Microphysical Characteristics of Heavy to Extremely Heavy Rainfall Events Over Taiwan

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Heavy to extremely heavy rainfall events are the major source of flash floods, landslides and agricultural damage. An increase in heavy rainfall events, more particularly in between May to September months, over Taiwan necessitate for the detailed investigation. The present study is aimed to investigate the spatial and temporal variations in the heavy rainfall events over Taiwan. Long-term data sets from the ground-based rain gauges, disdrometers, airborne radars (TRMM/GPM DPR) are used to investigate the rainfall and microphysical attributes of heavy rainfall events. The results showed higher occurrence frequency of heavy rainfall events over central Taiwan than the rest of the island. The contour frequency by altitude diagram of rainfall and raindrop size distribution estimates from the GPM DPR data products revealed contrasts in the microphysical features of heavy rainfall events across Taiwan. Apart from this, Modern-Era Retrospective analysis for Research and Applications, Versions2 (MERRA-2), re-analysis. Moderate Resolution imaging spectroradiometer (MODIS) and re-analysis data sets are also used to explore the influence of aerosol-cloud interactions on heavy rainfall events over Taiwan.