DEREK E. SAWYER, Ph.D.

The Ohio State University
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Google Scholar
Marine Geology & Geohazards Laboratory

RESEARCH FOCUS

- Sedimentary systems and geohazards of submarine landslides, tsunami, earthquakes, and storms
- Study sites span the range of shallow water coastal environments to deep water continental margins and sedimentary basins in passive and active tectonic settings
- Focus on Neogene-age (<25 m.y.) geological systems including present day surface systems and deeper subsurface systems
- Methods include acquisition/processing/interpretation of geophysical data (multi-channel seismic and multibeam) and sediment cores and samples, numerical modeling, and physical experiments

EDUCATION

Ph.D.	2010	Geological Sciences, The University of Texas at Austin
M.S.	2006	Geosciences, The Pennsylvania State University
B.S.	2002	Marine Science, Eckerd College

PROFESSIONAL EXPERIENCE

2020-Present	Associate Professor, The Ohio State University, School of Earth Sciences
2021-2022	Visiting Researcher, Laboratory of Seafloor and Subseafloor Geological Processes, Institute of Marine Sciences, Barcelona, Spain
2014-2020	Assistant Professor, The Ohio State University, School of Earth Sciences
2013-2014	Assistant Professor, University of Kentucky, Dep. of Earth & Env. Sciences
2010-2012	Exploration Geologist, ExxonMobil Exploration Co., Houston Texas
2005-2005	Geohazards Intern, Shell International Exploration and Production, Houston, Texas
2004-2004	Geohazards Intern, BP, Houston, Texas

AWARDS AND RECOGNITION

2021	Distinguished Teaching Award, School of Earth Sciences, The Ohio State University
2020-2025	CAREER Award, Ocean Sciences, Marine Geology and Geophysics Program, United States National Science Foundation
2019-2021	Early Career Research Fellow, National Academies of Sciences, Engineering, and Medicine, Gulf Research Program
2018-2019	Faculty Fellow, Ohio State Center for Energy Research, Training, and Innovation (CERTAIN), The Ohio State University
2010	Best Ph.D. Student Technical Session, spring semester (UT Austin Jackson School)
2008 2005	Outstanding Student Paper Award (AGU Fall meeting)

PUBLICATIONS

*** graduate student advisee + post-doc advisee ° undergraduate advisee**

Peer-Reviewed Journal Articles (27)

27. *Fillingham, J. N., **Sawyer, D. E.** and Bécel, A., 2022, *Undulating Sediments of the Cape Fear Submarine Landslide system, offshore US Atlantic Margin: Sediment Waves versus Creep Deformation*, Interpretation, Volume 10, Issue 4.
26. *Martinez, G. O., **Sawyer, D. E.**, and Portnov, A., 2022, *Seismic Geomorphology of the Chandeleur Submarine Landslide in the Northern Gulf of Mexico*, Geological Society of London, Special Publications, Volume 525, Issue 1.
25. *Lenz, B. L., and **Sawyer, D. E.**, 2021, *Mass Transport Deposits in Reflection Seismic Data Offshore Oregon, USA*, Basin Research, https://doi.org/10.1111/bre.12611
24. *Browning, T. N., and **Sawyer, D.E.**, 2021, *Erosion and Deposition Vulnerability of Small (<5,000 km^2) Tropical Islands*, PLoS ONE 16(9): e0253080, https://doi.org/10.1371/journal.pone.0253080.
23. *Browning, T. N., and **Sawyer, D. E.**, 2021, *Vulnerability to watershed erosion and coastal deposition in the tropics*, Scientific Reports, 11, no. 885, https://doi.org/10.1038/s41598-020-79402-y.
22. +Portnov, A., Santra, M., Cook, A. E., and **Sawyer, D. E.**, 2020, *The Jackalope gas hydrate system in the northeastern Gulf of Mexico*, Marine and Petroleum Geology, v. 111, p. 261-278. DOI: https://doi.org/10.1016/j.marpetgeo.2019.08.036.
21. +Portnov, A., A. E. Cook, M. Heidari, **D.E. Sawyer**, M. Santra, and M. Nikolinakou, 2020, *Salt-driven evolution of a gas hydrate reservoir in Green Canyon, Gulf of Mexico*, AAPG Bulletin, 104 (9): 1903–1919, https://doi.org/10.1306/10151818125.
20. +Portnov, A., Cook, A.E., **Sawyer, D.E.,** *Yang, C., +Hillman, J.I.T., and Waite, W.F., 2019, *Clustered BSRs: Evidence for gas hydrate-bearing turbidite complexes in folded regions, example from the Perdido Fold Belt, northern Gulf of Mexico*, Earth and Planetary Science Letters, v. 528, 115843, DOI: ttps://doi.org/10.1016/j.epsl.2019.115843.
19. *Browning, T.N., **Sawyer, D.E.**, Brooks, G.R., Larson, R.A., Ramos-Scharrón, C., and Canals-Silander, M., 2019, *Widespread Deposition in a Coastal Bay Following Three Major 2017 Hurricanes (Irma, Jose, and Maria)*, Scientific Reports, v. 9, no. 1, p. 7101, https://doi.org/10.1038/s41598-019-43062-4.
18. **Sawyer, D.E.**, °Mason, R. A., Cook, A. E., and +Portnov, A., (2019), *Submarine Landslides Induce Massive Waves in Subsea Brine Pools*, Scientific Reports, 9:128, DOI:10.1038/s41598-018-36781-7.
17. *Lenz, B.L., **Sawyer, D.E.**, Phrampus, B., Davenport, K., and Long, A., (2018), *Seismic Imaging of Seafloor Deformation Induced by Impact from Large Submarine Landslide Blocks, Offshore Oregon*, Geosciences, v. 9, no. 10, doi:10.3390/geosciences9010010.
16. Yin, S., Li, J., Ding, W., **Sawyer, D.E.**, Wu, Z., and Tang, Y., (2018), *Sedimentary filling characteristics of the South China Sea oceanic basin, with links to tectonic activity and seafloor spreading*, International Geology Review, DOI: 10.1080/00206814.2018.1522603
15. Hill, J. C., Brothers, D. S., Hornbach, M. J., **Sawyer, D. E.**, Shillington, D. J., and Bécel, A., (2018), *Subsurface controls on the development of the Cape Fear Slide Complex, central US Atlantic Margin*, Geological Society, London, Special Publications, v. 477, doi: https://doi.org/10.1144/SP477.17.
14. **Sawyer D. E.**, R. S. Reece, S. P. S. Gulick, and *B. L. Lenz (2017), *Submarine landslide and tsunami hazards offshore southern Alaska: Seismic strengthening versus rapid sedimentation*, Geophysical Research Letters, 44, doi:10.1002/2017GL074537.

13. Wemple, B. C., *Browning, T., Ziegler, A. D., Celi, J., Chun, K. P. (S)., Jaramillo, F., Leite, N. K., Ramchunder, S. J., Negishi, J. N., Palomeque, X., and **Sawyer, D.E.**, (2017), *Ecohydrological Disturbances Associated with Roads: Current Knowledge, Research Needs and Management Concerns with Reference to the Tropics*, Ecohydrology, doi: 10.1002/eco.1881.
12. [+]Hillman, J.T., A.E. Cook, **D.E. Sawyer**, H.M. Kucuk, and D.S. Goldberg, (2017), *The Character and Amplitude of 'Discontinuous' Bottom-Simulating Reflections in Marine Seismic Data*, Earth and Planetary Science Letters. 459, 157-169, doi:http://dx.doi.org/10.1016/j.epsl.2016.10.058.
11. *Moore, Z. T., and **D. E. Sawyer,** (2016), *Assessing post-failure mobility of submarine landslides from seismic geomorphology and physical properties of mass transport deposits: an example from seaward of the Kumano Basin, Nankai Trough, offshore Japan*, Marine Geology, Vol. 374, pp. 73-84, https://doi.org/10.1016/j.margeo.2016.02.003.
10. *Browning, T.N., **D.E. Sawyer,** G.R. Brooks, R.A. Larson, B. O'Donnell, J. Hadfield (2016), *Linking Land and Sea: Watershed Evaluation and Mineralogical Distribution of Sediments in Eastern St. John, USVI*, Caribbean Journal of Science, Vol. 49, No. 1, p. 38-56.
9. **Sawyer, D. E.**, and J. R. DeVore* (2015), *Elevated shear strength of sediments on active margins: Evidence for seismic strengthening*, Geophys. Res. Lett., 42, doi:10.1002/2015GL066603.
8. Cook, A.E., and **D.E. Sawyer** (2015), *The mud-sand crossover on marine seismic data*, Geophysics, 80(6), A109-A114, doi:10.1190/geo2015-0291.1.
7. Moore, G.F.; Kanagawa, K.; Strasser, M.; Dugan, B., Maeda, L., Toczo, S., and the IODP Expedition 338 Scientific Party, (2014), *IODP Expedition 338: NanTroSEIZE stage 3: NanTroSEIZE plate boundary deep riser 2. Scientific Drilling*, (17), 1-12, doi:10.5194/sd-17-1-2014.
6. **Sawyer, D.E.,** P.B. Flemings, and M. Nikolinakou, (2014), *Continuous deep-seated slope failure recycles sediments and limits levee height in submarine channels*, Geology, doi:10.1130/G34870.1
5. **Sawyer, D.E.,** P. B. Flemings, D. Mohrig, and J. Buttles, (2012), *Mudflow Transport Behavior and Deposit Morphology: Role of Shear Stress to Yield Strength Ratio in Subaqueous Experiments*, Marine Geology, 307-310, pp 28-39, https://doi.org/10.1016/j.margeo.2012.01.009
4. **Sawyer, D. E.**, P. B. Flemings, B. Dugan, and J. T. Germaine (2009), *Retrogressive failures recorded in mass transport deposits in the Ursa Basin, Northern Gulf of Mexico*, J. Geophys. Res., 114, B10102, doi:10.1029/2008JB006159.
3. Flemings, P. B., H. Long, B. Dugan, J. Germaine, C. John, J. H. Behrmann, **D.E. Sawyer**, and IODP Expedition 308 Scientists, (2008), *Pore pressure penetrometers document high overpressure near the seafloor where multiple submarine landslides have occurred on the continental slope, offshore Louisiana*, Gulf of Mexico, Earth and Planetary Science Letters, v. 269, p. 309-324, https://doi.org/10.1016/j.epsl.2007.12.005.
2. **Sawyer, D.E.**, Flemings, P.B., Shipp, R.C., and Winker, C.D., (2007), *Seismic Geomorphology, Lithology, and Evolution of the Late Pleistocene Mars-Ursa Turbidite Region, Mississippi Canyon Area, Northern Gulf of Mexico*, AAPG Bulletin, vol. 91, no. 2, p. 215-234, https://doi.org/10.1306/08290605190
1. Behrmann, J.H.; Flemings, P.B.; John, C.M.; and the IODP Expedition 308 Scientists. (2006). *Rapid Sedimentation, Overpressure, and Focused Fluid Flow, Gulf of Mexico Continental Margin*. Scientific Drilling, (3), 12-17. doi:10.2204/iodp.sd.3.03.2006.

