



## **Exploring snaps, pops and gurgles that produce seismic wiggles: linkages between glacier-generated seismicity and ice dynamics**

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Glaciers produce seismic energy that is detectable over local to teleseismic length scales. Dynamic processes including calving, surface crevassing, basal sliding and hydraulic transients produce recordable seismic energy. Of particular interest is seismicity during calving, which can be used to understand the source mechanics of individual events. To explore links between glacier-generated seismicity and ice dynamics, we deployed an 11-station seismic network at Columbia Glacier, AK over 16 months during 2004-2005. For parts of this period, GPS measurements and optical surveys documented surface motion, and both time-lapse and manual photography provided ground truth for calving and changes in terminus geometry. During processing, automatic seismic event detection and sifting allowed time series construction for several event classes. Such records are useful in constraining potential forcings, while more detailed analyses of individual events are used to unravel source mechanics. The ultimate goal of this research is to develop a better understanding of short-time scale fracture, calving and flow processes that are essential to the overall behavior of the glacier during rapid retreat.