

# Geodynamic Evolution of the Indo – Myanmar Orogenic Belt , NE India

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The Indian and Eurasian plate started to converge during Maastrichtian ( Late Cretaceous ) and Neotethys sea closed. The Manipur Ophiolitic Complex ( MOC ) contains NE – SW trending olistrostromal belt ranging in age from Paleocene to Middle Eocene in the Nagaland Manipur Ophiolite belt. The ophiolitic melange in the NMO belt is a complex association of various tectonic slivers of Late Cretaceous to Eocene age and has been inferred to be an accreted terrain deformed in a convergent trench setting. Sedimentary, mafic and ultramafic tectonic blocks are emplaced in the ophiolitic melange by subduction related non collision process.

The Manipur Ophiolitic Complex initially formed in the mid oceanic ridge setting in the weak rift zone at the eastern margin of the Indian Plate [ 1,2,3 ]. The initial rifting was probably initiated during the Late Cretaceous ( Santonian- Maastrichtian ) period. At this stage of formation of the mid oceanic ridge tectonic regime , the development of the ridges started plutonic and volcanic activity in the region. Ultramafic rocks from the oceanic crust as well as from the upper mantle moved up along with the formation of the ridges.Mafic rocks and sediments were also raised up in the ridges. Later the entire platform was covered by pelagic sediments. Eastward subduction of the Indian plate beneath the Myanmar plate leading to the Late Cretaceous to Early Paleogene crust were accreted in a trench / fore arc setting , together with oceanic radiolarians and carbonate sediments. Some of this material was soon exhumed and recycled as multiple debris flows during Maastrichtian – Eocene period. The platform then entered the subduction trench carrying with it melange and ophiolite fragments.

The Tethyan ophiolites exposed along curvilinear suture zone in the Alpine- Himalayan orogenic system are highly diverse in terms of their structural , petrological features and emplacement mechanism [ 4 ]. The ophiolites of the W- E trending Indus- Yarlung –Tsangpo suture zone turning sharply southwestward at the eastern Himalayan syntaxis , are offset northward by the Sagaing fault and continue southward along the Indo – Myanmar Orogenic Belt. Further south to the Andaman – Nicobar Islands Arc and continue to southeast to the Mentawai Islands representing the outer Indonesian Island Arc. The Nagaland – Manipur Ophiolitic Complex form part of the Tethyan ophiolites and occur in the NNE – SSW trending Indo – Myanmar Ophiolite Belt (IMOB ) in NE India. The formation of NMO is related to subduction and obduction processes caused by the collision of the Indian plate and the Myanmar plate [ 1,2,3,4,5]. The ophiolite sequence in the study area is tectonised and dismembered and comparable to the Himalayan orogeny and sea floor spreading of the Indian ocean. The ophiolites show an east dipping thrust contact with the underlying Upper Cretaceous – Upper Eocene flysch sediments of the Dishang and Barail Formations exposed in the Nagaland – Manipur region. The latest sedimentological , geochemical and carbon isotopic data has been discussed in the light of geodynamic evolution of the Indo Myanmar orogenic belt.

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