Peer-Reviewed Proceedings and Conference Papers (10)

10. Portnov, A., Cook, A.E., **Sawyer, D.E.** (2022). *Bottom Simulating Reflections and Seismic Phase Reversals in the Gulf of Mexico*. In: Mienert, J., Berndt, C., Tréhu, A.M., Camerlenghi, A., Liu, CS. (eds) World Atlas of Submarine Gas Hydrates in Continental Margins. Springer, Cham. https://doi.org/10.1007/978-3-030-81186-0_26.

9. **Sawyer, D.E.**, and *B.N. Hodelka, (2016), *Tiny Fossils, Big Impact: The Role of Foraminifera-Enriched Condensed Section in Arresting the Movement of a Large Retrogressive Submarine Landslide in the Gulf of Mexico*, in: Lamarche G. et al. (eds), Submarine Mass Movements and their Consequences, Advances in Natural and Technological Hazards Research, vol 41. Springer, Cham. https://doi.org/10.1007/978-3-319-20979-1_48.
8. *Akinci, L. and **D.E. Sawyer,** (2016), *Deriving the Rate of Salt Rise at the Cape Fear Slide Using New Seismic Data*, in: Lamarche G. et al. (eds), Submarine Mass Movements and their Consequences, Advances in Natural and Technological Hazards Research, vol 41. Springer, Cham. https://doi.org/10.1007/978-3-319-20979-1_39.
7. *Devore, J. and **D.E. Sawyer**, (2016), *Shear Strength of Siliciclastic Sediments from Passive and Active Margins (0–100 m Below Seafloor): Insights into Seismic Strengthening,* in: Lamarche G. et al. (eds), Submarine Mass Movements and their Consequences, Advances in Natural and Technological Hazards Research, vol 41. Springer, Cham. https://doi.org/10.1007/978-3-319-20979-1_17.
6. Flemings, P.B., Reece, J.S., Ditkof, J., Atkins, C.C., and **Sawyer, D.**, 2015, Data report: particle size analysis of sediments in the Nankai Trough, IODP Expedition 319 Hole C0009A. In Saffer, D., McNeill, L., Byrne, T., Araki, E., Toczko, S., Eguchi, N., Takahashi, K., and the Expedition 319 Scientists, Proc. IODP, 319: Tokyo (Integrated Ocean Drilling Program Management International, Inc.), doi:10.2204/iodp.proc.319.203.2015.
5. *Moore, Z.T., and **D.E. Sawyer,** (2014), *Data report: particle size analysis of sediments in Nankai Trough, IODP Expedition 338, Site C002*, In Strasser, M., Dugan, B., Kanagawa, K., Moore, G.F., Toczko, S., Maeda, L., and the Expedition 338 Scientists, Proceedings of the Integrated Ocean Drilling Program, Volume 338 doi:10.2204/iodp.proc.338.2014.
4. Yamamoto, Y., and **Sawyer, D.E.,** (2012), *Systematic Variations in the Fabric and Physical Properties of Mass-Transport Deposits in the Ursa Region, Northern Gulf of Mexico*, Ch. 58., Y. Yamada et al. (eds.), Submarine Mass Movements and Their Consequences, Advances in Natural and Technological Hazards Research 31, DOI 10.1007/978-94-007-2162-3_58, p. 649-658.
3. Urgeles, R., Locat, J., **Sawyer**, **D.E.**, Flemings, P. B., Dugan, B., and Binh, N.T.T., (2010), *History of Pore Pressure Build Up and Slope Instability in Mud-Dominated Sediments of Ursa Basin, Gulf of Mexico Continental Slope*, In: D.C. Mosher et al. (Editors), Submarine Mass Movements and Their Consequences, Advances in Natural and Technological Hazards Research. Springer, Dordrecht, pp. 179-190.
2. Moore, J.C., Iturrino, G.J., Flemings, P.B., **Sawyer, D.E.**, (2009), *Data Report: Stress Orientations from Borehole Breakouts, IODP Expedition 308, Ursa Area, Mississippi Fan, Gulf of Mexico*, In Flemings, P.B., John, C. (Eds.), Proc. IODP, 308: College Station, TX (Integrated Ocean Drilling Program Management International, Inc.), doi:10.2204/iodp.proc.308.212.2009.
1. **Sawyer, D.E.**, Jacoby, R., Flemings, P., and Germaine, J.T., (2008), *Data report: particle size analysis of sediments in the Ursa Basin, IODP Expedition 308 Sites U1324 and U1322, northern Gulf of Mexico*, In Flemings, P.B., Behrmann, J.H., John, C.M., and the Expedition 308 Scientists, Proc. IODP, 308: College Station, TX (Integrated Ocean Drilling Program Management International, Inc.) doi:10.2204/iodp.proc.308.205.2008.

Non Peer-Reviewed Publications (7)

Flemings, P.B., R. Boswell, T. S. Collett, A. E. Cook, D. Divins, M. Frye, G. Guerin, D. S. Goldberg, A. Malinverno, K. Meazell, J. Morrison, T. Pettigrew, S. C. Philips, M. Santra, **D. E. Sawyer**, W. Shedd, C. Thomas, K. You, 2017, GOM2: Prospecting, Drilling and Sampling Coarse-Grained Hydrate Reservoirs in the Deepwater Gulf of Mexico, Proceedings of the 9th International Conference on Gas Hydrates, Denver, CO, June 25-30, 2017.

Sawyer, D.E., Flemings, P.B., Dugan, B., Shipboard Scientific Party, IODP Expedition 308, (2007), *Lateral Variations in Core, Log, and Seismic Attributes of a Mass Transport Complex in the Ursa Region,*

IODP Expedition 308, Northern Gulf of Mexico, Proceedings of the Offshore Technology Conference, Houston, Texas, April 30-May 3, 2007, OTC Paper #19098.

Dugan, B., Flemings, P.B., **Sawyer, D.E.,** Iturrino, G.J., Moore, J.C., Schneider, J., (2007), *Physical Properties of Stacked Slumps in the Ursa Region, Northern Gulf of Mexico (IODP Expedition 308) Determined from Log, Core, and Seismic Data*, Proceedings of the Offshore Technology Conference, Houston, Texas, April 30-May 3, 2007, OTC Paper #18704.

Iturrino, G.J, B. E. Dugan, **D.E. Sawyer,** P.B. Flemings, and J.C. Moore, *Interpretation of Downhole Measurements, Deformation Analyses, and Lithologic Characterization in the Ursa Basin, Gulf of Mexico*, Proceedings of the Offshore Technology Conference, Houston, Texas, April 30-May 03, 2007, OTC Paper # 19097.

Long, H., P.B. Flemings, J. Germaine, B. Dugan, and D.E. Sawyer, (2007), *In-Situ Pore Pressure at IODP Site U1324, Ursa Basin, Gulf of Mexico*, Proceedings of the Offshore Technology Conference, Houston, TX, April 30-May 03, 2007, OTC Paper # 18772.

Myers, G., C. Winker, B. Dugan, C. Moore, **D.E. Sawyer**, P. Flemings, G. Iturrino, (2007), *Ursa basin explorers shine new light on shallow water flow*, Offshore Engineer, Sept., 88-93.

