

Supplementary Materials: Temporal-Spatial Variations of Ambient Ozone-Mortality Associations in the USA: Results from the NMMAPS Data

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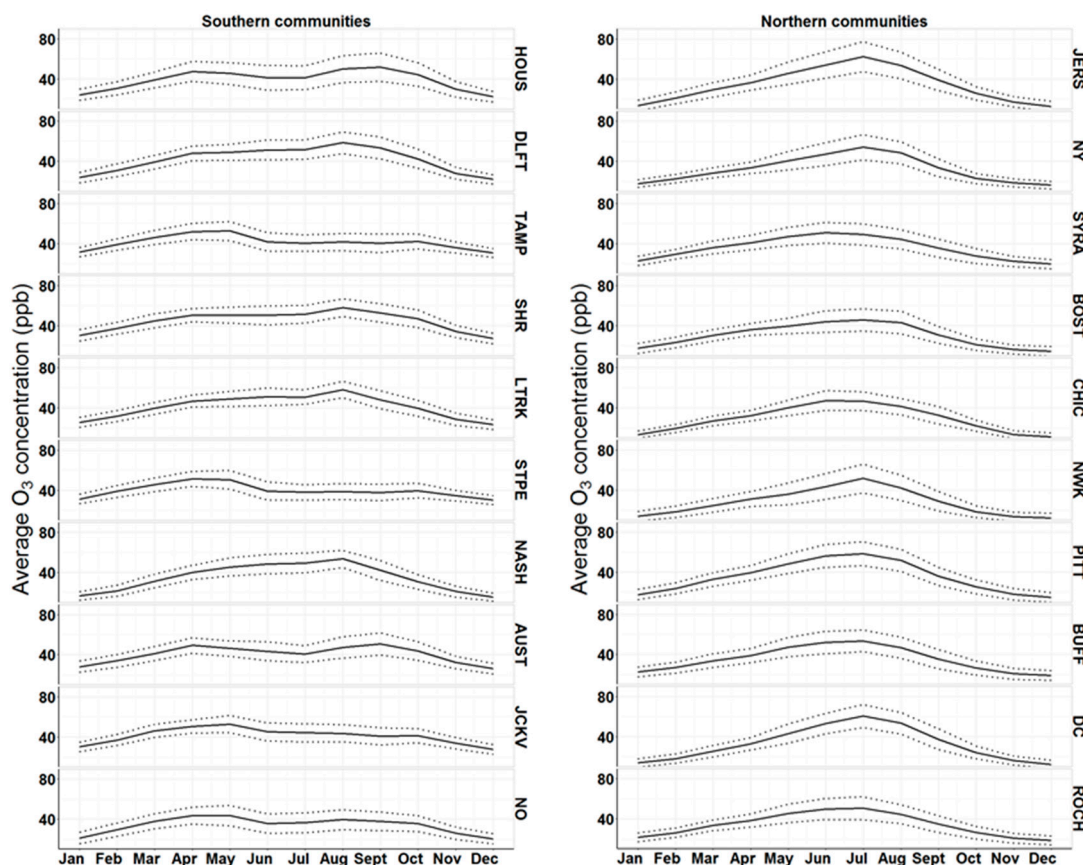


Figure S1. Monthly average maximum 8 h O₃ concentration (ppb) in the 20 study communities in the USA. HOUS: Houston; DLFT: Dallas; TAMP: Tampa; SHR: Shreveport; LTRK: Little Rock; STPE: St. Petersburg; NASH: Nashville; AUST: Austin; JCKV: Jacksonville; NO: New Orleans; JERS: Jersey City; NY: New York; SYRA: Syracuse; BOST: Boston; CHIC: Chicago; NWK: Newark; PITT: Pittsburgh; BUFF: Buffalo; DC: Washington; ROCH: Rochester.

Table S1. Sensitivity analyses on the impacts (Excess risk, 95% CI) of lag structure on the effects of ozone on mortality.

	Average TM	Southern Communities			Average TM	Northern Communities		
	(°C)	Model I	Model II	Model III	(°C)	Model I	Model II	Model III
Spring	19.6	-0.23 (-0.61, 0.12)	-0.07 (-0.49, 0.36)	0.06 (-0.40, 0.53)	9.9	0.68 * (0.33, 1.04)	0.74 * (0.33, 1.16)	0.65 * (0.21, 1.10)
Summer	27.9	-0.08 (-0.37, 0.20)	-0.17 (-0.47, 0.13)	-0.04 (-0.36, 0.29)	22.4	1.14 * (0.92, 1.37)	1.21 * (0.72, 1.71)	1.09 * (0.76, 1.41)
Autumn	20.5	0.36 * (0.04, 0.69)	0.40 * (0.05, 0.75)	0.38 * (0.01, 0.76)	12.3	0.67 * (0.32, 1.03)	0.52 * (0.08, 0.96)	0.27 (-0.21, 0.76)
Winter	11.7	0.30 (-0.22, 0.83)	0.27 (-0.30, 0.84)	0.14 (-0.46, 0.74)	-0.19	-0.52 (-1.10, 0.07)	-0.65 (-1.57, 0.28)	-0.32 (-1.03, -0.40)

Model I: The ERs of lag0-1 day average ozone concentration on mortality after adjustment for daily temperature, time, day of week and relative humidity (RH); Model II: The ERs of lag0-2 day average ozone concentration on mortality after adjustment for daily temperature, time, day of week and RH; Model III: The ERs of lag0-3 day average ozone concentration on mortality after adjustment for daily temperature, time, day of week and RH. * $p < 0.05$.

Table S2. Changes in ozone related morality effect estimates (% , 95% CI) per interval increase in a city-specific characteristic.

	Change (% , 95% CI)
Latitude (per 1°)	
Spring	9.4 * (4.1, 14.0)
Summer	13.9 * (8.3, 19.7)
Autumn	3.0 (-4.9, 11.6)
Winter	-3.9 (-13.9, 7.3)
Average temperature (per 1 °C)	
Spring	-8.6 * (-13.9, -3.0)
Summer	-21.3 * (-29.5, -13.1)
Autumn	-3.9 (-12.2, 6.2)
Winter	2.0 (-6.8, 12.7)
Relative humidity (per 1%)	
Spring	-11.3 * (-18.1, -4.9)
Summer	-6.8 (-13.9, 0.02)
Autumn	-6.8 (-13.9, 1.0)
Winter	-1.0 (-13.1, 11.6)

* $p < 0.05$.**Table S3.** The ERs in mortality for each 10 ppb increment in daily 8-h maximum ozone concentration (lag0-2 day average) in the community with the maximum concentration of ozone in each season.

	Southern Communities		Northern Communities	
	Community	ER # (% , 95% CI)	Community	ER # (% , 95% CI)
Spring	Tampa	-0.18 (-1.58, 1.23)	Syracuse	0.97 (-1.25, 3.24)
Summer	Little Rock	-1.58 (-3.47, 0.34)	Washington	1.30 (0.01, 2.60)
Autumn	Dallas	0.82 (0.07, 1.57)	Syracuse	2.11 (-0.34, 4.63)
Winter	Tampa	-0.98 (-2.88, 0.96)	Syracuse	1.23 (-1.45, 3.99)

#: Adjustment for daily TM, time, day of week and RH.