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## Education

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2019      **PhD in Marine Geophysics**, MIT-WHOI Joint Program  
2014      **BA Physics, BS Geophysical Sciences**, University of Chicago

## Professional Appointments

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2021 – on      **Postdoctoral Investigator**, Woods Hole Oceanographic Institution  
2019 – 2021      **Fossett Postdoctoral Fellow**, Washington University in St Louis  
2013      **Summer Student Fellow**, Woods Hole Oceanographic Institution  
2011 – 2014      **Undergraduate Research Assistant**, University of Chicago

## Publications

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2022      Russell, JB, Gaherty, JB, **Mark, HF**, Hirth, G, Hansen, LN, Lizarralde, D, Collins, JA, Evans, RL. Seismological evidence for girdled olivine lattice-preferred orientation in oceanic lithosphere and implications for mantle deformation processes during seafloor spreading. *Geochemistry, Geophysics, Geosystems*. doi:[10.1029/2022GC010542](https://doi.org/10.1029/2022GC010542)

2022      Ben Mansour, W, Wiens, DA, **Mark, HF**, Russo, RM, Richter, A, Marderwald, E, Barrientos, S. Mantle flow pattern associated with the Patagonian slab window determined from azimuthal anisotropy. *Geophysical Research Letters*. doi:[10.1029/2022GL099871](https://doi.org/10.1029/2022GL099871)  
Open data: [velocity and viscosity models](#), and some [cross-correlations](#)

2022      **Mark, HF**, Wiens, DA, Ivins, ER, Richter, A, Ben Mansour, W, Magnani, MB, Marderwald, E, Adaros, R, Barrientos, S. Lithospheric erosion in the Patagonian slab window, and implications for glacial isostasy. *Geophysical Research Letters*. doi:[10.1029/2021GL096863](https://doi.org/10.1029/2021GL096863)

2021      **Mark, HF**, Collins, JA, Lizarralde, D, Hirth, G, Gaherty, JB, Evans, RL, Behn, MD. Constraints on the depth, thickness, and strength of the G discontinuity in the central Pacific from S receiver functions. *Journal of Geophysical Research: Solid Earth*. doi:[10.1029/2019JB019256](https://doi.org/10.1029/2019JB019256)

2019      Shinevar, WJ, **Mark, HF**, Clerc, F, Codillo, EA, Gong, J, Olive, JA, Brown, SM, Smalls, PT, Liao, Y, Le Roux, V, Behn, MD. Causes of oceanic crustal thickness oscillations along a 74-Myr Mid-Atlantic Ridge flow line. *Geochemistry, Geophysics, Geosystems*. doi:[10.1029/2019GC008711](https://doi.org/10.1029/2019GC008711)

- 2019 **Mark, HF**, Lizarralde, D, Collins, JA, Miller, NC, Hirth, G, Gaherty, JB, Evans, RL. Azimuthal seismic anisotropy of 70 Ma Pacific-plate upper mantle. *Journal of Geophysical Research: Solid Earth*. doi:[10.1029/2018JB016451](https://doi.org/10.1029/2018JB016451)
- 2018 **Mark, HF**, Behn, MD, Olive, JA, Liu, Y. Azimuthal seismic anisotropy of 70 Ma Pacific-plate upper mantle. *Journal of Geophysical Research: Solid Earth*. doi:[10.1029/2018JB016451](https://doi.org/10.1029/2018JB016451)

## Manuscripts in progress

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- in prep **Mark, HF**, Lizarralde, D, Wiens, DA. Constraints on bend-faulting and mantle hydration at the Marianas Trench from seismic anisotropy. *Copies available on request*.

## Funding

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- 2023 – 2025 NSF-OCE: “Collaborative Research: Resolving the Origin of the Jurassic Quiet Zone”. Award ID: [2221814](https://www.nsf.gov/awardsearch/showAward?AWD_ID=2221814). PI: Tominaga, M, co-PIs: **Mark, HF**; Sager, W. \$827k to WHOI including \$192k to HF Mark

## Awards

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- 2019 **Fossett Postdoctoral Fellowship**, Washington University in St Louis
- 2019 **AGU Outstanding Student Paper Award (OSPA)**, Tectonophysics
- 2016 **AGU OSPA**, Tectonophysics
- 2016 **GeoPrisms OSPA**, honorable mention
- 2015 **National Science Foundation Graduate Research Fellowship**
- 2014 **Rosenblith Presidential Fellowship**, Massachusetts Institute of Technology
- 2014 **Phi Beta Kappa**, Beta of Illinois
- 2013 **John Crerar Science Writing Prize**, University of Chicago

