

Does temperature confounding control influence the modifying effect of air temperature in ozone-mortality associations?

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eTable 1. Summary statistics (mean±SD) for daily deaths, ozone, and temperature in eight European cities and 86 U.S. cities.

| Region | Country/State | Location | Daily deaths | Ozone ^a | Temperature (°C) |
|--------|----------------------|------------------|--------------|--------------------|------------------|
| Europe | Greece | Athens | 80±12 | 71±26 | 19±7 |
| | Spain | Barcelona | 41±8 | 63±28 | 14±6 |
| | Italy | Rome | 58±10 | 73±37 | 16±7 |
| | Germany | Augsburg | 8±3 | 69±35 | 10±8 |
| | Germany | Ruhr | 32±6 | 57±31 | 11±7 |
| | Denmark | Copenhagen | 26±9 | 33±11 | 10±7 |
| | Sweden | Stockholm | 39±7 | 65±20 | 7±8 |
| | Finland | Helsinki | 18±5 | 62±21 | 6±10 |
| | <i>Average</i> | | | 38 | 62 |
| U.S. | Ohio | Akron | 4±3 | 31±13 | 11±11 |
| | New Mexico | Albuquerque | 3±2 | 28±10 | 16±9 |
| | Georgia | Atlanta | 8±4 | 25±11 | 19±8 |
| | Texas | Austin | 3±2 | 27±11 | 22±8 |
| | California | Bakersfield | 3±2 | 37±16 | 21±9 |
| | Maryland | Baltimore | 7±3 | 33±13 | 14±10 |
| | Louisiana | Baton Rouge | 3±2 | 24±10 | 20±7 |
| | Alabama | Birmingham | 6±3 | 25±9 | 17±8 |
| | Massachusetts | Boston | 4±3 | 20±12 | 11±9 |
| | New York | Buffalo | 9±5 | 25±13 | 10±11 |
| | Iowa | Cedar Rapids | 2±1 | 23±10 | 11±12 |
| | North Carolina | Charlotte | 3±2 | 33±12 | 18±8 |
| | Illinois | Chicago | 38±16 | 20±10 | 11±11 |
| | Ohio | Cincinnati | 7±4 | 26±10 | 13±10 |
| | Ohio | Cleveland | 12±7 | 28±12 | 11±10 |
| | Ohio | Columbus, OH | 6±3 | 27±12 | 13±10 |
| | Colorado | Colorado Springs | 2±1 | 24±10 | 10±10 |
| | Texas | Corpus Christi | 2±1 | 26±11 | 22±6 |
| | Ohio | Dayton | 4±3 | 28±12 | 12±11 |
| | District of Columbia | Washington | 5±3 | 21±13 | 14±10 |
| | Colorado | Denver | 6±4 | 20±10 | 11±11 |
| | Iowa | Des Moines | 3±2 | 16±10 | 11±12 |
| | Michigan | Detroit | 16±6 | 24±11 | 11±11 |
| | Texas | Dallas | 18±8 | 27±12 | 20±9 |
| | Texas | El Paso | 3±2 | 26±10 | 20±9 |
| | Indiana | Evansville | 2±1 | 37±11 | 14±10 |
| | California | Fresno | 4±3 | 30±15 | 20±9 |
| | Indiana | Fort Wayne | 2±1 | 33±11 | 11±11 |
| | Michigan | Grand Rapids | 3±2 | 29±13 | 10±11 |
| | North Carolina | Greensboro | 3±2 | 34±11 | 16±9 |
| | Hawaii | Honolulu | 4±3 | 16±10 | 25±2 |
| | Texas | Houston | 14±6 | 23±11 | 21±7 |
| | Alabama | Huntsville | 2±1 | 30±12 | 17±9 |
| | Indiana | Indianapolis | 6±3 | 32±11 | 13±11 |
| | Florida | Jacksonville | 5±3 | 26±10 | 21±6 |
| | New Jersey | Jersey City | 4±2 | 21±14 | 14±10 |

