

Fault Segmentation of the Longitudinal Valley Fault in Eastern Taiwan

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Abstract

The disaster caused by the surface rupturing and distortion of active faults is an important assessment of earthquake hazard. Fault segmentation can provide an important framework to enhance our understanding of seismic mechanisms and quantify earthquake hazards caused by fault reactivation. In previous studies, the segments of a fault can be identified by earthquake rupture of fault, fault behavior, fault structure, fault geometry and fault geology. The Longitudinal Valley Fault (LVF), a plate boundary fault, which is located in eastern Taiwan and stretches along the Huatung Longitudinal Valley. Based on its stratigraphic units and geomorphologic feature along the fault, and fault behavior of each segment, the LVF was partitioned into four segments as Linding, Juisui, Chihshang, and Lichi faults. In this study, we use historic earthquake fault rupture, fault structure and geophysical anomalies to redefine the segments of the LVF. Finally, we conclude that the LVF have 4 subsegments of the Linding Fault, 2 subsegments of the Juisui Fault, 6 subsegments of the Chihshang Fault, and Luyeh Fault segmented with the Lichi fault. In the future work, I will compare the segmentation result with seismicity to have better understanding on the seismogenic structure of LVF.