High-Speed Lightning Videos Using Raspberry Pi Cameras
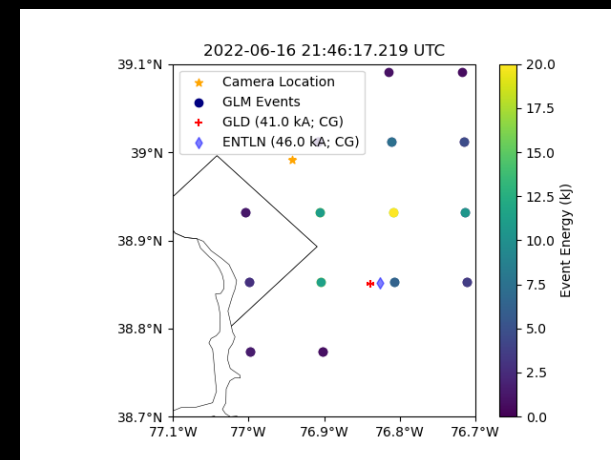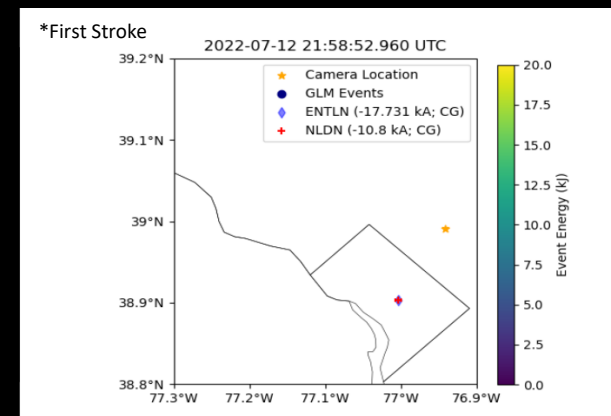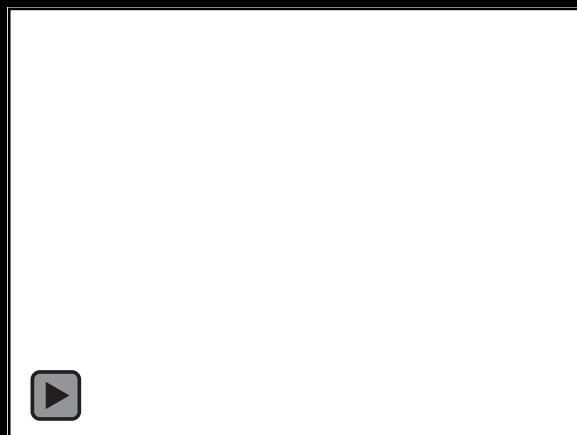
Domenic Brooks

Objectives

- Build a set of low-cost lightning measurement tools to augment existing lightning networks in the greater D.C. area & beyond, along with potential NOAA field campaigns..
- Use high speed (90 fps) videos as ground truth for lightning sensors validation studies.
- Help better understand regional thunderstorm & lightning activity.

Results

- Successfully recorded 9 active days in MD.
- GLMs tend to miss the first strokes of cloud-to-ground flashes (CG); ground networks low-amplitude strokes.
- Ongoing 07/12 College Park storm case study. 12-stroke cloud-to-ground flash observed.

Figures

17:46:17 06/16/22
145331

Positively Charged Strike

*First Stroke
2022-07-12 21:58:52.960 UTC

2022-06-16 21:46:17.219 UTC

Raspberry Pi Cameras and Settings

8 cameras in operation:

5 in MD
- 2 on campus
- 2 at CISESS/ESSIC
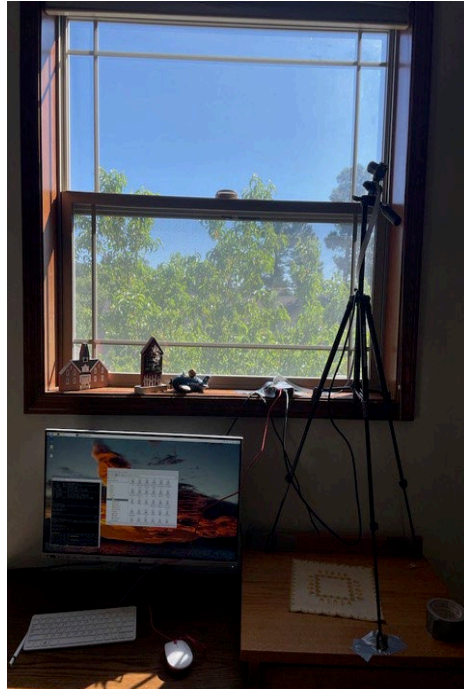- 1 in Germantown

2 in AZ
- 1 in Tucson
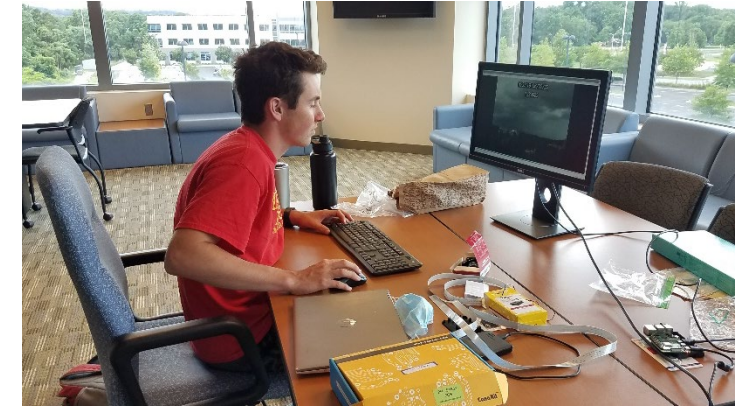- 1 in Flagstaff

1 in OK

Raspberry Pi cameras

UMD Campus
College Park, MD

Flagstaff, AZ

Earth Networks
Germantown, MD

CISESS/ESSIC
College Park, MD