

Microstructure of Precipitation over Indonesia from a Network of Parsivel disdrometers

MARZUKI, Marzuki^{1*} ; HASHIGUCHI, Hiroyuki² ; YAMAMOTO, Masayuki² ; MORI, Shuichi³ ; TAKAHASHI, Yukihiro⁴

¹Department of Physics, Andalas University, Padang, Indonesia, ²Research Institute for Sustainable Humanosphere (RISH) Kyoto University, Gokasho, Uji, Kyoto 611-001, ³Japan Agency for Marine-Earth Science and Technology (JAMSTEC), Yokosuka, Japan, ⁴Hokkaido University, Sapporo, Japan

Insight into the regional variability of raindrop size distribution (DSD), is of primary importance for estimation of rainfall using remote sensing techniques, cloud/precipitation microphysical processes and numerical weather modeling. In order to quantify the regional variability of the DSD over Indonesia, a network of 4 Parsivel disdrometers along equatorial Indonesia has been designed. The disdrometers were installed at Kototabang (KT; 100.32E, 0.20S), Pontianak (PT; 109.37E, 0.00S), Manado (MN; 124.92E, 1.55N) and Biak (BK; 136.10E, 1.18S). It was found that the DSD at PT has more large drops than at the other three sites. The DSDs at the four sites are influenced by both oceanic and continental systems, and majority of the data matched the maritime-like DSD that was reported in a previous study. Continental-like DSDs were somewhat dominant at PT and KT. The combination of World Wide Lightning Location Network, wind profiler and the Tropical Rainfall Measuring Mission (TRMM) Precipitation Radar (PR) allows a discussion on physical basis behind the regional variability of DSD over Indonesia.

Keywords: Indonesia, Parsivel, Raindrop