Travis Alongi

US Geological Survey 350 N. Akron Rd. Moffett Field, CA 94035

Research Interests

Geophysicist specializing in fault structure, earthquake seismology, and seismic imaging. Strong background in offshore and onshore fault characterization, seismicity-based fault modeling, and software development (Python). Experienced in both academic and government research settings.

Education

PhD, Seismology – *University of California, Santa Cruz* (December 2023)

B.S Business Administration (Magna Cum Laude) – *San Jose State University* (December 2007)

Publications

Milani, R.A., J.L. Vermeer, S.B. DeLong, B.E. Philibosian, C. Wikstrom, **T.V. Alongi**, and M.N. Hammer (2025). Point cloud and digital elevation data from terrestrial laser scanning of the San Andreas Fault and coast redwood trees near Fort Ross, California: U.S. Geological Survey Data Release, https://doi.org/10.5066/P14AWYPD

Alongi, T., & Skoumal, R. (2025). SURF: A python package for reconstructing faults from seismicity patterns (Version 1.0.0). U.S. Geol. Surv. Software Release. https://doi.org/10.5066/P1MM9HMW

Alongi, T., Brodsky, E. E., Kluesner, J., & Brothers, D. (2024). Characteristics of the fault damage zone from high-resolution seismic imaging along the Palos Verdes Fault, California. AGU Advances, 5(4), https://doi.org/10.1029/2023AV001155.

Alongi, T., Balster-Gee, A.F. Kluesner, J.W., Snyder, G.R., Brothers, D.S., Conrad, J.E., Marcuson, R.K., (2024), Multichannel minisparker and chirp seismic reflection data collected during USGS field activity 2021-614-FA along the Palos Verdes Fault Zone: U.S. Geological Survey data release, https://doi.org/10.5066/P9HCOSDF

Alongi, T., Brodsky, E.E., Kluesner, J.W., Brothers, D.S., (2022), Using Active Source Seismology to Image the Palos Verdes Fault Damage Zone as a Function of Distance, Depth, and Geology, Earth and Planetary Science Letters https://doi.org/10.1016/j.epsl.2022.117871

Alongi, T., Balster-Gee, A.F.,Kluesner, J.W., Sliter, R.W., (2022), Reprocessed multichannel seismic-reflection data collected offshore central and Southern California during USGS field activity L-4-90-SC: U.S. Geological Survey data release,https://doi.org/10.5066/P9FOES4K

Alongi, T., Schwartz, S. Y., Shaddox, H. R., & Small, D. T. (2021). Probing the Southern Cascadia Plate Interface with the Dense Amphibious Cascadia Initiative Seismic Array. Journal of Geophysical Research: Solid Earth, 126, e2021JB022180. https://doi.org/10.1029/2021JB022180

Research Positions

Mendenhall Postdoctoral Research Fellow

U.S. Geological Survey — Moffett Field, CA
November 2023 – Present

- Developed the SURF Python package for reconstructing 3D fault geometries from seismicity patterns.
- Published results in peer-reviewed journals and presented at major conferences.
- Applied methods to the San Andreas–Calaveras Fault junction to study creep-to-locked transitions.

Graduate Researcher, Seismology Laboratory

University of California, Santa Cruz
July 2018 – October 2023
- Led projects on offshore active-source seismic imaging and microseismicity analysis.
- Focused on fault zone damage structure and its impact on slip behavior.

Teaching Assistant, Earth & Planetary Sciences Department

University of California, Santa Cruz
July 2018 – July 2021
- Taught Environmental Geology, Geology of National Parks, and Geophysical Data Science.
- Delivered lectures, ran lab sections, and mentored undergraduates.

Research Assistant

IGPP Seismology Laboratory, UC Santa Cruz
October 2017 – June 2018
- Processed ocean bottom seismometer data and performed joint inversions of earthquake locations and velocity structure.

IRIS Summer Intern

Incorporated Research Institutions for Seismology
June 2017 – September 2017
- Studied slab-mantle interface properties using converted seismic phases at the Tonga subduction zone.

Presentations

What Controls the Along Strike Variability of a Fault Damage Zone (invited talk)
- American Geophysical Union Conference, **12/2024** Washington D.C.

From Hypocentral Seismicity Patterns to 3D Fault Models
- American Geophysical Union Conference, **12/2024** Washington D

From Hypocentral Seismicity Patterns to 3D Fault Models
- Statewide California Earthquake Center - Annual Meeting, **9/2024** Palm Springs, CA

Offshore Faults and Earthquakes in California (invited talk)
- Santa Clara University, Colloquium, **6/2024** Santa Clara, CA

Constraining 3D Fault Geometry with a Data-Drive Approach at the San Andreas - Calaveras Fault Junction
- Seismological Society of America Annual Meeting, **5/2024** Anchorage, AK

Offshore Fault Damage and Slip Behavior: Insights from Microseismicity and Seismic Imaging
- US Geologic Survey, Earthquake Science Seminar (invited talk), **4/2024** Moffett Field, CA

Fault Damage Zone Insights from High-Resolution Seismic Imaging and the Relationship with Fluid Seeps Along the Palos Verdes fault
- American Geophysical Union Conference (talk), **12/2023** San Francisco, CA

Understanding Fault Damage and Slip with Marine Seismic Methods
- PhD Dissertation Defense, **10/2024** Santa Cruz, CA

What Controls the Shallow Fault Damage Zone and Fluid Flow? Insights from New High-Resolution Seismic Imaging (poster)
- Southern California Earthquake Center Annual Meeting, **9/2023** Palm Springs, CA

