氣候變遷下之坡地災害風險區位變化分析

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摘　　要　台灣山坡地在氣候變遷影響下，可能會面臨劇烈降雨更集中、侵台颱風強度增加等情境，將造成坡地災害風險區位有所變化，為能儘早因應氣候變遷對台灣坡地之衝擊，本研究針對 178 個山坡鄉鎮進行坡地災害風險分析，其中，坡地災害風險係指山坡地在降雨危害的影響下，而導致崩塌破壞，並造成人命財產損失的風險，風險分析應包括危害、環境脆弱度與社會經濟脆弱度等三項目。降雨危害指標為超大豪雨的發生機率，分析時採用動力降尺度降雨資料；環境脆弱度包括歷史崩塌率、地質敏感區與坡度指標；社會脆弱度則為人口密度與人類發展指標。風險分析時等權重相乘危害、環境脆弱度與社會脆弱度三面向，最後以等分位法分級風險分析結果，繪製出基期(1979-2003)、近未來(2015-2039)與世紀末(2075-2099)等三時段之坡地災害風險地圖，藉以瞭解坡地災害風險之空間分佈變化趨勢，並期望本研究成果可作為坡地災害防災相關單位，在研擬氣候變遷下中、長期防災規劃與調適策略之依據。

關鍵詞：氣候變遷、坡地災害、風險地圖、動力降尺度模式。

Spatial Analysis of Landslide Risk under Climate Change

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ABSTRACT Mountain areas in Taiwan may be affected by more intense rainfall typhoon events under climate change scenario. This may also lead to the change of landslide risk region's spatial distribution. To be well-prepared for the possible impacts of climate change, this study assessed the landslide risk for 178 Taiwanese mountain towns. In this paper, the landslide risk's definition refers to "The degree of loss due to a heavy rainfall-induce landslide". This study used 3 risk analysis items which are natural hazard (e.g., extremely torrential rainfall frequency), environmental vulnerability (e.g., historical landslide ratio, geological sensitive areas ratio and slope ratio) and socio-economic vulnerability (e.g., population density and population with higher education, death rate and income) to assess landslide risk. The landslide risk map can be obtained by multiplying the 3 risk analysis items together and ranking the product with equal quantile method. The landslide risk maps in the three periods, present (1979-2003), near future (2015-2039) and future (2075-2099) were then produced with dynamic downscaling rainfall data. With these maps, the spatial variation tendency of landslide risk region in the three time periods could be assessed and this can also be used to provide appropriate adaptation strategies for reducing landslide risk under climate change scenario.

Key Words: Climate Change, Landslide, Risk Map, Dynamic Downscaling Model.

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