

VIBSIST-1000

C O D E D - I m p a c t S e i s m i c S o u r c e

The VIBSIST-1000 is a multi-impact, time-distributed seismic source that uses a hydraulic hammer mounted on 4-wheel drive / 4-wheel steering all-terrain, highly-maneuverable vehicle with compact wheelbase and tight steering lock angles that ensure a compact turning circle with outside radius of 2.8 m.



Multi-azimuth VSP, Finland

The VIBSIST-1000 is a safe, non-destructive and environmentally friendly high-resolution seismic source. It is specially designed for use in forest areas, so that cutting trees can be avoided.

The hammer is powered through a computer controlled hydraulic regulator and produces series of impacts, delivered according to pre-programmed time functions. The recommended temperature range for operation is -25° to 50°C .

The VIBSIST-1000 source can probe 2—3 km deep in hard rocks and 1—2 km deep in sedimentary rocks.

KEY FEATURES

- ♦ All terrain reflection seismic source
- ♦ Simultaneous multiple-source capability
- ♦ High productivity
- ♦ High resolution
- ♦ Rugged and mobile
- ♦ Minimum environmental impact
- ♦ Compatible with all industry-standard seismographs

APPLICATIONS

Surface 2D & 3D and multi-offset VSP for:

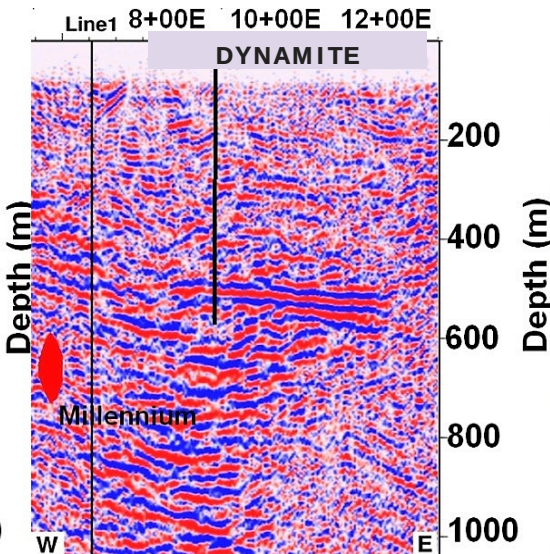
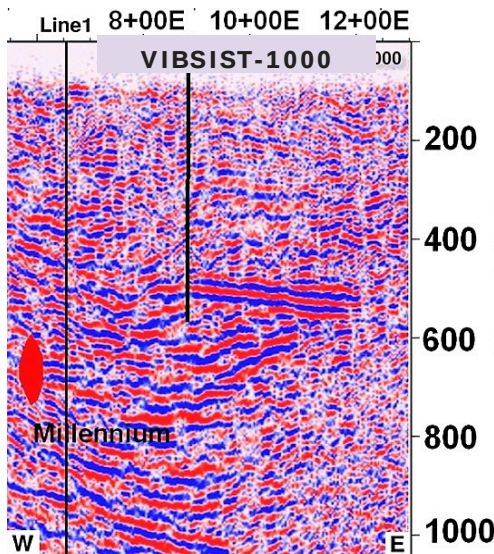
- ♦ Mineral exploration
- ♦ Structural delineation at mine sites
- ♦ Geothermal energy
- ♦ Geologic storage
- ♦ Oil exploration
- ♦ Reservoir characterization



