



The disquisition on magnetic basement and magmatic activity in the South Yellow Sea

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The South Yellow Sea communicates with the North Yellow Sea in the north and the East China Sea in the south. It is a polycycle basin superimposition forming on the pre-Sinian metamorphic rock basement of the Lower Yangtze Platform. The magmatic activities are developed in this area, and the igneous rocks are mainly intrusive rocks and volcanic rocks of Yanshanian period.

Presently, researches indicate that the regional structure of the South Yellow Sea is complex and it belongs to virgin prospect areas which contain the oil and natural gas. It still has the frontier disputes about maritime space and the oil and natural gas resources with South Korea. It is significant to research on the South Yellow Sea in doing theoretical research, exploiting marine resource and vindicating marine rights and interests. Because our country does little exploration and research, we know a little about this area. So the present chief task of this regional research is to reinforce researches and bottom out the distribution of the oil and natural gas further.

In this disquisition, the basic data is from the task "Map Series of Geology and Geophysics of China Seas (on the scale of 1:1,000,000)". Based on the former research, the data is processed. One-dimensional spectrum analysis is used in the inversion of the magnetic anomaly data. Through this method, the magnetic basement depths are computed and the depth contours of the basement are draw. And it benefits to the research of basement feature. The gravity and magnetic anomaly are described and interpreted. According to the feature of the structure, the geophysical field and the magnetic basement, using geology and geophysics means, the characteristic of the regional geological structure is interpreted. Then the magmatic activities in this area and the tectonic evolution of the South Yellow Sea basin are discussed. And several Conclusions are draw as follows:

- 1) As a method in the inversion of the magnetic anomaly data, the one-dimensional spectrum analysis can obtain good result in the depth research of magnetic basement.
- 2) The magnetic basements of the South Yellow Sea are composed of two series of magnetic rocks. The deep part is the pre-Sinian metamorphic rock basement with weak magnetism. The shallow part is the Mesozoic igneous rocks. The depth of magnetic basement of the studied area is within the range of 1-10km and it reflects the tectonic framework.
- 3) The magmatic activities are developed in this area, especially igneous rocks of Yanshanian period. Locating in the south of Korea Peninsula, the westward of Cheju Island, there develop Cenozoic high magnetic basalts.
- 4) The South Yellow Sea basin is a serial residue basin, with constantly transference, superposition and reconstruct from late Proterozoia. And it has a complicated course of tectonic evolution.