

## Diurnal variation in rainfall account for intra-seasonal variation over monsoon Asia revealed by a combined product of TRMM

# Atsushi Higuchi[1]

[1] CEReS, Chiba University, Japan

<http://higu.cr.chiba-u.jp/>

It is great concern about rainfall characteristics over monsoon Asia, in the aspect of atmospheric circulation and also hydrological cycle. We analyze grided and fine-time resolution rainfall dataset to composite diurnal variability of rainfall amount over monsoon Asia. Dataset that we used is 3B42 product which combined TRMM and another satellite data. Time and spatial resolutions are three hour and 0.25 degree in latitude and longitude, respectively. We analyzed six years data from 2000 to 2005. To account for the seasonal march of boreal summer monsoon, we categorized intraseasonal phases (i.e., onset, active, break, mature, and withdrawal) subjectively, from annual cycle of daily rainfall with eleven-days running average over five targeted regions, India, the Indochina Peninsula, Maritime Continent and Amazon. The reason why we select Amazon, is as a reference region for monsoon Asia. After the selection of monsoon phases, we composite (mapping) hourly rainrate on the target areas and globe. Results were summarized as follows: 1) Interannual variation in rainrate can confirmed whole of analysis region and period. However, over monsoon affected regions, such as India, the Indochina Peninsula, summer monsoon migration and withdrawal were observed. 2) Focus on the diurnal variability over India, in the active phase, significant diurnal variation were represented on the composite rainfall distribution especially over land. In the mature phase, week diurnal amplitude were detected. Such rainfall migration is consistent with previous studies such as Hirose and Nakamura (2002; JC) which described rainfall migration by the analysis of TRMM-PR. 3) Rainfall characteristic changes with the migration of asian summer monsoon might be associated with both land surface condition change (from dry to wet) and atmospheric circulation changes (weaken in the wind field at the phase of mature, such condition enhanced locality of rainfall), however this hypothesis is not validated. We hope discussion with monsoon-related researchers who deeply understood dynamics related on intraseasonal variability and monsoon migration.