



## **Warm clouds invigoration by aerosol**

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The cloud invigoration effect describes a set of feedbacks that link an increase in aerosol loading to deepening of convective clouds through the coupling between microphysics and dynamics. The invigoration effect can be expressed in several other ways, such as larger cloud area and/or an increase in the condensate mass. Its expression depends on the environmental conditions but also on the parameters that can be measured (and reported) by the research approach. Here we will present numerical results that show how cloud invigoration is expressed in warm convective clouds from a single cloud up to a cloud field scale. It will be described in the process level based on detailed bin microphysical schemes. The dependency on the environmental conditions will be discussed, showing how competitions between core and margins based processes determine the expression.