**Curriculum Vitae**

Nicholas Harmon

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**Education:**

Ph.D. Brown University, 2007

M.S. Brown University, 2004

B.A. Boston University, 2000, *Summa Cum Laude*

**Professional Experience:**

2022-Present – Research Specialist, Woods Hole Oceanographic Institution, Woods Hole, MA

2017-Present – Associate Professor, University of Southampton, Southampton, UK

* 2021-2022 Programme Lead Geophysics Undergraduate Programs
* 2017-2021 Programme Lead Masters of Research Programs

2009-2017 – Lecturer in Geophysics, University of Southampton, Southampton, UK

2007-2008 – RIDGE 2000 Postdoctoral Fellow, SIO/IGPP, La Jolla, CA

* Integrating numerical geodynamics and seismology to build site specific mantle flow models and seismic anisotropy models for the Lau Spreading Center.

Fall 2006 – Intern, Exxon Mobil Corporation, Houston, TX

* Optimized stacking procedures for seismic reflection imaging beneath salt bodies.

2001-2006 – Research Assistant, Brown University, Providence, RI

2000-2001 – Research Assistant, Boston University, Boston, MA

* Determined the depth to the subducted slab beneath volcanic arcs using earthquake locations. Supervised by Professor G. Abers

2000-2001 – Research Associate, Circles Incorporated, Boston, MA

* Performed product, travel, and leisure research for American Express Platinum and Centurion Card members
* Generated reports synthesizing the results of research for clientele
* Maintained database

**Teaching Experience:**

Fall 2013-2021 – Applied and Marine Geophysics (SOES 6004), University of Southampton

Fall 2012 – Computational Data Analysis (SOES 3042), University of Southampton

Fall 2011,2014,2016-21 – Geophysical Field Methods (SOES 3021), University of Southampton

Fall 2009-2021 – Geodynamics and Solid Earth Geophysics (SOES 6037), University of Southampton

Spring 2009-2011 – Geophysical Research Training (SOES 3022), University of Southampton

Spring 2009,2010 – Advanced Geological Field Skills (SOES 2022), University of Southampton

Spring 2010-2014,2016-22 – Geohazards and Earth Resources (SOES 2003), University of Southampton

Spring 2005 – Teaching Assistant for Oceanography, Brown University

Spring 2005 – Science Outreach Teacher Vartan Gregorian Elementary School, Providence, RI

* Collaborated with fellow graduate students to present science activities to two 4th grade classes

Fall 2004 – Teaching Assistant for Solid Earth Geophysics, Brown University

1997-2000 – Teachers Aide for Boston University Initiative for Literacy Development in Boston Public Schools, Boston MA

* Worked with special needs 1st grade children in Farragut Elementary School in Roxbury, Boston to develop basic literacy and arithmetic skills.

**Teaching Qualifications:**

May 2012 – Fellow of the Higher Education Academy

Fall 2011 – Post Graduate Certificate in Academic Practice, Module 2, University of Southampton

Fall 2009 – Post-Graduate Certificate in Academic Practice, Module 1, University of Southampton

Spring 2005 – The Harriet W. Sheridan Center for Teaching and Learning Certificate I, Brown University

* Through a year long series of lectures and workshops developed a reflective teaching style

**Field Experience:**

May 2017 – Scientist RRS James Cook Leg 149

* Recovered 33 broadband Ocean Bottom Seismometers in the Lesser Antilles Arc

March 2016 – Chief Scientist RV Langseth MGL1602

* Deployed 39 broadband Ocean Bottom Seismometers and 39 Ocean Bottom Magnetotelluric Instruments.
* Mapped the eastern half of the Chain Fracture Zone.

May 2015 – Seismic Service Run, Papua New Guinea

* Serviced and recovered data from 8 broadband seismometers

Nov 2014 – Seismic Field Deployment, Papua New Guinea

* Deployed 8 broadband seismometers

Sept 2008 – Calabrian Arc Summer School

* Through lectures and field trips explored the development of the Calabrian Arc from geophysical, geological and geodynamic perspectives

April 2006 – Research Cruise – RV Knorr

* Oversaw the collection of underway geophysical data,
* Collected rock samples using dredge
* Assisted in collecting towed yo-yoing MAPR data over volcanically active 9N section of EPR

May 2005 – RIDGE 2000 Troodos Ophiolite Field School

* Through a series of lectures and field trips examined the stratigraphy of the Troodos Ophiolite

Nov-Dec 2002 – Research Cruise – Vancouver 4 Leg on RV Melville

* Oversaw the collection of underway geophysical data, merged data with pre-existing dataset
* Collected rock samples using dredge
* Recovered Ocean Bottom Seismometers

Nov-Dec 2001 – Research Cruise – Cook 16 Leg on RV Melville

* Stood watch, insuring that all underway geophysical equipment was functioning properly
* Collected rock samples using a dredge and wax corer
* Deployed and Recovered Ocean Bottom Seismometers

Summer 2000 – Summer of Applied Geophysical Experience (SAGE) workshop

* Learned shallow earth geophysical techniques and theory
* Applied lecture material to conduct original research using a variety of geophysical techniques, including gravity, GPR, seismic reflection, seismic refraction, electromagnetics, and magnetotellurics, in the Santa Fe River Canyon, New Mexico.

