**Increasing the Temporal Resolution of Ambient Seismic Noise Monitoring**

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**Data Used**

Parkfield High-Resolution Seismic Network (HRSN):

13 stations - 76 station pairs

Whitening: 60 days 2001-2007 reference GF: stack of 6 years

REF: F. Brenguier et al.: Postseismic Relaxation

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**Adaptive Filter**

**Simultaneous Resolution Time & Frequency**

Favors coherent parts of signal

Maintains phase information

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**Retrieve Temporal Velocity Variations: 2 Methods**

**Doublets**

Divide signal in window

Calculate lag (L)

For each window

Plot lag vs timescale

Fit slope through measurements

ΔT/Δv = Δv

**Stretching**

Stretch reference signal: time \( t(t+\Delta t) \)

Compare to daily signal correlation coefficient (CC)

Δv maximum CC corresponds to \( \Delta v/\Delta T \)

CC leads to \( \text{rms} (\Delta v/\Delta T) \) estimate

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**References**

1. R. Weaver, C. Hadziioannou, E. Larose - On the precision of noise-correlation interferometry
2. Fault-Parallel displacement measured at Pommi. More information:
   - http://quake.ldeo.columbia.edu/research/deformation/twood/dr/pommi.html

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**Retrieve Temporal Velocity Variations: 2 Methods**

**Doublets**

Stack 30 days:

Moderate stack 30 days

Finish stacking stack 6 days

**Stretching**

Stack 30 days:

Finish stacking stack 1 day

Stack 1 day: