

**DETERMINING UPFLOW/OUTFLOW ZONE AND FLUIDS FLOWS IN  
GEOTHERMAL PROSPECT AREA BASED ON GEOINDICATOR  
COMPARISON VALUE: A CASE STUDY OF MT. TELOMOYO, CENTRAL  
JAVA, INDONESIA**

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**ABSTRACT:** Mt. Telomoyo is situated in Magelang Regency, about 400 kilometers from Jakarta. In the studied area, eight geothermal surface manifestations were found, consist of four hot springs and four cold springs. This research aims to identify upflow and outflow zones of geothermal area using compared value of geoinicator and tracer obtained from sampled of geothermal surface manifestations, and also to identify fluids flow of Mt. Telomoyo geothermal system. The method used in this research is to compile geoinicator comparison results, which are B/Li, Cl/B, Na/Ca, Cl/SO<sub>4</sub>, SO<sub>4</sub>/HCO<sub>3</sub>, and Na/K. Comparison results are then converted into geoinicator comparison maps. Fault and fracture is used to identify density of lineament, also direction of lineament where manifestation found. Afterward overlaid geoinicator maps and FFD maps is correlated to identify upflow/outflow zone and flow trend of geothermal fluid. The result of this research shows that the upflow zone in study area is located beneath Mt. Telomoyo, the upflow zone has high density of lineament. Furthermore, the outflow zones are found with two tendencies. The major trend of outflow is directed toward the western part of upflow zone, where geothermal manifestation APPD and APCU were found in ENE-WSW direction. The other outflow trend is directed toward the northeastern part of interpreted upflow zone, where geothermal manifestation APCD-1 and APCD-2 were found in NNW-SSE direction.

**Keywords:** Mt. Telomoyo, Geothermal, Upflow/Outflow Zone, Geoinicator, Fluids Flow