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Lineament interpretation and deformation styles within the Klong Marui continental wrench fault, southern Thailand

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The geology of the area near Phang-Nga province in southern Thailand is dominated by the Klong Marui fault, a roughly 150 km long strike-slip. Geomorphologically the 30˚NE-striking wrench fault is characterized by an up to 7 km wide complex system of valleys. Marked topographic ridges located in the middle of the valley system mainly consist of vertical thick layers of strongly deformed metapellites/mylonite and migmatites. Using remote sensing techniques, spatial lineament orientations were quantified and compared with fault orientations and fault-slip data from the field.

Aerial-photographs, Landsat TM satellite images, DEM data were integrated in an ArcGIS database and were used as basic date set for quantitative spatial lineament interpretation. Three different lineament data sets were derived from the different data sources and its maxima were statistically analyzed in rose diagrams. Four major directions can be subdivided into NE-SW and NW-SE domains. Two lineament directions are located in the NE-SW trending sets striking 25˚-35˚NE and 55˚-60˚NE respectively. The other lineaments are orientated in 305˚-315˚NW and 325˚-330˚NW and belong to the NW-SE striking data set. Brittle/ductile to brittle fault systems in the field strike predominately 285˚-290˚NW and 300˚-305˚NW respectively. Both remote sensing and field studies suggest fault domains, which are parallel to the topography and probably represent the main fault zone and synthetic secondary fault whereas the NW-SE directions may be interpreted as antithetic fracture related to the dextral

strike-slip kinematics of the Klong Marui fault evolution, which facilitated the escape tectonic arising from the India-Asia collision.