INTISARI

Identifikasi Struktur Geologi dan Tubuh Intrusi Menggunakan Metode Gravitasi di Daerah Mineralisasi Emas Desa Paningkaban-Cihonje, Kecamatan Gumelar, Kabupaten Banyumas, Jawa Tengah

Oleh

Agung Budhinayaka
12/331245/PA/14527

Telah dilakukan penelitian menggunakan metode gravitasi di daerah mineralisasi emas desa Paningkaban-Cihonje, Kecamatan Gumelar, Kabupaten Banyumas, Jawa Tengah. Penelitian bertujuan untuk mengidentifikasi keberadaan struktur geologi dan tubuh intrusi pengontrol mineralisasi emas pada lingkungan epitermal sulfidasi rendah. Luasan area penelitian sekitar (2,8 × 2,1) km^2 dengan jumlah titik terukur sebanyak 109 dan spasi antar lintasan 300 meter.

Anomali Bouguer lengkap di topografi hasil pengolahan awal diproyeksikan ke bidang datar menggunakan metode sumber massa ekuivalen dengan kedalaman massa ekuivalen 1000 meter dan ketinggian bidang datar 290 meter. Anomali residual gravitasi diperoleh dari hasil penapisan menggunakan metode Kontinuasi ke Atas dengan ketinggian kontinuasi 150 meter. Analisis keberadaan struktur dilakukan dengan metode *First Horizontal Derivative* dan *Second Vertical Derivative*. Pemodelan bawah permukaan dilakukan terhadap peta anomali residual yang dikorelasikan dengan informasi geologi dan hasil analisis derivatif.

Hasil analisis derivatif mengidentifikasi keberadaan sesar geser kiri Babakan dan sesar geser kiri Paningkaban. Bersesuaian dengan hasil pemodelan, diinterpretasikan keberadaan tubuh intrusi dengan densitas 2,8 gr/cm^3, Formasi Rambatan dengan densitas 2,4 gr/cm^3, Formasi Halang bagian bawah dengan densitas 2,2 gr/cm^3 dan satuan perselingan batupasir-batulanau Formasi Halang dengan densitas 2 gr/cm^3. Densitas 1,9 gr/cm^3 bersesuaian dengan satuan Tuff Formasi Kumbang dan densitas 2,2 gr/cm^3 bersesuaian dengan satuan batugamping Formasi Tapak. Tubuh intrusi pada tengah area diduga menerobos Formasi Rambatan dan Formasi Halang bagian bawah. Tubuh intrusi dan dua sesar geser kiri tersebut mengontrol mineralisasi emas di area penelitian.

Kata kunci: metode gravitasi, emas, intrusi, struktur geologi

ABSTRACT

Geological Structure and Body Intrusion Identification Using Gravity Method in Gold Mineralization Area at the Paningkaban-Cihonje, Gumelar District, Banyumas Regency, Central Java

By

Agung Budhinayaka
12/331245/PA/14527

A research had been done using gravity method in gold mineralization area at the Paningkaban-Cihonje, Gumelar regency, Banyumas district, Central Java. The research's purpose was to identify the existence of geological structure and intrusion body as the low sulphidated epithermal gold mineralization controls. This research was conducted in area of (2.8 × 2.1) km^2 with 109 measured stations and space between lines were 300 meters.

Complete Bouguer anomaly at topography as the result of early processing was projected to horizontal plane using equivalent source technique method. The depth of equivalent mass was 1000 meters and height of plane was 290 meters. Residual gravity anomaly was obtained as the result of filtering using upward continuation at height 150 meters. Structure's existence analysis was done using First Horizontal Derivative and Second Vertical Derivative methods. Subsurface modelling was made from residual anomaly map and was correlated with geological information and derivative analysis results.

Derivative analysis results identify the existences of Babakan sinistral strike-slip faults and Paningkaban sinistral strike-slip faults. Modelling results show the intrusion body with 2.8 gr/cm^3 density, Rambatan Formation with 2.4 gr/cm^3 density, lower Halang Formation with 2.2 gr/cm^3 density, and interlayered sandstone-siltstone unit of Halang Formation with 2 gr/cm^3 density. Tuff unit of Kumbang Formation is associated with 1.9 gr/cm^3 density and limestone unit of Tapak Formation is associated with 2.2 gr/cm^3 density. Predicted intrusion body in the middle of the research area intruded the Rambatan Formation and lower Halang Formation. Those intrusion body and sinistral strike-slip faults controlled the gold mineralization in the research area.

Keywords: gravity method, gold, intrusion, geological structure