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Kinematics of the Metamorphic Core of Taiwan Orogeny

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The geometry and kinematics of the metamorphic core preserved the tectonic history of the Taiwan orogeny. The metamorphic core of the Taiwan orogeny is composed of the Mesozoic Tailuko belt and Miocene Yuli belt. The contact between these two belts is the ductile shear zone named Soufeng fault. To understand the structural evolution of the Shoufeng fault and its tectonic implication, we observed the texture and kinematic characteristics across the Shoufeng fault by the field work. The cross sections are located in the Wanli River、Fuyuan River、Chingshui River、Hsinwulu River、Dalun River and Luliao River. The Tailuko belt is composed of phyllite, quartzite, quartz-mica schist, meta-conglomerate, gneiss, meta-basite, amphibolite, serpentinite, marble and meta-chert, etc. The Yuli belt is composed of a monotonous assemblage of quartz-mica schist, subordinate meta-basite and serpentinite, etc. The Shoufeng fault which is a NNE trending and west dipping shear zone mainly composed of mylonitic dark gray quartz-mica schist and mica schist. The deformation of the schist varies in the shear zone and is characterized by abundant varied quartz veins that have been stretched to lenticular shape or bands. Two results are found: (1) The Shoufeng fault accommodated the primary vertical movement occurred at D2, and then the horizontal distortion at the latest ductile deformation phase D3. (2) A series of meta-pillowed basalts occurred at the contact between the west boundary of the Tailuko belt and the Eocene meta-sandstones.

Keywords: Ductile shear zone, kinematics