高衝擊氣候情境之災害風險評估

Disaster Risk Assessment for High Impact Climate Scenarios

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摘要

聯合國政府間氣候變遷專門委員會 (IPCC) 第一工作小組第六次氣候變遷評估報告 (AR6) 於 2021 年 8 月正式公告；本計畫依據 IPCC 所釋出之最新氣候變遷情境資料以及科技部臺灣氣候變遷推估資訊與調適知識平台計畫 (TCCIP) 產製的臺灣本土降尺度資料針對與災害有關的氣候變數 (包含極端降雨、極端高溫、以及豐枯水期降雨型態變化等) 進行極端災害情境評估模擬；並完成：「IPCC AR6 最新氣候情境分析與災害應用評析報告」研析 IPCC AR6 推估的災害情境，並與過去 AR5 的結果做比對。本計畫利用 1.5℃、2℃與 4℃的固定暖化情境推估資料進行氣候變遷災害風險地圖情境資料分析，了解不同暖化情境下淹水災害風險，提供決策者參考與風險評估應用。人口變化以及土地利用的變遷亦會造成災害型態的改變；本計畫以臺南鹽水溪 (舊臺南市) 為示範區，使用環境變遷模擬工具模擬示範區土地利用變化逐年的變遷，討論示範區的土地利用變遷與都市發展後之淹水影響的變化。此成果可供後續相關區域調適策略研擬之參考。

關鍵詞：氣候變遷情境、災害風險地圖、環境變遷模擬

Abstract

United Nations Intergovernmental Panel on Climate Change (IPCC) released its Sixth Assessment Report on Climate Change (AR6) (Working Group I) on August 10th, 2021. Our project focuses on utilizing the latest climate change scenario data released by IPCC and the downscaling data provided by Taiwan Climate Change Projection Information and Adaptation Knowledge Platform (TCCIP). We examine the disaster-related climate variables, including extreme rainfall, extreme heat, and changes in rainfall patterns during wet and dry periods. Relative climate data were further evaluated and simulated to project future climate trends and how the AR6 results may differ from the AR5 version.

This year we attempt to produce "Climate Change Disaster Risk Maps" based on the 1.5°C, 2°C, and 4°C warming scenarios. We have also considered the potential shift in

disaster patterns related to population and land-use changes; we, therefore, use Tainan Yanshuixi (former Tainan City) as a demonstration site and utilize environmental change simulation tools to simulate the year-by-year changes in land use at this particular area. We further look at how land use and urban development may alter the impacts of inundation to provide the decision-makers with a scientific basis for their regional climate change and development strategies.

Keywords：Climate change scenarios, Disaster Risk Map, Environmental Change Simulation