

Curriculum Vitae

Contact Information

David O. S. Oakley
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Academic Employment

November 2023 – Present: Postdoctoral research associate, University of Glasgow
November 2022 – October, 2023: Postdoctoral researcher, BRGM and University of Pau
September 2020 – September 2022: Postdoctoral fellow, University of Stavanger
May 2019 – August 2020: Postdoctoral researcher, Pennsylvania State University
August 2018 – May 2019: Instructor, Slippery Rock University of Pennsylvania
May 2017 – July 2018: Research Assistant, Pennsylvania State University

Education

2011-2017: Ph.D., Pennsylvania State University, Department of Geosciences.
Dissertation: "Fault-Propagation Fold Kinematics and Deformation Rates in the North
Canterbury Fold and Thrust Belt, South Island, New Zealand"
Advisor: Donald Fisher
2007-2011: BA, Williams College. Geosciences and Astrophysics Major.
Senior Thesis: "Basement Faults of the Edelman Lineament, Bighorn Mountains,
Wyoming."
Advisor: Paul Karabinos
Graduated Magna Cum Laude, with Highest Honors in Geosciences

Teaching Experience

Instructor, Slippery Rock University, Department of Geography, Geology, and the Environment
EGEO 101 Physical Geology (2 semesters)
EGEO 111 Physical Geology Lab (2 semesters)
EGEO 358 Introduction to Geophysics (1 semester)
EGEO 458 Geophysical Field Methods (1 semester)
Teaching Assistant, Pennsylvania State University, Geosciences Department, 2012-2017
GEOSC 472 Field Camp (4 summers)
GEOSC 465 Structural Geology (2 semesters)
GEOSC 452 Hydrogeology (1 semester)
GEOSC 310 Earth History (2 semesters)
GEOSC 010 Geology of the National Parks (2 semesters, online class)
GEOSC 001 Physical Geology (1 semester)

Grants Received

NSF EAPSI Fellowship	2015
Scholten-Williams-Wright Scholarship in Field Geology	2014
Shell Geosciences Energy Research Facilitation Award	2014
GSA Graduate Student Research Grants	2012, 2014
Sigma Xi Grants-in-Aid of Research	2012, 2013
AAPG Grants-in-Aid	2012, 2013

Awards and Honors

Chelius Graduate Fellowship in Earth Sciences	2011
Mineralogical Society of America Undergraduate Prize	2011
Sigma Xi	2011
Phi Beta Kappa	2010

Professional Affiliations

American Geophysical Union
Geological Society of America
European Geosciences Union
International Association for Mathematical Geosciences

Reviewer For

Geology
Earth Surface Processes and Landforms
Journal of Petroleum Science and Engineering
Terra Nova
Geophysical Journal International
The Cryosphere

Citizenship: United States, Ireland

Languages: English (native speaker), French (limited working proficiency), Norwegian (elementary proficiency)

Programming Languages: Matlab, Fortran, Python, R

Publications

Yoxtheimer, D.A., **Oakley, D.O.S.**, Nyblade, A.A., Mount, G., 2023. Geo-electrical anisotropy corrections derived from square array data to improve Earth resistivity models of the Shale Hills' critical zone. *Journal of Applied Geophysics* 215, 105113.

<https://doi.org/10.1016/j.jappgeo.2023.105113>

Oakley D.O.S., Cardozo, N., Vazquez, A.A., and Røe, P., 2023. Structural geologic modeling and restoration using ensemble Kalman inversion. *Journal of Structural Geology* 171, 104868. <https://doi.org/10.1016/j.jsg.2023.104868>

