

## Impacts of convection activities over the Tibetan Plateau on the precipitation in downstream regions

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In this study, three semi-idealized simulations are conducted to understand how convection activities over the Tibetan Plateau (CATP) affect the precipitation in the downstream regions by using the Weather Research and Forecasting (WRF) model. The control run, which is based on a composite of eight CATP events in 2016 summer, has reasonably reproduced the salient characteristics of these CATP events. A piecewise potential vorticity (PPVI) analysis is conducted to the control run and the results show that, the CATP can exert a significant effect on the downstream regions when it move to and/or move out of the eastern section of the Tibetan Plateau. This effect includes two main parts: lowering pressure and enhancing cyclonic vorticity. Overall, the pressure-lowering effect associated with the CATP has a much wider range and a much stronger intensity than those of the cyclonic-vorticity enhancing effect. Unless the CATP move off the Tibetan Plateau, the regions east of 112°E will not be influenced obviously. The fakedry run and the run only shutting down the latent heating/cooling over the Tibetan Plateau confirmed the important effects of CATP on the downstream regions. More in-depth analysis of the semi-idealized simulations is ongoing and will be presented during the conference.