Surface Wave Testing

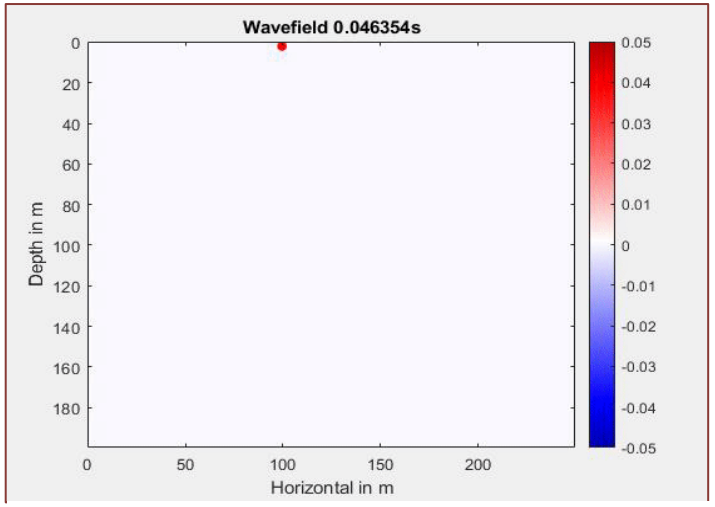
Working Principle

The wavefield radiated by seismic tremors contains surface waves which are dispersive in nature.

Surface wave testing

Application

Dispersive properties of Rayleigh wave is used in Multichannel Analysis of Surface Wave (MASW) to obtain the subsurface's shear wave velocity profile.

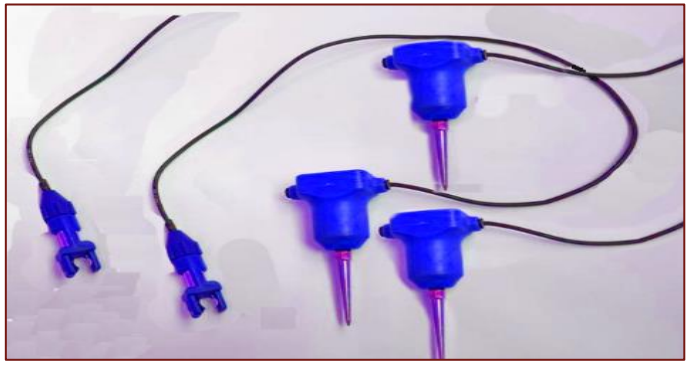


Numerical simulation of wavefield

Geophones

Working Principle

The geophone's magnetic core and coil system converts the ground motion into electrical voltage.



4.5 Hz geophones

Application

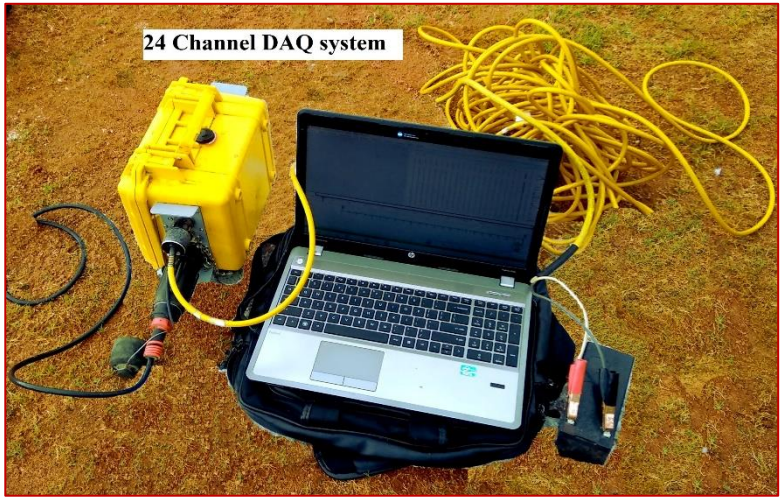
Used to measure low frequency vertical as well as horizontal ground motion. Usually an array of 24-48 geophones is used in multichannel analysis.

24 Channel receiver array

Data Acquisition System

Working Principle

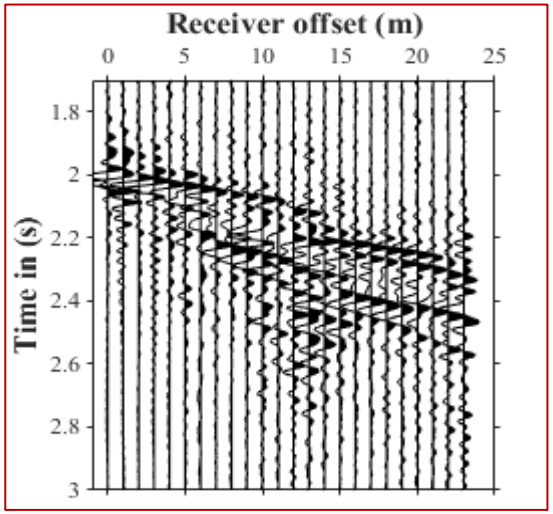
Collect and store multichannel receiver signal.



24 channel DAQ system

Application

Converts the analog signal to a discrete digital signal with a very high sampling rate and stores the common shot gather.

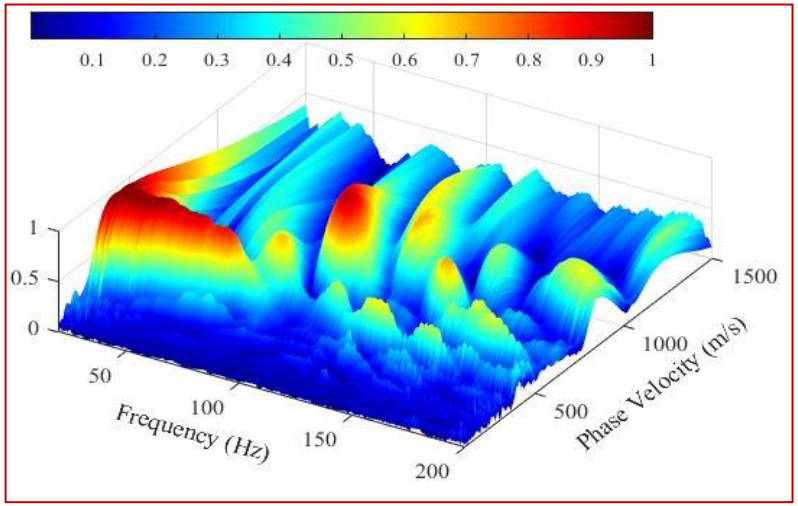


Multichannel shot gather

Analysis tools

Working Principle

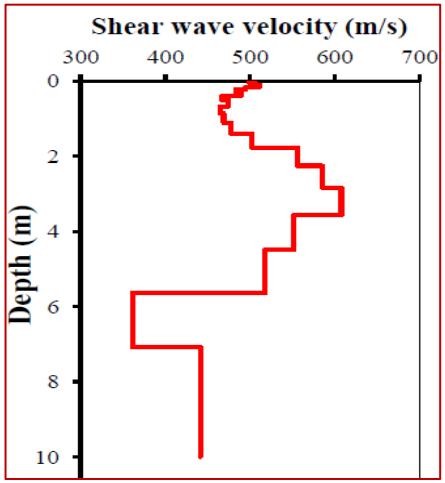
Mathematical wavefield transformation tools decompose the recorded data into their frequency-dependent phase velocities.



Multimodal dispersion graph

Application

Used to obtain a high-resolution multimodal field dispersion image that will act as a reference in inverse analysis.



Shear wave velocity profile