Flemings, P.B., Germaine, J., Long, H., Dugan, B.D., **Sawyer, D.E.**, Behrmann, J., John, C., and the Shipboard Scientific Party, IODP Expedition 308, (2006), *Measuring Temperature and Pressure with the temperature two Pressure (T2P) Probe in the Ursa Basin, Gulf of Mexico: Development of a New Pressure and Temperature Probe for the IODP*, Offshore Technology Conference Paper # 17957.

FUNDED GRANTS AND FELLOWSHIPS

1. 2/22-3/22. *International Ocean Discovery Program Expedition 386, Japan Trench Paleoseismology*
   Science party member and group leader (physical properties) Salary Support.
   Submitted to: United States Science Support Program,
   Total award: $34,800
   PI: D. Sawyer; Co-PIs: none
   Explanation of role: Group leader of physical properties and science party member during the Onshore Science Party (Feb-Mar. 2022).

2. 9/21-12/22. *Coastal Geology on Lake Erie (NSF GeoAllies Improving Diversity and Inclusion in Geosciences).*
   Submitted to National Science Foundation GeoAllies Project
   Total Award: $2,000
   PI: D. Sawyer
   Co-PIs: none
   Explanation of role: I will manage the award and lead the field trip as part of my seminar course to be offered within the OSU School of Earth Sciences, fall, 2022.

3. 1/20-1/25. *CAREER: Impacts of Earthquake Shaking on Seafloor Sediment Stability and Landslide Hazards*, National Science Foundation,
   Submitted to National Science Foundation, Marine Geology and Geophysics Program
   Total Award Requested: $558,710
   PI: D. Sawyer
   Co-PIs: None
   Explanation of Role: I am the sole awardee on this 5-year grant.

4. 9/1/19-8/31/21. *Early Career Research Fellowship, National Academies of Sciences, Engineering, and Medicine, Gulf Research Program* ($75,000)
   PI: Sawyer, Derek

Co-PI: none
Explanation of Role: I am the sole awardee on this 2-year fellowship.

5. 7/1/18-6/30/20. *Collaborative Research: Constraints on sediment physical properties at the Cape Fear and Currituck landslides from velocity analysis of new, open access seismic reflection data*.
National Science Foundation. $130,498 award to DS ($446,713 total award)
PI: Sawyer, Derek
Co-PI: none at Ohio State, Collaborative with Lamont Doherty Earth Observatory, Columbia University
Explanation of Role: I am sole PI at Ohio State. I am responsible for pore pressure prediction using inversion results generate by the Columbia team.

6. 10/1/17-9/30/18. RAPID: *Post-Hurricane Irma Erosion and Deposition in Coastal Embayments of Eastern St. John, U.S. Virgin Islands*. National Science Foundation. $52,835 total award.
PI: Sawyer, Derek
Role: Principal Investigator
Explanation of Role: I am the sole PI on this award. I conceived of the idea and wrote the proposal.

7. 2018-2021. *Educational Software Gift*,
Schlumberger, ($93M), software, 40 network licenses (PETREL, ECLIPSE, VISAGE, INTERSECT, PETROMOD, TECHLOG)
Co-PIs: D. Sawyer, A. Cook, J. Moortgat

8. 10/14-9/20. *Deepwater methane hydrate characterization and scientific assessment*. U.S. Department of Energy. $83,900,000 Total Award.
Grant/Contract Number: DE-FE0023919
PI: Flemings, Peter
Award Co-PI: Cook, Ann, Goldberg, David, Divins, David, Collett Tim.
Ohio State Co-PI: D. Sawyer.
Role: Technical expertise in seismic data analysis, and well site planning

9. 10/15/2018 - 10/15/2021 *Educational Software Grant*
IHS software, 40 network licenses (KingdomSuite, AVOPAK, RSA, and LoadPAK
Software gift-in-kind value: $2.5M
Co-PI: A. Cook
I co-wrote the application process including with ASC development. I use this software in my 4-credit course Reflection Seismology (EARTHSC 5780).

10. 02/17-5/17. *Western North Atlantic Slope Stability: an IODP Workshop Proposal to Coalesce Three Mini-Proposals into a Full IODP Proposal*. U.S. Advisory Committee for Scientific Ocean Drilling (USAC). Total award: $22,762.
PI: Matthew Hornbach, Southern Methodist University
Co-PI: Sawyer, Derek, Hugh Daigle (University of Texas at Austin), and Jenna Hill (US Geological Survey).

11. 2016-2018. *Establishing an Industry Partnership*. Ohio State Subsurface Energy Research Consortium (SERC).
Total award $1,937
Co-PIs: Derek Sawyer, Ann Cook.

12. 7/1/2018-7/31/2019. *Enhancing the Educational Mission of SERC: Sedimentology and Stratigraphy of Mixed Carbonate-Siliciclastic Systems through Analysis of the Point Pleasant Formation and the Permian Guadalupe Mountains*
The Ohio State University Subsurface Energy Research Center (SERC) Faculty Fellowship Program
$18,000 award to DS.
Explanation of role: I am the sole PI on this project. I conceived of the idea and wrote the proposal.

13. 8/1/16-7/30/18. *Seismicity-Enhanced Compaction in Fine-Grained Deepwater Sediments*. American Chemical Society Petroleum Research Fund New Doctoral Investigator. Total award $110,000.
PI: Sawyer, Derek
Explanation of Role: I am the sole PI on this project. I conceived of the idea and wrote the proposal.

14. 6/1/17-5/30-19. *Shake the Shoe: Connecting Football and Science with the Best Fans in the Land*. Battelle Engineering Technology and Human Affairs (BETHA). $62,762 total award (all funds under my direction and it is all to purchase equipment, fund student workers, and purchase outreach materials).
PI: Sawyer, Derek
Co-PI: Ann Cook and Wendy Panero (Ohio State); Mike Brudzinski (Miami University)
Explanation of Role: I lead this project and presented the original idea and co-developed the idea with co-PIs.

15. 8/1/14-9/30/15. *Insight into Submarine Landslide Flow Behavior from Particle Size Analysis and 3D Seismic*, Site C0021, IODP Expedition 338. Integrated Ocean Drilling Program through United States Science Support Program. Total amount $15,000
PI: Sawyer, Derek
Explanation of Role: I am the sole PI on this project. I conceived of the idea and wrote the proposal.

16. 2005-2008. *Particle Size Analysis of Sites U1324 and U1322, Ursa Basin, IODP Expedition 308*. Post-cruise award. Joint Oceanographic Institution. Total amount $23,467
PI: Sawyer, Derek
Explanation of Role: I am the sole PI on this project. I conceived of the idea and wrote the proposal.

17. 2003-2004. Consolidation and effective stress at ODP Leg 210, Site 1277. Post-cruise award. Joint Oceanographic Institution. Total amount $21,000
PI: Sawyer, Derek
Explanation of Role: I am the sole PI on this project. I conceived of the idea and wrote the proposal.

CONFERENCE ABSTRACTS (since hire at Ohio State)

(*=graduate student or post-doc of D. Sawyer; **=undergraduate student of D. Sawyer)

2022:

*Fitzgerald, B., **Sawyer, D. E.**, Reece, J. S., and Scott, W., Shear Strength Development During Early Burial on Seismically Active Margins: A Geotechnical Investigation into Seismic Strengthening, American Geophysical Union Fall Meeting, December, 2022 (Poster).

Sawyer, D. E., *Seismic Strengthening: Impacts on Slope Stability and Post-Failure Behavior of Submarine Landslides*, International Conference on Seafloor Landforms, Processes, and Evolution, Malta, July 4-6, 2022, Invited (Oral).

2021

*Fillingham, J. and **D. E. Sawyer**, *Undulating sediments of the Cape Fear submarine landslide system, offshore U.S. Atlantic margin*, June, 2021 (Virtual), 9th International Conference on Submarine Mass Movements and their Consequences, (Poster).

Obelcz, J., W. Wood, T. Lee, B. Phrampus, **D.E. Sawyer**, *Global Analysis of Predicted Geotechnical Sediment Properties and Observed Continental Margin Landslide Scarring*, June, 2021, (Virtual), 9th International Conference on Submarine Mass Movements and their Consequences, (Poster).

2020

*Fillingham, J. and **D. E. Sawyer**, *Undulating sediments of the Cape Fear submarine landslide system, offshore U.S. Atlantic margin*, Dec. 16, 2020 (Virtual), American Geophysical Union, Fall Meeting abstract EP065-09, (Poster).

Dugan, B., M. Strasser, and **D. E. Sawyer**, *Submarine Landslide Exploration through Scientific Drilling, Seismic Data, and Numerical Modeling*, Dec. 10, 2020 (Virtual), American Geophysical Union, Fall Meeting abstract OS026-02, (Poster).

Obelcz, J., W. T. Wood, B. J. Phrampus, **D. E. Sawyer**, and T. R. Lee, *Global analysis of relationship between continental margin submarine landslide scarring and sediment shear strength*, Dec. 09, 2020 (Virtual), American Geophysical Union, Fall Meeting abstract EP021-0003, (Poster).

2019

*Browning, T.N., and **D. E. Sawyer**, (2019), *Assessing Vulnerability of Tropical Watershed Erosion and Coastal Deposition with a Simple, Open-Source, GIS-Based Method*, Dec. 10, 2019, San Francisco, CA, American Geophysical Union Fall Meeting, abstract EP23E-2244, (Poster).

