

# **Investigating the impacts of the Chun and Baik's convective gravity wave drag scheme on CWBGFS**

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## **Abstract**

This study investigated the impacts of the gravity wave drag generated by convection systems in the 60 vertical levels of the Central Weather Bureau global forecast model (CWBGFS). The gravity wave drag parameterizations is developed by Chun and Baik (1998) and has been tested in NCAR CCM3 (Chun et. al., 2004). The magnitude of gravity wave momentum flux is depended on the thermal forcing and background wind. Momentum flux is zero below the forcing bottom, varies with height in the forcing region, and remains constant above the forcing top. Gravity wave is launched on the cloud top within the convection region. We evaluated different tests and the results have demonstrated that convective gravity wave drag has strong impact on the large-scale flow in midlatitude winter hemisphere and in the tropical area where deep cumulus convection persistently exists. The strength of westerly jet in the midlatitude is decreased, and the temperature in the polar area is getting warmer. The typhoon tracks and the surface wind stress were also sensitive to the gravity wave scheme.

Key word: convective gravity wave drag