# Evaluation of Long-Range Lightning Detection Networks using 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. Toward this end, the present study evaluates data from the World Wide Lightning Location Network (WWLLN) using observations from the Lightning Imaging Sensor (LIS) aboard the Tropical Rainfall Measurement Mission (TRMM) satellite. The study documents the WWLLN detection efficiency and location accuracy relative to LIS observations, describes the spatial variability in these performance metrics, and documents the characteristics of LIS flashes that are detected by WWLLN. Improved knowledge of the WWLLN detection capabilities 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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