| Region | Country/State | Location | Daily deaths | Ozone ^a | Temperature (°C) |
|--------|----------------|-----------------|--------------|--------------------|------------------|
| | Missouri | Kansas City, MO | 6±4 | 30±12 | 13±11 |
| | Kansas | Kansas City, KS | 1±1 | 24±12 | 14±11 |
| | New York | Kingston | 2±1 | 35±11 | 13±9 |
| | Tennessee | Knoxville | 3±2 | 32±11 | 16±9 |
| | California | Los Angeles | 50±23 | 22±11 | 17±3 |
| | Nevada | Las Vegas | 6±3 | 31±13 | 22±10 |
| | Kentucky | Lexington | 2±1 | 33±12 | 14±10 |
| | Kentucky | Louisville | 6±3 | 24±12 | 15±10 |
| | Arkansas | Little Rock | 3±2 | 28±11 | 18±9 |
| | Wisconsin | Madison | 2±2 | 31±11 | 9±12 |
| | Tennessee | Memphis | 6±3 | 36±10 | 18±9 |
| | Florida | Miami | 15±8 | 28±10 | 25±3 |
| | Wisconsin | Milwaukee | 8±5 | 31±12 | 9±11 |
| | Alabama | Mobile | 3±2 | 28±10 | 19±7 |
| | Tennessee | Nashville | 4±2 | 21±10 | 16±9 |
| | Louisiana | New Orleans | 4±2 | 22±10 | 21±7 |
| | New Jersey | Newark | 6±3 | 17±12 | 14±10 |
| | New York | New York | 63±27 | 20±11 | 13±9 |
| U.S. | California | Oakland | 8±4 | 18±8 | 15±3 |
| | Oklahoma | Oklahoma City | 5±3 | 30±13 | 17±10 |
| | Nebraska | Omaha | 3±2 | 23±10 | 12±12 |
| | Florida | Orlando | 4±3 | 25±10 | 23±5 |
| | Pennsylvania | Philadelphia | 14±6 | 21±13 | 14±10 |
| | Arizona | Phoenix | 15±9 | 25±10 | 26±9 |
| | Pennsylvania | Pittsburgh | 13±8 | 22±12 | 12±10 |
| | Rhode Island | Providence | 5±4 | 29±12 | 11±9 |
| | North Carolina | Raleigh | 2±1 | 35±11 | 16±9 |
| | California | Riverside | 8±5 | 34±15 | 18±5 |
| | New York | Rochester | 5±4 | 24±12 | 10±11 |
| | California | Sacramento | 6±4 | 26±10 | 18±7 |
| | Utah | Salt Lake City | 4±2 | 32±10 | 13±11 |
| | Texas | San Antonio | 7±4 | 24±10 | 22±8 |
| | California | San Bernardino | 7±4 | 37±16 | 18±5 |
| | California | San Diego | 15±9 | 29±10 | 18±3 |
| | California | San Jose | 7±4 | 18±8 | 15±3 |
| | Washington | Seattle | 9±6 | 22±8 | 12±6 |
| | Louisiana | Shreveport | 3±2 | 29±10 | 19±8 |
| | Washington | Spokane | 3±2 | 33±8 | 10±10 |
| | California | Santa Ana | 12±7 | 25±11 | 17±3 |
| | Missouri | St. Louis | 4±2 | 25±10 | 15±11 |
| | California | Stockton | 3±2 | 24±10 | 18±7 |
| | Florida | St. Petersburg | 10±8 | 26±11 | 23±5 |
| | New York | Syracuse | 4±2 | 23±12 | 10±11 |
| | Washington | Tacoma | 4±2 | 18±8 | 12±6 |
| | Florida | Tampa | 6±3 | 27±11 | 23±5 |
| | Ohio | Toledo | 4±2 | 28±12 | 11±11 |
| | Arizona | Tucson | 5±3 | 28±9 | 23±9 |
| | Oklahoma | Tulsa | 4±2 | 31±12 | 17±10 |
| | Kansas | Wichita | 3±2 | 27±12 | 15±11 |

