Heavy rainfall in the central Vietnam due to cold surges and westward propagating waves: An observation plan in 2010

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We plan to conduct intensive observations in Philippines and Vietnam to understand the mechanism of the heavy rainfall during the autumn season in the central part of Vietnam.

Our preliminary analyses showed that the most of the heavy rainfall events were closely related with cold surges from the Eurasian Continent and/or westward propagating waves from the Pacific passing through the Philippines.

We plan to conduct the twice-daily radiosonde observations at Cebu, Philippines during September to November in 2010 to detect detailed structures of westward propagating waves and to predict the arrival of these disturbances at Vietnam, the other side of the South China Sea. The westward propagating waves also provide considerable rainfalls over the Phillipines, which is also our research subject.

At Danang, Vietnam, we plan to conduct the intensive radiosonde observation for 5 days with frequency of 4 times per day at the timing of the westward propagating disturbance arrival also considering the cold surge arrival. From this observation, we try to obtain 5 samples of heavy rainfall events. The surface meteorology are also monitored by 3 automatic weather stations at and near Danang. The 31 automatic rain gauges distributed around Danang and the Doppler radar near Danang will also detect detailed horizontal structures of heavy rainfalls.

The obtained data will be also used to the data assimilation to evaluate an impact of the intensive observation data to the data assimilation and to obtain an assimilation data with higher accuracy. Using the observed and assimilated data, we will investigate the detailed 3-dimensional structure of the convections, rainfall and their background situation to understand the generation and maintenance of the heavy rainfall in the central part of Vietnam.