

Colton Lynner

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Department of Earth Sciences

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PROFESIONAL PREPARATION

Assistant Professor <i>University of Delaware, Newark, DE</i>	2019 - Present
Assistant Research Scientist <i>University of Arizona, Tucson, AZ</i>	2018 - 2019
Postdoctoral Researcher <i>University of Arizona, Tucson, AZ</i>	2016 - 2018
Ph.D. Geology & Geophysics <i>Yale University, New Haven, CT</i>	2010 - 2015
B.S. Earth and Ocean Sciences, B.S. Economics <i>Duke University, Durham, NC</i>	2006 - 2010

PEER-REVIEWED PUBLICATIONS

- [19] **Lynner, C.**, Van Avendonk, H.J.A, Bécel, A., Christeson, G.L., Dugan, B., Gaherty, J.B., Harder, S., Hornbach, M.J., Lizarralde, D., Long, M.D., Magnani, M.B., Shillington, D.J., Aderhold, K., Eilon, Z.C., and Wagner, L.S. (2019). The Eastern North American Margin Community Seismic Experiment: An amphibious active- and passive-source dataset. *Seismological Research Letters*, in press
- [18] León-Ríos, S., Agurto-Detzel, H., Rietbrock, A., Alvarado, A., Beck, S., Charvis, P., Edwards, B., Font, Y., Garth, T., Hoskins, M. and **Lynner, C.**, (2019). 1D-velocity structure and seismotectonics of the Ecuadorian margin inferred from the 2016 Mw7. 8 Pedernales aftershock sequence. *Tectonophysics*, 767, 228165. doi: 10.1016/j.tecto.2019.228165
- [17] Agurto-Detzel, H., Font, Y., Charvis, P., Régnier, M., Rietbrock, A., Ambrois, D., Paulatto, M., Alvarado, A., Beck, S.L., Hernandez, M.J., Hernandez, S., Hoskins, M., León-Ríos, S., **Lynner, C.**, Meltzer, A., Mercerat, D., Michaud, F., Nocquet, J.M., Rolandone, F., Ruiz, M., Soto-Cordero, L., (2019). Ridge Subduction and Afterslip Control Aftershock 1 Distribution of the 2016 Mw 7.8 Ecuador Earthquake. *Earth and Planetary Science Letters*, 520, 63-76, doi: 10.1016/j.epsl.2019.05.029

- [16] Meltzer, A., Beck, S., Ruiz, M., Hoskins, M., Soto-Cordero, L., Stachnik, J.C., **Lynner, C.**, Porritt, R., Portner, D., Alvarado, A. and Hernandez, S. (2019). The 2016 Mw 7.8 Pedernales, Ecuador, Earthquake: Rapid Response Deployment. *Seismological Research Letters*. 90(3) 1346-1354. doi: 10.1785/0220180364
- [15] **Lynner, C.**, Beck, S.L., Zandt, G., Porritt, R.W., Lin, F.-C., Eilon, Z., (2018). Mid-crustal deformation in the Central Andes constrained by radial anisotropy. *Journal of Geophysical Research*, doi: 10.1029/2017JB014936
- [14] **Lynner, C.**, Bodmer, M., (2017). Mantle flow along the eastern North American margin inferred from shear wave splitting. *Geology*, 5(10): 867-870, doi: 10.1130/G38980.1
- [13] **Lynner, C.**, Porritt, R.W., (2017) Crustal structure across the eastern North American margin from ambient noise tomography, *Geophysical Research Letters*, 44, doi: 10.1002/2017GL073500.
- [12] **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, 6735-6742, doi: 10.1002/2017GL074312
- [11] **Lynner, C.**, Long, M.D., Thissen, C.J., Paczkowski, K., Montési, L.G.J., (2017), Evaluating geodynamic models for sub-slab anisotropy: Effects of olivine fabric type. *Geosphere*, 13(2), 247-259. doi: 10.1130/GES01395.1.
- [10] Long, M. D., **Lynner, C.**, (2015). Seismic anisotropy in the lowermost mantle near the Perm Anomaly. *Geophysical Research Letters*, 42, doi: 10.1029/2015GL065506.
- [9] Mohiuddin, A., Long, M. D., **Lynner, C.**, (2015). Mid-mantle seismic anisotropy beneath southwestern Pacific subduction systems and implications for mid-mantle deformation. *Physics of the Earth and Planetary Interiors*, 245, 1-14, doi: 10.1016/j.pepi.2015.05.003.
- [8] **Lynner, C.**, Long, M. D., (2015). Lateral variability in mid-mantle and transition zone anisotropy beneath South America and the northwest Pacific. *Geophysical Journal International*, 201 (3), 1545-1552, doi: 10.1093/gji/ggv099.
- [7] Ford, H. A., Long, M. D., He, X., **Lynner, C.**, (2015). Lowermost mantle flow along the eastern edge of the African Large Low Shear Velocity Province. *Earth and Planetary Science Letters*, 420, 12-22, doi:10.1016/j.epsl.2015.03.029.
- [6] **Lynner, C.**, Long, M. D., (2014c). Lowermost mantle anisotropy and deformation along the boundary of the African LLSVP. *Geophysical Research Letters*, 41, doi:10.1002/2014GL059875.
- [5] **Lynner, C.**, Long, M.D., (2014b). Testing models of sub-slab anisotropy using a global compilation of source-side shear wave splitting data. *Journal of Geophysical Research*, 119, 7226–7244, doi:10.1002/2014JB010983.

