

ABSTRAK

Identifikasi potensi sebaran mineral emas menggunakan metode magnetik telah dilakukan di Desa Pancasan dan Pancurendang, Kecamatan Ajibarang, Kabupaten Banyumas. Penelitian ini dilakukan dengan tujuan untuk memetakan sebaran nilai anomali medan magnet yang terukur pada daerah penelitian, serta melakukan pemodelan dan interpretasi formasi batuan atau batuan di bawah permukaan yang berpotensi mengandung mineral emas. Pengambilan data lapangan dilakukan menggunakan *Proton Precession Magnetometers* (PPM) pada area seluas $1000 \times 900 \text{ m}^2$ dengan jarak antar titik pengukuran sebesar 50 m. Data yang diperoleh berupa kuat medan magnetik total yang kemudian dilakukan koreksi dan reduksi data menghasilkan anomali medan magnetik residual. Nilai anomali medan magnetik residual pada daerah penelitian memiliki interval -1220,95 nT hingga 855,03 nT. Berdasarkan hasil pemodelan terhadap data anomali medan magnetik residual menggunakan *software ZondGM3D*, diperkirakan terdapat intrusi batuan beku andesit tekstur porfiritik ($\chi = 0,0185 - 0,02$ cgs units) di bagian timur sayatan A-A' pada posisi $7^{\circ}24'54.14''$ LS dan $109^{\circ}5'18.41''$ BT dengan kedalaman 120 - 300 meter, dan bagian barat sayatan C-C' pada posisi $7^{\circ}25'17.13''$ LS dan $109^{\circ}4'51.91''$ BT dengan kedalaman 20 - 260 meter. Keberadaan intrusi batuan beku andesit tekstur porfiritik ini menjadi salah satu tanda potensi keberadaan mineral emas di daerah penelitian sebagai bukti kenaikan larutan hidrotermal. Berdasarkan hasil interpretasi, potensi keberadaan mineral emas diperkirakan terdapat dalam batupasir dan breksi andesit ($\chi = 0,0135 - 0,0185$ cgs units) sebagai zona mineralisasi emas yang menyebar dari arah Timurlaut-Baratdaya daerah penelitian.

Kata kunci: Mineral emas, metode magnetik, Pancurendang, Pancasan, *ZondGM3D*.

ABSTRACT

The identification of potential distribution of gold minerals using magnetic methods has been carried out in Pancasan and Pancurendang Villages, Ajibarang District, Banyumas Regency. This research was conducted with the aim of mapping the distribution of magnetic field anomaly values measured in the research area, as well as modeling and interpreting rock formations or rocks below the surface that potentially contain gold minerals. Field data collection was carried out using Proton Precession Magnetometers (PPM) on an area of 1000 x 900 m² with a distance between measurement points of 50 m. The data obtained is in the form of total magnetic field strength which is then corrected and reduced data produces residual magnetic field anomalies. The residual magnetic anomaly value in the research area had an interval of -1220,95 nT to 855,03 nT Based on the results of modeling of residual magnetic anomaly data using ZondGM3D software, it is estimated that there is an intrusion of porphyritic texture andesite igneous rock ($\chi = 0.0185 - 0.02$ cgs units) in the eastern part of the A-A' incision at the position of 7°24'54.14" S and 109°5'18.41" E with a depth of 120 - 300 meters, and the western part of the incision C-C' at a position of 7°25'17.13" S and 109°4'51.91" E with depth 20 - 260 meters. The presence of intrusion of andesite igneous rocks of porphyritic texture is one of the potential signs of the presence of gold minerals in the study area as evidence of an increase in hydrothermal solutions. Based on the results of interpretation, the potential distribution of gold minerals is estimated to be found in sandstones and andesite breccia ($\chi = 0.0135 - 0.0185$ cgs units) as a gold mineralization zone that spreads from the Northeast-Southwest direction of the research area.

Keywords: Gold minerals, Magnetic method, Pancurendang, Pancasan, ZondGM3D.