

## **I. PERSONAL INFORMATION**

**Name:** Nicholas Schmerr  
**Title:** Associate Professor  
**Address:** Department of Geology  
University of Maryland  
8000 Regents Dr.  
College Park, Maryland 20742

### **Academic Appointments at UMD**

2020-present Associate Professor, Department of Geology, University of Maryland, College Park.

2014-2020 Assistant Professor, Department of Geology, University of Maryland, College Park.

2013-2014 Assistant Research Scientist, Department of Geology, University of Maryland, College Park.

### **Other Employment**

2010-2013 NASA Postdoctoral Program Fellow, NASA Goddard Space Flight Center, Greenbelt, MD.

2008-2010 Postdoctoral Fellow, Carnegie Institution of Washington, Washington, DC.

### **Educational Background**

Ph.D, Geological Sciences, Arizona State University, Tempe, December 2008

B.S. Geology, summa cum laude Beloit College, Beloit, May 2001

## **II. RESEARCH, SCHOLARLY AND CREATIVE ACTIVITIES**

**Orcid ID: 0000-0002-3256-1262**

### **Chapters**

1. **Schmerr, N.** (2015), Imaging Mantle Heterogeneity with Upper Mantle Seismic Discontinuities, in *The Earth's Heterogeneous Mantle*, edited by A. Khan and F.

Deschamps, pp. 79-104, Springer International Publishing, [http://dx.doi.org/10.1007/978-3-319-15627-9\\_3](http://dx.doi.org/10.1007/978-3-319-15627-9_3).

2. Weber, R. C., M. Knapmeyer, M. Panning, and N. **Schmerr** (2015), Modeling approaches in planetary seismology, in *Extraterrestrial Seismology*, edited by V. Tong and R. García, pp. 140-156, Cambridge University Press, <http://dx.doi.org/10.1017/CBO9781107300668.013>.

### **Articles in Refereed Journals**

NB: Underlined names represent undergraduate students, graduate students, and postdoctoral scholars under my direct supervision. ^names indicates undergraduate/graduate student where I served on their committee.

### **2020**

1. Killingbeck, S., **Schmerr, N.**, Montgomery, L., Booth, A., Livermore, P., Guandique, J., Miller, O., Burdick, S., Forster, R., Koenig, L., Legchenko, A., Ligtenberg, S., Miede, C., Solomon, D., West, L., (2020), Integrated borehole, radar, and seismic velocity analysis reveals dynamic spatial variations within a firn aquifer in southeast Greenland. *Geophysical Research Letters*, <https://doi.org/10.1029/2020GL089335>.
2. Compaire, N., Margerin, L., Garcia, R. F., Pinot, B., Calvet, M., Orhand-Mainsant, G., Kim, D., Lekic, V., Tauzin, B., Schimmel, M., Stutzmann, E., Knapmeyer-Endrun, B., Lognonné, P. H., Pike, W. T., **Schmerr, N. C.**, Gizon, L., & Banerdt, W. B. (2020). Autocorrelation of the ground vibrations recorded by the SEIS-InSight seismometer on Mars. *Earth and Space Science Open Archive*, 25. <https://doi.org/10.1002/essoar.10503694.1>.
3. Daubar, I. J., Lognonné, P., Teanby, N. A., Collins, G. S., Clinton, J., Stähler, S., Spiga, A., Karakostas, F., Ceylan, S., Malin, M., McEwen, A. S., Maguire, R., Charalambous, C., Onodera, K., Lucas, A., Rolland, L., Vaubaillon, J., Kawamura, T., Böse, M., Horleston, A., van Driel, M., Stevanović, J., Miljković, K., Fernando, B., Huang, Q., Giardini, D., Larmat, C. S., Leng, K., Rajšić, A., **Schmerr, N.**, Wójcicka, N., Pike, T., Wookey, J., Rodriguez, S., Garcia, R., Banks, M. E., Margerin, L., Posiolova, L., & Banerdt, B. (2020). A New Crater Near InSight: Implications for Seismic Impact Detectability on Mars. *Journal of Geophysical Research: Planets*, <https://doi.org/10.1029/2020JE006382>.
4. Miller, O., Solomon, D. K., Miede, C., Koenig, L., Forster, R., **Schmerr, N.**, Ligtenberg, S. R. M., Legchenko, A., Voss, C. I., Montgomery, L., & McConnell, J. R. (2020). Hydrology of a perennial firn aquifer in Southeast Greenland: an overview driven by field data. *Water Resources Research*, <https://doi.org/10.1029/2019WR026348>.
5. Marusiak, A. G., **Schmerr, N.**, DellaGiustina, D. N., Pettit, E. C., Dahl, P. H., Avenson, B., Bailey, S. H., Bray, V. J., Wagner, N., Carr, C., & Weber, R. (2020). The Deployment of the Seismometer to Investigate Ice and Ocean Structure (SIOS) on Gulkana Glacier, Alaska. *Seismological Research Letters*, 91 (3): 1901–1914 <https://doi.org/10.1785/0220190328>.
6. Banerdt, W. B., Smrekar, S. E., Banfield, D., Giardini, D., Golombek, M., Johnson, C. L., Lognonné, P., Spiga, A., Spohn, T., Perrin, C., Stähler, S. C., Antonangeli, D., Asmar, S., Beghein, C., Bowles, N., Bozdog, E., Chi, P., Christensen, U., Clinton, J., Collins, G. S.,

- Daubar, I., Dehant, V., Drilleau, M., Fillingim, M., Folkner, W., Garcia, R. F., Garvin, J., Grant, J., Grott, M., Grygorczuk, J., Hudson, T., Irving, J. C. E., Kargl, G., Kawamura, T., Kedar, S., King, S., Knapmeyer-Endrun, B., Knapmeyer, M., Lemmon, M., Lorenz, R., Maki, J. N., Margerin, L., McLennan, S. M., Michaut, C., Mimoun, D., Mittelholz, A., Mocquet, A., Morgan, P., Mueller, N. T., Murdoch, N., Nagihara, S., Newman, C., Nimmo, F., Panning, M., Pike, W. T., Plesa, A.-C., Rodriguez, S., Rodriguez-Manfredi, J. A., Russell, C. T., **Schmerr, N.**, Siegler, M., Stanley, S., Stutzmann, E., Teanby, N., Tromp, J., van Driel, M., Warner, N., Weber, R., & Wieczorek, M. (2020). Initial results from the InSight mission on Mars. *Nature Geoscience*, *13*(3), 183-189, <https://doi:10.1038/s41561-020-0544-y>.
7. Lognonné, P., Banerdt, W. B., Pike, W. T., Giardini, D., Christensen, U., Garcia, R. F., Kawamura, T., Kedar, S., Knapmeyer-Endrun, B., Margerin, L., Nimmo, F., Panning, M., Tauzin, B., Scholz, J. R., Antonangeli, D., Barkaoui, S., Beucler, E., Bissig, F., Brinkman, N., Calvet, M., Ceylan, S., Charalambous, C., Davis, P., van Driel, M., Drilleau, M., Fayon, L., Joshi, R., Kenda, B., Khan, A., Knapmeyer, M., Lekic, V., McClean, J., Mimoun, D., Murdoch, N., Pan, L., Perrin, C., Pinot, B., Pou, L., Menina, S., Rodriguez, S., Schmelzbach, C., **Schmerr, N.**, Sollberger, D., Spiga, A., Stähler, S., Stott, A., Stutzmann, E., Tharimena, S., Widmer-Schnidrig, R., Andersson, F., Ansan, V., Beghein, C., Böse, M., Bozdog, E., Clinton, J., Daubar, I., Delage, P., Fuji, N., Golombek, M., Grott, M., Horleston, A., Hurst, K., Irving, J., Jacob, A., Knollenberg, J., Krasner, S., Krause, C., Lorenz, R., Michaut, C., Myhill, R., Nissen-Meyer, T., ten Pierick, J., Plesa, A. C., Quantin-Nataf, C., Robertsson, J., Rochas, L., Schimmel, M., Smrekar, S., Spohn, T., Teanby, N., Tromp, J., Vallade, J., Verdier, N., Vrettos, C., Weber, R., Banfield, D., Barrett, E., Bierwirth, M., Calcutt, S., Compaire, N., Johnson, C. L., Mance, D., Euchner, F., Kerjean, L., Mainsant, G., Mocquet, A., Rodriguez Manfredi, J. A., Pont, G., Laudet, P., Nebut, T., de Raucourt, S., Robert, O., Russell, C. T., Sylvestre-Baron, A., Tillier, S., Warren, T., Wieczorek, M., Yana, C., & Zweifel, P. (2020). Constraints on the shallow elastic and anelastic structure of Mars from InSight seismic data. *Nature Geoscience*, *13*(3), 213-220, <https://doi:10.1038/s41561-020-0536-y>.
8. Marusiak, A. G., **Schmerr, N. C.**, Banks, M. E., Daubar, I. J. (2020) Terrestrial single-station analog for constraining the Martian core and deep interior: Implications for InSight. *Icarus*. 335, <https://doi.org/10.1016/j.icarus.2019.113396>
9. Hurford, T. A., Rhoden, A., Panning, M., Manga, M., **Schmerr, N.**, Maguire, R., Kattenhorn, S., Lekic, V., Bray, V., and Henning, W., (2020), Seismicity on Tidally Active Solid-Surface Worlds. *Icarus*, 338, <https://doi.org/10.1016/j.icarus.2019.113466>.

## 2019

10. **Schmerr, N. C.**, Banks, M. E., Daubar, I. J., (2019), The Seismic Signatures of Recently Formed Impact Craters on Mars. *Journal of Geophysical Research – Planets*, *124*(11), 3063-3081, <https://doi.org/10.1029/2019JE006044>.
11. Huang, Q., **Schmerr, N.**, Waszek, L., and Beghein, C., (2019), Constraints on Seismic Anisotropy in the Mantle Transition Zone from Long-Period SS Precursors. *Journal of Geophysical Research – Solid Earth*, <https://doi.org/10.1029/2019JB017307>.
12. Watters, T., Weber, R. C., Collins, G. C., Howley, I. J., **Schmerr, N. C.**, Johnson, C. L., (2019), Shallow seismic activity and young thrust faults on the Moon, *Nature Geoscience*, *12*, 411-417, <https://doi.org/10.1038/s41561-019-0362-2>.

13. DeMartini, J. V., Richardson, D. C., Barnouin, O. S., **Schmerr, N. C.**, Plescia, J. B., Scheirich, P., and Pravec, P. (2019), Using a discrete element method to investigate seismic response and spin change of 99942 Apophis during its 2029 tidal encounter with Earth, *Icarus*, 328, 93-103 <https://doi:10.1016/j.icarus.2019.03.015>.
14. Lewis, K. W., Peters, S., Gonter, K., Morrison, S., **Schmerr, N.**, Vasavada, A. R., and Gabriel T., (2019), A surface gravity traverse on Mars indicates low bedrock density at Gale crater, *Science*, 363(6426), 535–537, <https://doi:10.1126/science.aat0738>.
15. Daubar, I. J., Banks, M. E., **Schmerr, N. C.**, and Golombek, M. P., (2019), Recently Formed Crater Clusters on Mars, *J Geophys Res-Planet*, 124(4), 958-969, <https://doi:10.1029/2018JE005857>.

## 2018

16. Duncan, M., **Schmerr, N.**, Bertka, C., Fei, Y., (2018) Extending the Solidus for a Model Iron-Rich Martian Mantle Composition to 25 GPa. *Geophysical Research Letters*, 45(19) 10,211-10,220, <https://doi.org/10.1029/2018GL078182>.
17. Daubar, I., Lognonne, P., Teanby, N., Miljkovic, K., Stevanovic, J., Vaubaillon, J., Kenda, B., Kawamura, T., Clinton, J., Lucas, A., Drilleau, M., Yana, C., Collins, G., Banfield, D., Golombek, M., Kedar, S., **Schmerr, N.**, Garcia, R., Rodriguez, S., Gudkova, T., May, S., Banks, M., Maki, J., Sansom, El., Karakostas, F., Panning, M., Fuji, N., Wookey J., van Driel, M., Lemmon, M., Ansan, V., Böse, M., Stähler, S., Kanamori, H., Richardson, J., Smrekar, S., Banerdt, B., (2018) Impact-Seismic Investigations of the InSight Mission, *Space Science Reviews*, 214(132) <https://link.springer.com/article/10.1007/s11214-018-0562-x>.
18. Legchenko, A., Mieke, C., Koenig, L., Forster, R., Miller, O., Solomon, D. K., **Schmerr, N.**, Montgomery, L., Ligtenberg, S., Brucker, L., (2018) Estimating water volume stored in the south-eastern Greenland firn aquifer using magnetic-resonance soundings. *Journal of Applied Geophysics*, 150 <https://doi.org/10.1016/j.jappgeo.2018.01.005>.
19. Waszek, L., **Schmerr, N.**, Ballmer, M., (2018) Global observations of reflectors in the mid-mantle with implications for mantle structure and dynamics. *Nature Communications*, 385 <http://dx.doi.org/10.1038/s41467-017-02709-4>
20. Legchenko, A., Mieke, C., Koenig, L., Forster, R., Miller, O., Solomon, D. K., **Schmerr, N.**, Montgomery, L., Ligtenberg, S., Brucker, L., (2018) Investigating a firn aquifer near Helheim Glacier (South-Eastern Greenland) with magnetic-resonance soundings and ground-penetrating radar. *Near Surface Geophysics*, 16 (4), 411-422, <https://doi.org/10.1002/nsg.12001>.
21. Miller, O., Solomon, D. K., Mieke, C., Koenig, L., Forster, R., **Schmerr, N.**, Ligtenberg, S., Montgomery, L., (2018) Direct Evidence of Meltwater Flow Within a Firn Aquifer in Southeast Greenland. *Geophysical Research Letters*, 45 <http://dx.doi.org/10.1002/2017GL075707>

## 2017

22. Miller, O., Solomon, D. K., Mieke, C., Koenig, L., Forster, R., Montgomery, L., **Schmerr, N.**, Ligtenberg, S., Legchenko, A., Brucker, L., (2017) Hydraulic Conductivity of a Firn

Aquifer in Southeast Greenland. *Frontiers in Earth Science*, 5  
<https://doi.org/10.3389/feart.2017.00038>.