- [4] **Lynner, C.**, Long, M. D., (2014a). Sub-slab anisotropy beneath the Sumatra and circum-Pacific subduction zones from source-side shear wave splitting observations. *Geochemistry, Geophysics, Geosystems*, 15, 2262-2281, doi:10.1002/2014GC005239
- [3] Field, D. J., **Lynner, C.**, Brown, C., Darroch, S. A., (2013). Skeletal Correlates for Body Mass Estimation in Modern and Fossil Flying Birds. *PloS one*, 8(11), e82000.
- [2] **Lynner, C.**, Long, M. D., (2013). Sub-slab seismic anisotropy and mantle flow beneath the Caribbean and Scotia subduction zones: Effects of slab morphology and kinematics. *Earth and Planetary Science Letters*, 361,367-378.
- [1] **Lynner, C.**, Long, M. D., (2012). Evaluating contributions to SK(K)S splitting from lower mantle anisotropy: A case study from station DBIC, Cote D'Ivoire. *Bulletin of the Seismological Society of America*, 102, 1030-1040

PUBLICATIONS IN REVIEW

- [1] Soto-Cordero, L., Meltzer, A., Bergman, E., Hoskins, M., Stachnik, J.C., Agurto-Detzel, H., Alvarado, A., Beck, S.L., Charvis, P., Font, Y., Hayes, G., Hernandez, S., Leon-Rios, S., **Lynner, C.**, Nocquet, J-M., Regnier, M., Rietbrock, A., Rolandone, F., Ruiz, M., (in review). Structural Control on Megathrust Rupture and Slip Behavior: Insights from the 2016 Mw 7.8 Pedernales Ecuador Earthquake. In review at Journal of Geophysical Research
- [2] **Lynner, C.**, Koch, C., Beck, S.L., Meltzer, A., Soto-Cordero, L., Hoskins, M., Ruiz, M., Alvarado, A., Charvis, P., Font, Y., Regnier, M., Agurto-Detzel, H., Rietbrock, A., (in review). Upper-plate structure in Ecuador coincident with the Carnegie Ridge and the southern extent of the large mega-thrust earthquake sequence. In review at Geophysical Journal International.
- [3] Condori, C., França, G.S., Tavera, H.J., Eakin, C., **Lynner, C.**, Beck, S.L., Villegas-Lanza, J.C., (in review). Upper plate seismic anisotropy beneath northern Peru from shear wave splitting. In review at Physics of Earth and Planetary Interiors

FUNDING

- Lead-PI, **NSF – GeoPRISMS**, “*Collaborative research: Lithosphere-scale anisotropic imaging across the Eastern North American Margin's ocean-continent transition*”.

