

## Seismic interferometry-by-deconvolution for controlled-source and passive data

Kees Wapenaar

### Summary:

Seismic interferometry is a cross-correlation based process to generate new seismic responses from existing ones. It can be applied to passive data as well as to controlled-source data. Recently it has been recognized that in specific cases it can be advantageous to replace the correlation process by deconvolution. In this presentation I discuss seismic interferometry by multi-dimensional deconvolution for controlled-source data as well as for passive data and compare both approaches with the corresponding correlation-based interferometric methods. For the controlled-source situation I derive the virtual source method as an approximation of the multi-dimensional deconvolution method. For the passive data situation I will show that the deconvolution method and the cross-correlation method are essentially different, and discuss the merits and drawbacks of both approaches.