| Region | Country/State | Location | Daily deaths | Ozone ^a | Temperature (°C) |
|--------|----------------------|------------------|--------------|--------------------|------------------|
| | Massachusetts | Worcester | 5±4 | 31±13 | 9±10 |
| | Ohio | Akron | 4±3 | 31±13 | 11±11 |
| | New Mexico | Albuquerque | 3±2 | 28±10 | 16±9 |
| | Georgia | Atlanta | 8±4 | 25±11 | 19±8 |
| | Texas | Austin | 3±2 | 27±11 | 22±8 |
| | California | Bakersfield | 3±2 | 37±16 | 21±9 |
| | Maryland | Baltimore | 7±3 | 33±13 | 14±10 |
| | Louisiana | Baton Rouge | 3±2 | 24±10 | 20±7 |
| | Alabama | Birmingham | 6±3 | 25±9 | 17±8 |
| | Massachusetts | Boston | 4±3 | 20±12 | 11±9 |
| | New York | Buffalo | 9±5 | 25±13 | 10±11 |
| | Iowa | Cedar Rapids | 2±1 | 23±10 | 11±12 |
| | North Carolina | Charlotte | 3±2 | 33±12 | 18±8 |
| | Illinois | Chicago | 38±16 | 20±10 | 11±11 |
| | Ohio | Cincinnati | 7±4 | 26±10 | 13±10 |
| | Ohio | Cleveland | 12±7 | 28±12 | 11±10 |
| | Ohio | Columbus, OH | 6±3 | 27±12 | 13±10 |
| | Colorado | Colorado Springs | 2±1 | 24±10 | 10±10 |
| U.S. | Texas | Corpus Christi | 2±1 | 26±11 | 22±6 |
| | Ohio | Dayton | 4±3 | 28±12 | 12±11 |
| | District of Columbia | Washington | 5±3 | 21±13 | 14±10 |
| | Colorado | Denver | 6±4 | 20±10 | 11±11 |
| | Iowa | Des Moines | 3±2 | 16±10 | 11±12 |
| | Michigan | Detroit | 16±6 | 24±11 | 11±11 |
| | Texas | Dallas | 18±8 | 27±12 | 20±9 |
| | Texas | El Paso | 3±2 | 26±10 | 20±9 |
| | Indiana | Evansville | 2±1 | 37±11 | 14±10 |
| | California | Fresno | 4±3 | 30±15 | 20±9 |
| | Indiana | Fort Wayne | 2±1 | 33±11 | 11±11 |
| | Michigan | Grand Rapids | 3±2 | 29±13 | 10±11 |
| | North Carolina | Greensboro | 3±2 | 34±11 | 16±9 |
| | Hawaii | Honolulu | 4±3 | 16±10 | 25±2 |
| | Texas | Houston | 14±6 | 23±11 | 21±7 |
| | Alabama | Huntsville | 2±1 | 30±12 | 17±9 |
| | Indiana | Indianapolis | 6±3 | 32±11 | 13±11 |
| | Florida | Jacksonville | 5±3 | 26±10 | 21±6 |
| | New Jersey | Jersey City | 4±2 | 21±14 | 14±10 |
| | Missouri | Kansas City, MO | 6±4 | 30±12 | 13±11 |
| | Kansas | Kansas City, KS | 1±1 | 24±12 | 14±11 |
| | New York | Kingston | 2±1 | 35±11 | 13±9 |
| | Tennessee | Knoxville | 3±2 | 32±11 | 16±9 |
| | California | Los Angeles | 50±23 | 22±11 | 17±3 |
| | Nevada | Las Vegas | 6±3 | 31±13 | 22±10 |
| | Kentucky | Lexington | 2±1 | 33±12 | 14±10 |
| | Kentucky | Louisville | 6±3 | 24±12 | 15±10 |
| | Arkansas | Little Rock | 3±2 | 28±11 | 18±9 |
| | Wisconsin | Madison | 2±2 | 31±11 | 9±12 |
| | Tennessee | Memphis | 6±3 | 36±10 | 18±9 |

