Ross Ronan Maguire

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Education

2018 PhD, University of Michigan, Department of Earth and Environmental Sciences
2011 BS, Michigan State University, Department of Geological Sciences

Professional Positions

2019 – present NSF Postdoctoral Fellow, University of New Mexico
2018 – 2019 Postdoctoral Research Associate, University of Maryland
2012 – 2018 Graduate Student Researcher / Instructor, University of Michigan
2011 – 2012 Petrology Lab Manager, Michigan State University

Awards and Resources

2019 XSEDE Resource Allocation ($7,068 worth of computing resources)
2019 University of Michigan, John Dorr Graduate Academic Achievement Award
2018 American Geophysical Union, Study of the Earth's Deep Interior Graduate Research Award
2017 Michigan Geophysical Union Best Student Presentation Award
2016 XSEDE Resource Allocation ($26,718 worth of computing resources)
2016 Scott Turner Research Award ($1,700)
2015 XSEDE Resource Allocation ($26,718 worth of computing resources)
2014 Scott Turner Research Award ($1,700)

Grants and Fellowships

2020-2023 **co-Investigator** NASA DALI, Development of the SUBLIME seismometer for future Lunar missions (PI : Terry Hurford, Goddard Spaceflight Center)
2019-2021 **Principal Investigator** NSF Postdoctoral Fellowship, Imaging the Yellowstone magmatic system with ambient noise and local earthquake waveforms

Teaching

2019 Computational Data Analysis for Geoscientists, University of New Mexico (Guest Lecturer)
2019 Structural Geology, University of Maryland (Guest Lecturer)
2019 Seismology / Seismic Wave Propagation, University of Maryland (Guest Lecturer)
2018 Field Geophysics, University of Maryland (Guest Lecturer / Field Assistant)
2018 Observational Geophysics, University of Maryland (Guest Lecturer)
2018 Active Tectonics, University of Maryland (Guest Lecturer)
2012 – 2017 Introduction to Geology, University of Michigan (Graduate Student Instructor)
2013 – 2014 Geology Field Camp, University of Michigan (Graduate Student Instructor)

Peer Reviewed Publications

Hurford, T. A., Henning, W. G., **Maguire, R.**, Lekic, V., Schmerr, N., Panning, M., Bray, V. J., Manga, M., Rhoden, A. R. (2019). Seismicity on Tidally Active Solid-Surface Worlds. Icarus, 338. https://doi.org/10.1016/j.icarus.2019.113466

Maguire, R., Ritsema, J., Goes, S. (2018). Evidence of Subduction-Related Thermal and Compositional Heterogeneity Below the United States From Transition Zone Receiver Functions. Geophysical Research Letters, 45(17), 8913–8922. https://doi.org/10.1029/2018GL078378

Maguire, R., Ritsema, J., Bonnin, M., van Keken, P. E., Goes, S. (2018). Evaluating the Resolution of Deep Mantle Plumes in Teleseismic Traveltime Tomography. Journal of Geophysical Research : Solid Earth, 123(1), 384–400. https://doi.org/10.1002/2017JB014730

Maguire, R., Ritsema, J., Goes, S. (2017). Signatures of 660-km topography and compositional heterogeneity in seismic images of upwellings. Geophysical Research Letters, 1–19. https://doi.org/10.1002/2017GL073120

Maguire, R., Ritsema, J., van Keken, P. E., Fichtner, A., Goes, S. (2016). P- and S-wave delays caused by thermal plumes. Geophysical Journal International, 206(2), 1169–1178. https://doi.org/10.1093/gji/ggw187

Submitted Papers

Daubar, I., Lognonne, P., Teanby, N., Collins, G.S., Clinton, J., Stahler, S., Spiga, A., Kawamura, T., Karakostas, F., Ceylan, S., Malin, M., McEwen, A.S., **Maguire, R.**, Charalambous, C., Onodera, K., Lucas, A., Rolland, L., Vaubaillon, J., Bose, M., Horleston, A., van Buren, M., Pike, T., Stevanovic, J., Huang, Q., Miljkovic, K., Fernando, B., Leng, K., Rajsic, A., Schmerr, N., Wojcicka, N., Wookey, J., Rodriguez, S., Garcia, R., Larmat, C.S., Banks, M.E., Margerin, L., Posiolova, L., Banerdt, B., A New Crater Near InSight : Implications for Seismic Detectability on Mars. Submitted to Journal of Geophysical Research - Planets

Ritsema, J., **Maguire, R.**, Cobden, L., Goes, S., Seismic Analyses of Plume Conduits in the Deep Mantle. (Accepted chapter in AGU Monograph *Mantle Convection and Surface Expressions*)

Jones, T., **Maguire. R.**, van Keken, P.E., Ritsema, J., Subducted oceanic crust as the origin of seismically slow lower-mantle structures. (Submitted as an invited paper to Progress in Earth and Planetary Science)

