

宜蘭寒溪土砂觀測、預警及分析暨耗材化設備研發

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摘要 宜蘭縣寒溪村為土砂災害好發區域，本團隊自 2011 年起陸續於此地區建置觀測儀器有攝影機、水位計、土壤含水量計、傾斜計、位移計、地聲檢知器、鋼索檢知器，搭配無線電傳輸及太陽能供電系統，可提供即時土砂災害監測及預警；此外亦蒐集該區 DEM、土地利用、土壤、及地質圖層，並由無人載具取得並製作河道細部 DSM，配合現地資料搭配相關分析方法與模式，用以研判土砂崩塌潛勢及運移特性；並研發低成本低耗能之耗材化傾斜計、位移計，期能擴大偵測範圍並降低防災成本。

關鍵詞：寒溪村、土砂災害、崩塌潛勢、土砂運移、耗材化。

Sediment Observation, Prediction, Analysis, and Development of Expendable Equipment in Hanxi Village

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ABSTRACT Hanxi Village is the area where prone to sediment disaster in Yilan County. We have installed the equipment of observation such as the camera, the water level sensor, the soil moisture sensor, the clinometer, the displacement meter, the geophone, and the wire sensor since 2011. These sensors can supply real-time observation and warning of sediment disaster by radio transmissions and solar energy system. Furthermore, we collect the DEM, land-use, soil and geological layers in the area, and produce the DSM in detail by the UAV. After that, we can deal these data with analysis method and model to research the failure potential and sediment movement. Finally, we are developing the cheaper, expendable clinometer and displacement meter with low power consumption to expand observed area and reduce the cost of disaster prevention in expectation.

Key Words : Hanxi Village, failure potential, sediment transport, expendable.

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