

## RADIO INTERFEROMETER OBSERVATIONS OF FAST PROCESSES IN THUNDERSTORMS

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Though ubiquitous, thunderstorms conceal much of their electrical activity deep within thousands of cubic kilometers of cloud water and ice, limiting optical observations of processes in the cloud. However, lightning spends most of its time inside the cloud, where it initiates and propagates, discharging the cloud charge regions, and also where it sometimes triggers great bursts of gamma rays – terrestrial gamma-ray flashes (TGFs) – that can travel hundreds of kilometers to be registered by spacecraft. Lightning initiation and TGF production are two of the great mysteries in the field of atmospheric electricity, and radio signatures associated with both [Rison et al., 2016, doi:10.1038/ncomms10721][Dwyer and Cummer, 2013, doi:10.1002/jgra.50188] allow for ground-based radio investigations. Here we present results from a sparse (three-receiver) 20-80 MHz, 100-meter-baseline radio interferometer that we deployed at Kennedy Space Center, Florida from 2016 to 2017. The results reveal new and surprising electrical processes, some of which currently defy explanation [Tilles et al., 2019, doi:10.1038/s41467-019-09621-z].