23. **Montgomery, L., Schmerr, N.,** Burdick, S., Forster, R., Koenig, L., Legchenko, A., Ligtenberg, S., Mieke, C., Miller, O., Solomon, K., (2017) Investigation of Firm Aquifer Structure in Southeastern Greenland Using Active Source Seismology. *Frontiers in Earth Science*, 5 <https://doi.org/10.3389/feart.2017.00010>.
24. Panning, M. P., Lognonné, P., Banerdt, B., W., Garcia, R., Golombek, M., Kedar, S., Knapmeyer-Endrun, B., Mocquet, A., Teanby, N. A., Tromp, J., Weber, R., Beucler, E., Blanchette-Guertin, J.-F., Bozdağ, E., Drilleau, M., Gudkova, T., Hempel, S., Khan, A., Lekić, V., Murdoch, N., Plesa, A.-C., Rivoldini, A., **Schmerr, N.**, Ruan, Y., Verhoeven, O., Gao, C., Christensen, U., Clinton, J., Dehant, V., Giardini, D., Mimoun, D., Thomas Pike, W., Smrekar, S., Wieczorek, M., Knapmeyer, M., Wookey, J., (2017), Planned Products of the Mars Structure Service for the InSight Mission to Mars. *Space Science Reviews*, 1-40 <http://dx.doi.org/10.1007/s11214-016-0317-5>.

## 2016

25. Whittaker, S., Thorne, M. S., **Schmerr, N. C.** and Miyagi, L. (2016), Seismic array constraints on the D" discontinuity beneath Central America. *J Geophys Res-Sol Earth* <http://dx.doi.org/10.1002/2015JB012392>.

## 2015

26. Auer, L., Becker, T. W., Boschi, L. and **Schmerr, N.** (2015), Thermal structure, radial anisotropy, and dynamics of oceanic boundary layers. *Geophysical Research Letters* **42**, 9740–9749 <http://onlinelibrary.wiley.com/doi/10.1002/2015GL066246/full>.
27. Ballmer, M., **Schmerr, N.**, Nakagawa, T., Ritsema, J. (2015), Compositional mantle layering revealed by slab stagnation at ~1,000 km depth, *Science Advances*, 1, e1500815–e1500815, <http://advances.sciencemag.org/cgi/doi/10.1126/sciadv.1500815>.
28. Rader, E., Emry, E., **Schmerr, N.**, Frost, D., Cheng, C., Menard, J., Yu, C.-Q., and Geist, D., (2015), Characterization and petrological constraints of the mid-lithospheric discontinuity, *Geochemistry, Geophysics, Geosystems*, <http://dx.doi.org/10.1002/2015GC005943>.
29. Antonangeli, D., Morard, G., **Schmerr, N. C.**, Komabayashi, T., Krisch, M., Fiquet, G., and Fei, Y., (2015), Toward a mineral physics reference model for the Moon's core, *Proceedings of the National Academy of Sciences of the United States of America*, 112(13), 3916-3919 <http://dx.doi.org/10.1073/pnas.1417490112>.
30. Lessing, S., C. Thomas, M. Saki, **N. Schmerr**, and E. Vanacore (2015), On the difficulties of detecting PP precursors, *Geophysical Journal International*, 201(3), 1666-1681 <http://dx.doi.org/10.1093/gji/ggv105>.
31. Reeves, Z., V. Lekic, **N. Schmerr**, M. Kohler, and D. Weeraratne (2015), Lithospheric structure across the California Continental Borderland from receiver functions, *Geochemistry Geophysics Geosystems*, 16(1), 246-266 <http://dx.doi.org/10.1002/2014gc005617>.
32. Zhao, C., E. J. Garnero, A. K. McNamara, **N. Schmerr**, and R. W. Carlson (2015), Seismic evidence for a chemically distinct thermochemical reservoir in Earth's deep

mantle beneath Hawaii, *Earth and Planetary Science Letters*, 426, 143-153  
<http://dx.doi.org/10.1016/j.epsl.2015.06.012>.

## 2014

33. Beghein, C., K. Yuan, **N. Schmerr**, and Z. Xing (2014), Changes in Seismic Anisotropy Shed Light on the Nature of the Gutenberg Discontinuity, *Science*, 343(6176), 1237-1240  
<http://dx.doi.org/10.1126/science.1246724>.
34. Han, S. C., **N. Schmerr**, G. Neumann, and S. Holmes (2014), Global characteristics of porosity and density stratification within the lunar crust from GRAIL gravity and Lunar Orbiter Laser Altimeter topography data, *Geophysical Research Letters*, 41(6), 1882-1889  
<http://dx.doi.org/10.1002/2014gl059378>.
35. Porter, R. C., M. J. Fouch, and **N. C. Schmerr** (2014), Dynamic lithosphere within the Great Basin, *Geochemistry Geophysics Geosystems*, 15(4), 1128-1146  
<http://dx.doi.org/10.1002/2013gc005151>.
36. Rychert, C. A., N. Harmon, and **N. Schmerr** (2014), Synthetic waveform modelling of SS precursors from anisotropic upper-mantle discontinuities, *Geophysical Journal International*, 196(3), 1694-1705 <http://dx.doi.org/10.1093/gji/ggt474>.

## 2013

37. **Schmerr, N. C.**, **B. M. Kelly**, and M. S. Thorne (2013), Broadband array observations of the 300 km seismic discontinuity, *Geophysical Research Letters*, 40(5), 841-846  
<http://dx.doi.org/10.1002/grl.50257>.

## 2012

38. Long, M. D., C. B. Till, K. A. Druken, R. W. Carlson, L. S. Wagner, M. J. Fouch, D. E. James, T. L. Grove, **N. Schmerr**, and C. Kincaid (2012), Mantle dynamics beneath the Pacific Northwest and the generation of voluminous back-arc volcanism, *Geochemistry Geophysics Geosystems*, 13 <http://dx.doi.org/10.1029/2012gc004189>.
39. Rychert, C. A., **N. Schmerr**, and N. Harmon (2012), The Pacific lithosphere-asthenosphere boundary: Seismic imaging and anisotropic constraints from SS waveforms, *Geochemistry Geophysics Geosystems*, 13  
<http://dx.doi.org/10.1029/2012gc004194>.
40. **Schmerr, N.** (2012), The Gutenberg Discontinuity: Melt at the Lithosphere-Asthenosphere Boundary, *Science*, 335(6075), 1480-1483  
<http://dx.doi.org/10.1126/science.1215433>.

## 2011

41. **Schmerr, N.**, and C. Thomas (2011), Subducted lithosphere beneath the Kuriles from migration of PP precursors, *Earth and Planetary Science Letters*, 311(1-2), 101-111  
<http://dx.doi.org/10.1016/j.epsl.2011.09.002>.

## 2010

42. **Schmerr, N.**, E. Garnero, and A. McNamara (2010), Deep mantle plumes and convective upwelling beneath the Pacific Ocean, *Earth and Planetary Science Letters*, 294(1-2), 143-151 <http://dx.doi.org/10.1016/j.epsl.2010.03.014>.

#### **Pre-PhD Publications (December 2008)**

43. **Schmerr, N.**, and E. J. Garnero (2007), Upper mantle discontinuity topography from thermal and chemical heterogeneity, *Science*, 318(5850), 623-626 <http://dx.doi.org/10.1126/science.1145962>.
44. **Schmerr, N.**, and E. Garnero (2006), Investigation of upper mantle discontinuity structure beneath the central Pacific using SS precursors, *Journal of Geophysical Research-Solid Earth*, 111(B8) <http://dx.doi.org/10.1029/2005jb004197>.
45. Kargel, J., R. Carlson, A. Davies, B. Fegley, A. Gillespie, R. Greeley, R. Howell, K. L. Jessup, L. Kamp, L. Keszthelyi, R. Lopes, T. MacIntyre, F. Marchis, A. McEwen, M. Milazzo, J. Perry, J. Radebaugh, L. Schaefer, **N. Schmerr**, W. Smythe, J. Spencer, D. Williams, J. Zhang, and M. Zolotov (2003), Extreme volcanism on Io: Latest insights at the end of Galileo era, *Eos, Transactions American Geophysical Union*, 84(33), 313-318 <http://dx.doi.org/10.1029/2003EO330001>.

#### **Articles Submitted and/or Under Review/Revision**

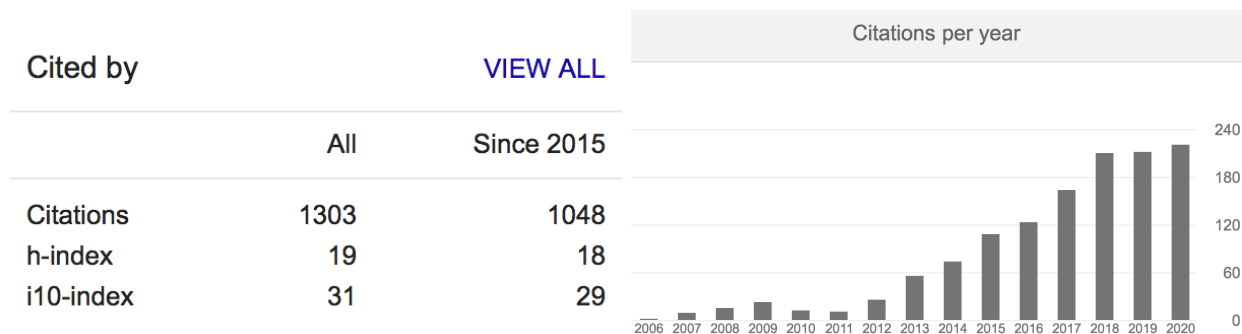
46. Waszek L., Tauzin, B., **Schmerr, N.C.**, Ballmer, M.D., Afonso, J.C., (2020), A poorly mixed mantle and its thermal state inferred from seismic waves. *Science Advances*, **in revision**.
47. van Driel, M., Ceylan, S., Clinton, J., Giardini, D., Horleston, A., Margerin, L. Stähler, S., Böse, M., Charalambous, C., Kawamura, T., Khan, A., Orhand-Mainsant, G., Scholz, J., Euchner, F., Knapmeyer, M., **Schmerr, N.**, Pike, W., Lognonne, P., Banerdt, W.B. (2020) High frequency seismic events on Mars observed by InSight. *JGR Planets*, **in review**.
48. **Maguire, R., Schmerr, N.**, Pettit, E., Gardner, C., Della-Giustina, D., Avenson, B., Wagner, N., Marusiak, A., Habib, N., Isabella, J., Bray, V. Bailer, S. H., (2020), Constraints on the Properties of a Subglacial Lake in Northwestern Greenland from Active Source Seismology and Ground Penetrating Radar. *JGR Planets*, **in review**.
49. **Maguire, R., Schmerr, N.**, Lekic, V., Hurford, T., Dai, L. (2020), Constraining Europa's Ice Shell thickness with Fundamental Mode Surface Wave Dispersion. *JGR Planets*, **submitted**.
50. **Huang, Q., Schmerr, N.C.**, Beghein, C., Waszek, L., Maguire, R. (2020), 3-D Synthetic Modeling of Anisotropy Effects on SS Precursors: Implications for Mantle Flow in the Transition Zone. *JGR Solid Earth*, **in review**.
51. Erwin, A., Stone, K.J., Shelton, D., Hahn, I., Kedar, S., Huie, W., Williamson, P.R., **de Paula, L., Schmerr, N.C.**, Paik, J., Chui, T.C.P., (2020), Electrostatic Frequency Reduction: A Negative Stiffness Mechanism for Measuring the Material Loss Angle at Low Frequency. *Review of Scientific Instruments*, **in revision**.
52. **Marusiak, A., Schmerr, N.C.**, DellaGiustina, D.N., AVenson, B. Bailey, S.H., Bray, V.J., Brodbeck, J., Carr, C.G., Dahl, P.H., Habib, N., Pettit, E., Wagner, N., Weber, R.,

- (2020) The Deployment of the Seismometer to Investigate Ice and Ocean Structure (SIIOS) in Northwest Greenland, *Seismological Research Letters*, **in review**.
53. Huang, M.H., Hudson-Rasmussen, B., Burdick, S., Nelson, M., Lekic, V., Fauria, K., and **Schmerr, N.** (2020), Bayesian seismic refraction inversion for critical zone science and near-surface applications, *GGG*, **in revision**.
54. Marusiak data review paper
55. Bell magnetic paper

### **Published Datasets**

1. Waszek, L., Ballmer, M., Schmerr, N. (2019), Mid-mantle reflectors as measured from precursors to SS. International Seismological Centre, <https://doi.org/10.31905/RQAW3PYG>.
2. **Schmerr, N.**, (2018), Greenland firn aquifer impacts on ice sheet hydrology, near Helheim Glacier, Greenland, 2015-2016. Arctic Data Center, <https://arcticdata.io/catalog/view/doi:10.18739/A2RB6W22B>.
3. **Schmerr, N.**, Pettit, E., (2017), Seismometer to Investigate Ice and Ocean Structure (SIIOS) Field Experiment. International Federation of Digital Seismograph Networks. [https://doi.org/10.7914/SN/YH\\_2017](https://doi.org/10.7914/SN/YH_2017).
4. Porter, R., **Schmerr, N.**, (2016), SP Crater Network. International Federation of Digital Seismograph Networks. [https://doi.org/10.7914/SN/4A\\_2016](https://doi.org/10.7914/SN/4A_2016).

### **Google Scholar Profile:**



Screen Capture on 8/25/2020 from <https://scholar.google.com/citations?user=Rh3YOkwAAAAJ>

### **Conferences, Workshops and Talks**

#### ***Keynotes***

- 2/25/2020 **Insight Team Meeting 17**, Nice, France. Title: "Using the IMUs on MSL and Mars 2020 as Strong Motion Seismometers?"
- 2/25/2020 **Insight Team Meeting 17**, Nice, France. Title: "Predicted Event Magnitude Needed to Detect the Martian Core."



