Supplement for

Enhanced summertime PM$_{2.5}$-suppression of O$_3$ formation over the Eastern US following the O$_3$-sensitivity variations

Jie Zhang[1,*], Junfeng Wang[2], Alexandra Catena[1], Margaret J. Schwab[1], Matthew Ninneman[3], Dirk Felton[4], James Schwab[1,*]

[1]Atmospheric Sciences Research Center, University at Albany, State University of New York, Albany, NY 12203, USA
[2]Jiangsu Key Laboratory of Atmospheric Environment Monitoring and Pollution Control, School of Environmental Science and Engineering, Nanjing University of Information Science and Technology, Nanjing 210044, China
[3]School of Science, Technology, Engineering and Mathematics, University of Washington Bothell, Bothell, WA 98011, USA
[4]Division of Air Resources, New York State Department of Environmental Conservation, Albany, NY, USA
[*]To whom correspondence may be addressed. Email: jzhang35@albany.edu, jschwab@albany.edu
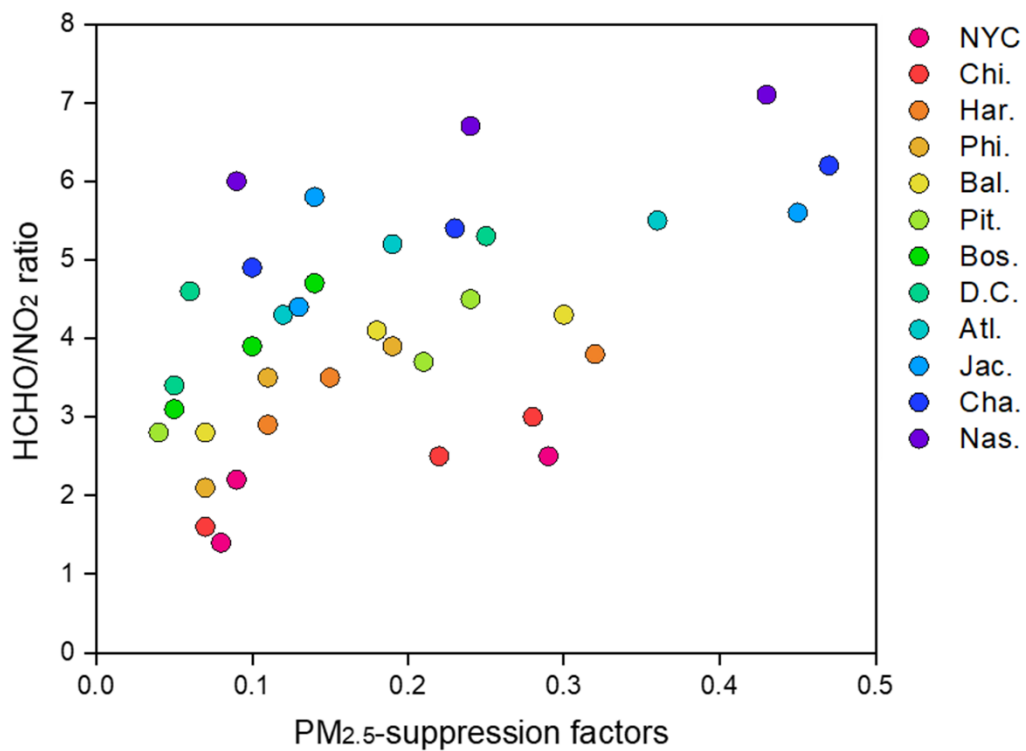
Figure S1. The locations of the EPA sites in NYC and selected downwind locations over Long Island Sound. (made from Google Maps. https://www.google.com/maps)
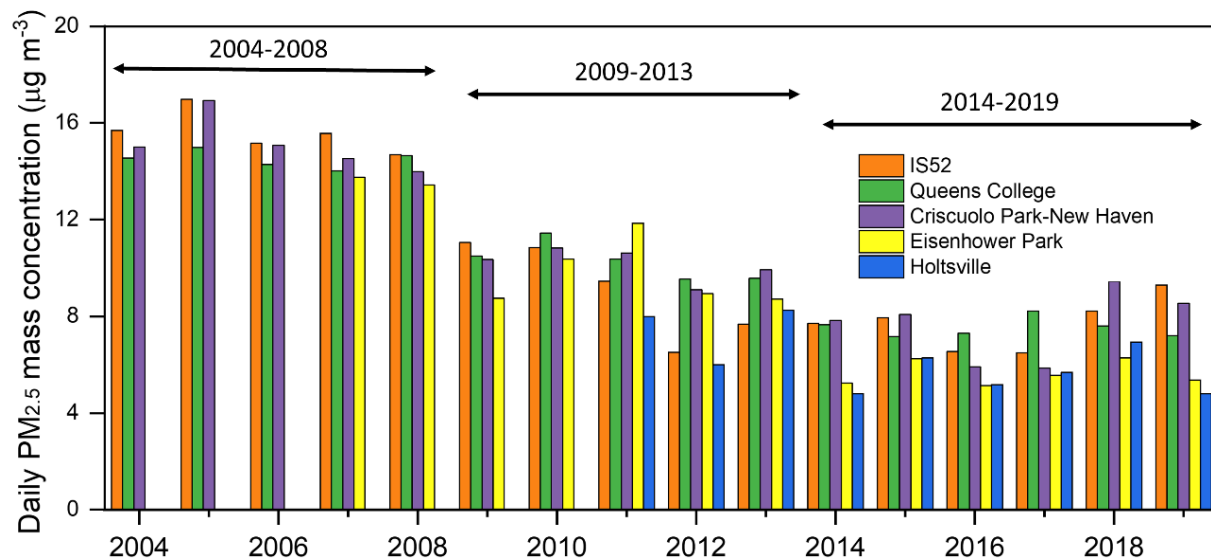
Figure S2. The time series of the annual summertime average DA24 $PM_{2.5}$ in NYC urban sites and downwind sites for each subperiod specified in the main text.