**Honors and Awards:**

AGU, Outstanding Student Paper Award, Tectonophysics, Fall Meeting, 2006

Brown University Dissertation Fellowship 2005

Phi Beta Kappa, 2000

Boston University Geology Prize, 2000

Eagle Scout, 1996

**Service Activities:**

Nov 2014 ­ Organized: “Workshop for Modelling Flow around Ocean Bottom Seismometers”, Woods Hole, MA, USA

* Through a series of tutorials, demonstrated computational fluid dynamics techniques for modeling seismometer-ocean current interaction, with OBS groups from Scripps, WHOI, Lamont Doherty, U. Tokyo and Nanometrics participating.

Sept 2009 – Organized: “Workshop for the Development of a Broadband Ocean Bottom Seismometer Pool for the UK”, Southampton, UK

* Raised awareness of the capabilities and limitations of current broadband OBS instrumentation for the UK geophysical community through talks from leaders in the field from JAMSTEC, IFM-GEOMAR, and Lamont Doherty Earth Observatory.
* Developed strategy for upgrading current Ocean Bottom Instrumentation Facility to include broadband seismic instrumentation.

**Funding:**

2022 – “Urgency: An OBS Survey in Response to the September 2021, Cumbre Vieja Volcano unrest and eruption, La Palma, Canary Islands”, Natural Environment Research Council, Award: £72,220

* Deployment of 10 ocean bottom seismometers in response to La Palma eruption, funding withdrawn due to COVID.

2016-2019 – “Passive Imaging of the Lithosphere Asthenosphere Boundary (PiLAB)” Natural Environment Research Council, Award: £839,294

* Interdisciplinary study to investigate the lithosphere-asthenosphere beneath the Atlantic Ocean.

2014-2015 – “How do subduction zones initiate, develop and end: Imaging the Reversal of Subduction in the Solomon Islands” Natural Environment Research Council, Award: £64,987

* Seismic investigation of subduction reversal in Papua New Guinea/Solomon Islands.

2015-2018 – “Volatile recycling at the Lesser Antilles arc: Processes and Consequences”, Natural Environment Research Council, Award: £649,511

* Multidisciplinary Investigation into volatile storage and release in the Lesser Antilles subduction zone system.

2010-2012 – “Reduction of noise on broadband ocean-bottom seismographs through sensor design optimization using numerical and laboratory studies”, Natural Environment Research Council, Total Award: £132,997

* Constructing Broadband Ocean Bottom Seismometer Pool in conjunction with UK’s Natural Environment Research Council’s Ocean Bottom Instrument Facility.

**Student Supervision:**

*Masters*

Ben Wilkins 2010, Amy Stewart 2011, Daniel Drummond 2012, Kenneth Wong 2013, Lyssia Elmy 2013, Isaac Owen 2013, Emily Perkins 2014, Ben Chichester 2016, Joseph Asplet, 2017, Callum Rollo 2017, Thomas Austen, 2020, Nathan Heath, 2022, Alexander Hayers, 2022

*PhD*

Saikiran Tharimena 2016, Thomas Hall 2016, Ryan Gallacher 2017, Jennifer Neale, 2017, Aude Lavayssie 2019, Daniel Possee, 2019, Emma Chambers 2020, Ben Chichester 2022, Yuhang Dai expected 2024, William Buffet expected 2024

**Postdoctoral Supervision:**

Savas Ceylon, 2014, Caroline Eakin, 2014-2016, Matthew Agius, 2015-2017, Stephen Hicks 2017-2019, Petros Bogiatzis 2017-2022, Utpal Saikia 2019-2021, Yujiang Xie 2019-2022, Konstantinos Leptokaropoulos, 2020-2022

