Magnetic modelling from a subsurface intrusion in the Yan area, Kedah

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A ground magnetic survey was conducted in the Yan area of Kedah to investigate the source of a prominent aeromagnetic anomaly north of Gunung Jerai detected in the 1956-57 aeromagnetic survey of Peninsular Malaysia. The area covered in the present survey is approximately 18 km x 13 km. A total of 574 observation stations was used in a network of magnetic traverses totalling about 200 km in length. The station spacing was between 150 m and 300 m depending on the locality and modelling requirements.

The resulting magnetic contour map obtained after reduction of the raw data conformed the broad features of the aeromagnetic anomaly but with considerably more detail, as expected. Mathematical modelling of the data indicates the presence of a subsurface igneous intrusion within 300 m of the surface. This interpretation is consistent with the original interpretation of the aeromagnetic anomaly as well as the results of recent gravity surveys in the area. It appears that the intrusion is most probably granitic in composition and associated with, or perhaps even an extension of, the granite of Gunung Jerai.

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