- 10/23/2019 **Insight Team Meeting 16**, Los Angeles. Title: "The Martian Mantle Transition Zone."
- 6/20/2019 **Insight Team Meeting 15**, Paris, France. Title: "Imaging the Mantle Transition Zone of Mars."
- 2/27/2019 **Insight Team Meeting 14**, Pasadena, CA. Title: "Measuring the Scattering and Attenuation of Seismic Waves in Mars."
- 9/24/2018 **Insight Team Meeting 13**, Graz, Austria. Title: "Using InSight to Characterize the Seismic Scattering of the Martian Crust and Mantle."
- 6/6/2017 **Gordon Research Conference**, Mt. Holyoke, MA. Title "Where are all the discontinuities? Evolving our understanding of the mantle transition zone."
- 1/11/2017 **ISSI-BJ Forum on Lunar and Planetary Seismology**, Beijing, China. Title "The Lunar megaregolith from joint seismic and gravity data."
- 6/7/2015 **Gordon-Kenan Research Seminar**, Mt. Holyoke, MA. Title "Communication in the Earth Sciences: A Professor's and Editor's Perspective."
- 6/9/2015 **Gordon Research Conference**, Mt. Holyoke, MA. Title "New Approaches to Imaging Upper Mantle Seismic Discontinuities."
- 3/5/2015 **International Symposium on Structure and Dynamics of the Oceanic Lithosphere/Asthenosphere System**, Miyagi, Japan. Title "Imaging the Lithosphere-Asthenosphere Boundary with Underside Reflections."
- 12/14/2014 **Pre-CIDER Workshop**, Berkeley, CA. Title: "Characterization and Petrological Constraints of the Mid-Lithospheric Discontinuity."
- 10/10/2014 **Instrumentation for Polar Glaciology and Geophysics Research Workshop**, The Conference Center at the Maritime Institute, Linthicum Heights, MD. Title: "Planetary Seismometers."
- 8/4/2014 **14th Symposium of the Study of Earth's Deep Interior**, Kanagawa, Japan Title: "Observations of Upper Mantle Discontinuity Structure."
- 7/23/2014 **CIDER Summer Program**, University of California, Santa Barbara, CA. Title: "Seismic and Gravity Modeling of the Lunar Megaregolith."
- 6/1/2014 **Gordon-Kenan Research Seminar**, Mt. Holyoke, MA. Title "Imaging the lithosphere asthenosphere boundary in the Pacific: A sharp interface at hotspots."
- 2/10/2014 **InSight Team Meeting**, Jet Propulsion Laboratory, Burbank, CA. Title: "Locations of Impact Events on the Moon from High Resolution Images and Seismology."
- 4/30/2013 **Volcanology Workshop**, Goddard Space Flight Center, Greenbelt, MD. Title: "Melt in the Deep Interior: The View from Seismology."

- 9/19/2011 **EarthScope Institute on the Lithosphere-Asthenosphere Boundary**  
Portland, OR. Title: “Imaging the lithosphere-asthenosphere boundary  
beneath an oceanic plate: A sharp interface at upwellings.”
- 9/12/2011 **High Lava Plains Workshop**, Carnegie Institution of Washington,  
Washington, DC. Title: “Subducted Lithosphere Beneath the Kuriles from  
Migration of PP Precursors.”
- 5/10/2010 **IRIS Workshop**, Skamania Lodge, WA. Title “Connecting the Top to the  
Bottom: The Upper Mantle Transition Zone.”
- 2/26/2010 **International Symposium on Deep Slab and Mantle  
Dynamics, Stagnant Slab Project**, Kyoto, Japan. Title: “Upper Mantle  
Discontinuity Topography Beneath South America from Thermal and  
Chemical Heterogeneity.”

### ***Invited Talks***

- 7/1/2020 SSERVI Analogs Focus Group, **NASA-Ames** ([Virtual Talk](#)), Title:  
“Geophysical Exploration at Planetary Analog Field Sites.”
- 4/28/2020 Department of Earth Science and Earth Research Institute, **UCSB**, CA, (to  
Roberta Rudnick’s course EARTH270RR. Title: “InSight Mission  
Overview.”
- 2/6/2020 Department of Terrestrial Magnetism Colloquium, **DTM**, Washington,  
DC. Title: “Geophysical Detection of Liquid Water in the Frozen  
Subsurfaces of Greenland and Europa.”
- 11/12/2019 ESSIC Seminar Series, **ESSIC**, College Park, MD. Title: “Geophysical  
Detection of Liquid Water in the Frozen Subsurfaces of Greenland and  
Europa.”
- 4/24/2019 Geological Society of Washington, **Cosmos Club**, Washington, DC. Title:  
“Update: First Marsquake Detection.”
- 1/9/2019 Geological Society of Washington, **Cosmos Club**, Washington, DC. Title:  
“InSight, a mission update.”
- 12/6/2018 Science Highlight, **NASA Headquarters**, Washington, DC. Title  
“Planetary Seismology.”
- 11/27/2018 Geology Colloquium, **UCLA**, Los Angeles, CA. Title: “Sounding Ice:  
Exploring For Liquid Water in the Frozen Subsurfaces of Greenland and  
Europa.”
- 10/10/2018 Planetary Geology, Geophysics, and Geodynamics Seminar, **Goddard  
Space Flight Center**, Greenbelt, MD. Title: “Sounding Ice: Exploring For  
Liquid Water in the Frozen Subsurfaces of Greenland and Europa.”
- 8/2/2017 Earth and Life Science Institute Crust to Core Workshop, **ELSI**,  
Matsuyama, Japan. Title: “Observations of Upper Mantle Discontinuity  
Structure.”

- 5/3/2017 Apollo 17 45<sup>th</sup> Anniversary Symposium, **Goddard Space Flight Center**, Greenbelt, MD. Title: “Locations of Impact Events on the Moon from High Resolution Images and Seismology.”
- 2/2/2017 CEED, **University of Norway**, Oslo, Norway. Title: “How Heterogeneous is the Earth's Mantle? Combining New Observations from Seismology with Geochemistry and Geodynamics.”
- 1/13/2017 Department of Geology, **University of Science and Technology of China**, Hefei, China. Title “How Heterogeneous is the Earth's Mantle? Combining New Observations from Seismology with Geochemistry and Geodynamics.”
- 11/17/2016 **Potomac Geophysical Society**, Washington, DC. Title: “Active Source Seismic Investigation of Firm Aquifer Structure in Southeastern Greenland.”
- 11/2/2016 Department of Mineral Sciences, **Smithsonian Natural History Museum**, Washington, DC. Title: “How Heterogeneous is the Earth's Mantle? Combining New Observations from Seismology with Geochemistry and Geodynamics.”
- 4/8/2016 NASA Congressional Tour, **University of Maryland**, College Park, MD. Title: “Recent Impact Craters on the Moon and Mars.”
- 3/9/2016 **Geological Society of Washington**, Washington DC. Title: “Greenland Melting Away: New Seismic Observations of a Firm Aquifer on an Ice Sheet.”
- 2/22/2016 Department of Earth and Planetary Sciences Colloquium, **Harvard University**, Cambridge, MA. Title: “How Heterogeneous is the Earth's Mantle? Combining New Observations from Seismology with Geochemistry and Geodynamics.”
- 10/29/2015 Department of Geosciences Seminar, **Stony Brook University**, Stony Brook, NY. Title: “How Heterogeneous is the Earth's Mantle? Combining New Observations from Seismology with Geochemistry and Geodynamics.”
- 10/15/2015 Johns Hopkins Earth and Planetary Sciences Department Seminar, **Johns Hopkins University**, Baltimore, MD. Title: “Imaging the Interior of the Moon: New Geophysical Constraints from Crust to Core.”
- 4/1/2015 NASA Congressional Tour, **University of Maryland**, College Park, MD. Title: “Detecting Recent Meteoroid Impacts on the Moon and Mars.”
- 11/6/2014 NASA Legislative Affairs Office Retreat, **University of Maryland**, College Park, MD. Title: “Detecting Recent Meteoroid Impacts on the Moon and Mars.”
- 5/14/2014 CEPS Research Seminar, **Smithsonian Air and Space Museum**, Washington, DC. Title “Seismic exploration of the interiors of Solar System objects: Mars and the Outer Satellites.”

- 4/24/2014 Society for Physics Students, **University of Maryland**, College Park, MD. Title “Exploring the interiors of the Earth, Moon, Mars, and Outer Satellites.”
- 4/18/2014 Department of Geology Colloquium, **University of Maryland**, College Park, MD. Title: “Exploring the interiors of the Earth, Moon, Mars, and Outer Satellites.”
- 4/1/2014 DTM Seminar, **Carnegie Institution for Science**, Washington, DC. Title: “How Heterogeneous is Earth's Mantle? Combining New Observations from Seismology with Geochemistry and Geodynamics.”
- 3/26/2014 GSFC Director’s Seminar, 2014, **Goddard Space Flight Center**, Greenbelt, MD. Title: “Seismometers on Icy Satellites: Insights from Modeling and Earth Analogs.”
- 10/1/2013 Planetary Astronomy Late-Afternoon Seminar, **University of Maryland**, College Park, MD. Title: “Planetary Seismology: Exploring the Interiors of the Moon, Mars, and Other Worlds.”
- 4/16/2013 Colloquium, **University of Texas-Austin**, Austin, TX. Title: “Seismology in the Solar System: Exploring the Interiors of the Planets.”
- 4/3/2013 Brown Bag Seminar, **Johns Hopkins Applied Physics Laboratory**, Laurel, MD. Title: “Seismology in the Solar System: Exploring the Interiors of the Planets.”
- 3/27/2013 Department of Geosciences, **Rutgers University**, New Brunswick, NJ. Title: “Seismology in the Solar System: Exploring the Interiors of the Planets.”
- 2/20/2013 School of Earth and Space Exploration, **Arizona State University**, Tempe, AZ. Title: “Seismology in the Solar System: Exploring the Interiors of the Planets.”
- 2/12/2013 Department of Earth and Environment, **Boston University**, Boston, MA. Title: “Seismology in the Solar System: Exploring the Interiors of Other Worlds.”
- 2/11/2013 Department of Earth and Environment, **Boston University**, Boston, MA. Title: “Seismological Imaging of Earth’s Lithosphere and Mantle.”
- 11/1/2012 Guy F. Atkinson Distinguished Lecture Series, **University of Utah**, Salt Lake City, UT. Title: “Seismology in the Solar System: Exploring the Interiors of Other Worlds.”
- 5/30/2012 DTM Seminar, **Carnegie Institution of Washington**, Washington, DC. Title: “Imaging the Base of a Tectonic Plate: Evidence for Melt and Volatiles at the Lithosphere-Asthenosphere Boundary.”
- 4/13/2012 Princeton Department of Geosciences Colloquium, **Princeton University**, Princeton, NJ. Title: “Imaging the Base of a Tectonic Plate: Evidence for Melt and Volatiles at the Lithosphere-Asthenosphere Boundary.”

- 4/6/2012 MIT Earth Resources Department FISH Seminar, **MIT**, Cambridge, MA. Title: “Imaging the Base of a Tectonic Plate: Evidence for Melt and Volatiles at the Lithosphere-Asthenosphere Boundary.”
- 3/14/2012 GSFC Seminar Series, **NASA Goddard Space Flight Center**, Greenbelt, MD. Title: “Innovative Approaches to Planetary Seismology.”
- 10/21/2011 Department of Geology Colloquium, **University of Maryland**, College Park, MD. Title: “The Gutenberg Seismic Discontinuity: Melt at the Lithosphere-Asthenosphere Boundary.”
- 10/20/2011 **Potomac Geophysical Society**, Ft. Myers Office Club, Arlington, VA. Title: “Planetary Seismology: Exploring the Interiors of the Earth, Moon, and Beyond.”
- 9/31/2011 Geology Department Alumni Seminar, **Beloit College**, Beloit College, WI. Title “Planetary Seismology: Exploring the Interiors of the Earth, Moon, and Beyond.”
- 2/7/2011 Geodynamics Seminar, **Lamont Doherty Earth Observatory**, Palisades, NY. Title: “Seismic Imaging of the Lithosphere-Asthenosphere Boundary.”
- 10/21/2010 Planetary Geodynamics Laboratory Seminar, **Goddard Space Flight Center**, Greenbelt, MD. Title: “Planetary Seismology: Exploring the Interiors of the Earth, Moon, and Beyond.”
- 5/5/2010 DTM Seminar, **Carnegie Institution of Washington**, Washington, DC. Title: “Imaging Seismic Discontinuities: Evidence for Thermal and Chemical Heterogeneity in Earth’s mantle.”
- 7/3/2007 The Department of Earth and Ocean Sciences Geophysics Seminar, The **University of Liverpool**, Liverpool, UK. Title: “Upper Mantle Discontinuity Topography Beneath South America.”
- 5/19/2006 Institute of Geophysics and Planetary Physics Seminar, **University of California**, Santa Cruz, CA. Title: ”Detection of a hot thermal anomaly in the upper mantle transition zone beneath Hawaii: Seismic evidence from SS-precursors.”

### ***Non-Refereed Presentations***

NB: Underlined names represent undergraduate/graduate students or postdoctoral scholars under direct supervision. ^names indicates undergraduate/graduate student where I served on their committee.

