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A Discussion on the Location of the Boundary Belt between Sino-Korean and Yangtze Blocks in Yellow Sea from Geophysical Data

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Introduction: The location of this boundary belt location between Sino-Korean and Yangtze blockin Yellow Sea area and the relationship with adjacent geological units are still in discussion with many viewpoints. In this paper, we try to look for the geophysical evidences on this boundary belt. Various information were obtained by means of analytical continuation, discrete wavelet transform processing, and seismic tomography of study are et al.

Gravity field feature and tomography result: From the gravity processing result, we got results as below: 1) Closed west margin of Korea Peninsula, a linear anomaly extending in SN direction should be important because the gravity field feature and density of linear anomalies are different in the west and east part of Yellow sea area. The width of it is relative small. It has characteristic with a right-lateral strike-slip fault. We named this tectonic as West Marginal Fault zone of Korea Peninsula (WMF). 2) Wulian-Qingdao fault zone doesn't connect with Imjinhang fault zone. 3) In the south part of Cheju Island, another linear anomaly extending connected with WMF, we call this linear tectonic as South marginal Fault of Cheju Island (SMF). We infer that the different sides of WMF should belong to different geological units. Main Korea Peninsula should belong to Sino-korean block. The boundary belt between two blocks in Yellow Sea area should consisted of Wulian-Qingdao fault zone and South Marginal Fault zone of Cheju Island. They are combined by West Marginal Fault zone of Korea Peninsula and show a "Z-Shaped" pattern. The geological evidences also support our result. It can be concluded that Yangtze Block once embedded into the Sino-Korean Block after moving northward a considerable distance, displaying the insert structure feature in Triassic period, it is the product of Indosinian movement. From the map of velocity disturbance on 71km, the velocity peturtation along profile 38°N and the velocity peturtation along profile 127°E, two fault zones should be the deep and great fault zones. The dip angle of SMF is almost 70°. They are different geological units in both sides of two fault zones.