## Teaching Experience

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- 2018 **Kaufman Teaching Certificate**, MIT Teaching and Learning Lab
- 2018 **WHOI Software Carpentries workshop**, Classroom assistant
- 2017 **WHOI Summer Math Review**, Lecturer
- 2017 **MS-3221: Oceanography**, Massachusetts Maritime Academy, Co-Instructor
- 2016 **12.710: Elements of Modern Oceanography**, MIT-WHOI Joint Program, TA
- 2016 **WHOI Summer Math Review**, Lecturer

## Academic Service

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	<b>Peer reviewer</b> for: JGR Solid Earth, Nature Geoscience, Geophysical Research Letters, Science Advances, Nature Communications, Journal of Open Source Software
2022 – on	<b>Seismica journal management committee</b> , Co-chair, Standards and Copy Editing
2022 – on	<b>WHOI Postdoc Association</b> , Department representative
2022 – on	<b>WHOI Workplace Climate Committee</b> , Department representative
2022 – on	<b>WHOI G&amp;G Proposal Club</b> , Co-organizer
2022	<b>SSA Annual meeting</b> , session co-convenor Marine Seismology
2021	<b>WUSTL EPS Department URGE pod</b> , Pod leader
2021	<b>AGU Fall Meeting</b> , session co-convenor EP15: Coupling of the Cryosphere, Solid Earth, Surface, and Climate in Shaping Late Cenozoic Topography
2018 – 2019	<b>500 Women Scientists of Cape Cod</b> , Steering Committee member
2015 – 2019	<b>MIT-WHOI Joint Program Farrington Collection</b> , Librarian
2014 – 2016	<b>WHOI Summer Math Review</b> , Coordinator

## Invited Seminars

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2022	<b>University of Washington School of Oceanography</b> <b>University of Wisconsin Madison</b> , Weeks Seminar <b>Syracuse University</b> , EES Department Colloquium
2021	<b>University of Hawai'i Manoa</b> , Earth Sciences Department seminar
2019	<b>University of Illinois Urbana-Champaign</b> , Brown bag seminar
2018	<b>Lamont-Doherty Earth Observatory</b> , MGG/SGT seminar <b>WHOI</b> , Interdisciplinary Biology Seminar Series on Acoustics

## Field Experience

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2020	R/V <i>Marcus G. Langseth</i> , MGL2003. Active-source reflection and refraction survey in the Central Aleutians
2017	R/V <i>Neil Armstrong</i> , AR23-02. Collecting underway data along a ridge flowline in the Atlantic
2016	R/V <i>Neil Armstrong</i> , AR05. Scientific validation cruise
2015	ENAM land seismic experiment, North Carolina. RT-125 deployment and recovery for active-source seismic lines on the Eastern North American Margin
2014	PRIDE SeisORZ seismic experiment, Botswana. RT-125 deployment and recovery for an active-source seismic line across the Okavango Delta

## Selected Communication and Outreach

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- 2020 – on      Contributing writer and peer editor at [geobites.org](https://www.geobites.org)  
                 Blogging, general audience summaries of new research
- 2018            [How is the seafloor made?](#)  
                 Magazine article, *Oceanus* Vol 53. No. 2
- 2017            (Way) under the sea: Imaging the rocks beneath the deep ocean  
                 Public talk, Science Made Public lecture series, Woods Hole, MA  
                 The lithosphere-asthenosphere boundary: What it is, where it is, and why you should care  
                 Public talk, Woods Hole Public Library, Woods Hole, MA
- 2016            Under-under the sea: Imaging the rocks beneath the deep ocean  
                 Public talk, Woods Hole Public Library, Woods Hole, MA

