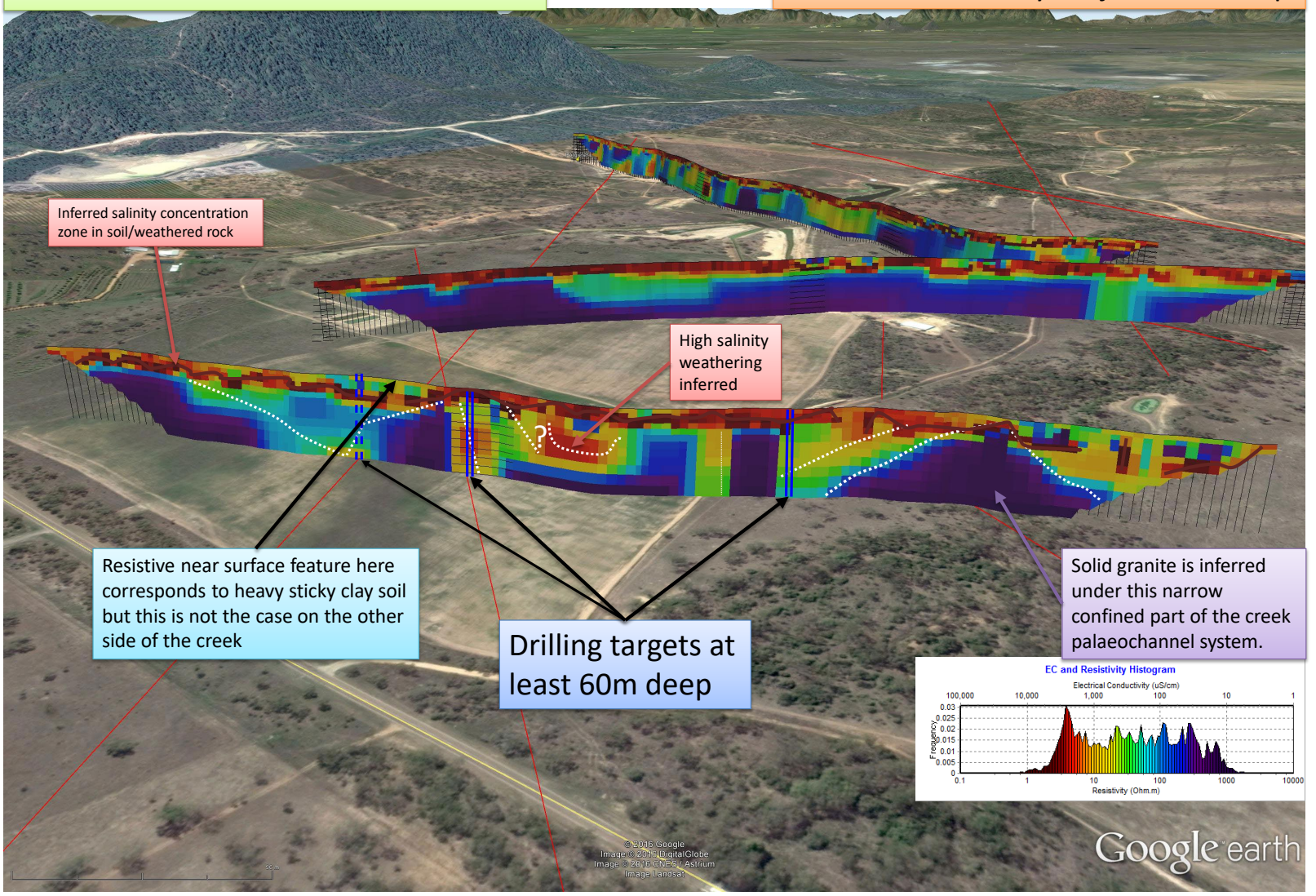
Direct Current Electrical Resistivity Tomography

North line viewed from the North West

Modelled Resistivity Projected 60m up



100m long cables are leap-frogged along a traverse.

ActEle16 boxes are used with buried cables, waterborne and small scale survey.

