

INTERPRETASI STRUKTUR BAWAH PERMUKAAN DENGAN METODE GEOMAGNET DI JALUR SESAR OYO

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ABSTRAK

Penelitian ini dilakukan di kawasan jalur Sesar Sungai Oyo Yogyakarta yang mencakup Kecamatan Imogiri, Kecamatan Dlingo, Kecamatan Panggang dan Kecamatan Paliyan. Tujuan dari penelitian ini adalah mengetahui pola sebaran anomali medan magnet di sekitar jalur Sesar Oyo, mengetahui susunan formasi batuan di wilayah sekitar jalur Sesar Oyo, dan mengetahui jalur Sesar Oyo berdasarkan pemodelan geomagnet.

Pengambilan data dilakukan menggunakan PPM pada tanggal 14 – 15 Maret 2016 dengan 35 titik pengamatan dan spasi antar titik pengamatan 1,5 km. Pengolahan data dilakukan dengan koreksi variasi harian, koreksi IGRF, reduksi ke kutub dan kontinuitas ke atas. Pemodelan dilakukan dengan menganalisa anomali medan magnet yang telah direduksi ke kutub dan kontinuitas ke atas dengan ketinggian 2500 m.

Hasil analisa menunjukkan rentang nilai anomali medan magnet di kawasan penelitian adalah 180 nT – 660 nT. Hasil pemodelan 2D menunjukkan kawasan penelitian didominasi oleh 3 formasi batuan utama yaitu batubasalt-andesitik Formasi Nglanggran, batupasir Formasi Sambipitu, dan batugamping Formasi Wonosari. Hasil pemodelan 3D menunjukkan Sesar Oyo merupakan sesar geser dengan kedalaman 150 – 300 m, jalur sesar tersebut terbagi menjadi 2 segmen yaitu dengan arah N120°E sepanjang 5,8 km dan N160°E dengan panjang 2,5 km.

Kata kunci : geomagnet, formasi batuan, Sesar Oyo.

SUBSURFACE INTERPRETATION USING GEOMAGNETIC METHOD IN OYO FAULT

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ABSTRACT

This research had been conducted in Oyo River Fault area which include Imogiri Sub District, Dlingo Sub District, Panggang Sub District, and Paliyan Sub District. The aims of this study were to determine the distribution of magnetic field anomaly around Oyo Fault line area, to determine the structure of rocks around Oyo Fault line area, and to identify Oyo Fault line based on geomagnetic modeling.

Data were acquired on March 14th – 15th 2017, with 35 observation points and space between each point was 1,5 km. Data were processed using diurnal correction, IGRF correction, reduction to pole, and upward continuation. The modeling was done by analyzing magnetic field anomaly which had been reduced to pole and upward continuation at 2500 m height.

The results showed that the range of magnetic field anomaly in the study area is 180 nT – 660 nT. The result of 2D modeling showed that the study area is dominated by 3 rock formations which are basalts-andesitic of Nglanggran Formation, sandstone of Sambipitu Formation, and limestone of Wonosari Formation. The result of 3D modeling showed that Oyo Fault is strike-slip fault with 150 – 300 m depth. The fault is divided into 2 segments, which has direction N120°E with 5,8 km length, and N160°E with 2,5 km length.

Keyword : geomagnet, rock formation, Oyo Fault.