

# **The synoptic characteristics of mesoscale vortex during the Mei-Yu season 2008**

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Abstract

In this study, the National Centers for Environmental Prediction (NCEP) analysis data was utilized to discuss the characteristics of heavy rainfall caused by mesoscale vortex and mesoscale convective system(MCS) in southern Taiwan during Mei-yu season on 4-5 June 2008. The preliminary results show that the Mei-yu front associated with a significant low-level wind shear stagnated near Taiwan and the South China Sea and the mesoscale vortex developed within the Mei-yu front on 5 June 2008. The mesoscale convective system developed in the first and fourth quadrant of the vortex center. This convective system was moved to southern Taiwan and caused heavy rainfall.

It is shown that the warm and moist air were transported to the southern and southern-east side of the vortex by the obvious low level jet(LLJ). In this case, the low level convergence, upper level divergence and low pressure trough approaching to this area were the most important mechanism to trigger and enhance the mesoscale convective system. The water and vorticity budget reveals that the source of the water in the convective system was contributed by horizontal wind convergence and the increment of vorticity in this system was mainly contributed by convergence of horizontal vorticity.

**Keywords: mesoscale vortex、Mesoscale Convective System( MCS)**