

Open cell convection in HARMONIE-AROME

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With a resolution of 2.5km, HARMONIE-AROME is a NWP model that roughly resolves deep convection. It is not clear if such a model should be capable of resolving open cell convection, as can be observed above sea under unstable conditions (e.g. during a cold air outbreak). However, especially the rain associated with this type of convection, can be important if it occurs with temperatures around 0 C. For one open cell convection case, we investigated the role of momentum mixing by the shallow convection scheme, as well as the impact of microphysics. we will show that momentum mixing can attenuate mesoscale structures of the NWP model. On the other hand, increased precipitation of the shallow convection scheme supports the building up of cold pool, mesoscale structures. Although, we can increase the mesoscale cloud organisation changing these two processes, the precipitation remains underestimated. A more elaborate investigation will be done in EUREC4A.

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