*Portnov, A., A. Cook, M. Santra, and **D. E. Sawyer**, (2019), *Geological controls on a new gas hydrate system Jackalope in the northern Gulf of Mexico*, Dec. 12, 2019, San Francisco, CA, American Geophysical Union Fall Meeting, abstract OS41B-1667, (Poster).

Fortin, W., J.C. Gibson, A. Becel, D. J. Shillington, **D. E. Sawyer**, *J. Fillingham, (2019) *Sediment Physical Properties at Cape Fear and Currituck Landslides: prestack waveform inversion velocity analysis*, Dec. 13, 2019, San Francisco, CA, American Geophysical Union Fall Meeting, (Poster).

Sawyer, D. E., (2019), *Earthquakes and Submarine Landslides on Continental Margins: Seismic Strengthening Versus Rapid Sedimentation*, seminar presented to Department of Geology, Kent State University, November, 01, Kent, Ohio, (Invited, Oral).

Brown, A, D. Knights, A.H. Sawyer, **D.E. Sawyer**, D.A. Edmonds, R. T. Barnes, (2019) *Characterization of Surficial Sediments from a Modern Delta Wetland*, Fall AAPG Regional Conference, October 15, 2019. Columbus, OH, (poster).

Sawyer, D.E., (2019, April), *Earthquakes and Submarine Landslides on Continental Margins: Seismic Strengthening Versus Rapid sedimentation*, seminar presented to Department of Earth and Atmospheric Sciences, Indiana University, April 08, Bloomington, Indiana (Invited, Oral).

Sawyer, D.E., (2019, February), *Waves: examples in earthquakes, tsunamis, and underwater landslides*, Presented at Ohio State STEAM Exchange series, Feb. 21, 2019, Columbus, Ohio (Invited, Oral).

*Browning, T.B. **D. E. Sawyer**, G. B. Brooks, C. Ramos-Scharron, (2019, February), *Widespread Deposition in Coastal St. John, USVI Following Three Major 2017 Hurricane Events (Irma, Jose, and Maria)*, American Society of Limnology and Oceanography, San Juan, Puerto Rico, Feb. 20-25, 2019 (Oral).

Sawyer, D.E., (2019, February), *Earthquakes and Submarine Landslides on Continental Margins*, Van Tuyl Lecture Series, presented to Department of Geology and Geological Engineering, Colorado School of Mines, February 14, Golden, Colorado (Invited, Oral).

Sawyer, D.E., (2019, February), *Retrogressive Submarine Landslides*, seminar presented to Department of Geological Sciences, Colorado School of Mines, February 15, Golden, Colorado (Invited, Oral).

2018

*Portnov, A., A. Cook, U. Majumdar, and **D. E. Sawyer**, (2018, December), *Underexplored gas hydrate reservoirs associated with salt diapirism and turbidite deposition in the Northern Gulf of Mexico*, Dec. 10-14, 2018, Washington DC, American Geophysical Union Fall Meeting, (Poster).

Sawyer, D. E., *Browning, T.N., Brooks, G.R., Larson, R.A., and Ramos-Scharron, C., (2018, September), *Rapid Response to Document Seafloor Sedimentation After the 2017 Hurricanes (Irma, Jose, Maria) in Coral Bay, St. John, US Virgin Islands*, seminar presented at the University of Southern Mississippi, School of Ocean Science and Technology, September 07, Stennis, Mississippi, (Invited, Oral).

Sawyer, D.E., (2018, May), *Interplay of Salt Tectonics, Gas Hydrates, and Submarine Landslides in the Hypersaline Orca Basin Brine Pool, Gulf of Mexico, Continental Slope*, May 06 – 12, 2018, Victoria, British Columbia, Canada, (Poster).

*Lenz, B.L., **D. E. Sawyer**, B. Phrampus, K. Davenport, and A. Long, (2018, May), *Seismic Imaging of Seafloor Deformation Induced by Impact From Large Submarine Landslide Blocks, Offshore Oregon*, May 06 – 12, 2018, Victoria, British Columbia, Canada, (Poster).

Sawyer, D.E., (2018, March), *Earthquakes and Submarine Landslides on Continental Margins*, seminar presented to Department of Geological Sciences, Ohio University, March 30, Athens, Ohio (Invited, Oral).

Sawyer, D.E., (2018, February), *Marine Slope Stability Hazards, an Industry Perspective, Gordon Research Conference on Natural Gas Hydrate Systems*, Feb. 25 – Mar. 02, 2018, Galveston, Texas, (Invited, Oral).

2017

Sawyer, D.E., *R. Alan Mason, A.E. Cook, *A. Portnov, and *J.I.T Hillman, (2017, December), *Hydrate-bearing Submarine Landslides in the Orca Basin, Walker Ridge, Gulf of Mexico Continental Slope*, abstract # OS42A-02, American Geophysical Union Fall Meeting, New Orleans, LA, December 11-15, 2017, (Invited, Oral).

Sawyer, D.E., R. Reece, S.P.S. Gulick, and *B. Lenz, (2017, December), *Submarine Landslide Hazards Offshore Southern Alaska: Seismic Strengthening Versus Rapid Sedimentation*, abstract # NH53B-0148, American Geophysical Union Fall Meeting, New Orleans, LA, December 11-15, 2017, (Poster).

*Russell, P., **D. E. Sawyer**, *T. N. Browning, G. Brooks, A. Cook, N. Kinash, (2017, December), *Tsunami Stratigraphy in a Coastal Salt Pond, St. Croix, US Virgin Islands*, abstract # NH23A-0223, American Geophysical Union Fall Meeting, New Orleans, LA, December 11-15, 2017, (Poster).

*Browning, T.N., **D. E. Sawyer**, and *P. Russell, (2017, December), *Illuminating Sediment Transport Pathways From Source to Sink with Multibeam Bathymetry Data: Coral Bay, St. John USVI*, abstract # EP31C-1886, American Geophysical Union Fall Meeting, New Orleans, LA, December 11-15, 2017, (Poster).

*Browning, T. N., **D. E. Sawyer**, and *P. Russell, (2017, December), *Coastal Sediment Distribution Patterns Following Category 5 Hurricanes (Irma and Maria): Pre and Post Hurricane High Resolution Multibeam Surveys of Eastern St. John, US Virgin Islands*, abstract # NH23E-2802, American Geophysical Union Fall Meeting, New Orleans, LA, December 11-15, 2017, (Poster).

Moore, M.T., T. Darrah, A. Cook, **D. E. Sawyer**, S. Phillips, C. Whyte, B. Lary, (2017, December), *The genetic source and timing of hydrocarbon formation in gas hydrate reservoirs in Green Canyon, Block GC955*, abstract # OS44A-03, American Geophysical Union Fall Meeting, New Orleans, LA, December 11-15, 2017, (Oral).

Heber, R., N. Kinash, A. Cook, **D. E. Sawyer**, J. Sheets, and J. Johnson, (2017, December), *Mineralogy of Gas Hydrate Bearing Sediment in Green Canyon Block 955 Northern Gulf of Mexico*, abstract # OS53B-1206, American Geophysical Union Fall Meeting, New Orleans, LA, December 11-15, 2017, (Poster).

Kinash, N., A. Cook, **D. E. Sawyer**, and R. Heber, (2017, December), *Recovery and Lithologic Analysis of Sediment from Hole UT-GOM2-1-H002, Green Canyon 955, Northern Gulf of Mexico*, abstract # OS53B-1207, American Geophysical Union Fall Meeting, New Orleans, LA, December 11-15, 2017, (Poster).

Sawyer, D.E., A.E. Cook, R. Alan Mason, and J.I.T Hillman, (2017), *Hydrate-bearing Submarine Landslides in the Orca Basin, Walker Ridge, Gulf of Mexico Continental Slope*, 9th International Conference on Gas Hydrates, Denver, CO, June 25-29, 2017, (Oral).

Sawyer, D.E., A. Cook, and R. Mason, (2017), *Submarine Landsliding into the Orca Basin Brine Pool, Walker Ridge, Gulf of Mexico*, American Association of Petroleum Geologists Annual Convention, Houston, TX, April 02-05, 2017, (Poster).

2016

Sawyer, D.E., and J.R. DeVore*, (2016), *Elevated Shear Strength of Near-Seafloor Sediments on Active Margins: Evidence for Seismic Strengthening*, American Geophysical Union Fall Meeting, San Francisco, CA, abstract #187943, Dec. 12-16, 2016, (Oral).

Sawyer, D.E., and J.R. DeVore*, (2016), *Evidence for Seismic Strengthening from Undrained Shear Strength Measurements*, Geological Society of America Annual Meeting, Denver, CO, Sep. 25-28, 2016, (Oral).

Mason, R.A., and **D. E. Sawyer, (2016), *Seafloor Brine Lake Impacted by Submarine Landsliding: An Example from the Orca Basin, Walker Ridge, Northern Gulf of Mexico Continental Slope*, Geological Society of America Annual Meeting, Denver, CO, Sep. 28, 2016, (poster).

Sawyer, D.E., L. Akinci*, M. Nikolinakou, and M. Heidari, (2016), *Hydrates, Salt Diapirism, and Submarine Landsliding at Cape Fear, Offshore, North Carolina, U.S.A.*, Gordon Research Conference, Galveston, TX, Feb. 28 – Mar. 04, (poster).

