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Further on the lithosphere tectonic units of China

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According to the features of geology, geophysics and geochemistry, the authors divide the continental lithospheric structure of China into two first-level tectonic units, Central Asia-Tibet lithosphere tectonic unit and Eastern Asia lithosphere tectonic unit, six secondary-level tectonic units and nineteen third-level tectonic units^[1]. We discuss the characteristic of each tectonic unit, and reveal the lithospheric structure framework and characteristic in this paper.

The contact relationship of the lithospheric block is very complex. We classify the lithosphere structure into four types: superposition of subduction boundary, collision squeeze boundary, crocodile's mouth boundary, and strike-slip oblique boundary^[2,3]. The characteristics of the four types are discussed with instance.

The convergence of the India plate, the Pacific plate and Siberian plate lead to the framework and characteristics of the lithospheric structure of China since late Mesozoic, especially Cenozoic: (1) The zone from the western boundary of Erdos basin to Longmenshan is the dividing line of two lithosphere tectonic domain in China because of the extrusion of India plate from western and Pacific plate from eastern; (2) The crust and upper mantle of the western China is thickened by the India plate subducted into Tibet plateau. The lithosphere blocks of the western China and Tibet plateau is thick crust and thick mantle, hot crust and cold mantle; (3) The asthenosphere materials of Tibet plateau eastward flow and the subduction of Pacific plate result in the asthenosphere materials upwelling and lithosphere thinning of the eastern China. The lithosphere characteristic of the Xingan-Jilin-Heilongjiang block and Northern China block is thin crust and thin mantle, light crust and light mantle.

References:

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