William Joseph Shinevar
Postdoctoral Fellow at University of Colorado, Boulder
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Research Interests:

My research focuses on understanding the chemical and physical evolution of continental and oceanic lithosphere over different periods of Earth history. In particular, I am interested in interpreting geophysical data sets, especially seismic wave speed and heat flow, in terms of geochemical and geological processes using interdisciplinary methods like thermodynamic modelling.

Education:

Massachusetts Institute of Technology/Woods Hole Oceanographic Institute, Cambridge, MA/Woods Hole, MA, Geophysics	Ph.D., 2021
Brown University, Providence, RI, Geology/Physics/Mathematics	B.Sc. 2015
Brown University, Providence, RI, German Studies	A.B. 2015

Appointments:

NSF EAR Postdoctoral Research Fellow, CU Boulder	2021–2023
Ph.D. student, MIT/WHOI Joint Program	2015–2021
Research Assistant, Brown University	2011–2015
Summer Student Fellow, WHOI	2014
Research Intern, Courant Institute of Mathematical Sciences, NYU	2010–2011

Funding ($185,000 Total):

EAR Postdoctoral Fellowship, National Science Foundation, 2020	$174,000
Student Research Fund, MIT, 2018–9	$900
Ocean Venture Fund, WHOI, 2018	$7,700
Graduate Student Research Grant, Geological Society of America, 2018	$2,400

Teaching Experience:

Lecturer for Exploring Earth (GEOL1010), CU Boulder	2022
MIT Kaufman Teaching Certificate	2020
Teaching Assistant for Flow, Deformation, and Fracture in Earth and Other Terrestrial Bodies (12.202), MIT	2019
Teaching Assistant for Introduction to Geophysics and Planetary Science (12.002), MIT	2019
Teaching Assistant for Essentials of Global Geophysics (12.201), MIT	2016

Teaching Assistant for Geochemistry: Earth and Planetary Materials and Processes (GEOL 0230), Brown University 2015
Teaching Assistant for Computational Approaches to Modeling and Quantitative Analysis in Natural Sciences (GEOL 0250), Brown University 2013

Service and Outreach:

AGU Session Chair: **Shinevar, W. J.**, James E., Russell, J., & Wu, J. (2022) Bridging the observational gap: Integrating laboratory, field, and geophysical datasets to quantify mantle properties and processes 2022
Elementary School Outreach Teacher: 'Rock On', Blue Mountain Elementary School, Longmont, CO 2022
AGU Session Chair: Liu, T., Blatter, D. B., Russell, J. B., & **Shinevar, W. J.** (2021) Interdisciplinary Studies of the Lithosphere-Asthenosphere System 2021
EAPS REFS, Resource for Easing Friction and Stress 2018–2021
Elementary School Outreach: Blue Mountain Elementary School, Longmont, CO 2018
MIT Chemical Oceanography, Geochemistry, Geophysics, and Geology Seminar Organizer 2016–2018
Elementary School Outreach: 'Questions for Scientists!' San Diego Cooperative Charter School, San Diego, CA 2017
Elementary School Outreach: 'What is the Earth?' Excel Academy, Boston, MA 2016
Cambridge Science Fair Outreach, MIT, Cambridge, MA 2016

Publications:

Shinevar, W. J. & V. Schulte-Pelkum. (in prep. for *Nature*) Eclogite-Out Seismic Thermobarometer: Application to the Himalayas

Shinevar, W. J. & B.Z. Klein. (in prep. for *Geophysical Research Letters*) The Rheology of Active and Extinct Arcs

Shinevar, W. J., Golos, E. M., Jagoutz, O., Behn, M. D., & Van der Hilst, R. (in prep. for *Earth and Planetary Science Letters*) Mantle Thermochemical Variations beneath the Continental United States Through Petrologic Interpretation of Seismic Tomography

Cui, D., Guo, J. L., **Shinevar, W. J.**, Guo, L., Xu, W. C., Zhang, H. F., & Jin, Z. M. (submitted) Geophysical-Geochemical Modeling of Deep Crustal Compositions: Examples of Continental Crust in Typical Tectonic Settings and North China Craton, *submitted to Journal of Geophysical Research: Solid Earth* https://doi.org/10.1002/essoar.10512339.1

