

Relationships between Long-Range Lightning Networks and TRMM/LIS Observations

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Recent advances in long-range lightning detection technologies have improved our understanding of thunderstorm evolution in the data sparse oceanic regions. Although the expansion and improvement of long-range lightning datasets have increased their applicability, these applications (e.g., data assimilation, atmospheric chemistry, and aviation weather hazards) require knowledge of the network detection capabilities. The present study intercompares long-range lightning data with observations from the Lightning Imaging Sensor (LIS) aboard the Tropical Rainfall Measurement Mission (TRMM) satellite. The study examines network detection efficiency and location accuracy relative to LIS observations, describes spatial variability in these performance metrics, and documents the characteristics of LIS flashes that are detected by the long-range networks. Improved knowledge of relationships between these datasets will allow researchers, algorithm developers, and operational users to better prepare for the spatial and temporal coverage of the upcoming GOES-R Geostationary Lightning Mapper (GLM).

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