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TITLE: HOLOCENE SEISMICITY OF THE NORTHERN SAN ANDREAS FAULT BASED ON PRECISE DATING OF THE TURBIDITE EVENT RECORD.COLLABORATIVE RESEARCH WITH OREGON STATE UNIVERSITY AND GRANADA UNIVERSITY.

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ABSTRACT

Unlike Cascadia, the northern California margin does not appear to have a regional stratigraphic datum, thus correlating events and testing for an earthquake origin will depend more heavily on stratigraphic correlation, tests of synchroneity, and possibly other methods of distinguishing earthquake triggered turbidite deposits from those triggered by other mechanisms. Preliminary mineralogic data suggest a synchronous origin for at least some of the events examined thus far. We have been able to distinguish three mineralogic provenances in the cores, well linked to the onshore source geology. Channels from these distinct provenances come together at confluences, below which we see mixed provenance. Rather than separate events from each provenance, we see either doublets, with no hemipelagic sediment between the events, or bimodal coarse fractions in the turbidites, each peak representing a separate provenance. Since the coarse fractions of turbidites settle out in minutes to hours, the couplets and bimodal distributions indicate little or no time passage during deposition. Synchronous deposition in turn suggests a synchronous timing of the triggering of the source events. Few, if any, triggering events other than earthquakes can satisfy the very short time requirements for synchronous initiation of turbidity currents separated by large distances along the margin.

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