

Interactive comment on “Observing relationships between lightning and cloud profiles by means of a satellite-borne cloud radar” by Martina Buiat et al.

Anonymous Referee #1

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General Comments: The manuscript is very well structured and propose a novel approach to study the relationship between lightning and the vertical distribution of IWC and effective radius using CloudSat products. However, the size of the sample and the in-depth analysis of only one case, do not allow to establish a significant statistical relationship between stroke and non-stroke profiles. While the physical mechanism is feasible as pointed out in the last paragraph (lines 211-213), more evidence is necessary to confirm the characterization of the proposed structure. How deep (significant) should be the secondary IWC peak? The principal maximum of ER should be present only at 7 km? I would be good to have more cases to confirm the hypothesis and find the thresholds for the proposed structures.

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