- Hodges, C., Regan, J.M., Forsythe, B., **Oakley, D.**, Kaye, J., and Brantley, S.L., 2023. Using fixed-potential electrodes to quantify iron and manganese redox cycling in upland soils. *Biogeochemistry* 162, 25-42. <https://doi.org/10.1007/s10533-022-01012-9>
- Ma, L., **Oakley, D.**, Nyblade, A., Moon, S., Accardo, N., Wang, W., Gu, X., Brubaker, K., Mount, G.J., Forsythe, B., Carr, B.J., and Brantley, S.L., 2021. Seismic image of a shale landscape under compression shows limited influence of topography-induced fracturing. *Geophysical Research Letters* 48, e2021GL093372. doi: 10.1029/2021GL093372
- Oakley, D.O.S.**, Forsythe, B., Gu, X., Nyblade, A.A., and Brantley, S.L., 2021. Seismic ambient noise analyses reveal changing temperature and water signals to 10s of meters depth in the critical zone. *Journal of Geophysical Research: Earth Surface*. doi: 10.1029/2020JF005823
- Bright, J., Kaufman, D.S., Whitacre, K., Ebert, C., Southon, J.R., Albano, P., Flores, C., Frazer, T.K., Kosnik, M.A., Kowalewski, M., Martinelli, J., **Oakley, D.**, Retelle, M., Do Nascimento Ritter, M., Rivadeneira, M., and Scarponi, D., 2021. Comparing rapid and standard ^{14}C ages from an assortment of biologic carbonates. *Radiocarbon*. doi: 10.1017/RDC.2020.131
- Gu, X., Mavko, G., Ma, L., **Oakley, D.**, Accardo, N., Carr, B.J., Nyblade, A.A., and Brantley, S.L., 2020. Seismic refraction tracks porosity generation and possible CO_2 production at depth under a headwater catchment. *Proceedings of the National Academy of Sciences*, 117:32, 18991-18997. doi: 10.1073/pnas.2003451117
- Fisher, D.M., Tonai, S., Hashimoto, Y., Tomioka, N., and **Oakley D.**, 2019. K-Ar dating of fossil seismogenic thrusts in the Shimanto accretionary complex, southwest Japan. *Tectonics* 38:11, 3866-3880. doi: 10.1029/2019TC005571
- Fisher, D.M., Hooker, J.N., and **Oakley, D.O.S.**, 2019. Models of the Subduction Interface Motivated by Field Observations. *Lithosphere*. doi: 10.1130/L1008.1
- Cardozo, N.F. and **Oakley, D.**, 2019. Inverse modeling for possible rather than unique solutions. *Journal of Structural Geology* 125, 285-295. doi: 10.1016/j.jsg.2018.05.026
- Woda, J., Wen, T., **Oakley, D.**, Yoxtheimer, D., Engelder, T., Castro, M.C., and Brantley, S.L., 2018. Detecting and explaining why aquifers occasionally become degraded near hydraulically fractured shale gas wells. *Proceedings of the National Academy of Sciences*, 115:49, 12349-12358. doi: 10.1073/pnas.1809013115
- Oakley, D.O.S.**, Fisher D.M., Gardner, T.W., and Stewart, M.K., 2018. Uplift rates of marine terraces as a constraint on fault-propagation fold kinematics: Examples from the Hawkswood and Kate anticlines, North Canterbury, New Zealand. *Tectonophysics* 724-725, 195-219. doi: 10.1016/j.tecto.2017.12.021
- Regalla, C., Fisher, D., Kirby, E., **Oakley, D.**, and Taylor, S., 2017. Slip inversion along forearc faults, eastern Tohoku, Japan. *Tectonics* 36, 2647-2668. doi: 10.1002/2017TC004766
- VanderLeest, R.A., Fisher, D.M., **Oakley, D.O.S.**, and Gardner, T.W., 2017. Growth and Seismic Hazard of the Montserrat Anticline in the North Canterbury Fold and Thrust Belt, South Island, New Zealand. *Journal of Structural Geology* 101, 1-14. doi: 10.1016/j.jsg.2017.06.003

- Oakley D.O.S.,** Kaufman, D.S., Gardner, T.W., Fisher, D.M., and VanderLeest, R.A., 2017. Quaternary marine terrace chronology, North Canterbury, New Zealand using amino acid racemization and infrared stimulated luminescence. *Quaternary Research* 87, 151-167. doi: 10.1017/qua.2016.9
- Oakley D.O.S.** and Fisher, D.M., 2015. Inverse trishear modeling of bedding dip data using Markov chain Monte Carlo methods. *Journal of Structural Geology* 80, 157-172. doi: 10.1016/j.jsg.2015.09.005