**Publications:**

1. Hicks, S., Bie, L., Rychert, C. A., Harmon, N., Goes, S., Rietbrock, A., Wei., S., Collier, J., Henstock, T., Lynch, L., Prytulak, J., MacPherson, C., Schlaphorst, D., Wilkinson, J., Blundy, J., Cooper, G., Davy, R., Kendall, M., 2022. Slab to back-arc to arc: fluid and melt pathways through the mantle wedge beneath the Lesser Antilles, *Science Advances, in revision*
2. Xie, Y., Rychert,C. A. and Harmon, N, 2022. 2-D elastic and anelastic adjoint tomography using Frechet and full Hessian kernels*, Geophys. J. Int., in revision*
3. Leptokaropoulos, Rychert., C. A., Harmon, N., Kendall, J. M., 2022. Seismicity properties of the Chain Transform Fault inferred using data from the PI-LAB experiment, *J. Geophys. Res., in revision*
4. Dai, Y., Rychert, C. A., Harmon, N. , 2022. Slow deep mantle upwelling coupled to upper mantle dynamics below Cascadia, *submitted to Science Advances*
5. Schlaphorst, D., Rychert, C. A. , Harmon, N. Kendall, , J. M. , Hicks, S. , Bogiatzis, P. ,and Abercrombie,R., 2022. Local seismicity around the Chain Transform Fault at the Mid-Atlantic Ridge from OBS observations, *Geophs J Int, in revision*
6. Leptokaropoulos, Rychert., C. A., Harmon, N., Schlaphorst, D., Grevemeyer, I, Kendall, J. M., Singh, S. C., 2022. Broad transform fault deformation zones enable greater amounts of hydrothermal alteration which results in small deep earthquakes and fault segmentation, *submitted to Nature Communications*
7. Lindner, M., Rietbrock, A., Hicks, S., Collier, J., Goes, S., Harmon, N., Rychert, C. A., Henstock, T., 2022. Bayesian regional moment tensor from ocean bottom seismograms recorded in the Lesser Antilles: Implications for regional stress field, *Geosphys. J. Int., submitted*
8. Harmon, N., Laske, G., Crawford, W.C., Rychert, C. A., 2022. Tilt Corrections for Normal Mode Observations on Ocean Bottom Seismic Data, an example from the PI-LAB experiment, *Seismica, accepted*
9. Harmon, N., Masoudi, A., Rychert, C. A., Davis, J., Buffett, W., Chichester, B., Dai, Y., Brambilla, G., Bogiatzis, P., Snook, J., van Putten, Lieke, 2022. Coupling methods for surface deployment of DAS systems, *Near Surface Geophysics*, doi://*10.1002/nsg.12232*
10. Chambers, E., Harmon, N., Keir, D. and Rychert, C. A., 2022. A joint inversion of Rayleigh waves from teleseisms and ambient noise tomography to image the northern East African Rift, *Geophys. J. Int., 230(3), 2036-2055. doi:10.1093/gji/ggac156.*
11. Bie, L., Hicks, S., Rietbrock, A., Goes, S., Collier, J., Rychert, C. A., Harmon, N., Maunder, B., Voila Team, 2022. Imaging slab-transported fluids and their deep dehydration from seismic velocity tomography in the Lesser Antilles subduction zone, *Earth and Plan. Sci. Lett., 586, 117535.* [*doi:https://doi.org/10.1016/j.epsl.2022.117535.*](doi:https://doi.org/10.1016/j.epsl.2022.117535.)
12. Harmon, N., Rychert C. A., Xie, Y, Bogiatzis, P., 2022. 2-D Analytical P-to-S and S-to-P finite frequency kernels, *Geochem, Geophys, Geosys*  10.1029/2021GC010290
13. Bogiatzis, P., Rychert, C. A., Harmon, N., Xie, Y., 2022. Fast calculation of spatial sensitivity kernels for converted waves in arbitrary heterogeneous media using graph theory, *Geophys. J. Int.* doi:10.1093/gji/ggac078
14. Geersen, J., Sippl, C., and Harmon, N., 2022. Impact of bending related faulting and oceanic plate topography on slab hydration and intermediate depth seismicity, *Geosphere,* https://doi.org/10.1130/GES02367.1
15. Saikia, U., Harmon, N., Rychert, C. A., Kendall, J. M., 2021, Seismic attenuation at the equatorial Mid-Atlantic Ridge constrained by local Rayleigh wave analysis from the PI-LAB experiment, *Geochem, Geophys, Geosys., 22, e2021GC010085.* [*https://doi.org/10.1029/2021GC010085*](https://doi.org/10.1029/2021GC010085)
16. Hier-Majumder, S., Ballmer, M. D. , Agius, M., Rychert, C. A. and Harmon, N., 2021. Melt leakage from the Hawaiian Plume above the mantle transition zone,  *Phys. Earth Plan. Inter.* 321, 106813. <doi:https://doi.org/10.1016/j.pepi.2021.106813>
17. Leptokaropoulos, K., Harmon, N., Hicks, S., Rychert, C. A., Schlaphorst, D., Kendall, J. M., 2021, Tidal triggering of microseismicity at the equatorial Mid-Atlantic Ridge, inferred from OBS network, *J. Geophys. Res., e2021JB022251.* [*doi:https://doi.org/10.1029/2021JB022251*](doi:https://doi.org/10.1029/2021JB022251)
18. Chambers, E., Harmon, N. , Rychert, C. A. and Keir, D., 2021. Variations in melt emplacement beneath the northern East African Rift from radial anisotropy, *Earth & Planet. Sci. Lett., 573, 117150.* [*doi:https://doi.org/10.1016/j.epsl.2021.117150*](doi:https://doi.org/10.1016/j.epsl.2021.117150)
