應用 CMIP6 氣候模式評估淹水災害風險圖

Assessment of flooding risk map under CMIP6 Climate Projection

國家災害防救科技中心

副研究員	佐理研究員	助理研究員	研究助理
陳韻如	黃亞婷	劉俊志	林宣汝
Yun-Ju Chen	Ya-Ting Huang	Jun-Jih Liou	Hsuan-Ju Lin

摘　要

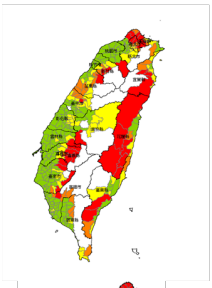
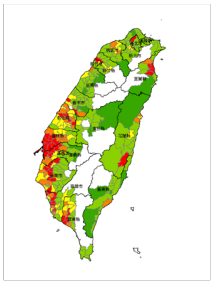
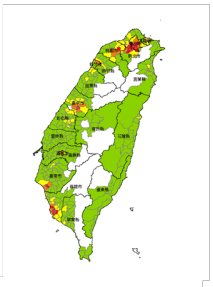
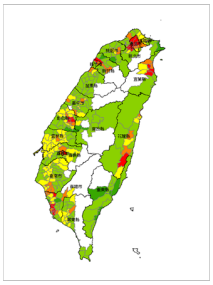
聯合國政府間氣候變遷專門委員會(Intergovernmental Panel on Climate Change，簡稱IPCC) 於 2021 年開始發布最新的第六次評估報告(AR6)，採用更完備的氣候情境設定，以及更高解析度的模式。本研究利用國科會補助之 TCCIP 計畫，採用 CMIP6 模式資料經統計降尺度後的 5 公里解析度之日降雨資料，評估全台包含澎湖離島等地區的受影響人口之淹水災害風險圖。新版的氣候情境設定，強調升溫至不同溫度門檻值的氣候變化，簡化各種排放與社經情境的選擇，研究中分別評估不同固定暖化情境下(1℃、1.5℃、2℃、4℃等)，可能的極端降雨機率變化，進而套疊淹水災害潛勢圖與人口分布圖，了解淹水災害風險變化，另採用不同統計分級方法與色階呈現各項圖資，提供使用者更直覺的視覺感受，有助於決策者瞭解不同增溫幅度下的衝擊程度，以掌握合適的決策時間點。

關鍵詞：固定增溫情境、離島淹水災害風險圖、第六代全球氣候變遷模式

Abstract

The sixth assessment report (AR6) which applied CMIP6 model was published in 2021 by Intergovernmental Panel on Climate Change (IPCC). CMIP6 models are more complete climate scenarios and higher-resolution models than CMIP5. This study uses the daily rainfall data of resolution of 5 km which was downscaled by statistical method from Taiwan Climate Change Projection and Information Platform (TCCIP) to assess the flooding risk map. The offshore islands (Penghu County、Green island、Lanyu) is added to the new flooding risk map assess. The risk map is composed of hazard (extreme rainfall probability), vulnerability (flood potential area) and exposure (population of in flood potential regions). The different statistical classification methods and color scales are used to present risk maps to provide users with a more intuitive visual experience. Three different global warming levels scenarios (1℃、1.5℃、2℃、4℃)are applied to evaluate probability of extreme rainfall. These risk maps will help decision makers understand impact severity under different increased temperature scenarios, so as to adopt adaptations in decision-making process.

Keyword: Global warming level (GWL), offshore islands flood risk map, Coupled Model Intercomparison Project (CMIP6)

鄉鎮市區	危害度	脆弱度	暴露度	災害風險
基期				
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