

Hannah F. Mark

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EDUCATION

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

APPOINTMENTS

Postdoctoral Investigator Woods Hole Oceanographic Institution	Sept 2021 – present
Fossett Postdoctoral Fellow Washington University in St. Louis	Sept 2019 – Aug 2021
Summer Student Fellow Woods Hole Oceanographic Institution	2013
Undergraduate Research Assistant University of Chicago	2011-14

PUBLICATIONS

- Mark, H. F.**, D. A. Wiens, E. R. Ivins, A. Richter, W. Ben Mansour, M. B. Magnani, E. Marderwald, R. Adaros, & S. Barrientos (2022). Lithospheric erosion in the Patagonian slab window, and implications for glacial isostasy. *Geophysical Research Letters*, 49, DOI: 10.1029/2021GL096863
- Mark, H. F.**, J. A. Collins, D. Lizarralde, G. Hirth, J. B. Gaherty, R. L. Evans, & M. D. Behn (2021). 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*, 126, DOI: 10.1029/2019JB019256
- Shinevar, W. J., **H. F. Mark**, F. Clerc, E. A. Codillo, J. Gong, J. A. Olive, S. M. Brown, P. T. Smalls, Y. Liao, V. Le Roux, & M. D. Behn (2019). Causes of oceanic crustal thickness oscillations along a 74-Myr Mid-Atlantic Ridge flow line. *Geochemistry, Geophysics, Geosystems*, 20, DOI: 10.1029/2019GC008711
- Mark, H. F.**, D. Lizarralde, J. A. Collins, N. C. Miller, G. Hirth, J. B. Gaherty, & R. L. Evans (2019). Azimuthal seismic anisotropy of 70 Ma Pacific-plate upper mantle. *Journal of Geophysical Research: Solid Earth*, 124, DOI: 10.1029/2018JB016451
- Mark, H. F.**, M. D. Behn, J. A. Olive, & Y. Liu (2018). Controls on mid-ocean ridge normal fault seismicity across spreading rates from rate-and-state friction models. *Journal of Geophysical Research: Solid Earth*, 123, DOI: 10.1029/2018JB015545

DATA PRODUCTS

- Mark, H. F.**, D. A. Wiens, E. R. Ivins, A. Richter, W. Ben Mansour, M. B. Magnani, E. Marderwald, R. Adaros, & S. Barrientos (2021). Velocity and viscosity models for southern Patagonia, from the GUANACO experiment. DOI: 10.5281/zenodo.5794167
- Mark, H. F.**, D. A. Wiens, E. R. Ivins, A. Richter, W. Ben Mansour, M. B. Magnani, E. Marderwald, R. Adaros, & S. Barrientos (2021). Earthquake records and ambient noise cross correlations from ENAP Magallanes seismographs, Jan 2019-Mar 2020. DOI: 10.5281/zenodo.5508198

