

應用 IRIC 模式模擬汐止鵠鵠崙崩塌土砂運動行為

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摘要 111 年 10 月尼莎颱風侵襲北台灣，造成汐止區山坡地多處崩塌，以往被劃入山崩與地滑地質敏感區，編號為新北市-汐止區-D003 的鵠鵠崙地區，在本次颱風後發生局部崩塌，經利用災前 99 年與災後 111 年所建置之 1 米 DTM 成果相減，可計算崩塌面積約 3 公頃，其中崩塌區面積達 14,424m²，堆積區面積達 14,885m²，崩塌體積為 10.38 萬 m³，堆積量體為 13.10 萬 m³，平均崩塌深度達 7m，平均淤積深度達 8.8m，本研究進一步利用 IRIC 土石流二維模式進行模擬，配合前後期 DTM 所得之沖淤深度與體積變化，及蒐集尼莎颱風期間之降雨量，藉由合理之模式參數群設定，重現本次鵠鵠崙崩塌坡面上的土砂動態運動行為，並將藉由數值模擬，快速地掌握坡面上不同位置發生崩塌後，土砂影響範圍，以確保下游保全對象的安全。

關鍵詞： IRIC、DEM、崩塌地土方量、土石流、鵠鵠崙崩塌

Apply IRIC Model to Simulate the Dynamic Sediment Movement of Gugulun Landslide in Xizhi District, New Taipei City, Taiwan.

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Abstract Several landslides were induced by typhoon NESAT in October, 2022 within the hillslopes of Xizhi district, New Taipei City, Taiwan. A local landslide on the sensitive landslide area where numbering D003 was found formed after this typhoon event. By subtracting the digital terrain model (DTM) before and after the landslide, the total landslide area is about 3 hectares; the erosion area is 14,424 square meters, the deposition area is about 14,885 square meters; the erosion volume is 10.38 ten thousand meters, the deposition volume is 13.10 ten thousand meters; the average erosion depth is 7 meters, and the average deposition is 8.8 meters. In addition, IRIC, two-dimensional horizontal debris flow model, was applied to simulate the sediment dynamic movement on the landslide slope. With reasonable model parameters input and landslide erosion and deposition information from DEM subtraction, we would like to use a numerical model to evaluate the impact area quickly after land sliding to make sure the safety of downstream livings.

Keyword: IRIC, DEM, Landslide Volume, Debris Flow, Gugulun Landslide

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