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A case study of mineral exploration in East Coast Economic Region (ECER) using high resolution airborne magnetic and radiometric survey

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Abstract: The Department of Mineral and Geoscience Malaysia conducted a high resolution airborne geophysical survey in 2016 involving the East Coast Economic Region. The objectives were to outline geological unit, trace structures and define a target area for mineral follow up exploration. A total of 105 target areas mainly iron, gold and tin were generated using integrated interpretation of geophysical data and existing geological data. Geophysical signals which defined a target area include isolated magnetic high, area of diffuse magnetic response and broad areas of increased radiometric response. Useful lithology and structural information interpreted from geophysical data were consolidated with existing geological information to produce a more comprehensive interpretation. This article reviewed in progress exploration at target area P-18 Pulau Manis and K-04 Sungai Kapas. Isolated magnetic high at Pulau Manis was investigated in detail involving deep drilling, 3D geophysical modelling and lithological mapping resulted in the discovery of four layers of iron ore. Gold mineralization at Sungai Kapas demonstrated the role of deep granitoid intrusion and splays faults controlling the gold deposition. Gold potential was encouraging as indicated by gold discovery during field survey, thus deep drilling is anticipated in 2021. This article is a brief review of geophysical data manipulation and its potential in inducing new ideas and perspective for mineral exploration in Malaysia.

Keywords: Geophysical survey, East Coast Economic Region, magnetic, radiometric, splay fault, gold, mineralization, iron ore

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