

Daniel Evan Portner

Curriculum Vitae

Carnegie Institution for Science
Department of Terrestrial Magnetism
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Washington, D.C. 20015

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Research interests: *My research focuses on investigating the structure and behavior of subducted slabs using seismic imaging techniques and on inferring how they influence mantle dynamics and surface tectonics. This includes studying the role of slabs in earthquake generation, volcanic production, orogenesis, mantle convection, and material recycling.*

Education

Ph.D. Geophysics

May 2019

University of Arizona
Global Seismology and Tectonics
Adviser: Susan Beck
Dissertation: *Variability in Slab Structure and Behavior Within and Among the South American and Eastern Mediterranean Subduction Systems*

B.S. Geological Sciences w/ Honors, Minor – Biology

May 2014

University of North Carolina at Chapel Hill
Seismology
Adviser: Lara Wagner
Honors Thesis: *Investigating the Seismic Gap in North Carolina: A Seismic Survey of the Deep River Basin in Central North Carolina*

Professional Experience

Carnegie Institution for Science

August 2019 – Present

Postdoctoral Fellow, Department of Terrestrial Magnetism

University of Arizona

August 2014 – May 2019

Graduate Research/Teaching Associate
Supervisor: Susan Beck

USGS National Earthquake Information Center

Summer 2015, 2016

Student Trainee
Supervisor: Gavin Hayes

University of North Carolina at Chapel Hill

January 2012 – May 2014

Undergraduate Research Assistant
Supervisor: Lara Wagner

Peer-Reviewed Publications

(6) Meltzer, A., Beck, S., Ruiz, M., Hoskins, M., Soto-Cordero, L., Stachnik, J. C., Lynner, C., Porritt, R., Portner, D., Alvarado, A., Hernandez, S., Yepes, H., Charvis, P., Font, Y., Regnier, M., Agurto-

Detzel, H., Rietbrock, A., Leon-Rios, S., & Mercerat, E. D. **(2019)** The 2016 Mw 7.8 Pedernales Earthquake, Ecuador: RAPID Response Deployment, *Seismological Research Letters*.

- (5)** Hayes, G.P., Moore, G.L., Portner, D.E., Hearne, M., Flamme, H., Furtney, M., & Smoczyk, G.M. **(2018)** Slab2, a comprehensive subduction zone geometry model, *Science*, 362(6410), doi:10.1126/science.aat4723.
- (4)** Portner, D.E. & Hayes, G.P. **(2018)** Incorporating teleseismic tomography data into models of upper mantle slab geometry, *Geophysical Journal International*, 215, doi:10.1093/gji/ggy279.
- (3)** Portner, D.E., Delph, J.R., Biryol, C.B., Beck, S.L., Zandt, G., Özacar, A.A., Sandvol, E., & Türkelli, N. **(2018)** Subduction termination through progressive slab deformation across Eastern Mediterranean subduction zones from updated P-wave tomography beneath Anatolia, *Geosphere*, 14(3), doi:10.1130/GES01617.1.
- (2)** Lynner, C., Anderson, M.L., Portner, D.E., Beck, S.L., & Gilbert, H. **(2017)** Mantle flow through a tear in the Nazca slab inferred from shear wave splitting, *Geophysical Research Letters*, 44, doi:10.1002/2017GL074312.
- (1)** Portner, D.E., Beck, S., Zandt, G., & Scire, A. **(2017)** The nature of subslab slow velocity anomalies beneath South America, *Geophysical Research Letters*, 44, doi:10.1002/2017GL073106.

Selected Conference Abstracts

- (23)** Agrawal, S., Eakin, C., Portner, D., & Rodríguez, E. **(2019)** Constraining the dynamics of the subducting Nazca slab from seismic anisotropy. *EGU General Assembly – Vienna, Austria*, EGU2019-417.
- (22)** Schleiffarth, W., Umhoefer, P., Cosca, M., Reid, M., Delph, J., Portner, D., Beck, S., Abgarni, B., & Özacar, A. **(2018)** Evidence for dynamic relationship between faulting and Neogene-Quaternary volcanism in post-collisional Central Anatolia (Turkey): Implications for shallow slab subduction and rollback. *AGU Fall Meeting – Washington, D.C.*, T43C-02.
- (21)** Rodríguez, E., Portner, D., Beck, S., Rocha, M., & Assumpção, M. **(2018)** Mantle heterogeneity across the Andean subduction zone from finite-frequency teleseismic S-wave tomography. *AGU Fall Meeting – Washington, D.C.*, DI23B-2028.
- (20)** Portner, D., Rodríguez, E., Beck, S., Zandt, G., Scire, A., Rocha, M., & Assumpção, M. **(2018)** Inferred Variations in Thermal and Rheological State of the Nazca Slab from High-Resolution Tomographic Imaging. *AGU Fall Meeting – Washington, D.C.*, Oral Presentation, DI22A-03.
- (19)** Rodríguez, E., Portner, D., Beck, S., Rocha, M., & Bianchi, M. **(2018)** Mantle heterogeneity across the Andean subduction zone from preliminary S-wave tomography. *IRIS Workshop – Albuquerque, NM*, A17.

