



## **Ambient seismic noise sources around Antarctica from full-waveform inversion of multicomponent noise correlations**

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People use ambient seismic noise cross-correlations, a common method in seismic interferometry, to approximate the direct surface-wave Green function. In turn this Green function can be used to investigate the Antarctic lithosphere. If sources are distributed isotropically in all directions, the cross-correlation approximates the Green's function between the two sensors quite well. However, sources are normally not evenly distributed in space or time. In this case, along with structure information, the cross-correlation between two sensors includes source information, and one must unravel the source information if one wants to estimate the structure information. In this presentation, we discuss our work on Antarctic noise sources, a necessary step prior to investigating the lithosphere structure of Antarctica with ambient noise methods. We use finite-frequency cross-correlation kernels to estimate ambient noise sources. These so-called source kernels can be used to estimate not only source locations, but also strength and variation in time. Finally, we discuss the benefits of using multicomponent cross-correlations during noise estimation. We show that multicomponent cross-correlations have different sensitivities to the source distribution, which can be incorporated, and exploited, during the inversion process for Antarctic noise sources.