| Region | Country/State | Location | Daily deaths | Ozone ^a | Temperature (°C) |
|--------|----------------|----------------|--------------|--------------------|------------------|
| | Florida | Miami | 15±8 | 28±10 | 25±3 |
| | Wisconsin | Milwaukee | 8±5 | 31±12 | 9±11 |
| | Alabama | Mobile | 3±2 | 28±10 | 19±7 |
| | Tennessee | Nashville | 4±2 | 21±10 | 16±9 |
| | Louisiana | New Orleans | 4±2 | 22±10 | 21±7 |
| | New Jersey | Newark | 6±3 | 17±12 | 14±10 |
| | New York | New York | 63±27 | 20±11 | 13±9 |
| | California | Oakland | 8±4 | 18±8 | 15±3 |
| | Oklahoma | Oklahoma City | 5±3 | 30±13 | 17±10 |
| | Nebraska | Omaha | 3±2 | 23±10 | 12±12 |
| | Florida | Orlando | 4±3 | 25±10 | 23±5 |
| | Pennsylvania | Philadelphia | 14±6 | 21±13 | 14±10 |
| | Arizona | Phoenix | 15±9 | 25±10 | 26±9 |
| | Pennsylvania | Pittsburgh | 13±8 | 22±12 | 12±10 |
| | Rhode Island | Providence | 5±4 | 29±12 | 11±9 |
| | North Carolina | Raleigh | 2±1 | 35±11 | 16±9 |
| U.S. | California | Riverside | 8±5 | 34±15 | 18±5 |
| | New York | Rochester | 5±4 | 24±12 | 10±11 |
| | California | Sacramento | 6±4 | 26±10 | 18±7 |
| | Utah | Salt Lake City | 4±2 | 32±10 | 13±11 |
| | Texas | San Antonio | 7±4 | 24±10 | 22±8 |
| | California | San Bernardino | 7±4 | 37±16 | 18±5 |
| | California | San Diego | 15±9 | 29±10 | 18±3 |
| | California | San Jose | 7±4 | 18±8 | 15±3 |
| | Washington | Seattle | 9±6 | 22±8 | 12±6 |
| | Louisiana | Shreveport | 3±2 | 29±10 | 19±8 |
| | Washington | Spokane | 3±2 | 33±8 | 10±10 |
| | California | Santa Ana | 12±7 | 25±11 | 17±3 |
| | Missouri | St. Louis | 4±2 | 25±10 | 15±11 |
| | California | Stockton | 3±2 | 24±10 | 18±7 |
| | Florida | St. Petersburg | 10±8 | 26±11 | 23±5 |
| | New York | Syracuse | 4±2 | 23±12 | 10±11 |
| | Washington | Tacoma | 4±2 | 18±8 | 12±6 |
| | Florida | Tampa | 6±3 | 27±11 | 23±5 |
| | Ohio | Toledo | 4±2 | 28±12 | 11±11 |
| | Arizona | Tucson | 5±3 | 28±9 | 23±9 |
| | Oklahoma | Tulsa | 4±2 | 31±12 | 17±10 |
| | Kansas | Wichita | 3±2 | 27±12 | 15±11 |
| | Massachusetts | Worcester | 5±4 | 31±13 | 9±10 |
| | <i>Average</i> | | 7 | 27 | 16 |

^a Ozone unit was $\mu\text{g}/\text{m}^3$ for maximum 8-h average metric in eight European cities, and ppb for 24-h average metric in 86 U.S. cities.

eTable 2. Delta Q-AIC values using nonlinear temperature control methods in eight European cities and 86 U.S. cities (compared with Without sTemp method).

| Region | Location | With sTemp: DLNM | With Stemp_heat and Stemp_cold | With Stemp_heat only | With Stemp_cold only |
|--------------|------------------|---------------------|-----------------------------------|-------------------------|-------------------------|
| Europe | Athens | -255 | -163 | -135 | -28 |
| | Barcelona | -1111 | -438 | -201 | -365 |
| | Rome | -1738 | -987 | -621 | -545 |
| | Augsburg | -1977 | -922 | -414 | -798 |
| | Ruhr | -771 | -276 | -131 | -193 |
| | Copenhagen | -1852 | -768 | -380 | -679 |
| | Stockholm | -165 | -41 | -31 | -9 |
| | Helsinki | -93 | -47 | -33 | -10 |
| | <i>Average</i> | -995 | -455 | -243 | -328 |
| U.S. | Akron | -35 | -9 | -4 | -2 |
| | Albuquerque | -48 | -65 | 2 | -65 |
| | Atlanta | 22 | -23 | -9 | -8 |
| | Austin | -43 | -55 | -2 | -51 |
| | Bakersfield | -799 | -232 | 1 | -230 |
| | Baltimore | -17 | -39 | -35 | -1 |
| | Baton Rouge | -59 | -61 | 1 | -61 |
| | Birmingham | 45 | -12 | -5 | -2 |
| | Boston | -24 | -13 | 0 | -9 |
| | Buffalo | -60 | -125 | -16 | -104 |
| | Cedar Rapids | -104 | -52 | -1 | -50 |
| | Charlotte | -64 | -74 | -9 | -64 |
| | Chicago | -310 | -276 | -59 | -203 |
| | Cincinnati | -35 | -5 | 2 | -2 |
| | Cleveland | -35 | -11 | -5 | 0 |
| | Columbus, OH | -43 | -9 | -5 | -1 |
| | Colorado Springs | -605 | -197 | 1 | -196 |
| | Corpus Christi | -57 | -49 | 0 | -47 |
| | Dayton | -26 | -7 | -2 | -3 |
| | Washington | -109 | -112 | -9 | -100 |
| | Denver | -48 | -86 | -5 | -77 |
| | Des Moines | -119 | -57 | -1 | -54 |
| | Detroit | -154 | -169 | -47 | -119 |
| | Dallas | -109 | -165 | -9 | -149 |
| | El Paso | -453 | -210 | -3 | -205 |
| | Evansville | -12 | -2 | 0 | -1 |
| | Fresno | -934 | -342 | -6 | -334 |
| | Fort Wayne | -14 | -1 | 1 | -1 |
| | Grand Rapids | -244 | -64 | -5 | -56 |
| | Greensboro | -23 | -2 | 1 | 0 |
| | Honolulu | -56 | -66 | 0 | -62 |
| | Houston | -97 | -142 | 3 | -141 |
| | Huntsville | -3 | -5 | 1 | -4 |
| | Indianapolis | -28 | -7 | -3 | -1 |
| Jacksonville | -59 | -76 | -2 | -71 | |
| Jersey City | -65 | -94 | -4 | -88 | |