*Treiber, K., **D.E. Sawyer**, and A. Cook, (2016), *Geophysical Interpretation of Gas Hydrates in Green Canyon Block 955, Northern Gulf of Mexico, USA*, Gordon Research Conference, Galveston ,TX, Feb. 28 – Mar. 04, (poster).

*Yang, C., A. Cook, and **D.E. Sawyer**, (2016), *Geophysical and Petrophysical Interpretation of the Gas Hydrate Reservoir System at Perdido, North Gulf of Mexico Slope*, Gordon Research Conference, Galveston, TX, Feb. 28 – Mar. 04, (poster).

Hillman, J.T., A. Cook, and **D. E. Sawyer**, (2016), *Mapping and Characterizing Bottom-Simulating Reflectors in 2D and 3D Seismic Data to Investigate Connections to Lithology and Frequency Dependence*, Gordon Research Conference, Galveston, TX, Feb. 28 – Mar. 04, (poster).

2015

Sawyer, D.E., L. Akinci, M. Nikolinakou, and M. Heidari, (2015), *Links and Feedbacks between Salt Diapirs, Hydrates, and Submarine Landslides: Example from Cape Fear, offshore North Carolina, U.S.A.*, (Poster), Abstract EP23D-0997, AGU Fall Meeting, San Francisco, CA.

*Browning, T.N., **D. E. Sawyer**, G.R. Brooks, R. A. Larson, B. O'Donnell, J. Hadfield (2015), *Linking Source and Sink: Watershed Evaluation and Mineralogical Distribution of Sediments in Eastern St. John, USVI*, (poster), abstract # 212-4, Geological Society of America, Baltimore, Maryland, Nov.1-4.

Sawyer, D.E., and B.N Hodelka, (2015) *Tiny fossils, big impact: the role of foraminifera-enriched condensed section in arresting the movement of a large retrogressive submarine landslide in the Gulf of Mexico*, in proceedings of the 7th International Symposium on Submarine Mass Movements and Their Consequences, Wellington, NZ, (oral).

*Akinci, L. and **D.E. Sawyer,** (2015), *Salt Diapirism and Slope Failure in the Carolina Trough, Eastern North American Margin*, (oral) in proceedings of the 7th International Symposium on Submarine Mass Movements and Their Consequences, Wellington, NZ, (oral).

*Devore, J. and **D.E. Sawyer**, (2015), *Shear Strength of Siliciclastic Sediments from Passive and Active Margins (0-100 meters below seafloor): Insights into Seismic Strengthening*, in proceedings of the 7th International Symposium on Submarine Mass Movements and Their Consequences, Wellington, NZ, (oral).

Sawyer, D.E., (2015), *New Seismic Imaging of the Eastern North Atlantic Margin Offshore North Carolina and Virginia*, Rice University, Industry-Rice Earth Science Symposium, March 11, 2015, (oral).

Sawyer, D.E., (2015), *The Role of Slope Failures in Geohazards and Continental Margin Morphology,* Coastal Carolina University, Conway, SC, April 02, (oral).

Sawyer, D.E., (2015), *Dynamics of Retrogressive Submarine Landslides,* Texas A&M University, College Station, TX, April 15, (oral).

2014

Sawyer, D.E., and Z.T. Moore, (2014), *Assessing the Relative Mobility of Submarine Landslides from Deposit Morphology and Physical Properties: an Example from Nankai Trough, Offshore Japan*, Abstract OS33A-1044, AGU Fall Meeting, San Francisco, CA, Dec. 17, (poster).

Hodelka, B.N., and **D. E. Sawyer, (2014), *Tiny Fossils, Big Impact: Sedimentology of a Foraminifera-Enriched Detachment Horizon of a Large Retrogressive Submarine Landslide in the Gulf of Mexico*, abstract OS33A-1043, AGU Fall Meeting, San Francisco, CA, Dec. 17, (poster).

Sawyer, D.E., (2014), (Invited), *The Role of Dynamic Sedimentary Systems on Geohazards and Energy Exploration*, The Ohio State University, School of Earth Sciences (oral).

Sawyer, D. E., and Z.T. Moore, (2013), *Dynamics of Submarine Landslides in an Active Margin from Analysis of Particle Size, Cores, and 3D Seismic Data: Site C0021, IODP Expedition 338, Offshore Japan*, abstract T31F-2577, AGU Fall meeting, San Francisco, CA, Dec. 9-13, (Oral).

INVITED TALKS

Sawyer, D. E., (2022, July), *Seismic Strengthening: Impacts on Slope Stability and Post-Failure Behavior of Submarine Landslides*, International Conference on Seafloor Landforms, Processes, and Evolution, Malta, July 4-6, 2022, Invited (Oral).

Sawyer, D. E., (2022, April), *Shear Strength Properties of Deep Marine Sediments: Impacts on Slope Stability and Post-Failure Behavior of Submarine Landslides*, invited webinar presented at AAPG Petroleum Structure and Geomechanics Division Seminar Series, April 28, 2022.

Sawyer, D. E., (2021, October), *Seismic Strengthening: Impacts on Slope Stability and Post-Failure Behavior of Submarine Landslides*, seminar presented to Slate - Submarine Landslides and their impact on European continental margins seminar series, seminar #20, October 27, 2021, (Invited, live webinar).

Sawyer, D. E., (2021, September), *Impacts of earthquake shaking on seafloor sediment stability and landslide hazards*, seminar presented to The United States Geological Survey Pacific Coastal & Marine Science Center Seminar Series, September 21, 2021, (Invited, live webinar).

Sawyer, D. E., (2019, November), *Earthquakes and Submarine Landslides on Continental Margins: Seismic Strengthening Versus Rapid Sedimentation*, seminar presented to Department of Geology, Kent State University, November 01, Kent, Ohio, (Invited, Oral).

Sawyer, D. E., (2019, July), *3D Seismic Mapping of Hydrate-Bearing Reservoirs: Examples from the Deepwater Gulf of Mexico*, webinar presented to Schlumberger, July 23, 2019 (Invited, live webinar).

Sawyer, D.E., (2019, April), *Earthquakes and Submarine Landslides on Continental Margins: Seismic Strengthening Versus Rapid Sedimentation*, seminar presented to Department of Earth and Atmospheric Sciences, Indiana University, April 08, Bloomington, Indiana (Invited, Oral).

Sawyer, D.E., (2019 February), *Earthquakes and Submarine Landslides on Continental Margins*, Van Tuyl Lecture Series, presented to Department of Geology and Geological Engineering, Colorado School of Mines, February 14, Golden, Colorado (Invited, Oral).

Sawyer, D.E., (2019 February), *Retrogressive Submarine Landslides*, seminar presented to Department of Geological Sciences, Colorado School of Mines, February 15, Golden, Colorado (Invited, Oral).

Sawyer, D.E., (2019, February), *Waves: examples in earthquakes, tsunamis, and underwater landslides*, Presented at Ohio State STEAM Exchange series, Feb. 21, 2019, Columbus, Ohio (Invited, Oral).

Sawyer, D. E., *Browning, T.N., Brooks, G.R., Larson, R.A., and Ramos-Scharron, C., (2018, September), *Rapid Response to Document Seafloor Sedimentation After the 2017 Hurricanes (Irma, Jose, Maria) in Coral Bay, St. John, US Virgin Islands*, seminar presented at the University of Southern Mississippi, School of Ocean Science and Technology, September 07, Stennis, Mississippi, (Invited, Oral).

Sawyer, D.E., (2018, February), *Marine Slope Stability Hazards, an Industry Perspective*, Gordon Research Conference on Natural Gas Hydrate Systems, Feb. 25 – Mar. 02, 2018, Galveston, Texas, (Invited, Oral).

Sawyer, D.E., *R. Alan Mason, A.E. Cook, *A. Portnov, and *J.I.T Hillman, (2017, December), *Hydrate-bearing Submarine Landslides in the Orca Basin, Walker Ridge, Gulf of Mexico Continental Slope*, abstract # OS42A-02, American Geophysical Union Fall Meeting, New Orleans, LA, December 11-15, 2017, (Invited, Oral).

Sawyer, D.E., (2015, March), *New Seismic Imaging of the Eastern North Atlantic Margin Offshore North Carolina and Virginia*, Rice University, Industry-Rice Earth Science Symposium, March 11, 2015, (Invited, oral).

FIELD EXPEDITIONS AND EDUCATONAL TRIPS

2022 Group Leader, Physical Properties Specialist, International Ocean Discovery Program, Expedition 386, Japan Trench Paleoseismology, Shimizu, Japna, Nov. 11-25.

2022: Led class field trip to Lake Erie, "Coastal Erosion and Mitigation along the Ohio Lake Erie Shoreline (Huron to Conneaut)," 9/16 – 9/18, 2022. 8 students.

2020: Led class field trip "Paleozoic Stratigraphy of SW Ohio: Ordovician and Silurian Formations at Caesar Creek State Park and John Bryan State Park," Oct. 10, 2020. 10 students.

2019: Led class field trip to Guadalupe Mountains, New Mexico and Texas, "Advanced Stratigraphy," Mar. 11-16. 9 students.

2019: Co-led field trip and core display of the Serpent Mound Impact Structure, Peebles, Ohio, for the Eastern Section of the Seismological Association of America meeting, Nov. 03, 2019.

