

# 臺灣區域氣候的動力降尺度

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## 摘要

本篇研究利用四組不同海溫驅動 HiRAM 大氣環流模式所得到的氣候推估結果，經動力降尺度後分析基期(1980-2015)、21 世紀中(2040-2065)以及 21 世紀末(2075-2099)的臺灣季節溫度與降水變遷。相較於過去研究只利用單一模式，此組資料的四組系集成員提供不確定性，能提供部分模式不確定性進而判斷未來變遷趨勢。新增的世紀中推估資料也提供不同時期的資料一致性。資料分析上，先由大尺度分析動力降尺度前模式環流場特性，了解全球模式與觀測值的差異，再利用偏差修正調整降雨和溫度在模式中與觀測的偏差，最後探討臺灣不同季節溫度和降水在 RCP8.5 暖化情境下的變化。

關鍵字：動力降尺度；RCP8.5；氣候變遷

## The Dynamical Downscaling for the Regional Climate in Taiwan

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## Abstract

This study focuses on seasonal changes in 21<sup>st</sup> century Taiwan through dynamic downscaling results from a high-resolution atmospheric physics model, which are driven by four different sea surface temperatures. Compared with previous studies, these four members could provide model uncertainty, and benefits analyzing future tendency. Furthermore, the newly added mid-century data provide consistency in different periods. We analyze the large scale circulation to have a better understanding of the difference between AGCM and re-analysis data, then apply the quantile mapping of ECDF of daily data to remove the cold deviation and adjust the precipitation intensity. Lastly, examine the changes in temperature and precipitation in Taiwan under the RCP8.5 warming scenario.

Keywords: dynamic downscaling; RCP8.5; Climate change