

Abstract Submitted
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Space-Time Clustering and Correlations of Earthquakes JAMES

HOLLIDAY, JOHN RUNDLE, Center for Computational Science and Engineering, University of California, Davis, DONALD TURCOTTE, Department of Geology, University of California, Davis, WILLIAM KLEIN, Department of Physics, Boston University, KRISTY TIAMPO, Department of Earth Sciences, University of Western Ontario, ANDREA DONNELLAN, NASA Jet Propulsion Laboratory — Earthquake occurrence in nature is thought to result from correlated elastic stresses, leading to clustering in space and time. We show that occurrence of major earthquakes correlates with time intervals when fluctuations in small earthquakes are suppressed relative to the long term average and estimate a probability of less than 1% that this coincidence is due to random clustering. Furthermore, we show that an order parameter can be defined to characterize these fluctuations and that a generalized Ginzburg criterion can be established to measuring the relative importance of fluctuations in the parameter.

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