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A Study of Lightning Discharges over Costa Rica during a Period of Intense Electrical Activity: May and June of 2009 JOSE MARTINEZ, New Mexico Institute of Mining and Technology, WALTER FERNANDEZ, Universidad de Costa Rica, ILEANA MORA, Instituto Costarricense de Electricidad — Intense electrical activity in storm clouds is a common characteristic of rainy seasons in Costa Rica. The most common type of electrical discharge observed in this study was cloud-ground (CG) lightning, which is generally linked to its destructive potential on property and human lives. Intra-cloud (IC) lightning events, which are known to occur much more frequently on a global scale than CG events, are also present during intense storms. Using the National Network for Detection and Analysis of Electrical Discharges, operated by the Costa Rican Institute of Electricity (ICE), more than a million stroke events were recorded by the network during months of May and June 2009. Analysis of spatial and temporal distributions of lightning events show that CG discharges occur more frequently during the day, with a maximum in the afternoon, while IC discharges occur more frequently during the night. During these months, a higher concentration of both types of discharges were observed on the Pacific side of Costa Rica, rather than in the Atlantic side. This spatial and temporal information can be related to sea breeze circulations and the diurnal cycle for convective activity in tropical regions.

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