DISTRIBUTION OF ERUPTIVE VOLCANIC BASALT IN THE SOUTH CHINA SEA AND ADJACENT AREAS BY INTERPRETING GRAVITY, MAGNETIC AND SEISMIC DATA

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Volcanic basalt eruption activity in the South China Sea and adjacent areas occurred strongly in Cenozoic E ra. However, it is difficult to define their ranges and spatial locations.

This paper presents the methods of reduction to the magnetic equator in low latitudes to bring out a better correlation between magnetic anomalies and their causing-sources; high-frequency filtering is to separate gravity and magnetic anomalies as well as information about the volcanic basalts in the upper part of the Earth's crust; 3D total gradient is to define the spatial location of high density and magnetic bodies. The distribution of eruptive volcanic basalt is determined by multi-dimensional correlation analysis between high frequency gravity and magnetic anomalies with weighted total gradient 3D.

The results from the above-mentioned methods have shown that the distribution of the eruptive volcanic basalt is mainly concentrated along the South China Sea's seafloor-spreading axis, transitional crust, Manila trench and some large faults zone. These results are improved by existing boreholes and seismic data in the study area.

Key words: **South China Sea, distribution of eruptive volcanic basalts, interpreting of gravity and magnetic anomalies.**