Rainfall in Vietnam: from past observation to future projection

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In this presentation, past and projected characteristics of rainfall in Vietnam are discussed. First, daily-observed data from 481 rain gauges were used to build a new gridded rainfall dataset for Vietnam, called Vietnam Gridded Precipitation Dataset (VnGP). The VnGP has the resolutions of 0.25º and 0.1º, covering the period 1980-2010. Examination of the past observed trend showed that rainfall decreased in the north of 17ºN and increased in the south, with a contribution from Tropical Cyclone rainfall. Over the Central Highlands of Vietnam, where there was a clear distinction between summer rainy season (RS) and summer monsoon season (MS), results showed that the onset dates of RS and MS seemed to be earlier in recent years. The year-to-year variations of the onset dates and the rainfall amount within the RS and MS seasons were closely linked with the preceding winter and spring sea surface temperature in the central-eastern and western Pacific.

Next, the simulation and projection of rainfall in Vietnam by using regional climate models (RCM) are introduced. Sensitivity experiments with different combinations of physical schemes were conducted under the framework of the Southeast Asia Regional Climate Downscaling/Coordinated Regional Climate Downscaling Experiment – Southeast Asia (SEACLID/CORDEX-SEA) project in order to choose the best options for carrying the future projection. The outputs of the RCM experiments were bias-corrected with the Quantile Mapping (QM) technique for the reference period 1986-2005 and for the mid-future period 2046–2065 under the Representative Concentration Pathway (RCP) 4.5 and 8.5 scenarios. A drier condition with a longer rainfall break, and shorter consecutive rainfall events were anticipated over Northern and Central Vietnam during their respective wet seasons in the mid-future.