

利用ERA5再分析資料建立40年台灣歷史氣候資料

林秉毅 鄭兆尊
國家災害防救科技中心

摘 要

觀測資料在氣象研究中佔有不可或缺的位置，能夠提供當地的真實氣象資訊，並且將觀測資料進行網格化更能夠進一步提供台灣各地的氣象資訊。然而網格化資料的品質取決於測站資料的精準度以及密集度，且台灣地形複雜，測站又以平地為主，因此在山區較難以呈現實際的氣象狀況。

考量測站空間分布不均，過去大多只能提供溫度以及降雨的網格化資料。隨著使用者領域越來越廣泛，多樣化的資料需求也隨之增加。因此使用區域模式對歐洲中期天氣預報中心所提供的ERA5再分析資料進行動力降尺度，產製一組台灣區域的高時空解析度網格資料。本次模擬時間為1979~2018年共四十年，除了基本的溫度以及降雨資料之外，主要目的在於提供更多樣化的氣象變數，例如：風速、相對濕度以及輻射等等…

關鍵字：ERA5、動力降尺度

The 40 –year high-resolution climate dataset over Taiwan from ERA5 reanalysis

Ping-Yi Lin

Chao-Tzuen Cheng

National Science & Technology Center for Disaster Reduction

Abstract

Observation data play an important part in meteorological research, which can provide the local weather information, and furthermore, the gridded historical data provide a detail information over Taiwan. However, the quality of gridded historical data depends on the accuracy and density of the weather station data. In Taiwan, topography is complex and the observed stations are mainly on plain, therefore, it is difficult to depict actual weather conditions in mountainous areas.

Considering the uneven spatial distribution of weather stations, previous studies only provide gridded data of temperature and precipitation. With an increasing number of applicants, the demand for multiple variables increases thereby. Thus, we operate the regional model to produce a forty-year dataset of high-temporal-spatial-resolution gridded data over Taiwan with the dynamical downscaling process from ERA5 reanalysis data. In addition to temperature and precipitation data, the main purpose is to provide more diversified meteorological variables, such as wind speed, relative humidity and radiation.