



A Cloud-to-Ground Lightning Climatology for Basque Country

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In this work we present the climatology of cloud-to-ground (CG) lightning flashes for the Basque Country. With this purpose, we have analyzed various CG lightning flash characteristics, including counts, density, polarity, peak current and thunderstorm days for the Basque Country.

Available data from the Basque Country lightning detection network are used. We present the statistics for the CG lightning flash data, the spatial distribution of the lightning flash densities on different time scales, and the polarity and peak current characteristics.

In Basque Country the maximum lightning activity is produced from May to September during the warm season. The moisture accumulated during the cold season and the beginning of warmer temperatures make May and June typical months for high lightning activity that usually are concentrated on the south of the region. From July on, the warmth accumulated by the sea contributes to more seaside thunderstorms and a higher electrical activity close to the coast.

The monthly variation shows a well-defined pattern extending from May to September with July as the peak month. With more than 80% of CG flashes occurring from May to September, and more than 25% during July with more than 500 flashes per thunder day. Rest of the year (Oct-Apr) flashes account for less than 20% of the total. The mean number of CG flashes per thunder day varies from 500 in July to 19 in December.