FIELD EXPERIENCE

- Ecuador Rapid Seismic Deployment 2016-2017

- Eastern North American Margin Community Seismic Experiment (ENAM-CSE) 2015
- Mid-Atlantic Geophysical Integrative Collaboration Experiment (MAGIC) 2013-2015
- Paleomagnetic block sampling, Gannakouriep dike swarm, Namibia 2011
- Peru Lithosphere and Slab Experiment (PULSE) 2011

TEACHING EXPERIENCE

- Guest Lecturer
 - Introduction to Seismology** (Arizona) 2016, 2017, 2018
 - Introduction to Topics in Geology & Geophysics** (Yale) 2015
 - Introduction to Seismology** (Yale) 2014
- Teaching Fellow 2011, 2012, 2013
 Department of Geology & Geophysics, Yale University
Course: Dynamic Earth
Led laboratory activities, ran various field trips around the New Haven area to experience the local geology (annually) as well as field trips to the Adirondacks in NJ (Fall 2011) and through Nova Scotia (Fall 2012), and held office hours and review sessions.
- Teaching Fellow 2011
 Department of Geology and Geophysics, Yale University
Course: Earth System Science

SERVICE & AWARDS

- Organizer, GeoPRISMS pre-AGU Workshop 2017
- William E. Ford Prize in mineralogical studies 2015
- NSF Geophysics, EarthScope, and GeoPRISMS Referee 2015 - P
- Yale University Dept. of Geology & Geophysics Hammer Prize 2014
- Manuscript reviewer for EPSL, GRL, JGR, GJI, PEPI, and G3 2013 - P
- President of the Geology & Geophysics department Dana Club 2012-2013
- Vice-Chair and Geology & Geophysics representative of the Yale Graduate Student Assembly 2013-2015
- Member of the Executive Committee of the Yale Graduate School 2014-2015
- Peabody on the Road volunteer 2014-2015
- Member of the American Geophysical Union 2010 - P

CONFERENCE PROCEEDINGS & OTHER TALKS (* denotes talk)

Lynner, C.*, Porritt, R., Bodmer, M. (2017) Seismic imaging along the eastern North American margin: dynamics and structure. OBSIP Meeting, Portland, ME

- Lynner, C.** (2017). Deep crustal structure across the Eastern North American Margin. OBSIP Meeting, Portland, ME
- Lynner, C.*** (2017). How do slabs and water impact mantle flow? (and maybe some crustal flow). Vanderbilt University, Department of Earth and Environmental Sciences.
- Lynner, C.***, Bodmer, M. (2017). Seismic anisotropy across the Eastern North American Margin (ENAM). GeoPRISMS TEI, Albuquerque, NM
- Lynner, C.**, Porritt, R.W. (2017). Crustal thinning and a sharp crustal contrast across the eastern North American margin. GeoPRISMS TEI, Albuquerque, NM
- Lynner, C.***, Beck, S.L., Zandt, G., Ward, K.M., Delph, J.R., Porritt, R.W., Long, M.D., Wagner, L.S. (2016). Radial anisotropy from ambient noise tomography in the Central Andes. American Geophysical Union Fall Meeting, San Francisco, CA
- Porritt, R.W., Ward, K.M., Porter, R.C., Portner, D.E., **Lynner, C.**, Beck, S.L., Zandt, G. (2016). Slab geometry of the South American margin from joint inversion of body waves and surface waves. American Geophysical Union Fall Meeting, San Francisco, CA
- Lynner, C.**, Beck, S.L., Zandt, G., Lin, F.C., Ward, K.M., Delph, J.R., Long, M.D., Wagner, L.S., (2016). Rayleigh and Love wave ambient noise tomography of the Central Andes. Subduction Zone Observatory Workshop, Boise, ID
- Meltzer, A., Beck, S.L., Ruiz, M.C., Hernandez, S., Alvarado, A.P., Regnier, M.M., Rietbrock, A., Font, Y., Charvis, P., Yepes, H.A., **Lynner, C.**, Porritt, R.W. (2016). Seismicity in the Wake of the April 2016 Pedernales Earthquake. American Geophysical Union Fall Meeting, San Francisco, CA
- Lynner, C.*** (2016). Constraining sub-slab mantle dynamics. University of Utah, Department of Geology & Geophysics
- Lynner, C.**, Beck, S.L., Zandt, G., Lin, F.C., Ward, K.M., Delph, J.R., Long, M.D., Wagner, L.S., (2016). Rayleigh and Love wave ambient noise tomography of the Central Andes. IRIS Workshop, Vancouver, WA
- Lynner, C.**, Long, M. D., (2015). Probing sub-slab anisotropy beneath Central America and Tonga using realistic geodynamic models. American Geophysical Union Fall Meeting, San Francisco, CA
- Ford, H. A., Long, M. He, X., **Lynner, C.** (2015). Characterizing and testing models of lowermost mantle flow, rheology and seismic anisotropy, using a regional shear wave splitting data set. Gordon Research Conference – Interior of the Earth, South Hadley, MA
- Lynner, C.***, Long, M. (2015). Heterogeneous seismic anisotropy in the transition zone and uppermost lower mantle. Lamont Seismology Student Workshop, Palisades, NY
- Lynner, C.**, Long, M.D., (2015). Source-side shear wave splitting observations of

