

INTISARI

IDENTIFIKASI PERSEBARAN ZONA MINERALISASI TIMAH MENGGUNAKAN METODE MAGNETIK DAN POLARISASI TERINDUKSI DI DESA PAKU, KECAMATAN PAYUNG, KABUPATEN BANGKA SELATAN

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Penelitian geofisika secara terintegrasi menggunakan metode magnetik dan polarisasi terinduksi atau *induced polarization* (IP) telah dilakukan di Desa Paku, Kecamatan Payung, Kabupaten Bangka Selatan. Penelitian ini bertujuan untuk mengetahui zona struktur dan alterasi sebagai pengontrol keberadaan endapan timah dan persebaran zona mineralisasi. Luas area pengukuran magnetik adalah $4,5 \times 2,5 \text{ km}^2$ dan jumlah lintasan IP sebanyak 9 lintasan dengan panjang tiap lintasan berkisar antara 380-660 m. Pengukuran IP menggunakan konfigurasi dipol-dipol dengan spasi antar elektroda 8 m dan nilai n maksimal 8.

Data magnetik dikoreksi dengan IGRF dan variasi harian menghasilkan anomali magnetik. Pemisahan anomali regional dan residual menggunakan filter kontinuitas ke atas. Kedua anomali tersebut kemudian direduksi ke ekuator (RTE). Data IP diolah untuk mendapatkan penampang 2D resistivitas dan *chargeability* bawah permukaan tiap lintasan.

Anomali magnetik residual setelah RTE menunjukkan keberadaan zona alterasi argilik pada anomali rendah (susseptibilitas tinggi) yang dikelilingi oleh anomali tinggi (susseptibilitas rendah) pada sisi selatan wilayah penelitian. Zona tersebut sesuai dengan keberadaan *gossan* di dekat permukaan yang mengandung mineral kasiterit bijih timah. Dari pengukuran IP, nilai resistivitas dan *chargeability* yang dihasilkan menunjukkan zona alterasi dengan nilai resistivitas rendah ($<200 \text{ ohm.m}$) yang terisi oleh mineralisasi dengan nilai *chargeability* tinggi ($>30 \text{ ms}$). *Gossan* ditunjukkan dengan nilai resistivitas tinggi ($>1000 \text{ ohm.m}$) dan *chargeability* tinggi ($>30 \text{ ms}$). Zona mineralisasi pada endapan timah dapat diindikasikan berada pada zona alterasi yang dikontrol oleh struktur atau zona rekahan dan berada pada *gossan* di dekat permukaan. Persebaran zona mineralisasi secara menerus berada pada semua lintasan yang relatif di tengah lintasan pengukuran dan berorientasi arah timur-barat.

Kata kunci: magnetik, polarisasi terinduksi, mineralisasi, timah

ABSTRACT

IDENTIFICATION OF TIN MINERALIZATION ZONE USING MAGNETIC AND INDUCED POLARIZATION METHODS AT PAKU VILLAGE, PAYUNG DISTRICT, SOUTH BANGKA REGENCY

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An integrated geophysical research using magnetic and induced polarization (IP) methods had been carried out in Paku Village, Payung District, South Bangka Regency. The purposes of this research are to investigate the structure and alteration zone which controls primary tin deposits, as well as to localize the distribution of mineralization zone. The area of magnetic measurements was $4.5 \times 2.5 \text{ km}^2$. Meanwhile, the IP measurement was consisted of 9 measurement line which length 380-660 m each. IP measurement used dipole-dipole array with 8 m electrodes spacing and maximum value of n is 8.

Magnetic data were corrected by IGRF and diurnal variation resulting magnetic anomaly. The separation of the regional and residual anomaly used upward continuation filter. Both of these anomalies were then reduction to equator (RTE). IP data were processed to get resistivity and chargeability 2D section of the subsurface of each line.

Residual magnetic anomaly after RTE process shows the argillic alteration zone on low magnetic anomaly (high susceptibility) which was surrounded by high magnetic anomaly (low susceptibility) at the southern side of research area. Argillic alteration zone with gossan association in near the surface is interpreted as the target zone where cassiterite mineral of tin ore is expected to exist in this area. Resistivity and chargeability values show an alteration zone with low resistivity value ($<200 \text{ ohm.m}$) that contained mineralization which was indicated by high chargeability value ($>30 \text{ ms}$). Gossan was indicated by high resistivity value ($>1000 \text{ ohm.m}$) and high chargeability value ($>30 \text{ ms}$). Mineralization zone of the primary tin deposits is indicated in the alteration zones controlled by structures or fracture zone and resided in gossan at near the surface. The distribution of mineralization zone was imaged continuously in the middle of all line measurements in the direction of East-West.

Keywords: magnetic, induced polarization, mineralization, tin