

## **Comparison of Paleoseismologic Evidence for Patterns of Earthquake Occurrence on the North Anatolian and San Andreas faults: The Importance of Structural Context**

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Analysis of paleoseismological and historical data from the North Anatolian fault in Turkey and the central-southern SAF in California suggests that the occurrence of large earthquakes is controlled, to a large degree, by the structural setting of the master fault. Where the main fault extends through structurally complicated regions characterized by multiple nearby, moderate-high slip-rate faults (as in southern California), earthquakes occur more frequently and less regularly (relative to the same fault loading rate). Along structurally simple parts of the fault in areas with relatively few nearby faults (as along much of the central and eastern NAF), however, earthquakes are generally larger, less frequent, and occur more regularly. Although numerous factors exert important controls on the occurrence of large earthquakes (e. g., quasi-permanent structural complexities such as releasing or restraining steps, stress changes from other earthquakes on the same fault?), we suggest that these observations may best be explained by the more complicated stress evolution of the master fault related to: (1) the occurrence of nearby large earthquakes that generate ephemeral zones of stress enhancement and stress shadows; and (2) changes in loading rate over multiple earthquake cycles, as appears to be occurring in southern California.