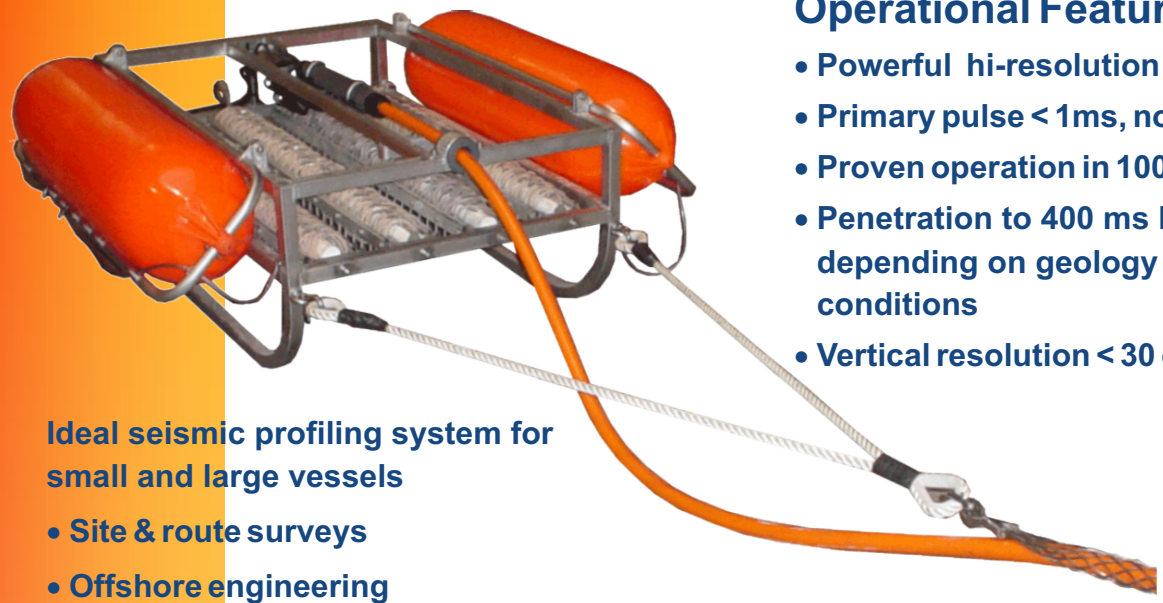
Geo-Source 200 - 400

Marine Multi-Tip Sparker System



Operational Features

- Powerful hi-resolution seismic source
- Primary pulse < 1ms, no ringing
- Proven operation in 1000 m water depth
- Penetration to 400 ms below seabed, depending on geology and survey conditions
- Vertical resolution < 30 cm

Ideal seismic profiling system for small and large vessels

- Site & route surveys
- Offshore engineering
- Mineral exploration
- Oceanographic research

INNOVATIVE Preserving Electrode Mode

The innovative Geo-Source 200 has been designed for operation with the Geo-Spark 1000 pulsed power supply (PPS) using the patented **Preserving Electrode Mode.** This mode uses a NEGATIVE electric discharge pulse instead of a positive pulse.

(Please note that this negative pulse is NOT the same as the simple reversal of the positive polarity of a 'standard' power supply.)

Maintenance free electrodes 5 year guarantee

The Preserving Electrode Mode **reduces the tip wear to practically zero**. You can shoot day after day, week after week, month after month with practically **NO tip maintenance.**

Always a stable acoustic pulse

Zero tip wear is essential for the **acoustic repeatability** of the pulse, which depends largely on a constant, unaltered electrode surface and tip insulation.

Efficient & Cost Effective

With the Geo-Spark HV power supplies you will save a lot of time and money, since the electrodes do NOT burn off like in all other systems.

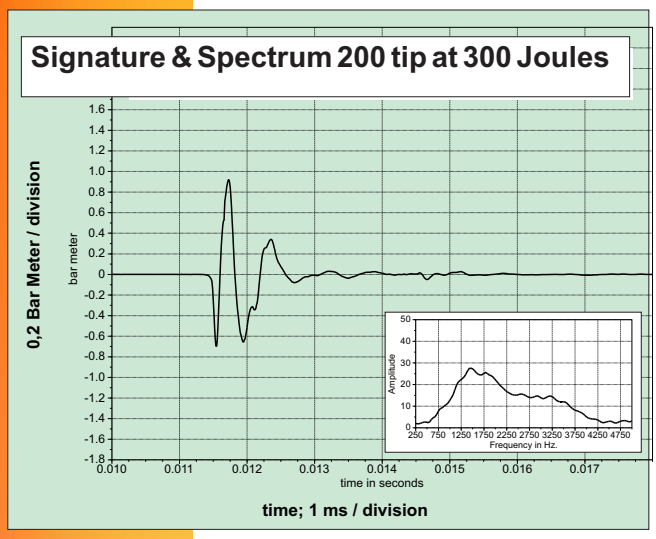
You don't need to trim tips during the survey. There is no need to have any stock of consumables.