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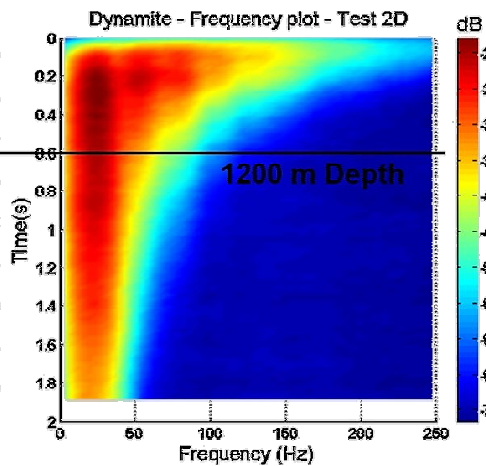
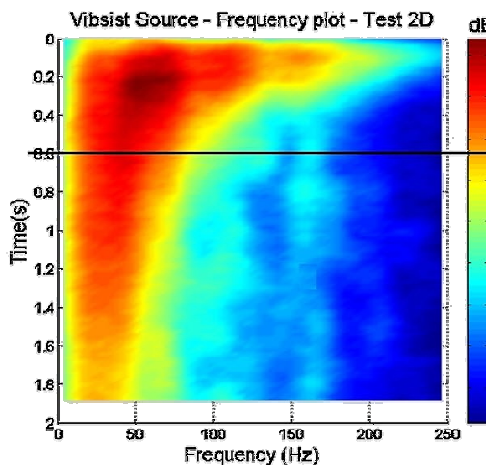
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All terrain highly mobile Seismic Source



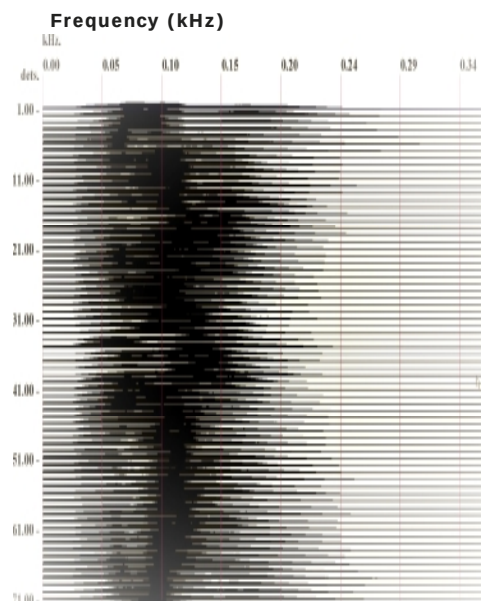
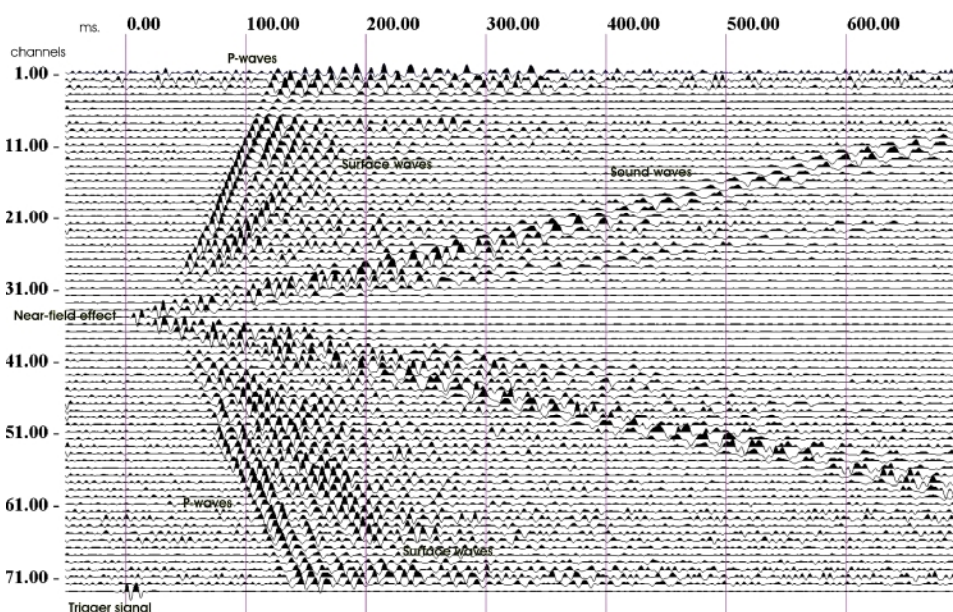
Source qualification test prior to acquisition of the Millennium 3D, Canada

2D migrated profiles



Average power spectra along the test line

Raw data source gather from the multi 2D survey at Kumba, South Africa and its Average spectra along the test line



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SYSTEM MODULES

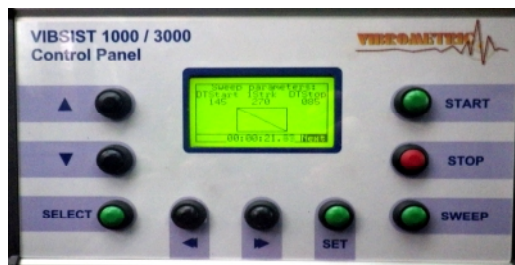
The Ground impact assembly is built as a sandwich of aluminum, steel and rubber plates and bells that can be customized for several specific ground conditions.

