



## **Location of loosely-aggregated zones in the crystalline basement by temperature logging**

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High-precision temperature logging in deep and superdeep wells has permitted the study of the thermal regime in the granite-gneiss layer of the earth's crust. Both vertical and lateral extents of permeable zones in the basement have been determined. It has been recommended by the authors that the located depth intervals containing significant temperature anomalies be tested as promising. Some of them have produced fluids. Recent temperature data from the crystalline basement penetrated by the parametric wells in 2002 and 2004 have confirmed the existing theory that the granite-gneiss layer of the earth's crust is not monolithic. Temperature logs of the Archean and Proterozoic display the anomalies of temperature and thermogradient recorded in both restored and non-restored thermal regimes. Numerous wells have repeatedly been logged. Generally, excellent repeatability had been recorded for both log shape and true temperature at certain depth marks and the distribution of temperature and thermogradients - all indicating the long-term, stable processes in the earth's crust. Most anomalies are associated with permeable zones and can serve as a reliable reservoir indicator. Similar shapes and amplitudes of the T-anomalies, detected within various tectonic formations are most likely to indicate similar processes taking place in the permeable zones. It has been discovered that the distance between very similar series of anomalies in the crystalline basement can be quite long. These series can be interpreted as very extensive loosely-aggregated zones. This means that the granite-gneiss layer can possibly contain huge hydrocarbon reservoirs, up to several tens of kilometers long.