

CMIP6臺灣氣候變遷推估分析

CMIP6 Climate Projection in Taiwan

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摘 要

IPCC於2021年8月發布第六次評估報告(AR6)，其中氣候變遷推估為參考第六期耦合模式比對計畫(CMIP6)的模式模擬結果，相對於AR5使用的代表濃度路徑(RCPs)，AR6則加入共享社會經濟路徑(SSPs)，其假設未來不同的社會經濟發展程度，在有(無)氣候減緩政策下溫室氣體排放，所反應出的輻射驅動力。最新版本全球氣候模式(GCM)在根據此不同SSPs等級的驅動力進行未來氣候推估。臺灣氣候變遷推估資訊與調適知識平台(TCCIP)使用CMIP6多組GCMs日資料，進行臺灣區域5公里解析度統計降尺度，分析臺灣平均溫度與降雨以及極端氣候在不同排放情境下的未來氣候變化趨勢。不同情境皆顯示極端高溫、極端降雨頻率與強度、連續不降雨日數…等極端氣候指標為增加趨勢，與過去相關研究文獻呈現類似的變化情況。

關鍵字：氣候變遷、CMIP6、極端氣候

Abstract

The IPCC releases the Sixth Assessment Report (AR6) in August 2021, where the climate change projections in the AR6 are based on Coupled Model Intercomparison Project Phase 6 (CMIP6) models simulations. In AR6, it uses the new emission scenarios so-called Shared Socio-Economic Pathways (SSPs), which describe alternative socio-economic development and emissions with/without climate mitigation policies that leads to different levels of forcing. The new global climate models (GCMs) from CMIP6 simulate climate change projections driven by SSPs and forcing levels.

Taiwan Climate Change Projection Information and Adaptation Knowledge Platform (TCCIP) applies statistically downscaling to simulated daily temperature and precipitation data from CMIP6 on 5-km grid resolution over Taiwan, and further analyzes the future changes of temperature, precipitation and extremes under different emission scenarios. The results shows that the extreme indices include high temperature extremes, the frequency and intensity of heavy rains, and the length of dry spells will increase among all SSPs.

Key words: climate change, CMIP6, climate extremes