The Hydraulic impact hammer operates in accordance with the sweep control sequence, produced by a hydraulic servo-controller.

The Hydraulic servo-controller transfers to the hydraulic hammer a coded sequence provided by a sweep control processor.

The sweep control processor monitors the hydraulic pressure, flow and temperature and thereof regulates the impact energy and timing.

The seismic response recorded by the control processor on the Carrier vehicle is conveyed to the recording station by a coded radio signal. A variety of seismographs can be used, which include all industry-standard recording systems.



SOFTWARE

- Control Software used to program and operate the sweep control sequence
- Sweep Decoder; correlates the sweeps. This module can either be used for fast on-line monitoring or elaborate off Line processing
- Signal Conditioning, includes a collection of filters used for processing of the records before and/or after correlation
- Signal Display Interface allows the operator to visualize the data conveniently and flexibly.

SPECIFICATIONS

Impact energy: 1000 J / impact

Energy / 30s sweep: 300 kJ

Peak force: 100 kN
(25000 lbf)

Frequency band: approximately
2 to 400 Hz

Repetition rate: programmable between
5 and 18 impacts per second

Programmed sweep characteristics:
operator designed (graphic interface)
or preset

Controller

Reads impact sequence from accelerometer placed on hammer, data on oil flow and pressure;

Adjusts and re-adjusts the flow and pressure, to obtain the pre-set value of energy at the pre-set timing

Data transmission

Radio / Cable link for trigger and pilot signal.

Impact Hammer

Hydraulic with gas accumulator

Vertical direction, adjustable stroke

Impact Plate Steel and aluminum
Area 0.3m²

Hydraulic Valve System

Online, automatic & proportional control of flow on both input & return lines

Hydraulic Controller

Working pressure 230 bar

Oil flow 56 l / min

Total weight 4500kg

Dimensions 3800x1600x1800 mm (LxWxH)

