

# 國外展期預報模式(NCEP/GEFS) 對東亞冬夏季風指數之預報能力評估

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## 摘 要

近幾年，美國環境預測中心(National Center of Environmental Prediction, 以下簡稱NCEP)將全球系集預報系統(Global Ensemble Forecast System, 以下簡稱GEFS)的預報天數從16天延長至35天，逐步發展為涵蓋次季節的展期預報模式，以銜接天氣與季節預報的間隙。本文使用NCEP/GEFS第11+版(GEFSv11+)與第12版(GEFSv12)模式的事後預報(reforecasts)資料，探討兩模式在2000-2018年期間對東亞冬季及夏季季風指數的次季節預報能力。分析結果顯示GEFSv12對各項冬季風指數的預報表現均明顯優於GEFSv11+，在夏季時兩模式預報表現相當。兩模式對各項季風指數的預報能力於第1至2週較佳，到了第3至4週後預報可參考度大多有明顯地衰退，不過模式對於部分以東亞或西北太平洋大尺度範圍所定義的季風指數掌握度尚可，至第3週仍能提供有參考價值的預報資訊，相較之下屬於小尺度或局地範圍的季風指數模式預報表現都比較差。

關鍵字：NCEP GEFS展期預報，東亞季風

## Extended Forecast Evaluation of East Asian Monsoon Indices from NCEP Global Ensemble Forecast System (GEFS)

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### Abstract

Recently, the National Center of Environmental Prediction (NCEP) Global Ensemble Forecast System (GEFS) is being extended from 16 to 35 days to cover subseasonal period, bridging weather and seasonal forecasts. This study applied reforecasts of GEFSv11+ and GEFSv12 to evaluate the prediction capability of two models on East-Asian Summer and Winter monsoon indices during 2000 to 2018. The results show that the forecasting capability of GEFSv12 on winter monsoon indices is obviously better than GEFSv11+, but both model skills are equivalent on summer. And then, the two models forecast performance of monsoon indices are good in Week 1-2, after to Week 3-4 two models' predictability have significantly declined. However, for some indices that defined by East-Asian or West North Pacific large-scale circulation, the forecasts can be extended to Week-3 and still has the skill to capture the feature of East Asian monsoon systems. Compared with the monsoon index that defined by small-scale or local area circulation, the forecast performance of models is relatively poor.

Keywords: NCEP GEFS extended forecast, East Asia Monsoon