



Mesozoic infill of the Amu Darya Basin – the Jurassic & Cretaceous of the Kyzylkum and Nuratau regions, Uzbekistan

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The Southern Tien Shan extends for c. 2500 km along an E-W axis from Xinjiang in NW China as far as central Uzbekistan. It forms the northern boundary to a series of economically important basins along its margin (e.g. Tarim Basin, China; Amu Darya Basin, Uzbekistan). The earliest evidence for post-Amu Darya Basin initiation deposition is the fragmented record from the Kyzylkum region. The sediments are middle and upper Jurassic in age and were deposited in a lacustrine/marsh or possibly sheltered bay setting with adjacent alluvial fans shedding sheetlike aprons into the lake. These are overlain by Lower and Upper Cretaceous sediments, and former studies have suggested that the former comprises mainly marine units (in contrast to the continental of SE Uzbekistan) and the latter is mainly continental (again in contrast to the marine of SE Uzbekistan).

In the study area the Middle Cretaceous (older sediments don't crop out) sediments were predominantly marine, with a variety of shelly fossils reported. The sediments are typical of shelf sandstones. The overlying Upper Cretaceous deposits are more nearshore in terms of environment, although clearly not continental (when compared to regions further to the NW). Thus, the clear subdivision from the literature could not be confirmed in outcrop, instead suggesting a broader marine influence across the area. In Cretaceous times, the region formed part of the westernmost area of the ancient Asian landmass bordered by the Tethys Ocean and the Turgai Strait.