Keene W. Karlsson
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Professional Experience

Geography, Environment, and Planning Lecturer, Sonoma State University: Jan 2025 – present

- Taught Weather and Climate lecture; currently teaching Global Environmental Systems and Land Processes (Geomorphology)
- Developed and adapting existing lecture materials, homework assignments, quizzes, and exams that meet course learning objectives and provide students with a well-rounded introduction to concepts and principles of Earth Science

Adjunct Geology Instructor, Napa Valley College: Jan 2022 – May 2022, Jan 2024 – May 2024, Jan 2025 – present

- Taught Introduction to Geology lecture and lab (in-person, hybrid, and fully online, asynchronous formats), and in-person Earth Science lecture and lab
- Developing lecture materials, online labs, and in-person labs that meet course learning objectives and provide students with a well-rounded introduction to geologic concepts

Geology Lecturer, Sonoma State University: Jan 2023 – May 2023, Aug 2024 – May 2025

- Taught lower-division courses: Introduction to Geology lecture and lab, Natural Disasters lecture (in-person and online asynchronous sections), and Climate Change lecture
- Taught an upper-division course: Sedimentary Geology (Sedimentology and Stratigraphy), including lecture, lab, and field course
- Developed and adapting existing lecture materials, labs, quizzes, exams, and field trips that meet course learning objectives and provide students with a well-rounded introduction to concepts and principles of introductory geology, natural disasters, climate change, and sedimentology and stratigraphy

Tutor, Marin Tutors: Aug 2023 – May 2024

- Tutored K-12 students in mathematics (algebra, geometry, precalculus), chemistry, physics, Spanish, English, geography and Earth science

Primary Investigator, United States Geological Survey: Dec 2019 – June 2022

- Directed a National Earthquake Hazards Reduction Program (NEHRP) grant for a fault trench investigation of the Green Valley fault on my family's property in eastern Napa County to better constrain its paleoseismic history
- No faults were found where USGS/CGS mapped them. OSL dating revealed that a volcanic ash found in the trenches is much younger (13 ka) than any igneous rock units currently mapped at the site. May lead to remapping of this segment of the fault and its associated AP zone, and remapping of late Pleistocene - Holocene ash deposits.

Geoscience Consultant (Geologist), Pacific Gas & Electric Company: Jun 2020 – Jun 2021

- Field work, including fault trench investigations, review of gas pipeline and electric transmission fault crossings, implementation and review of erosion control measures, field characterization of landslide and erosion hazards affecting PG&E assets
- Wrote geologic reports pertaining to geologic mapping, fault trenching, probabilistic seismic hazard assessments, and identification and mitigation of geologic hazards, including surface fault rupture, ground shaking, erosion, and landslides
- Management and automation of large sets of field reconnaissance data

Staff Geologist, Earth Consultants International: Feb 2019 – Jun 2020

- Field work, including fault trench investigations, geologic mapping, sediment descriptions, and soil descriptions for soil development index dating
- Wrote geologic reports pertaining to geologic mapping, fault trenching, and soil descriptions, probabilistic seismic hazard assessments, identification and mitigation of geologic hazards, including surface fault rupture, ground shaking, landslides, liquefaction, flooding, and fire
- Wrote proposals for consulting projects, research grants, municipal safety elements, and technical background reports to safety elements

Teaching Assistant, San Diego State University: Aug 2015 – May 2018

- Taught Introduction to Geology lab
- Proctored exams for other professors' large lecture classes

Research Assistant, San Diego State University: Aug 2016 – May 2018

- Assisted Dr. Thomas Rockwell with research projects, including my own master's thesis, as well as other projects, including geologic mapping, fault trench investigations, paleoseismology, neotectonics, Quaternary geology, geomorphology, soil science, sedimentology, structural geology, and quantitative field analysis in order to determine slip rates and movement histories for active faults

Tutor, C2 Education (San Rafael and Mill Valley, CA): Nov 2014 – Jun 2015

- Mathematics, Chemistry, Physics, English, Spanish, Geography, Earth Science

Education

M.S. Geological Sciences, San Diego State University 2019, 3.95 GPA

- Neotectonics, Seismic Interpretation and 3-D Visualization, Advanced Structural Geology, Engineering Geology, Quaternary Geology, Geomorphology, Volcanology
- Conducted field investigations of active faults
- Interpreted paleoseismic trenches, soil chronology
- Thesis working with Dr. Thomas Rockwell, researching paleoseismic history, tectonic geomorphology, and fault kinematics of the Cañada David Detachment, Baja California

B.S. Geology, San Francisco State University 2014, 3.42 GPA

- Physical Geology, Field Techniques in Geology, Surface Water Hydrology, Mineralogy and Petrology, Geomorphology, Structural Geology, Sedimentology and Stratigraphy, Geochemistry, Quaternary Geology and Soils, Field Methods in Geology, Earth and Life Through Time (including basic paleontology)
- Field Camp through San Jose State University
- Geologic mapping, identification and differentiation of very similar stratigraphic units, identification of faults; stratigraphic columns, cross sections, report writing

Publications

- Keene W. Karlsson, Thomas K. Rockwell, John M. Fletcher, Paula M. Figueiredo, Jaziel Froylan Cambron Rosas, Allen M. Gontz, Sambit Prasanajit Naik, Pierre Lacan, Ronald M. Spelz, Lewis A. Owen, Ivan A. Peña Villa, Rodrigo Leon Loya, 2021, Large Holocene ruptures on the Cañada David detachment, Baja California, Mexico; implications for the seismogenesis of low-angle normal faults, Earth and Planetary Science Letters, Volume 570, 2021, 117070, ISSN 0012-821X, https://doi.org/10.1016/j.epsl.2021.117070

- Eldon Gath, Keene W. Karlsson, Taylor Bogdanovich, Clay Kelty, 2022, Development of a Holocene Earthquake Record for the Green Valley Fault Zone from a New Paleoseismic Site at Siqueira Ranch, U.S. Geological Survey, National Earthquake Hazards Reduction Program Final Technical Report, Award Number G20AP00052 https://earthquake.usgs.gov/cfusion/external_grants/reports/G20AP00052.pdf

Miscellaneous Skills

Conversationally fluent in Spanish (spoken, reading, and writing). Proficiency in mathematics through algebra, geometry, and basic calculus. Proficiency in introductory chemistry and physics. Fluency in Microsoft Office suite: Word, Excel (including advanced equations and some Visual Basic coding), PowerPoint, Teams; fluency in Google Earth and Preview; some experience with GIS, Adobe Illustrator and Photoshop. Limited experience with coding in R and HTML/CSS, and desire to learn more coding languages. Proficient driver on- and off-road with a clean record. Experience with natural hazard mitigation and outdoor survival skills. Mechanically inclined: experience with car repairs, electronic circuits, and DIY home improvement projects