

Indonesian Rainfall Diurnal Cycle Analysis Using Satellite Data : A Case Study in Java Island and Surrounding Areas

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Abstract: Precipitation is one element of climate that mostly studied in Indonesia because it has a very high diversity both temporal (time) as well as spatial (place). The diurnal cycle is one of the important factors in the occurrence of rain in the islands of Indonesia that have an impact on regional rainfall patterns in Indonesia. The diurnal cycle of precipitation is an essential component of the tropical climate and one of the predominant components of atmospheric variations. The aims of this research were to determine and analyze the spatial patterns and the characteristics of rainfall diurnal cycle in Java Island and the surrounding areas (Java Island, Java Sea and Indian Ocean) using remote sensing data. In this study, data from Tropical Rainfall Measuring Mission satellite (TRMM) Precipitation Radar level 2A25 and wind data from National Centers for Environmental Prediction (NCEP) for 5 years period from 2007 to 2011 are used. The results of this research are the spatial patterns of daily rainfall in Java Island and the surrounding areas are different between land and sea. In the land, rain generally occur in the afternoon (12.00 to 18.00 LT), whereas in the ocean (the Java Sea and Indian Ocean) generally occur at midnight and noon (00.00 to 12.00 LT). The characteristics of rainfall diurnal cycle in Java Island and the surrounding areas are effected by land-sea physical properties, day-night cycle and by land-sea location.

Key words : Rainfall, Wind, Diurnal Cycle, TRMM.