

## **Lateral variation of crustal structure and composition in the Cathaysia block of South China and its geodynamic implications**

Shaohong Xia, Jinlong Sun, Huilong Xu, Jianping Yin, and Jinhe Cao  
South China Sea Institute of Oceanology, Chinese Academy of Sciences, Guangzhou China

To clarify lateral variations in the crustal structure and composition of the Cathaysia block in South China which was affected by extensive and intensive Mesozoic and Cenozoic tectono-magmatic activities, we study the crustal thickness and Poisson's ratio in this region using the H- $\kappa$  stacking method of teleseismic receiver functions. Our results show that the Poisson's ratio varies between 0.20 and 0.29 and the crustal thickness ranges from 26 to 34 km in the Cathaysia block. The crustal thickness and Poisson's ratio show considerable differences across the Lishui-Haifeng Fault. The Southeast Coast Magmatic Belt is characterized by Poisson's ratios  $> 0.25$  and the crustal thickness of 28-33 km, reflecting obviously intermediate to mafic compositions. The southwestern part of the Cathaysia Folded Belt exhibits the crustal thickness of 27-30 km and Poisson's ratios  $< 0.25$ , reflecting a more felsic crust. However, the northeastern part of the Cathaysia Folded Belt is characterized by an almost flat Moho at a depth of  $\sim 31$  km and a strong variation of Poisson's ratio from 0.22 to 0.27. The ESE-WNW trending boundary between the southwestern and northeastern parts of the Cathaysia Folded Belt closely coincides with a geosuture between two Precambrian microcontinents which exhibit different patterns of crustal evolution revealed by geochemical studies. The lateral variations in the crustal structure and composition of the Cathaysia block may reflect not only the lithological variations of the primitive crustal rocks but also significant effects of tectonism and magmatism on the interior of the Cathaysia block during the Meso-Cenozoic.