



## **Cenozoic residual subsidence and its response to sinking slab in deep mantle in eastern part of China**

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Mantle convection could have a significant effect on basin evolution. However, the research on quantifying this relationship is controversial. To understand the forming mechanisms and evolution of the Cenozoic rift basin in eastern part of China, we applied backstripping and strain rate inversion modeling to 119 wells from the Sangjiang Basin, Bohai Bay Basin, North Yellow Sea Basin, South Yellow Sea Basin, East China Sea Shelf Basin and South China Sea Basin. The modeled results help us reconstruct the tectonic subsidence history and further assess the potential subsidence mechanisms of the eastern China. Post-rift residual subsidence is defined as the discrepancy between observed and predicted post-rift subsidence based on the uniform stretching model, following lithospheric thinning events. Our results show that the residual subsidence since 20Ma in eastern part of China generally increases from  $\sim 100\text{-}300$  m in terrestrial area to  $\sim 1.2\text{-}1.8$  km in continental shelf. Our observed residual subsidence is generally in agree with present-day dynamic topography predicted from mantle flow models, and is coupled with stagnant slab within the mantle recorded by seismic tomography. Therefore, we suggest that the residual subsidence might be a dynamic subsidence induced by a negative buoyancy of the sinking slab in the deep mantle beneath the eastern China.