APPLICATION OF MAGNETIC SURVEY TO EXPLORE THE IRON ORE DEPOSITS IN THE NUSAWUNGU COASTAL REGENCY OF CILACAP CENTRAL JAVA

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Abstract	The research aiming to explore the iron ore deposits in the Nusawungu coastal Regency of Cilacap has been conducted using the magnetic survey. The acquisition of magnetic data was conducted in April ? Mei 2017, covering the area in the ranges of 109.314Ã‚Â° ? 109.345Ã‚Â°E and 7.691Ã‚Â° ? 7.709Ã‚Â°S. The obtained magnetic field strength data were corrected, reduced, and mapped to obtain the contour map of local magnetic anomaly. The modeling process was carried out along the path extending over the map from the positions of 109.314Ã‚Â°E and 7.695Ã‚Â°S to 109.335Ã‚Â°E and 7.699Ã‚Â°S, so that some subsurface anomalous objects are obtained. The lithological interpretation was performed to identify the types of subsurface rocks and their formations based on the magnetic susceptibility value of each anomalous objects and supported by the geological information of the research area. Based on the interpretation results, three rocks deposits of alluvium formations were obtained, which are estimated to contain iron ore. The first deposit has a length of 164.85 m, a depth of 0.57 ? 8.43 m, and a magnetic susceptibility value of 0.0097 cgs. The second deposit has a length of 376.28 m, a depth of 2.56 ? 19.66 m, and a magnetic susceptibility value of 0.0108 cgs. The third deposit has a length of 1,306.26 m, a depth of 3.70 ? 58.69 m, and a magnetic susceptibility value of 0.0235 cgs. Out of the whole rocks deposits, the third rock deposit is interpreted to have the most prospective iron ore. This interpretation based on its high magnetic susceptibility value, which indicates the presence of many magnetic minerals (i.e. iron ores) in the rock.
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