

土壤雨量指數分析崩塌地案例特性及其在防災整備階段之應用

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摘 要 坡面災害根據崩塌地運動種類與材料可分類為落石、傾倒、淺層崩塌、深層崩塌和土石流等。這些災害發生主要受降雨強度、有效累積雨量、地下水深度及地表逕流量誘發所致，而筒狀模式中三筒內所含降雨深度總和可視為有效累積雨量、地下水深度之概念，日本將其定義為土壤雨量指數(*SWI*)，並作為全國防災整備階段準則。在台灣，*SWI* 應用於防災整備階段仍處萌芽階段，故本研究分析 2013 年至今 173 場崩塌災害案例，用以了解 *SWI* 應用在台灣崩塌地案例之可行性，結果顯示主要發生在 *SWI*>125mm 時，且第一筒水深超越 90mm 後至第二筒峰值之間。最後本研究最後建議採用 *SWI* 及 *RTI* 建立一套土砂災害警戒模式，可作為警戒發布時機及防災整備階段之依據，應可提高防災整備工作效率。

關鍵詞：土壤雨量指數、坡面災害、崩塌地、防災整備。

Use Soil Water Index to Analyze Landslide Cases and Its Application to Stage of Preparing-Against

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ABSTRACT This system classifies of hillslope disasters as falls, topples, shallow landslides, deep-seated landslides, and debris flow, based mainly on types of movement and materials involved, such as rock and soil. Furthermore, there hillslope disasters are induced by rainfall intensity, effective cumulative rainfall, groundwater depth, and runoff. Therefore, the sum of the rainfall depth, which as effective cumulative rainfall and groundwater, in the three tank of tank model is considered as “Soil Water Index (*SWI*)”, this is also the national criteria of disaster preparedness phase in Japan. However, using the *SWI* index as the warning index of hillslope disasters in Taiwan is still in the early stages. The study uses the *SWI* index to analyze 173 landslide disaster cases since 2013, to understand the characteristics of these cases. The result show that landslide disaster cases occur mainly in the *SWI*>125mm, between peak of first tank and peak of second tank, and rainfall depth of first tank beyond 90mm. Finally, the study recommends a warning model of sediment-related disasters combining the *SWI* and *RTI* indexes to be the basis of warning release timing and stage preparing against, they should improve the efficiency of the preparing against work.

Key Words: soil water index, hillslope disasters, landslide, preparedness.

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