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# Res. Agr. Eng.

**Adamovský R., Mašek  
L., Neuberger P.:**

**Analysis of rock mass**

# with vertical heat exchanger

Res. Agr. Eng., 58 (2012): 57-65

The goal of the article is to analyze the distribution and changes of temperatures in boreholes with the rock mass/fluid tubular heat exchangers used as an energy source for the heat pump. It also aims at documenting changes of temperatures in the rock mass during stagnation and heat extraction, and to compare the temperatures in the active and referential borehole. The testing results showed that temperatures of the rock mass reached a minimal value of  $1.3^{\circ}\text{C}$  at depths of 9 m and 20 m with maximal heat extraction corresponding to minimal air temperatures. The temperatures of the rock mass increased near the end of the heating season to values which correspond to the initial values. The temperature differences of the rock mass between the reference borehole and active boreholes increased to up to 10.5 K during the heating season. However, the temperature differences at the end of the heating season between

the reference and active boreholes  
dropped back to 0.5– 1.1 K.

## Keywords:

geothermal; heat pumps; temperature  
laps rate; thermal conductivity; thermal  
resistance; heat capacity

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