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Eastern Tethys Development in Northeastern India and India – Asia Collision

Tewari, V. C.* and Lokho, K.**

*Wadia Institute of Himalayan Geology (Retd),Dehradun-248001, Uttarakhand, India, vinodt1954@yahoo.co.in
**Wadia Institute of Himalayan Geology,,Dehradun-248001, Uttarakhand, India,kapesa@wihg.res.in

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The largest Mesozoic- Paleogene sedimentary basins of the eastern Tethys in Northeastern India include the Assam – Arakan region, covering northeastern states of Assam, Arunachal Pradesh, Meghalaya, Nagaland ,Manipur, Mizoram , Surma valley, South Cachar and Mikir hills. The thick sedimentary succession was deposited in Late Mesozoic to Cenozoic in shallow shelf , inner and outer ramps to basinal facies.These early foreland basins formed the floor for the Tertiary basins in the Indian subcontinent including Himalaya. Early foreland basin evolution during Late Cretaceous – Paleogene in the South Shillong Plateau, Meghalaya is of global significance[1,2,3,4]. The rifting initiated with extrusion of widespread basaltic traps (Sylhet Traps) and the development of new Neotethys. Neotethys ocean developed during the Cretaceous Period after the breakup of the Eastern Gondwana Supercontinent (India, Antarctica and Australia). The anti-clockwise northward flight of India continued, and the new intracratonic basins and shelves developed. The Cretaceous – Tertiary Boundary is well developed in the Um Sohryngkew section of the South Shillong Plateau. In this K/T boundary succession, several fossiliferous beds of the gastropods, ammonoids, echinoids and foraminifera- algal limestone has been recorded. The fish remains are found associated with the shallow marine benthic foraminifera of Paleocene age from Mawsmai. The Komorrah Limestone Mine in the Um Sohrynkew River section represent shallow-marine sedimentation in the South Shillong shelf during Paleocene to Late Eocene in which Langpar, Therria , Lakadong, Umlatdoh, Narpuh, Prang and Kopilii Formations in ascending order were deposited without any sedimentological break. It is strongly supported by transitional sedimentary facies variations and occurrence of larger planktonic foraminifera and algae [1,2,3]. The calcareous – algal foraminiferal assemblage of the western Tethyan realm in Mediterranean region (Adriatic platform in Italy and Slovenia) is correlated with the eastern part of the Neotethys in Meghalaya[1,2,3]. Deeper marine deposits are found in some parts of Upper Disang and Upper Bhuban formations in the Mizo hills [4]. Two distinct shelf and basin sedimentation facies have been recognized. The sediments of the inner and outer shelf are well developed in the eastern Tethyan realm in Garo, Khasi and Jaintia hills of the Shillong Plateau in Meghalaya. We discuss the development of Asian Tethyan realm and its global correlation.

The Indo-Myanmar Orogenic Belt (IMOB) represents the eastern suture of Indian plate, and it was formed due to the collision of the Indian plate with the Myanmar plate. The Naga-Manipur ophiolites have been assigned to range in age from Upper Cretaceous to Eocene on the basis of faunal assemblages (radiolarian, planktonic foraminefera) in the olistolithic blocks of pelagic limestone and cherts [3]. The Lower Disang sediments were intermixed with pelagic cherts and limestone. The flyschoid Disang Formation gradually merges into the post-orogenic mollassic Barail Group of rocks.

References:

[1] Tewari V. C. et al.(2010a) Current Science, 98(1), 88-94.
[2] Tewari V. C. et al.(2010b) Jour. Ind.Geol. Congr.,2 (2),61-73.
[3] Lokho, K. and Tewari V. C.(2011)In:Tewari, V.C.and Seckbach, J.,Springer Verlag,COLE,18, 607-630.

[4] Lokho, K. and Tewari V. C.(2012). Jour. Ind. Geol. Congr., 4(2),37-41.