Geophysical Research Abstracts
Vol. 18, EGU2016-9557, 2016
EGU General Assembly 2016

Hydrochemical changes in thermal waters of the Western Pannonian Basin

Ágnes Rotárné Szalkai (1) and Lajos Ó.Kovács (2)
(1) (szalkai.agnes@mfgi.hu), (2) (lajos.okovacs@mbfh.hu)

The Western part of the Pannonian Basin has favourable geological, hydrogeological and geothermal conditions for thermal water utilizations. Thermal water is usually used for balneology, however, energetical utilizations still has smaller importance. Based on the dominance of balneological usage, the single-well utilization scheme is widespread. There are only a few reinjection wells operating in the region. Due to the continuous thermal water abstractions of the last 50 years in some sub-regions groundwater heads are significantly decreased and new thermal water aquifers started to contribute to thermal wells.

The newly activated aquifers in some cases lead to changes in the hydrochemical composition of thermal water. Mixtures of different chemical types of thermal water are the results of these changes. To characterise the changing process, time series of selected chemical components were created. In addition, studying the hydrochemical composition of thermal waters, end-members of the changing process were identified. In the investigation classical hydrogeochemical graphical methods were combined with cluster analysis.

Identifying the potential mixing end-members, hydrochemical models were developed applying PHREEQC to simulate the process and follow the ongoing changes.