ABSTRAK

Secara garis besar Daerah “X” memiliki struktur geologi yaitu berupa daerah lipatan yang terdapat di kawasan dataran tinggi pegunungan. Penelitian gayaberat telah dilakukan di daerah “X” dengan tujuan untuk mengetahui struktur geologi bawah permukaan berdasarkan analisis *FHD* (*First Horizontal Derrivative*), *SVD* (*Second Vertical Derrivative*) dan pemodelan 3D *Invers Modeling* pada peta anomali residual daerah penelitian. Hasil penelitian menunjukkan bahwa daerah penelitian memiliki nilai Anomali Bouguer Lengkap antara 140.1 mGal sampai 189.8 mGal dengan pola anomali tinggi terkonsentrasi pada arah Barat dan Timur bagian selatan daerah penelitian. Sementara sebaran anomali bouger daerah rendah terkonsentrasi ke arah Utara daerah penelitian. Hasil Analisa derivative pada peta anomali Residual menunjukkan adanya jenis patahan turun sedangkan inversi 3D pada peta anomali Residual menunjukkan nilai densitas rendah berkisar 0,38 g/cm3 – 1,16 g/cm3, nilai densitas sedang berkisar 1,16 g/cm3 – 1,39 g/cm3 dan nilai densitas tinggi berkisar 1,39 g/cm3 – 2,57 g/cm3.

Kata kunci: Gayaberat, Anomali Bouguer, Pemodelan 3D, *SVD*, *FHD*.

ABSTRACT

In general, “X” has a geological structure that is in the form of a folding area found in the highlands of the mountains. The study of gravity was conducted in the “X” area with the aim to know the subsurface geological structures based on *FHD* (First Horizontal Derivative), SVD (Second Vertical Derivative) and 3D Inverse Modeling on the residual anomaly maps of the study area. The results showed that the research area has Bouguer Anomaly value ranged from 140.1 mGal to 189.8 mGal with the high anomaly at the west and east side of the research area. The results of the SVD and *FHD* analysis indicated the presence of a Normal Fault on the A-A’ and B-B’ cross-section, The results of the 3 D subsurface modeling on the residual anomaly maps showed the low density value is 0.38 g/cm^3 – 1.16 g/cm^3, the middle density value is 1.16 g/cm^3 – 1.39 g/cm^3 and the high density value is 1,39 g/cm3 – 2,57 g/cm3

Keywords: Gravity, Bouguer Anomaly, Modeling 3D, SVD, *FHD*.