

Dr. Jonathan Ajo-Franklin

Professor (Geophysics), Dept, of Earth, Environmental, and Planetary Sciences (EEPS),
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a. Education and Training

- 1994-1998 B.A. in Computer Science & History, Rice University, Houston, TX.
- 1999-2003 M.S. in Geophysics, Stanford University, Stanford, CA.
- 1999-2005 Ph.D. in Geophysics, Stanford University, Stanford, CA.
- 2005-2007 Postdoctoral Fellow, MIT, Earth Resources Laboratory, Cambridge, MA.

b. Research and Professional Experience

- 1. Professor (Geophysics), July 2019-present Dept. of Earth, Environmental and Planetary Science, Rice University
- 2. Visiting Faculty Scientist, July 2019-present Energy Geoscience Division, LBNL
- 3. Geophysics Department Head, June 2017-2019 Energy Geoscience Division, LBNL
- 4. Geological Staff Scientist, Sept. 2013-2019 Energy Geoscience Division LBNL
- 5. Geological Research Scientist, June 2007-Sept. 2013 Earth Science Division, LBNL

c. Research Interests

I study outstanding geophysical problems in the environmental and energy domains relevant to sustaining humanity in a carbon-constrained future; my primary research areas include the monitoring of geologic carbon storage, seismic characterization for geothermal energy production, and near-surface hydrogeophysics. My group specializes in new acquisition techniques for timelapse seismology applied to these problems including distributed acoustic sensing (DAS), permanent seismic source development, and high-resolution ambient noise approaches. I'm also interested in rock physics problems relevant to interpreting near-surface seismic datasets, particularly the properties of fractures, ice, and unconsolidated materials.

d. Selected Publications

1. Cheng, F., Lindsey, N.J., Sobolevskaya, V., Dou, S., Freifeld, B., Wood, T., James, S.R., Wagner, A.M., and **J.B. Ajo-Franklin**, 2022, "Watching the Cryosphere Thaw: Seismic Monitoring of Permafrost Degradation Using Distributed Acoustic Sensing During a Controlled Heating Experiment", *Geophysical Research Letters*, p.e2021GL097195.
2. Nayak, A., **Ajo-Franklin, J.** and Imperial Valley Dark Fiber Team, 2021. "Distributed Acoustic Sensing Using Dark Fiber for Array Detection of Regional Earthquakes." *Seismological Research Letters*, 92(4), pp.2441-2452.
3. Rodriguez Tribaldos, V., and **J.B. Ajo-Franklin**, "Aquifer Monitoring Using Ambient Noise Recorded with Distributed Acoustic Sensing (DAS) Deployed on Dark Fiber", (2021), *Journal of Geophysical Research, Solid Earth*, Vol. 126, e2020JB021004.
4. Cheng, F., Chi, B., Lindsey, N.J., Dawe, C.T., and **J.B. Ajo-Franklin**, 2021, "Utilizing Distributed Acoustic Sensing and Ocean Bottom Fiber Optic Cables for Submarine Structural Characterization", *Nature: Scientific Reports*, Vol. 11(1), pp. 1-14.
5. Lindsey, N.J., Dawe, C., and **J.B. Ajo-Franklin**, 2019, "Illuminating seafloor faults and ocean dynamics with dark fiber distributed acoustic sensing", *Science*, Vol. 366 (6469), doi: 10.1126/science.aay5881.
6. **Ajo-Franklin, J.B.**, Dou, S., Lindsey, N.J., Monga, I., Tracy, C., Robertson, M., Ulrich, C., Freifeld, B., Daley, T., and X.S. Li, 2019, "Using Dark Fiber and Distributed Acoustic Sensing

for Near-Surface Characterization and Broadband Seismic Event Detection”, *Nature : Scientific Reports.* , Vol 9, No. 1, pp. 1328-1339.

