



Comparison of EMTM Cloud Electrification Model Simulations with Radar and Lightning Measurements

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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 rainfall/lightning simulations for a series of heavy storms that occurred over central Italy during the 2008 Fall season, with corresponding measurements taken by the CNR-ISAC Doppler polarimetric C-band radar and by the ground-based LINET network.