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## **A Comprehensive Climatology of NLDN CG Lightning Flashes in the CONUS**

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### **Abstract**

A comprehensive cloud-to-ground (CG) lightning flash climatology has been created to provide a graphical representation of the spatiotemporal evolution and regional variability of lightning distribution across the continental United States (CONUS). These climatologies were generated for 1-hour, 4-hour, and daily timescales using archived, quality-controlled data from Vaisala's National Lightning Detection Network (NLDN) between 1995 - 2018. CG lightning flashes were mapped to a 40-km grid, and the frequency of CG flashes over the aforementioned time intervals was computed such that the data represent the historical probability of at least one CG flash within 20 km (12.5 miles) of a point. A 2-D Gaussian filter was used to spatially smooth the data, and a 7-day running average was implemented to temporally smooth the results. Climatology graphics have been made available internally to forecasters at the National Weather Service's Storm Prediction Center, and an interactive web-based visualization is under development for broader release.

### **Topic Areas**

Lightning Climatology

### **Submission Format**

Oral