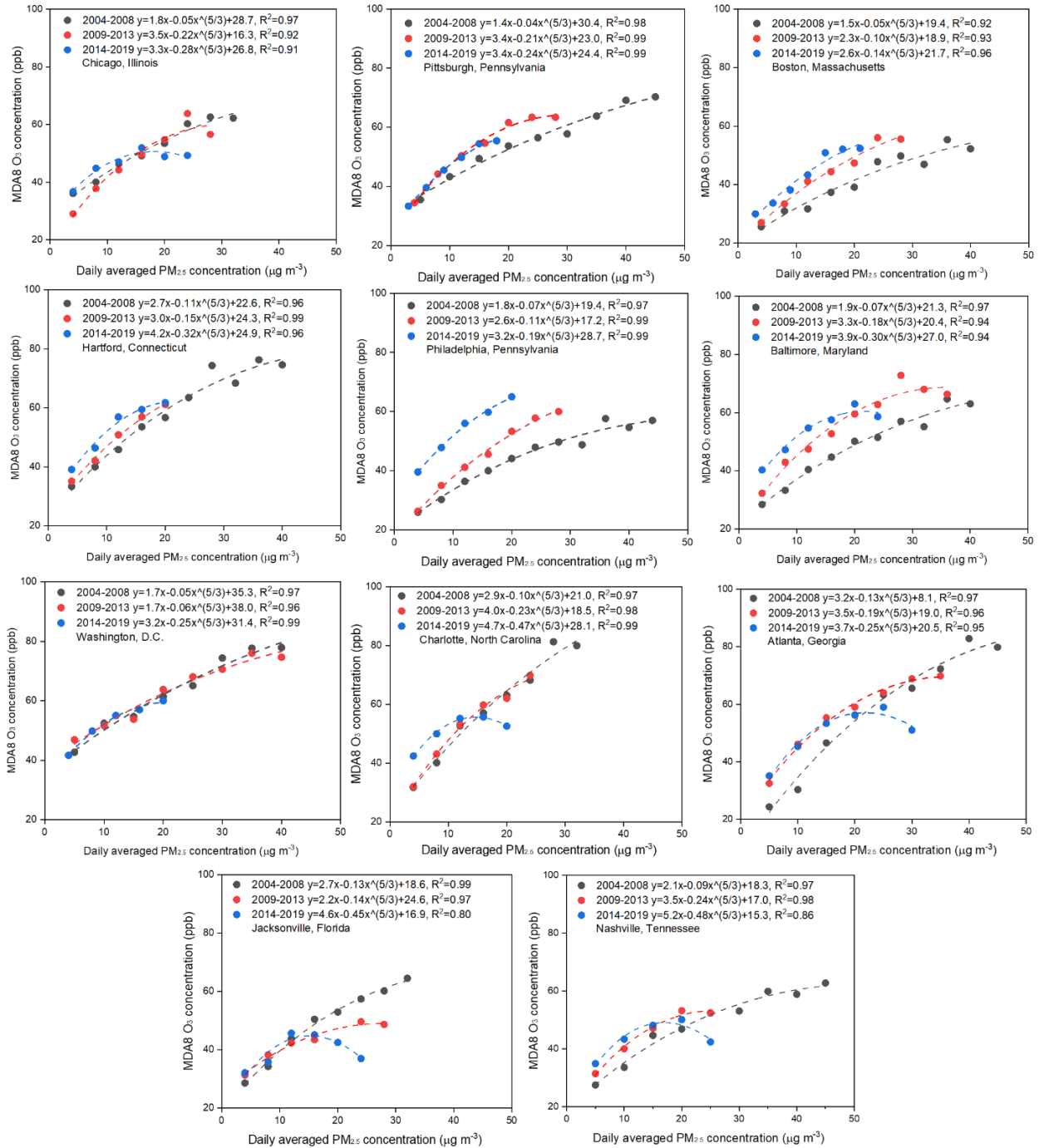
Figure S3. The O₃ vs. PM₂.₅ relationships for the major cities of the Eastern U.S., excluding NY, and their fitting results. These eleven major cities include Chicago (Chi., Illinois), Pittsburgh (Pit., Pennsylvania), Boston (Bos., Massachusetts), Hartford (Har., Connecticut), NYC (New York), Philadelphia (Phi., Pennsylvania), Baltimore (Bal., Maryland), Washington, D.C. (District of Columbia), Charlotte (Cha., North Carolina), Atlanta (Atl., Georgia), Jacksonville (Jac., Florida), and Nashville (Nas., Tennessee).

Figure S4. The relationship between the HCHO/NO₂ ratios and the PM₂.₅-suppression factors, colored by each city.

Table S1. The eastern US major cities with the locations of their most representative site.

Order#	City, State	Latitude	Longitude
1	Boston, Massachusetts	42.3295	-71.0826
2	Hartford, Connecticut	41.7847	-72.6317
3	NYC, New York	40.816	-73.902
4	Philadelphia, Pennsylvania	39.9914	-75.0808
5	Baltimore, Maryland	39.3288	-76.5531
6	Washington, D.C.	38.9219	-77.0132
7	Charlotte, North Carolina	35.2401	-80.7857
8	Atlanta, Georgia	33.7207	-84.3573
9	Jacksonville, Florida	30.2603	-81.4536
10	Chicago, Illinois	41.98433	-87.792
11	Pittsburgh, Pennsylvania	40.46542	-79.9608
12	Nashville, Tennessee	36.20506	-86.7447