19. Harmon, N., Wang, S., Rychert C.A., Constable, S., and Kendall, J. M., 2021.Shear velocity inversion guided by resistivity structure from the PI-LAB Experiment for integrated estimates of partial melt in the mantle, *J. Geophys.* Res., [*https://doi.org/10.1029/2021JB022202*](https://doi.org/10.1029/2021JB022202)
20. Rychert, C. A., N. Harmon, 2021 Fluid-rich extinct volcanoes cause small earthquakes beneath New Zealand, *Nature,* ***595****, 178-179, doi:* [*https://doi.org/10.1038/d41586-021-01703-7*](https://doi.org/10.1038/d41586-021-01703-7)
21. Xie, Y., Rychert, C. A., Harmon,N., Liu, Q.and Gajewski, D., 2021 On-the-fly full hessian kernel calculations based upon seismic wave simulations*, Seism. Res. Lett.,* [*https://doi.org/10.1785/0220200410*](https://doi.org/10.1785/0220200410)
22. Bogiatzis, P., C. A. Rychert**,** N. Harmon 2021. Multiple Graph Realizations method: Improving the accuracy and the efficiency of the Shortest Path Method through random sampling*, Geophys. J. Int.,* 227 *(1)* [*https://doi.org/10.1093/gji/ggab247*](https://doi.org/10.1093/gji/ggab247)
23. Possee, D., Rychert, C. A., Harmon, N. and Keir, D., 2021 Seismic Discontinuities across the North American Caribbean Plate Boundary from S-to P- Receiver Functions, *Geochem., Geophys., Geosys, 22, e2021GC009723.* [*https://doi.org/10.1029/2021GC009723*](https://doi.org/10.1029/2021GC009723)
24. B. Braszus, Allen, R. , Goes, S. , Rietbrock, A. , Collier, J. , Harmon, N., Henstock, T., Hicks, S. , Rychert**,,** C. A. Maunder, B. , van Hunen,. J., Bie, L., Blundy, J.,   Cooper, G., Davy, R., Kendall, J. M. , Macpherson, C.,   Wilkinson, J. , Wilson, M 2021 Subduction history of the Caribbean from upper mantle seismic imaging and plate reconstruction, *Nature Comm.,* ***12,*** *4211* [*https://doi.org/10.1038/s41467-021-24413-0*](https://doi.org/10.1038/s41467-021-24413-0)
25. Schlaphorst, D., Harmon, N., Kendall, J. M., Rychert, C. A. et al., 2021 Variation in crustal and upper mantle structure in the Greater and Lesser Antilles from ambient noise tomography, *Geochem., Geophys., Geosys.,* *doi:10.1029/2021GC009800.*
26. Harmon, N., Rychert, C. A. , Maunder, B., Goes, S. et al., 2021. Widespread hydration of the back arc and the link to variable hydration of the incoming plate in the Lesser Antilles from Rayleigh Wave imaging, *Geochem., Geophys., Geosys.* 22, e2021GC009707. <https://doi.org/10.1029/2021GC009707>
27. Rychert, C. A**.**, Harmon, N., Kendall, J. M., Constable, S., Tharimena, S., Wang, S., Bogiatzis, P., Schlaphorst, D., Agius, M., 2021. A dynamic lithosphere-asthenosphere boundary near the equatorial Mid-Atlantic Ridge,  *Earth and Planetary Science Letters 566, 116949.* [*doi:https://doi.org/10.1016/j.epsl.2021.116949*](doi:https://doi.org/10.1016/j.epsl.2021.116949)
28. Saikia, U., Harmon, N., Rychert, C. A., Kendall, J. M., 2021, Upper mantle anisotropic shear velocity structure at the equatorial Mid-Atlantic Ridge constrained by Rayleigh wave group velocity analysis from the PI-LAB experiment *Geochem, Geophys., Geosys*. <https://doi.org/10.1029/2020GC009495>
29. Agius, M.,  Rychert, C. A., Harmon, N., Tharimena, S. , Kendall, J. M.,  2021. Transition zone Thinning beneath the Mid-Atlantic Ridge suggests whole mantle convection, *Nature,* 589, p562-566, [*https://doi.org/10.1038/s41586-020-03139-x*](https://doi.org/10.1038/s41586-020-03139-x)
30. Rychert, C.A., Harmon, N., Constable, S., Wang, S., 2020 The Nature of the Lithosphere-Asthenosphere Boundary, *Journal of Geophysical Research,* https://doi.org/10.1029/2018JB016463
31. Harmon, N., Rychert, C. A., Kendall, J. M., Aguis, M., Bogiatzis, P., and Tharimena, S., 2020 Evolution of the Oceanic Lithosphere in the equatorial Atlantic from Rayleigh Wave Tomography, evidence for small-scale convection from the PI-LAB experiment, *Geochem, Geophys., Geosys*. <https://doi.org/10.1029/2020GC009174>
32. Wang, S., Constable, S., Rychert, C. A., Harmon, N., 2020 A lithosphere-asthenosphere boundary and partial melt estimated using marine magnetotelluric data at the central Middle Atlantic Ridge, *Geochem., Geophys., Geosys.,* <https://doi.org/10.1029/2020GC009177>
33. Hicks, S., Okuwaki, R., Steinberg, A., Rychert, C. A., Harmon, N., Abercrombie, R., Bogiaztis, P., Schlaphorst, S., Zahradnik, J., Kendall, J. M., Yagi, Y., Shimizu, K., Sudhaus, H., 2020. Back-propagating super-shear rupture in the 2016 M7.1 Romanche transform fault earthquake, *Nature Geoscience,* **13**, 647–653, <https://doi.org/10.1038/s41561-020-0619-9>
