



Strain styles within the Klong Marui continental wrench fault, southern Thailand

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The Klong Marui Fault is the southernmost of 4 major strike-slip faults in Thailand. This ca.150 km long wrench fault trends NE-SW, from the Gulf of Thailand to the Andaman Sea. Despite the regional importance of this feature, it has received scant modern structural geology study. We present here initial results from a pilot study of the fault.

Rocks on the NW flank of the fault are part of the Permo-Carboniferous Kaeng Krachan Group (locally quartzites & phyllites). Much of the fault trace is characterized by a long, straight valley up to 7 km wide. Occasional topographic ridges that are present in the valley appear to be resilient lithology fault core "lozenges". We identified a one of these, a granite-cored "lozenges" for initial study. This tertiary granite is 20 km x 3 km mildly deformed in its centre, more intensely at its margins. It is in high strain contact with spectacularly mylonitised micaceous and quartzofeldspathic members of the local Kaeng Krachan Group. On the SE side of the granite, steep-vertical very quartz rich mylonites show pervasive dynamic recrystallisation. On the NW side, more-micaceous quartz rich mylonites are moderately to steeply dipping, with broad wavelength (cm) buckling at lower temperatures probably during later partitioning of transpressive strain as part of the overall vertical extension and exhumation of the fault core. More localised ("brittle" displacement surfaces are present, spaced at metre scale

intervals. Kinematic indicators are common; the fault is left-lateral.

The deformation history of Klong Marui Fault started at least Tertiary time, probably as part of the series of crustal scale growth / accommodation structures that were generated in SE Asia due to tectonic escape arising from the India-Asia collision. Present activity is unreported but prominent morphology of triangular facet along the flanks suggest a slip surface rejuvenation.