

Correlation Analysis of Microphysical Parameters in Typhoon Deep Convective Cloud Based on CloudSat

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Microphysical properties of water cloud and ice cloud in deep convective cloud of typhoon 'Choi-wan' which is the 14th in 2009, are analyzed by using cloud products from CloudSat. The correlation between the effective particle radius and cloud water content are also discussed. Account for the universality, we checked multiple typhoon in different development periods. Results reveal that, no matter water cloud or ice cloud, the lower boundary exists in the effective radius and cloud water content scatter diagram in typhoon deep convective cloud, taking the cloud water content as x-axis, and the effective particle radius as y-axis. Besides, the boundary value increases with cloud microphysical parameters. The effective particle radius and liquid water content have a positive correlation under the zero layer, which can be unified by a logarithm linear fitting. Meanwhile, the relationship is also applicable to typhoons at other stages of development.

Keywords: CloudSat, Typhoon, Cloud microphysical parameters

