



INTISARI

Analisis Data Magnetik di Sekitar Danau Linau, Lapangan Panasbumi Lahendong, Sulawesi Utara

Oleh

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Danau Linau terletak di area lapangan panasbumi Lahendong, Tomohon, Sulawesi Utara. Wilayah Danau Linau terdapat beberapa manifestasi panasbumi, seperti fumarol dan air panas. Pengukuran metode magnetik bertujuan untuk mengetahui kondisi bawah permukaan di daerah Danau Linau.

Pengukuran metode magnetik dilaksanakan selama 4 hari, spasi pengukuran 20 meter, dan menggunakan PPM tipe Geotron G-5 dan PPM Geomteric G-856. Pengukuran metode magnetik dilakukan di tiga area dengan jumlah titik yang terukur adalah 87 titik. Area 1 (barat) terdapat 45 titik, area 2 (utara) terdapat 22 titik, dan area 3 (timur) terdapat 20 titik. Pengolahan data dimulai dengan koreksi variasi harian dan koreksi IGRF untuk mendapatkan anomali medan magnet total. Langkah selanjutnya adalah kontinuitas ke atas sampai ketinggian 25 meter di atas permukaan. Hasil dari kontinuitas ke atas adalah anomali regional. Anomali residual dihasilkan dari anomali medan magnet total dikurangi dengan anomali regional. Interpretasi dilakukan secara kualitatif dan kuantitatif. Interpretasi kualitatif dilakukan dengan menganalisis peta anomali residual. Interpretasi kuantitatif dilakukan dengan pemodelan menggunakan program Geosoft.

Proses interpretasi kualitatif menghasilkan lokasi benda penyebab anomali yang didasarkan dari peta anomali residual. Hasil interpretasi kuantitatif adalah model bawah permukaan dan nilai susceptibilitas (k) dalam SI. Hasil pemodelan untuk setiap area adalah area 1 (*error* 6,881%) terdapat tuf (0,000005), andesit (0,000012), basaltik (0,000032), dan mikrodiorit (0,000051). Area 2 (*error* 1,458%) terdapat tuf (0,000002), andesit (0,0000053), basaltik (0,00003), dan mikrodiorit (0,000025). Area 3 (*error* 5,24%) terdapat tuf (0,00001), andesit (0,0008), basaltik (0,00006), dan mikrodiorit (0,000001).

Kata kunci: Danau Linau, Lahendong, Panasbumi, Metode Magnetik, Suseptibilitas

ABSTRACT

Analysis of Magnetic Data in Around Linau Lake, Lahendong Geothermal Field, North Sulawesi

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Linau Lake is located in the Lahendong geothermal field area, Tomohon, North Sulawesi. Linau Lake area there are several geothermal manifestations such as fumaroles and hot water. Measurement of magnetic method aims to determine subsurface conditions in the area of Linau Lake.

The measurement of magnetic method has been done for 4 days, measurement space of 20 meters, and using the PPM Geotron G-5 and PPM Geomeric G-856. Measurement of magnetic methods has been done in three areas with amount of stations are 87 stations. Area 1 (west) has 45 stations, area 2 (north) has 22 stations, and area 3 (east) has 20 stations. Data processing started by correcting IGRF and diurnal variation to achieve total magnetic filed anomaly. Then, upward continuation to height 25 meters above ground level. The result of upward continuation is regional anomaly. The residual anomaly is get by subtracting the total magnetic anomaly and regional anomaly. Data Interpretation has been done qualitatively and quantitatively. Qualitative interpretation has been done by analyzing the residual anomaly map. Quantitative Interpretation has been done by residual anomaly modeling using Geosoft program.

The result of qualitative interpretation is location of the objects that causes anomalous based on the residual anomaly map. The result of quantitative interpretation are models of the subsurface and the value of suspetibilities. The result of modeling and the value of suspetibilities (k) which calculated in the SI for each areas are area 1 (error 6.881%) has tuff (0.0000005), andesite (0.000012), basaltic (0.000032), and microdiorite (0.000051). Area 2 (error 1.458%) has tuff (0.000002), andesite (0.0000053), basaltic (0.00003), and microdiorite (0.000025). Area 3 (error 5.24%) are tuff (0.00001), andesite (0.0008), basaltic (0.00006), and microdiorite (0.000001).

Keywords : Linau Lake, Geothermal, Lahendong, Magnetic Method, Suseptibility.