

A study of the near surface geometries of the Chimei and Chihshang faults with the electrical resistivity imaging surveys in the Yuli area

*Hanlun Hsu¹, Ping-Yu Chang¹

1. Institute of Geophysics, National Central University

The Longitudinal Valley (LV) in eastern Taiwan represents the collision boundary between the Eurasian Plate and the Philippine Sea Plate. The Longitudinal Valley Fault (LVF) is the main active fault having a surface length of about 150km from Hualien to Taitung. A significant surface creeping was found at the Chihshang fault in the south part of LVF. However, the GPS and PSInSAR (Persistent Scatterers InSAR) results showed that the Rueisui Fault and Chimei Fault area in the middle part of LVF had less surface movements than the Chihshan fault area in the south. The junction of the Rueisui, Chimei and Chihshan faults was at the Yuli area. In this study, we try to find the shallow structure of faults between the Chimei fault and Chihshang fault. Six 2D electric resistivity profiles were done along the Chimei fault in Yuli area. After the field data collecting and 2D inversion of the resistivity measurements, the electrical models show that the Chimei fault and Chihshang fault might not be jointed at where researchers expected before in the Yuli area, and their surface fault traces are separated as two parallel lines in the area. The new evidences from the resistivity measurements suggest that we need to review the conventional fault junction model for the LVF in the Yuli area, and more detailed geophysical surveys are needed in order to resolve the regional fault structures.

Keywords: Longitudinal Valley Fault, electric resistivity, Chimei fault