

PROCESS OF RIFTING AND COLLISION ALONG PLATE MARGINS IN THE QINLING OROGENIC BELT AND ITS GEODYNAMICS

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The Qinling orogenic belt is located in the middle of China. Two sutures have been identified inside the belt, which are the Shangdan belt in the north and the Mianlue belt in the south. The former represents a primary structural boundary between North China plate and the Yangtze plate, and the latter a secondary structural boundary between the Qinling micro-plate and the Yangtze plate. There occurred two times of oceanic and continental extension in the Shangdan and Mianlue belts and their margins in Sinian-Arenig stage of the Early Ordovician and Devonian-Early Triassic. After extension, the Shangdan and Mianlue oceanic basins began to subduct in the Early Ordovician and Early Triassic, and closed to build mountains in the terminal Late Paleozoic and Middle-Late Triassic respectively. The Qinling orogenic process shows that oceanic extension and plate marginal rift coexisted and subduction of the front oceanic crust and extension of the rear plate margin coexisted. This suggests that the Qinling orogene is characterized by the fact that the plate margin between North China plate and the Yangtze plate continually rifted from north to south and the rifted micro-plates continually accreted northwards. Two events of intense rifting and separation were probably controlled by two events of deep mantle geodynamic adjustment and mantle plume activities, which occurred in the Shangdan suture belt and Mianlue suture belt from north to south respectively.