



**GEOTOMOGRAPHIE**



## Dual Downhole System

Vertical Seismic Profiling (VSP) is a common surveying technique to obtain P-wave and S-wave velocities along a borehole for dynamic soil testings.

### Dual Downhole System

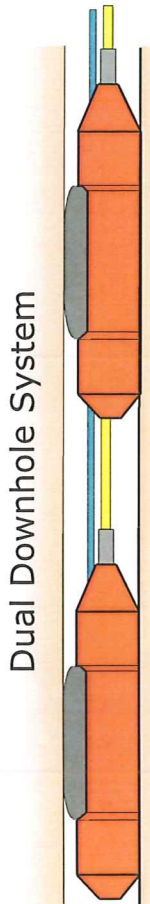
The Dual Downhole System consists of two 3C borehole receiver which are placed at 2m distance to each other in one borehole.

Each borehole receiver contains x,y,z directed geophones. The lowest receiver does have an in-built magnetic compass for orientation. Receivers are inflated by air and coupled to the

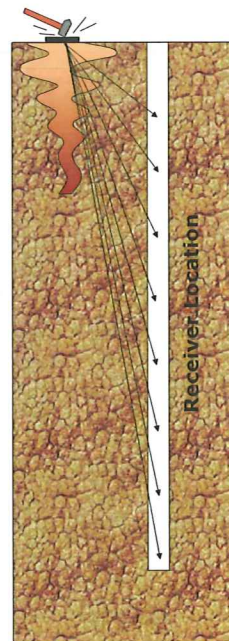
Typical seismic signals generated at surface signals and travelling to the DDS do have *same trigger time* and *same source signal*. In this case, the first break or even the maximum amplitude are qualitative good measures for an interval velocity.

Further, the DDS system can be lowered at any desired depth interval making it possible to obtain interval velocities every meter or less

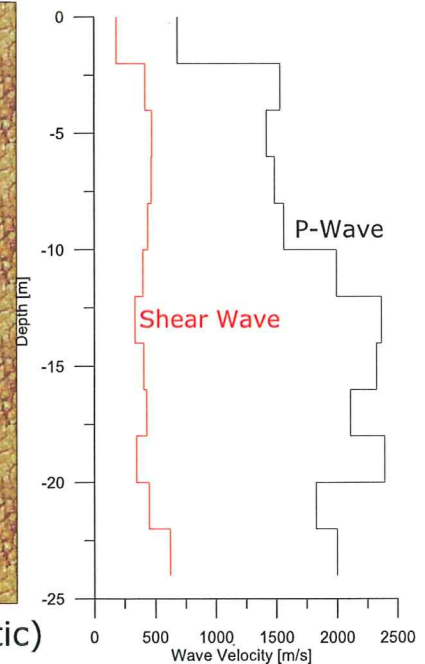
The 8-level system consists of 8 stations at 2 m interval. All X-Receivers pointing to same direction. Two stations do have there own air supply for pneumatic air clamping.



Shot Point



VSP Result



### DDS advantages vs Standard

Standard	DDS
Coupling conditions of a single borehole receiver may vary from point to point as well as hammer blows may not show same signal for every depth.	Same source conditions, same coupling pressure
Accurate trigger time not always available	Same trigger time
Erroneous traveltimes may lead to unrealistic velocities	Maximum/Minimum amplitude picking available

VSP (schematic)

<b>Robust</b> 	<b>Adaptable</b> 	<b>Powerful</b> 	<b>Flexible</b> 
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