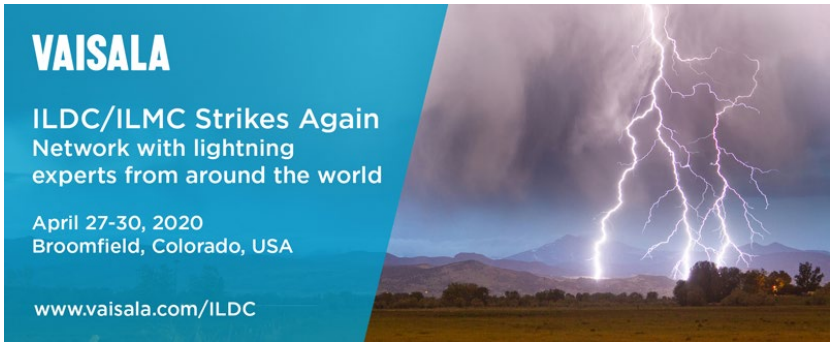

Nowcasting Potentially Severe Thunderstorms Based on Total Lightning Jumps Using Southern Ontario Lightning Mapping Array (SOLMA)

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Abstract

The rapid intensification of storm updrafts often precedes the occurrence of severe weather on the ground. While Updraft strength is difficult to directly detect, a rapid increase or jump in lightning activity resulting from the mixed-phase updraft growth can be readily identified and used to help nowcast severe thunderstorms.

An experimental severe thunderstorm nowcast tool was developed in-house and run for two convective seasons (2017-2018); it was based on lightning jumps (LJs) using real-time data from the SOLMA, a three-dimensional total lightning locating system that was in operation from the spring 2014 to the fall 2018. In this presentation/poster, the nowcast tool will be briefly described; the tool called upon a suite of lightning-based algorithms for flash-clustering, storm identification/tracking, and LJ calculations to determine if LJs had occurred. Some results of its performance evaluation will also be presented.

Topic Areas

Meteorology: Numerical Modeling and Nowcasting, Applications of Lightning Data: Community events, Advanced Warnings

Submission Format

No preference