

Jurassic-Cretaceous deposits of the central Lhasa terrane: implications for the tectonic evolution of southern Asia prior to the Indo-Asian collision

Andrew Leier

The University of Arizona, Department of Geosciences

Tucson, AZ

aleier@geo.arizona.edu

Mesozoic sedimentary deposits of southern Tibet provide a record of the tectonic evolution of southern Asia prior to the Indo-Asian collision and can be used to better understand the timing and extent of crustal thickening in the region. This study examined Jurassic through Cretaceous deposits in the central Lhasa terrane, from the city of Lhasa in the south to the Bangong suture in the north. A general shallowing-upward trend exists at each location, although depositional facies, paleocurrents, and sandstone compositions vary considerably between locations. Sediments near the Bangong suture consist of Jurassic conglomeratic marine deposits overlain by lower Cretaceous shelf tempestites, Aptian-Albian limestones and sporadic fluvial deposits. In central and southern portions of the terrane, upper Jurassic - lower Cretaceous marginal marine deposits grade into a lower-middle Cretaceous succession of marginal marine carbonates and clastics that are in turn overlain by a thick succession of fluvial deposits. Petrographic and paleocurrent analyses indicate the sediments in the northern part of the terrane were derived from the north while those in the southern and central portion were derived from the south-southeast. The lithofacies and their distribution suggest a paleogeography similar to the modern-day Persian Gulf. Jurassic-Cretaceous deposits indicate uplifted regions and subsiding basins existed in southern Asia prior to the Indo-Asian collision. These tectonic features resulted primarily from the Late Jurassic collision between the Lhasa and Qiangtang terranes.