



Passive seismic noise-based imaging of the Wellington Basin, NZ

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Wellington, the capital of New Zealand, is prone to the effects of both large strike-slip and large subduction earthquakes. The city lies on the edge of a funnel shaped basin. In order to accurately model wave propagation resulting from earthquake scenarios, we must accurately know the basin geometry and velocity structure. To image the basin, we deployed eight 40 second and six 1 second seismometers to record both earthquake and ambient noise data. The ambient noise data have been cross-correlated and stacked for every station pair. It has been recently shown that such processing is capable of revealing the Green's Function between the two stations. We then apply multiple filtering to the Green's Function and make group velocity measurements with a frequency-time analysis. The resulting dispersion curves are currently being inverted with a non-linear scheme using the neighborhood sampler to calculate multiple, path-averaged 1D Vs profiles that will subsequently be integrated into a 3D basin model.