1. **Schmerr, N.**, Richardson, J., Ghent, R., Siegler, M., Young, K., Wasser, M., Whelley, P., Buczkowski, D., Carter, L., Connor, C., Connor, L., Bleacher, J., Fouch, M., Baker, D., Hurford, T., Jozwiak, L., Kruse, S., Lekic, V., Naidu, A., Porter, R., Montesi, L., Richardson, D. ~C., Rumpf, E., Schorghofer, N., Sunshine, J., Goossens, S., Whelley, N., Wyrick, D., Zhu, W., Bell, E., DeMartini, J., Coan, D., Akin, D.,

- Cohen, B., Mazarico, E., Neal, C., Panning, M., Petro, N., Strauss, B., Weber, R., Glotch, T., Hendrix, A., Parker, A., & Wright, S. (2020). Preparing for Geophysical Science Enabled by Crewed and Robotic Missions on the Surface of the Moon. *LPI Contributions*, 2241, 5048.
2. **Schmerr, N. C.**, Richardson, J. A., Ghent, R. R., Siegler, M., Young, K., Wasser, M. L., Whelley, P., Buczkowski, D., Carter, L. M., Connor, C., Connor, L., Bleacher, J. E., Fouch, M. J., Baker, D. M. H., Hurford T., J., Jozwiak, L. M., Kruse, S., Lekic, V., Naidu, A., Porter, R. C., Montesi, L., Richardson, D. C., Rumpf, M. E., Schorghofer, N., Sunshine, J. M., Goossens, S. J., Whelley, N., Wyrick, D. Y., Zhu, W., Bell, E., Coan, D., Akin, D., Cohen, B. A., Mazarico, E. M., Neal, C. R., Panning, M. P., Petro, N. E., Strauss, B. E., Weber, R. C., Glotch, T. D., Hendrix, A. R., Parker, A. H., & Wright, S. P. (2019). Geophysical Exploration Of the Dynamics and Evolution of the Solar System (GEODES). *AGU Fall Meeting Abstracts, 2019*, P33C-01.
  3. **Schmerr, N.**, Kawamura, T., Margerin, L., van Driel., M., Garcia, R., Karakostas, F., Tauzin, B., and Lognonne, P., (2019) Measuring the scattering and attenuation of seismic waves in Mars. Lunar and Planetary Science Conference 50, Abstract 1644.
  4. **Schmerr, N.**, Kawamura, T., Margerin, L., van Driel., M., Garcia, R., Karakostas, F., Tauzin, B., and Lognonne, P., (2019) Measuring the scattering and attenuation of seismic waves in Mars. InSight Team Meeting, Pasadena, CA.
  5. **Schmerr, N.**, Bailey, S., Quinn, T., DellaGiustina, D., Pettit, E., Bray, V., Avenson, B., Wagner, N., Habib, N., Marusiak., M., Dahl, P., Brodbeck, I., (2018). The 2018 Qaanaaq Fireball: A Seismic Recording of a Meteorite Impact Event into the Greenland Ice Sheet. AGU Fall Meeting, Washington, DC, Abstract P21E-3406.
  6. **Schmerr, N.**, Huang, Q., Waszek, L., and Beghein, C., (2018), Constraints on Seismic Anisotropy in the Mantle Transition Zone from Long-Period SS Precursors. SEDI, Edmonton, Canada.
  7. **Schmerr, N.**, Lekic, V., Mautino, A., Plescia, J., Barnouin, O., Paul, M., Richardson, D., Yu, H., DeMartini, J. (2018) The Asteroid Probe Experiment (APEX): Seismology at 99942 Apophis. Lunar and Planetary Science Conference 49, Abstract 2467.
  8. **Schmerr, N.**, (2017) Investigating the Interior of Icy Worlds with Small Aperture Seismic Arrays. IASPEI Planetary Seismology Meeting, Kobe, Japan.
  9. **Schmerr, N.**, (2017) Observations of Upper Mantle Discontinuity Structure. IASPEI Earth Structure and Dynamics Meeting, Kobe, Japan.
  10. **Schmerr, N.**, Lekic, V., Fouch, M., Panning, M., Siegler, M., Weber, R., (2017) Small aperture seismic arrays for studying planetary interiors and seismicity. 2017 AGU Fall Meeting, New Orleans, LA, Abstract DI21A-0391.
  11. **Schmerr, N.**, Montgomery, L., Burdick, S., Mieke, C., Forster, R., Miller, O., Solomon, K., Koenig, L., Legchenko, A., Brucker, L., Ligtenberg, S., (2017) Firm Aquifer Structure in Southeastern Greenland from Active Source Seismology. Geological Society of America Fall Meeting, Seattle, Washington.

12. **Schmerr, N.,** Waszek, L., Ballmer, M., (2017) Mantle Reflectivity Structure Beneath the Hawaiian Hotspot. Geological Society of America Cordilleran Meeting, Honolulu, HI.
13. **Schmerr, N.,** Garnero, E., Hurford, T., Lekic, V., Panning, M., Rhoden, A., Yu, H., (2017) Short Aperture Arrays on Icy Satellites. Lunar and Planetary Science Conference 48, Abstract 1254.
14. **Schmerr, N.,** Lekic, V., Panning, M., Hurford, T., Rhoden, A., Garnero, E., Yu, Y., (2017) Investigating The Interior of Icy Worlds With Short Aperture Seismic Arrays. Annual Meeting of the Seismological Society of America, Denver, CO.
15. **Schmerr, N.,** Montgomery, L., N., Burdick, S., Gao, C., Koenig, L., Legchenko, A., Miede., C., Miller, O., Solomon, K., Forster, R., Active Source Seismic Investigation of Firm Aquifer Structure in Southeastern Greenland. 2016 AGU Fall Meeting, San Francisco, CA, Abstract C53A-0692.
16. **Schmerr, N.,** Lekic, V., Panning, M., Hurford, T., Rhoden, A., Garnero, E., (2016) Investigating the interiors of icy worlds with small aperture seismic arrays. Geological Society of America Annual Meeting, 2016, Paper #48-8, Denver, CO, Sept. 25th.
17. **Schmerr, N.,** M. E. Banks, and I. J. Daubar (2016) The Seismic Signatures of Impact Events on Mars: Implications for the InSight Lander. Lunar and Planetary Science Conference 47, Abstract 1320.
18. **Schmerr, N.,** et al., (2015), Upper Mantle Discontinuity Structure Beneath the Western Atlantic Ocean and Eastern North America from SS Precursors, 2015 AGU Fall Meeting, San Francisco, CA, Abstract D111C-2615.
19. **Schmerr, N.,** Banks, M., Daubar, I., (2015), Recent Meteoroid Impacts on Mars: Seismic Signal Predictions, Geological Society of America Annual Meeting, Paper #100-5, Baltimore, MD, Nov. 2nd.
20. **Schmerr, N.,** Han, S., (2014), Seismic and Gravity Modeling of the Lunar Megaregolith, 45th LPSC, Woodlands, TX.
21. **Schmerr, N.,** Ashley, J., Banks, M., Daubar, I., Golombek, M., McEwen, A., (2014), Modeled Seismic Effects of Recent Meteoroid Impacts on Mars: Predictions for the InSight Lander, Geological Society of America Annual Meeting, Paper #259-12, Vancouver, BC, October 21st.
22. **Schmerr, N.,** Brunt, K., Cammarano, F., Hurford, T., Lekic, V., Panning, M., Rhoden, A., Sauber, J., (2013), Seismometers on Europa: Insights from Modeling and Antarctic Ice Shelf Analogs, 2013 AGU Fall Meeting, San Francisco, CA, Abstract P54A-01, *Invited*.
23. **Schmerr, N.,** Beghein, C., Ballmer, M., (2013), SS Precursor Detections of the X and Lehmann Discontinuities Beneath the Pacific, 2013 AGU Fall Meeting, San Francisco, CA, Abstract DI32A-05.
24. **Schmerr, N.,** Banks, M., Benecchi, S., Bradley, B., Budney, C., Clark, G., Corbin, B. James, P., Kumar, K., O'Brien, R., Rivera-Valentin, E., Saltman, A., Seubert, C.,

- Siles, J., Stickle, A., Stockton, A., Taylor, C., and Zanetti, M., (2013), Concept Study for a Venus Lander Mission to Analyze Atmospheric and Surface Composition, VEXAG Meeting, Smithsonian National Air and Space Museum, Dulles Airport, VA.
25. **Schmerr, N.**, Garnero, E., William, Q., (2012), Imaging the Velocity and Density Contrasts at Upper Mantle Discontinuities: Evidence for Thermo-chemical Heterogeneity and Dynamics, 2012 AGU Fall Meeting, San Francisco, CA, Abstract DI21C-08, *Invited*.
  26. **Schmerr, N.**, Rychert, C., and Harmon, N., (2012), Anisotropy at the Lithosphere-Asthenosphere Boundary: Insights from the SS Precursors, 2012 AGU Fall Meeting, San Francisco, CA, Abstract P33A-1751, *Invited*.
  27. **Schmerr, N.**, Chen, C., Sun, D., (2010), Probing Mantle Transition Zone Heterogeneity with Topside Reflected SH Seismic Energy, 2010 AGU Fall Meeting, San Francisco, CA, Abstract DI51C-1886, *Invited*.
  28. **Schmerr, N.**, Garnero, E., (2007), Upper Mantle Discontinuity Topography from Thermal and Chemical Heterogeneity, 2007, Eos Trans. AGU, 88 (52), Fall Meet. Suppl., Abstract D151B-03 *Invited*.
  29. **Schmerr, N.**, Garnero, E., (2006), Imaging Transition Zone Thickness Beneath South America from SS Precursors, 2006, Eos Trans. AGU, 87 (52), Fall Meet. Suppl., Abstract U11A-05.

### *Non-Refereed Abstracts*

#### **2020**

1. Banks, M. E., Watkins, R. N., Grier, J. A., Schleicher, L. S., Watters, T. R., **Schmerr, N. C.**, Bensi, M., Weber, R. C., van der Bogert, C. H., Cahill, J. T. S., Lemelin, M., Hahn, T. M., Clark, J. D., Williams, N. R., & Hiesinger, H. (2020). Investigations of Young Tectonic Structures: Data Collection to Assess Resource Potential and Seismic Hazard Characterization. *LPI Contributions*, 2241, 5172.
2. Young, K. E., Bleacher, J. E., Graff, T. G., Glotch, T. D., Rogers, A. D., McAdam, A., Whelley, P. L., Richardson, J., Achilles, C., Knudson, C., Garry, W. B., Feist, B., Scheidt, S. P., Honniball, C., Morse, Z., Naidu, A., Coan, D., Rampe, E. B., Evans, C., Bell, E. & **Schmerr, N.** (2020). The Importance of Incorporating Field Portable Instrumentation in Lunar Surface Exploration and the Implications of Doing So. *LPI Contributions*, 2241, 5143.
3. Richardson, J. A., Esmaili, S., Baker, D. M. H., Shoemaker, E. S., Kruse, S., Jazayeri, S., Whelley, P. L., Garry, W. B., Bell, E., Young, K. E., Carter, L. M., & **Schmerr, N. C.** (2020). Prospecting Buried Resources with Ground Penetrating Radar. *LPI Contributions*, 2241, 5134.
4. Richardson, J. A., Bell, E., **Schmerr, N. C.**, Espley, J. R., Sheppard, D. A., Connor, C. B., Whelley, P. L., Strauss, B. E., & Young, K. E. (2020). Magnetic Surveys to Probe the Lunar Subsurface. *LPI Contributions*, 2241, 5133.



5. Hurford, T. A., Dai, L., Fouch, M. J., Garnero, E. J., Lekic, V., Lin, W., Maguire, R., Olsen, K. G., **Schmerr, N.**, West, J. D., & Xu, Y. (2020). Seismic Studies from the Lunar South Pole with Rigged, Low-Cost MET Seismometers. *LPI Contributions*, 2241, 5072.
6. Weber, R. C., Neal, C., Banerdt, B., Beghein, C., Chi, P., Currie, D., Dell'Agnello, S., Garcia, R., Garrick-Bethell, I., Grimm, R., Grott, M., Haviland, H., Kawamura, T., Kedar, S., Lognonne, P., Nagihara, S., Nakamura, Y., Nunn, C., Ostrach, L., Panning, M., Petro, N., **Schmerr, N.**, Siegler, M., Watters, T., Wiczorek, M., & Zacny, K. (2020). Artemis: Enabling the Lunar Geophysical Network. *LPI Contributions*, 2241, 5063.

## 2019

7. Gardner, C., Maguire, R., **Schmerr, N. C.**, Bailey, S., DellaGiustina, D., Avenson, B., Pettit, E., Wagner, N., Marusiak, A. G., Broadbeck, J. I., Habib, N., Bray, V. J., Dahl, P., Carr, C., & Weber, R. C. (2019). Constraining the Properties of a Subglacial Lake in Northwest Greenland with Active Source Seismology. *AGU Fall Meeting Abstracts*, 2019, NS11B-0631.
8. Stanley, S., Banerdt, W. B., Smrekar, S. E., Fernando, B., Fuqua Haviland, H., Horleston, A. C., Johnson, C., King, S. D., Knapmeyer, M., Langlais, B., Marusiak, A. G., Mimoun, D., Mittelholz, A., Ojha, L., Panning, M. P., Plesa, A. C., Russell, C. T., **Schmerr, N. C.**, Spiga, A., & Weber, R. C. (2019). A Space Computer Named InSight Landed on the Red World Last Year and Here is What We Found So Far. *AGU Fall Meeting Abstracts*, 2019, ED43A-03.
9. Karakostas, F. G., **Schmerr, N. C.**, Maguire, R., Huang, Q., Larmat, C. S., Lognonné, P. H., Daubar, I., Malin, M. C., & Posiolova, L. V. (2019). Constraints for the Martian meteoroid impact seismic signals through modeling based on comparison of Terrestrial, Lunar and Martian data. *AGU Fall Meeting Abstracts*, 2019, DI51B-0021.
10. Nissen-Meyer, T., Fernando, B., Leng, K., **Schmerr, N. C.**, Panning, M. P., Stutzmann, E., Margerin, L., Fuji, N., Weber, R. C., Banerdt, W. B., Giardini, D., Lognonné, P. H., & Pike, W. T. (2019). Modelling the effects of 3D shallow scatterers and atmospheric sources on Martian seismic signals at high frequencies. *AGU Fall Meeting Abstracts*, 2019, DI51A-0012.
11. Hurst, K. J., Andersson, F., Banerdt, W. B., Bierwirth, M., Brinkmann, N., Ceylan, S., Charalambous, C., Delage, P., Fayon, L., Garcia, R., Giardini, D., Knapmeyer-Endrun, B., Kedar, S., Lognonné, P. H., McClean, J., Mimoun, D., Murdoch, N., Pike, W. T., Robertsson, J. O. A., Schmelzbach, C., **Schmerr, N. C.**, Stott, A., Sollberger, D., Stevanović, J., Staehler, S. C., Teanby, N. A., van Driel, M., Verdier, N., Vrettos, C., & Warren, T. (2019). Instrumental, Lander, and Geophysical Resonances from the InSight Seismometer on Mars. *AGU Fall Meeting Abstracts*, 2019, DI51A-0011.
12. Huang, Q., **Schmerr, N. C.**, Maguire, R., Lithgow-Bertelloni, C. R., Antonangeli, D., & King, S. D. (2019). Detecting the Mantle Transition Zone of Mars From Seismic Reflected Waves. *AGU Fall Meeting Abstracts*, 2019, DI51A-0007.
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94. Plescia, J., Barnouin, O., Richardson, D., **Schmerr, N.**, Lawrence, D., Denevi, B., Ernst, C., Yu, H., (2018) APEX - Asteroid Probe Experiment. Lunar and Planetary Science Conference 48, Abstract 2702.
95. Marusiak, A., **Schmerr, N.**, Banks, M., Daubar, I., (2017) Terrestrial Single-Station Analog for Constraining the Martian Deep Interior. Lunar and Planetary Science Conference 48, Abstract 2294.
96. Bell, E., **Schmerr, N.**, Bleacher, J., Porter, R., Young, K., Petitt, D., (2017) Planetary Analog Studies of Geophysical Field Techniques. Lunar and Planetary Science Conference 48, Abstract 1716.
97. Chui, T., Greggs, C., Moody, M., Paik, H., Kedar, S., Hahn, I., Williamson, P., Schmerr, N., Banerdt, W., Neal, C., Vance, S., (2017) The Design of a Planetary Broadband Seismometer (PBBS) for the Lunar Geophysical Network and the Ocean World. Lunar and Planetary Science Conference 48, Abstract 1660.
98. Kedar, S., **Schmerr, N.**, Vance, S., (2017) Emerging Opportunities in Planetary Seismology. Annual Meeting of the Seismological Society of America, Denver, CO.

