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Comparison of EMTM Cloud Electrification Model Simulations with Lightning Measurements from the Ground-based LINET Network

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We use the one-dimensional cloud electrification model EMTM (Explicit Microphysics Thunderstorm Model) to investigate the electrical and microphysical properties of thunderstorms – specifically, to analyze the behavior of the various microphysical components of the clouds (especially, within the charging zone) when lightning activity occurs, and to study their relationships with lightning occurrence and characteristics.
In this study, in order to assess the EMTM model performance, we compare the intra-cloud (IC) and cloud-to-ground (CG) lightning simulations for a series of heavy storms that occurred over southern Germany during the 2008 summer season, with corresponding measurements taken by the ground-based LINET network – which is particularly efficient in the selected region.