

# 準滯留性降水系統與氣候變遷

## Quasi-stationary Rainfall Systems and Climate Change

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### 計畫內容 (Project description)

針對梅雨季期間經常造成豪大雨事件的準滯留性中尺度降水系統，探究在氣候變遷背景下，此類降水系統的降水量、降水特性及其系統發展演化過程之變化。

計畫將選擇個案利用雲解析風暴模式(Cloud-Resolving Storm Simulator, CReSS)進行模擬，是為控制實驗，並將模擬結果與觀測資料進行比對與評估。其後將同一個案置入CMIP5二十一世紀暖化情境進行模擬，是為敏感度實驗，並將其模擬結果與控制實驗進行分析比較，包括降水量、降水分佈與水收支方程分析，以期能得到此類降水系統在氣候變遷下之特性變化與災害風險之量化評估。

Aiming at the extreme-rain-producing quasi-stationary mesoscale convective systems, this project proposes to study the influence of climate change on the development and evolution of these systems, as well as the associated rainfall amount and characteristics.

Using the Cloud-Resolving Storm Simulator (CReSS), the control experiment will be executed for a selected case of quasi-stationary mesoscale convective system and be compared with the observations. For the sensitive experiment, the same case will be simulated in the background of future climate, provided by the CMIP5 future projection experiments. Results of the sensitivity experiment will be compared with the control, focusing on change in the precipitation amount, distribution, and characteristics. Water budget equation will also be analyzed to quantitatively estimate the disaster risk change associated with rainfall.

### 甄選條件 (Preferred background)

- 大三/大四具備良好英文能力之在學學生
- 具備良好之電腦操作能力 (熟悉 Linux/*UNIX* 作業系統)
- 具備良好程式設計能力 (熟悉 Fortran 者尤佳)
- 熟悉 GrADS、NCL、Python 或 MATLAB 者尤佳
- Senior or junior college students with good English skills
- Strong knowledge/experience in computers (Linux/*UNIX* system) is essential
- Good programming skills (especially Fortran) would be a plus
- familiarity with NCL or MATLAB would be a plus