

Study on the heat flux property from the land surface during the pre-monsoon period in the inland region of Thailand

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The heat flux from the land surface during the pre-monsoon season in the inland area of Thailand was revealed using daily rainfall, daily mean observational heat flux and NCEP/NCAR reanalysis data in 1998 and 2003. In the inland area of the Indochina Peninsula, the intermittent rainfall phenomena occurred under the mid-latitude westerly regime during the pre-monsoon season. The factor of the intermittent rainfall event was shown to be the passage of the upper trough associated with the mid-latitude westerly jet and the lower moisture convergence produced by the strengthening of the moisture inflow from the east [Kiguchi and Matsumoto, 2005]. However, it has not been revealed the condition of land surface when such intermittent rainfall events occur. The condition of land surface during the pre-monsoon season will be important as one of the factors pulling out the monsoon onset. In this study, the heat flux from the land surface during the pre-monsoon season in the inland region of Thailand was examined. It utilized the daily mean NCEP/NCAR reanalysis data (2.5deg.x2.5deg.), daily rainfall in Thailand, Cambodia and Laos collected in the GAME-Tropics project, and the daily mean latent and sensible heat flux at Tak located in the inland area of Thailand observed by Kim et al. [2003]. The result of the analysis regarding the property of the heat quantity from the land surface during the pre-monsoon season in 1998, after the rainfall event in late March, reveals that the sensible heat does not exceed the latent heat using the daily mean reanalysis data. The latent heat release continues after the rainfall event in late March is as in the rainy season. It can be said that the land surface is wet there from late March, more than one month prior to the monsoon onset. Toda et al. [2002] pointed out that such situation occurred in July 1999. The time series of latent and sensible heat flux at Tak are compared with the area averaged daily rainfall in the inland area of the Indochina Peninsula from January to June, 2003. It is shown that the latent heat flux temporarily exceeds the sensible heat flux, after the intermittent rainfall events during the pre-monsoon season. However, the latent heat flux after the intermittent rainfall events during the pre-monsoon season gradually decreases in 2003. It is suggested that the wet environment of land from the pre-monsoon season has no small effect on the increase of the precipitable water over the Indochina Peninsula.