2017: Rapid deployment field excursion to St. John, U.S. Virgin Islands following 2017 Hurricanes. Coastal multibeam acoustic sonar surveying in shallow-draft vessel, sediment grab sampling and push coring. Nov. 22-Dec.06.

2017: Multibeam sonar mapping and sediment coring in St. John and St. Croix, U.S. Virgin Islands. Jul. 26-Aug. 02.

2017 Led class field trip to Lake Erie, South Bass Island, multibeam surveying and sediment sampling. Sep. 15-17.

2014: Shipboard scientist, *R/V Marcus G. Langseth*, GeoPRISMS Eastern North American Community Seismic Experiment, offshore North Carolina, Sep. 14 – Oct. 23.

2014: Led class field trip to Pine Mountain thrust fault, Cumberland Gap, Tennessee, Apr. 18-19.

2013: Shorebased participant and sampling party member, IODP Expedition 338 "NanTroSEIZE Stage 3: NanTroSEIZE plate boundary deep riser 2."

2010-2012: Operations Geologist, ExxonMobil Exploration Co., Houston TX.
Specialist position in pore pressure prediction, wellsite pressure surveillance (offshore Romania, Black Sea and deepwater Gulf of Mexico), site investigation, engineering geophysical site surveys, and integrated geological and geophysical investigations for deepwater development fields (Gulf of Mexico, Australia, Nigeria). Wellsite operations geologist, pore pressure surveillance and wireline logging deepwater Black Sea exploration well. Wellsite operations geologist and pore pressure surveillance, deepwater Gulf of Mexico exploration well.

2005: Shipboard sedimentologist for Integrated Ocean Drilling Program Expedition 308, northern Gulf of Mexico (6 weeks).

2004: Seismic reflection acquisition cruise, deepwater Gulf of Mexico (1 week).

2003: Shipboard physical properties specialist on Ocean Drilling Program Leg 210, offshore Newfoundland (8 weeks).

2000-2002: Undergraduate research field assistant: I participated in 4 vibra-coring day trips in Tampa Bay, 2 dive operations to ledges in the Gulf of Mexico, 4 multi-beam/side scan sonar/dive-ops cruises in Gulf of Mexico with the University of South Florida and Eckerd College.

RESEARCH STATEMENT

My research program is focused on sedimentary systems with an emphasis on natural hazards of submarine landslides, tsunami, earthquakes, and hurricanes. I examine them with a variety of indirect and direct methods including acquisition/processing/interpretation of geophysical data (multi-channel seismic and multibeam), borehole logs, and sediment cores and samples, as well as numerical modeling, and physical experiments. Study sites span the range of shallow water coastal environments to deepwater continental margins and sedimentary basins in passive and active tectonic settings. In terms of geological time, I focus on Neogene-age (<25 m.y.) geological systems including present day surface systems and deeper subsurface systems back through the Miocene.

I have made contributions that allow back-analyses of failure style and other dynamic aspects of underwater landslides as recorded in seismic, well, and core data of landslide deposits (Sawyer et al., 2019; Moore et al., 2013, Sawyer et al., 2012). I have made contributions on the pre-failure properties of sediments. In particular, my work has documented a characteristic strengthening observed in seismically active margins (Sawyer et al., 2017, and Sawyer et al., 2015). I have examined the important follow-up question: what are the characteristics of landslides that are generated from denser sediment. This is an important distinction to make given that initial acceleration of a landslide is a

critical variable that determines amplitude of slide-generated tsunami. I am exploring this in new projects offshore Japan (Moore and Sawyer, 2016) and Oregon (Lenz et al., 2018).

I work closely with the International Ocean Discovery Program (IODP) as a scientist (shipboard and shore-based) and a panelist on the Science Evaluation Panel. My current IODP projects include lead proponent on a new proposal focused on offshore North Carolina to study the Cape Fear landslide complex. This proposal is an outcome of a 5-week NSF GeoPRISMS marine seismic acquisition program in 2014, which I participated in, an IODP-funded workshop in 2017, and an active NSF (2018-2020) collaborative grant with Lamont-Doherty Earth Observatory of Columbia University. I have ongoing work as part of the IODP Exp. 338 offshore Japan, where I was shore-based scientists to study relationships between earthquakes and landslides. I have published 1 journal article with lead authorship by a graduate advisee (Moore and Sawyer, 2016), an undergraduate thesis (T. Rohan), 2 data reports, and several presentations as a result of this project.

In addition to my scholarly involvement in the International Ocean Discovery Program, I have active projects in the U.S. Virgin Islands to understand the geological impacts and records of the Category 5 Hurricanes that affected this region in 2017 as well as paleo-tsunami investigations in St. Croix. This project received RAPID funding by the National Science Foundation and is involving my Ph.D. advisee as lead author on a recent publication (Browning et al., 2019). This is part of my effort to extend my research program to include coastal environments because hazards have the largest impact, especially human-related, on coastlines.

My research program dovetails with my teaching. In particular I teach Reflection Seismology that includes hands-on instruction in the computer lab with seismic interpretation software and real-word datasets. I teach a graduate seminar on coastal geology that utilizes acquisition and interpretation of multibeam sonar and sediment cores on Lake Erie. I also teach a field stratigraphy course to the Guadalupe Mountains to examine the classic stratigraphy of shallow-to-deep marine systems in mixed carbonate and siliciclastic systems.

I have won several external funding awards for research and I have a diversified funding record, including awards from the National Science Foundation, American Chemical Society, Department of Energy, and International Ocean Discovery Program. I have published scholarly works in top journals, and I have received invited talks at major meetings.

GRADED COURSES TAUGHT

Graded courses taught at Ohio State

Fall, 2022 **Reflection Seismology** (ES 5780) Lecture and Lab
Graduate and undergraduate course, 12 students, SEI overall score (0-5.0): 4.86

Fall, 2022 **Coastal Geology** (ES 8801-10) Seminar
Graduate course, 8 students, SEI overall score (0-5.0): 5.0

Spring, 2021 **Energy and Environment** (ES 2155/SENR 2155) Lecture
Co-instructor with Jeffrey Jacquet (SENR)
Undergraduate course, 108 students
SEI overall score (0-5.0): 4.32

Fall, 2020 **Sedimentation and Stratigraphy** (ES 4502/6502)
Instructor
Undergraduate/graduate, 17 students (15 UG, 2 G)
SEI overall score (0-5.0): 5.0

Spring, 2020 **Reflection Seismology** (ES 5780) Lecture and Lab
Graduate and undergraduate course, 9 students, SEI overall score (0-5.0): 4.86

Spring, 2020 **Energy and Environment** (ES 2155/SENR 2155) Lecture
Co-instructor with Jeffrey Jacquet (SENR)
Undergraduate course, 60 students, SEI overall score (0-5.0): 4.18

Fall, 2019 **Sedimentation and Stratigraphy** (ES 4502/6502)
Co-instructor, assistant to L. Krissek
Graduate/Undergraduate, 14 students

Spring, 2019 **Energy and Mineral Resources in Society** (ES 2210),
Undergraduate, general education, 37 students, SEI overall score (0-5.0): 4.67

Spring, 2019 **Field Stratigraphy in the Guadalupe Mountains** (ES 8801-10)
Graduate and undergraduate course, 10 students, SEI overall score (0-5.0): 4.50

Fall, 2018 **Internship in the Earth Sciences** (ES 5191)
Undergraduate, 3 students, SEI score: N/A

Fall, 2018 **Reflection Seismology** (ES 5780) Lecture and Lab
Graduate and undergraduate course, 10 students, SEI overall score (0-5.0): 4.90

Summer, 2018 **Internship in the Earth Sciences** (ES 5191)
Undergraduate, 1 student, SEI score: N/A

Spring, 2018 **Energy and Mineral Resources in Society** (ES 2210),
Undergraduate, general education, 40 students, SEI overall score (0-5.0): 4.50

Fall, 2017 **Reflection Seismology** (ES 5780) Lecture and Lab
Graduate and undergraduate course, 11 students, SEI overall score (0-5.0): 5.00

Fall, 2017 **Coastal Geology** (ES 8801-10)
Graduate course, 10 students, SEI overall score (0-5.0): 5.00

Spring, 2017 **Energy and Mineral Resources in Society** (ES 2210)
Undergraduate, general education, 20 students, SEI overall score (0-5.0): 5.00

Fall, 2016 **Reflection Seismology** (ES 5780) Lecture and Lab
Graduate and undergraduate course, 20 students, SEI overall score (0-5.0): 5.00

Spring, 2016 **Energy and Mineral Resources in Society** (ES 2210)
Undergraduate, general education, 36 students, SEI overall score (0-5.0): 4.10

Fall, 2015 **Reflection Seismology** (ES 5780) Lecture and Lab
Graduate and undergraduate course, 34 students, SEI overall score (0-5.0): 4.30

Fall, 2015 **Seminar in Subsurface Interpretation** (ES 8860) co-taught with Ann Cook
Graduate course, 7 students, SEI overall score (0-5.0): 4.50

Spring, 2015 **Energy and Mineral Resources in Society** (ES 2210)

Undergraduate, general education, 34 students, SEI overall score (0-5.0): 4.50

STUDENTS SUPERVISED

Doctoral Student (Dissertation Supervisor) (4)

2020 – Present Fitzgerald, Bailey. *Impacts of Earthquake Shaking on Seafloor Sediment Stability and Landslide Hazards*. The Ohio State University, Columbus, Ohio, United States. Graduation Expected 2025.