99. Chui, T., Moody, M., Paik, H., Griggs, C., Kedar, S., Hahn, I., Williamson, P., **Schmerr, N.**, Banerdt, B., Neal, C., Vance, S. (2017) Development of a Planetary Broadband Seismometer for Geophysical Exploration of The Moon and the Ocean World. Annual Meeting of the Seismological Society of America, Denver, CO.

## 2016

100. Weidner, E., Beghein, C., Huang, Q., **Schmerr, N.**, (2016) Towards a New 3-D Radial Anisotropic Model of the Upper Mantle and Transition Zone. American Geophysical Union Fall Meeting, S43B-2836, San Francisco, CA.
101. Brunt, K., Hurford, T., **Schmerr, N.**, Sauber, J., MacAyeal, D., (2016) Breaking Ice 2: A rift system on the Ross Ice Shelf as an analog for tidal tectonics on icy moons. American Geophysical Union Fall Meeting, P34A-06, San Francisco, CA.
102. Weber, R., Banerdt, B., Lognonne, P., Hempel, S., Panning, M., **Schmerr, N.**, Garcia, R., Shiro, B., Gudkova, T., (2016) Mars Internal Structure: Seismic Predictions for Core Phase Arrivals in Anticipation of the InSight Mission. American Geophysical Union Fall Meeting, DI34A-08, San Francisco, CA.
103. Waszek, L., **Schmerr, N.**, Ballmer, M., (2016) Seismic observations of mid-mantle discontinuities on a global scale: implications for convection and composition. American Geophysical Union Fall Meeting, DI31A-2616, San Francisco, CA.
104. Chaves, C., Ritsema, J., Waszek, L., **Schmerr, N.**, (2016) Global Seismic Image of Mantle Transition Zone based on Finite-Frequency Theory. American Geophysical Union Fall Meeting, DI31A-2603, San Francisco, CA.
105. Huang, Q., **Schmerr, N.**, Waszek, L., Beghein, C., Weidner, E., (2016) Detecting Seismic Anisotropy in the Mantle Transition Zone with SS Precursors. American Geophysical Union Fall Meeting, DI31A-2601, San Francisco, CA.
106. Eagon, A., Waszek, L., Lekic, V., **Schmerr, N.**, Courtier, A., (2016) Constraining mantle discontinuity structure beneath North America using ScS reverberations. American Geophysical Union Fall Meeting, DI11A-2322, San Francisco, CA.
107. Forster, R., Miede, C., Miller, O., Solomon, K., **Schmerr, N.**, Legchenko, A., Koenig, L., Brautigam, N., McNeerney, L., Miller, J., (2016) Greenland firn aquifer investigations from remote sensing, geophysics, and in situ measurements. American Geophysical Union Fall Meeting, C41E-0715, San Francisco, CA.
108. Miller, O., Solomon, K., Miede, C., Voss, C., Koenig, L., Forster, R., **Schmerr, N.**, Montgomery, L., Legchenko, A., Ligtenberg, S., Field Measurements and Modeling of the Southeast Greenland Firn Aquifer. American Geophysical Union Fall Meeting, C41D-0702, San Francisco, CA.
109. Forster, R., Solomon, K., Miller, O., Miede, C., **Schmerr, N.**, (2016) Greenland firn aquifer investigations from remote sensing, geophysics, in situ measurements, and modeling. Workshop on observing and modelling meltwater retention processes in snow and firn on ice sheets and glaciers, Copenhagen, Denmark.

110. Waszek, L., and **Schmerr, N.** (2016) Seismic observations of mid-mantle discontinuities on a global scale. 5th Symposium of the Study of the Earth's Deep Interior, Nantes, France, Abstract 16.
111. Motoki M. H., Ballmer M. D. and **Schmerr N. C.** (2016) Intraplate Volcanism and Mantle Stratification Sustained by Upwellings Rising out of Stagnant Slabs. Goldschmidt Conference, Yokoham, Japan, Abstract 2164.
112. Weber, R. C. , A. L. Nahm, B. Yanites, and **N. Schmerr** (2016) Mass Wasting on the Moon: Implications for Seismicity. New Views of the Moon 2, Abstract 6009.
113. Daubar, I. J., **Schmerr, N. C.**, Banks, M. E., Marusiak, A. G., Golombek, M. P. (2016) Recent Impacts on Mars: Cluster Properties and Seismic Signal Predictions. DPS/EPSC Abstract.
114. Bell, E., **Schmerr, N.**, Plescia, J. (2016) Numerical Simulations of Seismic Wave Propagation Within Asteroids. Lunar and Planetary Science Conference 47, Abstract 1750.
115. Marusiak, A. G., **N. C. Schmerr**, M. E. Banks, and I. J. Daubar (2016) Terrestrial Single-Station Analog for the Detection of the Martian Core. Lunar and Planetary Science Conference 47, Abstract 2010.
116. Mongomery, L., **N. Schmerr**, L. S. Koenig, C. Miège, A. Legchenko, D. K. Solomon, O. Miller, and R. Forster (2016). Using In-Situ Seismic Measurements to Model the Velocity Structure of Subsurface Aquifers in Southeast Greenland. American Meteorological Society 96<sup>th</sup> Annual Meeting, New Orleans, LA, Abstract 677.

## 2015

117. Ballmer, M., **Schmerr, N.**, Nakagawa, T., Ritsema, J., Motoki, M., (2015), Compositional mantle layering revealed by slab stagnation at ~1,000 km depth, American Geophysical Union Fall Meeting, DI53A-03, San Francisco, CA.
118. Griebel, K., **Schmerr, N.**, Courtier, A., Lekic, V., (2015), Imaging Mantle Discontinuities Beneath North America Using ScS Reverberations, American Geophysical Union Fall Meeting, DI51A-2605, San Francisco, CA.
119. Miller, O., Solomon, D., Mieke, C., Koenig, L., **Schmerr, N.**, Montgomery, L., Legchenko, A., Forster, R., (2015), Initial In-situ Hydrologic Measurements of the Greenland Perennial Firn Aquifer, American Geophysical Union Fall Meeting, C51B-0695, San Francisco, CA.
120. Mieke, C., Koenig, L., Forster, R., Miller, O., Solomon, D., Legchenko, A., **Schmerr, N.**, Montgomery, L., Brucker, L., (2015), Investigating the Greenland firn aquifer near Helheim Glacier based on geophysical noninvasive methods and in situ measurements, American Geophysical Union Fall Meeting, C43E-01, San Francisco, CA.
121. Forster, R., Mieke, C., Solomon, D., Koenig, L., Miller, O., **Schmerr, N.**, Montgomery, L., (2015), Investigations of Liquid Water Retention in the Greenland Firn Aquifer, American Geophysical Union Fall Meeting, C22B-06, San Francisco, CA.

122. Ni, J., Holt, W., Flesch, L., Sandvol, E., Hearn, T., **Schmerr, N.**, (2015), Late Cenozoic deformation of the Eurasian and Burma Plates due to subduction of the Indian Plate beneath SE Tibetan Plateau and Myanmar, American Geophysical Union Fall Meeting, T34B-03, San Francisco, CA.
123. Cai, Z., Hier-Majumder, S., Elman, H., Stevens, M., **Schmerr, N.**, Lekic, V., (2015), Migration, Storage and Seismic Signatures of Melting at the Lithosphere-Asthenosphere Boundary, American Geophysical Union Fall Meeting, D111B-2591, San Francisco, CA.
124. Montgomery, L., **Schmerr, N.**, Koenig, L., Legchenko, A., Miller, O., Solomon, D., Forster, R., (2015), Using In-Situ Seismic Measurements to Model the Velocity Structure of Subsurface Aquifers in Southeast Greenland, American Geophysical Union Fall Meeting, C51B-0696, San Francisco, CA.
125. Fouch, M., H. Yu, L. Dai, J. Plescia, O. Barnouin, E. Garnero, **N. Schmerr**, K. Strohbehn, M. Liang, and J. West (2015), Development of a Next-Generation Microseismometer System for a Lunar Geophysical Network Mission, Annual Meeting of the Lunar Exploration Analysis Group, 20-22 October, Columbia, MD, *LPI Contributions*, 1863, 2072.
126. Weber, R., Nahm, A.L., **Schmerr, N.**, (2015), Mass Wasting in Planetary Environments: Implications for Seismicity, 46th LPSC, Woodlands, TX, Abstract #1485.
127. Johnston, S., Duncan, M., Weller, M., Wicks, J., Knezek, N., Black, B., Hongsresawat, S., Towles, N., Thissen, C., **Schmerr, N.**, Panning, M., Montési, L., Manga, M., Lognonné, P., (2015), Constraining Thermal History Through a Multidisciplinary Approach, Vol 1839, 46th LPSC, Woodlands, TX, Abstract #5035.
128. Banks, M., I. Daubar, **N. Schmerr**, and M. Golombek (2015), Predicted Seismic Signatures of Recent Dated Martian Impact Events: Implications for the InSight Lander, 46th LPSC, Woodlands, TX, Abstract #2679.
129. Daubar, I., M. Golombek, A. McEwen, S. Byrne, M. Kreslavsky, **N. Schmerr**, M. Banks, P. Lognonné, T. Kawamura, and F. Karakostas (2015), Measurement of the Current Martian Cratering Size Frequency Distribution, Predictions for and Expected Improvements from InSight, 46th LPSC, Woodlands, TX, Abstract #2468.
130. Duncan, M., M. Weller, J. Wicks, N. Knezek, B. Black, S. Johnston, S. Hongsresawat, N. Towles, C. Thissen, and **N. Schmerr** (2015), Mars Thermal History: Core, Atmosphere, Mantle, Phobos, and Surface (MaTH CAMPS), 46th LPSC, Woodlands, TX, Abstract #2900.
131. Ballmer, M., J. Ritsema, **N. Schmerr**, and M. Motoki (2015), Mantle compositional layering revealed by slab stagnation in the uppermost lower mantle, EGU General Assembly, Vienna, Austria.

## 2014

132. Lessing, S., Thomas, C., Rost, S., Vanacore, E., **Schmerr, N.**, (2014), Effects of topography on upper mantle discontinuities for array detections of PP precursors, American Geophysical Union Fall Meeting, DI41B-4327, San Francisco, CA.

133. Forster, R., Miller, J., Miede, C., Brucker, L., Koenig, L., Solomon, D., **Schmerr, N.**, Burgess, E., Box, J., (2014), Recent results on the Greenland Aquifer from remote sensing and in situ measurements, American Geophysical Union Fall Meeting, C21B-0335, San Francisco, CA.
134. Wicks, J., Weller, M., Towles, N., Thissen, C., Knezek, N., Johnston, S., Hongsresawat, S., Duncan, M., Black, B., **Schmerr, N.**, Panning, M., Montesi, L., Manga, M., Lognonne, P., (2014), Mars Thermal History: Core, Atmosphere, Mantle, Phobos and Surface (MaTH CAMPS), American Geophysical Union Fall Meeting, DI51A-4351, San Francisco, CA.
135. Beghein, C., Yuan, K., **Schmerr, N.**, Xing, Z., (2014), Constraints on the Thermal and Compositional Nature of the Oceanic Lithosphere-Asthenosphere Boundary from Seismic Anisotropy, American Geophysical Union Fall Meeting, S41D-05, San Francisco, CA.
136. **Schmerr, N.**, Courtier, A., Hier-Majumder, S., Lekic, V., (2014), Using Seismic Discontinuities to Image Melt and Dynamics in the Sub-Continental Upper Mantle, American Geophysical Union Fall Meeting, DI41B-4326, San Francisco, CA.
137. Fuqua, H., Bremner, P., Diamond, M., Garapic, G., Lock, S., Mallik, A., Nishikawa, Y., Panovska, S., Shahar, A., Lognonne, P., Panero, W., Faul, U., Panning, M., Jimenez-Perez, H., **Schmerr, N.**, Williams, Q., (2014), Consequences and Resolution of Lunar Lower Mantle Partial Melt, American Geophysical Union Fall Meeting, P13D-3860, San Francisco, CA.
138. Mautino, A., **Schmerr, N.**, (2014), Using Topside Reflections to Image Upper Mantle Discontinuity Structure Beneath North America via the Earthscope Transportable Array, American Geophysical Union Fall Meeting, S14B-05, San Francisco, CA.
139. Waszek, L., Arredondo, K., Finkelstein, G., Kellogg, L., Lekic, V., Li, M., Lithgow-Bertelloni, C., Romanowicz, B., **Schmerr, N.**, Rudolph, M., Townsend, J., Xing, Z., Yang, F., (2014), Slab Stagnation in the Lower Mantle: A Multidisciplinary Investigation, American Geophysical Union Fall Meeting, DI53A-4359, San Francisco, CA.
140. **Schmerr, N.**, Han, S., (2014), Joint Seismic and Gravity Models of the Lunar Megaregolith, 14th Symposium of the Study of Earth's Deep Interior, Kanagawa, Japan
141. Yuan, K., Beghein, C., **Schmerr, N.** and Xing, Z., (2014), Structure of the oceanic lithosphere and the oceanic lithosphere-asthenosphere boundary from Seismic Anisotropy, 2014 IRIS Workshop, Abstract, Sunriver, Oregon.
142. **Schmerr, N.**, (2014), Exploring Single Station Seismometer Techniques on Earth in Preparation for the InSight Geophysical Mission to Mars, Planetary Analog Workshop, Carnegie Institution of Washington, Washington, DC.
143. **Schmerr, N.**, Thorne, M., Yao, Y., (2014), Seismic Properties of the Lunar Megaregolith, 44th LPSC, Woodlands, TX.