Examples of Records

To see examples of our sparker records, please visit the 'Downloads' page on our website: ***www.geo-spark.com***

Geo-Source 200-400

Technical Specifications



Maintenance free electrodes, no trimming, stable signature

Electrodes Geometry

The electrode modules are evenly spaced in a planar array of 0.75 m x 1.00 m. This geometry not only enhances the downward projection of the acoustic energy, it also reduces the primary pulse length, since all tips are perfectly in phase.

Control of Source Parameters 200 - 400 tips

The advanced Geo-Source 200-400 design gives you total control of the source depth and the energy (Joules) per tip

Source depth

Two floats provide a stable towing configuration and insure the proper depth of the electrode tips. This is critical to achieve constructive interference between the primary pulse and its own sea-surface reflection (surface ghost)

Number of tips in use and Energy per tip

Four individually powered electrode modules of 50 or 100 tips each allow you to distribute the energy from the Geo-Spark power supply over 50, 100....., up to 400 tips. (Each tip has an exposed surface area of 1.4 mm^2.)

200 tips, the classic 200 tip configuration is normally used with the Geo-Spark 1000 PPS and consists of four 50-tip electrode modules. This configuration gives an excellent hi-res pulse over the 100 to 500 J power range.

400 tips, for higher energies above 1000 J, and in particular with the Geo-Spark 2000X, we recommend a 400 tip configuration with 4 x 100-tip electrode modules

Coaxial High Voltage (HV) Power/Tow Cable

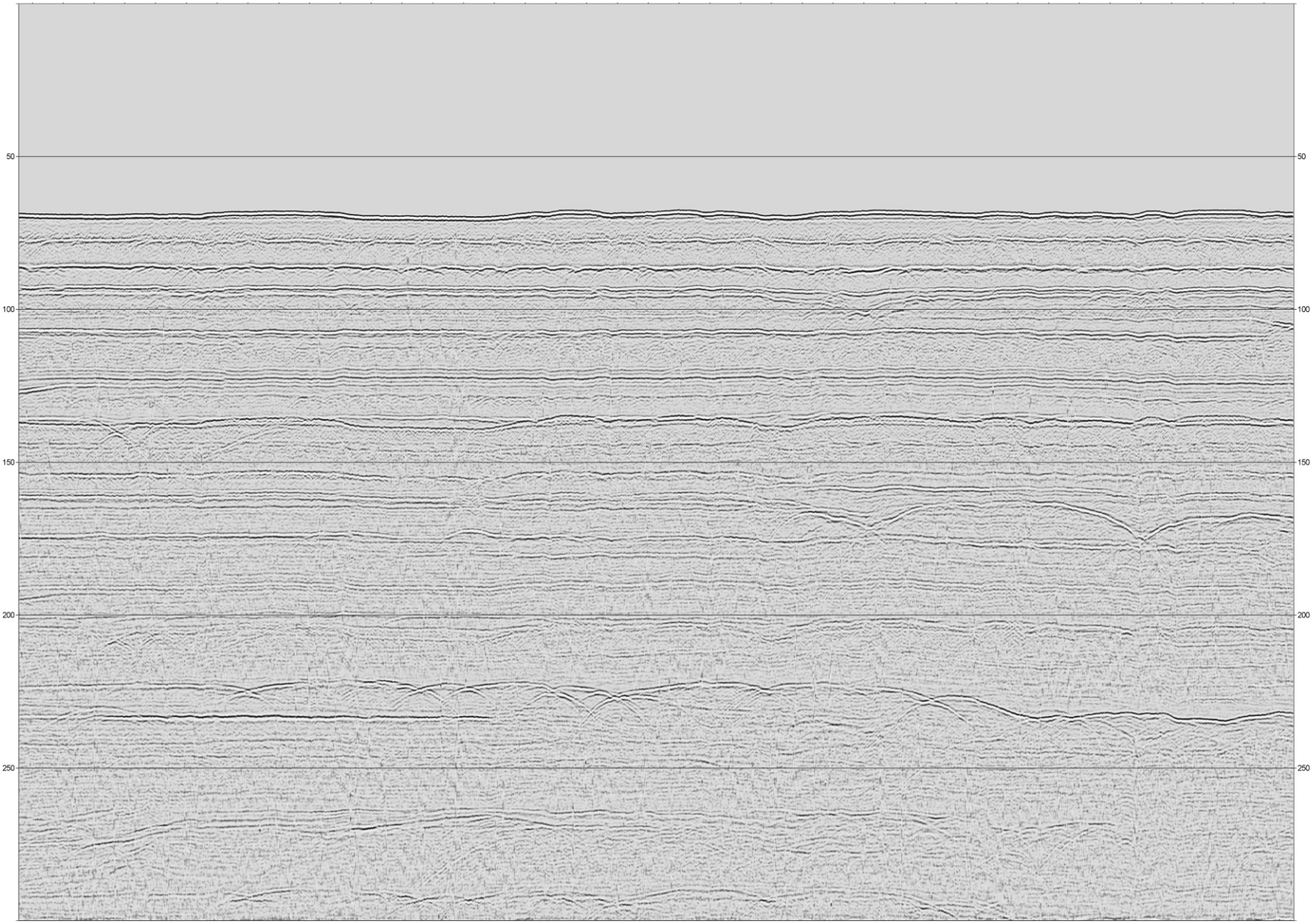
The Geo-Source 200 is towed by a very high quality, Kevlar-reinforced, coaxial power/tow cable with stainless steel kellum grip. This dedicated high voltage (HV) cable contains **4 x 10 mm^2** inner cores (negative) plus a **40 mm^2** braiding (ground-referenced). It is designed to have a very low self-inductance to preserve the high dI/dt pulse output of the Geo-Spark 1000 PPS.

