Haney, M., 2009, The virtual refraction: useful spurious energy in seismic interferometry, *Geophysics*, **74**, A13-A17.
14. Haney, M. M., van Wijk, K., Preston, L. A., and Aldridge, D. F., 2009, Observation and modeling of source effects in coda wave interferometry at Pavlof volcano, *The Leading Edge*, **28**, 554-560.

15. Larsen, J., Neal, C., Webley, P., Freymueller, J., Haney, M., McNutt, S., Schneider, D., Prejean, S., Schaefer, J., and Wessels, R., 2009, Eruption of Alaska Volcano Breaks Historic Pattern, *EOS, Transactions, American Geophysical Union*, **90**, 173-174.

#### **ACCEPTED OR UNDER REVIEW**

- Li, Y., Shearer, S., Haney, M., and Dannemiller, N., 2009, Comprehensive approaches to 3D inversion of magnetic data affected by remanent magnetization, accepted by *Geophysics*.
- Masterlark, T., Haney, M. M., Dickinson, H., Fournier, T., and Searcy, C., 2009, Rheologic and structural controls on the deformation of Okmok volcano, Alaska from InSAR and ambient seismic noise, under review by *Journal of Geophysical Research*.
- Haney, M. M., 2009, Rayleigh wave modeling and inversion using Lysmer's method, under review by *Geophysics* (Software and Algorithms section).

#### **IN PREPARATION**

- Haney, M. M., 2009, Locating VLP tremor from the 2008 eruption of Okmok Volcano, Alaska with waveform-similarity-based interstation arrival times, to be submitted to *Journal of Geophysical Research* special issue on the 2008 Aleutian island eruptions.
- Haney, M. M., Power, J., and West, M., 2009, Instrument responses at the Alaska Volcano Observatory, to be submitted to *Seismological Research Letters*.
- Haney, M. M. and van Wijk, K., 2009, Dynamic aspects of apparent attenuation and wave localization in layered media, to be submitted to *Geophysical Journal International*.

#### **PUBLISHED REPORTS**

- Bartel, L. C., Aldridge, D. F., Symons, N. P., and Haney, M. M., 2008, Reverse-time seismic and acoustic wave propagation: high-fidelity subsurface imaging, Sandia National Laboratories Report, SAND2008-0159.
- Aldridge, D. F. and Haney, M. M., 2008, Numerical dispersion for the conventional staggered-grid finite-difference elastic wave propagation algorithm, Sandia National Laboratories Report, SAND2008-4991.

