Frontal Deformation of Chihshang Active Fault at Tapo, Eastern Taiwan - Faulting or Landsliding?

Mohammad Tri Fitrianto[1], I-Chi Yen[1], Yi-Wei Chiou[1], Wen-Jeng Huang[1, 2], Ping-Yu Chang[2], Chien-Chih Chen[2], Jian-Cheng Lee[3]

[1] Graduate institute of Applied Geology, National Central University, Taiwan
[2] Department of Earth Sciences, National Central University, Taiwan
[3]Institute of Earth Sciences, Academia Sinica, Taiwan

Abstract

Surface rupture and morphology are some of many parameters that could indicate the location of an active fault. But, only depending on these two parameters could lead to an unsatisfying conclusion. Related to this problem, six boreholes and inclinometer have been installed at Tapo for the complement of previous research. From the borehole samples, we observed three different lithology: Lichi mélange, colluvial gravels and fluvial gravel. Based on borehole sample analysis, it indicates that the main fault of Chihshang fault is located 20 meters to the east from the surface rupture, which had been expected as the main fault. We expected the surface rupture is generated by another mechanism such as creeping landslide. ERT result shows the distribution of the low-resistance material near surface which is interpreted as the loose material that slided downstream. The sense of the ground movement also has been provided by inclinometer recording. Based on inclinometer monitoring record, we found that the ground movement direction is about 6.9° NW. All the evidences pointed out that two mechanisms, faulting and slumping, have been generated at frontal deformation of Chihshang active fault at Tapo.

Mohammad Tri Fitrianto
Graduate Institute of Applied Geology
National Central University
No. 300 Jhongda Rd., Taoyuan, Taiwan
Phone: 0986-479064
E-mail: emtrifian@gmail.com