The coaxial structure of the HV cable reduces the electromagnetic interference to the absolute minimum.

The wet end of the cable is terminated with four special HV connectors to the electrode modules and a ground connector to the frame. Connecting or disconnecting the cable to the Geo-Source 200 takes only 10 minutes; so you can handle the sparker sled and the HV cable as independent units.

The dry end of the cable is terminated at the Geo-Source 200 patch panel, which allows you to select the number of electrode arrays in use

GEO Marine Survey Systems b.v.
Sheffieldstraat 8, 3047 AP Rotterdam
The Netherlands
Phone: + 31 10 41 55 755
Fax: +31 10 41 55 351
info@geomarinesurveysystems.com
Website: www.geo-spark.com



RESOURCES

Location: Thailand

Date: August 2008

Client: MVM Surveys

Water Depth: 50 - 300 m

Acquisition

Source: Geo-Spark 200
Power Supply: Geo-Spark 1 kJ
Power: 300 J
Streamer: Geo sense
Recording System: Geo-Trace 2
Shot interval: 0.5 s
Record length: 300 ms
Sample Rate: 8000 Hz

Processing

Frequency filtering
Gain
Swell filter
Muting

Display

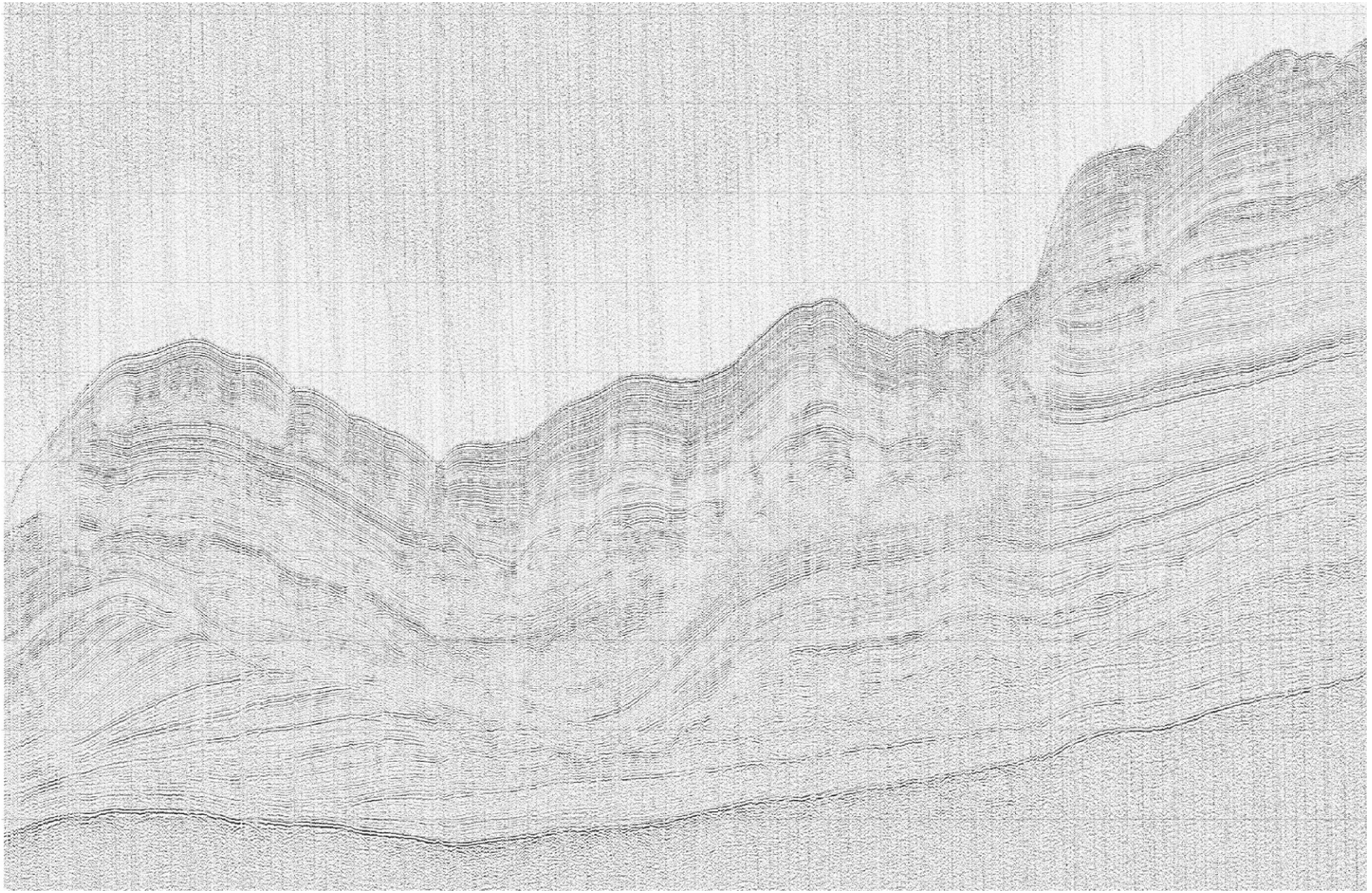
Horizontal scale 1:4000
Vertical scale 1 cm = 8 ms
One timeline every 50 ms

Geo-Resources BV
Heemraadssingel 235
3023 CD Rotterdam
Netherlands

Phone: +31 10 425 83 70
Fax: +31 10 244 01 04

info@geo-resources.com
www.geo-resources.com

Geo-Spark 200 Thailand- August 2008



Alternating sand and clay layers.
Strong reflector at the base of layer turbiditic sequence represents the top of Messinian evaporites.

Taranto Italy - May 2005

Approximately 500m

Location: Taranto Italy

Date: May 2005

Client: Nautilus

Water Depth: 450 - 650 m

Acquisition

Source: Geo-Spark 200
Power Supply: Geo-Spark 1 kJ
Power: 700 J
Streamer: Geo-sense 8 elements
Recording System: Geo-Trace 2
Shot interval: 3 s
Record length: 1500 ms
Sample Rate: 8000 Hz