34. Chichester, B., Rychert, C. A., Harmon, N., Allen, R., Collier, J., Henstock, T., Rietbrock, A., 2020 Seafloor sediment thickness beneath the VoiLA broadband ocean-bottom seismometer deployment in the Lesser Antilles from P-to-S delay times, Geophys. J. Int., https://doi.org/10.1093/gji/ggaa360
35. Davy, R., Collier, J., Henstock, T., The VOILA Consortium, Wide‐angle seismic imaging of two modes of crustal accretion in mature Atlantic Ocean crust, *In Press* *J. Geophys. Res*. https://doi.org/10.1029/2019JB019100
36. Possee, D., Keir, D., Harmon, N., Rychert, C. A., Eakin, C., Rolandone, F., Leroy, S., Corbeau, J., Stuart, G., Boisson, D., Momplaisir, R., Prepetit, C. 2020. Spatial variations in Crustal and Mantle Anisotropy Across the North American-Caribbean Boundary on Haiti,  *J. Geophys. Res.* 125, <https://doi.org/10.1029/2019JB018438>
37. Bogiatzis, P., Karamitrou, A., Neale, J. Harmon, N., Rychert, C. A., Srokosz, M. 2020. Source Regions of Infragravity Waves Recorded at the Bottom of the Equatorial Atlantic Ocean, using OBS of the PI-LAB Experiment, *J. Geophy. Res.* https://doi.org/10.1029/2019JC015430
38. Saikia, U., Harmon, N., Rychert, C.A., Kendall, J. M., 2020 Sediment Structure at the Equatorial Mid-Atlantic Ridge Constrained by Seafloor Admittance using data from the PI-LAB experiment, *Marine Geophysical Research* **41** (3), <https://doi.org/10.1007/s11001-020-09402-0>
39. Cooper, G., Macpherson, C. G.,Blundy, J. D., Iveson, A. A., Harmon, N., Bie, L., Collier, J., Davidson, J. P., Goes, S., Henstock, T. J., Kendall, J. M., Rietbrock, A., Rychert, C. A., van Hunen, J., Wilkinson, J. J. 2020. Along-arc variation in subducted water source and flux beneath the Lesser Antilles,  **582***,* 525–529, *Nature* https://doi.org/10.1038/s41586-020-2407-5
40. Bie, L., Rietbrock, A., Hicks, S., Garth, T., Allen, R., Goes, S., Collier, J., Rychert, C. A., Harmon, N. and The VOILA PI Team, 2019. Along arc heterogeneity in local seismicity across the Lesser Antilles subduction zone from a dense ocean-bottom seismometer network *Seis. Res. Lett.* **91**(1) 237-435, <https://doi.org/10.1785/0220190147>
41. Allen, R., Collier, J., Stewart, A. G., Henstock, T., Goes, S., Rietbrock, A. and The VOILA Team, 2019. The role of arc migration in the development of the Lesser Antilles: A new tectonic model for the Cenozoic evolution of the eastern Caribbean, Geology, 47 (9) 891-895, [doi:10.1130/G46708.1](https://doi.org/10.1130/G46708.1)
42. Harmon, N. , Rychert C. A., Collier, J., Henstock, T., Van Hunen, J., Wilkinson, J. 2019. Mapping Geologic Features onto Subducted Slabs, Geophys. J. Int., 219 (2), 725-733,  [doi:10.1093/gji/ggz290](https://doi.org/10.1093/gji/ggz290)
43. Chambers, E., Harmon, N., Keir, D., Rychert, C. A. 2019 Using Ambient Noise to Image the Northern East African Rift, Geophys. Geochem., Geosys., doi:10.1029/2018GC008129
44. Possee, D., Keir, D., Harmon, N., Rychert, C. A., Roladone, F., Leroy, S., Corbeau, J., Stuart, G., Illsley-Kemp, F., Calais, E., Boisson, D., Momplaisir, R., Prepetit, C., 2018. The Tectonics and Active Faulting of Haiti from Seismicity and Tomography, Tectonics.,38 (3), 1138-1155, doi: 10.1029/2018TC005364
45. Gallacher R., Keir D., Harmon N. 2019. The Nature of Upper Mantle Upwelling During Initiation of Seafloor Spreading in the Southern Red Sea. In: Rasul N., Stewart I. (eds) Geological Setting, Palaeoenvironment and Archaeology of the Red Sea. Springer, Cham, doi:10.1007/978-3-319-99408-6\_6
46. Harmon, N., Rychert, C.A., Agius, M., Tharimena, S., Kendall, J. M., Constable, S. 2018. Marine Geophysical Investigation of the Chain Fracture Zone in the Equatorial Atlantic from the PI-LAB Experiment, J. Geophys. Res., doi: [10.1029/2018JB015982](https://doi.org/10.1029/2018JB015982)
47. Agius, M., Harmon, N., Rychert, C.A., Tharimena, S., Kendall, J. M. 2018. Sediment characterization at the equatorial Mid-Atlantic Ridge from P-to-S teleseismic phase conversions recorded on the PI-LAB experiment. Geophys. Res. Lett., doi:[10.1029/2018GL080565](https://doi.org/10.1029/2018GL080565)
48. Rychert, C. A., Harmon, N., Armitage, J. 2018. Seismic imaging of thickened lithosphere resulting from plume pulsing beneath Iceland, Geochem, Geophys., Geosys.,19, <https://doi.org/10.1029/2018GC007501>
49. Rychert, C. A., Harmon, N., Tharimena, S. 2018. Seismic Imaging of the Base of the Ocean Plates, In: Yuan, H and Romanowicz B. (eds.), Lithospheric Discontinuities AGU Monograph Series, p. 71-88
50. Rychert, C. A., Harmon, N. 2018 Predictions and observations for the oceanic lithosphere from S-to-P receiver functions and SS precursors, Geophysical Research Letters, 45, 5398–5406, <https://doi.org/10.1029/2018GL077675>