| Region | Location | With sTemp: DLNM | With Stemp_heat and Stemp_cold | With Stemp_heat only | With Stemp_cold only |
|--------|-----------------|---------------------|-----------------------------------|-------------------------|-------------------------|
| | Kansas City, MO | -414 | -187 | -8 | -175 |
| | Kansas City, KS | -35 | -38 | 1 | -38 |
| | Kingston | 13 | -1 | 0 | 0 |
| | Knoxville | 20 | -3 | 1 | -1 |
| | Los Angeles | 27 | -331 | -80 | -233 |
| | Las Vegas | -383 | -159 | -13 | -143 |
| | Lexington | -16 | -5 | -2 | -1 |
| | Louisville | -255 | -90 | 1 | -88 |
| | Little Rock | -28 | -192 | -1 | -188 |
| | Madison | -272 | -58 | -1 | -55 |
| | Memphis | -7 | -5 | -1 | -1 |
| | Miami | 0 | -207 | 7 | -205 |
| | Milwaukee | -73 | -10 | -4 | -1 |
| | Mobile | 21 | -10 | -4 | -4 |
| | Nashville | -53 | -76 | -5 | -67 |
| | New Orleans | -376 | -181 | -9 | -170 |
| | Newark | 34 | -13 | -3 | -7 |
| | New York | -197 | -492 | -153 | -317 |
| U.S. | Oakland | -54 | -122 | -2 | -115 |
| | Oklahoma City | -48 | -76 | 0 | -73 |
| | Omaha | -51 | -282 | -1 | -279 |
| | Orlando | -53 | -71 | 2 | -70 |
| | Philadelphia | -157 | -179 | -35 | -138 |
| | Phoenix | 2 | -121 | 2 | -116 |
| | Pittsburgh | -53 | -146 | -12 | -122 |
| | Providence | -56 | -12 | -7 | -1 |
| | Raleigh | -20 | -1 | 1 | -1 |
| | Riverside | -26 | -92 | 0 | -85 |
| | Rochester | -47 | -92 | -5 | -82 |
| | Sacramento | -36 | -83 | 0 | -79 |
| | Salt Lake City | -42 | -74 | -4 | -67 |
| | San Antonio | -57 | -100 | 2 | -99 |
| | San Bernardino | -47 | -114 | -5 | -106 |
| | San Diego | 2 | -137 | 1 | -128 |
| | San Jose | -64 | -101 | -14 | -82 |
| | Seattle | 101 | -9 | -3 | 0 |
| | Shreveport | -52 | -73 | 1 | -72 |
| | Spokane | 36 | -1 | 2 | 0 |
| | Santa Ana | -19 | -110 | -3 | -101 |
| | St. Louis | -17 | -8 | 0 | -6 |
| | Stockton | -34 | -933 | -4 | -927 |
| | St. Petersburg | 9 | -172 | 11 | -171 |
| | Syracuse | -46 | -75 | -1 | -70 |
| | Tacoma | 29 | -9 | -5 | -1 |
| | Tampa | -55 | -76 | 3 | -76 |
| | Toledo | -15 | -3 | 1 | -1 |
| | Tucson | -44 | -78 | -3 | -73 |
| | Tulsa | -158 | -74 | 3 | -74 |