## CONFERENCE PROCEEDINGS

- Haney, M. and Li, Y., 2002, Total magnetization direction and dip from multiscale edges, *72nd Ann. Internat. Mtg. Soc. Expl. Geophys. Expanded Abstracts*, 735-738.
- Haney, M., Sheiman, J., Snieder, R., Naruk, S., Busch, J., and Wilkins, S., 2003, Fault-plane reflections as a diagnostic of pressure differences in reservoirs: a case study, *73rd Ann. Internat. Mtg. Soc. Expl. Geophys. Expanded Abstracts*, 362-365.
- Haney, M., Johnston, C., Li, Y., and Nabighian, M. N., 2003, Envelopes of magnetic data in 2D and 3D and their relationship to the analytic signal: Preliminary results, *73rd Ann. Internat. Mtg. Soc. Expl. Geophys. Expanded Abstracts*, 596-599.
- van Wijk, K., Haney, M., Snieder, R., and Scales, J., 2003, Radiative transfer in 1D and the connection to the O'Doherty-Anstey formula, *73rd Ann. Internat. Mtg. Soc. Expl. Geophys. Expanded Abstracts*, 1809-1812.
- Haney, M. and Snieder, R., 2003, Breakdown of Diffusion in 2D due to Loops, *EOS Trans. AGU 84(46), Fall Meet. Suppl., Abstract S11E-0336*.
- Haney, M., Sheiman, J., Snieder, R., Naruk, S., Busch, J., and Wilkins, S., 2004, Fault-plane reflections as a diagnostic of pressure differences in reservoirs - South Eugene Island, offshore Louisiana, in: *Proceedings of the EAGE conference "Fault and Top Seals"*, O-07, EAGE, Houten.
- Haney, M., Snieder, R., and Sheiman, J., 2004, Seismic detection of a spatially-limited fluid pulse ascending a growth fault: modeling and interpretation, *74th Ann. Internat. Mtg. Soc. Expl. Geophys. Expanded Abstracts*, 394-397.
- Li, Y., Shearer, S., Haney, M., and Dannemiller, N., 2004, Comprehensive approaches to the inversion of magnetic data with strong remanent magnetization, *74th Ann. Internat. Mtg. Soc. Expl. Geophys. Expanded Abstracts*, 1191-1194.
- Haney, M., Snieder, R., Sheiman, J., and Losh, S., 2004, First seismic observation of a fluid pulse propagating along a fault, *EOS Trans. AGU 85(47), Fall Meet. Suppl., Abstract T23A-0565*.
- Li, Y., Shearer, S., Haney, M., and Dannemiller, N., 2005, Recent Advances in Quantitative Interpretation of Magnetic Data in the Presence of Strong Remanent Magnetization, *EOS Trans. AGU 86(18), Jt. Assem. Suppl., Abstract GP24A-01*.
- Haney, M. M, Snieder, R., and Ampuero, J.-P., 2005, Spectral-element modeling of fault-plane reflections arising from fluid pressure distributions, *EOS Trans. AGU 86(18), Jt. Assem. Suppl., Abstract S41C-02*.
- Dewangan, P., Tsvankin, I., Batzle, M., van Wijk, K., and Haney, M., 2005, PS-wave moveout inversion for tilted TI media: A physical modeling study, *75th Ann. Internat. Mtg. Soc. Expl. Geophys. Expanded Abstracts*, 877-880.
- Haney, M. M., Snieder, R., and Hofmann, R., 2005, Well log analysis of pore pressure mechanisms near a minibasin-bounding growth fault at South Eugene Island field, offshore Louisiana, *75th Ann. Internat. Mtg. Soc. Expl. Geophys. Expanded Abstracts*, 1231-1234.

- Haney, M. M., Bartel, L. C., Aldridge, D. F., and Symons, N. P., 2005, Insight into the output of reverse time migration: what do the amplitudes mean?, *75th Ann. Internat. Mtg. Soc. Expl. Geophys. Expanded Abstracts*, 1950-1953.
- Haney, M. M., Aldridge, D. F., and Symons, N. P., 2005, Numerical dispersion, stability, and phase speed for 3D time-domain finite-difference seismic wave propagation algorithms, *EOS Trans. AGU 86(47), Fall Meet. Suppl., Abstract S13A-0185*.
- Haney, M. M., Abbott, R. E., Symons, N. P., Bartel, L. C., and Aldridge, D. F., 2006, Evaluation of Statistical Techniques for Seismic Wavelet Extraction via 3D Elastic Modeling, *SSA Annual Meeting*.
- Haney, M. M., Fredrich, J. T., Zadler, B. J., Scales, J. A., and Aldridge, D. F., 2006, Numerical simulation of resonances in microtomographic models, *76th Ann. Internat. Mtg. Soc. Expl. Geophys. Expanded Abstracts*, 1841-1844.
- Bartel, L. C., Haney, M. M., Aldridge, D. F., Symons, N. P., and Elbring, G. J., 2006, Modeling of time-lapse seismic reflection data from CO<sub>2</sub> sequestration at West Pearl Queen Field, *EOS Trans. AGU 87(52), Fall Meet. Suppl., Abstract H51E-0530*.
- Aldridge, D. F., Symons, N. P., and Haney, M. M., 2006, Finite-Difference Numerical Simulation of Seismic Gradiometry, *EOS Trans. AGU 87(52), Fall Meet. Suppl., Abstract S23B-0159*.
- Haney, M. M. and Fredrich, J. T., 2006, Pore-scale simulations of resonances using full-waveform finite-difference numerical modeling, *EOS Trans. AGU 87(52), Fall Meet. Suppl., Abstract H53G-08*.
- Fredrich, J. T., Haney, M. M., and White, J. A., 2007, Predicting Petrophysical Properties Using 3D Image Data, *2007 AAPG Annual Convention and Exhibition*.
- van Wijk, K. and Haney, M., 2007, Energy propagation and localization in disordered media, *153rd Meeting of the Acoustical Society of America, Abstract 2pUW3*.
- Haney, M. M., 2007, Monitoring and imaging Alaska volcanoes using seismic noise, *EOS Trans. AGU 88(52), Fall Meet. Suppl., Abstract V53C-1414*.
- Snieder, R., van Wijk, K., and Haney, M. M., 2007, Spurious arrivals in seismic interferometry, *EOS Trans. AGU 88(52), Fall Meet. Suppl., Abstract S53B-1266*.
- van Wijk, K. and Haney, M. M., 2007, Modification of radiative transfer theory to include wave interference, *EOS Trans. AGU 88(52), Fall Meet. Suppl., Abstract S53B-1261*.
- Schwaiger, H. F., Aldridge, D. F., and Haney, M. M., 2007, Full waveform 3D synthetic seismic algorithm for 1D layered anelastic models, *EOS Trans. AGU 88(52), Fall Meet. Suppl., Abstract S41A-0238*.
- Haney, M. M. and van Wijk, K., 2008, Dynamic aspects of apparent attenuation and wave localization in layered media, *78th Ann. Internat. Mtg. Soc. Expl. Geophys. Expanded Abstracts*, 2963-2967.
- Khatiwada, M., van Wijk, K., Clement, W. P., and Haney, M., 2008, Numerical modeling of time-lapse monitoring of CO<sub>2</sub> sequestration in a layered basalt reservoir, *78th Ann. Internat. Mtg. Soc. Expl. Geophys. Expanded Abstracts*, 3189-3193.

