Timing of Upper Paleozoic Carbonate Build Ups along the Indochina Margin of Thailand

Thasinee Charoentitirat[1]

[1]Department of Geology, Faculty of Science, Chulalongkorn University, Bangkok 10330 Thailand
Email: thasineec@gmail.com

ABSTRACT

The time of Upper Paleozoic development is based on the detailed data of fusulinid-dating in the carbonate sequences distributed in the western part of the Indochina Block of Thailand. Timing of Upper carbonate build ups will be indicated by the presence of index fossils: smaller foraminifers and fusulinid, until the age of uplifting during Permo-Triassic which is presented by basal conglomerate located in e.g. Phu Nam Yod and other areas along the Indochina margin of Thailand. Carbonates in this area can be divided into three platforms: Pha Nok Khao, Khao Khwang and Sa Kaeo platforms. It is said that the carbonates Pha Nok Khao and Khao Khwang platforms were separated by the Nam Duk Basin. This basin is mainly characterized by siliciclastic deposits and relatively narrow distribution N-S trending. The Sa Kaeo platform distributed mostly in Sa Kaeo area, east Thailand, is geographically isolated from the two platforms. In the Pha Nok Khao platform, it is noted that carbonates were started accumulation during Lower Carboniferous and ended during Upper Permian. The rock sequences during Lower Carboniferous in this platform are represented by massive and thick-bedded limestone and dolomitic limestone whereas the ones in Upper Carboniferous (Bashkirian to Kasimovian) are mostly characterized by fine-grained clastic sediments with minor intercalations of lenticular or thin to thick-bedded limestone. After that, the sequences are succeeded by thick to very thick-bedded or massive carbonates during Gzhelian to Asselian (Uppermost Carboniferous to Lowest Permian). Lower Permian in this platform generally formed as a high topography of the limestone Nam Mahoran Formation. During Middle Permian, limestone interbedded with clastic rocks (mostly shale or mudstone) and massive or thick-bedded limestones were recognized. Recently, Upper Permian thick-bedded carbonates were reported from the Nam Nao area. In the Khao Khwang platform, Lower and Upper Carboniferous carbonate rocks were not well developed. Carbonates were rapidly developed in the Khao Khwang platform during Lower Permian (Asselian) as being represented by Lower Permian limestone sequence of hundred meters thick in Saraburi area. Although, Early Permian fusulinids were recognized in this Khao Khwang platform, they are lower in generic number compared to those of the Pha Nok Khao platform. The Khao Khwang platform was continue to be dominated by thick carbonate accumulation during Middle Permian as being represented by very thick carbonate sequence in Lopburi and Saraburi areas. In the Sa Kaeo platform, late Middle Permian (Midian) fusulinids were normally examined in thick-bedded or massive limestones although early and middle Permian carbonates were rarely found. This shows that the Sa Kaeo carbonate platform first started during Lower Permian but it is not widely distributed compared to the ones developed in upper Middle Permian time. This is suggested that the paleo-latitude and paleoenvironment during upper Middle Permian was suitable for carbonate accumulation in Sa Kaeo and adjacent areas.