51. Chichester, B., Rychert, C. A., Harmon, N., Van Der Lee, S., Fredericksen, A., Zhang, H. 2018. Seismic Imaging of the North American Mid-Continent Rift using S-to-P Receiver Functions, J. Geophys. Res., 123, doi:10.1029/2018JB015771
52. Lavayssière, A, Rychert, C. A., Harmon, N., Keir, D., Hammond, J. O. S., Kendall, J. M., Doubre, C., Leroy, S. 2018. Imaging lithospheric discontinuities beneath the northern East African Rift using S-to-P receiver functions, Geochem, Geophys., Geosys., <https://doi.org/10.1029/2018GC007463>
53. Eakin, C., Rychert, C. A., Harmon, N. 2018. The Role of Oceanic Transform Faults in Seafloor Spreading: A Global Perspective from Seismic Anisotropy, J. Geophys. Res., 123, [doi.org/10.1002/2017JB015176](https://doi.org/10.1002/2017JB015176)
54. Rychert, C. A., Harmon, N., and Tharimena, S. 2018. Scattered Wave Imaging of the Oceanic Plate in Cascadia, Science Advances, 4 (2), doi: 10.1126/sciadv.aao1908
55. Neale, J. Harmon, N. and Srokosz M. 2018. Improving microseismic P-wave source location with multiple seismic arrays, J. Geophys Res, 123, doi:10.1002/2017JB015015
56. Agius, M., Rychert, C. A., Harmon, N., Laske, G. 2017. Mapping the mantle transition zone beneath Hawaii from Ps receiver functions: Evidence for a hot plume and cold mantle downwellings, Earth and Planetary Science Letters, 474, 226-236, doi:10.1016/j.epsl.2017.06.033
57. Tharimena, S., Rychert, C. A., Harmon, N. 2017. A unified continental thickness from seismology and diamonds suggests a melt-defined plate, Science, 357, 580-583, doi: 10.1126/science.aan0741
58. Rychert, C. A. and Harmon, N. 2017 Constraints on the anisotropic contributions to velocity discontinuities at ~60 km depth beneath the Pacific, Geochem, Geophys, Geosys., 18, doi: 10.1002/2017GC006850
59. Tharimena, Saikiran, Rychert, C. A., Harmon, N., White P. A., 2017. Imaging Pacific Lithosphere Seismic Discontinuities – Insights from SS Precursor Modeling, J. Geophys. Res. Solid Earth, 122, doi:[10.1002/2016JB013526](http://dx.doi.org/10.1002/2016JB013526).
60. Neale, J, Harmon, N, Srokosz, M. 2017. Monitoring remote ocean waves using body wave microseisms, Journal of Geophysical Research, 122, 470–483, doi:10.1002/2016JC012183
61. Gallacher, R. J., Keir, D., Harmon, N., Stuart, G., Leroy, S., Hammond, J., Kendall, J. M., Ayele, A., Goitom, B., Ogubazghi, G, 2016. The initiation of segmented buoyancy driven melting during continental breakup, Nature Communications, 7, 13110, doi:[10.1038/ncomms13110](https://dx.doi.org/10.1038%2Fncomms13110)
62. Harmon, N. and Rychert, C. A. 2016 Joint Inversion of teleseismic and ambient noise Rayleigh waves for phase velocity maps, an application to Iceland, Journal of Geophysical Research 121, doi:10.1002/2016JB012934.
63. Tharimena, S., Rychert, C. A., Harmon, N. 2016. Seismic imaging of a mid-lithospheric discontinuity beneath Ontong Java Plateau, Earth and Planetary Science Letters, 450, p 62-70 doi:10.106/j.epsl.2016.06.026
64. Rychert, C. A. and Harmon, N, Stacked P‐to‐S and S‐to‐P Receiver Function Determination of Crustal Thickness, Vp, and Vs: The H‐V stacking method, 2016 Geophysical Research Letters, 43 (4), 1487-1494, doi: 10.1002/2015GL067010
65. Neale, J., Harmon, N., Srokosz, M., 2015. Source regions and reflection of infragravity waves offshore of U.S.'s Pacific Northwest, Journal of Geophysical Research,120 (9) 6474-6491, doi: 10.1002/2015JC010891
66. Harmon, N., and Rychert, C. A. 2015. Seismic imaging of deep crustal melt sills beneath Costa Rica suggests a method for the formation of the Archean continental crust, Earth and Planetary Science Letters, 430, 140-148, doi:10.1016/j.epsl.2015.07.062
67. Armitage, J. J., Ferguson, D. J., Goes, S., Hammond, J. O., Calais, E., Rychert, C. A., Harmon, N. 2015. Upper mantle temperature and the onset of extension and break-up in Afar, Africa. Earth and Planetary Science Letters, 418, 78-90, doi:10.1016/j.epsl.2015.02.039
68. Yang, T; Liu, F.; Harmon, N.; Le, K. P.; Gu, S.; Xue, M.; Geng, J., 2015. Lithospheric structure beneath Indochina block from Rayleigh wave phase velocity tomography, Geophysical Journal International 200 (3), 1582-1595, doi: 10.1093/gji/ggu488
69. Marcuson, R., Blackman, D. K., Harmon, N. 2014. Seismic anisotropy predicted for 2-D plate-driven flow in the Lau back–arc basin, Physics of the Earth and Planetary Interiors, 233, 88-94, doi:10.1016/j.pepi.2014.06.007
70. Rychert, C. A., Harmon, N., Schmerr, N. 2014. Synthetic waveform modeling of SS precursors from anisotropic upper-mantle discontinuities, Geophysical Journal International, 196 (3): 1694-1705,doi:10.1093/gji/ggt474
