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## Monitoring of temporal seismic velocity changes in the North Anatolian Fault zone using data derived scattering properties

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Monitoring of temporal seismic velocity changes can provide us with information on the mechanical state of the Earth's crust due to processes of stress build-up and release.

In current work, we use the Dense Array of North Anatolia [1], which has been continuously recording from May 2012 until October 2013, to analyse the spatio-temporal variations of seismic velocity changes in the North Anatolian Fault zone (NAF). We compute daily ambient-noise cross-correlation functions for all 63 three-component stations in the frequency band between 0.1 – 1 Hz.

To retrieve spatial distribution of seismic velocity changes in such an inhomogeneous fault zone, we go beyond the simple linear travel-time shifts approximation and homogeneous sensitivity kernel. We therefore invert for the travel-time shifts at different lag-times. Furthermore, we use sensitivity kernels for media with inhomogeneous scattering properties. The scattering properties for the sensitivity kernels are derived from the data: a scattering mean free path inside the fault zone (northern strand of NAF) of  $\approx 10$  km and  $\approx 150$  km outside the fault zone, the attenuation coefficient inside and outside the fault zone are 80 and 100 respectively.

[1] DANA. Dense array for north anatolia. International Federation of Digital Seismograph Networks doi:10.7914/SN/YH2012, 2012.