AWARDS

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

CONFERENCE ABSTRACTS

- Mark, H. F.**, D. Wiens, W. Ben Mansour, E. R. Ivins, A. Richter, M. B. Magnani, E. Marderwald, R. Adaros, S. E. Barrientos (2021). Thermal erosion of the lithosphere in the Patagonian slab window and implications for glacial isostatic adjustment. AGU Fall Meeting, New Orleans, LA.
- Mark, H. F.**, D. Lizarralde, D. Shillington, V. Cortes Rivas, J. D. Estep (2021). Crustal structure along-strike in the Andreanof segment of the Aleutian Arc from wide-angle seismic refraction data. AGU Fall Meeting, virtual poster.
- D. Wiens, W. Ben Mansour, **H. F. Mark**, P. Shore, A. Richter, S. E. Barrientos (2021). Geodynamics of the Patagonian Slab Window Constrained by Shear Wave Splitting and Seismic Imaging. AGU Fall Meeting, New Orleans, LA.
- Mark, H. F.**, D. Wiens, D. Lizarralde (2021). Estimating bend-faulting and mantle hydration at the Marianas trench from seismic anisotropy. EGU General Assembly, virtual.
- Mark, H. F.** (2021). Anisotropy in slightly more than one dimension. Marine Seismology Symposium, virtual (invited talk).
- Mark, H. F.**, D. Wiens, D. Lizarralde (2021). Estimating bend-faulting and mantle hydration at the Marianas trench from seismic anisotropy. Marine Seismology Symposium, virtual (poster).
- Mark, H. F.**, D. Wiens, M. Pourpoint, M. B. Magnani, E. R. Ivins, A. Richter, S. E. Barrientos (2020). Seismic structure and the extent of the slab window beneath the Northern and Southern Patagonian Icefields. AGU Fall Meeting, virtual (poster).
- Mark, H. F.**, J. A. Collins, D. Lizarralde, G. Hirth, J. B. Gaherty, & R. L. Evans (2019). 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.
- Mark, H. F.**, J. A. Collins, D. Lizarralde, G. Hirth, J. B. Gaherty, & R. L. Evans (2018). S-to-p receiver functions for the central Pacific from NoMelt. AGU Fall Meeting, Washington, D.C..
- Russell, J.B., **H. F. Mark**, J. B. Gaherty, D. Lizarralde, P. P. Lin, J. A. Collins, G. Hirth, R. Evans (2018). Comprehensive in situ constraints on LPO fabric of fast-spreading oceanic lithosphere from seismic anisotropy. AGU Fall Meeting, Washington, D. C..
- Shinevar, W. J., **H. F. Mark**, F. Clerc, E. Codillo, J. A. Olive, J. Gong, S. M. Brown, P. T. Smalls, Y. Liao, V. Le Roux, M. D. Behn (2018). 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, J. B., J. B. Russell, **H. F. Mark**, P. P. Lin, E. K. Sarafian, Z. Ma, D. Lizarralde, J. A. Collins, G. Hirth, R. L. Evans, C. A. Dalton (2018). A comprehensive portrait of the central Pacific lithosphere-asthenosphere system from NoMelt seafloor geophysical observations. AGU Fall Meeting, Washington, D. C..
- Mark, H. F.**, M. D. Behn, Y. Liu, J. A. Olive (2017). Geometric and thermal controls on normal fault seismicity. AGU Fall Meeting, New Orleans, LA (invited).
- Mark, H. F.**, D. Lizarralde, J. A. Collins, N. C. Miller, G. Hirth, J. B. Gaherty, R. L. Evans (2017). Seismic anisotropy of 70 Ma Pacific-plate upper mantle. AGU Fall Meeting, New Orleans, LA.
- Mark, H. F.**, M. D. Behn, Y. Liu, J. A. Olive (2017). Seismic coupling at divergent plate boundaries from rate-and-state friction. GeoPrisms Theoretical and Experimental Institute on Rift Initiation and Evolution, Albuquerque, NM (invited).

- Mark, H. F.,** M. D. Behn, Y. Liu, J. A. Olive (2016). Seismic coupling at divergent plate boundaries from rate-and-state friction. AGU Fall Meeting, San Francisco, CA.
- Mark, H. F.,** M. D. Behn, Y. Liu, J. A. Olive (2016). Rate-and-state friction models of seismic cycles on oceanic normal faults. Gordon Research Conference on Rock Deformation, Andover, NH (poster).
- Mark, H. F.,** D. Lizarralde, J. B. Gaherty, J. A. Collins, G. Hirth, R. L. Evans, P. P. Lin (2016). Seismic anisotropy in the Pacific upper mantle. Seismology Student Workshop, Lamont Doherty Earth Observatory.
- Mark, H. F.,** D. Lizarralde, J. B. Gaherty, J. A. Collins, G. Hirth, R. L. Evans (2014). Pacific upper mantle seismic anisotropy from the active-source component of the NoMelt experiment. AGU Fall Meeting, San Francisco, CA (poster).
- Heinz, D. L., **H. F. Mark** (2012). The Effect of Wavelength-Dependent Emissivity on the Melting Temperature of Iron from Shock Wave Measurements. AGU Fall Meeting, San Francisco, CA (poster).

FIELD EXPERIENCE

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

INVITED SEMINARS

University of Hawai'i Manoa, Earth Sciences Department seminar	2021
University of Illinois Urbana-Champaign, Brown bag seminar	2019
Lamont-Doherty Earth Observatory, MGG/SGT seminar	2018
WHOI, Interdisciplinary Biology Seminar Series on Acoustics	2018

SERVICE

Peer reviewer	
JGR: Solid Earth, Nature Geoscience, Geophysical Research Letters, Science Advances	
Co-chair, Standards and Copy Editing, <i>Seismica</i> journal	2022-present
WHOI Postdoc Association department representative, Secretary and WCC rep	2022-present
Session Convener, AGU Fall Meeting, Session EP15	2021
URGE Pod Leader, Wash U EPS Department pod	2021
Steering Committee, 500 Women Scientists of Cape Cod	2018-19
Librarian, MIT-WHOI Joint Program Farrington Collection	2015-19
Coordinator, WHOI Summer Math Review	2014-16

TEACHING EXPERIENCE

Kaufman Teaching Certificate , MIT Teaching and Learning Lab	2018
Classroom assistant , WHOI Software Carpentries workshop	2018
Lecturer , WHOI Summer Math Review	2017
Co-Instructor, MS-3221: Oceanography , Massachusetts Maritime Academy	2017
TA, MIT 12.170: Elements of Modern Oceanography , MIT-WHOI Joint Program	2016
Lecturer , WHOI Summer Math Review	2016

SELECTED COMMUNICATION AND OUTREACH

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