

# Curriculum Vitae

## Contact Information

David O. S. Oakley  
Department of Energy Resources  
University of Stavanger  
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## Academic Employment

September 2020 – Present: 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: Postdoctoral researcher, 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

*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)  
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 after junior year	2010

## Reviewer For

Geology  
Earth Surface Processes and Landforms  
Journal of Petroleum Science and Engineering

## Professional Affiliations

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

## Publications

- 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 <sup>14</sup>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<sub>2</sub> 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

## Conference Abstracts

- Oakley, D.O.S.**, Cardozo, C., and Loveless, J.P., 2021. Comparison of kinematic and elastic dislocation models of fault-propagation folds through inverse modeling. *GeoMod 2021*, 19-23 Sept.
- Oakley, D.**, Nyblade, A., Brantley, S., Accardo, N., Forsythe, B., Hodges, C., Regan, J., and Kaye, J., 2019. Seismic Ambient Noise and Electrical Resistivity Imaging of Subsurface Water Changes in the Susquehanna Shale Hills CZO, Pennsylvania. Submitted to 2019 AGU Fall Meeting.

- Oakley, D.O.**, Fisher, D.M., Gardner, T., VanderLeest, R.A., Barnes, P., and Ghisetti, F.C., 2018. Joint Modeling of Fault Related Fold Kinematics and Marine Terrace Uplift to Estimate Active Fault Slip Rates in North Canterbury, New Zealand. Abstract EP54A-05 presented at 2018 Fall Meeting, AGU, Washington, D.C., 10-14 Dec.
- Fisher, D.M., Smye, A., Hooker, J.N., **Oakley, D.O.**, and Yamaguchi, A., 2018. Silica Kinetics and Subduction Zone Slip Behavior. Abstract T11C-08 presented at 2018 Fall Meeting, AGU, Washington, D.C., 10-14 Dec.
- Hooker, J.N., Fisher, D.M., and **Oakley, D.O.**, 2018. Modeling Diagenesis on Subduction Interfaces. Abstract T21E-0255 presented at 2018 Fall Meeting, AGU, Washington, D.C., 10-14 Dec.
- Tonai, S., Fisher, D.M., **Oakley, D.O.**, Hashimoto, Y., and Tomioka, N., 2018. K-Ar dating of fossil seismogenic thrusts in the Shimanto accretionary complex, southwest Japan. Abstract T21F-0272 presented at 2018 Fall Meeting, AGU, Washington, D.C., 10-14 Dec.
- Oakley, D.O.S.** and Cardozo, N., 2018. Comparison of trishear and elastic dislocation fault-propagation fold models and characterization of uncertainty in model parameters. Geological Society of America Abstracts with Programs, Vol. 50, No. 6.
- Woda, J., Wen, T., **Oakley, D.O.**, and Brantley, S.L., 2017. A Geochemical and Structural Geologic Look at Methane Rich Waters Near a Problematic Shale Gas Well. Abstract EP23C-1941 presented at 2017 Fall Meeting, AGU, New Orleans, LA, 11-15 Dec.
- Oakley, D.O.S.**, Fisher, D.M., Gardner, T.W., Barnes, P.M., Ghisetti, F.C., and VanderLeest, R.A., 2017. Rates and mechanisms of active faulting and folding in the transition from Hikurangi subduction to North Canterbury transpression, South Island, New Zealand. Geological Society of America Abstracts with Programs, Vol. 49, No. 6, doi: 10.1130/abs/2017AM-307236.
- Fisher, D.M., Smye, A.J., Marone, C., van Keken, P., Yamaguchi, A., **Oakley, D.**, and Ramirez, G., 2017. Spectrum of megathrust slip behavior recorded within ancient accretionary complexes: The role of silica redistribution. Geological Society of America Abstracts with Programs, Vol. 49, No. 6, doi: 10.1130/abs/2017AM-304279.
- Regalla, C., Fisher, D.M., Kirby, E., and **Oakley, D.O.S.**, 2017. Slip inversion in the forearc of Tohoku Japan, over multiple time scales. Geological Society of America Abstracts with Programs, Vol. 49, No. 6, doi: 10.1130/abs/2017AM-307361.
- Oakley, D.O.S.** and Fisher, D.M., 2016. A New Method for Analysis of Trishear Fault-Propagation Folds, with Application to Structures in North Canterbury, New Zealand. Geological Society of America Abstracts with Programs, Vol. 48, No. 7.
- Oakley, D.O.S.**, Gardner, T.W., and Fisher, D.M., 2015. Uplift Rates of Marine Terraces as Constraints on Fault-Propagation Fold Kinematics: Examples from Two Anticlines in North Canterbury New Zealand, Geological Society of America Abstracts with Programs, Vol. 47, No. 7, p. 719.
- VanderLeest, R., **Oakley, D.O.S.**, Fisher, D.M., and Gardner, T.W., 2015, Investigation of Fold Growth in North Canterbury, South Island, New Zealand, Geological Society of America Abstracts with Programs, Vol. 47, No. 7, p. 718.

- Oakley, D.**, Fisher, D., and Gardner, T., 2014, Inverse Trishear Modeling of Bedding Dip Data, Geological Society of America Abstracts with Programs, Vol. 46, No. 6, p. 227.
- VanderLeest, R., **Oakley, D.**, Fisher, D.M., and Gardner, T.W., 2014, Modeling the Evolution of the Montserrat Anticline and Happy Valley Fault in the North Canterbury Region on the South Island of New Zealand, Geological Society of America Abstracts with Programs, Vol. 46, No. 6, p. 778.
- Oakley, D.**, Gardner, T., Fisher, D., Kaufman, D., 2013, Uplift Rates and Structure of the North Canterbury Fold and Thrust Belt, South Island, New Zealand, Geological Society of America Abstracts with Programs, Vol. 45, No. 7, p. 710.
- Oakley, D.O.**, Kuhn, M.E., Stephenson, A.L., Wang, K., Spence, G., Hole, J.A., Miller, K.C., Harder, S.H., Kaip, G.M., Clowes, R.M., Hammer, P.T., 2009. Seismic Refraction - Wide-angle Reflection Survey of the Coast Mountains Batholith, British Columbia, Canada, *Eos Trans. AGU*, 90(52), Fall Meet. Suppl., Abstract T23A-1888.
- French, R.G., Rappaport, N.J., Marouf, E.A., McGhee, C.A., Curtis, A., Garber, J., Judd, K., **Oakley, D.O.**, 2008. Saturn's Titan and Maxwell Ringlets from Cassini RSS Observations, *Eos Trans. AGU*, 89(53), Fall Meet. Suppl., Abstract P13A-1296.