



## **Tertiary rifting and its related structural development of the southern offshore Korea**

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Analysis of regional multi-channel seismic data integrated with exploratory wells has helped to investigate the structural and stratigraphic evolution of the southern offshore Korea.

The northeast-southwest trending Taiwan Sinzi Fold Belt separates the area into two regions, the northern East China Sea Shelf Basin and the northern Okinawa Trough, with different structural features. The northern East China Sea Shelf Basin is characterized by Hupijiao Rise and Oligocene and late Miocene folded structures, whereas no uplifted and folded structures exist in the northern Okinawa Trough. However, the basement structure in both regions is much similar. The structure is characterized by a series of half-grabens and tilted fault blocks bounded by listric faults associated with rifting activity. These structures are more distinct in the northern Okinawa Trough.

Rifting and extension in the northern East China Sea Shelf Basin, probably initiated in the Paleogene, resulted in a series of grabens and half-grabens. In the late Oligocene, the area west of the Hupijiao Rise experienced compressional tectonism and subsequent erosion flattened the area. In the early Miocene, extension and rifting resumed and the Hupijiao Rise uplifted locally. A second phase of compression, probably triggered by changes in plate motions caused large-scale uplift and folding in the eastern part of the area during the late Miocene. Subsequent erosion leveled the area including the Taiwan Sinzi Fold Belt, resulting in a significant regional unconformity.

In contrast, the rifting and extension in the northern Okinawa Trough probably began in late Miocene and continued until early Pleistocene. The most active rifting occurred during early Pliocene and the rifting seems to become weaker during late Pliocene and early Pleistocene. The late Miocene unconformity that eroded the Taiwan Sinzi Fold Belt forms a conformable surface in the northern Okinawa Trough