Interpretation of Magnetic Anomaly Data in the Andesitic Rock Prospect Area of Kutasari Subregency, Purbalingga Regency, Central Java, Indonesia

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Accreditation	1
Abstract	DOI:10.17014/ijog.8.3.345-357Interpretation of magnetic anomaly data has been carried out in the andesitic rock prospect area, Kutasari Subregency, Purbalingga Regency, Central Java, Indonesia. Geographically, this area is located within 109.2788Ã‚Â° - 109.3072Ã‚Â°E and 7.3032Ã‚Â° - 7.3319Ã‚Â°S. The study has been done in April Ã¢Â€Â" September 2019 with the purpose to map the distribution of andesitic rocks based on the local magnetic anomaly data. The data that are acquired in this study have the values ranging between -1,238.13 - 1,892.40 nT. The results of qualitative interpretation on the local magnetic anomaly data having been reduced to the pole show the distribution of strong anomalous sources in the northwest area interpreted as massive andesitic rocks. Whereas the results of quantitative interpretation through 2D-forward modeling on the local magnetic anomaly data show six anomalous bodies, with magnetic susceptibility values ranging from 0.0025 to 0.0350 cgs and depths range between 7.16 - 505.97 m. The highest magnetic susceptibility is 0.0350 cgs interpreted as a massive andesite intrusion forming a very dense dike; whereas the lowest magnetic susceptibility is 0.0025 cgs interpreted as undifferentiated igneous rocks, volcanic breccias, lava, and tuff. Based on the study results, the correlation between the results of qualitative and quantitative interpretations occurs.
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