



Structural Transfer Zones in the Foothills Belt, Western Taiwan

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Structural transfer zone in the foothills belt marks the end point of a major thrust and is manifested by lateral transfer of displacement, slip surface and structural styles from one to another thrust. In a larger scale, the structural transfer zone is the transition zone between two adjacent segments of thrust system. The existence of a structural transfer zone may shed some influence on potential lateral length and/or trend of a surface rupture of active thrusting in the foothills belt. In this paper, we attempt to analyze and propose, based on more than thirty balanced cross-sections, some characteristics of structural transfer zones in the foothills belt of western Taiwan. We will first present the segmentation of the foothills belt based on the style of fold-and-thrust structures through the belt. We will then describe the characteristics of along-strike connectivity between the thrusts in the structural transfer zones.

The orocline of the foothills belt in western Taiwan can be divided into two salients, which are facing two pre-orogenic extensional basins respectively. The salients can further be divided into tectonic segments, each of which is characterized by distinct style of fold-and-thrust structure; i.e., variation in structural style, which is the primary criteria to define the structural transfer zone in this paper, exists not only between salients but also within each salient. The connectivity of fold-and-thrust structures appears different features, such as variations in slip surface and trend of thrusts or space between thrusts, in different transfer zones.

Basically, the salient in the northern part of the foothills belt is characterized by narrower-spaced thrust faults in the inner part of the belt, comparing to that in the southern part of the belt. The structural transfer zones are the local spots which are characterized by the narrowest space between thrusts in the inner part of the foothills belt. In the outer part of the foothills belt, the connectivity of thrusts in the structural transfer zones is different in the two salients. In the northwestern Taiwan, the segmented thrusts are connected by a high-angle reactivated normal fault, whereas they are connected by a tear fault or unexposed lateral ramp of the thrusts in the southwestern Taiwan. As for the frontal thrusts, displacement at their ends is transferred into fold structures, which may be related to blind thrusting extending into the coastal plain.