



Thermal conductivity anisotropy of sediments in NW Poland

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Thermal conductivity (TC) is required for Heat Flow Density determination. Even though a lot of data were gathered they show the large scattering in wide range of values. For local scale modeling the representative data aren't sufficient therefore it is necessary to control this parameter with laboratory measurements at the rock samples. At the project analyzing the thermal structure of Polish Lowland in NW Poland there were used the synthetic curves calculated on the base of porosity and lithology information using geophysical logs. There were verified three of the holes located in the neighborhood of modeled profile. Measurements were provided using the Optical Scanner. The main interest were put on the shale's samples because of the biggest span between TC curve and old lab tests within such intervals. There were also analyzed anisotropy of thermal conductivity in the rock sample. Anhydrites and shales showed the highest thermal conductivity anisotropy among the whole population which achieved 17%. Application of corrected data and the 17% of TC anisotropy in the thermal model allowed to obtain better agreement of calculated and observed Surface Heat Flow at the result.