



Actividad de rayos en el departamento de Santander entre 2014 y 2016 [

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text (article)

Analítica

Context: In this paper, the ground flash density (GFD) parameter in Santander (Colombia) is determined, and a study of lightning activity in the department from 2014 to 2016 is conducted. **Method:** The departmental territory was divided into 1 km² squares, and, through data regarding cloud-to-ground discharges obtained from the Colombian Total Lightning Detection Network (LINET), the number of annual average flashes per square was found, which corresponds to the GFD parameter. Likewise, using statistical methods, the spatial and temporal variation, multiplicity, and peak return discharge current of the flashes that affected the department were analyzed. **Results:** The areas with the highest GFD values are located in the municipalities of Suaita, Gámbita, Bolívar, Oiba, and Charalá. On average, 183.199 annual flashes were recorded, out of which 54,14 % have a multiplicity equal to one. Lightning activity peaks were observed in the months of April, May, September, and October between 16:00 and 18:00 and between 22:00 and 4:00 h, as well as mean annual current values of 33,6 kA for negative discharges with average maximum values in the months of October, November, and December, and of 25,7 kA for positive discharges with average maximum values in the months of April, October, and November. **Conclusions:** A marked influence of the terrain's topography and altitude was found on the incidence of atmospheric discharges in the department, given that the municipalities with the highest lightning activity are located on the sides of high mountain ranges at altitudes less than 1.500 m.a.s.l., and the municipalities with less activity are located on moors and hills at heights between 3.000 and 3.500 m.a.s.l. **Keywords:** lightning activity, ground flash density, flashes, LINET network **Acknowledgements:** We would like to thank the Keraunos company for supplying data from the Colombian network for Total Lightning Detection with LINET technology, through which the analysis of lightning

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