



Seismic reflection survey in the northern part of the Longitudinal Valley, the suture zone, in eastern Taiwan

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The Longitudinal Valley (LV) is the suture zone of the Eurasian and Philippine Sea plates in eastern Taiwan, which results in high seismicity and significantly crustal deformation in this area. Based on previous studies, two main thrust fault systems, the Longitudinal Valley fault and the Central Range fault, have been suggested to distribute on the east side and on the west side of the LV, respectively. However, due to thick sediments covered beneath the LV, the fault geometry and the subsurface structure are difficult to be traced. Therefore, several conceptual models have been proposed for the deformation of the LV with few constraints on the geophysical data beneath it. In this study, in order to investigate the subsurface structure of the LV, we used two Mini-vibrators (vibroseis) as sources to conduct seismic reflection survey in the northern part of the LV (from Yuli to Shoufeng). There are 8 seismic profiles in this region and, in general, the signals from the reflectors can be down to 2-3 km depths. As a result, the subsurface structures change dramatically from Yuli to Kuangfu. From Yuli to Rueyshui, faults and folds can be found as dominant features in the profiles. From Rueyshui to Shoufeng, continuous strata dipping to the east are observed. The results could imply the complicated tectonic history in the northern part of the LV.