- van Wijk, K., Calvert, A., Haney, M., Mikesell, D., and Snieder, R., 2008, The critical angle in seismic interferometry, *78th Ann. Internat. Mtg. Soc. Expl. Geophys. Expanded Abstracts*, 2737-2741.
- Haney, M. M., Fournier, T., and Searcy, C., 2008, Seismic estimates of the depth of the magma chamber and low-frequency tremor during the 2008 eruption of Okmok Volcano, Alaska, *EOS Trans. AGU 89(53), Fall Meet. Suppl., Abstract A51J-04*.
- Mikesell, T. D., van Wijk, K., Calvert, A., and Haney, M., 2008, The virtual refraction: useful spurious energy in seismic interferometry, *EOS Trans. AGU 89(53), Fall Meet. Suppl., Abstract S31A-1898*.
- van Wijk, K., Khatiwada, M., and Haney, M., 2008, Numerical modeling of time-lapse seismic monitoring of CO<sub>2</sub> sequestration in layered basalt, *EOS Trans. AGU 89(53), Fall Meet. Suppl., Abstract S51A-1736*.
- Prejean, S., Haney, M., Pesicek, J., and Thurber, C., 2008, Seismicity and Structure of the Katmai Volcanic Cluster, Alaska, Revealed, *EOS Trans. AGU 89(53), Fall Meet. Suppl., Abstract V54A-07*.
- Masterlark, T., Haney, M., Dickinson, H., Fournier, T., and Searcy, C., 2009, Rheologic and structural controls on the deformation of Okmok volcano, Alaska, from InSAR and ambient seismic noise, *Geological Society of America Abstracts with Programs*, Vol. 41, No. 1, p. 9, Paper No. 5-3.
- Haney, M. M. and Prejean, S., 2009, Imaging shallow magma chambers at Alaskan volcanoes with ambient seismic noise, *EOS Trans. AGU 90(22), Jt. Assem. Suppl., Abstract V31E-04*.

