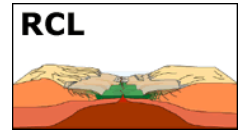


Late Quaternary Faulting History Along the Northern El Carrizal Fault, Baja California Sur, Mexico: Earthquake Recurrence at a Persistently Active Rifted Margin



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The El Carrizal fault is a NW-striking, east dipping normal fault located 25 km west of the city of La Paz, Baja California Sur, Mexico and is the westernmost bounding fault of the gulf-margin system at this latitude. The fault is ~70 km long onshore and ~50 km long offshore to the north in La Paz Bay. Results from geologic mapping, paleoseismic investigations, and preliminary optically stimulated luminescence (OSL) geochronology provide some of the first numerical constraints on the age of late Pleistocene-Holocene faulting along the El Carrizal fault. Faulted sediment from paleoseismic excavations yield OSL ages that average late Pleistocene to Holocene for the last earthquake. Based on preliminary OSL data and total measured offset at the trench sites, slip rates are estimated to be from 0.1 to 0.5 mm/yr. Earthquake recurrence and slip rate along the El Carrizal fault may increase towards the north, consistent with footwall geologic mapping. Quantifying faulting rates throughout the southwestern margin of the Gulf of California will improve our understanding of the rift-to-drift process and how that process has operated along an oblique-divergent plate margin. Improving the earthquake record along the El Carrizal fault is beneficial for understanding the seismic hazards to the city of La Paz.

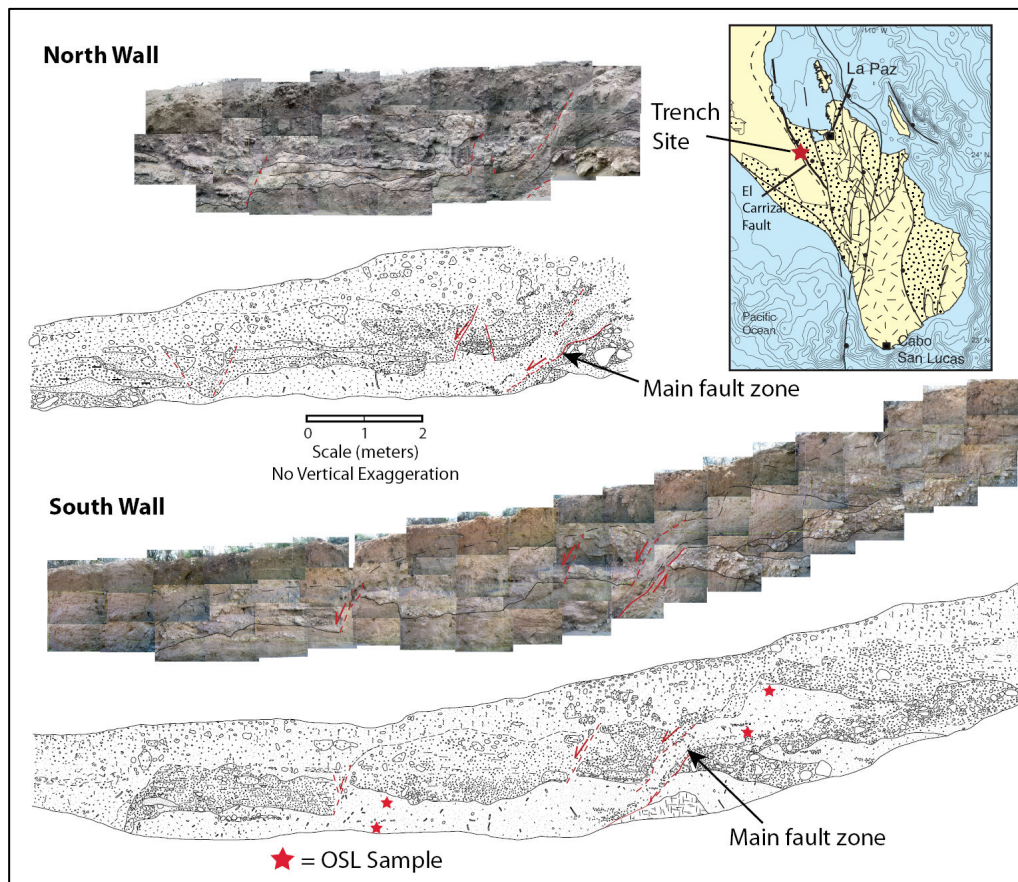


Figure: Paleoseismic log of the northern El Carrizal fault. Red dashed and solid red lines represent faults; arrows indicate sense of motion. Inset map shows approximate location of trench site.

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