Shinevar, W. J., Jagoutz, O., & Behn, M. D. (2022) WISTFUL: Whole-rock Interpretative Seismic Toolbox for Ultramafic Lithologies, *Geochemistry, Geophysics, Geosystems* https://doi.org/10.1029/2022GC010329

Shinevar, W. J., Jagoutz, O., & VanTongeren, J. (2021) Gore Mountain Garnet

Amphibolite records UHT Conditions: Implications for the Rheology of the Lower Continental Crust During Orogenesis, *Journal of Petrology* https://doi.org/10.1093/petrology/egab007

Guo, L. Jagoutz, O., **Shinevar, W. J.**, Zhang, H.F (2020) Formation and composition of the Late Cretaceous Gangdese arc lower crust in southern Tibet. *Contributions to Mineralogy and Petrology* https://doi.org/10.1007/s00410-020-01696-y

Shinevar, W. J., Mark, H. F., Clerc, F., Codillo, E. A., Gong, J., Olive, J. A., Brown, S. M., Smalls, P. T., Liao, Y. Le Roux, V., & Behn, M. D. (2019) Causes of oceanic crustal thickness oscillations along a 74-Myr Mid-Atlantic Ridge flow line. *Geochemistry, Geophysics, Geosystems* https://doi.org/10.1029/2019GC008711

Shinevar, W. J., Behn, M. D., Hirth, G., & Jagoutz, O. (2018). Inferring crustal viscosity from seismic velocity: Application to the lower crust of Southern California. *Earth and Planetary Science Letters*, 494, 83-91. https://doi.org/10.1016/j.epsl.2018.04.055

Shinevar, W. J., Behn, M. D., & Hirth, G. (2015). Compositional dependence of lower crustal viscosity. *Geophysical Research Letters*, 42(20), 8333-8340. https://doi.org/10.1002/2015GL065459

Invited Presentations:

Shinevar, W. J. & Klein, B. Z. (2022) The Rheology of Active and Extinct Arcs, Invited Oral Presentation at *Gordon Research Conference for Rock Deformation*

Shinevar, W. J., Jagoutz, O., & VanTongeren, J. (2021) Gore Mountain Garnet Amphibolite records UHT Conditions: Implications for the Rheology of the Lower Continental Crust During Orogenesis, Invited Seminar at *The Department of Mineral Sciences, National Museum of Natural History, Smithsonian Institution.*

Shinevar, W. J., Behn, M. D., Hirth, G., & Jagoutz, O. (2018) Inferring Crustal Viscosity From Seismic Velocity: Applications to the Lower Crust of Southern California, Invited Oral Presentation at the *2018 SCEC Community Rheology Workshop.*

Presentations: (* indicates mentee)

Shinevar, W. J. & Klein, B. Z. (2022) The Rheology of Active and Extinct Arcs, *American Geophysical Union, Fall Meeting.*

Shinevar, W. J. & Schulte-Pelkum, V. (2022) The Eclogite-out Seismic Thermobarometer: Interpreting the Himalayan Moho Doublet, *American Geophysical Union, Fall Meeting.*

Godani, K.* & **Shinevar, W. J.** (2022) Shallow Mantle Enrichment Beneath the Midcontinental Rift from Seismo-petrological Interpretation *American Geophysical Union, Fall Meeting.*

Shinevar, W. J. (2022) The Rheology of Active and Extinct Arcs, Invited Oral Presentation at Gordon Research Conference for Rock Deformation

Shinevar, W.J., Golos, E. M., Behn, M.D., & Jagoutz, O. (2021). Stability of the North American Craton from Petrologic Interpretations of Seismic Tomography, Poster Presentation at the *American Geophysical Union, Fall Meeting.*

Shinevar, W.J., Golos, E. M., Behn, M.D., & Jagoutz, O. (2020). Constraining Modal Error in Ultramafic Thermodynamic Solution Models: Validating Interpretations of Seismic Wave Speed, Oral Presentation at the *American Geophysical Union, Fall Meeting.*

