

## **Depositional environment of the Lower Cretaceous Khok Kruat Formation at the dinosaur site of Nakhon Ratchasima Province, NE Thailand**

Hirokazu Yukawa<sup>1</sup>, Yoshikazu Noda<sup>2</sup>, Pratueng Jintasakul<sup>3</sup>, Yoichi Azuma<sup>2</sup> and Sigeyuki Suzuki<sup>1</sup>

1. Department of Earth Sciences, Okayama University, Okayama, Japan

2. Fukui Prefectural Dinosaur Museum, Fukui, Japan

3. Northeastern Research Institute of Petrified Wood and Mineral Resources, Nakhon Ratchasima Rajabhat University, Nakhon Ratchasima, Thailand

Study area is located in Suranaree subdistrict of Nakhon Ratchasima Province, northeastern Thailand. The Lower Cretaceous Khok Kruat Formation is distributed in this area. Many vertebrate fossils including the dinosaur, shark, fish, crocodile and turtle are preserved at this excavation site. The aim of this study is to analyze detailed sedimentary facies of deposits which yield vertebrate fossils, particularly dinosaurs. It will lead to make clear a taphonomy of vertebrate fossils. According to Racey et al (1996), the Khok Kruat Formation is suggested to be Lower Cretaceous in age on the basis of palynological date and vertebrate fossils. This formation is predominantly fluvial in origin. At this site conglomerates and medium to coarse-grained sandstones are present. Mudstones are rare. The conglomerates are predominantly clast-supported and often contain clay rip-up clast. In the sedimentary structure planar and trough cross-stratification are observed.

In this site the sedimentary rock is subdivided into two facies (Fig1). Facies 1 :The conglomerates are predominantly matrix-supported and contain clay rip-up clast. Size of clasts is about 0.2-1.0 cm and poorly sorted. Inverse grading is also observed. The sandstones are medium to coarse-grained and have lamination. It is often observed that conglomerate deposits erode upper boundary of sandstone deposits. Facies 2 : The conglomerates are predominantly clast-supported and well sorted. Planar and trough cross-stratification are observed into conglomerate deposits. The direction of conglomerates ranges relatively. The number of clay rip-up clast of the Facies 2 is smaller than Facies 1. The boundary between conglomerate deposits and sandstone deposits is sharp.

So Facies 1 is thought to deposit near the channel and Facies 2 is thought to be bar deposits. Then, it is inferred that current of Facies 1 is faster than Facies 2. Many vertebrate fossils are observed the bottom of Facies 1. The cause might be considered change of depositional environment from Facies 2 to Facies 1.

### **Reference**

- A. Racey et al. 1996. STRATIGRAPHY AND RESERVOIR POTENTIAL OF THE MESOZOIC KHORAT GROUP, NE THAILAND: Part 1: Stratigraphy and Sedimentary Evolution. *Journal of Petroleum Geology*, Vol 19, Issue 1, 5–39.

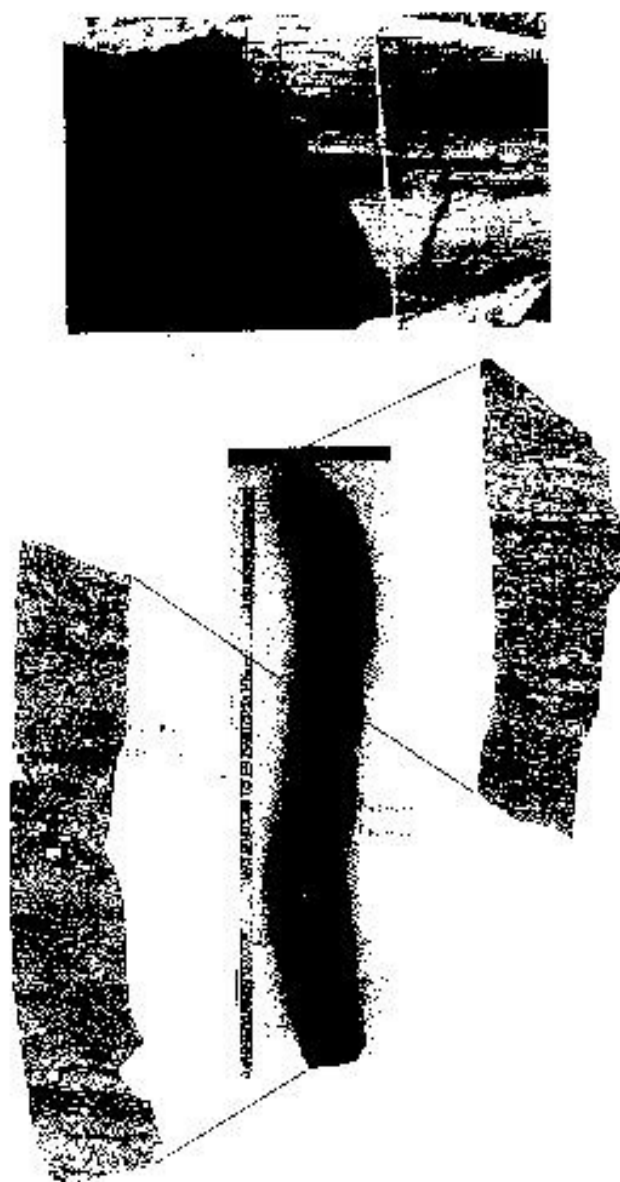


Fig 1. Detailed sketch of cutting sample in dissection excavation site.