Geothermal anomaly due to a cylindrical obstacle buried in the halfspace with groundwater flow

M. Hvoždara
Geophysical Institute of the Slovak Academy of Sciences[1]

A b s t r a c t : We present analytical solution of two coupled potential problems: groundwater flow and geothermal disturbance affected by an partly permeable circular cylinder buried in the uniform halfspace. The solution is performed in the bipolar co-ordinate system and physical fields are represented by Fourier series. Numerical results show disturbance of the velocity of groundwater flow and combined refraction and convective anomalies in geothermal gradient around the cylinder.

Key word: geothermics, groundwater flow, hydrothermal anomalies, analytical methods

[1] Dúbravská cesta 9, 845 28 Bratislava, Slovak Republic; e-mail: geofhvoz@savba.sk