The Palos Verdes Fault damage zone from the seafloor to the basement: revealed using multi-resolution controlled source seismic reflection datasets
- Seismological Society of America Annual Meeting, **4/2023** San Juan, Puerto Rico

Using Active Source Seismology to Image a Fault Damage Zone as a Function of Depth, Distance, and Geology poster
- Southern California Earthquake Center Annual Meeting, **9/2022** Palm Springs, CA

Using Active Source Seismology to Image a Fault Damage Zone as a Function of Depth, Distance, and Geology poster
- Gordon Research Conference: Rock Deformation, **8/2022** Lewiston, ME

Using Active Source Seismology to Image a Fault Damage Zone as a Function of Depth, Distance, and Geology (talk)
- Seismological Society of American Annual Meeting, **4/2022** Bellevue, WA

Using Active Source Seismology to Image a Strike-Slip Fault Damage Zone as a Function of Depth, Distance, and Geology (talk)
- American Geophysical Union Conference, **12/2021** New Orleans, LA

Using Active Source Seismology to Image a Strike-Slip Fault Damage Zone as a Function of Depth, Distance, and Geology (talk)
- 3rd Cargese Earthquakes School, **10/2021** Corsica, France

Using Active Source Seismology to Image a Strike-Slip Fault Damage Zone as a Function of Depth, Distance, and Geology (talk)
- Southern California Earthquake Center Annual Meeting, **9/2021** Virtual Meeting

Probing the Southern Cascadia Plate Interface with a Dense Amphibious Cascadia Initiative Seismic Array (talk)
- GAGE-SAGE Community Science Workshop, **8/2021** Virtual Meeting

Probing the Southern Cascadia Plate Interface with a Dense Amphibious Cascadia Initiative Seismic Array (talk)
- Northern California Earthquake Hazards Workshop, **2/2021** Virtual Meeting

Probing the Southern Cascadia Plate Interface with a Dense Amphibious Cascadia Initiative Seismic Array (talk)
- American Geophysical Union Conference, **12/2020** Virtual Meeting

Fault Damage Zones in 3D with Active-Source Seismic Data poster
- American Geophysical Union Conference, **12/2019** San Francisco, CA

Fault Damage Zones in 3D with Active-Source Seismic Data poster
- Southern California Earthquake Center Annual Meeting, **9/2019** Palm Springs, CA

Using the Cascadia Initiative to Investigate Seismicity and Possible Shallow Slow Slip Along the Southernmost Section of the Cascadia Subduction Zone. poster
- American Geophysical Union Conference, **12/2018** Washington D.C.

Refining the Tonga Slab Geometry Using Slab Phases of Seismic Waves
- American Geophysical Union Conference poster, **12/2017** New Orleans, LA

Honors and Awards

- 2021 Zhen and Ren Wu Memorial Fund
- 2020 Eli Silver EPS Opportunities Fund
- 2017 IRIS Summer Internship
- 2016 Henry A Martin Scholarship

Conference convenership

2024 American Geophysical Union Annual Meeting, Co-chair *Characteristics of faults and fault zones and their influence on earthquake physics: observations, models, and experiments*

2023 Seismological Society of America Meeting, Convener *Above the Seismogenic Zone: Fault Damage and Healing the Shallow Crust*

2022 Seismological Society of America Meeting, Convener *Fault Damage Zones: What We Know and Do Not (1 & 2)*

Field Experience

2025 Parkfield bridge
- Data collect: Terrestrial LiDAR & Alignment array measurements
- Location: Parkfield, CA

2024 Montezuma Hills Fault Trenching - Talbert Lane
- Data collected: Micro-fracture trench logs
- Location: Bay Area Delta, CA

2024 San Andreas Fault Trenching - Little Rabbit Valley
- Data collected: Trench logs & interpretations
- Location: Creeping section of the San Andreas Fault

2024 Mee Ranch and Mustang Ranch
- Data collected: Alignment array measurements
- Location: Creeping section of the San Andreas Fault

2023 Seismic Refraction Survey
- Data collected: terrestrial seismic refraction data
- Location: Oak Ridge Earthflow, Diablo Range, California

2021 RV Sproul
- Data collected: sparker MCS, chirp
- Location: Offshore southern California, San Pedro shelf and slope

2019 RV Bold Horizon
- Data collected: sparker MCS, chirp, piston Core
- Location: Offshore northern California & Oregon

2018 Blue Mountain Geothermal
- Data collected: well water level and temperature
- Location: Winnemucca, NV

2017 IRIS pascal
- Data collected: passive seismometer installation
- Location: Socorro, NM

Teaching Experience

Teaching Assistant, Geophysical Data Science (9/2021 - 12/2021)
- University of California, Santa Cruz, CA

Teaching Assistant, Environmental Geology (3/2020 - 7/2020)
- University of California, Santa Cruz, CA

Teaching assistant, Geology of National Parks (4/2019 - 7/2019)
- University of California, Santa Cruz, CA

Teaching assistant, Environmental Geology (4/2020 - 7/2020)
- University of California, Santa Cruz, CA

Student assistant, California Historical Geology (1/2016 – 7/2016)
- Cabrillo College, Aptos, CA

Relevant Coursework

Earthquake Physics, Crustal Deformation, Order of Magnitude Estimation, The Dynamic Earth, Practical Geophysics, Seismotectonics, Machine Learning for Geophysicists, Topics in Geophysics, Scientific Computing, Foundations in Applied Mathematics, Structural Geology, Data Analysis in Earth Science, Foundations in Earth Science.