

RINGKASAN

Provinsi Jambi merupakan salah satu daerah di Sumatera yang memiliki potensi panas bumi. Beberapa contoh panas bumi yang ada di Provinsi Jambi diantaranya manifestasi panas bumi di Lempur Kabupaten Kerinci, yang disebabkan oleh aktifitas vulkanik-tektonik, dari Gunung Sumbing dan Sesar Sumatera yang berada disepanjang bukit barisan. Jangkat Kabupaten Merangin, yang disebabkan oleh aktifitas tektonik berupa Sesar, Geragai Kabupaten Tanjung Jabung Timur dan Komplek airpanas Muara Bulian Kabupaten Batanghari yang belum diketahui pasti penyebabnya. Daerah penelitian cenderung tidak ada penemuan jejak magmatisme sebagai indikasi sumber panas karena jauh dari keberadaan gunung api. Daerah penelitian memiliki nilai anomaly bouguer lengkap antara 28,2 mGal- 30,8 mGal, dimana nilai anomaly bouguer tinggi memiliki rentang nilai 29,7 mGal-30,8 mGal yang berada diarah Barat laut daerah penelitian. Sedangkan nilai anomaly bouguer rendah memiliki rentang nilai 28,2 mGal-29,6 mGal yang berada di arah Tenggara daerah penelitian, sehingga dapat diindikasikan bahwa batuan yang memiliki nilai densitas tinggi memiliki kemenerusan dari kedalaman yang dalam hingga kedalaman yang dangkal. Untuk mengetahui sebaran litologi bawah permukaan dilakukan pengolahan data gayaberat GGMPlus yang didapatkan beberapa formasi berupa Foemasi Qa (Alluvium), Formasi Qtk (Formasi Kasai), Formasi Tmpm (Formasi MuaraEnim) dan Formasi Tma (Formasi AirBenakat). Keberadaan struktur geologi daerah penelitian terdapat struktur sesar untuk mengontrol pemunculan sumber mata airpanas dengan proses filtering *Second Vertical Derivative* (SVD) pada peta anomaly bouguer, Regional dan Residual. Pola struktur patahan ditunjukkan dengan kontur bernilai nol atau mendekati nol. Berdasarkan pemodelan 2D anomaly Residual dilakukan untuk membuktikan keberadaan patahan yang dianalisis berdasarkan filtering *Second Vertical Derivative* (SVD) serta menunjukkan keberadaan *caprock*. Dalam menentukan daerah panas bumi secara menyeluruh digunakan metode gayaberat untuk mengetahui efisiensi pada eksplorasi lebih lanjut.

Kata Kunci: Panas Bumi, Pemodelan 2D, SVD

SUMMARY

Jambi Province is one of the areas in Sumatra that has geothermal potential. Some examples of geothermal energy in Jambi Province include geothermal manifestations in Lempur, Kerinci Regency, which is caused by volcanic-tectonic activity from Mount Sumbing, and the Sumatran Fault, which is located along the Barisan Mountains. Jangkat, Merangin Regency, which is caused by tectonic activity in the form of a fault; Geragai, East Tanjung Jabung Regency; and the Muara Bulian hot spring complex, Batanghari Regency, whose cause is not yet known for sure. The research area tends not to have any traces of magmatism as an indication of a heat source because it is far from the existence of volcanoes. The research area has a complete bouguer anomaly value between 28.2 mGal-30.8 mGal, where the high bouguer anomaly value has a range of 29.7 mGal-30.8 mGal, which is located in the northwest direction of the research area. Meanwhile, the low bouguer anomaly value has a range of 28.2 mGal-29.6 mGal, which is located in the southeast direction of the research area, so it can be indicated that rocks that have high density values have continuity from deep to shallow depths. To determine the distribution of subsurface lithology, GGMPlus gravity data processing was carried out, which obtained several formations in the form of Qa Formation (Alluvium), Qtk Formation (Kasai Formation), Tmpm Formation (MuaraEnim Formation), and Tma Formation (AirBenakat Formation). The existence of the geological structure of the research area contains a fault structure to control the emergence of hot springs with the Second Vertical Derivative (SVD) filtering process on the bouguer anomaly map, regional and residual. The fault structure pattern is indicated by a contour with a value of zero or close to zero. Based on 2D modeling, residual anomalies were carried out to prove the existence of faults that were analyzed based on Second Vertical Derivative (SVD) filtering and showed the presence of caprock. In determining the geothermal area as a whole, the gravity method is used to determine the efficiency of further exploration.

Keywords: geothermal, 2D modeling, SVD