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April 27-30, 2020
Broomfield, Colorado, USA

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Assessment of lightning behavior during two major flooding events in 2019 in the Houston Metropolitan Area

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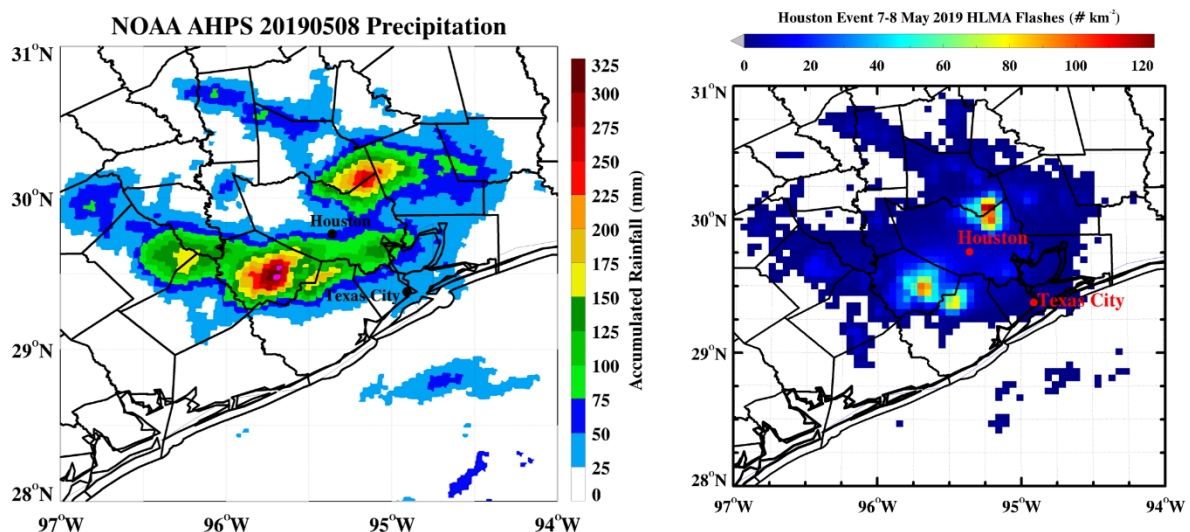
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Abstract

Two major flooding events impacted Southeast Texas, including the Houston Metropolitan Area, in 2019: a deep convective event in early May and Tropical Storm Imelda. This research effort focuses on the relationship between lightning activity and precipitation. The events occurred within the confines of the Houston Lightning Mapping Array Network (HLMA) which will serve as the primary source for the data used in this study. Preliminary results show a strong physical relationship between lightning flash rates derived from the HLMA data (early May case) and National Lightning Detection Network (NLDN) data (Tropical Storm Imelda case). The main objectives of this study are to: (a) identify various hotspots of lightning activity and maximum accumulated rainfall in and around the Houston Metropolitan Area and (b) quantify the relationship between lightning flash rates and precipitation rates in space and time using GOES 16 and dual-pol NEXRAD products.

Attachments

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Topic Areas

Lightning Physics, Characteristics and Measurements, Lightning and Weather