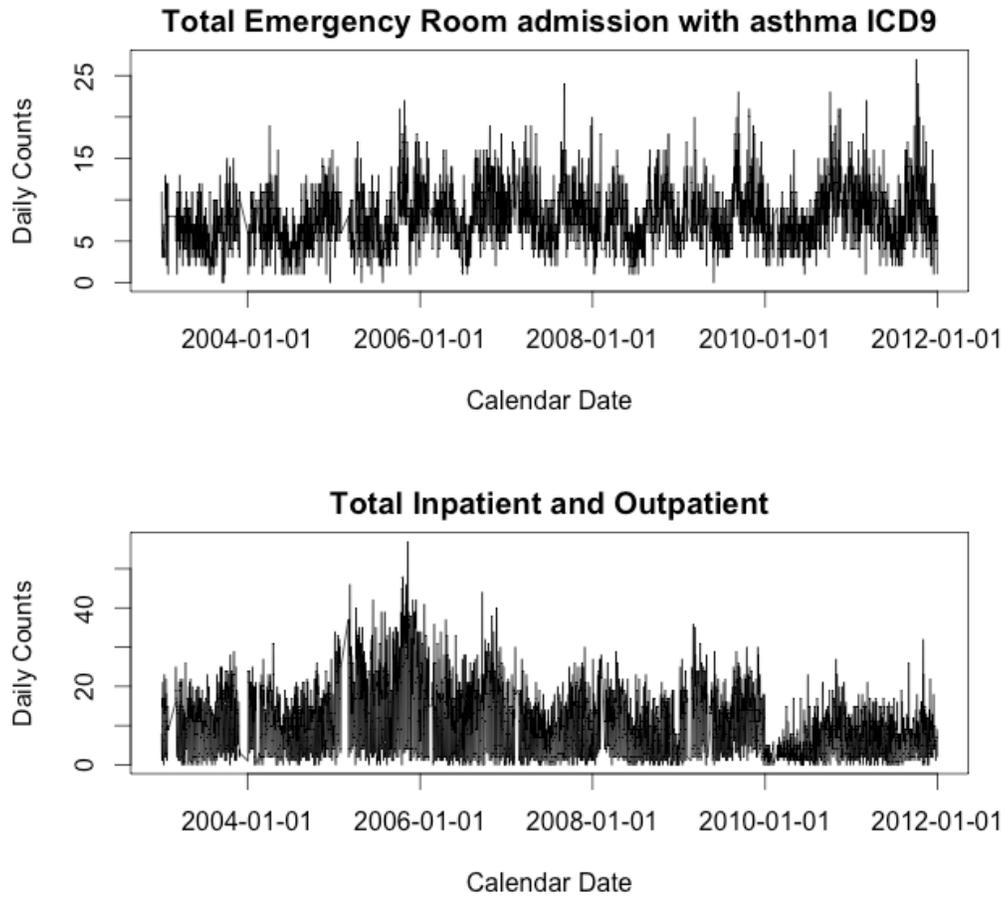
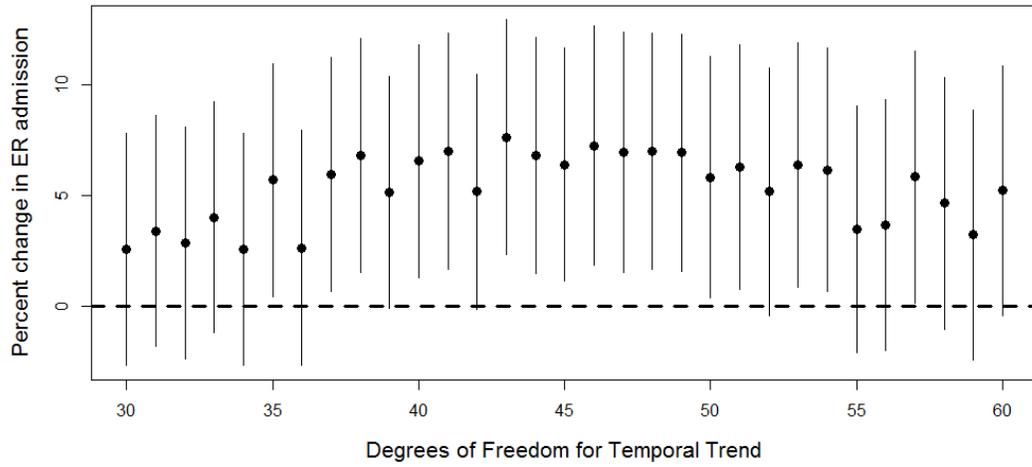


