

ULAT SATREPS -Observation study for the lightning activity and tropical cyclone intensity relationship in the Philippine Sea

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The accuracy of tropical cyclone track forecast has been improved year by years, on the other hand, the forecast of tropical cyclone intensity still has a difficulty of improvement. Recently the relationship between lightning activity and tropical cyclone intensity has been investigated. Lightning activity reached its maximum one or two days before the lifetime maximum intensity of tropical cyclone. Therefore, monitoring the lightning activity can lead to a short term forecast of tropical cyclone intensity. A project of Combination of Ulat (Clouds) and Kidlat (Lightning) of Science and Technology Research Partnership for Sustainable Development (ULAT/SATREPS) starts from April 2017 to develop a methodology on short term forecast of extreme weather (torrential rainfall and lightning) and typhoon intensities in Metro Manila cooperating with Researchers of Advances Science and Technology Institute (ASTI) in the Philippines. One of the major objectives is to deploy the lightning observation system in the Philippines. Observation campaigns of airborne observations with dropsondes were conducted in Sep. 2018 in the Philippines Sea to capture the atmospheric structure of thunderstorm clouds within tropical cyclones. Intensive upper-air observations are conducted at Tanay near Metro Manila from Jul. to Aug. 2019 to capture the atmospheric structure of thunderstorm clouds during the active summer monsoon associated with tropical cyclone. The combination of lightning and tropical cyclone observation will develop the understanding the relationship for a short-term forecast of tropical cyclone intensity.

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