Detecting earthquake events

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1.1 Earthquake spectra and near-source attenuation in the Cascadia subduction zone

1. Found regular events for a short period of time using a combination of an automated detection scheme based on ratios of short-term to long-term average signal levels and visual verification. Signals for the events are temporally isolated, each have clear P and S saves, and spectral content/ recurrence is not considered.

2. Low Frequency Earthquakes (LFE) are classified based on repeating occurence by using an algorithm that cross-correlates a template waveform with a moving window of a continuous data stream recorded at the same station. Repeats are noted well outside the time window of the study.

   LFEs are identified as windows in which the correlation coefficients summed across 3-components of several stations exceeds a threshold value.

3. Find events for the entire period of time you want to study. If they are picked out by both method (1) and method (2), look for their repeats. Use cross-correlation analysis over time intervals to see how often these events have recurred.

1.2 Tiny intraplate earthquakes triggered by nearby episodic tremor and slip in Cascadia

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2 Greg Beroza

3 Michael Brudzinski