2020 – Present Blake, Daniel. *Sediment Transport and Coastal Erosion, Lake Erie, Ohio*, United States. Graduation Expected 2024.

2017 – 2021 Lenz, Brandi L. *Kinematics of Submarine Landslides, Offshore Oregon*. The Ohio State University, Columbus, Ohio, United States. Currently Instructional assistant professor, Texas A&M University, Department of Geology and Geophysics, College Station, TX.

2015 – 2020 Browning, Trevor N. *Assessing Vulnerability to Watershed Erosion and Coastal Deposition in the Tropics*. The Ohio State University, Columbus, Ohio, United States. Graduation May, 2020. Currently Assistant professor, Elmira College, Elmira, NY.

Masters Student (Thesis Advisor) (9)

2019 – 2021 Fillingham, Jacob. *Undulating Sediments of the Cape Fear Submarine Landslide system, offshore U.S. Atlantic Margin: Sediment Waves versus Creep Deformation*. The Ohio State University, Columbus, Ohio, United States.

2019 – 2021 Martinez, Gabriel. *Seismic Geomorphology of the Chandeleur Submarine Landslide in the Northern Gulf of Mexico*. The Ohio State University, Columbus, Ohio, United States.

2015 – 2018 Russell, Paul. *Tsunami Stratigraphy in a Salt Pond on St. Croix, US Virgin Islands*. The Ohio State University, Columbus, Ohio, United States.

2016 – 2018 Trotter, Bennett. *Pore Pressure in the Deep Utica Shale and Point Pleasant Formation*. The Ohio State University, Columbus, Ohio, United States. Co-advised with Ann Cook.

2015 – 2017 Treiber, Katie. *Deepwater Channel Systems in the Orca and Choctaw Basins, Northern Gulf of Mexico*. The Ohio State University, Columbus, Ohio, United States.

2015 – 2016 Yang, Chen. *Petrophysical and Geophysical Interpretation of a Potential Gas Hydrate Reservoir at Alaminos Canyon 810, Northern Gulf of Mexico*. The Ohio State University, Columbus, Ohio, United States. Co-advised with Ann Cook.

2014 – 2016 DeVore, Joshua. *Mudstone Consolidation in the Presence of Seismicity*. The Ohio State University, Columbus, Ohio, United States.

2014 – 2015 Akinci, Levent. *An Analytical Modelling Approach to Test if a Rising Salt Diapir Triggered the Cape Fear Landslide*. The Ohio State University, Columbus, Ohio, United States.

2013 – 2015 Moore, Zachary. *Dynamics of a Large Submarine Landslide in an Active Margin from Particle Size Analysis, 3-D Seismic, and Logs: IODP Expedition 338, Nankai Trough, offshore Japan*. University of Kentucky, Lexington, Kentucky, United States.

Undergraduate Senior Thesis Advisor (20)

2020 – 2022 Ab Rahaman, Faz, *Slope stability analysis of neighboring salt domes with different scarring histories*. The Ohio State University, Columbus, Ohio, United States.

2020 – 2022 Nasir, Fattin, *Fossil assemblage analysis in salt pond cores for paleotsunami interpretation*. The Ohio State University, Columbus, Ohio, United States.

2020 – 2022 Washburn, Jeremy, *Analysis of the Submarine Slope Failures Accompanying the 1929 Grand Banks Earthquake and Tsunami Disaster*. The Ohio State University, Columbus, Ohio, United States.

2020 – 2022 Price, Mallory, *Analysis of fanquakes seismometer data from Ohio State football games in 2016*. The Ohio State University, Columbus, Ohio, United States.

2019 – 2021 Marchlewicz, Justin, *Seismic Stratigraphy in Green Canyon, Gulf of Mexico*. The Ohio State University, Columbus, Ohio, United States.

2018 – 2019 Lager-Lowe, Kain. *Three-Dimensional Seismic Interpretation of Near-Seafloor Salt Bodies and Fluid Expulsion Features Adjacent to the Mississippi Canyon, Gulf of Mexico*. The Ohio State University, Columbus, Ohio, United States.

2018 – 2018 Fuad, Mohamad I. *A Seismic Well-Tie Analysis at Integrated Ocean Drilling Program Expedition 308 Site U1320, Brazos-Trinity Basin IV, Northwestern Gulf of Mexico*. The Ohio State University, Columbus, Ohio, United States.

2017 – 2018 O'Malley, Michael D. *A Multi-channel Seismic Interpretation of the Canterbury Basin Offshore New Zealand and Potential Hydrocarbon Sources*. The Ohio State University, Columbus, Ohio, United States.

2017 – 2018 Mason, Keith L. *An Analysis of Shallow Sediment Overlying Gas Hydrate, Green Canyon Block 955 (GC-955), Gulf of Mexico, USA*. The Ohio State University, Columbus, Ohio, United States.

2016 – 2017 Mason, Robert Alan. *Seafloor Brine Lake Impacted by Submarine Landsliding, Orca Basin, Gulf of Mexico*. The Ohio State University, Columbus, Ohio, United States. Honors Program.

2015 – 2017 Lenz, Brandi L. *Shear Strength of Sediment Offshore Southern Alaska*. The Ohio State University, Columbus, Ohio, United States.

2016 – 2017 Rodgers, Nick. *A Numerical Simulation of a Tsunami Generated by a Submarine Landslide, Offshore Puerto Rico*. The Ohio State University, Columbus, Ohio, United States.

2015 – 2016 Gutierrez, Mario. *Upper and Middle Miocene Ash Beds in the Central Gulf of Mexico*. The Ohio State University, Columbus, Ohio, United States.

2015 – 2016 Rohan, Tyler. *Grain Size and Seismic Analysis of IODP Expedition 333, Site C0018 and the Pink Volcanic Ash Horizon, Nankai Trough, Offshore Japan*. The Ohio State University, Columbus, Ohio, United States.

- Won 1st place in the 2016 Ohio State University Denman Undergraduate Research Forum in the Natural and Mathematical Sciences Division

2015 – 2016 Haugh, Ryan. *Styles of Soft-Sediment Deformation of the Lower Headwall of the Cape Fear Landslide, Offshore North Carolina*. The Ohio State University, Columbus, Ohio, United States.

2015 – 2016 Copeland, Thomas. *Grain Size Analysis of the Watershed and Nearshore Coastal Sediments in Coral Bay, St. John, U.S. Virgin Islands*. The Ohio State University, Columbus, Ohio, United States.

2014 – 2015 Mills, Jacqueline. *Mapping Key Subsurface Boundaries to Determine Maximum Thickness of Methane Hydrate within the Blake Ridge Region of Offshore North Carolina, USA, Constrained with Three-Dimensional Seismic Data and Well Logs*. The Ohio State University, Columbus, Ohio, United States.

2014 – 2015 Munson, Sarah. *Petroleum Potential in the Carolina Trough*. The Ohio State University, Columbus, Ohio, United States.

2014 – 2015 Nsona, John. *Oil and Natural Gas Reserves of the Utica Shale in Ohio*. The Ohio State University, Columbus, Ohio, United States.

2013 – 2014 Hodelka, Bailee. *The Role of Foraminifera-enriched Condensed Section in Arresting the Movement of a Large Retrogressive Submarine Landslide in the Gulf of Mexico*. The University of Kentucky, Lexington, Kentucky, United States.

Doctoral Student (Dissertation Committee Member) (10)

2021 – Present Tokuhisa Waid, Christopher B. *Application of integrated conodont and carbon isotope biochemostratigraphy and sequence stratigraphy with subsurface geophysical log correlation: bringing formal nomenclature and member-scale precision to subsurface correlation of the Medina and Clinton Groups (Late Ordovician—Wenlock; Silurian) of the distal Appalachian foreland basin*. The Ohio State University, Columbus, Ohio, United States.

2020 – Present Braunagel, Michael. *A Hydro-Thermo-Poroelastic Investigation of the Initiation and Emplacement of Large Volume Volcanic Landslides*. The Ohio State University, Columbus, Ohio, United States.

2020 – Present Adiatma, Datu. *Chemostratigraphy of the Ordovician System in the Appalachian Basin*. The Ohio State University, Columbus, Ohio, United States.

2018 – 2021 Wei, Li. *Diffusive Migration in Gas Hydrate Reservoirs*. The Ohio State University, Columbus, Ohio, United States.

2017 – 2020 Price, James T. *Coral Resilience to Global Change: Roles of the Microbiome and Animal Physiology*. The Ohio State University, Columbus, Ohio, United States.

2017 – 2020 Knights, Deon. *Quantifying Nitrate Attenuation in a Coastal Freshwater Wetland*. The Ohio State University, Columbus, Ohio, United States.

2017 – 2020 Xiong, Fengyang. *Desorption and Adsorption of Subsurface Shale Gas*. The Ohio State University, Columbus, Ohio, United States.

2017 – 2019 Oti, Emma A. *Using Nondestructive X-Ray Computed Tomography (XCT) to Solve Geologic Problems*. The Ohio State University, Columbus, Ohio, United States.