| Region | Location | With sTemp: DLNM | With Stemp_heat and Stemp_cold | With Stemp_heat only | With Stemp_cold only |
|--------|------------------|---------------------|-----------------------------------|-------------------------|-------------------------|
| | Wichita | -510 | -185 | 2 | -184 |
| | Worcester | 87 | -316 | -13 | -299 |
| | Akron | -35 | -9 | -4 | -2 |
| | Albuquerque | -48 | -65 | 2 | -65 |
| | Atlanta | 22 | -23 | -9 | -8 |
| | Austin | -43 | -55 | -2 | -51 |
| | Bakersfield | -799 | -232 | 1 | -230 |
| | Baltimore | -17 | -39 | -35 | -1 |
| | Baton Rouge | -59 | -61 | 1 | -61 |
| | Birmingham | 45 | -12 | -5 | -2 |
| | Boston | -24 | -13 | 0 | -9 |
| | Buffalo | -60 | -125 | -16 | -104 |
| | Cedar Rapids | -104 | -52 | -1 | -50 |
| | Charlotte | -64 | -74 | -9 | -64 |
| | Chicago | -310 | -276 | -59 | -203 |
| | Cincinnati | -35 | -5 | 2 | -2 |
| | Cleveland | -35 | -11 | -5 | 0 |
| | Columbus, OH | -43 | -9 | -5 | -1 |
| | Colorado Springs | -605 | -197 | 1 | -196 |
| U.S. | Corpus Christi | -57 | -49 | 0 | -47 |
| | Dayton | -26 | -7 | -2 | -3 |
| | Washington | -109 | -112 | -9 | -100 |
| | Denver | -48 | -86 | -5 | -77 |
| | Des Moines | -119 | -57 | -1 | -54 |
| | Detroit | -154 | -169 | -47 | -119 |
| | Dallas | -109 | -165 | -9 | -149 |
| | El Paso | -453 | -210 | -3 | -205 |
| | Evansville | -12 | -2 | 0 | -1 |
| | Fresno | -934 | -342 | -6 | -334 |
| | Fort Wayne | -14 | -1 | 1 | -1 |
| | Grand Rapids | -244 | -64 | -5 | -56 |
| | Greensboro | -23 | -2 | 1 | 0 |
| | Honolulu | -56 | -66 | 0 | -62 |
| | Houston | -97 | -142 | 3 | -141 |
| | Huntsville | -3 | -5 | 1 | -4 |
| | Indianapolis | -28 | -7 | -3 | -1 |
| | Jacksonville | -59 | -76 | -2 | -71 |
| | Jersey City | -65 | -94 | -4 | -88 |
| | Kansas City, MO | -414 | -187 | -8 | -175 |
| | Kansas City, KS | -35 | -38 | 1 | -38 |
| | Kingston | 13 | -1 | 0 | 0 |
| | Knoxville | 20 | -3 | 1 | -1 |
| | Los Angeles | 27 | -331 | -80 | -233 |
| | Las Vegas | -383 | -159 | -13 | -143 |
| | Lexington | -16 | -5 | -2 | -1 |
| | Louisville | -255 | -90 | 1 | -88 |
| | Little Rock | -28 | -192 | -1 | -188 |
| | Madison | -272 | -58 | -1 | -55 |

