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Mesoscale meteorological and chemistry modelling of a HIBISCUS 2004 case Study

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The scientific objective of this work is to study the impact of tropical precipitating systems on the TTL air composition. The case study chosen is from the HIBISCUS field campaign that took place in Brazil in February and March 2004. HIBISCUS campaign was carried out in coordination with the TROCCINOX and TROCCIBRAS campaigns. Simulations results from the newly developed Brazilian RAMS-Chemistry mesoscale model will be discussed. The simulation includes the passage precipitation band associated to the tail of an extratropical cold front and local convection developing a few hours later. This particular meteorological situation provides the opportunity to analyse the impact of two types of precipitating systems on the TTL air composition in the same tropical area. A special attention is given to the NO_y budget that can be largely affected by lightning NO_x, scavenging of HNO₃ and trapping in ice particles.