

CLIENT

The project was initiated and coordinated by Guideline Geo's distributor in the region and the results show the ability of the TEM (Transient Electromagnetic) method to map the depth to a subsurface bedrock interface.

CHALLENGE

A remote survey area located 1000 m above sea level and with a gentle varying terrain was chosen for the evaluation of the ABEM WalkTEM instruments.

Knowledge of the geology in the survey area is sparse and only information from general geological mapping is available in the area. This information combined with local inspection of the geology during the field campaign works as a baseline in evaluation of the geophysical results.



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guidelinegeo.com/product/abem-walktem

SOLUTION

The fieldwork was conducted by a representative from Guideline Geo AB assisted by our local partner in the region, Mr. Najeeb Rashid Abdullah Al-Mugheiry representing Infinite Geological Solutions LLC accompanied by a field crew of four persons.

The equipment used for the survey comprised an **ABEM WalkTEM** Tx/Rx, a TX60 transmitter, RC5 and RC200 antennas and 40x40 m as well as 100x100 m transmitter loops. Transmitted current in Low Moment was 2 Amps and in High Moment 55 Amps.

The data were processed and inverted in Aarhus SPIA TEM software from Aarhus Geosoft and visualized in sections and horizontal sliced maps in Aarhus Workbench, also from Aarhus Geosoft.

RESULTS

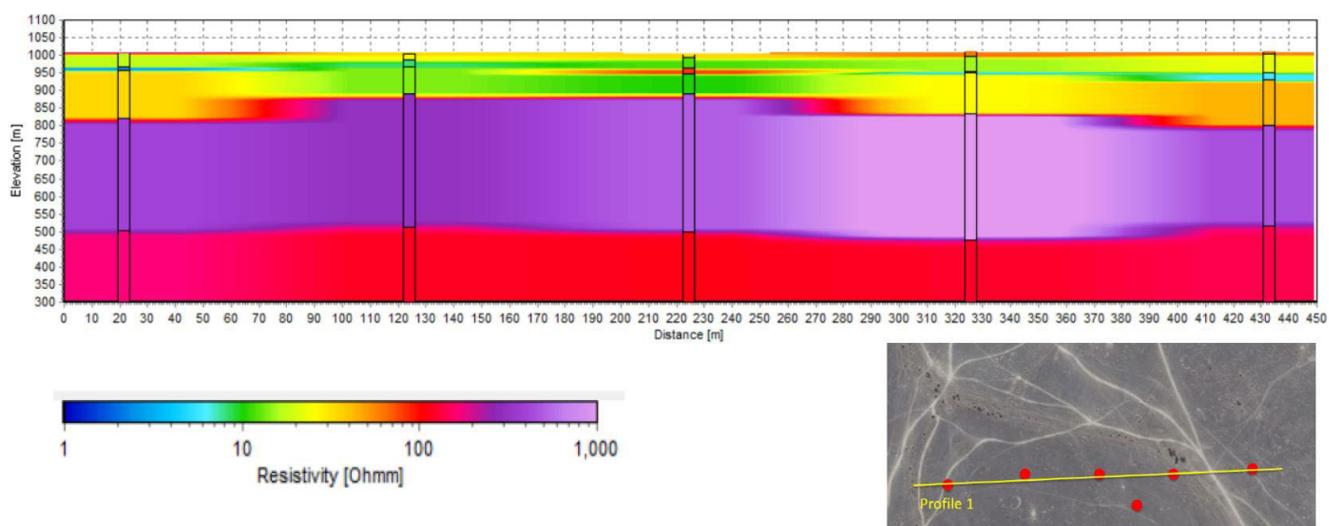
The geophysical result from the survey is visualized in the section below. The vertical bars indicate the TEM soundings along the section line.

Low resistivity layers (resistivity < 40-50 ohmm) reflect clay- or silt-rich layers. In this interval, decreasing resistivity reflects increasing content of clay/silt. High resistivity layers represent layers of sand, gravel, sandstone or limestone. The layer of very high resistivity seen from approx. 800 meters until 500 meters above sea level is interpreted as layers of sandstone or limestone above the groundwater table.

The drop in resistivity from >300 ohmm to 100 ohmm at approximately 500 meters above sea level is interpreted as the regional groundwater table located within a layer of sandstone or limestone.

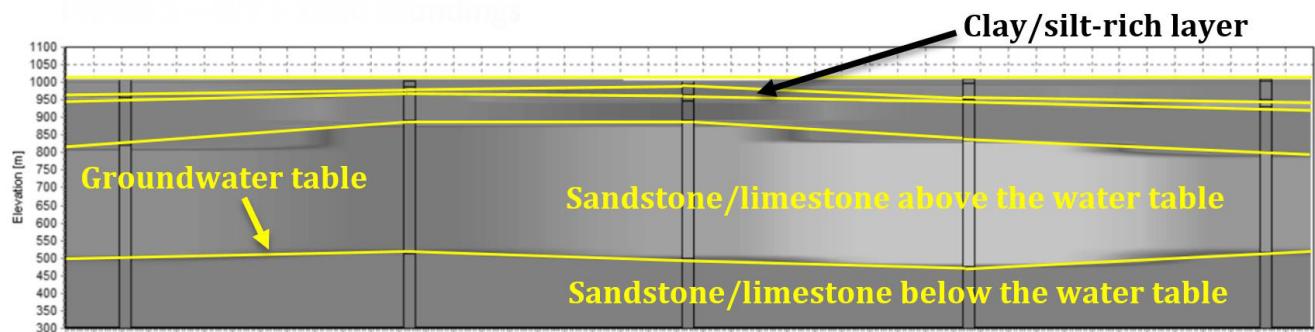
Geophysical results

Profile 1 - WT soundings



Based on the geophysical results, a preliminary interpretation of the limestone bedrock interface is produced:

Profile 1 - Geological interpretation



ACKNOWLEDGEMENT

Guideline Geo AB wishes to express our gratitude to Mr. Najeeb Rashid Abdullah Al-Mugheiry from Infinite Geological Solutions LLC based in Muscat, Oman for local liaison and valuable assistance when collecting the data.