

DANIEL ANDREW FROST

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Education

Ph.D.	The University of Leeds	October 2010 - July 2014
Thesis: "Seismic observation of the Earth's small-scale structure" Structure of lower mantle using scattered seismic waves and relation to large-scale features Detecting the edge of the Pacific Large Low Shear Velocity Province using P-waves		
MEarthSci	The University of Oxford	October 2006 - October 2010
Earth Sciences 2.1 Classification Masters thesis: "A marine geophysical study of the Tonga Trench-Louisville ridge collisional system in the South-West Pacific Ocean"		

Employment

Assistant Professor	University of South Carolina	August 2022 - present
Research in global seismology and local earthquakes in South Carolina Teaching Introduction to Geology, Data Science in Earth, Ocean, and Environmental Sciences, and Environmental Geophysics Director of the South Carolina Seismic Network		
Assistant Project Scientist	University of California, Berkeley	August 2019 - August 2022
Funded by NSF grant 1829283: Resolving the influence of mantle heterogeneity on estimates of inner core anisotropy, and NSF grant 2027181: Collaborative Research: Towards improved imaging of the outermost core through determination of the effects of lowermost mantle heterogeneity and anisotropy, and NSF grant 2050011: Imaging deep mantle structure beneath Alaska using full waveform tomography Understanding structure and tectonics of mantle beneath Alaska Implementing regional box tomography Improving resolution of deep Earth by understanding shallow mantle influence		
Postdoctoral Scholar	University of California, Berkeley	May 2016 - July 2019
Funded by NSF grants 1135452 and 1829283: Resolving the influence of mantle heterogeneity on estimates of inner core anisotropy Inner core anisotropy using exotic seismic phases and seismic arrays and mineral physics Supporting the research output and organisation of the Cooperative Institute for Dynamic Earth Research (CIDER) program Preparing educational reports on multidisciplinary topics for CIDER PDRA: Barbara Romanowicz		
Postdoctoral Scholar	Arizona State University	August 2014 - May 2016

Funded by NSF grant PVS0695: Deep mantle cycling of oceanic crust

Distribution of small-scale heterogeneities throughout both the upper and lower mantle and their relation to mantle dynamics and subduction

The influence of broad lower mantle heterogeneities on deep-travelling S-waves and the effect on analysis of outer core structure

PDRA: Edward Garnero

Research Interests

Whole Earth structure, earth evolution, cross-disciplinary studies, influence of convection on mantle structure, seismic scattering, core structure, anisotropy, chemical heterogeneity, D'' complexity, array seismology, tomographic inversion, developing seismic methodologies

Awards

Doonbos prize: Recognised for innovative techniques to image Earth's small-scale structure and cross-disciplinary studies linking seismic observations to geodynamics and mineralphysics to constrain the structure of Earth's core.

Publications - in print or in review

Authors marked with * are students that I supervise.

25. Xu, E., Wolf, J., **Frost, D.A.**, Li, M., Long, M.D. Deep mantle deformation near Australia linked to large low velocity province and mantle upwelling, *in review at Geophysical Research Letters*

24. Das, P.P.* , Buffett, B., **Frost, D.A.** Generation of inner core anisotropy by anisotropic thermal conductivity of iron crystals. , Nat. Geosci., 2026, <https://doi.org/10.1038/s41561-026-01916-3>

23. Bollmeyer, J*, Das, P.P.* , **Frost, D.A.** Constraints on inner core composition from seismic anisotropy: The importance of light elements and Nickel. Geophysical Research Letters, 2025, 52, e2025GL116526. <https://doi.org/10.1029/2025GL116526>

22. Rost, S,**Frost, D.A.**, Global mantle heterogeneity structure from scattered PKPPKP, Earth and Planetary Science Letters, 2025, <https://doi.org/10.1016/j.epsl.2025.119415>

21. Adebobye, O., Peng, Z., **Frost, D.A.**, Localized west-dipping seismic structure defines the Elgin-Lugoff Swarm Sequence in South Carolina, Seismological Research Letters, 2025, 96 (3): 2011–2026. <https://doi.org/10.1785/0220240302>

20. Wolf, J., **Frost, D.A.**, Brewster*, A., Long, M.D., Garnero, E., West, J.D. Widespread D' anisotropy beneath North America and the northeastern Pacific Ocean and implications for upper mantle anisotropy measurements, Journal of Geophysical Research - Solid Earth, 2024, 129, 10

19. Wolf, J., Long, M., **Frost, D.A.**, Nissen-Meyer, T. , The expression of mantle seismic anisotropy in the global seismic wavefield, Geophysical Journal International, 2024, 238 (1), 346–363

18. **Frost, D.A.**, Garnero, E.J., Creasy, N., Wolf, J., Bozdog, E., Long, M.D., Aderoju,* A., Vite, R.: Heterogeneous mantle effects on the behavior of SmKS waves and outermost core imaging, Geophysical Journal International, 2024, 237, 3, 1655–1673

17. Wolf, J., Long, M., **Frost, D.A.**, 2024, Ultralow velocity zone and deep mantle flow beneath the Himalayas linked to subducted slab, Nature Geoscience, 2024, 17, 4, 302–308

16. Rost, S., **Frost, D.A.**, Nowacki, A., Cobden, L. , 2023, Wavefield distortion imaging of Earth's deep mantle, EPSL, 604, 118011