Supplementary Materials: Time-series analysis of satellite-derived fine particulate matter pollution and asthma morbidity in Jackson, MS." (NIHMS1880467)

**Supplementary Figure S1.** Time series plots of daily asthma morbidity outcomes during 2003-2011 in Jackson, Mississippi.



**Supplementary Figure S2.** Sensitivity analysis of various degrees of control for temporal trend on the estimated percent change in overall emergency room (ER) admission per  $10 \mu\text{g}/\text{m}^3$  increase in 3-day moving average exposure to  $\text{PM}_{2.5}$  concentration in Jackson, Mississippi, 2003-2011.



**Supplementary Table S1.** Datasets for estimating PM<sub>2.5</sub> concentrations (From Lary et al., 2015)

<b>Earth Observation Data Model and Tool</b>	<b>Product (name and resolution)</b>	<b>Variables</b>	<b>Relation to PM abundance</b>
NASA GMAOGEOS5 1979 to present	MERRA 2/3° × 1/2°	Thirty-eight surface layer and land surface variables are used, including the height of the planetary boundary layer, precipitation, the surface humidity, wind speed, temperature, and density	Factors related to the production, dispersion, or removal of boundary layer PM <sub>2.5</sub>
SeaWIFS 1997–2010	Deep Blue 0.5° × 0.5°	Aerosol optical depth, angstrom exponent, single scattering albedo, viewing geometry, illumination geometry, surface reflectivity, and assorted flags	Measure of total aerosol abundance in a vertical atmospheric profile
MODIS Terra & Aqua 2000–present 2002–present	MOD04 MYD04 Collection 5.1 10 km × 10 km	Deep Blue and Standard retrievals of aerosol optical depth, viewing geometry, illumination geometry, surface reflectivity, and assorted flags	Measure of total aerosol abundance in a vertical atmospheric profile
MODIS 2000–present	MCD43C3 0.05° × 0.05°	Seven wavelength band surface reflectance	Related to surface sources of PM <sub>2.5</sub> and AOD biases
MODIS 2000–present	MCD45A1 500 m	Gridded burned area product, which contains burning and quality information on a per-pixel basis	Fires are a major source of PM <sub>2.5</sub>

**Abbreviations:** AOD, aerosol optical depth; GMAO, global modeling and assimilation office; MERRA, modern-era retrospective analysis for research and applications; MODIS, moderate resolution imaging spectroradiometer; SeaWIFS, sea-viewing wide field-of-view sensor.

**Supplementary Table S2.** Sensitivity analysis of various degrees of control for meteorology on the estimated percent change in overall emergency room admission per 10  $\mu\text{g}/\text{m}^3$  increase in 3-day moving average exposure to  $\text{PM}_{2.5}$  concentration in Jackson, Mississippi, 2003-2011.

DF for Temperature	DF for Humidity	Estimate	L95 CI	U95 CI
3	4	6.84	1.29	12.70
3	5	6.92	1.36	12.79
3	6	7.08	1.49	12.98
4	3	7.13	1.57	12.99
4	4	6.81	1.26	12.67
4	5	6.90	1.34	12.76
4	6	7.05	1.46	12.95
5	3	7.20	1.64	13.06
5	4	6.85	1.29	12.71
5	6	7.08	1.49	12.98
6	3	6.66	1.10	12.53
6	4	6.41	0.85	12.27
6	5	6.46	0.90	12.33
6	6	6.65	1.06	12.55

**Abbreviations:** DF, degrees of freedom; L95 CI, lower 95% confidence interval bound; U95 CI, upper 95% confidence interval bound.