

Wang, Y., 2024: Meiyu-Baiu Rainstorm Associated Diurnal Variation and Kinetic Energy Source Analyzed by Multiscale Window Transform–based Energetics Analysis. *J. Meteor. Soc. Japan*, **102**, <https://doi.org/10.2151/jmsj.2024-015>

Plain Language Summary: The Meiyu-Baiu front is the main weather system that influences the Yangtze-Huai River area of China in early summer. This study utilizes the multiscale window transform (MWT) and MWT-based multiscale energetics analysis to investigate the dynamic energy transfers during a typical Meiyu-Baiu rainstorm. It is found that the kinetic energy source for single rainstorm case varies in its evolution and baroclinic instability in the lower stratosphere is possibly a primary trigger for the rainstorm and its diurnal variation.

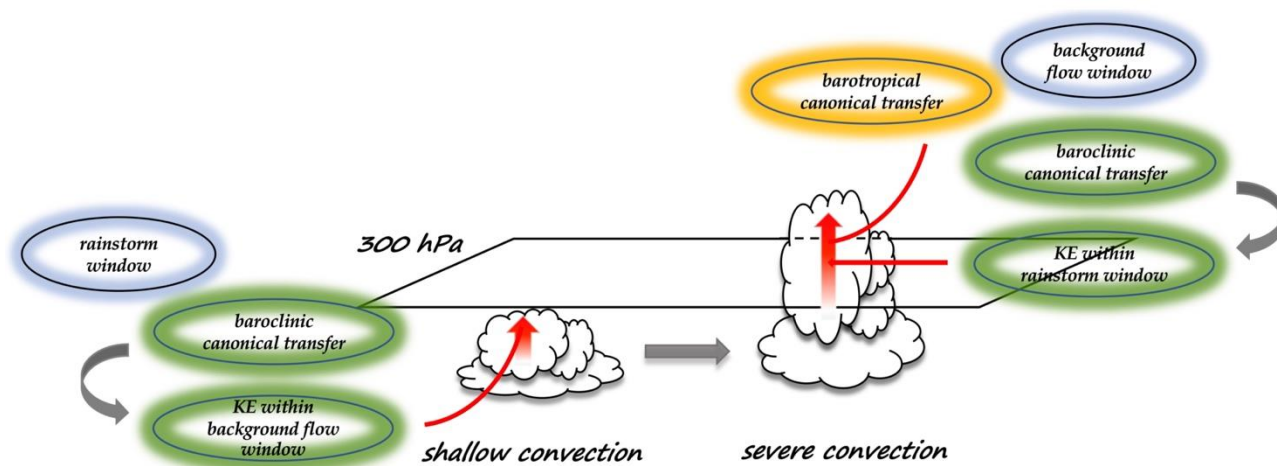


Figure 1. A conceptual model for kinetic energy source associated with a Meiyu-Baiu rainstorm.

- An obvious baroclinic canonical transfer from the background flow window to the mesoscale window and rainstorm window occurs at about 100 hPa, 5 h before the Meiyu-Baiu rainstorm.
- Baroclinic instability in the lower stratosphere excites mesoscale gravity waves, and is possibly a primary trigger for the rainstorm and its diurnal variation.
- The kinetic energy source for single rainstorm case varies in its evolution.