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The characters and origin correlation of the Paleozoic and Mesozoic cratonic basins

Yantao Zhan and Jianghai LI
Peking University, China (ytzhan@gmail.com)

Various mechanisms for the formation of cratonic basins, which formed on continental platforms above stable lithosphere, have been proposed. As most cratonic basins have very long lives, mostly between 100 and 300 m.y. (range 80-600 m.y.), thus they differ from the other types of sedimentary basins. It has previously been recognized that cratonic basin formation sassociated with the break-up and dispersal of two supercontinental assemblies, Rodinia and Pangea. The two main formation periods of the cratonic basins are Early Palaeozoic and Permo-Triassic. The Mesozoic cratonic basins often have underlying rifts beneath the intercratonic sag, comparatively the Palaeozoic ones rarely have. The two classes of the cratonic basins show a remarkable correlation of sedimentation patterns and tectonic subsidence. The former ones probably initiated by the thermal subsidence of the post-rift thermal equilibrium, characterized by the igneous intrusion and the initial high subsidence rate. The origin of the Palaeozoic ones seems more likely associated with stretching and extension in the crust above the Precambrian weak zones, of which the stretching strain rate is low. When the strain rate goes up, the basins may transform into the rift basins even the passive marginal basins in the rift–drift suite.