Processing

Frequency filtering
Gain
Swell filter
Muting

Display

Horizontal scale 1:12000
Vertical scale 1 cm = 15 ms
One timeline every 50 ms

Geo-Resources BV
Heemraadssingel 235
3023 CD Rotterdam
Netherlands

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Fax: +31 10 244 01 04

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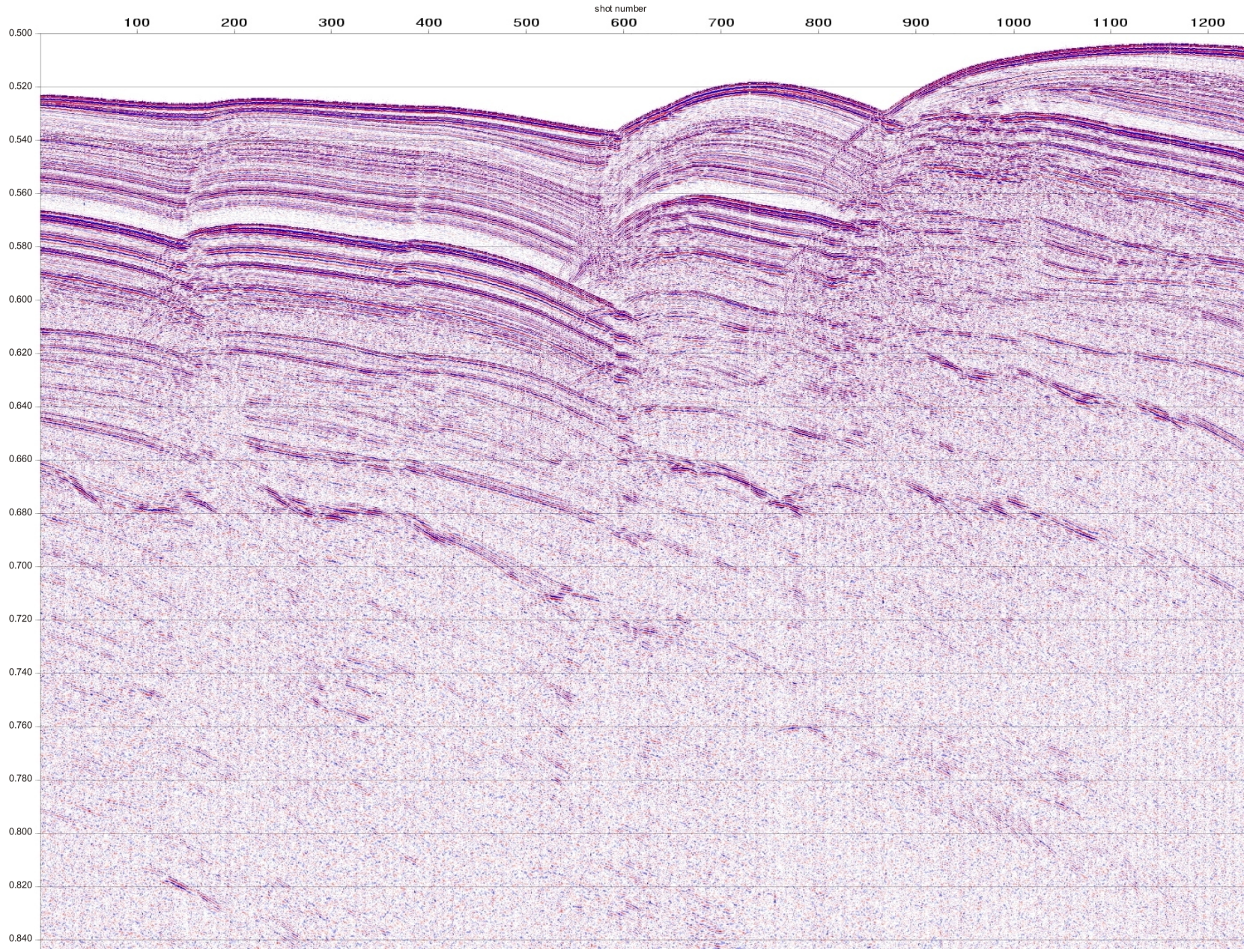
www.geo-resources.com



Mediterranean Sea Egypt , October 2005

RESOURCES

Location: Mediterranean Sea, Egypte

Date: October 2005

Client : Impresub

Water Depth: 350 - 400 m

Acquisition

Source: Geo-Spark 200
Power Supply: Geo-Spark 1 KJ
Streamer: Geo sense 8 elements
Recording System: Geo-Trace 2
Shot interval: 2 s
Record length: 1000 ms
Sample Rate: 10000 Hz

