Atmosphere

Supporting Information for

Aerosol and Urban Influences on Rainfall and Reflectivity Coverage During a Warm-Season Convective Event in Coastal Louisiana

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Introduction

The supplementary material contains auxiliary figures for the primary article document.

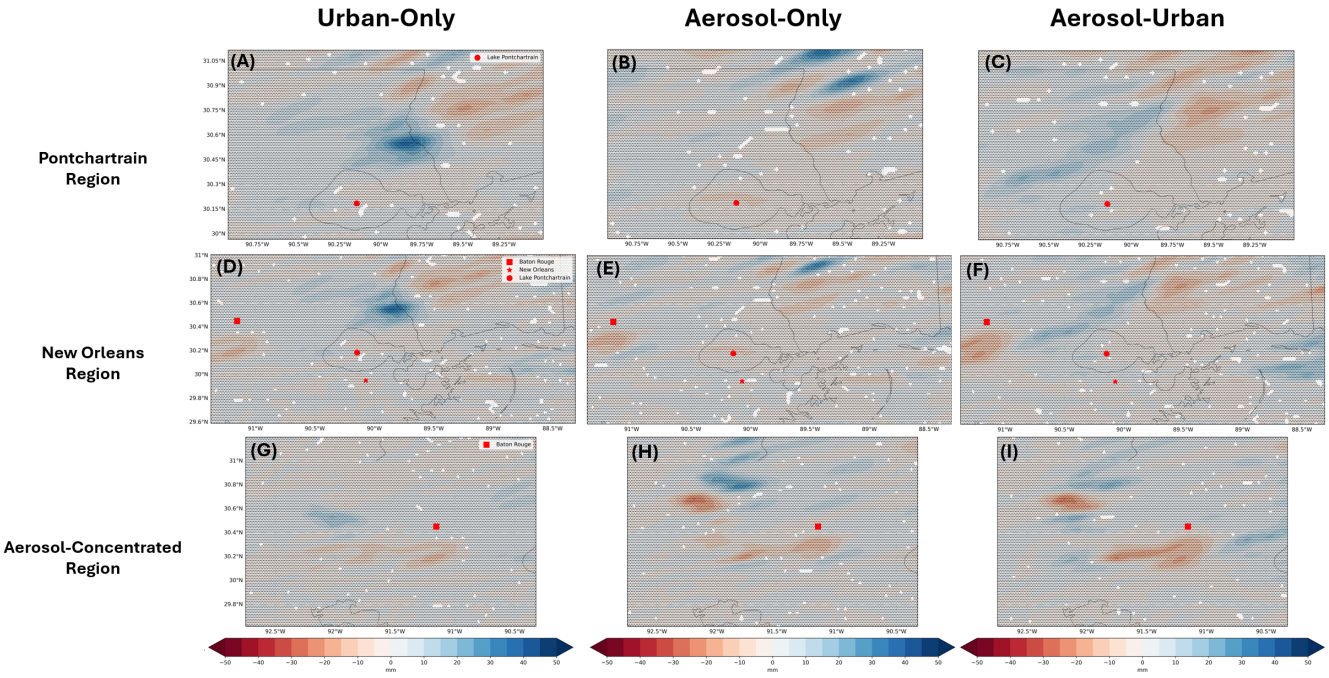


Figure S1: Mean accumulated precipitation difference per time step between experimental scenarios and the control simulation for the Pontchartrain sub-zone (A-C), New Orleans sub-zone (D-F), and aerosol-concentrated sub-zone (G-I). (A),(D), and (G) represent the difference between the urban-only scenario and the control. (B), (E), and (H) represent the aerosol-only scenario compared to the control. (C), (F), and (I) compare the aerosol-urban to the control. The hash marks indicate statistically significant areas. Statistical significance was determined with 95% confidence through a paired permutation test with 5000 permutations. The Benjamini-Hochberg method controlled for an assumed 5% false discovery rate.

Table S1: Common point-source pollutants across Louisiana in 2007 and 2010. Emissions are reported in kilotons. Data was collected from the Louisiana Department of Environmental Quality (LDEQ). In 2007, LDEQ identified 750 unique point-source facility IDs. In 2010, LDEQ identified 715 unique point-source facility IDs. 643 facilities occurred in both years. Across the listed species, more than 95% of point-source emissions originated from the 643 common facilities. This suggests that although the yearly total emission values differ, the 2010 EDGAR-HTAP v2.2 dataset spatially accounts for nearly all point sources present in 2007.

Pollutant	2007 total emissions (kt)	643 common facilities: 2007 emissions (kt)	Percent share of 2007 total by the 643 common facilities (%)	2010 total emissions (kt)	643 common facilities: 2010 emissions (kt)	Percent share of 2010 total by the 643 common facilities (%)	Total emissions change, 2007–2010 (%)
NO_x	210.83	208.94	99.10	170.91	169.58	99.22	−18.93
SO_2	236.65	236.60	99.99	196.80	191.94	97.53	−16.84
VOC	69.06	66.09	95.70	56.10	54.77	97.63	−18.77
CO	141.06	138.62	98.27	145.58	144.47	99.23	+3.20
PM_{10}	30.85	30.35	98.38	28.59	27.72	96.96	−7.33
$PM_{2.5}$	18.06	17.73	98.17	18.06	17.73	98.17	0