For groundwater, soil and weathered rock investigation, the Lippmann Earth Resistivity meter and Active Electrode System is idea for low capital cost exploration from centimetres deep to over 100m deep. It is ideal for time lapse moisture migration monitoring with or without Telemetry.

Groundwater Imaging configure ERT equipment for specialized applications in agriculture and mining.

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Geotest Direct Current Tomography Acquisition Software for Lippmann Earth Resistivity Meter.

GeoTest supports multielectrode measurements along a profile line (profiling, sounding), along 2-D grids (mapping), automatic time dependent measurements (monitoring) as well as GPS position measurements. Also custom made measurements are possible. GeoTest supports hardware manufactured by "LGM - Lippmann Geophysical Equipment". These are up to 255 active adressable electrodes. An extension supports HERBI waterborne system.

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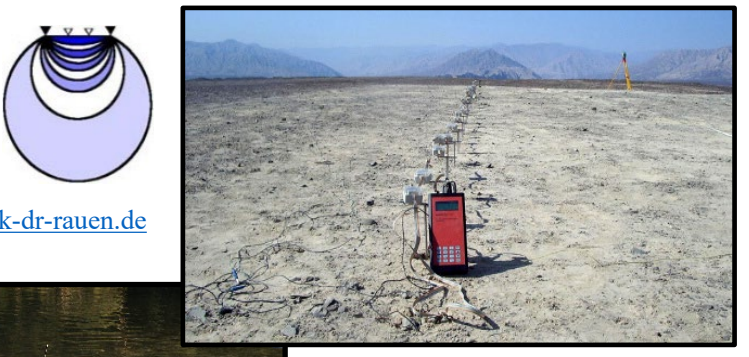

