

# Lithostratigraphy of Part of Sao Khua Formation at Khao Phang Hoi Area, Amphoe Thepsatit, Changwat Chaiyaphum

Ranate Songsawad<sup>1</sup> and Vichai Chutakositkanon<sup>1\*</sup>

Department of Geology, Faculty of Science, Chulalongkorn University, Bangkok 10330, Thailand

## Abstract

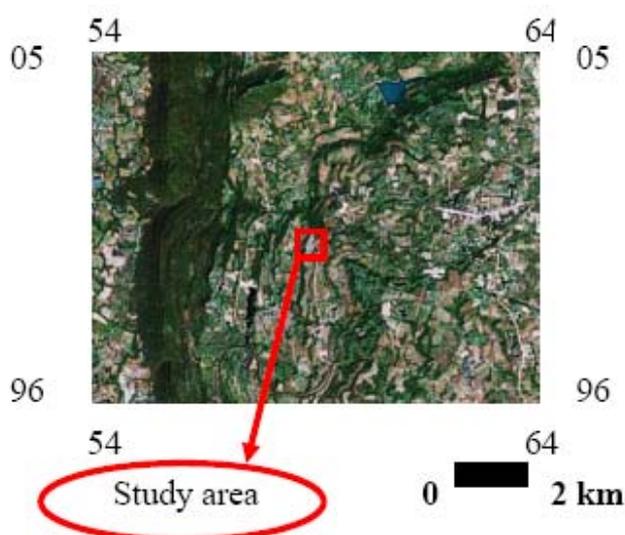
The rock units in the study area are sub-horizontal clastic sediments in four lithostratigraphic units of Sao Khua Formation. The rocks are reddish brown to purplish grey siltstones, mudstones with calcrete nodules and bioturbation burrows, conglomeratic to very fine-grained reddish brown to greyish white well sorted sandstones showing many sedimentary structures such as graded bedding, cross-bedding, and cross-lamination. Petrographic studies indicate that the sandstones in the study area are sublitharenite and subarkose. The depositional environment indicated is meandering rivers in semi-arid to arid paleoclimate.

**Keywords:** Sao Khua Formation; Khorat Group, Meandering rivers, Lithostratigraphy

## 1. Introduction

The Khorat Group entirely spreading in the Northeast of Thailand is geomorphically expressed as large plateau compared to the central plain. Khao Phang Hoi Area in Amphoe Thepsatit, Changwat Chaiyaphum, is the area where the new highways are constructed across the strata of Khorat Group. The new roadcut exposures are well suited for studying the lithostratigraphy of Khorat redbeds. But the previous survey in invented some new data e.g. discoveries of Charcoals and ambers in

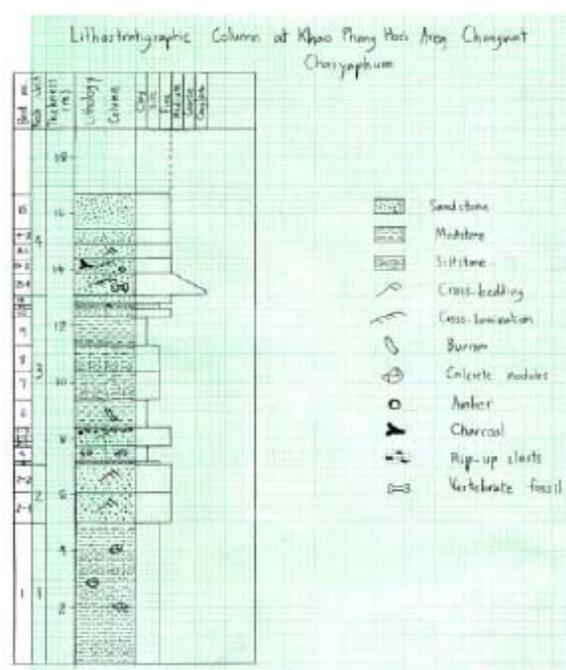
sandstone strata in Khao Phang Hoi Area, Changwat Chaiyaphum were discovered by the field work of students of Department of Geology, Chulalongkorn University previously. The study area in this senior project is located in the Highway No. 205 crossing the Phang Hoi range in east-west direction where the sandstones are interbedded with siltstone and sedimentary structures can be found. The petrography and the lithostratigraphy of sedimentary rocks in Khao Phang Hoi Area have been studied in this project for discerning the depositional environment.



**Figure 1:** Satellite image of the study area.



**Figure 2:** Road-cut outcrop of the study area showing rock units no.1-4 (photo taken to the south).



**Figure 3:** Lithostratigraphic column at Khao Phang Hoei Area, Changwat Chaiyaphum.

## 2. Experimental Results and Discussion

The sedimentary rocks in Khao Phang Hoei Area can be divided into four units. The strata investigated area can be simply grouped into one major sequence based upon physical properties and lithological association as red clastic rocks. This clastic sequence can be correlated with those previously mapped by Department of Mineral Resources in 1976 as the Sao Khua Formation. As mentioned by Department of Mineral Resources (1976), the Sao Khua Formation is the red clastic sequence consisting of siltstone and sandstone. The

red-coloured clastics have mica grains. The grey sandstone beds are medium grained with small-scale cross-bedding. In this study, the white sandstones interbedded with the red clastics are considered to represent the meandering rivers depositional environment similar to that proposed by Meesook et al. (1995).

## 3. Conclusion

All rocks in the mapped area were deposited in the Mesozoic Era. These rocks are mainly sedimentary strata that can be grouped into four stratigraphic rock units. This unit can be correlated with some part of Sao Khua

Formation in the Khorat Group. The rocks are characterized by reddish brown to purple siltstones, mudstones with calcrete nodules and bioturbation burrows, conglomeratic to very fine-grained reddish brown to greyish white well-sorted with many sedimentary structures such as graded bedding, cross-bedding, and cross-lamination. The depositional environment of sedimentary rocks in Khao Phang Hoei area indicated pertains to meandering rivers and floodplain in semiarid to arid paleoclimate.

#### **4. Acknowledgement**

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#### **References**

- Meesook et al., 1995, Non-marine Mesozoic Rocks in the Vicinity of Khorat Plateau. Proceedings of the Symposium on Geology of Thailand 26-31 August 2002, Bangkok, Thailand, pp. 102-110.
- Department of Mineral Resources, 1976, Geological map of Thailand 1:50,000. Explanation for the sheets Amphoe Ban Mi, Geological Survey Division, Department of Mineral Resources, Bangkok, Thailand.