7. Zhu, T., **Ajo-Franklin, J.B.**, Daley, T., and C. Marone, 2019, “Dynamics of geologic CO₂ storage and plume motion revealed by seismic coda waves”, Proceedings of the National Academy of Science, DOI:10.1073/pnas.1810903116
8. Lindsey, N.J., Martin, E.R., Dreger, D.S., Freifeld, B., Cole, S., James, S.R., Biondi, B.L., and **J.B. Ajo-Franklin**, 2017, “Fiber-optic network observations of earthquake wavefields”, *Geophysical Research Letters*, Vol. 44, No. 23, pp. 11792-11799.
9. Dou, S., Lindsey, N., Wagner, A.M., Daley, T.M., Freifeld, B., Robertson, M., Peterson, J., Ulrich, C., Martin, E.R., and **J.B. Ajo-Franklin**, 2017, “Distributed Acoustic Sensing for Seismic Monitoring of the Near Surface: A Traffic-Noise Interferometry Case Study”, *Scientific Reports*, Vol. 7, No. 1, pp. 11620-11628.
10. Dou, S., Nakagawa, S., Dreger, D., and **J.B. Ajo-Franklin**, 2017, “An effective-medium model for P-wave velocities of saturated, unconsolidated permafrost”, *Geophysics*, Vol. 82, No.3, pp. EN33-EN50.

d. Honors and Awards

- Harold Mooney Award for Near-Surface Geophysics, Society of Exploration Geophysics, 2019
- Top 100 Award (#22 in Geosciences), *Nature: Scientific Reports*, 2019, for ““Using Dark Fiber and Distributed Acoustic Sensing for Near-Surface Characterization and Broadband Seismic Event Detection” (Ajo-Franklin et al. 2019).
- Best Paper, Honorable Mention, *Geophysics*, 2017, for “Experimental development of low frequency shear modulus and attenuation measurements in mated rock fractures: Shear mechanics due to asperity contact area changes with normal stress,” (Saltiel et al. 2017).
- Best Paper, Honorable Mention, *Geophysics*, 2017, for “An effective-medium model for P-wave velocities of saturated, unconsolidated permafrost” (Dou et al. 2017).
- Best Paper, Geothermal Research Council (GRC), 2016, for “High Energy Stimulations Imaged With Geophysical Change Detection Techniques”, (lead author Hunter Knox).
- R&D 100 Award for development of CASSM (2015): w. T. Daley and E. Majer
- Best Paper Award, *SEG Annual Meeting*, 2011 for “Multi-level continuous active source seismic monitoring (ML-CASSM) : Mapping shallow hydrofracture evolution at a TCE contaminated site” (Ajo-Franklin et al. 2011)
- Founding Member Fellow, Earth Resources Laboratory, MIT (2005-2007)
- EPA STAR (Science To Achieve Results) Fellow (2001-2004)

e. Professional Service & Affiliations

- Associate editor for *The Seismic Record* (TSR), Seismological Society of America, 2020-present.
- Guest editor for *Seismological Research Letters* (SRL) (Big Data Special Issue) SSA (2021-22)
- Associate & Special Editor for *Geophysics* (2009 - 2016)
- Co-chair of the SEG/AGU Workshop, “Advances in Distributed Sensing for Geophysics” (2021).
- SEG/AGU Collaboration Committee [member, AGU representative] (2018-present)
- Member of the IRIS Data Services Standing Committee (DSSC) 2019-present.
- Steering Committee Member for the NSF Distributed Acoustic Sensing Research Coordination Network (DAS RCN), 2019-present.
- Guest Associate Editor, *The Leading Edge*, Distributed Acoustic Sensing issue (2017)
- Society for Exploration Geophysics: District 3 Representative, SEG Council (2015-2018)
- Reviewer for: *Geophysics*, *Geophysical Research Letters*, *Geophysical Journal International*
- Member of AGU (Near-Surface Geophysics Section) [1998-present], SEG [1997-present], SSA