Asian Monsoon Years (2007-2012): Typhoons' behavior over tropical land

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Every year, several typhoons attack Indochina and lead to severe disasters. Some weaken rapidly after landing, but some decrease their strength slowly and last several days over Indochina (Fudeyasu et al. 2006; Sugino and Satomura 2010). Because the long lasting typhoons sometimes bring heavy rainfall and landslides in the inland areas after they are not strong enough to be watched by international center, their behavior is not well understood yet. In this study, a recent activity of our research group on typhoons in Indochina as an typical tropical land is overviewed. It is intended to understand what factors play essential roles in surviving and bring heavy rainfall in deep inland of Indochina by using radar networks, numerical models and meteorological large-scale data. To accomplish the objectives of the study, we are trying to make Indochina-scale radar composite precipitation maps. Installation of radars in Indochina countries are striking. Tens of weather radars are operated in Thailand, 7 radars are in operation and 8 more are planing in Vietnam, and one radar is recently installed in Lao. Now, observable areas by radars operated by agencies related to meteorology in each country covers almost all Indochina. However, radars are neither well networked nor well calibrated by rain gauges. What is worse is that most radars do not operate continuously but observe one volume scan per one hour for example and rain gauges are storage types, i.e., low temporal resolution. Thus, we start out developing radar data calibration method using radar data and rain gauge data sparse in time. Another tool to study typhoon over land is numerical models. Numerical simulations of historical typhoons are also started to examine relationship among the environments, structures and lifetime.