

Paper Number: 1514

The features and significance of Aeolian sandstone in the Lower Cretaceous system, Northern Ordos basin, China.

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Aeolian sandstones in the Zhidan Formation of lower Cretaceous outcrops extensively in the north eastern edge of Ordos basin. In the grey to white silt sandstone and fine sandstone, a lot of large-scale wind-induced planar cross-beddings are developed. With the lamina thickness ranging from 1-2cm and the thickest around 10cm, the height of the wind-induced planar cross bedding averages 2-3m and, locally, is up 7-8m. Three types of Aeolian laminae can be identified in the field as high angle grain flows, high angle waterfall-type flows and low angle wind ripple bedding, forming the 1~2m thin and 7-8mm thick beds. Based on detailed outcrop studies and attitude data collection of planar cross bedding, the dip directions of laminae range from 200° to 341° with the average of 270°, and the dips range from 4° to 35° with the average of 24°, indicating that the wind trend from east to west in the early cretaceous was quite different to that of today. Therefore, it can be induced that the study area, North Ordos basin was located in the trade wind zone around north latitude 20° in the early Cretaceous period. North Ordos basin then moved 2200km to the north and finally arrived at the present position with the velocity of 1.7cm/a in about 130 million years. It also can be inferred that the north Ordos basin experienced violent tectonic movement but mainly in the horizontal direction rather than the vertical direction.



Figure 1: Planar cross bedding in the Lower Cretaceous system, Northern Ordos basin, China.

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