



Correlation of noise: laboratory experiments

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Experiments in seismology (on Earth or in the Sun) require huge instruments deployed on a scale of several thousands of kilometres, and long lasting records (year). For this reason, methodological developments are sometimes fastidious. At a laboratory scale (one meter in total size), it is possible to reproduce some features of the wave propagation in the (elastic) earth or in the (acoustic) sun with kilohertz or megahertz frequency waves, and controlled media. We will review three recent experiments of passive imaging carried out with three different experimental configurations. Our goal will be 1) to reconstruct reflected waves with distant sources perfectly enclosing the medium to image [Larose et al, App. Phys. Lett. 88 (2006)]; 2) to image a buried scatterer with diffuse waves in an elastic body [Larose et al, J. Acoust. Soc. Am. 119 (2006)]; 3) to reconstruct the dispersion spectrum of a Lamb waves with noise [Larose et al, J. Acoust. Soc. Am. 122 (2007)].