71. Rychert, C. A., Harmon, N., Ebinger, C. 2014. Receiver function imaging of lithospheric structure and the onset of melting beneath the Galápagos Archipelago Earth and Planetary Science Letters, 388, 156-165
72. Harmon, N.; Salas De La Cruz, M.; Rychert, C. A.; Fischer, K. M.; Abers, G. A. , 2013. Crustal and Mantle Shear Velocity Structure of Costa Rica and Nicaragua from ambient noise and teleseismic Rayleigh Wave Tomography, Geophysical Journal International, 195, 1300-1313, doi: 10.1093/gji/ggt309
73. Rychert. C. A., Laske, G., Harmon, N., Shearer, P. M. 2013. Seismic Imaging of Melting in a Displaced Hawaiian Plume, Nature Geoscience, 6, 657-660, doi:10.1038/ngeo1878
74. Ballmer, M.; Conrad, C. P.; Smith, E. I.; Harmon, N. 2013. Shear-driven upwelling drives off-axis volcanism near the East Pacific Rise, Geology, doi:10.1130/G33804.1.
75. Rychert, C.A., Schmerr, N. & Harmon, N., 2012. The Pacific lithosphere-asthenosphere boundary: Seismic imaging and anisotropic constraints from SS waveforms, Geochem., Geophys., Geosys., 13, Q0AK10, doi:10.1029/2012GC004194.
76. Goes, S.; Armitage, J.; Harmon, N.; Huismans, R.; Smith, H. 2012. Low seismic velocities below mid-ocean ridges: Attenuation vs. melt retention, J. Geophys. Res., 117, B12043 doi:10.1029/2012JB009637
77. Rychert, C. A.; Hammond, J. O. S.; Harmon, N.; Kendall, J. M.; Keir, D.; Ebinger, C.; Bastow, I.; Ayele, A.; Belachew, M.; Stuart, G. 2012. Seismically imaging the destruction of Continental Lithosphere beneath the Ethiopian and Afar Rift Systems, Nature Geoscience, 5, 406-409, doi: 10.1038/NGEO1455
78. Harmon, N.; Henstock, T.; Srokosz, M.; Tilmann, F.; Rietbrock, A.; Barton, P., 2012. Infragravity wave source regions determined from ambient noise correlation, Geophys. Res. Lett., 39, L04604, doi:04610.01029/02011GL050414
79. Harmon, N.; Henstock, T.; Tilmann, F.; Rietbrock, A.; Barton, P. 2012. Shear velocity across the Sumatran Forearc-Arc, Geophys. J. Int.189, 1306-1314, doi:10.1111/j.1365-246X.2012.05446.x
80. Harmon, N; Forsyth, D. W.; Weeraratne, D. S.; Yang, Y.; Webb, S. C. 2011. Mantle heterogeneity and off axis volcanism on young Pacific seafloor. Earth and Planetary Science Letters, 311 (3-4), 306-315, doi:10.1016/j.epsl.2011.09.038
81. Harmon, N; Rychert, C. A.; Gerstoft, P. 2010. Distribution of noise sources for seismic interferometry, Geophys. J. Int., 183 (3):1470-1484, doi: 10.1111/j.1365-246X.2010.04802.x
82. Harmon, N; Blackman, D. K. 2010. Effects of Plate Boundary Geometry and Kinematics on Mantle Melting Beneath the Back-arc Spreading Centers along the Lau Basin, Earth and Plan. Sci. Lett., 298, 334-346 doi:10.1016/j.epsl.2010.08.004
83. Pickle, R. C.; Forsyth, D.W.; Harmon, N.; Nagle, A; Saal, A. 2009. Thermo-mechanical control of axial topography of intra-transform spreading centers. Earth and Plan. Sci Lett. 284 (3-4), 343-351
84. Harmon, N; Forsyth, D.W.; Weeraratne, D. S. 2009. Thickening of young Pacific lithosphere from high-resolution Rayleigh wave tomography: A test of the conductive cooling model, Earth and Plan. Sci. Lett., 278, doi:10.1016/jepsl.2008.11.025
85. Gerstoft, P.; Shearer, P.; Harmon, N.; Zhang, J. 2008. Global P, PP, and PKP wave microseisms observed from distant storms, Geophys. Res. Lett., 35, L23306, doi:10.1029/2008GL036111
86. Harmon, N.; Gerstoft, P.; Rychert, C. A.; Abers, G. A.; Salas, M Fischer, K. M. 2008. Phase velocities from seismic noise using beamforming and cross correlation in Costa Rica and Nicaragua, Geophys. Res. Lett., 35, L19303, doi:10.1029/2008GL035387
87. Harmon, N.; Forsyth, D. W., Webb, S. C. 2007. Using Ambient Seismic Noise to Determine Short Period Phase Velocities and Shallow Shear Velocities in Young Oceanic Lithosphere, Bull. Seis. Soc. Am., 97, 2009-2023.
88. Harmon, N.; Forsyth, D. W.; Lamm, R.; Webb, S. C. 2007. P and S Delays Beneath Intraplate Volcanic Ridges and Gravity Lineations Near the East Pacific Rise, J. Geophys. Res.,112, B03309, doi:10.1029/2006JB004392
89. Harmon N., D. W. Forsyth, Scheirer, D. S. 2006. Analysis of gravity and topography in the GLIMPSE study region: Isostatic compensation and uplift of the Sojourn and Hotu Matua Ridge systems, J. Geophys. Res., 111, B11406, doi:10.1029/2005JB004071.
90. Forsyth, D. W.; Harmon N.; Scheirer, D. S.; Duncan R. A. 2006. Distribution of recent volcanism and the morphology of seamounts and ridges in the GLIMPSE study area: Implications for the lithospheric cracking hypothesis for the origin of intraplate, non–hot spot volcanic chains, J. Geophys. Res., 111, B11407, doi:10.1029/2005JB004075.
91. Harmon, N.; Forsyth, D. W.; Fischer, K. M.; Webb, S. C. 2004. Variations in shear-wave splitting in young Pacific seafloor, Geophys. Res. Lett., 31, L15609, doi:10.1029/2004GL020495

