Climatological Study on the Diurnal Cycles in Cloud, Precipitation and Thunderstorm in the Indochina Peninsula

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It is well known that pronounce diurnal variation in cloud, precipitation and thunderstorm in the Tropics. The previous studies showed that convective activity over land was very active in the late afternoon and peak activity of convection was observed in the early morning over the sea during summer and winter monsoon season using geostationary meteorological satellites and TRMM. However, the diurnal cycles in cloud, precipitation and thunderstorm during intermonsoon season in the Indochina Peninsula have been limitedly studied.

JAMSTEC will make an intensive observation on heavy precipitation event in middle part of Vietnum during autumn in 2010 and 2012. To clarify climatological feature of the diurnal cycle in cloud, precipitation and thundersorm in the Indochina Peninsula, we analyzed more than 20 years of data from the Geostationary Meteorological Satellite of Japan, the surface visual observation and Lightning Imaging Sensor onboard TRMM.

For rainy season of Vietnam (from September to November), the surface visual observation showed that a peak of the diurnal cycle of rain was appeared during night with small peak of shower appeared in the late afternoon in the northern part of Vietnum. The diurnal cycle of precipitation was very small in the middle part of Vietnam. Large amplitude of the diurnal cycle was observed in the southern part of Vietnam. Midnight maximum of rain and shower were evident at Vientian, Lao.

Convective activity estimated from the GMS Tbb data during SON showed that morning maximum along the coast of Vietnam and over the Gulf of Thailand. During the afternoon, convective activity was still vigorous over the South China Sea. From the afternoon to the dawn, vigorous convective activity was observed in the southern part of Vietnam and Cambodia. Convective activity reestablished along the coast of Vietnam and the Gulf of Thailand during night.