

# School of Earth and Environmental Sciences Fall 2024 Colloquium Series

Wednesday, November 13, 2024

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12:15 PM -1:30 PM

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Science Building C-207

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### **Sedimentary signatures of large earthquakes along a submerged transform plate boundary, Northern Caribbean**

The Enriquillo-Plantain-Garden Fault (EPGF), the southern branch of the northern Caribbean transform plate boundary, ruptured in two devastating earthquakes along the Haiti southern peninsula: the Mw7.0, 2010 Haiti and the Mw7.2, 2021 Nippes earthquakes. In Jamaica, the 1692 Port Royal and 1907 Great Kingston earthquakes caused widespread damage and loss of life. No large earthquakes are known to have occurred in the intervening 200 km long Jamaica Passage segment of the plate boundary. To address these hazards, an NSF Rapid Response survey was conducted to map the EPGF in the Jamaica Passage aboard the *R/V Pelican*. We developed a robust C-14 chronology for the Holocene section with a Bayesian age model applied using OxCal 4.4 calibration. Out of 53 recognized core event deposits, 45 have overlapping 95% age ranges allowing correlation in multiple basins <150 km apart. The significant age overlap suggests that event deposit along the EPGF plate boundary resulted from large and potentially dangerous earthquakes highlighting the risk these geohazards present for the region.