**Invited Presentations:**

Oct 2021 – Oregon State University, Seismic imaging of the Lesser Antilles subduction zone from the VoiLA project

Jan 2021 – Ridge Seminar Series, Online, A dynamic Lithosphere-Asthenosphere Boundary

Dec 2020 – University of Paris, Paris, A dynamic Lithosphere-Asthenosphere Boundary

February 2019 – University of Delaware, Newark, DE Seismic imaging of the Lesser Antilles with the VoiLA project

October 2018 – Southern University of Science and Technology, Shenzen, China, Seismic imaging of the Lesser Antilles with the VoiLA project

July 2018 – Brown University, Providence, RI Seismic imaging of the Lesser Antilles subduction zone with the VoiLA project

October 2017 – ETH, Zurich, Switzerland What surface wave imaging and SS precursors can tell us about continental crust and keel formation

August 2017 – Crust to Core Workshop, Omishima, Japan The Generation of Continents through Subduction Zone Processing of Large Igneous Provinces: A Case Study from the Central American Subduction Zone

January 2016 – University of Hawaii, Hawaii, USA Imaging the Oceanic Lithosphere

November 2016 – University of Leeds, UK Imaging the Oceanic Lithosphere

October 2016 – ORFEUS Meeting, Dubrovnik, Croatia, UK Broadband OBS Experiments

August 2014 – University of Bergen, Norway Imaging the Oceanic Lithosphere

October 2013 – OBSIP Workshop, Los Angeles, CA USA, Modeling OBS-Current Interaction using Computational Fluid Dynamics

May 2013 – University of Bristol, Bristol, UK 3-D shear velocity structure of Costa Rica and Nicaragua from teleseismic and ambient noise Rayleigh wave tomography

August 2012 – IGC Meeting, Brisbane, Australia 3-D shear velocity structure of Costa Rica and Nicaragua from teleseismic and ambient noise Rayleigh wave tomography

February 2012 – IPGP, Paris, France, Modeling OBS-Current Interaction using Computational Fluid Dynamics

May 2011 – Gordon Research Seminar, Mt. Holyoke, MA, USA , Mantle Heterogeneity and Off-Axis Volcanism on Young Pacific Lithosphere

March 2011 – University of Maryland, College Park, MD, USA, Mantle Heterogeneity and Off-Axis Volcanism on Young Pacific Lithosphere