

ABSTRAK

Penelitian menggunakan metode magnetik telah dilakukan di daerah prospek batuan andesit Kecamatan Kutasari Kabupaten Purbalingga. Penelitian ini bertujuan untuk menentukan peta sebaran dan memodelkan stuktur bawah permukaan batuan beku andesit berdasarkan data anomali magnetik lokal yang telah di reduksi ke kutub. Teknik reduksi ke kutub dilakukan untuk memudahkan proses interpretasi data magnetik. Tahapan yang dilakukan untuk mencapai tujuan penelitian adalah tahap pengolahan data, pemodelan dan interpretasi. Pengolahan data yang dilakukan yaitu koreksi harian, koreksi IGRF, reduksi ke bidang datar, reduksi efek regional, dan reduksi ke kutub. Proses reduksi ke kutub dilakukan terhadap data anomali magnetik lokal dengan memasukkan nilai sudut inklinasi dan sudut deklinasi daerah penelitian. Anomali medan magnetik lokal yang telah melalui proses reduksi ke kutub di Kawasan penelitian memiliki nilai anomali magnetik dari -1084,1 nT hingga 2038,2 nT. Anomali reduksi ke kutub menunjukkan pola yang maksimum berada di atas benda penyebab anomali serta menunjukkan pola anomali dengan batas antar anomali secara lateral digambarkan lebih tegas. Data anomali magnetik lokal hasil reduksi ke kutub dimodelkan menggunakan software Geosoft Oasis Montaj v. 8.4. Struktur geologi bawah permukaan hasil pemodelan serta interpretasi pada sayatan A-A', B-B', dan C-C' menunjukkan lapisan batuan dengan ketebalan dan kedalaman yang berbeda. Diperoleh lava andesit masif dan lava andesit vesikuler/berongga dari Formasi Lava Gunungapi Slamet memiliki suseptibilitas 0,02307 (cgs) dan 0,00291 (cgs) serta batuan vulkanik dari Formasi Lava Gunungapi Slamet Tak Terurai memiliki suseptibilitas 0,00721 (cgs). Sayatan A-A' terletak pada bagian barat daerah penelitian dimana memiliki ketebalan lava andesit masif yang besar sehingga menunjukkan daerah tersebut daerah yang paling prospek batuan andesit.

Kata Kunci : anomali magnetik, reduksi ke kutub, lava andesit, formasi lava Gunungapi Slamet, Kecamatan Kutasari.

ABSTRACT

Research using magnetic methods has been carried out in the andesite rocks prospect area of Kutasari District, Purbalingga Regency. This study aims to determine the distribution map and model the subsurface structures of igneous andesite rocks based on local anomaly data that has been reduced to the pole. Technique reduced to pole is used to simplify the process of interpreting magnetic data. The steps taken to achieve the research objectives are the stages of data processing, modeling, and interpretation. Data processing is performed out are diurnal corrections, IGRF corrections, reduction to horizontal surface, upward continuation, and reduction to the poles. The process of reduction to pole is carried out by entering the inclination angle and declination angle of the study area. The local magnetic field anomaly which has been reduced to the poles in the study area has a value that varies from -1084,1 nT to 2038.2 nT. The anomaly of reduction to the poles shows a pattern that is maximum above the object causing the anomaly and shows an anomalous pattern with the boundary between anomalies laterally defined more firmly. The local magnetic anomaly data that was reduced to the poles were modeled using Geosoft Oasis Montaj v software. 8.4. The subsurface geological structure from the modeling and interpretation of the A-A', B-B', and C-C' sections shows rock layers with different thicknesses and depths. Massive andesite lava and vesicular/hollow andesite lava were obtained from the Slamet Volcanic Lava Formation having susceptibility 0.02307 (cgs) and 0.00291 (cgs) and volcanic rock from the Slamet Undegraded Volcanic Lava Formation having 0.00721 (cgs) susceptibility. The A-A' incision is located in the western part of the study area where it has a large thickness of massive andesite lava so that it shows that the area is the area with the most prospects for andesite rock.

Keywords: magnetic anomaly, reduction to the pole, andesite lava, Slamet Volcano Lava Formation, Kutasari District.