

Inversi 2-dimensi data magnetotelurik untuk merekonstruksi model reservoir geotermal

Rachman Saputra, author

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Abstrak

Telah dikembangkan program inversi dan program forward-modeling data MT 2D. Program inversi telah dites menggunakan data sintetik (dari program forward-modeling) dan data lapangan (daerah geotermal Sibayak) dengan hasil terbukti mampu memetakan bawah permukaan. Program inversi yang dibuat digunakan untuk menginversi data MT lapangan geotermal Sibayak, Sumatra Utara. Hasil inversi tersebut digunakan untuk membuat penampang 2-D distribusi resistivitas bawah permukaan. Model yang diperoleh kemudian diinterpretasi dengan bantuan data sumur dan data geologi. Hasil interpretasinya adalah zona up-flow terdapat di sebelah utara, dekat Gunung Sibayak, sedang zona out-flow berada di sebelah selatan. Rekomendasi pengeboran diberikan untuk daerah di sebelah utara. Rekomendasi reinjeksi fluida diberikan untuk daerah di sebelah selatan.

<hr>A 2-D MT Software for inverse and forward-modeling has been developed. The inversion program was tested using both synthetic data (from forward-modeling software) and real data (from Sibayak geothermal area) resulting conclusion that the inversion program was capable reconstructing subsurface model. The inversion program was used to invert Sibayak geothermal MT data. The inversion result was used to produce cross-section model of subsurface resistivity distribution. The model derived was then interpreted by incorporating borehole and geology data. Interpretation results are: up-flow zone is situated in the northern side near Mount Sibayak, while out-flow zone is situated in the southern side. Drillings are recommended to be located in northern area. Geothermal brine reinjection is recommended to be located in southern area.