Display

Horizontal scale 1:9000
Vertical scale 1 cm = 10 ms
One timeline every 20 ms

Geo-Resources BV
Heemraadssingel 235
3023 CD Rotterdam
Netherlands

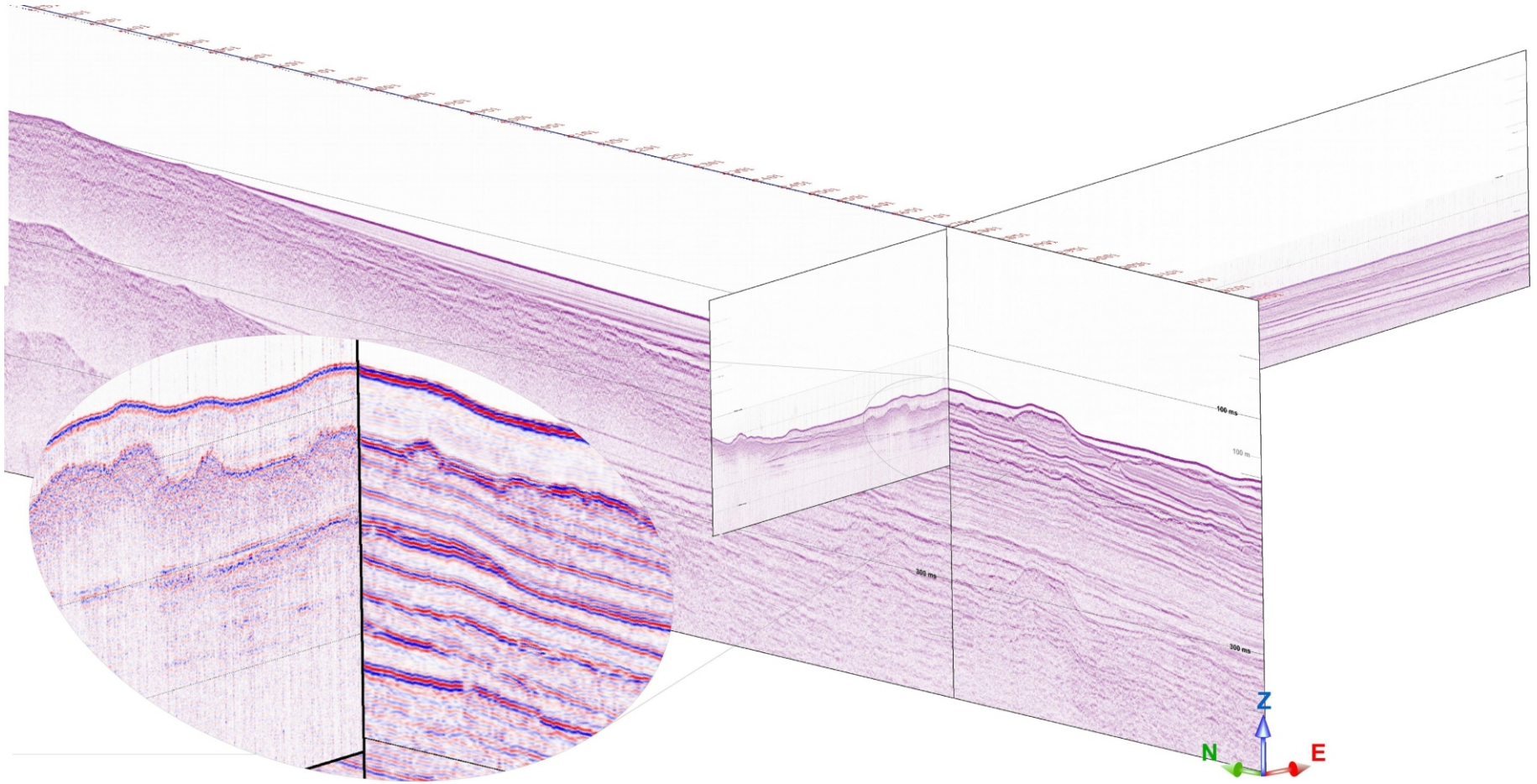
Phone: +31 10 425 83 70
Fax: +31 10 244 01 04

info@geo-resources.com
www.geo-resources.com

Approximately 500m

Comparison between the Sparker Geo-Spark 800 and a Chirp system.

Appreciate the difference of resolution and penetration.