- (18)** Portner, D., Beck, S., Zandt, G., Rodríguez, E., Scire, A., Rocha, M., & Assumpção, M. **(2018)** Variability in slab behavior within the South America subduction zone: New observations from continent-scale teleseismic P-wave tomography. *IRIS Workshop – Albuquerque, NM*, Poster Presentation, A18.
- (17)** Beck, S.L., Portner, D.E., Bishop, B.T., Koch, C., Rodríguez, E.E., Lynner, C., Ryan, J.C., Ward, K.M., Delph, J.R., Wagner, L.S., Alvarado, P.A., Porter, R.C., & Scire, A. **(2018)** Contributions of Modern Seismic Imaging to Understanding the Andean Convergent Margin. *SSA Annual Meeting – Miami, FL*.
- (16)** Portner, D. **(2018)** Modeling the effects of slab holes on mantle flow and the overriding plate. *Montgomery & Associates – Tucson, AZ*, Invited Oral Presentation.
- (15)** Király, Á, Makushkina, A., Ghosh, T., Haynie, K., Chilson-Parks, B., Portner, D., Metcalf, K., Manga, M., Jadamec, M., O'Farrell, K., Moresi, L., & Stern, R. **(2018)** Understanding the Effects of Slab Holes on Mantle Flow and Surface Dynamics. *EGU General Assembly – Vienna, Austria*, EGU2018-12544.
- (14)** Whitney, D., *et al.* **(2017)** Mantle to Surface Dynamics Across Subduction-Collision Transitions in Space and Time: Results from the CD-CAT Project in Anatolia. *AGU Fall Meeting – San Francisco, CA*, T52A-07.
- (13)** Moore, G., Hayes, G., Portner, D., Furtney, M., Flamme, H., & Hearne, M. **(2017)** Slab2 – Updated Subduction Zone Geometries and Modeling Tools. *AGU Fall Meeting – San Francisco, CA*, T23F-0690.
- (12)** Király, Á, Makushkina, A., Portner, D., Parks, B., Ghosh, T., Haynie, H., Metcalf, K., Manga, M., O'Farrell, K., Moresi, L., Jadamec, M., & Stern, R. **(2017)** The Effect of Slab Holes on the Surrounding Mantle Flow Field and the Surface from a Multi-Disciplinary Approach. *AGU Fall Meeting – San Francisco, CA*, Poster Presentation, D111A-0277.
- (11)** Portner, D., Beck, S., Scire, A., & Zandt, G. **(2017)** Improved Nazca slab structure from teleseismic P-wave tomography along the Andean Margin. *AGU Fall Meeting – San Francisco, CA*, Poster Presentation, T23D-0641.
- (10)** Darin, M. & CD-CAT **(2017)** Geodynamic Evolution of Subduction to Collision to Escape in Central Anatolia From Surface to Mantle – Results From the CD-CAT Project. *EGU General Assembly – Vienna, Austria*, EGU2017-18120.
- (9)** Portner, D., Biryol, C., Delph, J., Beck, S., Zandt, G., Özacar, A., Sandvol, E., & Turkelli, N. **(2016)** New Finite-Frequency Teleseismic P-wave Tomography of the Anatolian Sub-continent and the Fate of the Subducted Cyprean Slab. *AGU Fall Meeting – San Francisco, CA*, Oral Presentation, T54A-04.

- (8) Hayes, G., Portner, D., Furtney, M., Moore, G., Flamme, H., & Hearne, M. (2016) Slab2 – Updated subduction zone geometries and modeling tools. *AGU Fall Meeting – San Francisco, CA*, Poster Presentation, T31E-2965.
- (7) Porritt, R., Ward, K., Porter, R., Portner, D., Lynner, C., Beck, S., & Zandt, G. (2016) Slab geometry of the South American margin from joint inversion of body waves and surface waves. *AGU Fall Meeting – San Francisco, CA*, Poster Presentation, D131B-2633.
- (6) Portner, D., Beck, S., Zandt, G., & Scire, A. (2015) Geometry of the Deep Andean Subduction Zone Beneath Chile and Argentina from New Finite-Frequency Teleseismic P-wave Tomography. *AGU Fall Meeting – San Francisco, CA*, Poster Presentation, T51A-2850.
- (5) Hayes, G., Hearne, M., Portner, D., Borjas, C., Moore, G., & Flamme, H. (2015) Slab2 – Providing updated subduction zone geometries and modeling tools to the community. *AGU Fall Meeting – San Francisco, CA*, T41G-08.
- (4) Beck, S., Zandt, G., Scire, A., Ward, K., Portner, D., Bishop, B., Ryan, J., Wagner, L., & Long, M. (2015) Subduction Zone Science – Examples of Seismic Images of the Central Andes and Subducting Nazca Slab. *AGU Fall Meeting – San Francisco, CA*, T41G-02.
- (3) Portner, D., Wagner, L.S., Fouch, M.J., James, D.E., Roman, D., & Golden, S. (2014) Investigating the Seismic Gap in Central North Carolina. *USGS/CERI CEUS NEHRP Program and Planning Workshop – Memphis, TN*, Invited Poster Presentation, 241-2.
- (2) Portner, D., Wagner, L.S., Fouch, M.J., James, D.E., Roman, D., & Golden, S. (2013) Seismicity in the Triassic Deep River Basin, North Carolina. *AGU Fall Meeting – San Francisco, CA*, Poster Presentation, T23G-2671.
- (1) Portner, D., Wagner, L.S., Fouch, M.J., James, D.E., Roman, D., & Golden, S. (2012) Pre-Hydrofracking Regional Assessment of Central Carolina Seismicity. *GSA Annual Meeting – Charlotte, NC*, Poster Presentation.