2013

144. Ballmer, M., **Schmerr, N.**, Ritsema, J., Motoki, M., Ito, G., (2013), Compositional stratification across the Transition Zone in the presence of whole-mantle convection, 2013 AGU Fall Meeting, San Francisco, CA, Abstract DI14A-05.
145. Rader, R., Frost, D., Cheng, C., Yu, C., Menard, J., Emry, E., **Schmerr, N.**, (2013), Are mid-lithospheric discontinuities (MLDs) caused by layers of frozen-in melts, 2013 AGU Fall Meeting, San Francisco, CA, Abstract MR24B-08.
146. Han, S., Holmes, S., Neumann, G., Wieczorek, M., **Schmerr, N.**, (2013), Line-of-sight gravity analysis of the inter-satellite tracking data from the Gravity Recovery And Interior Laboratory (GRAIL) mission and gravitational potential modeling from the Lunar Orbiter Laser Altimeter (LOLA) topography, 2013 AGU Fall Meeting, San Francisco, CA, Abstract G31B-08.
147. Beghein, C., Yuan, K., Xing, Z., **Schmerr, N.**, (2013), Investigating the Origin of the Gutenberg Discontinuity With Anisotropic Seismic Tomography, 2013 AGU Fall Meeting, San Francisco, CA, Abstract DI31B-08.
148. Weber, R., **Schmerr, N.**, (2013), GRAIL Refinements to Lunar Seismic Structure, 2013 AGU Fall Meeting, San Francisco, CA, Abstract P51C-1746.
149. Whittaker, S., Thorne, M., Koper, K., **Schmerr, N.**, (2013), Broadband Array Observations of the D" Discontinuity, 2013 AGU Fall Meeting, San Francisco, CA, Abstract DI51A-2270
150. **Schmerr, N.**, Ballmer, M., (2013), Velocity and Density Contrasts at Upper Mantle Boundaries: Putting Together Views from Mineral Physics, Seismology, and Geodynamics, Gordon Research Conference on the Interior of the Earth, Mt. Holyoke College, South Hadley, MA.
151. **Schmerr, N.**, Ballmer, M., (2013), Velocity and Density Contrasts at Upper Mantle Boundaries: Putting Together Views from Mineral Physics, Seismology, and Geodynamics, CIDER II, UC Berkeley, Berkeley, CA.
152. **Schmerr, N.**, Ashley, J., Petro, N., (2013), Identifying Impact Craters Recorded by the Apollo Passive Seismic Experiment, 43rd LPSC, Woodlands, TX.

## 2012

153. Weber, R., **Schmerr, N.**, Lin, P., Garnero, E., Thorne, M., Han, S., (2012), GRAIL Refinements to Lunar Seismic Structure, 2012 AGU Fall Meeting, San Francisco, CA, Abstract G33B-0958.
154. Yao, Y., Thorne, M., Weber, R., **Schmerr, N.**, (2012), Evaluating 1-D Seismic Models of the Lunar Interior, 2012 AGU Fall Meeting, San Francisco, CA, Abstract P53A-2036.
155. **Schmerr, N.**, Sauber, J., Brunt, K., Frey, H., Hurford, T., Markus, T., Neumann, T., and Rhoden, A., (2012), Seismic Investigation of Icy Moons: Insights from Earth Analogs and Modeling, 13th Symposium of the Study of Earth's Deep Interior, Leeds, UK.
156. **Schmerr, N.**, Rychert, C., and Harmon, N., (2012), Seismic Imaging of the Oceanic Lithosphere-Asthenosphere Boundary, 13th Symposium of the Study of Earth's Deep Interior, Leeds, UK.

157. **Schmerr, N.**, (2012), Imaging the Base of a Tectonic Plate: Evidence for Melt and Volatiles at the Lithosphere-Asthenosphere Boundary, IRIS Workshop, Boise, ID
158. Han, S., Mazarico, E., Neumann, G., Petro, N., **Schmerr, N.**, (2012), Study on the Luna Megaregolith Thickness and Density from Improved Gravity and Topography Data, Asian Oceania Geosciences Society 9th Annual General Meeting, Singapore.

## 2011

159. **Schmerr, N.**, Garnero, E., Lin, P., Thorne, M., Weber, R., (2011), Towards Simulating a Realistic Planetary Seismic Wavefield: The Contribution of the megaregolith and Low-Velocity Waveguides, 2011 AGU Fall Meeting, San Francisco, CA, Abstract P33A-1748
160. Kumar, K., Banks, M., Benecchi, S., Bradley, B., Budney, C., Clark, G., Corbin, B. James, P., O'Brien, R., Rivera-Valentin, E., Saltman, A., **Schmerr, N.**, Seubert, C., Siles, J., Stickle, A., Stockton, A., Taylor, C., and Zanetti, M., (2011), Concept study for a Venus Lander Mission to Analyze Atmospheric and Surface Composition, 2011 AGU Fall Meeting, San Francisco, CA, Abstract P42B-07.
161. Lin, P., Weber, R., Garnero, E., **Schmerr, N.**, (2011), Further constraints and uncertainties on the deep seismic structure of the Moon, 2011 AGU Fall Meeting, San Francisco, CA, Abstract P33A-1751.
162. Zhao, C., Garnero, E., **Schmerr, N.**, McNamara, A., (2011), Hawaii: A plume rising vertically from the top of a lowermost mantle compositional reservoir, 2011 AGU Fall Meeting, San Francisco, CA, Abstract DI22A-07.
163. Anderson, H., Thorne, M., **Schmerr, N.**, Brown, S., (2011), Seismic interferometry of the mantle transition zone beneath the western United States, presented at 2011 AGU Fall Meeting, San Francisco, CA, Abstract DI31B-2182.
164. **Schmerr, N.**, Garnero, E., and Williams, Q., (2011), The Reflectance of the Upper Mantle Discontinuities, Gordon Research Conference on the Interior of the Earth, Mt. Holyoke College, South Hadley, MA.
165. **Schmerr, N.**, Chen, C., and Sun, D., (2011), Using EarthScope to Detect Upper Mantle Transition Zone Heterogeneity, EarthScope Nation Meeting, Austin, TX.
166. **Schmerr, N.**, Matzel, E., and Ford, S., (2011), The Effect of Free-Surface Topography on Seismic Waves in the Moon, 42nd LPSC, Woodlands, TX.

## 2010

167. **Schmerr, N.**, Weber, R., Garnero, E., (2010), Characterizing the Lunar Interior with Reflected and Converted Seismic Waves, Ground Based Geophysics on the Moon Workshop, Tempe, AZ.
168. **Schmerr, N.**, (2010), Seismic Evidence for Melt at the Base of the Lithosphere Beneath Hotspots, 2010 AGU Fall Meeting, San Francisco, CA, Abstract DI11A-1830.
169. Kelly, B., **Schmerr, N.**, (2010), The X Discontinuity: A Probe of Upper Mantle Heterogeneity, 2010 AGU Fall Meeting, San Francisco, CA, Abstract DI52A-02.

170. Weber, R., Garcia, R., Johnson, C., Knapmeyer, M., Lognonne, P., Nakamura, Y., **Schmerr, N.**, (2010), The use of deep moonquakes for constraining the internal structure of the Moon, 2010 AGU Fall Meeting, San Francisco, CA, Abstract U51B-0037.

## 2009

171. **Schmerr, N.**, (2009), Deep mantle plumes and upwelling beneath the Pacific Ocean, Gordon Research Conference on the Interior of the Earth, Mt. Holyoke College, South Hadley, MA.
172. Thomas, C., **Schmerr, N.**, (2009), Evidence for Hot Material Subducted beneath the Kurile Slab, *Eos Trans. AGU*, 90 (53), Fall Meet. Suppl., Abstract DI13A-1638.
173. **Schmerr, N.**, Silver, P., (2009), Detection of Upper Mantle Reflectors at 50-150 km Depth From SS and PP Precursors: The Lithosphere-Asthenosphere Boundary? *Eos Trans. AGU*, 90 (53), Fall Meet. Suppl., Abstract S11A-1694.

## *Historical Conferences, Workshops, Talks (10+ years ago)*

174. **Schmerr, N.**, Garnero, E., Williams, Q., (2008), Amplitude Ratios of Reflected Phases: Implications for the Aluminum Content of the Mantle at the 660 km Discontinuity, *Eos Trans. AGU*, 89 (53), Fall Meet. Suppl., Abstract DI23A-1753.
175. Garnero, E., McNamara, A., **Schmerr, N.**, Lay, T., (2008), Seismic Imaging of Multi-Scale Thermal and Chemical Complexities in Earth's Convecting Mantle, *Eos Trans. AGU*, 89(53), Fall Meet. Suppl., Abstract DI31B-1800
176. Thomas, C., **Schmerr, N.**, Garnero, E., (2008), Upper Mantle Discontinuity Structure From Wavefield Migration of Precursors to SS and PP, 2008, *Eos Trans. AGU*, 89(53), Fall Meet. Suppl., Abstract S21A-1805
177. **Schmerr, N.**, Garnero, E., Thomas, C., (2007), Wavefield migration of EarthScope USArray data applied to precursors of SS to image upper mantle discontinuity structure, EarthScope National Meeting, Monterey, CA.
178. **Schmerr, N.**, Garnero, E., Rost, S., (2006), Imaging the 410 -km Discontinuity Structure Beneath the Central Pacific using PP-precursors, 10th Symposium of the Study of Earth's Deep Interior, Prague, Czech Republic.
179. **Schmerr, N.**, Garnero, E., (2006), Imaging Mantle Discontinuities Beneath the Juan de Fuca and Pacific Plates, IRIS Annual Workshop, Tucson, AZ.
180. **Schmerr, N.**, Garnero, E., Stixrude, L., (2005), Evidence for Positive Correlation of 400- and 670-km Discontinuity Topography Beneath the Central Pacific from SS Precursors, *Eos Trans. AGU*, 85 (52), Fall Meet. Suppl., Abstract DI41A-1246.
181. Revenaugh, J., Courtier, A., Avants, M., Gaherty, J., Garnero, E., **Schmerr, N.**, Thorne, M., Ford, S., Yoburn, J., Bostock, M., Baig., A., Langlois, A., Mercier, J., Oueity, J., Nicholson, T., Barstow, N., (2004), CANOE: A Broadband Array in Northwestern Canada, 2004, *Eos Trans. AGU*, 85(47), Fall Meet. Suppl., Abstract S53B-0208.



182. **Schmerr, N.**, Garnero, E., Rost, S., Thomas, C., (2004), Migration of SS precursor Data to Image Fine-scale Structure on the Upper Mantle Discontinuities Beneath, Eos Trans.AGU, 85(47), Fall Meet. Suppl., Abstract U41A-0713.
183. **Schmerr, N.**, Garnero, E., Igel, H., Jahnke, G., Thorne, M., Treml, M., (2004), Imaging the 410 and 660-km Discontinuity Structure Beneath Hawaii using the SS-precursors, 8<sup>th</sup> Symposium of the Study of Earth's Deep Interior, Garmisch-Partenkirchen, Germany.
184. **Schmerr, N.**, Garnero, E., Igel, H., Treml, M., Jahnke, G., (2003), Probing the nature of the 410- and 660-km discontinuities beneath hotspots using the SS-precursors, Eos Trans. AGU,84(46), Fall Meet. Suppl., Abstract S21E-0356
185. **Schmerr, N.**, Garvin, J., Neumann, G., and Sakimoto, S., (2001), Seasonal Changes in the Thickness of Martian Polar Crater Deposits From the Mars Orbiter Laser Altimeter, 2001, Eos Trans. AGU, 82(47), Fall Meet. Suppl., Abstract P31A-0544.
186. **Schmerr, N.C.**, Fei, Y., and Bertka, C., (2001), Extending the Solidus for a Model Iron-rich Martian Mantle Composition to 25 Gpa, Lunar and Planetary Science XXXII, Abstract #1157.

