Lightning Occurrence in the Six Most-visited U.S. National Parks

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Motivation

-330,000,000 visitors to National Park facilities in 2017
Natural features are the core destinations at National Parks:
- Mountains, canyons, waterfalls, geothermal basins, lakes, and rivers are most frequent during daylight and summer.

Goal

-Use National Lightning Detection Network (NLDN) data to identify when, where, and how often lightning occurs within National Parks.
-Assist understanding of the lightning risk to visitors.

Ranking of National Parks by Flash Density

NLDN cloud-to-ground flash density overlaid with the ranking by CG flash density of the 46 CONUS national parks larger than 100 km².

Conclusions

- Most National Parks are in Western states where lightning is less frequent.
- Lightning in the six most-visited parks is mainly in the afternoon, from June to August.
- Each park has its own local distribution of lightning relative to topography.
- Deaths and injuries are in prominent exposed locations with large concentrations of people, and not always where lightning is most frequent.

Known Lightning Casualties

- 51 casualty events, including:
  - 21 deaths
  - 107 injuries
  - Many are in Rocky Mountain and Grand Canyon.

Most often:

- Viewpoints and overlooks
- Open parking areas at high altitudes
- Popular climbing areas.