Selected Conference Presentations

† Gardner, C., **Maguire., R.**, Schmerr, N., Bailey, H., DellaGiustina, D., Avenson, B., Pettit, E., Wagner, N., Marusiak, A., Broadbeck, J., Habib, N., Bray, V., Dahl, P., Carr., C., Weber, R., Constraining the Properties of a Subglacial Lake in Northwest Greenland with Active Source Seismology, AGU Fall Meeting 2019

Moulik, P., **Maguire, R.**, Havlin, C., Gao, C., Lekic, V., Rapid prototyping, interactive visualization and data validation methods for models of planetary interiors, AGU Fall Meeting 2019

van Keken, P.E., Jones, T., Jones, R., Sime, N., Tucker, J., **Maguire, R.**, Ritsema, J., Ballentine, C., Geophysical and geochemical models help constrain the relative importance of oceanic and continental crust recycling, AGU Fall Meeting 2019

Jones, T., Sime, N., **Maguire., R.**, van Keken, P.E., Ritsema, J., The role of crustal recycling : Coevolution of deep-mantle structure and geochemical heterogeneity, AGU Fall Meeting 2019

Huang, Q., Schmerr, N., **Maguire, R.**, Lithgow-Bertelloni, C.,Antonangeli, D., King, S., Detecting the Mantle Transition Zone of Mars From Seismic Reflected Waves, AGU Fall Meeting 2019

Karakostas, F., Schmerr, N., **Maguire, R.**, Huang, Q., Larmat, C., Lognoné, P., Daubar, I., Malin, M., Posiolova, L., Constraints for the Martian meteoroid impact seismic signals through modeling based on comparison of Terrestrial, Lunar and Martian data, AGU Fall Meeting 2019

Maguire, R., Schmerr, N., Lekic, V., Hurford, T., Constraining the thickness of Europa's ice shell with observations of Rayleigh and flexural wave dispersion : Insights from synthetic waveform modeling. SAGE/GAGE workshop 2019.

Jones, T., **Maguire, R.**, Sime, N., van Keken, P.E., Ritsema, J. The geodynamical origin of lowermost mantle structure, Goldschmidt 2019

van Keken, P. E, **Maguire, R.**, Ritsema, J., Jones, T., Sime, N., Nakajima, M. Predictions of the morphology and origin of plumes and LLSVPs from combined geodynamical and seismological modeling, EGU General Assembly 2019

Maguire, R., Schmerr, N., Lekic, V. Constraining the thickness of Europa's ice shell with observations of fundamental mode Rayleigh wave dispersion, Lunar and Planetary Science Conference 2019

Maguire. R., Schmerr, N., Lekic, V., Hurford, T.A. Performance of a broadband seismometer on Europa and implications for the detection of liquid water below its icy surface, AGU Fall Meeting 2018

Moulik, P., Havlin, C., **Maguire, R.**, Lekic, V. Real-time interactive analyses and visualization of massive and diverse seismological observations, AGU Fall Meeting 2018

Maguire, R., Ritsema, J. Seismic observation of a sharp post-garnet phase transition within the Farallon crust, AGU Fall Meeting 2017

Maguire, R., Ritsema, J., Goes, S. Tomographic evidence for basalt segregation in the uppermost lower mantle, Gordon Research Conference 2017

Maguire, R., Ritsema, J., Goes, S. Seismic evidence for a subducted oceanic plateau beneath the southeastern USA, Gordon Research Conference 2017

Maguire, R., Ritsema, J. Imaging the mantle transition zone with the USArray, Michigan Geophysical Union 2017

Maguire, R., Ritsema, J., Bonnin, M., van Keken, P.E., Fichtner, A., Goes, S. Resolving plume tails in the lower mantle with finite frequency tomography : Insight from synthetic experiments, AGU Fall Meeting 2016

Maguire, R., Ritsema, J. Modelling the basalt fraction in the transition zone using P-to-S conversions, Study of Earth's Deep Interior Symposium 2016

Maguire, R., Ritsema, J., van Keken, P.E., Fichtner, A., Goes, S. Investigating the effects of mantle plumes on 3D seismic waveforms, AGU Fall Meeting 2014

Maguire, R., van Keken, P.E., Dibble, M, Davaille, A. Modelling laboratory plumes with numerical techniques : validation, verification, and determination of fluid properties, Computational Infrastructure for Geodynamics Mantle Convection and Lithosphere Dynamics Workshop 2014

† indicates undergraduate supervised

Service

2019 – Reviewer, Geology
2019 – Reviewer, Gondwana Research
2019 – Reviewer, Earth and Planetary Science Letters
2019 – Reviewer, Geophysical Journal International
2018 – 2019 Reviewer, Geophysical Research Letters

Invited Talks

2019, Carnegie Institution for Science DTM Weekly Seminar Series
2019, Smithsonian National Museum of Natural History Seminar
2019, University of Maryland, Department of Geology, Lunchtime Seminar Series