Temperature (°C) -25 ... +50

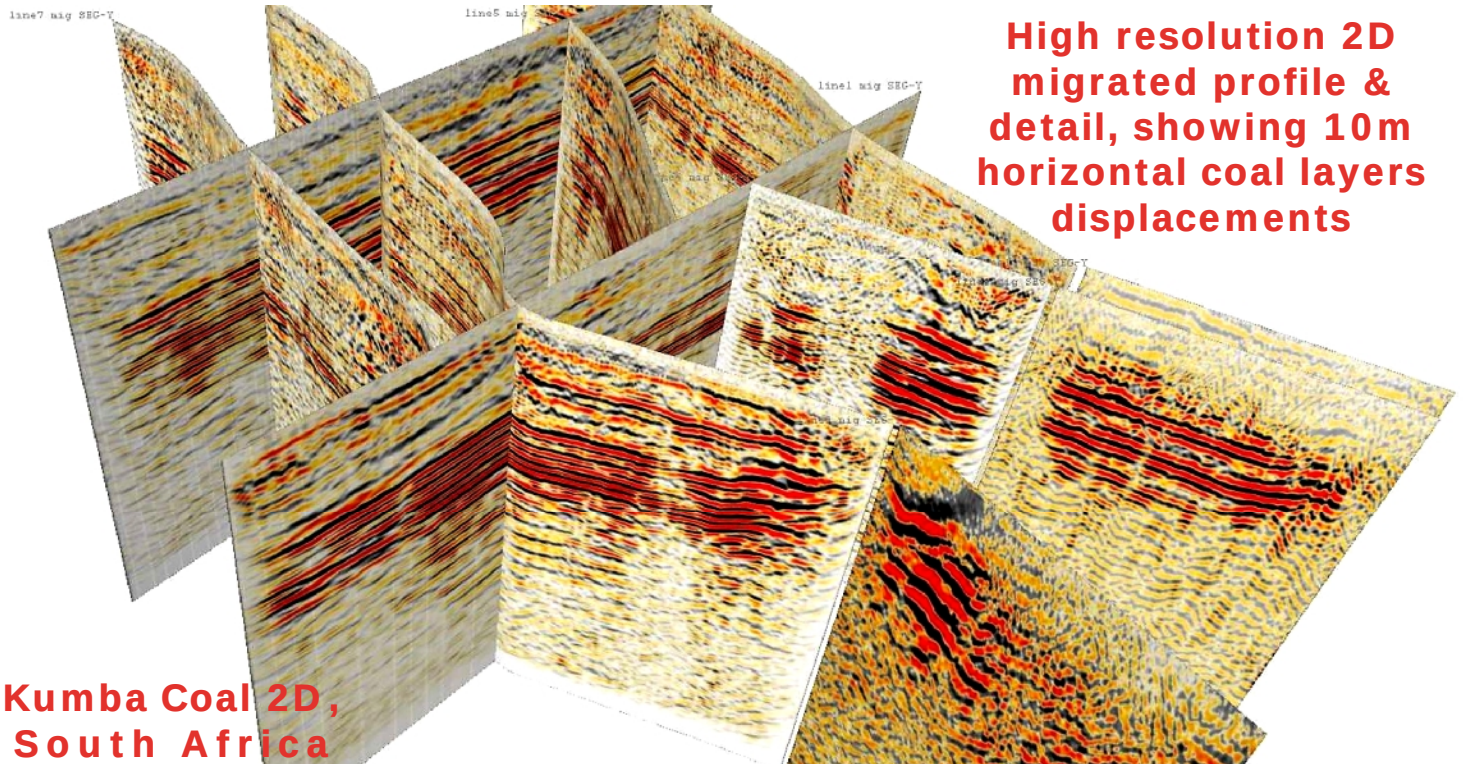
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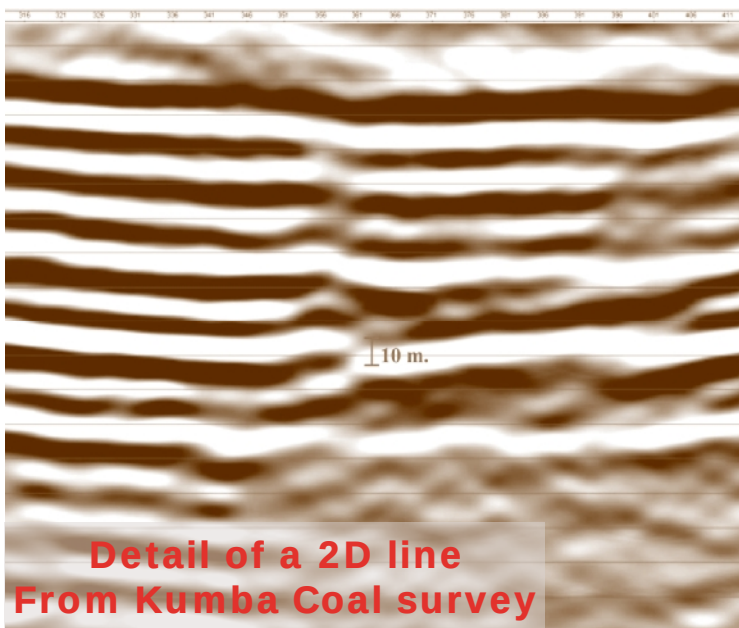
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VIBSIST-1000 Seismic Source



The VIBSIST-1000 uses heavy-duty carrier vehicles and hammers. This makes it safe, versatile, reliable and cost effective in difficult terrain as well as in environment sensitive areas.



The VIBSIST-1000 produces wide-band seismic signals even when coupling to the ground is relatively poor.

It is best suited for operation in noisy environments.



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