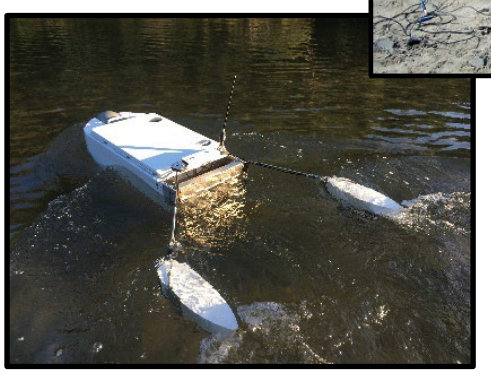

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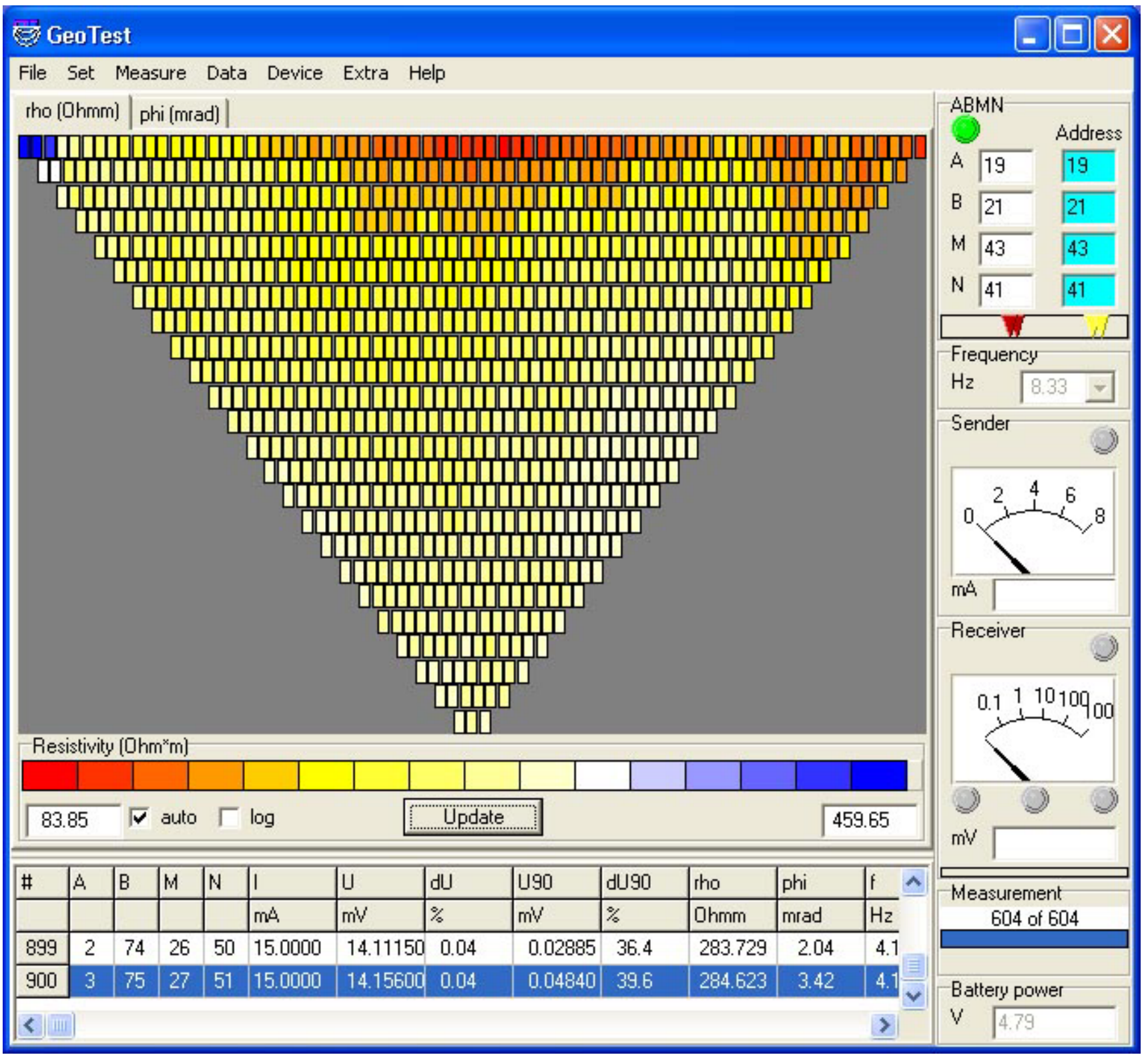

#	A	B	M	N	I	U	dU	U90	dU90	rho	phi	f
					mA	mV	%	mV	%	Ohmm	mrad	Hz
899	2	74	26	50	15.0000	14.11150	0.04	0.02885	36.4	283.729	2.04	4.1
900	3	75	27	51	15.0000	14.15600	0.04	0.04840	39.6	284.623	3.42	4.1

4-point light 10W

Earth Resistivty Meter for:
groundwater-prospecting
near surface geopysics
Archeology

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LGM Lippmann
Geophysikalische Messgeräte
Kornacker 4 D-94571 Schaufling
LIPPMANN@L-GM.de Tel. 49 - 9904 - 84076, Fax 8119802
WWW.L-GM.de

- **simple operation, ultra compact**
- **internal memory for > 150.000 readings**
- **measures complex resistivity**
- **16 frequencies**
- **10 watts output power**
- **fast mapping function**
- **various automatic modes**
- **versatile power supply**
- **full remote control**
- **low price**

742 Gramm
25 x 12 x 5 cm

data:
Size:- 25 x 12 x 5 cm
Weight - 742g
Display - 4x20 characters
isolated RS232-interface
full remote controll for all functions via isolated serial interface
interface for active electrodes for electrical resistivity tomography

transmitter:
frequencies: 0.2 - 30 Hz
constant output current - 1mA.....100mA, 8 steps
output voltage - max. 380V p-p, square wave

receiver:
lock-in-amplifier with in-phase/out-of-phase detection
transmitter cable crosstalk reduction
very high 16.66/50/60Hz suppression
simultaneous display of in-phase /out-of-phase - signal and statistical error
24Bit ADC
resolution to 50nV / 0.1 mrad, dynamic range >130dB
max. input voltage 1V p-p
accuracy better than 0.1%, full calibration feature for phase and amplitude for all frequencies
fast: data aquisition time: 1.5 sec/sample @ 1.04 Hz, less than 0.5 sec at 8.33 Hz
calculates apparent resistivity for various geometries
fast automatic mapping function
stand-alone tomography mode
Monitoring mode
Measurement of contact resistance

power supply
4 internal high capacity NiMH-AA-batteries
or external power supply 9 - 15 V, 1A
or AA alkaline batteries
3 hour quick charge of the internal batteries
average operating time with full batteries - 20 - 50 h, minimum 1.5 hours at maximum output power