## Conference Abstracts (\*=invited)

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- 2022            \***Mark, HF**, Collins, JA, Lizarralde, D, Gaherty, JB, Hirth, G, Evans, RL, Behn, MD. *Where is the G discontinuity, what does it represent, and how can we tell? A case study from the NoMelt experiment.* AGU Fall Meeting, Chicago, IL.  
                 **Mark, HF**, Wiens, DA, Lizarralde, D. *Insights into bend-faulting and mantle hydration at the Marianas trench from seismic anisotropy.* SSA Annual Meeting, Bellevue, WA (poster).
- 2021            **Mark, HF**, Wiens, DA, Ben Mansour, W, Ivins, ER, Richter, A, Magnani, MB, Marderwald, E, Adaros, R, Barrientos, S. *Thermal erosion of the lithosphere in the Patagonian slab window and implications for glacial isostatic adjustment.* AGU Fall Meeting, New Orleans, LA.  
                 **Mark, HF**, Lizarralde, D, Shillington, D, Cortes Rivas, V, Estep, JD. *Crustal structure along-strike in the Andreanof segment of the Aleutian Arc from wide-angle seismic refraction data.* AGU Fall Meeting, virtual (poster).  
                 Wiens, DA, Ben Mansour, W, **Mark, HF**, Shore, P, Richter, A, Barrientos, S. *Geodynamics of the Patagonian Slab Window Constrained by Shear Wave Splitting and Seismic Imaging.* AGU Fall Meeting, New Orleans, LA.  
                 **Mark, HF**, Wiens, DA, Lizarralde, D. *Estimating bend-faulting and mantle hydration at the Marianas trench from seismic anisotropy.* EGU General Assembly, virtual.  
                 \***Mark, HF**. *Anisotropy in slightly more than one dimension.* Marine Seismology Symposium, virtual.  
                 **Mark, HF**, Wiens, DA, Lizarralde, D. *Estimating bend-faulting and mantle hydration at the Marianas trench from seismic anisotropy.* Marine Seismology Symposium, virtual (poster).

- 2020 **Mark, HF**, Wiens, DA, Pourpoint, M, Magnani, MB, Ivins, ER, Richter, A, Barrientos, S. *Seismic structure and the extent of the slab window beneath the Northern and Southern Patagonian Icefields*. AGU Fall Meeting, virtual (poster).
- 2019 **Mark, HF**, Collins, JA, Lizarralde, D, Hirth, G, Gaherty, JB, Evans, RL. *The depth, sharpness, and strength of the G discontinuity from S-to-p receiver functions at the NoMelt site in the central Pacific*. AGU Fall Meeting, San Francisco, CA.
- 2018 **Mark, HF**, Collins, JA, Lizarralde, D, Hirth, G, Gaherty, JB, Evans, RL. *S-to-p receiver functions for the central Pacific from NoMelt*. AGU Fall Meeting, Washington, D. C.
- Shinevar, WJ, **Mark, HF**, Clerc, F, Codillo, EA, Olive, JA, Gong, J, Brown, SM, Smalls, PT, Liao, Y, Le Roux, V, Behn, MD. *Temporal variability of seafloor spreading processes documented along an 80-Myr geophysical transect across the Mid-Atlantic Ridge*. AGU Fall Meeting, Washington, D.C.
- Gaherty, JB, Russell, JB, **Mark, HF**, Lin, PP, Sarafian, EK, Ma, Z, Lizarralde, D, Collins, JA, Hirth, G, Evans, RL, Dalton, CA. *A comprehensive portrait of the central Pacific lithosphere-asthenosphere system from NoMelt seafloor geophysical observations*. AGU Fall Meeting, Washington, D.C.
- 2017 \***Mark, HF**, Behn, MD, Liu, Y, Olive, JA. *Geometric and thermal controls on normal fault seismicity*. AGU Fall Meeting, New Orleans, LA.
- Mark, HF**, Lizarralde, D, Collins, JA, Miller, NC, Hirth, G, Gaherty, JB, Evans, RL. *Seismic anisotropy of 70 Ma Pacific-plate upper mantle*. AGU Fall Meeting, New Orleans, LA.
- \***Mark, HF**, Behn, MD, Liu, Y, Olive, JA. *Seismic coupling at divergent plate boundaries from rate-and-state friction*. GeoPrisms TEI on Rift Initiation and Evolution, Albuquerque, NM.
- 2016 **Mark, HF**, Behn, MD, Liu, Y, Olive, JA. *Seismic coupling at divergent plate boundaries from rate-and-state friction*. AGU Fall Meeting, San Francisco, CA.
- Mark, HF**, Behn, MD, Liu, Y, Olive, JA. *Rate-and-state friction models of seismic cycles on oceanic normal faults*. GRC on Rock Deformation, Andover, NH (poster).
- Mark, HF**, Lizarralde, D, Gaherty, JB, Collins, JA, Hirth, G, Evans, RL, Lin, PP. *Seismic anisotropy in the Pacific upper mantle*. Seismology Student Workshop, Lamont Doherty Earth Observatory.
- 2014 **Mark, HF**, Lizarralde, D, Gaherty, JB, Collins, JA, Hirth, G, Evans, RL. *Pacific upper mantle seismic anisotropy from the active-source component of the NoMelt experiment*. AGU Fall Meeting, San Francisco, CA (poster).
- 2012 Heinz, DL, **Mark, HF**. *The Effect of Wavelength-Dependent Emissivity on the Melting Temperature of Iron from Shock Wave Measurements*. AGU Fall Meeting, San Francisco, CA (poster).