**INTRODUCTION**

1) ambient seismic noise
(from ocean waves)

2) volcanic tremor

**RESULTS**

Station pair cross-correlations show anomalously coherent signals that can be attributed to volcanic tremor.

**DATA**

We use continuous seismic records from >40 stations on the island of Hawaii between 1995 and 2010. The data include two distinct tremor sources as well as ambient seismic noise.

**NOISE & TREMOR CHARACTERISTICS**

Spectrograms of raw data showing strong ocean noise (~2-25 Hz) on all stations and volcanic tremor originating from Kilauea volcanoes on near-source stations only:

1. Pu'u'O'o tremor: before mid-June 2007 at >0.5 Hz (also described by Matzka et al., 2010, JGR)

2. Hālēma'uma'u tremor: after Dec 2007 at >0.3 Hz (also described by Dawson et al., 2010, GRL)

**CONCLUSIONS**

- Cross-correlations show anomalously coherent signals that can be attributed to volcanic tremor.
- The tremor arrivals at different stations are well separated, allowing for localization.
- The localization process involves identifying the travel times of the tremor arrivals at each station and using cross-correlation techniques to determine the source location.

**TREMOR LOCALIZATION WITH GRID SEARCH**

Hypothesized tremor arrivals line up linearly when plotted against their corresponding travel times from the source. We visually infer group wave speeds (red lines as follows: 0.1 km/s for 0.3-0.5 Hz; 0.9 km/s for 0.5-0.9 Hz).

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