

Identifikasi zona reservoir daerah potensi hidrokarbon menggunakan inversi 3d data gravitasi di Cekungan Sedimen Atambua, NTT =  
Identification of potential hydrocarbon reservoir zones using 3d inversion of gravity data in Atambua Sediment Basin, NTT

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Abstrak

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Metode gravitasi merupakan metode geofisika yang didasarkan pada pengukuran variasi medan gravitasi karena adanya perbedaan rapat massa antar batuan. Oleh sebab itu, metode gravitasi sering digunakan dalam eksplorasi bawah permukaan, salah satunya eksplorasi hidrokarbon. Dalam proses awal, penentuan kedalaman basement dirasa penting supaya dapat dilanjutkan untuk melakukan reka ulang dalam menentukan zona reservoir hidrokarbon. Setelah penentuan basement selesai, dilanjutkan dengan melakukan permodelan inversi 3D supaya didapatkan gambaran detail mengenai struktur bawah permukaan yang mendekati bentuk sebenarnya. Berdasarkan hasil analisis data didapatkan kedalaman basement rata-rata sekitar 5.5 km dengan struktur pembentuknya adalah patahan naik dan arah strukturnya dari Timur Laut ke Barat Daya. Hasil model inversi 3D didapatkan basement yang terdeteksi merupakan batuan beku Andesite dengan nilai densitasnya sekitar 2.5 gr/cm<sup>3</sup>. Kemudian untuk zona reservoir hidrokarbon diperkirakan terletak di daerah central basin sampai bagian Selatan pulau Timor, dengan komposisi batuan reservoirnya adalah batuan sedimen pasir dengan nilai densitas sekitar 2.2 gr/cm<sup>3</sup>.

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**ABSTRACT**

The method of gravity is a geophysical method which is based on the measurement of variation of the variative gravitational field due to the difference in mass density between rocks. Therefore, gravity methods are often used in subsurface exploration, one of which is hydrocarbon exploration. In the initial process, the determination of the basement depth is important in order to re establish the process in determining the hydrocarbon reservoir zone. After the basement determination is completed, the next step is to proceed with 3D inversion modeling in order to get a detailed picture of the subsurface structure that approximates the actual shape. Based on the data analysis, the average basement depth is about 5.5 km with its forming structure is the rising fracture and the direction of its structure from Northeast to Southwest. The result of 3D inversion model was found the detected basement is Andesite igneous rock with density value about 2.5 gr cm<sup>3</sup>. Then for the hydrocarbon reservoir zone is estimated to be located in the central basin area to the Southern part of the island of Timor, with the composition of the reservoir rock is sand sedimentary rock with a density value of about 2.2 gr cm<sup>3</sup>.