應多元降雨資料進行集水區水文情勢風險評估

Utilizing Multivariate Precipitation for Watershed Hydrological Risk Evaluation

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摘 要

隨著都市化的快速發展，流域集水區在面臨極端降雨事件時，容易產生積淹水問題與情況。為了有效了解近年來台灣各流域降雨量對流域集水區的水文量變化及其災害風險的影響，本研究透過分析不同降雨資料來源，包括經濟部水利署和中央氣象署合作的雷達降雨資料、防災降雨雷達以及地面雨量站資料，進行綜合比較。將不同降雨資料與對應的水位觀測資訊進行結合，探討不同集水區的面積大小和位置，使用不同降雨資料成果與觀測水文資料的關聯性。並針對集水區平均降雨量與觀測降雨強度的差異進行統計。以更進一步了解台灣各流域降雨量對水文量變化及災害風險的影響，作為後續的水情風險評估和水文分析參考。

關鍵字：降雨量、雨量站、雷達降雨、集水區、水文情勢風險評估

Abstract

With rapid urbanization, watershed catchments in Taiwan are increasingly susceptible to flooding during extreme precipitation events. This study aims to comprehensively understand the impact of recent precipitation variations on hydrological dynamics and disaster risks across various catchments. Different sources of precipitation data, including radar data from collaborations between WRA and CWA disaster prevention radar data, and ground-based rainfall gauges data, are analyzed and compared. Integration with corresponding water level observations allows for investigating the relationships within different catchment sizes and locations. Statistical analysis is employed to explore differences between average catchment precipitation and observed precipitation intensities. This research provides insights into how precipitation influences hydrological dynamics and disaster risks in Taiwan's watersheds, serving as a foundational reference for subsequent hydrological risk assessments and analyses..

Key words : Precipitation, Catchments, Gauge, Radar Precipitation, Hydrological Risk Assessment