Abstract Submitted
for the TSF16 Meeting of
The American Physical Society

Automatic Studies of Continuing Current in Lightning Flashes[1]
JOSE MARTINEZ, RICHARD SONNENFELD, New Mexico Institute of Mining and Technology — Continuing current(CC) is defined as an ongoing current (duration: 0.01 s 0.5 s) in the 100 Ampere range following a lightning return stroke. Lightning flashes that also have CC are known for initiating forest fires. Continuing current detection is automated by combining NLDN (National Lightning Detection Network) and LEFA (Langmuir Electric Field Array) datasets. The automating algorithm counts the number of flashes in a single minute of data and the number of return strokes of an individual lightning flash; records the time and location of each return stroke; and uses the time derivatives of interstroke interval (ISI) E-field data fits to recognize whether continuing current (CC) exists within the interval. When detected, its duration and magnitude is measured. A relationship between the presence of CC, stroke order, stroke peak current, location relative to station, CC duration (when present),and ISI duration is studied. Datasets used are a few thousand flashes within 40 km of Langmuir Lab, New Mexico measured during the summer 2013 monsoon season.

[1]Vaisala Corp. graciously provided NLDN data, LEFA was created with NSF grant 0724771

Jose Martinez
New Mexico Institute of Mining and Technology

Date submitted: 27 Sep 2016 Electronic form version 1.4