

Interpretation of 2D-Subsurface Resistivity Data in The Iron Ore Prospect Area of Eastern Binangun Coastal, Regency of Cilacap, Central Jawa

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Author Order	of
Accreditation	2
Abstract	<p>Interpretation of 2D-subsurface rock resistivity data has been carried out in the iron ore prospect area of Eastern Binangun Coastal in Cilacap Regency, Central Jawa. The background of this research is the potential for abundant iron sand in this area that prospects to be exploited. The research was conducted using a magnetic method in 2017 to map the distribution patterns of the local magnetic anomalies that were interpreted to originate from the distribution of iron ore in the subsurface. In 2018, the research continued using the 2D-resistivity method to find out the lithology section in the subsurface of research area. 2D-resistivity data acquisition is carried out on four tracks consisting of Bng-01 to Bng-04. The resistivity data modeling have produced the true resistivity value for each track in the form of the subsurface resistivity section, which including the Bng-01 track is 2.27 $\Omega\cdot\text{m}$; 44.1 $\Omega\cdot\text{m}$; the Bng-02 track is 4.5 $\Omega\cdot\text{m}$; 58.6 $\Omega\cdot\text{m}$; the Bng-03 track is 6.37 $\Omega\cdot\text{m}$; 63.4 $\Omega\cdot\text{m}$; and the Bng-04 track of 4.98 $\Omega\cdot\text{m}$; 83.3 $\Omega\cdot\text{m}$. After interpretation process, some models of subsurface rocks lithology section is obtained under the four trajectories. The rocks resulted from interpretation process consists of sand which inserted with gravel ($> 58.6 \text{ } \Omega\cdot\text{m}$); sand containing iron ore grains (28.2 $\Omega\cdot\text{m}$; 83.3 $\Omega\cdot\text{m}$), clayey sand (11.1 $\Omega\cdot\text{m}$; 32.9 $\Omega\cdot\text{m}$), sandy clay (4.98 $\Omega\cdot\text{m}$; 13.5 $\Omega\cdot\text{m}$), and fine sand which intruded by saltwater ($< 6.49 \text{ } \Omega\cdot\text{m}$). Sand containing iron ore grains is main part of the coastal aquifer so that exploitation of iron sand has the potential to reduce aquifer function in storing and flowing of groundwater and causing of abrasion in the Eastern Binangun Coastal area.</p>
Publisher Name	UIR PRESS
Publish Date	2018-12-01
Publish Year	2018
Doi	DOI: 10.24273/jgeet.2018.3.4.2139
Citation	
Source	Journal of Geoscience, Engineering, Environment, and Technology
Source Issue	Vol 3 No 4 (2018): JGEET Vol 03 No 04 : December (2018)
Source Page	214-220
Url	http://journal.uir.ac.id/index.php/JGEET/article/view/2139
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