

# 國立交通大學應用數學系

## 學術演講公告

主講人：郭鴻基教授（國立臺灣大學大氣科學系）

講題：Large Decadal Increase of Typhoon Rainfall in Taiwan

時間：107 年 12 月 11 日（星期二）下午 14:00 – 15:00

地點：（光復校區）科學一館 223 室

茶會：當天下午 1:30（科學一館 205 室）

### Abstract

Taiwan, which is situated in one of the main paths of western North Pacific typhoons, has experienced a dramatic increase in typhoon-related rainfall, with nine of the top 12 typhoons in total rainfall since hourly rainfall observations started in 1960 have occurred in the 21st century. Observations of typhoon rainfall intensity (rainfall per unit time) is analyzed with respect to typhoon tracks that are in different regimes relative to the Taiwan mountain terrain. The analysis indicates that the rain intensity shows no significant change in the last fifty years and the record breaking increase is due to the increase of the typhoon duration time over Taiwan. With mathematical numerical model experiments, we identified a positive feedback mechanism for the slow storms; in which the rainfall forced by topography acts to reduce the typhoon motion, leading to even more prolonged precipitation, yielding further speed reductions. It is concluded that most of the recently observed large increase in typhoon rainfall is the result of slowly moving typhoons and their tracks relative to the high mountains. Another factor contributing to increased typhoon rainfall is associated with interaction between the typhoon circulation and southwest monsoon wind surges. This factor contributes only after the typhoon center exits Taiwan and led to the increase of both typhoon rainfall intensity and rainfall amount in the last decade.

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