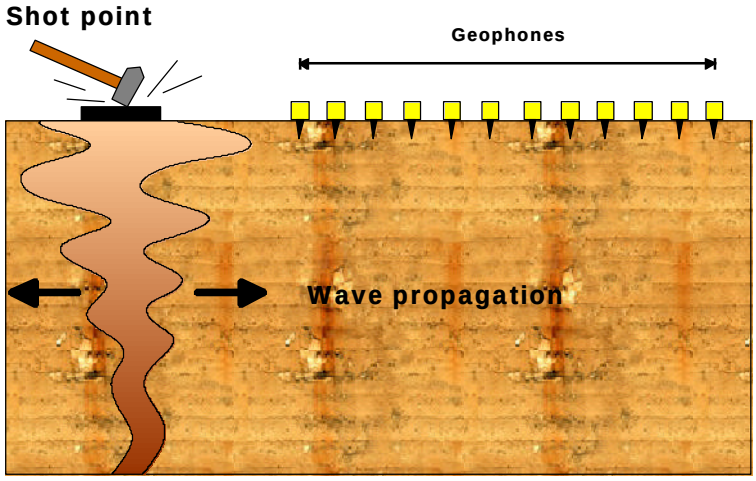
GEOTOMOGRAPHIE

Dynamic Soil Properties from MASW

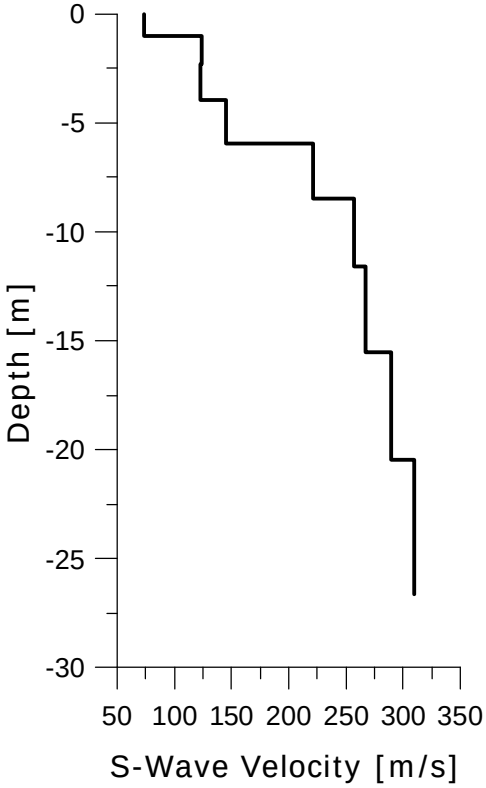
Seismic tests can be divided in two groups, surface tests and borehole tests. Surface tests are used to determine subsurface properties using geophones on surface and a surface seismic source. Borehole tests are bound to one or two boreholes which have to be drilled. Therefore, borehole tests are more expensive compared to surface tests but provide more accurate data with depth.

The surface wave seismic (MASW - Multi channel Analysis of Surface Waves) is a method which determines soil stiffness properties by analyzing Rayleigh-type surface waves down to about 15..30 m.

Standard vertical geophones with low eigenfrequency can be used to record the seismic signal. A minimum of 12 geophones is required. A sledge hammer can be used to generate the seismic waves.



Once a seismic record is available surface waves have to be analysed. Based on that analysis a 1D vertical shear wave velocity profile can be assigned to a seismic record. Shear wave velocity is related to soil stiffness.



Combining several 1D shear wave profiles produce a 2D shear wave distribution along a surface line.