

Lightning Initiation Observations in Mississippi Thunderstorms

Thomas Marshall, Sampath Bandara, Sumedhe Karunarathne, Nilmini Karunarathne, Raymond Siedlecki, and Maribeth Stolzenburg

University of Mississippi, Physics and Astronomy, University, MS, United States (marshall@olemiss.edu)

We report on lightning initiation studies using data collected during the summer of 2016 with an array of electric field change (E-change) sensors, electric field derivative (dE/dt) sensors, and VHF (LogRF) sensors located at seven sites around Oxford, Mississippi, USA. We use both E-change waveforms and LogRF waveforms to determine independent time-of-arrival locations of lightning initiation events such as initial breakdown pulses (IBPs) and narrow bipolar events (NBEs). The E-change locations are supplemented with locations derived from integrated dE/dt waveforms. The waveforms and locations from E-change and LogRF sensors will be compared for IBPs and NBEs.