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Extracting Green's functions from noise correlation of SW06 data

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Ambient noise was recorded on an L-shaped array during the SW06 (Shallow Water 2006) sea trials. The data were cross-correlated in order to approximate the Green's function, and subsequently the acoustic travel time, between hydrophone pairs. Examination of the individual noise spectra and their mutual coherence revealed that the coherently propagating noise is dominated by frequencies less than 100 Hz. Both time and frequency domain preprocessing techniques, and their effect upon the resulting correlation, were investigated. Times corresponding to the envelope peak of the noise cross-correlation time- derivative are in agreement with both the expected direct, and surface reflected, inter-hydrophone travel times.