



Assessment on spatiotemporal relationship between rainfall and cloud top temperature from new generation weather satellite imagery

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This study addressed the relationship between rainfall and cloud top temperature (CCT) from new generation satellite Himawari-8 imagery at different spatiotemporal scale. This satellite provides higher band, more bits for data format, spatial and temporal resolution compared with previous GMS series. The multi-infrared channels with 10-minute and 1-2 km resolution make it possible for rainfall estimating/forecasting in small/medium watershed. The preliminary result investigated at Chenyulan watershed (443.6 square kilometer) of Central Taiwan in 2016 Typhoon Megi shows the regression coefficient fitted by negative exponential equation of largest rainfall vs. CCT (B8 band) at pixel scale increases as time scales enlarges and reach 0.462 for 120-minute accumulative rainfall; the value (CTT of B15 band) decreases from 0.635 for 10-minute to 0.423 for 120-minute accumulative rainfall at basin-wide scale. More rainfall events for different regime are yet to evaluate to get solid results.