

Re-evaluation of the Thoen fault activity in the Lampang basin, northern Thailand Re-evaluation of the Thoen fault activity in the Lampang basin, northern Thailand

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We applied remote-sensing technique and geomorphic index analysis to a study of the NE-SW-striking Thoen fault, Lampang basin, northern Thailand. Significant morphotectonic landforms caused by normal fault in the Lampang basin are represented by fault scarps, triangular facets, wine-glass canyons and linear mountain front. Along the Thoen fault, the SL index indicates the steeper slope near the mountain front. These SL indices possibly relate to a normal fault system. Moreover, most of Vf and Smf values at Ban Mai and Sop Prap segments are low (0.44 to 2.75 of Vf and 1.11 to 1.82 of Smf). These geomorphic indices may indicate slightly active tectonic area that results from vertical slip on the normal fault. Geomorphological features and geomorphic indices of the study area envisage active normal faulting. However, stratigraphic units of trench at Ban Don Fai indicate no clear-cut evidence of any recent fault movement. At Ban Don Fai trench No. 2, AMS radiocarbon and OSL ages suggested that the sediments of the lowest unit were deposited between 960 to 910 years ago. Therefore, the last movement of the Ban Don Fai segment might have occurred earlier than 960 years ago. High resolution seismic survey data for coal investigation in the Mae Tha sub basin (adjacent to the present trenching site) reveal that the Thoen fault is a concealed fault. Thus, the Ban Don Fai segment of the Thoen Fault might be a concealed fault.

In the northern Thailand, there are six major faults that have been regarded as an active fault: Mae Chan, Mae Tha, Pua, Thoen, Mae Hong Son and Mae Ping faults. This study proved that the Thoen fault might be not so active at least during the latest several thousand years. More researches on the other active faults are necessary to evaluate the fault activity and very recent tectonics in northern Thailand.

キーワード: Thoen fault, Normal fault, Morphotectonic landforms, Geomorphic index analysis, OSL and AMS radiocarbon datings, Lampang basin, Northern Thailand

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