

Statistical Analysis of Large Drop Occurrence and Its Effect on Drop Size Distribution

JUNG, Sung-a^{1*} ; MAKI, Masayuki² ; LEE, Dong-in¹ ; KIM, Ji-hyeon³ ; TSUCHIYA, Shyuichi⁴

¹Pukyong National University, Korea, ²Kagoshima University, Japan, ³Weather Radar Center, Korea, ⁴National Institute for Land and Infrastructure Management, Japan

A large data set of raindrop size distribution (DSD) measured by 2-Dimensional Video Distrometer (2DVD) on 12 locations in Japan is analyzed using the truncated modified gamma DSD model and the normalized gamma DSD model. The present study seeks to: 1) explore the general properties of DSD observed at Kanto, Hokuriku, Nagoya, Kinki and Kyushu in Japan; 2) find the governing parameters of DSD models in different geographical and seasonal regime; 3) statistics of big drops occurrence and intrinsic shape of the DSD with extremely large drops; 4) find relationships between DSD parameters such as the shape and slope parameters, the generalized intercept parameter and volume-weighted mean diameter, and etc. The present study on statistical analysis of DSD provide us information which is necessary to understand big drop microphysics and precipitation.

Keywords: large drop, DSD, 2DVD