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Uncertainty assessment of simulated weather radar measurements on a deep convective cell

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Nowadays, precipitation rate retrieval using ground-based weather radar is largely employed. Unfortunately, radar capability of a reliable measuring of reflectivity can be seriously spoiled by a wide range of uncertainty sources: in this work, some of them are assessed by using a three-dimensional radar simulator model (Haase, 2000), feeded by 3-D output fields of a nonhydrostatic mesoscale weather forecast model (Lokal-Modell). Results of simulations dealing with absorption by the atmospheric gases (e.g.: molecular oxygen, water vapour, and nitrogen), shielding effect (due to the presence of a highly reflecting structure between the radar and a “target structure”) and the uncertainty due to uncoherent microphysical modelling (i.e.: the microphysical scheme used to generate the atmospheric scenario is supposed to be unknown and different drop size distributions are tested on it) are presented.