2015 – 2018 Majumdar, Urmi. *Natural Gas Hydrates in the Northern Gulf of Mexico*. The Ohio State University, Columbus, Ohio, United States.

2015 – 2017 Scott, Jameson. *Towards a Petrologically Constrained Thermal Model of Mid-Ocean Ridges*. The Ohio State University, Columbus, Ohio, United States.

External Doctoral Student Dissertation Committee Member

2021 – 2022 Mencaroni, Davide. *Pore pressure build-up in mixed contourite-turbidite systems: the SW Iberian margin*. Department of Earth Sciences, the University of Barcelona. Barcelona, Spain.

Masters Student (Thesis Committee Member) (9)

2020 – 2021 Weigandt, Caje, Kindred. *Role of Confinement in Coseismic Pulverization of Sediments: Testing the Rock Record of Rupture Directivity on the San Jacinto Fault*. The Ohio State University, Columbus, Ohio, United States.

2020 – 2021 Skopec, Stuart. *Classification and Description of Gas Hydrate Systems in the Northwestern Gulf of Mexico*. The Ohio State University, Columbus, Ohio, United States.

2020 – 2021 Smith, Zachary. *Loading and Material Constraints on the Strain Rate Dependence of Brittle Damage Fabrics*. The Ohio State University, Columbus, Ohio, United States.

2019 – 2020 Heber, Ryan. *Occurrence of Gas Hydrate in the Barents and Norwegian Seas Inferred from Industry Well Logs*. The Ohio State University, Columbus, Ohio, United States.

2018 – 2020 Lary, Brent. *Using Crustal Noble Gases to Evaluate Fluid Flow and Identify "Sweet Spots" in Northern Appalachian Black Shales*. The Ohio State University, Columbus, Ohio, United States.

2017 – 2018 Robinson, Caroline. *Sedimentology of South China Sea Deepwater Sites*. The Ohio State University, Columbus, Ohio, United States.

2016 – 2017 Blocher, Will. *Fault Geometry and Kinematics within the Terror Rift, Antarctica*. The Ohio State University, Columbus, Ohio, United States.

2016 – 2017 Hall, Tricia. *Tectonic and climatic interactions and implications for Paleogene-Neogene erosion and landscape modification, McMurdo Sound, Antarctica*. The Ohio State University, Columbus, Ohio, United States.

2015 – 2015 Chen, Jie. *The Influence of Lithospheric Flexure Induced by Volcano Loading on Neogene Basin Evolution in McMurdo Sound, West Antarctica*. The Ohio State University, Columbus, Ohio, United States.

Undergraduate Student (Thesis Committee Member) (5)

2019 – 2020 Meiner, Kathleen. *Mirror Lake Monitoring: Water Level Observations and Groundwater-Surface Water Interactions*. The Ohio State University, Columbus, Ohio, United States.

2019 – 2020 Brown, Alexander. *Characterization of Surficial Sediments from an Island of Wax Lake Delta, Louisiana (USA)*. The Ohio State University, Columbus, Ohio, United States.

2020 – 2020 Schneider, Samuel. *Stability Analysis of the Ancient Sevier Gravity Slide, Southwest Marysvale Volcanic Field, Utah*. The Ohio State University, Columbus, Ohio, United States.

2018 – 2019 Smith, Alexandra, Z. *Natural Variability in the Contribution of Heterotrophic Carbon to Tissues of Hawaiian Corals*. The Ohio State University, Columbus, Ohio, United States.

2018 – 2019 Reineck, Nicholas. *Experimental Study of Sediment Type and Organic Content on Fossil Trackway Preservation*. The Ohio State University, Columbus, Ohio, United States.

2018 – 2019 Skopec, Stuart. *Modelling of Fractional Crystallization of Basalts within Kilauea, Hawaii*. The Ohio State University, Columbus, Ohio, United States.

POSTDOCTORAL SCHOLARS SUPERVISED

2017 – 2020 Dr. Alexey Portnov (co-supervisor). Ph.D. from the University of Tromso, Norway. The Ohio State University, Columbus, Ohio, United States. Co-supervised with Ann Cook. Currently Research scientist at The University of Texas at Austin.

2015 – 2016 Dr. Jess Hillman (co-supervisor). Ph.D. from University of Otago, New Zealand. The Ohio State University, Columbus, Ohio, United States. Co-supervised with Ann Cook. Currently research scientist at GNS, Wellington, New Zealand

SERVICE

Service to the University (School of Earth Sciences, College of Arts and Sciences, and University)

2020 – Present Graduate Studies Committee, Member (SES)
2017 – Present Alumni Committee, Member, (SES)
2019 – Present Undergraduate Committee, Member, (Recruitment lead) (SES)
2019 – Present Battelle Endowment (BETHA) Grant Review Committee (UNIV)
2016 – 2018 Co-advisor of SURE, led by Prof. Anne Carey, (SES)
2014 – 2016 Friends of Orton Committee, Member, (SES)
2015, 2017 Denman Undergraduate Research Forum Judge
2018 – 2019 Faculty representative on Arts and Sciences Faculty Senate, member

2017 – Present	University Senate Council on the Physical Environment, Member, Invited by President Drake
2015 - 2017	Student mentor, Shell Undergraduate Research Experience program, (SES)
2019-Present	Graduate Faculty Representative on a dissertation in another Unit Final Exam, 04/16/2019, MECHENG-PH, Travis Hery, (Prof. Vishnu Baba Sundaresan; advisor), "Smart Membrane Separators for Enhanced Performance of Lithium-Ion Batteries." First Final Exam, 04/30/2021, HDFS-PH, Michael Shepard (Prof. Anastasia Snyder), "Social Change in Shale O&G Communities"
2017 – Present	OSU Center for Energy Research, Training, and Innovation (CERTAIN) Faculty Advisory Committee, member
2014 – 2016	Computing Committee, Member, (SES)
2014- Present	Faculty advisor, Society of Exploration Geophysicists Student Chapter, The Ohio State University

Service to the Profession

2019- Present	Editorial Review Board, Scientific Reports
2019- Present	Mentor, American Geophysical Union, Mentoring365 Program
2011-Present	Peer reviewer for the following journals: Geology, Earth and Planetary Science Letters, Geophysical Research Letters, Marine Geology, Marine and Petroleum Geology, Journal of Geophysical Research-Solid Earth, Journal of Geophysical Research-Earth Surface
2017-Present	Peer reviewer for NSF Marine Geology and Geophysics program (ad hoc and in-person), NSF PREEVENTS Program (ad hoc and in-person)
2016-17, -19	Primary Convener, American Geophysical Union Fall Meeting
2015-17, -20	Co-convener, American Geophysical Union Fall Meeting
2014 - 2019	Judge, Outstanding Student Presentation Award, American Geophysical Union, Fall Meeting
2017	Co-convener, American Association of Petroleum Geologists National Meeting, Houston, TX.
2017	Co-Convener, IODP Workshop "Western North Atlantic Slope Stability, Southern Methodist University, April 2017.
2012-2015	Science Evaluation Panel, International Ocean Discovery Program
2015	Steering Committee, Marine Geoscience Leadership Symposium, Consortium for Ocean Leadership
2015	Seismic processing workshop held at Lamont-Doherty Earth Observatory, Columbia University, June 22-26, 2015.
2014-	Steering Committee International Symposium on Mass Movements and Their Consequences
2014	Imperial Barrel Award Faculty Advisor, University of Kentucky
2013	Marine Geoscience Leadership Symposium, Washington DC, March 10-15.
2013-	AAPG Student Chapter Faculty Advisor, University of Kentucky
2012	Building U.S. Strategies for 2013-2023 Scientific Ocean Drilling, Denver, CO, April 30 – May 2, 2012
2010	MARGINS Successor Program Planning Meeting, San Antonio, TX, Feb. 15-18
2010	Science Fair Judge, Austin Energy Regional Science Festival, Feb. 25
2009	Integrated Ocean Drilling Program INVEST Meeting, Bremen, Germany, Sep. 21-25

2009 Organized a Core-Log-Seismic Workshop for 25 participants (academia/government/private) as part of 4th International Submarine Mass Movements Conference, Austin, TX, November 2009.

2009 Co-led Morphodynamics Workshop for 25 participants (academia/government/private) as part of 4th International Submarine Mass Movements Conference, Austin, TX, November 2009.

Service to the Public

2018 Co-led Schlumberger software donation to The Ohio State University $93M
Press release: https://oee.osu.edu/schlumberger-donates-software-package-to-school-of-earth-sciences.html

2016 Initiated and led education/outreach project utilizing seismometers during Ohio State football games. Project was featured in ESPN and local TV and news, including several interviews. Some Examples of Media Coverage:
Columbus Dispatch:
http://www.dispatch.com/content/stories/local/2016/11/25/scientists-use-earthquake-tools-to-watch-football-fans-rock-the-horseshoe.html
ESPN: http://www.espn.com/college-football/story/_/id/18132722/sensors-measure-fan-quakes-michigan-ohio-state-game
Ohio State: https://news.osu.edu/news/2016/11/22/fanquakes/

2014 Co-PI on $58M grant led by UT Austin
Press release: https://earthsciences.osu.edu/news/cook-sawyer-new-energy-source