

ASHLEY BELLAS-MANLEY

ADDRESS

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EMPLOYMENT	08/2022-present	Postdoctoral Associate Department of Aerospace Engineering Sciences, University of Colorado Boulder
	08/2021-08/2022	Postdoctoral Fellow Department of Earth, Atmospheric and Planetary Sciences, Massachusetts Institute of Technology
	05/2021-08/2021	Postdoctoral Associate Department of Physics, University of Colorado Boulder

EDUCATION	08/2014-05/2021	University of Colorado Boulder, Department of Physics Ph.D. in Geophysics: <i>Reconciling the Rheology of Earth's Lithosphere Across Vastly Different Length- and Time-Scales</i> Thesis advisor: Prof. Shijie Zhong
	09/2009-05/2014	University of British Columbia B.Sc. in Geophysics with distinction

PUBLICATIONS **Bellas-Manley, A.** & L. Royden (2024), Basal Mantle Flow Over LLSVPs Explains Differences in Pacific and Indo-Atlantic Hotspot Motions, *J. Geophys. Res.: Solid Earth*, 129, e2023JB027636.
<https://doi.org/10.1029/2023JB027636>

Bellas, A., S.J. Zhong, & A.B. Watts (2022), Reconciling lithospheric rheology between laboratory experiments, field observations, and different tectonic settings, *Geophysical Journal International*, **228**, 857–875.

Bellas, A., & S.J. Zhong (2021), Effects of a weak lower crust on the flexure of continental lithosphere, *J. Geophys. Res.: Solid Earth*, **126**, 10, e2021JB022678.

Bellas, A., & S.J. Zhong (2021), Seismic strain rate and flexure at the Hawaiian Islands constrain the frictional coefficient, *Geochemistry, Geophysics, Geosystems*, **22**, e2020GC009547.

Bellas, A., S.J. Zhong, & A.B. Watts (2020). Constraints on the rheology of the lithosphere from flexure of the Pacific Plate at the Hawaiian Islands. *Geochemistry, Geophysics, Geosystems*, 21, e2019GC008819.
<https://doi.org/10.1029/2019GC008819>.

Bellas, A., S.J. Zhong, D. Bercovici, & E. Mulyukova (2018), Dynamic weakening with grain-damage and implications for slab detachment, *Phys. Earth Planet. Int.*, 285, 76-90.

SKILLS

- Computational modeling
- Data science
- Climate science
- MATLAB, Python, Fortran, C
- Geodynamics
- Satellite geodesy
- Writing grant proposals
- Speaking
- Writing scientific papers

EXPERIENCE

Ten+ years computational modeling in C, Fortran, MATLAB, Python

Ten+ years data analysis

Seven+ years solid Earth geophysics

Two+ years climate science

CONFERENCE PRESENTATIONS

AGU Fall Meeting (2023), San Francisco, CA. *Data-Driven Approaches to Understanding Future Regional Sea Level Change*, G53B-03.

NASA GRACE-FO Science Team Meeting (2023), Pasadena, CA. *Impacts of GIA Modeling Uncertainties on the Closure of the Global Mean Ocean Mass Budget*

NASA Sea Level Change Science Team Meeting (2023), Pasadena, CA. *Data-Driven Approaches to Understanding Regional Variations in Future Sea Level Change*

Study of the Earth's Deep Interior Conference (2022), Zurich, Switzerland. *Basal Mantle Flow Over LLSVPs Explains Differences in Pacific and Indo-Atlantic Hotspot Motions*

AGU Fall Meeting (2021), New Orleans, LA. *Effects of a Weak Lower Crust on the Flexure of Continental Lithosphere*, T11D-05.

AGU Fall Meeting (2021), New Orleans, LA. *Reconciling Lithospheric Rheology Between Laboratory Experiments, Field Observations, and Different Tectonic Settings*, MR43A-06.

AGU Fall Meeting (2020). *Testing the Yield-Stress Envelope Method Against Finite Element Models of Flexure*, T011-0008.

AGU Fall Meeting (2019) San Francisco, CA. *Constraining the Frictional Coefficient: a Comparison of Strain Rate Inferred from Seismicity and 3D Viscoelastic Loading Models at Hawaii*, MR44A-03.

AGU Fall Meeting (2019) San Francisco, CA. *Elastic Thickness: A Comparison of Estimates from Fully Dynamic Viscoelastic Models and the Yield-Strength Envelope Method*, MR51B-0040.

Gordon Research Conference (2019) Holyoke, MA. *Constraining the rheology of the lithosphere using flexure at the Hawaiian Islands*.

AGU Fall Meeting (2018) Washington, D.C. *Constraining mantle rheology at lithospheric conditions using observations of flexure at the Hawaiian Islands*, MR24A-01.

ABOUT ME

Welcome, and thank you for visiting my CV!

I am a highly conscientious individual (i.e., orderly and industrious). I care about understanding things thoroughly. I am inspired by beauty. I aim to serve a purpose. As a PhD candidate, I used flexure of the lithosphere at the Hawaiian Islands to infer its *rheology* and contribute to understanding why Earth is the only terrestrial planet in the solar system with plate tectonics. At MIT, I studied the structure and dynamics of ancient remnants from the primordial Earth which lie just above the core-mantle boundary. With the help of Steven Nerem at CU Boulder, I pivoted from solid Earth science to climate science and learned to combine satellite observations with computational models to quantify, understand, and project sea level change, among other things. I am always looking for new opportunities to meet excellent people and pursue meaningful work. Please reach out if you are interested in working with me!

EXTRACURRICULAR ACCOMPLISHMENTS

Member of the NSSAF Provincial Championship Cross Country Team	(2008)
Headmaster's Recognition Award for Academic Excellence in Spanish	(2008)
Royal Conservatory of Music Certificates in Piano, Grades 1-9	(2001-2009)
Summited five mountain peaks over 14,000'	(2014-2019)
Climbed a 5.12	(2018)
Climbed a V5	(2022)
Married my husband	(2022)
Cycled over 100 km in a single ride	(2023)
Mountain biked Mag7, Captain Ahab, and Porcupine Rim in Moab, Utah	(2023)
Deadlifted 215 lbs	(2023)