Field Experience

Santa Rita Nodal Deployment (Arizona) - demobilization	April 2017
Pedernales Aftershock Deployment (Ecuador) – maintenance	September, November 2016
CDCAT (Turkey) – demobilization	May 2015
Frontiers Abroad Field Course (New Zealand)	Winter 2013
SESAME (Southeastern USA) – maintenance	October 2012, 2013
PULSE (Peru) – maintenance	August 2012
CAUGHT (Peru) – demobilization	July 2012
SESAME (Southeastern USA) – deployment	May 2012
PHRACCS (North Carolina, USA) – maintenance	Spring 2012 – Spring 2014
PHRACCS (North Carolina, USA) – permitting and deployment	March 2012

Teaching Experience

Certified Leader in Classroom Diversity and Inclusion

University of Arizona Office of Inclusion and Multicultural Engagement

Spring 2019

Guest Lecturer

GEOS432/532: Introduction to Seismology, Surface Waves

October 2018

GEOS567: Inverse Theory, Smearing in Seismic Tomography

October 2017

GEOS432/532: Introduction to Seismology, Seismic Tomography

September 2017

Teaching Assistant

GEOS322: Introduction to Geophysics

Spring 2016

GEOS170C: Life on Earth

Fall 2014

Honors and Awards

University of Arizona Graduate Student Award in Scholarship

Spring 2019

GPSC Travel Grant (\$750)

December 2018

ChevronTexaco Geology Fellowship (\$1,400)

Summer 2018

Best Overall Presentation Award, GeoDaze Geoscience Symposium

April 2018

GPSC Travel Grant (\$750)

December 2017

ChevronTexaco Geology Fellowship (\$1,000)

Summer 2017

Best Presentation Award – Geophysics, GeoDaze Geoscience Symposium

April 2017

Outstanding Student Presentation Award, AGU Fall Meeting

December 2016

GPSC Travel Grant (\$275)

December 2016

GPSC Travel Grant (\$600)

December 2015

UA College of Science Galileo Circle Scholarship

March 2015

GPSC Travel Grant (\$375)

December 2014

BP Geophysics Scholarship

Fall 2014

UNC Chapter Sigma Gamma Epsilon W.A. Tarr Service Award

April 2014

UNC OUR Summer Undergraduate Research Fellowship (\$3,000)

Summer 2013

UNC Geological Sciences Pignatiello Fellowship (\$5,000)

Summer 2013

UNC Geological Sciences Grover Murray Field Camp Scholarship

Spring 2013

UNC Dean's List

Spring 2011 – Fall 2013

Community Involvement

CIDER 2017 Summer Program – Participant

Summer 2017

Tucson Festival of Books, Science City – Volunteer

Spring 2017, 2018

GeoDaze Annual Geoscience Symposium – Treasurer

Spring 2016

GeoDaze Annual Geoscience Symposium – Registration co-Chair

Spring 2015, 2017, 2018, 2019

UA Graduate Representative

Fall 2015 – Fall 2016

Tucson Gem and Mineral Show Junior Education Booth – Volunteer

February 2015, 2016, 2018

IRIS-Earthscope USArray Data Processing and Analysis Short Course

– Participant

August 2014

SGE: National Honors Society for the Earth Sciences

– Alpha Alpha Chapter Founder/Treasurer

Spring 2012 – Spring 2014

Professional Affiliations

Seismological Society of America
Arizona Geological Society
American Geophysical Union
Geological Society of America

2018 – Present
2014 – Present
2013 – Present
2012 – Present

Referees

Susan Beck, University of Arizona, slbeck@email.arizona.edu

Gavin Hayes, United States Geological Survey, ghayes@usgs.gov

George Zandt, University of Arizona, geozandt@gmail.com

Lara Wagner, Carnegie Institute of Science, lwagner@carnegiescience.edu

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