

Telescopic Observations of Streamer Splitting in Sprites

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Branching; or splitting, is a fundamental phenomenon in streamers. The time history of an individual streamer splitting in the laboratory is very challenging due to the extremely fast (ns) time scales involved. Recent observations of streamer tip splitting in sprites are possible due to the slower time scales associated with reduced ambient pressure at sprite altitudes. We report on telescopic observations of sprites obtained in 2007 and 2010 using long focal length lenses to resolve the splitting. In 2007 a 300 mm lens was used, while in 2010 a 500mm Takahashi Sky 90 lens was used on a Phantom 7 camera with a Video Scope VS4-1845HS image intensifier. The sprite locations were determined either by triangulation using data from remote observation sites, or by assuming that sprites are at ranges of the parent lightning strokes as reported by National Lightning Detection Network.