

*1D RESISTIVITY STRUCTURE INVERSE MODELING
MAGNETOTELLURIC DATA IN JAILOLO GEOTHERMAL FIELD,
HALMAHERA*

ABSTRACT

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*Process with 1D inverse modeling method was used to make resistivity structure model for Jailolo geothermal field from magnetotelluric data which the data (standard file *.EDI) consist of pseudo resistivity, phase and period. Data converted by macroexcel software to use in 1D inverse modeling with IP2Win MT software. Using data MT 5, the line cut Caldera Idamdehe as the expected center of Jailolo Geothermal system and supported by manifestation at the peak and surround Mount Jailolo.*

As the subsurface imaging, this 1D resistivity structure model can identify the lithology in geothermal system (caprock, reservoir and heatsource). The caprock in Jailolo geothermal field has resistivity value $< 10 \text{ m}$, reservoir has range of resistivity between $10 - 30 \text{ m}$, and the heatsource has resistivity $> 60 \text{ m}$. From the resistivity value identified the border between caprock and reservoir called BOC (Base of Conductor) with the various depth and thickness for each measurement points. The depth are interpolated to be the depth of BOC dispersion map and isopach map then the updoming pattern that centered in the caldera Idamdehe can be seen and then the upflow direction from the Jailolo geothermal field can be interpreted. The updoming has shallow BOC depth caused by igneous rock intrusion and the thin thickness is caused by boiling process.

Keyword : Resistivity structure model, Jailolo geothermal system, BOC