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Simulation of continental convection and tracer transport in the tropical upper troposphere

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A three-dimensional mesoscale model is used to simulate events of convective activity in the tropical region to determine the transport of lower-troposheric passive tracers. We present first an outline of the mesoscale-transport BOLAM-BOLCHEM (Bologna Limited Area Model coupled with Chemistry) and results of case studies of continental convection in the frame of Hibiscus 2004 (Brazil) and AMMA 2005-2006 (West-Africa) campaigns. The comparison of the simulated radiance temperature with satellite observations and the nudging method to correct convection triggering with observed precipitation will be detailed Finally, low-troposheric tracer convective transport during Hibiscus and AMMA will be analyzed, coupled to field campaign obervations.