

ABSTRAK

ANALISIS GEOMAGNETIK DAN *TDIP (TIME DOMAIN INDUCED POLARIZATION)* DALAM MEMBANGUN MODEL KONSEPTUAL ENDAPAN EPITERMAL SULFIDASI RENDAH DI DAERAH WONOSIDI, TULAKAN, PACITAN, JAWA TIMUR

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Penelitian mengenai analisis struktur geologi dan zona mineralisasi yang terletak pada wilayah Desa Wonosidi, Kecamatan Tulakan, Kabupaten Pacitan, Jawa Timur. Penelitian terdahulu menunjukkan adanya mineralisasi berupa malachite, azurit dan gapiirtalena pada daerah penelitian. Maka dilakukanlah survei geomagnetik dan geolistrik *Induced Polarization* untuk membangun model bawah permukaan yang berguna untuk mengetahui persebaran dan geometri endapan mineral yang ada.

Penelitian menggunakan 118 titik pengukuran geomagnetik di dalam kavling seluas 1,5 x 1,5 km dengan metode gridding dan jarak antar titiknya adalah 150 m. Sedangkan untuk pengukuran geolistrik *Induced Polarization* menggunakan 4 lintasan dengan orientasi arah kurang lebih 300° dari arah utara atau relatif berarah tenggara-timur laut yang didasarkan pada nilai magnetik yang relatif menengah hingga tinggi dan penelitian terdahulu. Selain itu juga dilakukan filter *Tilt Derivative* dan *Analytic Signal* untuk menganalisis struktur pengontrolnya.

Hasil penelitian yaitu, terdapat 3 sesar utama, 2 sesar berorientasi hampir barat laut-tenggara dan 1 sesar berorientasi hampir timur laut-barat daya yang diperkirakan sebagai sesar pengontrol mineralisasi. Serta terdapat 2 pola nilai anomali magnetik tinggi sebagai respon dari intrusi dasit pada bagian barat daya dan intrusi andesit pada bagian timur daerah telitan yang diduga mempengaruhi adanya alterasi dan mineralisasi di daerah penelitian. Adanya endapan mineral logam sulfida dibuktikan dengan nilai TDIP yang tinggi pada lintasan 1 dan 2 dengan nilai chargeabilitas 516 ms dan 362 ms yang terdapat pada nilai magnetik 46.7 nT.

Kata Kunci : Geomagnetik. *Induced Polarization*. Sulfidasi Rendah. Mineralisasi. Model Konseptual.

ABSTRACT

GEOMAGNETIC AND TIME DOMAIN INDUCED POLARIZATION (TIME DOMAIN INDUCED POLARIZATION) ANALYSIS IN BUILDING A CONCEPTUAL MODEL OF LOW SULFIDATION EPITHERMAL DEPOSITS IN WONOSIDI, TULAKAN, PACITAN, EAST JAVA AREAS

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Research on the analysis of geological structures and mineralization zones located in Wonosidi Village, Tulakan District, Pacitan Regency, East Java. Previous studies have shown mineralization in the form of malachite, azurite, and pyrite in the study area. Therefore, a geomagnetic and geoelectrical survey of Induced Polarization was carried out to build a subsurface model that is useful for knowing the distribution and geometry of the existing mineral deposits.

The study used 118 geomagnetic measurement points in a plot of 1.5 x 1.5 km with the gridding method and the distance between the points was 150 m. Meanwhile, geoelectric measurements of Induced Polarization use 4 paths with an orientation of approximately 300° from the north or a relatively southeast-northeast direction based on relatively medium to high magnetic values and previous research. In addition, Tilt Derivative and Analytical Signal filters were also carried out to analyze the controlling structure.

The results of the research are, there are 3 main faults, 2 faults oriented almost northwest-southeast and 1 fault oriented almost northeast-southwest which is estimated as a mineralization controlling fault. And there are 2 patterns of high magnetic anomaly values as a response to dacite intrusion in the southwest and andesite intrusion in the east of the research area which is thought to affect alteration and mineralization in the study area. The presence of metal sulfide mineral deposits is evidenced by high TDIP values on paths 1 and 2 with chargeability values of 516 ms and 362 ms which are found in magnetic values of 46.7 nT.

Keywords : Geomagnetic. Induced Polarization. Low Sulfidation. Conceptual Model. Mineralization.