

THE AKA´SAI BASIN: A PERIPHERAL FORELAND BASIN TO THE ALTYN OROGEN, CHINA?

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The ca. 50-60 km wide Aka´sai basin is located along the northern margin of eastern Altyn Mountains. The northern boundary of the basin is formed by the Sanwei Shan which is separated from the Neogene to Quaternary Dunhuang basin, adjacent to the N, by a steep reverse fault. The infilling of Aka´sai basin is represented by Neogene, gently S-dipping lake sediments (northern part of the basin) and Recent pediments forming a frontal wedge to the Altyn Mountains. We interpret the gently S-dipping Neogene sediments of the Aka´sai basin as the result of flexure of the foreland lithosphere under the load of the Altyn Mountains, and the Sanwei Shan as disrupted peripheral bulge to the Altyn orogen. The infilling of the Aka´sai basin and its relations to uplifting Altyn Mountains indicate rapid, ongoing surface uplift of Altyn Mountains. These relations also suggest the presence of an active thrust fault along northern margins of Altyn Mountains. The infilling of the Aka´sai basin is governed by high relief and arid climate. The infilling represents a specific sort of a terrestrial, underfilled peripheral foreland basin because the deepest depression is formed by the frontal pediment wedge with non-deposition of sediments (except some local dunes) to the north of it.