

# Re-evaluation of activity of Thoen fault in Lampang basin, Northern Thailand

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The collision between India and Eurasian plates in the early Tertiary causes predominantly the NW-SE and NE-SW strike slip faults and the N-S dip slip faults in the Indochina region. In the Northern Thailand, these faults are arranged in NE-SW and N-S and are associated with Cenozoic basins.

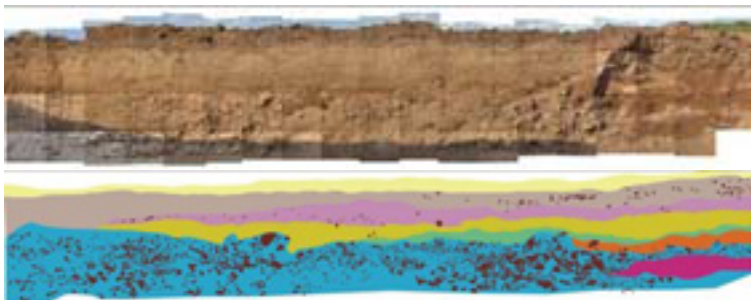
The Lampang Cenozoic basin, Northern Thailand has a NE-SW longest axis and is bordered on its south-eastern side by the Thoen fault. The previous studies based on remote sensing technique reveal that the lines of morphotectonic evidence along the Thoen fault indicate that it belongs to an active tectonic zone. Paleoseismic investigation data of the Thoen fault are required to interpret its historical movement.

This research has done to study characteristics of the Thoen fault along the southeastern margin of the Lampang basin. Remote sensing technique and aerial photographs are applied to interpret lineament, location of the fault and the morphotectonic landforms. Therefore, Ground Penetrating Radar (GPR) investigation is applied to check the location of fault and trenching has done across the interesting site.

The results from Landsat 7 interpretation show that the major trend of lineaments is rather a NE-SW direction. Aerial photograph interpretation clearly reveals normal-fault scarps in the several areas along the fault line. Morphotectonic landforms suggesting a normal active faulting in these areas are triangular facet spurs, wine glass canyons and linear mountain fronts. Stream length-gradient index (SL) indicates steep slopes of streams that may be related to an active tectonic zone. Valley floor width to valley height (Vf) and mountain front sinuosity (Smf) are low. These geomorphic indices seem to characterize rapid uplift feature. The GPR interpretation reveals the displaced reflection surfaces and discontinuity of horizontal layers in some sites of GPR investigation lines. Thus, trenching sites could be determined by using the GPR data. Three trenching sites were excavated at Ban Don Fai and Ban Thung in the northern and southern segments of the Thoen fault, respectively.

The interfingering structure of silt, sand, and gravel is found in the sediment layers of the trench No.2 at Ban Don Fai. This suggests the fluvial environment. Trenching reveals the irregular surface of sediment layers at trench No.1 at Ban Don Fai and Ban Thung. These surfaces can be observed as an erosional surface, which are not associated with the active fault. In this research, the data from trenching may not support that the Thoen fault is of an active fault. Otherwise, its recent fault evidence may be recorded in the deeper (more than 4 m). For the future plan, the carbon-14 and Thermoluminescence datings will be applied to determine the age of sedimentary layers in the trenchings. The seismic data in the Lampang basin also will be collected for study the activity of the Thoen fault.

(座長 ; 増川 恭子)



1 meter  
1 meter

Fig. Trench No.2 picture and sketch at Ban Don Fai showing the horizontal fluvial sediment layers

## 次回のお知らせ

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