

The tectonic transition of the Late-Mesozoic of Yellow Sea and its tectonic framework of the proto-basin

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During the Jurassic to the Cretaceous Period, the subduction, rollbacking and the direction of the subduction of the paleo-Pacific Plate had a significant influence on the development of the basins in the Yellow Sea and its adjacent areas of China. According to the drilling core data of the field profile and marine seismic profile, the sedimentation between different basins is compared and analyzed, and the changes of the stress field direction and main tectonic deformation framework in different periods are identified. Meanwhile, the main faults are defined, and the research area's tectonic transition from the Jurassic to the Cretaceous is restored. 1). The basin development in the research area is mainly affected by the subduction direction and changes of the angles of the paleo-Pacific Plate at different stages; meanwhile, the Tanlu fractured zone (F1) and the Western Korean Peninsula fractured zone (F2) are also the two main control fractured zones. The tectonic episode has experienced three stages of transition, and this corresponds to three extensions in different directions and the stress action of three compressions between the periods. The dating methods of LA-ICP-MS Zircon U-Pb provide evidence for the tectonic time nodes between the three tectonic episodes and determine the time of the critical time nodes. 2). The cracking of the basin in 150Ma to the closure of the basin in 50Ma, it can be divided into six stages according to the different characters of extension-compression: During the J_3 - K_1 Laiyang Period (150-125Ma), the extension-passive rift formed in a direction from about north to south; Thermal uplifting stage caused a slight tectonic inversion and formed angular unconformity in the uplift area during $125\text{Ma} \pm 1\text{Ma}$; During the K_1^2 Qingshan Period (125-87.5Ma), about the west-east direction, slipping extension formed active rifting front-arc back-arc basins in a direction from about east to west; During the compression stage in $87.5 \pm 2.5\text{Ma}$, the research area has experienced a large scale of sinistral slip and formed regional angular unconformity; During the K_2 - E_1 the Wang Period (87.5-50Ma) thermal subsidence period, formed the pulling-apart strike slipping thermal subsidence; During the compression stage during $50 \pm 5\text{Ma}$, the research area mainly experienced dextral slip.