

Reinvestigation of Estimation Method of Heat Flux by One-dimensional Heat Flow Models

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Abstract

We modified the estimation procedure of heat flux by a one-dimensional heat flow model which Umeda et al. (2003) used in accordance with Bredehoeft and Papadopoulos (1965) to estimate the heat fluxes for wells again. We also estimated the heat fluxes using the one-dimensional heat flow model of Clauser and Villinger (1990).

Large fluctuations of temperature distribution in wells result in the differences of the heat flux estimates between two methods by around twenty percent. Nevertheless, the results of analyses coincide with Umeda et al. (2003) in that the resulted heat flux distribution of whole Japan resembles that of Umeda et al. (2003) and in that the heat fluxes in the volcanic/geothermal regions are enhanced by fluid flows to be around ten times larger than in heat conduction dominated regions.