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ActEle

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Active Electrodes for multielectrode tomography

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- internal buffer amplifier
- extremely high input impedance : >1GOhm @1Hz
- low crosstalk from current to voltage cables
- simple replacement of broken cables
- low power consumption: 350µA each electrode
- low cost
- includes stainless steel electrode

Support and training in Australia
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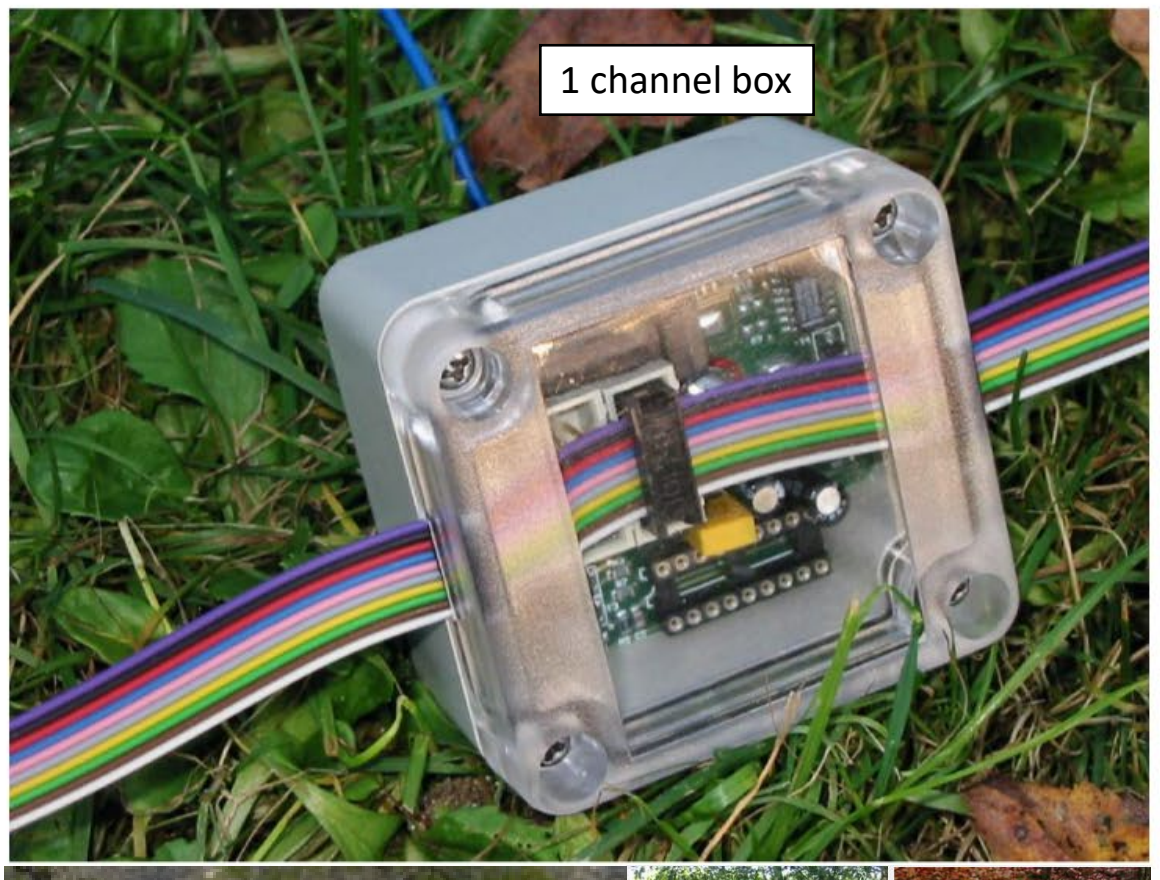

