



Study of the shape of rain cell through high resolution numerical simulations with Cosmo Model

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The study of shape of rain cell, on the basis of radar meteorological observations, has recently deserved a growing attention (Feral et al., 2000; Von Hardenberg et al., 2003). The shape of rain cells represents a crucial ingredient of stochastic point-process models that describe intense precipitation events. Moreover the comparison between shape and other geometrical features of real and simulated rain cells can be of interest to assess the performances of high resolution meteorological models in the modelling of precipitation processes. In this work we try to build a physical understanding of the microphysical and dynamical processes responsible for the observed rain cells shape by using a model with bulk-type parameterized microphysics (Cosmo Model) in simplified model configurations. High resolution simulations are performed and the impact of different microphysics on simulated shape of convective cells is investigated. Particular attention is also paid to the dependency of the shape on stage of the cell, through the comparison between real and simulated rain cells, and to the impact of the properties of the graupel/hail class (low-density vs. hail-like).