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坡地水流對崩塌影響之研究

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摘　　要　影響自然邊坡穩定的因子眾多，而地下水壓普遍被認為是引起坍方的最主要原因。地下水壓不僅為驅使坡面坍壞的重要動力，也具有改變地質材料特性的能力，坡地坍壞後地形也可能隨之大幅改變，使得邊坡不穩定的潛勢更為增加。本研究探討地形幾何因子與非均勻性介質所引致的水流對坡地安定之影響，研究中應用地質統計模式結合地下水模擬軟體SWMS_2D進行坡地水流模擬。由模擬所得之坡地地下水壓分佈結果，推估坡地安全係數之空間分佈狀況，以瞭解地形幾何因子與非均勻性介質對坡地安定之影響。結果顯示(1)地形幾何因子顯著地控制水流；(2)非均勻介質坡地之孔隙水壓較均勻性介質坡地為高，而使安全係數降低，因此，地形幾何因子與介質非均勻性對坡地之安定均有顯著的影響，評估坡地穩定時應納入考慮。

關鍵詞：邊坡穩定、安全係數、孔隙水壓、非均勻性。

The Influences of Slope Flow on Landslide

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ABSTRACT　Slope stability is affected by numerous factors such as groundwater, soil material, geological structure and topography. Groundwater pressure is considered as the major factor in causing the slope sliding. In this study, we investigated the effects of the geometric factors and heterogeneity of soil on the slope stability. By combining the geostatistical approach and a saturated-unsaturated flow code SWMS_2D, the simulations of slope flow were performed. The results of the spatial distribution of the groundwater pressure were used to investigate the spatial distribution of the safety factor for the stability of the hill_slope. Results show that the geometric factors and heterogeneity of materials on the hill_slope are important in evaluating the slope stability.

Key Words: slope stability, safety factor, pore pressure, heterogeneity.