

Travis Alongi

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

Research Interests

Faults (on and offshore), fault structure, fault damage zones, subduction zone seismology, seismic and aseismic slip.

Education

- PhD, Earth and Planetary Science (Dec. 2023)
 - University of California, Santa Cruz
- UC Extension program - Earth Science Coursework
 - University of California, Santa Cruz [GPA 4.0]
- Geology, Science, Mathematics
 - Cabrillo College, Aptos, CA [GPA 3.7]
- Bachelor of Science, Business (Dec. 2007)
 - San Jose State University, CA [GPA 3.52] Dean's Scholar

Publications

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), e2023AV001155.

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

- Developing a 3D fault model from seismicity at the San Andreas / Calaveras Fault junction
 - Mendenhall Postdoctoral Scholar
 - USGS Earthquake Science Center
- Using 3D Seismic Data to Study the Offshore Damage Zones, Kinematics and Earthquakes in the Palos Verdes Fault Region
 - UC Santa Cruz and USGS Pacific Marine Coastal Science Center (8/2019 - Current)
- Exploring seismicity of Southernmost Cascadia Subduction Zone Using Dense Seismic Network Including Ocean Bottom Seismometers
 - Institute for Geophysics and Planetary Physics, UC Santa Cruz, CA (1/2018 - 3/2021)
- Refining Slab Geometry & Geodynamic Models of the Tonga Subduction Zone
 - Scripps Institute of Oceanography, La Jolla, CA (7/2017-10/2017)

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.C.
- 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

- 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.