Triassic Carbonates of Lampang Group, Northern Thailand

Pol Chaodumrong[1] and Clive Burrett[2]

[1]Geological Expert, Geological Society of Thailand
[2]Palaeontological Research and Education Centre, Mahasarakham University, MahaSarakham 44150, Thailand

ABSTRACT

Triassic Lampang Group consists of 7 formations, in ascending order namely Phra That, Pha Kan, Hong Hoi, Doi Long, Pha Daeng, Kang Pla and Wang Chin Formations. The lower 5 formations occurred in Lampang subbasin that displayed a deepening upward sequence commencing from continental red beds upward to carbonate platform and submarine fan sediments, followed by a shallowing upward sequence, starting from submarine fan sediments upward to carbonate platform and continental red beds. While the upper 3 formations consecutively formed in adjacent Phrae subbasin, to the present east, and contained similar deepening upward sequence. Development of the Phrae subbasin to the east favors westward subduction.

Thirteen microfacies and one lithofacies of the Lampang carbonates are interpreted on the basis of lithology, type of allochems, sedimentary structure, paleontology, facies associations, and analogy to standard microfacies. The carbonates are mainly limestones, with minor of dolomitization, silicification and metamorphism. They formed in three depositional models namely ramp platform represented by the Pha Kan and the Kang Pla, drowned ramp platform by Cave Temple Member and the Kang Pla, and regressive ramp platform by the Doi Long. Although most of them were shallow marine limestones, but deep marine limestones are also interpreted from clastic units of Huai Muang Member of the Hong Hoi, and Huai Chan and Phu Tap Members of the Wang Chin. Interpretation of ramp platforms is based on lack of elongate barrier-reef, fore-reef deposits, lack of shelf slope break, and limited distribution. In addition, the Pha Kan displays high-energy grainstone belt in a landward position as observed from the reference section at Phra That Muang Kham temple. Utilization, Pha Kan limestones in Chae Hom area are using as raw material for cement. Whereas Pha Kan limestones in Mae Moh- Mae Tha areas and Kang Pla limestones in Phayao area have been using for aggregates.