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Title: (OA8) Impact of QuikSCAT data assimilation for a heavy rain event over Taiwan related to a Mei-yu frontal system

Abstract: Using the 10-m QuikSCAT satellite-derived oceanic winds, the impact of near surface wind assimilation for a shallow subtropical Mei-yu frontal system and the associated heavy rainfall distribution over northwest and west of Taiwan was investigated. The results revealed that kinematic properties of a Mei-yu frontal system were better captured by numerical simulation using QuikSCAT data through MM5 three-dimensional variational (3DVAR) data assimilation system. For the simulation of rainfall distribution over Taiwan, the experiment with QuikSCAT data assimilation reproduced heavy rainfall over the northwestern Taiwan and over the windward regions of the Central Mountain Range (CMR), which was more consistent with the observed rainfall distributions. Along the northwestern coast of Taiwan, significant low-level convergence between the strong southwesterly flow and shallow northeasterlies within the Mei-yu frontal zone was simulated and coincided with the heavy rainfall over the northwest of Taiwan. In addition to the surface frontal forcing, orographic lifting related to island topography over Taiwan was also simulated and important for the production of the localized heavy rainfall over the windward mountainous regions.

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