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Possible Electrostatic Precursors to Granular Slip Events TROY SHINBROT, NIRMAL THYAGU, Rutgers University — For at least the past 40 years, reports have repeatedly appeared of atmospheric lightning and related effects preceding major earthquakes. Many of these reports are anecdotal and of uncertain reliability, while others appear to have been substantiated by more recent scientific electric field measurements. In this work, we describe laboratory experiments that appear to exhibit sporadic, but statistically significant, electrical precursors to granular slip events. The cause of this phenomenon is unclear: the materials used are neither piezoelectric nor triboluminescent. We speculate that the electrical signals may be related to other electrical phenomena known to be associated with material failures in other contexts, for example in crack formation and in tape peeling.

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