

# Mei-Yu modeling with MM5 and PLACE

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## ABSTRACT

A case of torrential precipitation process in the Mei-Yu front, an Asian monsoon system east to the Tibetan Plateau, is studied with the coupled Penn State University/NCAR MM5 and NASA/GSFC PLACE (Parameterization for Land-Atmosphere-Cloud Exchange). Local and Remote impacts of water vapor on the location and intensity of Mei-Yu precipitation are studied by sensitivity experiments. The precipitation-evaporation interaction act to shift the Mei-Yu rainbelt toward the upstream direction of the moisture flux by about 100km. This shift of rainfall location can be interpreted by the theory of slantwise vorticity development (SVD) on isentropic surfaces. The water vapor resource for the heavy precipitation is proved majorly from the Bay of Bengale, transported by the southwesterly low level jet (LLJ) southeast to the plateau.

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