



Dangerous Thunderstorm Alerts Produced Using Earth Networks Lightning Data

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The Earth Networks Total Lightning Network (ENTLN) is comprised of wideband sensors to detect both the IC and CG flash signals efficiently. Since 2009, ENTLN has been used to track the properties of storms cells, such as the lightning flash rate, cell direction, and speed as a basis for issuing alerts for thunderstorms that have the potential for severe weather. A storm cell is a cluster of flashes with a boundary as a polygon determined by the flash density value for a given period. From this storm cell data, Earth Networks produces the Dangerous Thunderstorm Alert (DTA). Most severe convective storms can generate high IC flash rate and high IC/CG flash-rate ratios. When rates exceed critical thresholds, DTAs are issued. The system helps in predicting the storm dangers by generating a DTA with significant lead time before the ground-level severe weather occurs. Through the life of the DTA warned storm, the storm cells are monitored continuously, which enhances the situational awareness. In this study, we analyze several severe weather events to estimate the effectiveness of DTAs as well as implications for improving public safety.