

不同全球暖化程度下臺灣主要降雨季節之特性變化

Changes in Characteristics of Taiwan's Primary Rainfall Periods Under Various Global Warming Levels

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摘 要

臺灣水文豐枯差異懸殊，約 65%至 89%之全年雨量集中發生於豐水期間，而此段期間主要雨量來源為梅雨與颱風雨，一旦兩者或者其中之一出現雨量偏低情況，即容易影響水庫系統蓄豐濟枯功能，進而衝擊區域供水之穩定性。因此，本研究嘗試基於全臺網格化觀測資料進行主要降雨季節雨量特性探討，並依據梅雨季節與颱風季節之歷史雨量特性訂定雨量偏低與無雨之對應門檻值，再配合雨量門檻值評估不同全球暖化程度下未來梅雨季節與颱風季節發生雨量偏低與無雨之機率變化與總量變化，釐清氣候變遷對於臺灣主要降雨季節特性之影響，包含發生機率與雨量總量之改變程度與空間結構，相關衝擊資訊可提供水資源管理與規劃單位作為氣候變遷調適之參考。

關鍵詞：全球暖化程度，季節雨量特性，乾旱事件

Abstract

In Taiwan, there is a significant difference between wet and dry seasons in terms of total rainfall amount. Approximately 65% to 89% of the annual rainfall occurs during the wet seasons, primarily influenced by the mei-yu and typhoon periods. When rainfall amounts are below-normal or scant during these periods, it can lead to insufficient inflow into reservoir systems and severely impact regional water supply stability. This study aims to investigate rainfall characteristics during major rainfall periods using gridded rainfall observations and to identify threshold values for below-normal and scant events during the mei-yu and typhoon periods. Then, the change in probabilities and total amounts of these events are evaluated against these threshold values under various global warming levels. The research addresses how climate change affects the characteristics of these major rainfall periods, including changes in occurrence probabilities, total rainfall amounts, and spatial patterns. These insights provide valuable information for water resources management and planning authorities to adapt to climate change.

Keywords: global warming levels, seasonal rainfall characteristics, drought events