



Sedimentary Sequence and Stratigraphic Framework of the Neoproterozoic Qingbaikou System in the Huainan Area of the Southern Margin of North China Craton

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Abstract: The study area is located in the southern section of Liao-Lu-Wan Fault Depression Zone on the North China Craton which is characterized by thick Neoproterozoic Qingbaikou system with wide distribution. The Neoproterozoic Qingbaikou system in Huainan area outcrop relatively complete with strongly successive sedimentary sequence, the geotectonic background is passive continental margin and the sedimentary environment is Shore-shallow sea environment with the seawater from north to south gradually deepened. The formations from below to the top are: Liulaobei Formation, Shouxian Formation, Jiuliqiao Formation, Sidingshan Formation. Based on the detailed measurement and description of the geological section in the field, the characteristics and the evolution of the sedimentary facies in the research area are studied by the comprehensive study of the lithology, structure, tectonic and its combination characteristics, and we also combined with slice analysis. Study shows: The major sediment of Liulaobei Formation is purplish red-celadon marl, gray shale brow brown-yellow dolomite; Horizontal bedding can be found in Liulaobei Formation, and it is supratidal zone and neritic shelf depositional

environment. The depositional environment in lower part of the Shouxian formation is foreshore but upper part is shore face and the major sediment is fine sandstone, siltstone and shale. The seawater gradually became shallow and clear from then on, thus the overlying stratas are carbonate tidal flat deposit and the major sediment is mud-sized crystalline dolomite, crystal powder dolomite, argillaceous dolomite and so on; Stromatolite reef and local siliceous bands and storm rocks can be found in Jiuliqiao Formation, which is subtidal zone depositional environment. Horizontal laminated bed can be found but stromatolite and chert is rare in Sidingshan Formation that is intertidal-supralittoral zone depositional environment. Comprehensive analysis shows that the seawater of Neoproterozoic Qingbaikou system in study area experienced two shallow - deep - shallow cycles, and the main facies are Carbonate platform - shallow sea shelf - barrier - coast - carbonate platform. We also established the microcycle superposition model of barrierless coast and carbonate platform according to that.

Key words: Neoproterozoic; Qingbaikou system; sedimentary

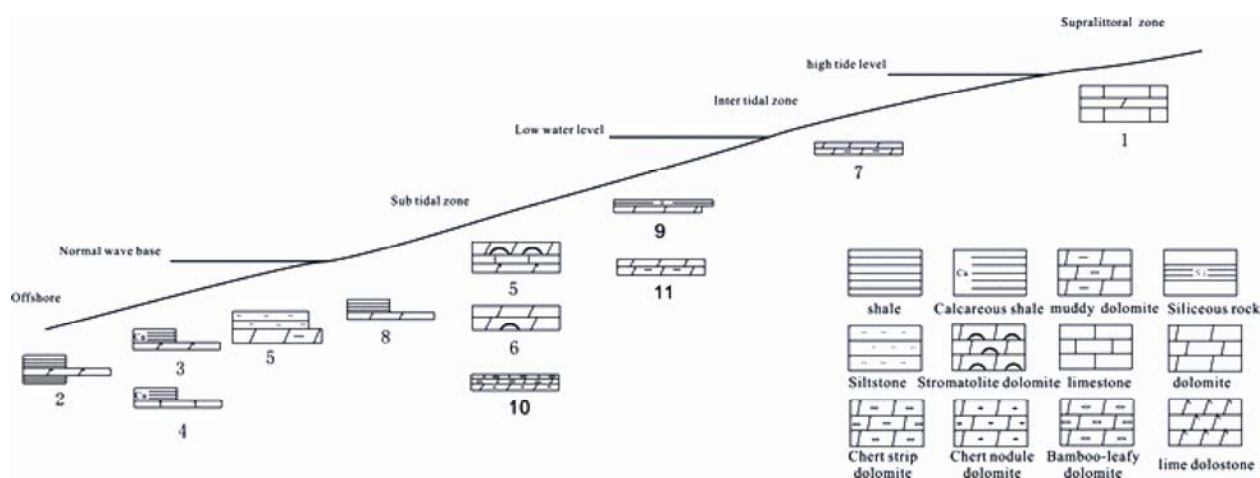


Fig. 1. Microcycle superposition pattern of carbonate platform facies of Neoproterozoic Qingbaikou System in Huainan area.

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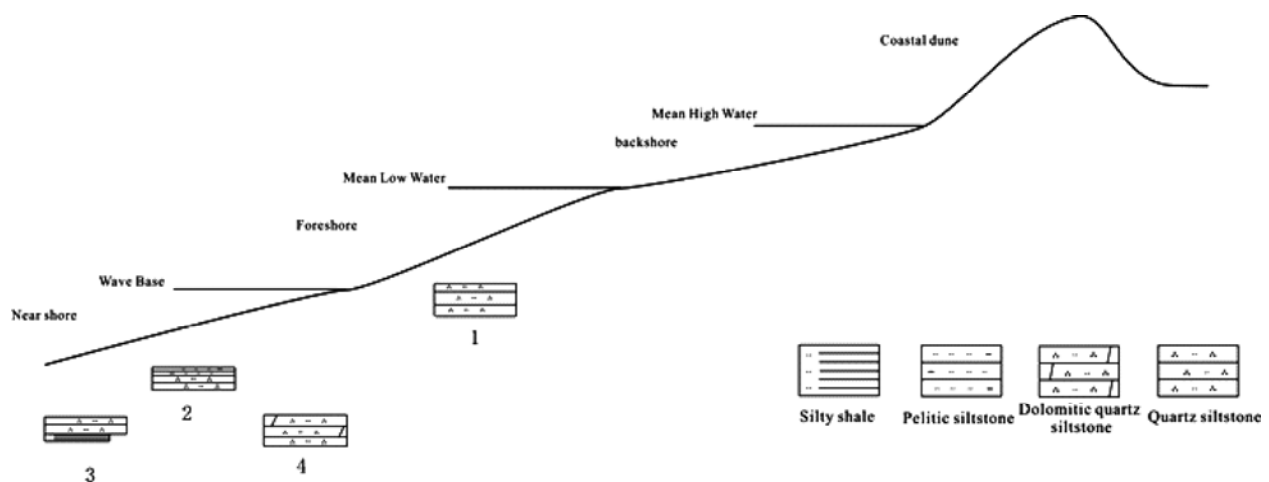


Fig. 2. Microcycle superposition pattern of barrier-free coastal facies of Neoproterozoic Qingbaikou System in Huainan area.

facies; sedimentary evolution; Huainan Area; North China Craton

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Table 1 Main sedimentary facies types of Neoproterozoic Qingbaikou System in Huainan area

Sedimentary system	Sedimentary facies	Subfacies	Microfacies	Facies characteristics	Distribution
Carbonate sedimentary system	Carbonate platform facies	Carbonate tidal flat	Supralittoral zone	Horizontal bedding	Liulaobei Formation
			Inter tidal zone	Wavy, lenticular bedding; Wedge, plate cross bedding et al.	Section 1 and 2 of Sidingshan Formation
			Sub tidal zone	Large-scale cross bedding; Herringbone cross bedding	Jiuliqiao Formation, Section 2 of Sidingshan Formation
	Shallow shelf facies	Offshore	Offshore shelf mud	Horizontal bedding	Liulaobei Formation
Sedimentary system of terrestrial clastic rocks on barrier-free coast	Barrier-free coastal facies	Near shore	Near shore sand	wavemark	Shouxian Formation
		Foreshore	Foreshore sand	Small-scale cross bedding; Large flushing cross bedding	Shouxian Formation