

Comparison of Cloud Propagation over Sumatera during CPEA-I and II

MARZUKI, Marzuki^{1*} ; RAHAYU, Aulya¹ ; VONNISA, Mutya¹ ; HASHIGUCHI, Hiroyuki² ; K. YAMAMOTO, Masayuki² ; D. YAMANAKA, Manabu³ ; MORI, Shuichi³ ; KOZU, Toshiaki⁴ ; SHIMOMAI, Toyoshi⁴

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, ⁴Interdisciplinary Faculty of Science and Engineering, Shimane University, Japan

Maritime Continent of the Indonesian (MCI) archipelago is one of the world's most convectively active areas and thereby affects the global climate system. It consists of thousands of islands with different size. The island coastlines' complex shape and geography, as well as their orientation, contribute to the uniqueness of this region. Not surprisingly, maritime continent receives a large amount of rainfall throughout the year, and the precipitation varies considerably across the region. Global climate models exhibit systematic errors in their mean precipitation over the MCI due to such variability. In this study, the behavior of convective activity over Sumatera during the Coupling Processes in the Equatorial Atmosphere (CPEA) campaign I and II is examined using 1-hourly satellite infrared data. Sumatra Island is elongated and oriented from northwest to southeast and its elevated orography temporarily blocked the eastward propagation of precipitation system. The dynamics of Sumatra weather systems remains poorly understood and part of the problem lies in the lack of atmospheric data and high-resolution gridded data analyses and realistic model simulations. Therefore, the data of two intensive observation periods as the international observation campaign of the CPEA will also be used. Cloud propagation statistics (speed, span, life time, size, etc.) of the individual cloud episodes and the physical basis behind the results will be discussed.

Keywords: Cloud propagation, Sumatra, CPEA