

Mesoscale organization of shallow convection: the role of rain and cold pools

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Shallow-convective organization and rain are two sides of the same coin. The mesoscale organization of shallow convection tends to increase rain rates, and rain is an important ingredient for organising shallow convection. Rain induces mesoscale organization preferentially through evaporatively-driven downdrafts, which trigger cold pools that spread out at the surface as density currents. Cold pools are not only important for the triggering of new and deeper convection, but might also play a role in regulating cloud cover in the trades –a regime responsible for much of the uncertainty in climate sensitivity. In this talk I will summarize what we know about trade cumulus cold pools from observations and models, discuss how cold pools are linked to cloud cover, and highlight important open questions.

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