### ***Whitepapers***

- Henning, W., Renaud, J., Mandell, A., Saxena, P., Hurford, T., Matsumura, S., Glaze, L., Livengood, T., Airpatetian, V., Asphaug, E., Teske, J., Schwieterman, E., Efroimsky, M., Makarov, V., Beghea, C., Bleacher, J. Rushby, A., Lee, Y, Kuang, W., Barnes, R. Dong, C., Driscoll, P, Domagal-Goldman, S., **Schmerr, N.**, Del Genio, A., Jensen, A., Kaltenegger, L., Elkins-Tanton, L, Shock, E., Sohl, L., Quintana, E., Schaefer, L., Barclay, T., Fujii, Y., Hamano, K., Petro, N., Lopez, E., Sasselov, D. (2018), Exoplanet Science Priorities from the Perspective of Internal and Surface Processes for Silicate and Ice Dominated Worlds, NASA Nexus for Exoplanetary System Science Whitepaper proposals.
- Henning, W., Renaud, J., Saxena, P., Whelley, P., Mandell, A., Matsumura, S., Glaze, L., Hurford, T., Livengood, T., Hamilton, C., Efroimsky, M., Makarov, V., Berghea, C., Guzewich, S., Tsigaridis, K., Arney, G., Cremons, D., Kane, S., Bleacher, J., Kopparapu, R. Kohler, E., Lee, Y., Rushby, A, Kuang, W., Barnes, R., Richardon, J., Driscoll, P., **Schmerr, N.**, Del Genio, A., Davies, A, Kaltenegger, L., Elkins-Tanton, L., Fujii, Y., Schaefer, L., Rangan, S., Quintana, E., Barclay, T., Hamano, K., Petro, N., Kendall, J., Lopez, E., Sasselov, D. (2018) Highly Volcanic Exoplanets, Lava Worlds, and Magma Ocean Worlds: An Emerging Class of Dynamic Exoplanets of Significant Scientific Priority NASA Nexus for Exoplanetary System Science Whitepaper proposals.
- Ruedas, T., **Schmerr, N.**, Gómez Pérez, N., (2009) Seismological investigations of Mars' deep interior, NASA Decadal Whitepaper Proposals

### **Sponsored Research and Programs – Administered by the Office of Research Administration (ORA)**

#### ***Current Grants – Totals are for UMD portion of grant***

1. **PI** on “Geophysical Exploration Of the Dynamics and Evolution of the Solar System (GEODES),” NASA-SSERVI, Co-Investigators: Richardson, J., (Deputy PI), Lekic, V., Montesi, L., Zhu, W., Richardson, D., Sunshine, J., Whelley, P., Whelley, N., Period of Performance: 10/01/19 – 09/30/24. Budget: \$6,633,425.
2. **Co-Investigator** on “Seismometer to Investigate Ice and Ocean Structure (SIIOS),” NASA ICEE2, Co-Investigators: Bailey, S.H., (PI), Weber, R., Dahl, P., Avenson, B., Pettit, E., Bray, V., Della-Giustina, D., Period of Performance, 01/01/2019-12/31/2021. Budget \$23,918.
3. **Co-Investigator** on “Seismometer for a Lunar Network (SLN),” NASA DALI, Co-Investigators: Bailey, S.H., (PI), Period of Performance, 01/02/2019-12/31/2020. Budget \$52,986.
4. **Co-Investigator** on “The Lunar Environment Monitoring Station (LEMS),” NASA DALI, Co-Investigators: Benna, M., (PI), Dai, L., Malespin, C., Raaen, E., Sarantos, M., Zhao, Z., Period of Performance, 01/01/2019-12/31/2021. Budget \$84,595.
5. **PI** on “Single-Station Seismometer Analogs and Approaches for the Investigation of Icy Worlds,” funded by NASA, NESSF Program, 80NSSC18K1260, Co-Investigators: Marusiak, A., Period of Performance: 09/01/2018-08/31/2019. Budget: \$45,000.
6. **PI** on “Using InSight to Characterize the Seismic Scattering of the Martian Crust and Mantle,” funded by NASA, InSight Participating Scientist Program, 80NSSC18K1628, Co-Investigators: Marusiak, A., Period of Performance: 06/01/2018-05/31/2022. Budget: \$580,525.
7. **Co-Investigator** on “Seismometer to Investigate Ice and Ocean Structure (SIIOS),” NASA PSTAR, Co-Investigators: Bailey, S.H., (PI), Byrne, S., Pettit, E., Dahl, P., Bray, V., Showman, A., Albert, D., Della-Giustina, D., Avenson, B., Period of Performance, 06/01/2017-08/30/2019. Budget \$255,430.
8. **Co-Investigator** on “A Planetary Broadband Seismometer for the Lunar Geophysical Network and the Ocean Worlds,” NASA MATISSE, Co-Investigators: Chui, T., (PI), Vance, S., Kedar, S., Maruyama, Y., Williamson, P., Hahn, I., Neal, C., Paik, H.P., Banerdt, W., Period of Performance, 03/01/2017-03/01/2021. Budget: \$189,963.
9. **Co-Investigator** on “Seismometers for Exploring the Subsurface of Europa (SESE),” funded by NASA, Concepts for Ocean worlds Life Detection Technology, NNX17AF70G, Co-Investigators: Yu, H., (PI), Hurford, T., Dai, L., Xu, Y., Rhoden, A., Garnero, E., Period of Performance, 2/01/2017-01/30/2020. Budget \$300,900.
10. **PI** on “Analog Field Deployments of Small Aperture Seismic Arrays on Terrestrial Bodies,” funded by NASA, Planetary Science and Technology Through Analog Research, NNX16AK10G, Co-Investigators: Porter, R., Bleacher, J., Young, K. Period of Performance: 06/01/2016-05/31/2020. Budget: \$486,204.
11. **Co-Investigator** on “Antarctic analog study for tidally driven diurnal motions on icy satellites,” funded by NASA, Solar System Workings Program, NNX15AV47G, Co-Investigators: Hurford, T. (PI), Brunt, K., Rhoden, A., Period of Performance: 07/01/15 - 06/30/20. Budget: \$134,917.

12. **PI** on “Collaborative Research: Detecting Seismic Anisotropy in the Upper Mantle and Upper Mantle Transition Zone,” National Science Foundation - Division of Earth Sciences, EAR-1447041, Co-Investigators: Beghein, C., Period of Performance: 02/01/2015-01/31/2020. Budget: \$160,435.

### ***Completed Grants***

1. **Co-Investigator** on “APEX: Asteroid Probe Experiment”, NASA-PDS3, Co-Investigators: Plescia, J., (PI), Denevi, B., Ernst, C., Barnouin, O., Richardson, D., Period of Performance, 09/01/17-03/30/18. Budget: \$33,945.
2. **PI** on “Collaborative research: Greenland ice sheet hydrology: water storage in a perennial firn aquifer,” National Science Foundation, PLR-1417993, Arctic Natural Sciences, Period of Co-Investigators: Forster, R. Solomon, K., Koenig, L., Performance: 09/01/2014 -08/31/2017. Budget: \$88,492.
3. **PI** on “Utilizing Morphometric Properties of Craters to Characterize the Seismological Signature of Recent Impact Events on Mars,” funded by NASA, Mars Fundamental Research Program, NNX14AQ92G, Co-Investigators: Daubar, I., Banks, M., Period of Performance: 8/29/2014 – 8/28/2017. Budget: \$231,920.
4. **PI** on “Collaborative Research: Investigating the Nature of the Subcontinental Upper Mantle,” National Science Foundation, Cooperative Studies of The Earth's Deep Interior (CSEDI), EAR-1361325: Co-Investigators: Lekic, V., Hier-Majumder, S., Courtier, A., Period of Performance: 9/1/2014 – 8/31/2017. Budget: \$259,998.
5. **Co-Investigator** on “Seismic Exploration of Small Bodies,” funded by Johns Hopkins University and NASA, Advanced Instrument Concepts program, NNX15AL87G, Co-Investigators: Plescia, J. (PI), Co Investigators: Barnouin, O., Yu, H., Period of Performance: 07/01/2015-02/28/2016. Budget: \$10,971.
6. **Co-Investigator** on “Improved Global Gravity Fields on the Moon from Re-analysis of Lunar Prospector Radio Tracking Data,” University of Maryland, Baltimore County, National Aeronautics and Space Administration, Lunar Advanced Science and Exploration Research (LASER), STM-0000013424, Co-Investigators: Han, S., (PI), Period of Performance: 9/1/2013 – 12/31/2014. Budget: \$103,100.
7. **PI** on “Collaborative Research: A New Approach to Imaging Mantle Discontinuity Structure with USArray,” National Science Foundation, Early-concept Grants for Exploratory Research (EAGER), EAR-1247608, Co-Investigators: Fouch, M., Period of Performance: 10/1/2012 – 2/28/2015. Budget: \$76,207.

### **Fellowships, Gifts and Other Funded Research**

1. **Lead** on “The 3-D Geological Printing Laboratory,” LaunchUMD, at the University of Maryland. A crowdsourcing campaign via LaunchUMD to raise \$8000 for creation of a 3-D printing facility in the Geology Department. Collaborating Team: Montesi, L., Miller, K., Dottin, J. Budget: \$8000.

### **Submissions and Works in Progress**

## Current Grant Applications

1. **Co-Investigator** on “Seismometer for Commercial Lunar Landers (SeisCom),” NNH18ZDA001N-LSITP, Co-Investigators: Bailey, S.H., (PI), Burt, R., Della-Giustina, D., Avenson, B., Weber, R., Ballouz, R., Period of Performance, 06/01/19 – 08/31/21 (TBD). Budget: \$73,158.

## III. TEACHING, MENTORING AND ADVISING

### Courses Taught

#### *GEOL 100: Introduction to Physical Geology*

This is an introductory course that will help students to make these connections between their presence on Earth and the workings of our planet. In this course they will learn about the rocks and minerals composing the earth, the energy and mineral resources of the planet, its surface features and the agents that form them, the connection between the atmosphere, hydrosphere, cryosphere, and lithosphere, and the dynamic forces of plate tectonics.

Taught in:

- Spring 2016; enrollment 95.
- Spring 2018; enrollment 94.
- Spring 2019; enrollment 95.

#### *GEOL 341: Structural Geology*

Structural geology is the study of the deformation within Earth's lithosphere, especially stress, rheology, strain, and the origin and significance of structural features. In this course students will develop of 3-dimensional thinking through drafting and drawing of structures, construction of geologic maps and cross-sections, scientific writing, descriptions, and stereographic and orthographic representation of structures.

Taught in:

- Spring 2017; enrollment 13.

#### *GEOL 446: Geophysics*

This course aims to introduce undergraduate students to the basic principles of modern geophysics. Topics include: global plate tectonics, plate motion, triple junctions, geomagnetism, earthquakes and faulting, reflection and refraction

seismology, gravity and isostasy, heat flow and mantle dynamics, deep interior of the Earth, geophysical observations and measurements.

Taught in:

Fall 2016; enrollment 13.

*GEOL 457 & 657: Seismology and Seismic Wave Propagation*

This course aims to introduce undergraduate students to the basic principles of seismology, including earthquakes, seismic wave generation and propagation. Students learn about stress and strain, the seismic wave equation, methods for calculating wave propagation through layered and heterogeneous media, imaging of shallow structure using seismic reflection, converted-waves, surface waves, and tomographic imaging of global structure. The final third of the course will focus describing seismic sources – earthquakes, tremor, slip, magnitudes and the nature of seismic hazards.

Taught in:

Spring 2015; enrollment 10 (3 in 457; 7 in 657).

Spring 2017, enrollment 4 (3 in 457; 1 in 657).

Spring 2019, enrollment 16 (9 in 457; 7 in 657).

*GEOL 460: Field Geophysics*

In this course advanced undergraduate and graduate students will become familiar with geophysical instrumentation used for remote sensing in scientific and industrial applications. Class participants will be given an introduction to the use of geophysical instrumentation for data collection, processing, and analysis, design of field experiments for investigating field geophysical problems, and an introduction to the theory of instrument design and use. Instruments that will potentially be covered include (but are not limited to): seismometers, ground-penetrating radar, magnetometers, and the Global Positioning Satellite system.

Taught in:

Fall 2015; enrollment 15.

Fall 2017, enrollment 4.

Fall 2018, enrollment 5.

Fall 2019, enrollment 5.

*GEOL 488/688: Geology Colloquium*

This course is organized around the Geology departmental seminar series, in which a broad a range of contemporary research topics are presented by local and visiting

experts and fulfills the requirement for colloquium attendance for the PhD in geology. It is open to pre-candidacy graduate students in Geology only. Its objective is to provide geology graduate students with direct exposure to contemporary research in the context of a structured course. Course objectives include: familiarization with current major research topics, enhanced familiarization with standard practices of the presentation of scientific information, and development of the ability to integrate information presented in colloquium into a larger research context and improvement of scientific writing skills through the writing of synoptic descriptions of the colloquium presentations.

Taught in:

Spring 2017; enrollment 7 (3 in 488; 4 in 688).

Fall 2018, enrollment 2 (1 in 488; 1 in 688).

Spring 2018, enrollment 1 (0 in 488; 1 in 688).

*GEOL 497H: Recent Advances: Geology (Guest Lecturer)*

I regularly guest lecture in this course and present a short module comparing the formation of the early Earth to the geology and geophysics of Mars and Venus. Students are given a lecture on the geology and formation histories of Mars and Venus; this provides them a basic understanding of the evolution and dynamics of these bodies. Each student is assigned an in-depth reading on a particular topic related to each body, and asked to present a short summary in class of their findings. These presentations are followed by a discussion of the relationship of the early Earth to the current and past conditions on Mars and Venus.

Taught in: Spring 2015, Spring 2016, Spring 2017, Spring 2020.

### **Course or Curriculum Development**

- 2015      Designed, developed, and taught a new course *Field Geophysics* in the Department of Geology, which is eligible for meeting the geophysics requirements for major and geophysics minors. The course has a lab and field component, with in-class practicals and field trips to local and distant regions to train students how to collect and process geophysical datasets.
- 2016      Designed, developed, and taught a new course *Geology Colloquium* in the Department of Geology, which is eligible for advanced Geology undergraduates and pre-candidacy graduate students. The course is designed to engage our students in the Departmental colloquium and give them familiarity with writing, web design, and scientific communication.

2017 Designed, developed, and taught an updated curriculum for an established course *Structural Geology* in the Department of Geology. This classic requirement of our curriculum is designed to give students familiarity with 3-D thinking and deformation in the Earth. I have updated the curriculum to include a discussion of tectonics and place structural studies within a planetary geology framework.

## **Advising: Research**

### **Undergraduate**

#### Senior thesis students (GEOL 393/394):

Spring 2019 – Fall 2019, Logan Edwards, project on “Detection of ULVZ beneath the Pacific Plate.”