Sumatra and Pacific subduction zones leading to a new model of sub-slab anisotropy. IRIS Workshop, Sunriver, OR

Lynner, C., Long, M. D., (2015). Sub-slab anisotropy beneath Central America and Tonga from geodynamic models. Gordon Research Conference – Interior of the Earth, South Hadley, MA

Ford, H.A., Long, M.D., He, X., **Lynner, C.**, (2014). Vertically deflected mantle flow at the eastern edge of the African Large Low Shear Velocity Province. American Geophysical Union Fall Meeting, San Francisco, CA

Long, M.D., **Lynner, C.**, (2014). Seismic anisotropy in the lowermost mantle near low shear velocity provinces: A comparison of the Perm anomaly and the African LLSVP. American Geophysical Union Fall Meeting, San Francisco, CA

Ford, H. A., Long, M. He, X., **Lynner, C.** (2014) Vertically deflected mantle flow at the eastern edge of the African Large Low Shear Velocity Province, American Geophysical Union Fall Meeting, San Francisco, CA

Lynner, C., Long, M.D., (2014). Mid-mantle anisotropy beneath Japan and South America from source-side shear wave splitting. American Geophysical Union Fall Meeting, San Francisco, CA

Lynner, C.*, Long, M. (2014). Source-side shear wave splitting observations of Sumatra and Pacific subduction zones leading to a new model of sub-slab anisotropy. Lamont Seismology Student Workshop, Palisades, NY.

Field, D.J., **Lynner, C.**, (2014). Late evolutionary origin of modern bird flight inferred from shoulder allometry. D.J. Field, C. Lynner. Evolution, Raleigh, NC.

Ford, HA., Long, MD., **Lynner, C.**, He, X. (2013). Forward modeling of observations of shear wave splitting along the edge of the African LLSVP: Implications for flow in the deep mantle. American Geophysical Union Fall Meeting, San Francisco, CA

Lynner, C.*, Long, M. D., (2013). Source-side shear wave splitting observations of Sumatra and Pacific subduction zones leading to a new model of sub-slab anisotropy. American Geophysical Union Fall Meeting, San Francisco, CA

Field, D.J., **Lynner, C.**, (2013). Precise inference of avialan flight ability from shoulder joint dimensions. Society of Vertebrate Paleontology, Los Angeles.

Ford, H. A., Long, M., **Lynner, C.**, He, X. (2013). Characterizing seismic anisotropy and mantle dynamics in the lowermost mantle near the African large low shear velocity province. Gordon Research Conference – Interior of the Earth, South Hadley, MA

Lynner, C., Long, M. D., (2013). Discrepant SKS-SKKS splitting along the northern edge of the African very low velocity province. Gordon Research Conference – Interior of the Earth, South Hadley, MA

Long, M.D., Paczkowski, K.M., Montesi, L.G., **Lynner, C.**, Foley, B. (2012). Mantle flow beneath subducting slabs from seismological observations and geodynamical models. European Geophysical Union General Assembly

Lynner, C., Long, M. D., (2012). Sub-slab shear wave splitting beneath northwestern Pacific subduction zones. American Geophysical Union Fall Meeting, San Francisco, CA

Lynner, C., Long, M. D., (2011). A Comparison of Sub-Slab Anisotropy Beneath the Scotia and Caribbean Subduction Zones. American Geophysical Union Fall Meeting, San Francisco, CA