

Periodic, episodic, and complex behavior of long-lived repeating glacial stick-slip earthquakes in the Transantarctic Mountains.

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Abstract

Sticky-spots, enhanced regions of basal friction, exert fundamental control on the behavior of glaciers and ice sheets. Seismic energy released during stick-slip behavior associated with sticky-spots provides a window into the subglacial environment. Using seismograph deployments in the Transantarctic Mountains, we report on 2 new families of repeating magnitude 2 glacial-earthquakes located close to one-another. For the first time, we show that repeating glacier events can be long-lived (> 8 years). Further, analysis reveals that these closely spaced events interact with one-another, producing complex behaviors. However, relatively simple models can be used to simulate this behavior, offering insight into subglacial conditions.

