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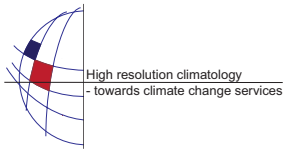

The Application of Total Lightning Detection for Severe Storm Prediction

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In-cloud lightning generally occurs ten to thirty minutes before cloud-to-ground flashes, providing early indicators of the development of weather events such as severe thunderstorms and tornados. Thus, the detection of both in-cloud (IC) and cloud-to-ground (CG) strokes, or total lightning, enables improvements in the lead times for severe weather prediction.

This discussion will provide insight into the development of a lightning network, the WeatherBug Total Lightning Network,™ created specifically for the detection of both IC and CG lightning strokes. The WeatherBug Total Lightning Network (WTLN) covers the mainland US, Alaska and Hawaii islands with a high density of sensors, and covers Canada, Mexico, and the Caribbean with a low density network. Insight into the utilization of low- vs. high-frequency detection will be provided.

Lightning case studies will be presented demonstrating the predictive capabilities of the detection of both IC and CG lightning for advanced warning of deadly CG lightning strikes as well as other severe weather events. Examples will be shown how detection of IC lightning improves lead times for severe storm warning.