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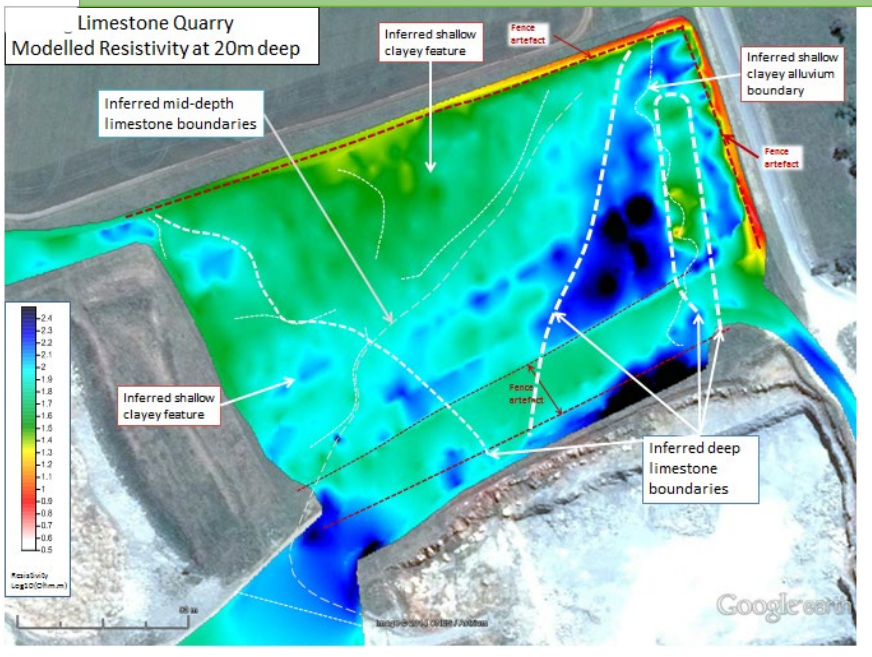
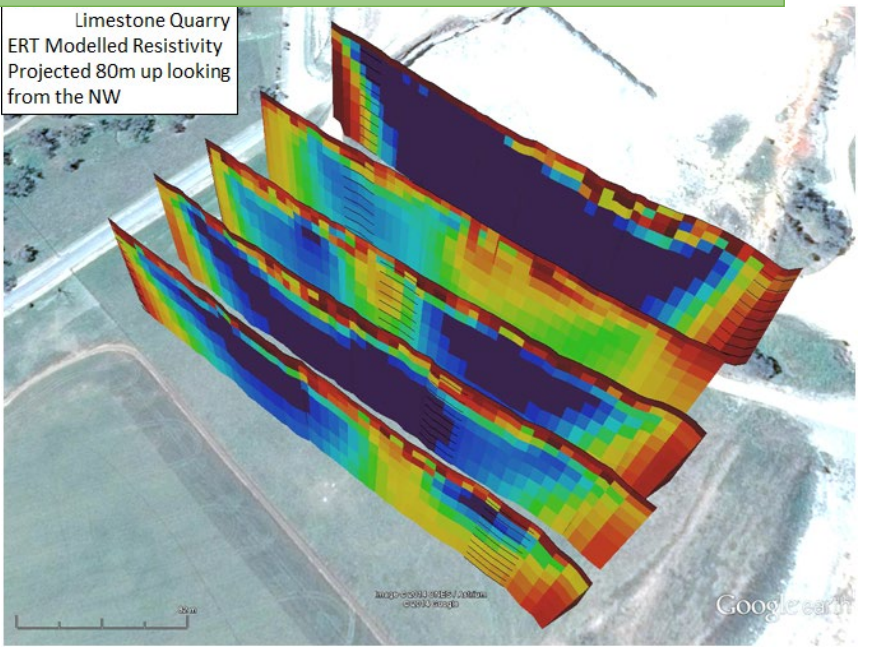
Comparison of Lippmann Resistivity, GPR & AgTEM ™

