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Investigation of Landslide from Deformation - Comparison of High Resolution DEM, Aero Photos Using Long Wave Length DInSAR

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Landslide is one of the common natural hazards in Taiwan, especially in central Taiwan with high elevation and steep terrain. Rainfall is increasing both in accumulation and intensity after 2000. Severe landslide events after Chi Chi earthquake are including typhoon Toraj, typhoon Mindulle, 69 heavy rainfall, typhoon Sinlaku, and typhoon Morakot. However, these landslides could be unstable or deformed after rainfall and sliding in next events. The major purpose of this study is to find these deformed but not slide out slopes but slip in following events. For this objective, differential interferometry synthetic aperture radar (DInSAR) is adopted and an event after 69 heavy rainfall is selected for this research. The vegetation in Taiwan is very well thus wave length of SAR needs as long as possible to penetrate vegetation to reach ground surface. ALOS PALSAR HH image is used in this research to derive fringe in study area. The Study area ranges from Puli in south and Wulin in north, including May River basin, Lushan hot spring area, Chingjing area, and Tsuiluan area. The result shows appropriate relationship between the founded deformed slope from DInSAR and landslip in following event. Also high resolution DEM and aero photos are used to derive topography and landslide identification. The results also show that the process can be reference to produce landslide susceptibility map.