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Three-dimensional distributions of tropical and subtropical latent heating obtained from the SLH algorithm

Y. N. Takayabu (1,2), S. Shige (3), S. Yokoi (1)

(1) Center for Climate System Research, the University of Tokyo, (2) Institute of Observational Research for Global Change, Japan Agency for Marine-Earth Science and Technology, (3) Department of Aerospace Engineering, Osaka Prefecture University

Eight years beta-version data of the precipitation-associated latent heating have been calculated with the Spectral Latent Heating (SLH) algorithm. Here, three dimensional distributions of Q1-QR obtained from the SLH algorithm are described, and their regional differences are discussed.

Vertical profiles of precipitation-associated tropical latent heating have two distinct peaks at ~7.5km and at ~2.0km. This two-peak structure consists of the convective heating with two peaks at ~4km and at ~2km, and the stratiform heating with the upper tropospheric heating with a peak at ~7.5km and the lower tropospheric cooling. Horizontal distribution of the shallower (2.0km) heating indicates some differences from that of the taller (7.5km) heating. First of all, there is a distinct land-sea contrast, with shallow heating observed almost exclusively over ocean. Secondly, there are shallower heating bands without taller stratiform heating.

Regional and seasonal heating distributions are also discussed in relation to the differences in rainfall characteristics.