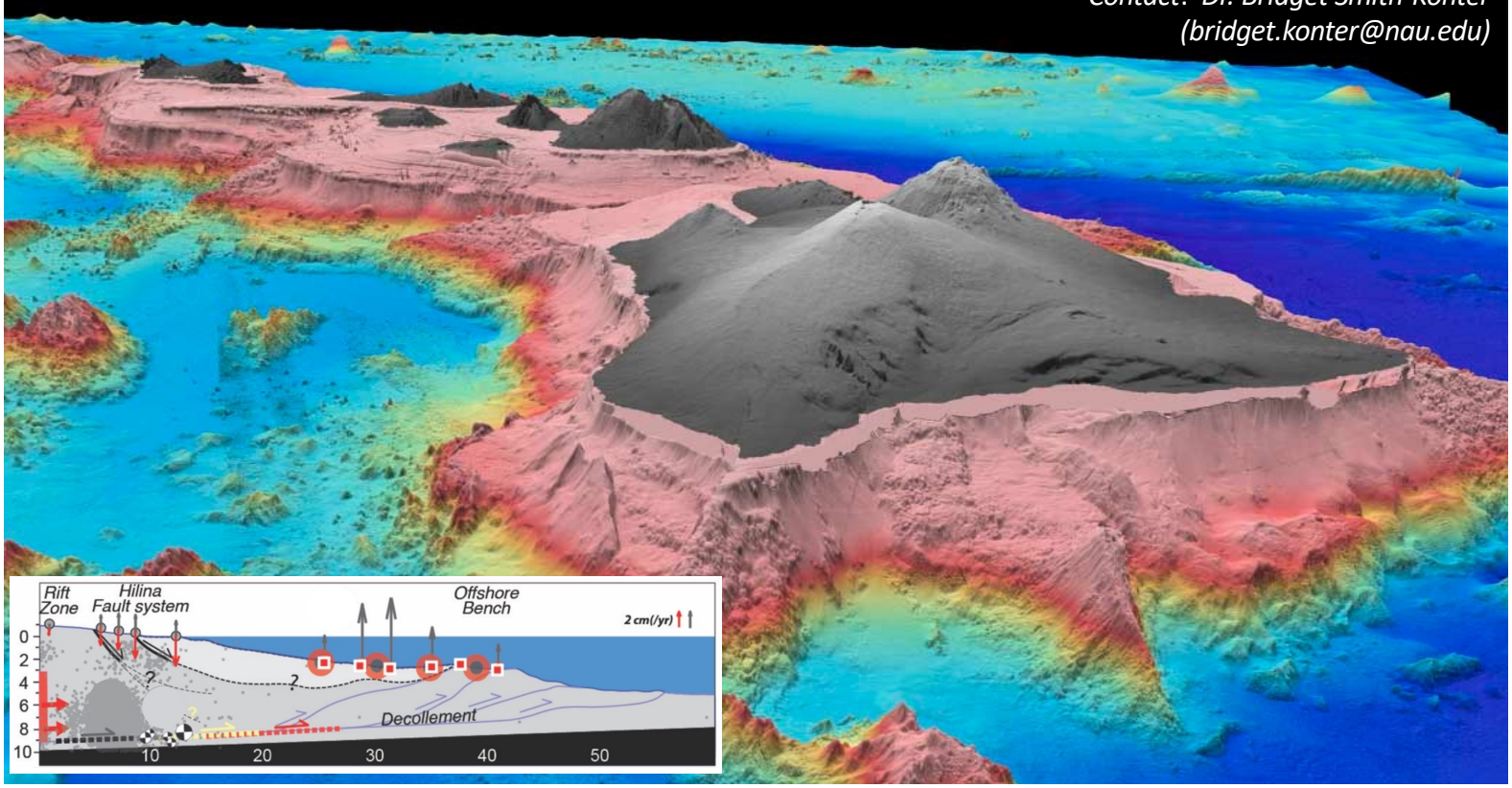
Seafloor geodesy research opportunity!

Crustal deformation measurements and geodynamic modeling of Kīlauea's submarine flank

NAU's School of Earth and Environmental Sustainability (SES) welcomes applications for a graduate assistantship in geophysics, focused on obtaining new seafloor geodetic measurements of Kīlauea's flank and developing deformation models that help to interpret it's geodynamic processes.

Candidates with a strong preparation in math, physics, and geophysics, and experience in computer programming, are encouraged to apply.

Contact: *Dr. Bridget Smith-Konter (bridget.konter@nau.edu)*



In Fall 2026, we will deploy a network of 4 GNSS-Acoustic sites, with one absolute pressure gauge per site, in an along-dip profile on Kīlauea's submarine south flank, acquiring the first seafloor geodesy measurements in nearly 20 years for this structure. This volcanic decollement has generated major earthquakes, fatal tsunamis, slow slip events, and long-term creep, and we need to better understand these processes and how they transfer stress and interact. Our GNSS-Acoustic sites will be used to measure horizontal displacement rates from the near-shore to the offshore bench, while the pressure gauges will measure any transient vertical displacement component. A campaign survey of ambient seawater pressure, reoccupying benchmarks previously measured in 2004, will be performed to recover the 20-year cumulative vertical uplift in a time window that encompasses regular slow-slip events, a major Mw 7.2 earthquake, persistent aseismic creep on the décollement, and the 2018 eruption and collapse of Kīlauea's magmatic system.

Our goal is to capture a temporal view of the 3D submarine deformation field, aimed at addressing the following questions:

1) *What is the geometry of the fault system offshore?*
2) *Where does slip connected with earthquakes, interseismic creep, and slow-slip events occur?*
3) *What processes control stress transfer within the offshore fault system?*
4) *How do these tectonic processes respond to, or impact, volcanic events?*

Interested in pursuing a graduate degree in geophysics at Northern Arizona University?

NAU NORTHERN ARIZONA UNIVERSITY
School of Earth and Sustainability

Why NAU SES?

- Vibrant research programs at an R1 university
- Friendly, multi-disciplinary, and inclusive department
- Beautiful natural environment on the Colorado Plateau

https://ses-nau.org