# GEOTHERMIC INVESTIGATIONS IN RUSSIAN SCIENTIFIC DRILL HOLES

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Geothermic investigations in Russian scientific drill holes1POPOV, YU.A., 2PEVZNER, L.A., 2KHAKHAEV, B.N. 1Moscow State Geological Academy, Moscow, Russia; 2Federal State Unitary Enterprise Scientific-Industrial Center for Superdeep Drilling and Comprehensive Studies of the Earth's Interior Nedra, Yaroslavl, RussiaIn all scientific drill holes of Russia multiple temperature measurements were made while drilling and during several years after its completion. We developed a new technology to study thermal properties by core and analyzed large quantities of core samples from all scientific drill holes.Experimental geothermic information enabled to obtain data on a heat regime of massifs and heat/mass transfer processes in them which were different from the previous ones. We discovered considerable local vertical variations of a heat flow testifying of a complex combination of convective and conductive mechanisms of heat transfer in the massifs as well as an active influence of fluids on the heat regime even at big depths. Density of a deep heat flow considerably (up to 40-100% depending on a drilling site) exceeds former estimates made by the results from geothermic investigations in shallow holes. A monotonous growth of conductive heat flow from 23-25 to 60-70 mW/m×m was recorded with depth in the Ural Well. A thermal anisotropy of rocks conditions a complex spatial distribution of the heat flow.The time which is required for a temperature gradient to approach its equilibrium values is essentially shorter than the one for absolute temperature values. High stability of temperature gradient during all the time after completion of drilling was observed in different depth intervals. A stability level of the temperature gradient depends on permeability of the massif, migration of fluids and water show which allowed to obtain important hydrogeological data. As a result new predictions were made about deep temperatures.