

Lightning Climate and Severe Thunderstorm Events in Metro Manila

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ABSTRACT

Lightning activity associated with thunderstorms produces heavy rainfall in many climatic regions. It is known that lightning and rainfall are positively correlated in individual storms. Generally, more lightning will likely produce more rainfall. However, regional lightning activity actually increases as regions become hotter and drier at the surface. Moreover, regions with the greatest lightning activity are not the regions with the highest precipitation. Yet, those thunderstorms that do develop in these conditions are much more intense

Given that there are variations, or a diverse range of impacts associated with lightning and thunderstorms. Hence, it is worth to investigate and characterize the past and current lightning events associated with severe thunderstorm activities. This study will use data from TRMM satellite lightning and rainfall sensors, upper air station, and ground-based synoptic reports to analyze and examine lightning and thunderstorm spatiotemporal distribution in seasonal and monsoonal bases. Results of this study will increase our knowledge of the distribution and variability of lightning and thunderstorm in Metro Manila over the land and ocean. Therefore, could potentially have a wide range of benefits for groups such as industry, government, aviation, insurance, and emergency services.

Keywords: *Lightning, Rainfall, Thunderstorms, TRMM, TRMM LIS, Severe Weather*