

## **A Bolt from the Blue: A TRMM and NLDN Survey of Lightning Flashes Near or within the Anvil Region**

Intended for Lightning Occurrence Relative to Meteorology Session

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An unfortunately placed cloud-to-ground lightning strike has the potential to cause serious damage and even loss of life. For this reason, it is advised that the public remain vigilant to lightning danger when storms are near. However, blue skies overhead are not always a sure sign of safety. A unique type of CG flashes that can propagate dozens of miles away from the parent storm through clear air, known as “bolts from the blue,” can strike a target seemingly out of nowhere. In addition to threatening society with wayward strikes, bolts from the blue also have the potential to spark wildfires far from geographic areas of concern.

The aim of this study is to explore the potential of separating bolts from the blue from other types of lightning outside the convective core in the surrounding anvil region of thunderstorms using an optical transient technique. This method could be useful with future satellites with a staring optical imager, such as GOES-R, to categorize these special lightning flashes. Thirteen years of observations over a domain spanning the tropics up to 36 degrees latitude taken from the Lightning Imaging Sensor onboard the Tropical Rainfall Measuring Mission satellite are used in this study. Validation with the National Lightning Detection Network over the United States and regions immediately offshore is also discussed.