

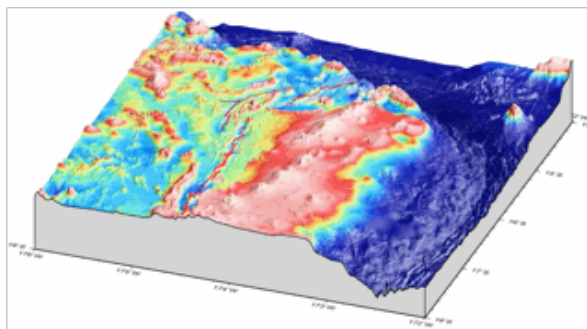
Evans Fellow Seminar Series

Monday April 13, 1:00-2:00, POST 723

“A Window into the Mantle Wedge: Insights into Subduction Zone Processes from Backarc Spreading Center Characteristics”

Jonathan Sleeper (Geology & Geophysics, HIGP)

Backarc spreading centers (BASCs) form through extension of the upper plate in oceanic subduction zones. Their characteristics reflect the influence of both plate-driven decompression melting which varies with spreading rate, and hydrous flux melting due to the addition of water from the subducting slab, which increases toward the arc volcanic front. BASCs that vary in arc proximity effectively open a “window” into the mantle wedge below, showing how the volcanic expression of subduction processes vary both along- and across-strike. This talk will highlight observations from the Eastern Lau Spreading Center and the Fonualei Rift and Spreading Center in the Lau basin, and Malaguana-Gadao Ridge in the southern Mariana Trough. Similarities between these systems provide insight into a common mantle wedge structure, while contrasts demonstrate how the surface expression of this structure is modulated by variations in spreading rate and local tectonics.



“Internal tides in O‘ahu’s nearshore regions”

Katie Smith (Oceanography)

The Hawaiian Island Ridge is a known hotspot for the generation of internal tides, making O‘ahu an ideal place to study the characteristics and effects of internal tides shoaling in nearshore island regions. In Mamala Bay, internal tides break on the slope, forming internal bores that can contribute to significant mixing and the transport of water up the slope. In Hanauma Bay, the internal tide brings cool water from depth into the shallow bay twice a day during the warm summer months. Water transported up the slope by internal waves can expose shallow ecosystems such as coral reefs to cooler, more nutrient-rich water than the ambient conditions, making them important factors in the variability of nearshore habitats.

