Japan Geoscience Union Meeting 2014
(28 April - 02 May 2014 at Pacifico YOKOHAMA, Kanagawa, Japan)

HDS05-18 Room:415 Time:April 29 15:35-15:50

Recognition of large scaled deep-seated landslides using high resolution topography and case studies in Taiwan

HO, Dia jie[1*] ; LIN, Ching-weei[2]

[1](1)Disaster Prevention Research Center National Cheng Kung University, [2](2)Department of Earth Sciences National Cheng Kung University Tainan Taiwan

High resolution topography and topographic characteristics of large scale deep-seated landslides (landslide area >10 ha) are used to interpret large scale deep-seated landslides in an area of 4980.8 km2 and a total number of 1607 potential large scale deep-seated landslides are recognized. The results show that main distribution of potential large scale deep-seated landslides in Kao-Ping River watershed is near structural lineaments and both sides of the river.

Two cases discussed in the study are on the right bank of Baolai River in Baolai, Kaohsiung City and on the left bank of Luliao River in Yanping Township, Taitung County. Typhoon Trami (08/20˜08/22), Typhoon Kong-Rey (08/27˜08/29) and Typhoon Usagi (09/19˜09/22) are main typhoon events of 2013.

Potential landslide area, average slope angle and main lithology of case I is 96.6 ha, 31.1? and argillite. GPS data show a maximum horizontal displacement of 27.6 cm to southwest and a maximum subsidence of 20.5 cm after Typhoon Trami and Typhoon Komg-Rey. Surface extensometer data show the extension amount of 8 cm and 5 cm after three typhoon events. Potential landslide area, average slope angle and main lithology of case II is 6.4 ha, 32.5? and slate. A landslide with an area of 2 ha happened in the range of case II after Typhoon Usagi. These two cases indicate that rainfall and riverbank erosion are important factors on triggering large scale landslides.

Keywords: deep-seated landslides, GPS