Three distinct regions of lightning activity are found with maxima in the
Eye
Bursts of lightning preceded eye formation in both IR and MI imagery.
Lightning was present in the eyewall prior to, during, and at the conclusion
Detects mostly cloud
and D.A.
flashes

Bursts of Lightning occurred prior to and during eyewall replacement cycles,
Lightning associated with
convection never continuously persisted around an eye,
Lightning maximized in the
Asymmetric rainfall and
eyewall convection caused discontinuities in lightning features.

Environmental data from
Hurricanes
were analyzed in relation to linearly
Improving the usefulness of total lightning, detailed case studies were
conducted of five TCs that underwent rapid intensification (RI) within the
domains of two unique ground-based long-range lightning detection networks.

Lightning was found to be a good indicator for intensification in low
shear environments, but studies on non-intensifying cases need to be
further examined. Asymmetric rainfall and eyewall convection caused discontinuities in lightning features.

Bursts of lightning preceded eye formation in both IR and MI imagery

Lightning associated with convection never continuously persisted around an eye indicating the importance of lightning location.
Lightning maximized in the front quadrants relative to storm motion.
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Bursts of lightning preceded eye formation in both IR and MI imagery indicating that lightning could signal structural changes of hurricanes.
Lightning was present in the eyewall prior to, during, and at the conclusion of RI with few eyewall flashes present in weakening stages of TCs.
Rainband lightning had a diurnal pattern but did not show a distinct relationship to intensity change.
Bursts of Lightning occurred prior to and during eyewall replacement cycles, but was not examined further.
Results show the potential of the GLM to improve TC intensity forecasts.

Bursts of lightning were found to exist on the order of an hour in the eyewall and several hours in the rainbands.
Lightning tended to occur downshear-left in most but not all cases due to generally low shear.
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Lightning maximized in the front quadrants relative to storm motion.
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