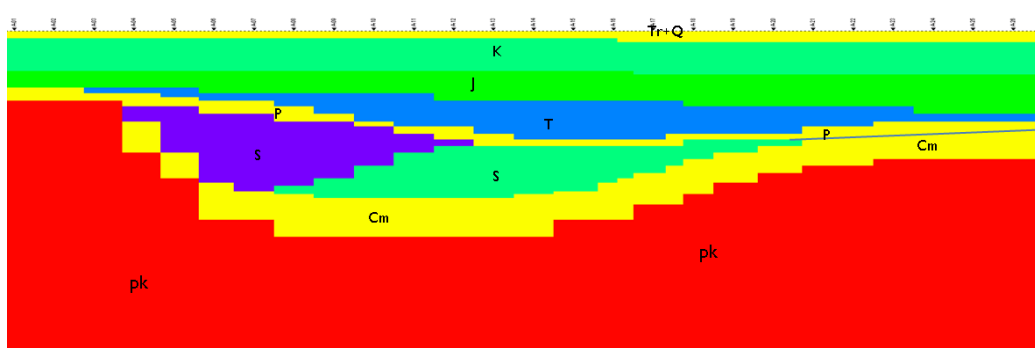


Shale gas exploration

PBG Geophysical Exploration Co. Ltd., offers and recommends **magnetotelluric survey for shale gas exploration** in Poland. The offer includes data acquisition, field data processing, interpretation of MT/AMT data and conceiving survey report after the completion of field work.

Magnetotelluric method is widely used for determination of resistivity from the earth surface up to several tens of kilometers. Resistivity of the geological medium depends mainly on lithology of rocks and kind of fluids filled their pores. The thickness of low-resistivity shale layers can be well defined with the use of magnetotelluric method. Additionally, lateral changes in resistivity of layers can be obtained by high-resolution detailed magnetotelluric survey.

Highly-qualified and experienced personnel provides survey at the highest industrial level. Our experienced and well-trained specialists guarantee the best performance of field work as well as data processing, survey report preparation and final report including results of advanced data processing and interpretation. Furthermore PBG employs high technology instruments at field work and modern hardware and software for data processing and interpretation. This enables us to offer the services on the highest quality level.



2D geoelectrical model based on high-resolution MT survey data with applied lateral changes in resistivity of layers



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Acquisition:

V8-6R, RXU-3E and MTU-5A data loggers (24-bit) with magnetic coils AMTC-30 and MTC-50 (Phoenix Geophysics Ltd.); 16-bit MT-1 EMI Inc. systems Electromagnetic Array Profiling .

Processing:

SSMT2000 (Phoenix Geophysics Ltd.) processing software with MT-Editor (EMRC/Phoenix Geophysics). Optionally WinGLink (Geosystem Srl., Italy).

Interpretation:

1D/2D and 3D modeling and inversion included with WinGLink system (Geosystem Srl., Italy) and some programs from EMI (f.ex. MT1D) and own developed by PBG.

shale gas exploration

MT DATA ACQUISITION

Cost-effective and detailed T-MT mode for high-resolution MT survey (telluric-magnetotelluric) is recommended.

MT DATA PROCESSING

Two programs for data processing are proposed: SSMT 2000 and MT-Editor. The SSMT2000 program takes as input raw time series files, calibration files and site parameter files. In an intermediate step it produces Fourier coefficients, which are then reprocessed with data from reference sites, using robust routines. The output is MT Plot files containing multiple crosspowers for each of the frequencies analysed. The MT-Editor takes as input the MT Plot files created by SSMT2000 and displays the resistivity and phase curves as well as the individual crosspowers that are used to calculate each point on the curves. MT-Editor allows to remove individual cross powers from calculations, so we can edit out poor quality data. The output is industry-standard SEG-EDI files suitable for use with geophysical interpretation software such as WinGLink.

INTERPRETATION

Final report is elaborated in a form of sections and maps presenting interpretation results, together with geological and prospecting conclusion based on interpretation results. 1D interpretation will be made with the use of smooth and detailed inversion algorithms. For 2D interpretation, NLCG (Non-Linear Conjugate Gradients) and SBI (Sharp Boundary Inverse) methods will be used. For special causes, when sufficient grid of MT station will be available, 3D forward modeling can be made to verify 1D/2D results. 1D/2D/3D interpretation will be made with the use of WinGLink system.

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