Shinevar, W.J., Jagoutz, O., & VanTongeren, J.A. (2020). Gore Mountain Garnet Amphibolite records UHT Conditions: Implications for the Rheology of the Lower Continental Crust During Orogenesis, Oral Presentation at the *Geological Society of America Annual Meeting*

Shinevar, W.J., Golos, E. M., Behn, M.D., & Jagoutz, O. (2019). WISTContin & WISTFUL: New Toolboxes for Interpreting Seismic Wave Speed into Whole Rock Compositions, Oral Presentation at the *American Geophysical Union, Fall Meeting.*

Golos, E. M., **Shinevar, W. J.**, Behn, M.D., Jagoutz, O., & van der Hilst, R. D. (2019). WISTFUL thinking: seismic evidence for mantle iron enrichment beneath the Midcontinent Rift, Oral Presentation at the *American Geophysical Union, Fall Meeting.*

Montesi, L., Izquierdo, K., Holt, W. E., Bahadori, A., & **Shinevar, W. J.** (2019) The strength of Southern California from rheological and geodynamical approaches, Poster Presentation at the *American Geophysical Union, Fall Meeting.*

Shinevar, W. J., Mark, H. F., Clerc, F., Codillo, E. A., Gong, J., Olive, J. A., Brown, S. M., Smalls, P. T., Liao, Y. Le Roux, V., & Behn, M. D. (2018) Temporal variability of seafloor spreading processes documented along an 80-Myr geophysical transect across the Mid-Atlantic Ridge, Poster Presentation at the *American Geophysical Union, Fall Meeting.*

Shinevar, W. J., Behn, M. D., Hirth, G., and O. Jagoutz, (2018) Inferring Crustal Viscosity from Seismic Wavespeeds: Applications to the Rheologic Structure of Southern California, Poster Presentation at *SCEC Annual Meeting, 2018*

Shinevar, W. J., & Jagoutz, O. (2018) Origin and Tectonic Implications of the Megacrystic Gore Mountain Garnet Granulites, *Oral Presentation at Goldschmidt Conference.*

Shinevar, W. J., Behn, M. D., Hirth, G., & Jagoutz, O. (2017). Inferring Crustal Viscosity from Seismic Wavespeeds: Applications to the Rheologic Structure of the Himalayas, *Poster Presentation at the American Geophysical Union, Fall Meeting.*

Shinevar, W. J., Behn, M. D., Hirth, G., and O. Jagoutz, (2017) Inferring Crustal

Viscosity from Seismic Wavespeeds: Applications to the Rheologic Structure of Southern California, Poster Presentation at *SCEC Annual Meeting, 2017*

Shinevar, W. J., Behn, M. D., Hirth, G., and O. Jagoutz, (2017) Inversion of seismic velocity for rheology, Oral Presentation at *SCEC Annual Meeting Workshop: Community Rheology Model*

Shinevar, W. J., Behn, M. D., Hirth, G., & Jagoutz, O. (2016). Inferring Crustal Viscosity Structure from Seismic Velocity Data, Poster Presentation at the *American Geophysical Union, Fall Meeting.*

Shinevar, W. J., Behn, M. D., Hirth, G., and O. Jagoutz (2016), Inferring Crustal Viscosity Structure From Seismic Velocity Data, Poster Presentation at Gordon Research Conference for Rock Deformation

Shinevar, W. J., Behn, M., & G. Hirth (2014), Crustal Viscosity Structure Estimated from Multi-Phase Mixing Theory Poster Presentation at *AGU Fall Meeting*

Honors & Awards:

Charles M. Vest Presidential Fellow, Massachusetts Institute of Technology, Fall 2015
Member of Phi Beta Kappa, Brown University Chapter, inducted Spring 2015
Member of Sigma Xi, Brown University Chapter, inducted Spring 2015
Department of Earth, Atmospheric, and Planetary Sciences Senior Award, 2015
Adolf Conrad Ely Prize, Brown University German Studies Department, 2015
Sarah LaMendola Award, Brown University Geology Department, 2014
Member of Delta Phi Alpha, National German Honor Society, inducted Spring 2014
Undergraduate Teaching and Research Award, Advisor: Marc Parmentier, Summer 2012
Eagle Scout, Boy Scouts of America, 2008