Limestone quarry blast pattern optimization



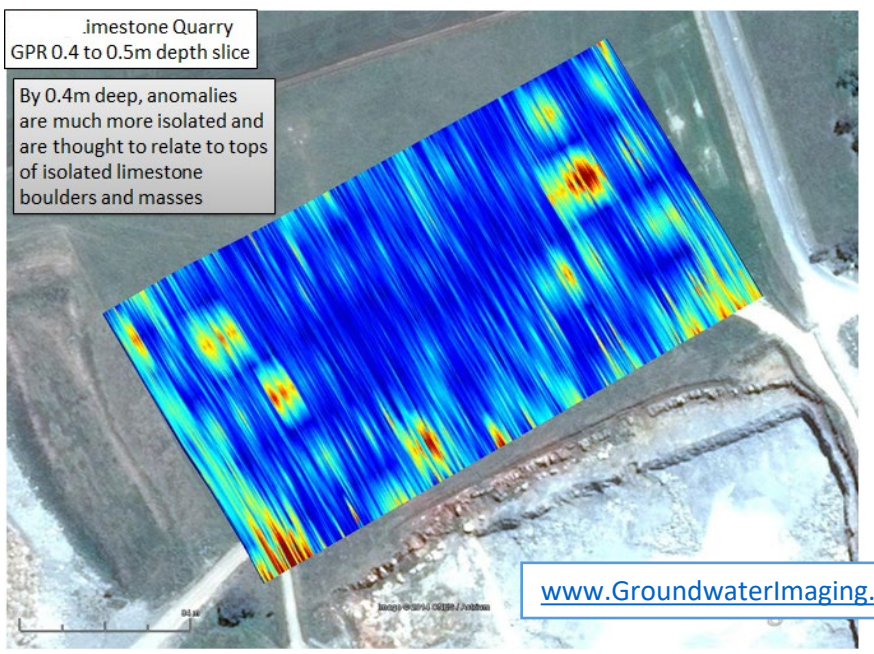
AgTEM @ 12m – 2 hours acquisition



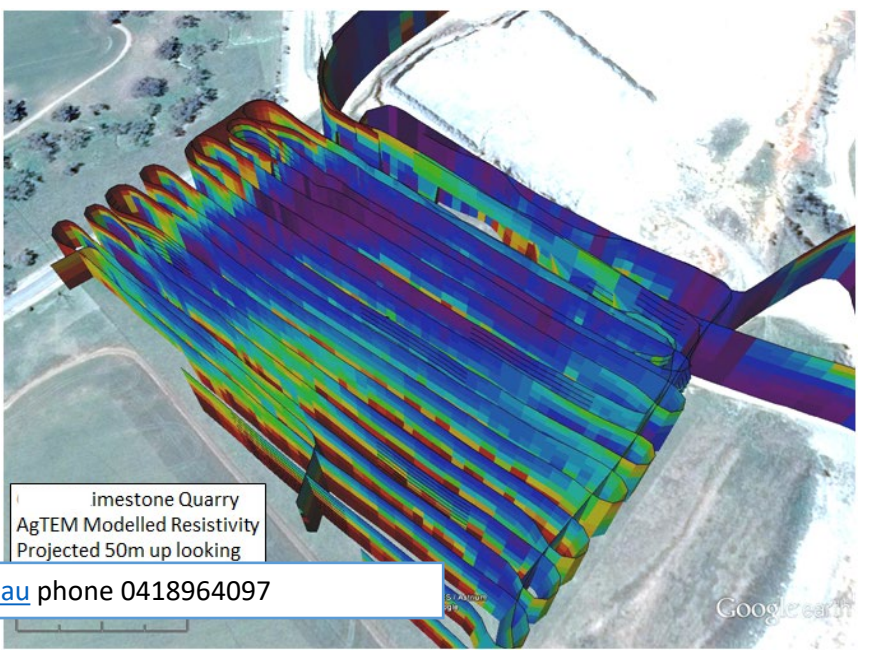
Resistivity survey using electrodes, 2 days

Three techniques were compared at one limestone quarry. AgTEM data provided the most detail at least cost. Ground penetrating radar could not effectively penetrate beyond 1m at this site. AgTEM arrives on site – is set up in less than 2 hours and surveys.

Ground Penetrating Radar – 250MHz



AgTEM 0 to 50m deep – 2 hours acquisition



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