

Signal to Noise Ratio estimation in passive correlation based imaging

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We consider imaging with passive arrays of sensors using as illumination ambient noise sources. The first step for imaging under such circumstances is the computation of the cross correlations of the recorded signals, which have attracted a lot of attention recently because of their numerous applications in seismic imaging, volcano monitoring, and petroleum prospecting. Here, we use these cross correlations for imaging reflectors with travel-time migration. We study the quality of the obtained images in terms of resolution analysis and signal-to-noise ratio (SNR). Several numerical simulations will be shown that support our theoretical results.