

# **Impact of horizontal resolutions and topography on the simulation of rainfall over Southeast China**

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This study discusses the impacts of horizontal resolution and topography to the simulation of low-cloud and rainfall over East Asian by using the Community Atmosphere Model version 5 (CAM5). We perform three of idealized topographic experiments with the same dynamic core and physics scheme at half degree. The results show that the model with high-resolution topographic data has better performances in simulating East Asian summer monsoon rainfall compared to those with coarse topographies. Such improvements benefit from the intensified meridional stationary eddy convergence at the east of Tibetan Plateau. The latter is highly related to a quasi-barotropic Rossby wave train downstream of the Tibetan Plateau, which is organized from mainland of China to the north Pacific. The wave train is generated by the finer topographic data, amplifying northerly anomalies over China and southerly anomalies in the south of Japan.