## ORAL PRESENTATIONS AT INTERNATIONAL CONFERENCES

- Total magnetization direction and dip from multiscale edges: Oral presentation at the 2002 SEG Convention, Salt Lake City, UT.
- Fault-plane reflections as a diagnostic of pressure differences in reservoirs: a case study: Oral presentation at the 2003 EAGE conference on *Fault and Top Seals* Montpellier, France.
- Envelopes of magnetic data in 2D and 3D and their relationship to the analytic signal: Oral presentation at the 2003 SEG Convention, Dallas, TX.
- Reflections from a sealing fault: Oral presentation at the 2003 SEG Convention, Dallas, TX.
- Seismic detection of a spatially-limited fluid pulse ascending a growth fault: modeling and interpretation: Oral presentation at the 2004 SEG Convention, Denver, CO.
- Well log analysis of pore pressure mechanisms near a minibasin-bounding growth fault at South Eugene Island field, offshore Louisiana: Oral presentation at the 2005 SEG Convention, Houston, TX.
- Insight into the output of reverse time migration: what do the amplitudes mean?: Oral presentation at the 2005 SEG Convention, Houston, TX.
- Numerical simulation of resonances in microtomographic models: Oral presentation at the 2006 SEG Convention, New Orleans, LA.
- Pore-scale simulations of resonances using full-waveform finite-difference numerical modeling: Oral presentation at the 2006 AGU Fall Meeting, San Francisco, CA.
- Dynamic aspects of apparent attenuation and wave localization in layered media: Oral presentation at the 2008 SEG Convention, Las Vegas, NV.
- Seismic estimates of the depth of the magma chamber and low-frequency tremor during the 2008 eruption of Okmok Volcano, Alaska: Oral presentation at the 2008 AGU Fall Meeting, San Francisco, CA.
- Imaging shallow magma chambers at Alaskan volcanoes with ambient seismic noise: Invited oral presentation at the 2009 AGU Joint Assembly, Toronto, Canada.
- Seismic velocity structure at the volcanoes of Katmai, Alaska, from local earthquakes and ambient noise: Oral presentation at the 2009 JKASP Workshop, Fairbanks, AK.

## ORAL PRESENTATIONS TO RESEARCH GROUPS

- Remote sensing of fault zones from seismic data: Oral presentation for the Geosciences Department, Princeton University, Princeton, NJ, July 2003.
- The dual nature of faults as seen in seismic images: Oral presentation for the Department of Geosciences, Boise State University, Boise, ID, October 2006.
- The dual nature of faults as seen in seismic images: Oral presentation for the Earth and Environmental Science Department, New Mexico Tech, Socorro, NM, February 2007.
- Applying recent advances in seismic wave propagation to volcano monitoring and imaging: Oral presentation for the Geophysical Institute, University of Alaska-Fairbanks, April 2007.
- Using Microseismic Noise and Seismic Coda Waves to Monitor and Image Mount Spurr Volcano, Alaska: Oral presentation for the 2007 USGS Volcano Hazards Team Seminar Series, Menlo Park, CA, June 2007. Video available at <http://volcanoes.usgs.gov/seminar.html>
- Interferometric techniques for monitoring and imaging Alaskan volcanoes: Oral presentation for the Geophysics Group of the Earth Sciences Division, Lawrence Berkeley National Laboratory, December 2007.
- Shear statics by HZ ratio inversion of Rayleigh waves: Oral presentation for the Stanford Exploration Project, Stanford University, April 2009.
- Volcano monitoring and imaging in the microseismic band: Oral presentation for the Department of Geophysics, Stanford University, April 2009.

## POSTER PRESENTATIONS AT INTERNATIONAL CONFERENCES

- Breakdown of wave diffusion in 2D due to loops: Poster presentation at the 2002 NATO-ASI conference *Multiple scattering: from theory to applications*, Corsica, France.
- Seismic detection and time-lapse tracking of a fluid pulse ascending a growth fault: Poster presentation at the 2004 *Mathematical Geophysics Summer School*, Golden, CO.
- First seismic observation of a fluid pulse propagating along a fault: Poster presentation at the 2004 AGU Fall Meeting, San Francisco, CA.
- Spectral element modeling of fault-plane reflections arising from fluid pressure distributions: Poster presentation at the 2005 AGU Joint Assembly, New Orleans, LA.
- Numerical dispersion, stability, and phase speed for 3D time-domain finite-difference seismic wave propagation algorithms: Poster presentation at the 2005 AGU Fall Meeting, San Francisco, CA.
- Monitoring and imaging Alaska volcanoes using seismic noise: Poster presentation at the 2007 AGU Fall Meeting, San Francisco, CA.
- The structure of magma chambers and time-lapse changes at Alaskan volcanoes detected from the ambient seismic field: Poster presentation at the 2009 Earthscope National Meeting, Boise, ID.