

***Estimation of Geothermal Reservoir Temperatures and Fluid Characteristics
Based on Geochemical Analysis of the Manifestation Area of Blawan Ijen***

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ABSTRACT

One of the alternative energy sources that can be pursued is to utilize geothermal energy as a sustainable and environmentally friendly raw material for power generation, which is estimated to have a potential in Indonesia of 28.5 GW. This study aims to determine the temperature of reservoirs in the research area and fluid reservoir characteristics using three manifestation samples in the form of hot springs in Blawan Hamlet, Sempol District, Bondowoso Regency, East Java Province with the research coverage area located at the coordinates of LS - 7.9854593° to LS -7.988550° and BT 114.1758462° to BT 114.180654°. The method used for determining the temperature of the reservoir is the geo-thermometer method while the method for determining fluid characteristics uses the geoindicator method. The elements / compounds analyzed were Na, K, Ca, SiO₂, Cl⁻, SO₄²⁻, Li, B, Mg, HCO₃⁻. The results of the analysis that have been carried out show that the reservoir temperature in the study area based on the na / K / Ca geothermometer equation in the samples APBI 1, APBI 2 and APBI 3 respectively is 175.788 ° C, 162.439 ° C and 178.490 ° C, which are classified as reservoirs with moderate enthalpy. Based on the geoindicator equation Cl-SO₄- HCO₃ shows that the hot spring type in the three samples of the research area is the bicarbonate spring type. The fluid in the three hot spring samples came from the upflow zone and the fluid equilibrium in the three hot spring samples of the study area was included in the immature water zone.

Keywords: Blawan. Geothermometer. Geoindicator. Reservoir. Temperature.