Spring 2019 – Fall 2019, Emily Moy, project on “Measuring the movement of the Greenland Ice Sheet with in-situ GPS.”

Spring 2018 – Spring 2019, Jessica Lindsay, project on “Emeralds in Hiddenite, NC: Using seismic anisotropy to identify mineral veins in bedrock.”

Fall 2017 – Spring 2018, Youchuan Wang, project on “Thermal and compositional variations in the mantle inferred from the impedance contrast at the 410- and 660- km discontinuities.”

Spring 2017 – Fall 2017, *Co-Mentor with Dr. Karen Prestegard*; Caroline Liegey, project on “Formation Mechanisms of Cryovolcanoes in the Solar System.”

Spring 2017 – Fall 2017, Benton Williams, project on “Glacial bedrock topography upstream of Helheim Glacier, Greenland.”

Fall 2016 – Spring 2017, Foteine Dimtracopoulos, project on “Analysis of Convection Cells on Sputnik Planum” Joint Advisorship with Dr. Karen Prestegard.

Fall 2015 – Fall 2016, Joshua Gaal, project on “Using moment of inertia to classify the interiors of asteroids.”

Fall 2015 – Spring 2016, *Co-Mentor with Dr. Karen Prestegard*; Jessica Kronenwetter, project on “The Effects of Channelization on Groundwater Flow in the Anacostia River Floodplain.”

Spring 2015 – Fall 2015, Robert Burgess, project on “Imaging the Gutenberg Seismic Discontinuity beneath the Oceanic Crust of the North American Plate.”

#### Research Advisor to:

Summer 2019, Christyna Gardner (IRIS-summer intern), project on “Measuring the seismic properties of a subglacial lake near Qaanaaq Greenland.”

Summer 2017, Brittany Washington (IRIS-summer intern), project on “Characterizing the Seismic Ocean Bottom Environment of the Bransfield Strait.”

Summer 2016, Andrew Eagon (summer student from University of Wisconsin-Whitewater), project on “Upper mantle discontinuity structure beneath North America from the ScS reverberations.”

Fall 2014 – Fall 2016, Lynn Montgomery (undergraduate in AOSC), project on “Measuring the depth of a Greenland firm aquifer with seismic refraction.”

Summer 2015, Kyle Griebel (summer student from University of Wisconsin-Whitewater), project on “Upper mantle discontinuity structure beneath North America from the ScS reverberations.”

Summer 2014 – Anthony Mautino, project on “Using Topside Reflections to Image Upper Mantle Structure.”

Summer 2010, Bryon Kelly (summer intern at Carnegie Institution of Washington, now employed at Nexen Inc.), project on “Broadband Observations of the X-Discontinuity beneath the Pacific.”

## **Master's**

### Member of Master's Committees

Zachary Reeves	(M.S.) Qualifying Exam 2013
Zachary Reeves	(M.S.) Thesis Defense 2014
Alexis Martone	(M.S.) Thesis Defense 2016
Shannon Rees	(M.S.) Thesis Defense 2019 (Northern Arizona Univ.)

### Primary Research Advisor

Jonathan Guandique	(M.S.) 2017-2019, (Now employed by the U.S. Army Night Vision and Electronic Sensors Division)
Anthony Mautino	(M.S.) through 2014-2015, M.S. completed with Dr. Vedran Lekic.

## **Doctoral**

### Member of Doctoral Committees

Yao Yao	(Ph.D.) Qualifying Exam 2014 (University of Utah), PhD Defense 2017
Kevin Miller	(Ph.D.) PhD Defense 2015
Chao Gao	(Ph.D.) PhD Qualifying Exam 2016, PhD Defense 2019
Erin Cunningham	(Ph.D.) PhD Qualifying Exam 2016, PhD Defense 2019
Joseph Schools	(Ph.D.) PhD Qualifying Exam 2016, PhD Defense 2020
Harrison Lisabeth	(Ph.D.) PhD Defense 2016
Kristel Izquierdo	(Ph.D.) PhD Qualifying Exam 2017
Scott Wipperfurth	(Ph.D.) PhD Defense 2019



Benjamin Farcy (Ph.D.) PhD Qualifying Exam 2019  
Laura Sammon (Ph.D.) PhD Qualifying Exam 2019  
Joseph DeMartini (Ph.D.) PhD Qualifying Exam, 2020 (Astronomy)

Primary Research Advisor

Quancheng Huang (Ph.D.) 2015-present  
Angela Marusiak (Ph.D.) 2015-2020  
Ernest Bell (Ph.D.) 2015-present  
Aisha Khatib (Ph.D.) 2019-present  
Linden Wike (Ph.D.) 2020-present  
Brianna Mellerson (M.S.) 2020-present (joint with Ved Lekic)

**Post-Doctoral**

Primary Research Advisor

Dr. Zhengyu Cai 2014-2015 (Now a Software Developer at COMSOL Inc, Los Angeles, California)  
Dr. Lauren Waszek 2015-2016 (Now an Assistant Professor at New Mexico State University, Las Cruces, New Mexico)  
Dr. Ross Maguire 2018-present  
Dr. Leandro de Paula 2018-present  
Dr. Doyeon Kim 2018-present  
Dr. Foivos Karakostas 2019-present  
Dr. Kira Olsen 2019-present

**IV. SERVICE AND OUTREACH**

**Editorships, Editorial Boards and Reviewing Activities**

**Reviewing Activities for Journals and Presses**

1. Reviewer, Science
2. Reviewer, Journal of Geophysical Research-Planets
3. Reviewer, Journal of Geophysical Research-Solid Earth
4. Reviewer, Geochemistry Geophysics Geosystems
5. Reviewer, Geophysical Research Letters
6. Reviewer, Geophysical Journal International

7. Reviewer, Earth and Planetary Science Letters
8. Reviewer, Physics of the Earth and Planetary Interiors
9. Reviewer, Bulletin of the Seismological Society of America
10. Reviewer, Journal of Petrology

### **Reviewing Activities for Agencies and Foundations**

1. Reviewer, National Aeronautics and Space Administration
2. Reviewer, National Science Foundation
3. Reviewer, United Kingdom Space Agency
4. Reviewer, National Environment Research Council
5. Reviewer, European Research Council
6. Reviewer, Deutsche Forschungsgemeinschaft

### **Committees, Professional & Campus Service**

#### **Service - Department**

1. Member, Department of Geology Merit Review Committee, (January 2016-2018)
2. Member, Department of Geology Graduate Committee, (November 2014- November 2017)
3. Member, Department of Geology Structural Geology Search Committee, (October 2015- May 2016)
4. Department of Geology Colloquium Sole Organizer (Fall 2016 – Spring 2018)

#### **Service – University**

1. NASA Congressional Tour, University of Maryland, College Park, MD. Title: “Recent Impact Craters on the Moon and Mars.” 4/8/2016
2. NASA Congressional Tour, University of Maryland, College Park, MD. Title: “Detecting Recent Meteoroid Impacts on the Moon and Mars.” 4/1/2015
3. NASA Legislative Affairs Office Retreat, University of Maryland, College Park, MD. Title: “Detecting Recent Meteoroid Impacts on the Moon and Mars.” 11/6/2014
4. Geological Society of America Campus Representative, (May 2016-present)
5. American Association of Petroleum Geoscientists Campus Representative, (September 2015-2017)
- 6.

#### **Service - Community**

1. IASPEI Correspondent to SEDI (2019-present)
2. NSF Panel Review, (2018).
3. Past Chair of the Geophysics Division of Geological Society of America, (2017-2019).
4. *Elected* Chair of the Geophysics Division of Geological Society of America, (2015-2017).

5. NASA Panel Review, (2017).
6. Member, IRIS: Global Seismic Network Standing Committee, (2017-present).
7. Member, AGU Fall Meeting Study of Earth's Deep Interior Section Committee, (2012-present).
8. Co-Chair, NASA InSight Education/Public Outreach Working Group, (2013-2018).
9. NASA Panel Review, (2016).
10. Vice-Chair of the Geophysics Section of Geological Society of America (2014-2015).
11. Member, Representative for Study of the Earth's Deep Interior Section of the American Geophysical Union Scientific Trends Task Force, (2014-2016).
12. Member, IRIS: Transportable Array Advisory Committee, (2013-2015).
13. NASA Panel Review, Executive Secretary, (2013).
14. NASA Panel Review (2012).
15. Member, IRIS: USArray Advisory Committee, (2012-2013).
16. Member, IRIS: Transportable Array Working Group, (2013-2014).
17. NASA Panel Review, Executive Secretary (2012).

#### **Service - Leadership Roles in Meetings and Conferences**

1. Chair of SAGE/GAGE Workshop Session Organizer, "Advances in Geophysics in Extreme Environments" (2019).
2. Session Co-Chair of American Geophysical Union Fall Meeting, "Diverse Perspectives on the Lithosphere and the Asthenosphere" (2017).
3. Representative for the Joint Technical Planning Committee of the Geophysics Section of Geological Society of America, (2015-2019).
4. Session Chair of Seismological Society of America Annual Meeting, "Emerging Opportunities in Planetary Seismology" (2017).
5. Session Chair of Geological Society of America Annual Meeting, "Geophysics/Geodynamics," and "Geophysical Solutions to Geological Problems: Current Research Results and the Annual George P. Woollard Award Presentation" (2016).
6. Session Chair of Geological Society of America Annual Meeting, "Geophysics/Geodynamics," and "Geophysical Solutions to Geological Problems: Current Research Results and the Annual George P. Woollard Award Presentation" (2015).
7. Session Co-Chair of American Geophysical Union Fall Meeting, "Multidisciplinary Views of the Lithosphere-Asthenosphere Boundary and Lithospheric Discontinuities" (2015).
8. Session Co-Chair of American Geophysical Union Fall Meeting, "Physics and Chemistry of the Deep Earth" (2014).

9. Session Co-Chair, American Geophysical Union Fall Meeting, "Multidisciplinary Perspectives on Mantle Plumes: Predictions and Observations from Source to Surface" (2014).
10. Session Chair, American Geophysical Union Fall Meeting, "The Mantle Transition Zone: Its Role in Earth's Thermochemical Evolution" (2013).
11. Session Chair, American Geophysical Union Fall Meeting, "The Detection and Migration of Melt and Volatiles in the Earth's Interior" (2013).
12. Session Co-Chair, American Geophysical Union Fall Meeting, "Mantle Plumes: Combining Perspectives from Geophysics, Geochemistry, and Geodynamics" (2013).
13. Section Representative, Study of Earth's Deep Interior on the American Geophysical Union Fall Meeting Program Committee, (2009-2012).

### **External Service and Consulting**

#### **International Activities**

1. Grant Reviewer, United Kingdom Space Agency
2. Grant Reviewer, European Research Council
3. Grant Reviewer, Natural Environment Research Council

#### **Consultancies**

1. Grant Reviewer, National Science Foundation
2. Grant Reviewer, National Aeronautics and Space Administration

### **Non-Research Presentations**

#### **Outreach Presentations**

1. Schmerr, N., Greenbelt Astronomical Society, Greenbelt, MD. Sounding Ice: Exploring for liquid water in the frozen subsurfaces of Greenland and Europa. January 30<sup>th</sup>, 2020.
2. Schmerr, N., CBC Quirks & Quarks radio interview, "Moonquakes show the moon is still geologically 'alive'", May 21<sup>st</sup> 2019.
3. Schmerr, N., BBC-Radio 5. "Up All Night" interview with Rhod Sharp about recent geological activity on the Moon. May 15<sup>th</sup> 2019.
4. Schmerr, N., Science on Tap, College Park, MD. Sounding Ice: Exploring for liquid water in the frozen subsurfaces of Greenland and Europa. July 23<sup>rd</sup>, 2018.
5. Schmerr, N., Outreach to the Embassy of the Republic of Korea, A talk about earthquake hazard and preparedness with Nam Jin, First Secretary and Consul to Korea. June 29<sup>th</sup>, 2016.
6. Schmerr, N., Marriotts Ridge High School, (2013), A talk about earthquakes to 9th grade earth science class of 20 students at Marriotts Ridge High School, Marriottsville, MD, Jan. 9<sup>th</sup>, 2013.

## V. AWARDS, HONORS AND RECOGNITION

### Research Fellowships, Prizes and Awards

- |           |  |
|-----------|--|
| 2014      | Doornbos Memorial Prize, Study of Earth's Deep Interior<br>( <a href="http://hope.simons-rock.edu/~bergman/sedi/doornbos.html">http://hope.simons-rock.edu/~bergman/sedi/doornbos.html</a> )   |
| 2010-2013 | Postdoctoral Position Fellowship, NASA<br><a href="http://nasa.orau.org/postdoc/">http://nasa.orau.org/postdoc/</a>  |
| 2008-2010 | Postdoctoral Fellowship, Carnegie Institution of Washington<br><a href="https://dtm.carnegiescience.edu/postdoctoral/fellowships">https://dtm.carnegiescience.edu/postdoctoral/fellowships</a> |
| 2008      | Outstanding Student Paper Award, American Geophysical Union<br><a href="https://membership.agu.org/ospa-winners/">https://membership.agu.org/ospa-winners/</a>                                 |
| 2006-2007 | Scientists Fellowship, Achievement Rewards for College<br><a href="https://www.arcsfoundation.org">https://www.arcsfoundation.org</a>  |
| 2003-2007 | Graduate Research Fellowship, National Science Foundation<br><a href="https://www.nsfgrfp.org">https://www.nsfgrfp.org</a>   |
| 2000      | James Ferwerda Science Scholarship, Beloit College<br><a href="http://www.beloit.edu/prospective/afford/merit/">http://www.beloit.edu/prospective/afford/merit/</a>                            |
| 1997-2001 | Presidential Scholarship, Beloit College<br><a href="http://www.beloit.edu/prospective/afford/merit/">http://www.beloit.edu/prospective/afford/merit/</a>                                      |

### Teaching Awards

- |      |   |
|------|---|
| 2001 | Outstanding Teacher Assistantship Award, Beloit College |
| 2000 | Outstanding Teacher Assistantship Award, Beloit College |