## NASA/ADS

## The Evolution of a Long-Lived Mesoscale Convective System Observed by GLM

Show affiliations

## Peterson, M. J.; Rudlosky, S. D.; Antunes, L.

Continuous Geostationary Lightning Mapper (GLM) observations are used to document total lightning activity over the life cycle of a long-lived Mesoscale Convective System (MCS). MCS's may be few in number, but they are important for the Global Electric Circuit (GEC) because they sustain high lightning flash rates and quasi steady state conduction currents (Wilson currents) over longer time periods than ordinary isolated convection. The optical characteristics of the flashes produced by MCS's change over time, providing additional insights into the precipitation structure, convective mode, and evolution of the storm system. These insights are particularly useful in areas void of radar observations. Intercalibrated passive microwave radiometer data from the Global Precipitation Measurement (GPM) constellation also are used to estimate changes in Wilson current generation as the system evolves. These results highlight the role of MCS's in the GEC, and showcase how optical flash descriptors relate to thunderstorm organization, maturity, and structure.

## **Publication:**

American Geophysical Union, Fall Meeting 2017, abstract #AE33A-2517

Pub Date: December 2017

Bibcode: 2017AGUFMAE33A2517P

**Keywords:** 3304 Atmospheric electricity; ATMOSPHERIC PROCESSES; 3324 Lightning; ATMOSPHERIC PROCESSES; 3360 Remote sensing; ATMOSPHERIC PROCESSES

