

## 應用 ERT 法於崩場地特性調查與水分變化之研究

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**摘要** 傳統鑽探法與地球物理探測法中之地電阻剖面影像法 (electrical resistivity tomography, ERT) 被廣泛運用於崩場地調查, 鑽探法可提供真實的單點地層資訊但施作成本較高, 而 ERT 法施測方便、經濟, 且能快速取得地表下構造之電阻特性。本研究結合 ERT 法與傳統鑽探, 於南投縣中寮鄉之一處崩場地進行試驗, 針對崩塌後之地層狀況、降雨事件前後地層電阻率之變化以及不同電極排列法之適用性等課題進行探討。結果顯示, 地電阻法對崩場地堆積區之探測成果大致與鑽探資料吻合。兩時期間的電阻率變化量顯示乾季時的地表下電阻較濕季時高, 電極排列法則以 Pole-Pole 排列最適用於本試區之地層。另外並驗證了山邊溝可間接促進水分入滲進入邊坡。

**關鍵詞**：地電阻剖面影像法、鑽探法、電極排列、崩場地。

### Applying ERT to Investigate a Landslide Area and the Variation in Water Content

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**ABSTRACT** Traditional drilling and Electrical Resistivity Tomography (ERT) are widely applied to the investigation of landslides. Borehole data provide substantial information of strata but drilling work is expensive. ERT is relatively rapid and economical for investigating a large area. In this study, boring and ERT methods were applied to examine an old landslide area in Chung Liao, Nantou, Taiwan to understand the subsurface conditions. We discuss the variations in resistivity following rainfall and the suitability of the electrode array types. The thickness of colluviums detected by ERT agrees with the borehole data, as indicated in the results. Surface resistivity in the dry season is higher than that of the wet season. The pole-pole array type is the best electrode arrangement in this study area which is in a sedimentary formation. It is also verified hillside ditches can assist in rainfall infiltration.

**Key Words:** Electrical resistivity tomography (ERT), drilling, electrode array, landslide.

### 一、前言

台灣地處亞熱帶, 雨量豐富但分布不均, 在兩千

五百多毫米的年平均雨量中, 有 70% 集中於 5~10 月間。大量的雨水由地表入滲至邊坡內, 除了增加邊坡荷重外, 孔隙水壓的上昇亦使邊坡土體抗剪強度降低

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