



Characteristics of ambient seismic noise used for surface wave tomography

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Recently developed techniques open a possibility of estimating surface wave velocity variations using ambient seismic noise. These techniques are based on the assumption that seismic noise is diffuse, and cross-correlating noise recordings from two continuously recording seismic stations yields the Green's function, which contains a Rayleigh wave component, between the two stations. The travel times of these Rayleigh waves can then be picked and tomographically inverted to estimate velocity variations. As group velocity of Rayleigh waves is frequency dependent, filtering the cross-correlations with different band pass filters will give different travel times, which will provide velocity models sampling different depths. This technique can be applied even when the noise is not perfectly diffuse, as long as the noise sources are well distributed. There are still many unresolved issues in relation to this technique, as the nature of seismic noise is not fully understood. Here we present results of ambient noise studies from different seismic networks, showing how for different networks different processing techniques yield optimal results.