



Impact of tropical cyclones on the tropospheric water and energy cycle at synoptic scale : a case study

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Typhoon Bopha, formed on November 25 and dissipated on December 9, 2012. It was the strongest tropical cyclone to ever hit the southern Philippine island of Mindanao, making landfall as a Category 5 super typhoon with winds of 280 km/h. During the life cycle of the typhoon, the satellite Megha-Tropiques provided 2 to 5 samplings of the tropical atmosphere per day, thanks to its low inclination orbit (20 ). At that time, the two microwave radiometers SAPHIR and MADRAS were both performing measurements thus giving the opportunity to investigate(i) how the typhoon impacted the atmospheric humidity of its environment and (ii) the temporal evolution of its rain field. For this purpose, three different level of upper tropospheric humidity retrieved from SAPHIR, rain rates and releases of total latent heat estimated from MADRAS were monitored along the track. We discussed the mean behavior of the typhoon that shows strong lagged oscillations of humidity and convection during its life cycle and we deepened its spatial asymetries and their relationship with the close environment. This analysis was completed with the tracking algorithm TOOCAN that allows to study how each individual convective clusters contributed to the life cycle of the typhoon.