

This session will focus on the earlier stages of processing after the acquisition of seismic data. It will introduce the different challenges faced when acquiring data in different scenarios such as land, marine or ocean bottom surveys.

Overall, such challenges could be described as noise attenuation problems, where noise is often coherent and presents similar characteristic to the signal of interest. As such, an accurate estimate and an effective attenuation of the noise require advanced technology solutions: research on these topics has been active for decades.

The origin of such noise could be either natural, as a result of wave propagation properties in media, or engineered, due to the choices in acquisition design to balance quality requirements and cost.

The lecture will briefly introduce the acquisition domains and the data to process, to then illustrate the problems of seismic ghost reflections, seismic multiples and simultaneous sources and the state of the art solutions for such problems.

Pre-Requisites: basic theory of signals, and in particular mathematical transforms such as Fourier and Radon.