

Examples of the Campanian to Paleocene Sedimentary Record of the Northern Indian Shelf (Tethys Himalaya)

POSTER

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Four study areas of the northern Indian continental margin (Tethys-Himalaya) are presented. The sections are situated in southern Tibet and Ladakh and comprise a range from Campanian to Paleocene each. From west to east the following localities have been investigated.

Zanskar Shelf (Ladakh): the basal Kangi La Formation (Campanian to Maastrichtian) is built of marly/silty sediments and is characterized by a shallowing upward sequence due to the increasing sedimentary input. The shallow-water carbonates of the Marpo limestone follow in the Upper Maastrichtian. The Stumpata Quartzite composed of quartz arenitic coastal sandstones represents the Lower Paleocene, above which open marine conditions develop once more (Dibling Limestone).

Tingri (Tibet): the top of the basinal sediments of the Gamba Group (Upper Albian to Upper Santonian) is followed by the Zongshan Formation (Upper Santonian - Middle Maastrichtian), which is interpreted as highly pelagic facies of the outer shelf. After a hiatus in the Lower Maastrichtian, sandstone turbidites and siliciclastic-carbonatic resediments of the Zhepure Shanpo Formation (Middle Maastrichtian - Lower Paleocene) are deposited. They are superimposed by sandstones of the Jidula Formation in the Lower Paleocene. After this siliciclastic input, a stable carbonate platform has built up in the Middle Paleocene. The so-called Zhepure Shan Formation (Montian-Lutetian) comprises marine carbonates rich in fossils.

Gamba (Tibet): in parallelism to Tingri the basinal sedimentation of the Gamba Group (Upper Albian to Campanian) can be seen in the lowermost part of the section, it derived its name from this type locality. The succeeding Zongshan Formation prohibits the gradual shallowing of the area: pelagic carbonates pass into limestone/marl alternations, which in turn shift to fossiliferous limestones with intercalated rudist reefs. The top of the Zongshan Formation consists of a striking Rhodolite facies, which is superimposed by quartz arenitic sandstones of the Jidula Formation of the Cretaceous/Tertiary boundary. These sandstones represent the maximum of the regressive development. Marine limestones (Zongpu Formation) of Middle Paleocene to Ilerdian age follow above.

Tüna (Tibet): covering the Gamba Group, the newly introduced Tüna Formation is comparable to the Zongshan Formation in the type locality of Gamba, but different in detail. The overlaying Jidula Sandstones are similar to these of Gamba, marine fossiliferous limestones of Paleocene age follow.

The comparison of the different working areas of Ladakh and Tibet reveals similarities of the controlling mechanisms of sedimentation. Small-scale transgressions and regressions are superimposed by a large-scale shallowing upward trend in the Upper Campanian to Maastrichtian. The transition from flyschoid (Kangi La Formation, Ladakh) and pelagic sediments (Gamba Group and lower parts of the Zongshan and Tüna Formation in Tibet) to limestone/marl alternations and shallow water carbonates is significant. The maximum of the regression is shown by the deposition of marine coastal sands (Stumpata, resp. Jidula quartz arenites). They are followed by marine sediments in all areas investigated.

Global factors (eustasy) are therefore supposed for the build up of these depositional features.

Temporary and local disturbances are visible in the area of Tingri: resedimentation and turbiditic intercalations are due to tectonic events in the Middle Maastrichtian.

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