



Tectonostratigraphic Characteristics of the Chuxiong Foreland Basin System, Southwestern Yunnan, China

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The Chuxiong foreland basin in southwestern Yunnan, China is situated along the southwestern margin of the Yangtze platform and bounded by the Ailaoshan fold-and-thrust belt to the southwest. It developed as a peripheral foreland basin from Late Triassic to Late Cretaceous, receiving sediments more than 6,000 m thick from its adjacent Ailaoshan belt, a suture zone between the Yangtze platform and Indochina block. As the thrust sheets in front of the Ailaoshan orogenic belt have progressed from southwest to northeast, the foreland basin fills were incorporated into the thrust belts, and the depocenters migrated progressively northeastwards. The current basin configuration roughly parallels the Ailaoshan belt where three tectonostratigraphic units can be distinguished from southwest to northeast: (1) western thrusting zone, (2) central depression zone and (3) eastern uplifted zone. These three zones can be named as wedge-top depozone, foredeep depozone and forebulge depozone, respectively, in terms of foreland basin system (DeCelles and Giles, 1996). The western thrust zone is characterized by northeast propagating thrust sheets about 40 km wide, mainly consisting of deformed Middle to Late Triassic deep marine sandstone and shale (typical flysch facies). The sequences of the western wedge-top depozone unconformably overlie the Permian and older strata of the Yangtze platform. The central depression zone extends eastwards from the frontal thrust of the Ailaoshan belt for a distance of about 100 km and merges to the eastern uplifted zone. This foredeep depozone is dominated by Jurassic and Cretaceous sediments characterized by upwards shallowing sequences from deep marine flysch in Norian to shallow shelf and nearshore sediments and finally the coarse-grained fluvial deposits, showing a transition from flysch to molasses facies from the early to late stage of evolution of foreland basins. For instance, Molasse facies of Jurassic red beds more than 4000 m thick occur in the central depression zone. The eastern uplifted zone is a relatively narrow (about 20 km) and nearly N-S trending structural high. It is characterized by widely cropped out Pre-Precambrian basement. Angular unconformities occur in the forebulge depozone commonly. For example, Upper Cretaceous strata unconformably overlie the basement. Not much sediment is accumulated in the forebulge depozone. The deposits are mainly post-Norian and mostly derived from the Paleozoic and older Xikang-Yunnan landmass to the east.