

Reservoir Temperature Calculation of Immature Geothermal Water from Hot Spring Around the Slamet Volcano

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Abstract	<p>The temperature of some geothermal reservoirs around Slamet Volcano can be estimated from hot spring water geochemistry around it. Calculation of reservoir temperature from immature hot water samples has the potential to cause uncertainty. This is due to a mixture of geothermal water and meteoric water. The manifestation of the geothermal water appears in several different places, including on the southern slope of Slamet Volcano which consists of Pancuran-7 and Pancuran-3 Hot Springs. On the northwest slope of Slamet Volcano, several manifestations also appear, namely Pancuran-13 and Pengasih in the Guci Area and Sigidong Hot springs in Sigidong Area. This study uses geochemical methods of geothermal water and hot springs water sample data from previous studies for analysis of geoindicators and geothermometers. Reservoir temperature calculation is based on the content of silica and enthalpy of immature geothermal water and meteoric water in the study area. Based on the Cl-Li-B geoindicator analysis, it was interpreted that there were 3 geothermal systems with different reservoirs around Slamet Volcano, namely the Baturaden, Guci and Sigidong Systems. Based on the Na-K-Mg plot for the geothermometer, the five hot springs around Slamet Volcano are included in the immature water group. Based on the enthalpy vs. silica analyses, the geothermal reservoir temperatures for Baturaden, Guci, and Sigidong are 204 degrees C-210 degrees C, 187 degrees C-196 degrees C and 181 degrees C.</p>
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