Location: Elba Italy

Date: November 2004

Water Depth: 75 - 115 m

Courtesy of Danillo Morelli, Trieste University

Acquisition

Source: Geo-Spark 800
Power Supply: Geo-Spark 6 kJ
Recording System: Geo-Trace 2
Shot interval: 2 s
Record length: 1000 ms
Sample Rate: 6000 Hz

Sparker Processing

Frequency filtering
Gain
Swell filter
Muting

Display

Horizontal scale 1:5000
Vertical scale 1 cm = 25 ms
One scale line every 100 ms
Data displayed in 3D with OpendTect

Geo-Resources BV
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3023 CD Rotterdam
Netherlands

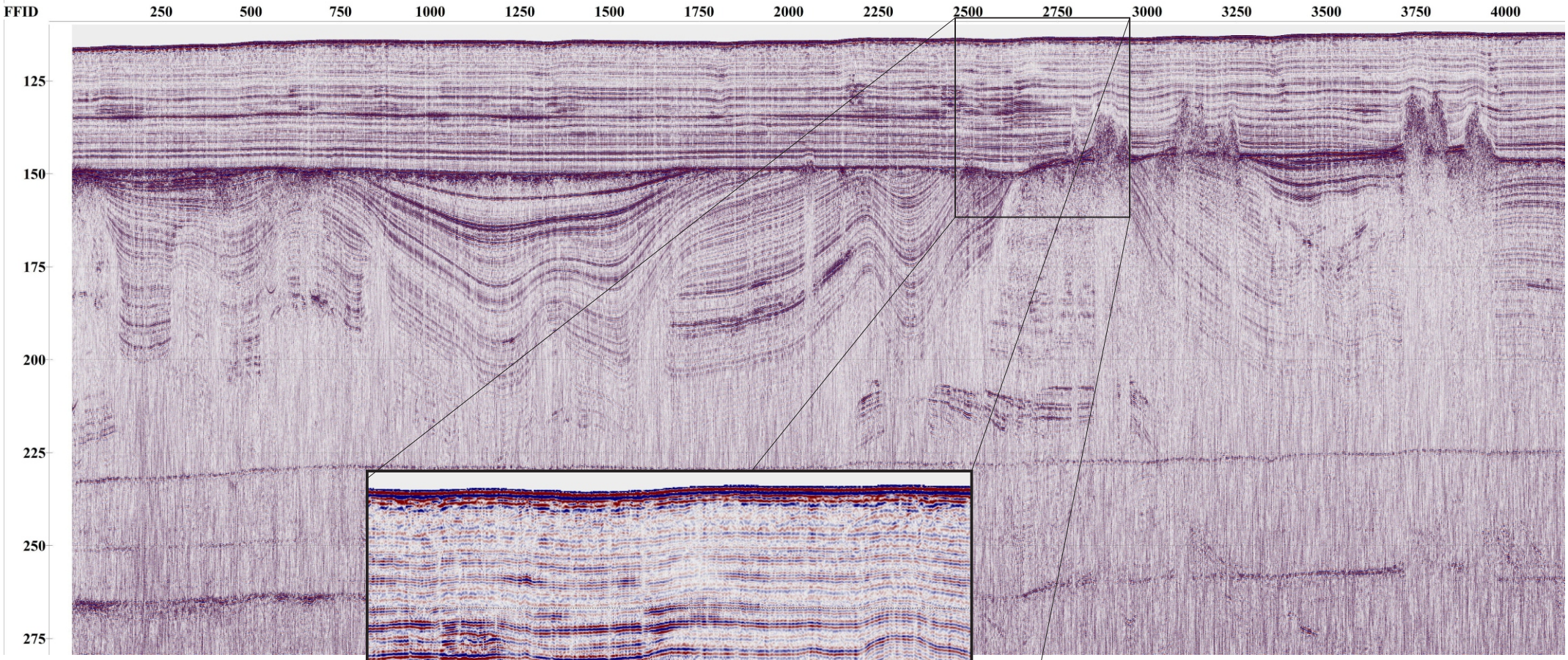
Phone: +31 10 425 83 70
Fax: +31 10 244 01 04

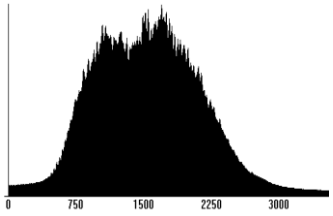
info@geo-resources.com
www.geo-resources.com

Elba Italy - November 2004

Approximately 200m

M03





Appreciate the frequency content up to 3000 Hz and the decimeter scale resolution

Sparker profile shot with the Geo-Source 200 LW using the Geo-Spark 1000 pulsed power supply

Energy: 300 J, Negative Discharge Technology

Vertical Scale in meters, Aspect ratio 1 :20

Location: Sicily, Gellasabbia
Date: May 2012
Geophysicist: Dr. Henrique Duarte