

P30 Numerical evaluation of the influence of urbanization in the convection and precipitation patterns in the metropolitan region of São Paulo (Brazil).

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Urban areas can become Urban Heat Islands (UHI) mainly due to the lack of green areas, high emissions of air pollutants and presence of civil materials, which absorb and retain more heat for a longer time than natural, which makes the temperatures higher than the surrounding areas. The influence of convective processes in rain formation in order to modify the rainfall region is discussed, since that processes also depend on the local temperature. The influence of urbanization on rainfall in the metropolitan region of São Paulo was analyzed by means of statistical methods and numerical simulations. The WRF model was configured with different soil type and usage settings: 1) current urban sprawl; 2) expanded urban area; 3) urban sprawl replaced by native forest. Numerical simulations were performed for events in which convection caused the rainfall. The results highlighted the strong influence of urbanization on atmospheric dynamics and consequently the UHI of the region, culminating in severe and concentrated convective precipitation event around and inside the urban area. Simulations in which urbanization was changed to native forest, precipitation occurred in a more spatially distributed way and with less intensity cores.