| Region | Location | With sTemp: DLNM | With Stemp_heat and Stemp_cold | With Stemp_heat only | With Stemp_cold only |
|--------|----------------|---------------------|-----------------------------------|-------------------------|-------------------------|
| | Memphis | -7 | -5 | -1 | -1 |
| | Miami | 0 | -207 | 7 | -205 |
| | Milwaukee | -73 | -10 | -4 | -1 |
| | Mobile | 21 | -10 | -4 | -4 |
| | Nashville | -53 | -76 | -5 | -67 |
| | New Orleans | -376 | -181 | -9 | -170 |
| | Newark | 34 | -13 | -3 | -7 |
| | New York | -197 | -492 | -153 | -317 |
| | Oakland | -54 | -122 | -2 | -115 |
| | Oklahoma City | -48 | -76 | 0 | -73 |
| | Omaha | -51 | -282 | -1 | -279 |
| | Orlando | -53 | -71 | 2 | -70 |
| | Philadelphia | -157 | -179 | -35 | -138 |
| | Phoenix | 2 | -121 | 2 | -116 |
| | Pittsburgh | -53 | -146 | -12 | -122 |
| | Providence | -56 | -12 | -7 | -1 |
| | Raleigh | -20 | -1 | 1 | -1 |
| U.S. | Riverside | -26 | -92 | 0 | -85 |
| | Rochester | -47 | -92 | -5 | -82 |
| | Sacramento | -36 | -83 | 0 | -79 |
| | Salt Lake City | -42 | -74 | -4 | -67 |
| | San Antonio | -57 | -100 | 2 | -99 |
| | San Bernardino | -47 | -114 | -5 | -106 |
| | San Diego | 2 | -137 | 1 | -128 |
| | San Jose | -64 | -101 | -14 | -82 |
| | Seattle | 101 | -9 | -3 | 0 |
| | Shreveport | -52 | -73 | 1 | -72 |
| | Spokane | 36 | -1 | 2 | 0 |
| | Santa Ana | -19 | -110 | -3 | -101 |
| | St. Louis | -17 | -8 | 0 | -6 |
| | Stockton | -34 | -933 | -4 | -927 |
| | St. Petersburg | 9 | -172 | 11 | -171 |
| | Syracuse | -46 | -75 | -1 | -70 |
| | Tacoma | 29 | -9 | -5 | -1 |
| | Tampa | -55 | -76 | 3 | -76 |
| | Toledo | -15 | -3 | 1 | -1 |
| | Tucson | -44 | -78 | -3 | -73 |
| | Tulsa | -158 | -74 | 3 | -74 |
| | Wichita | -510 | -185 | 2 | -184 |
| | Worcester | 87 | -316 | -13 | -299 |
| | <i>Average</i> | -97 | -103 | -7 | -92 |

eTable 3. Average of generalized cross validation (GCV) scores using different degree of freedom (df) per year for time trend in different temperature control models.

| Region | Temperature control methods | Df per year for time trend | | |
|----------------------|-----------------------------|----------------------------|------|------|
| | | 6 | 8 | 10 |
| European 8 cities | Without sTemp | 1.13 | 1.12 | 1.12 |
| | sTemp: DLNM | 1.09 | 1.09 | 1.09 |
| | sTemp_heat+sTemp_cold | 1.10 | 1.09 | 1.09 |
| | sTemp_heat | 1.10 | 1.09 | 1.10 |
| | sTemp_cold | 1.12 | 1.12 | 1.12 |
| U.S. 86 cities | Without sTemp | 1.88 | 1.88 | 1.88 |
| | sTemp: DLNM | 1.88 | 1.88 | 1.89 |
| | sTemp_heat+sTemp_cold | 1.88 | 1.88 | 1.88 |
| | sTemp_heat | 1.88 | 1.88 | 1.88 |
| | sTemp_cold | 1.88 | 1.88 | 1.88 |

eTable 4. Percent increase (95% CI) in daily nonaccidental mortality associated with a 10 $\mu\text{g}/\text{m}^3$ increase in tomorrow's maximum 8-h average ozone in eight European cities or a 10 ppb increase in tomorrow's 24-h average ozone in 86 U.S. cities using different temperature control methods and different degree of freedom (df) per year for time trend.

| Region | Temperature control methods | Df per year for time trend | | |
|----------------------|-----------------------------|----------------------------|---------------------|---------------------|
| | | 6 | 8 | 10 |
| European 8 cities | Without sTemp | 0.18 (0.00, 0.35) | 0.21 (0.04, 0.39) | 0.20 (0.01, 0.40) |
| | sTemp: DLNM | -0.02 (-0.21, 0.18) | 0.00 (-0.23, 0.22) | -0.01 (-0.23, 0.21) |
| | sTemp_heat+sTemp_cold | 0.03 (-0.15, 0.21) | 0.02 (-0.18, 0.23) | 0.03 (-0.18, 0.24) |
| | sTemp_heat | 0.02 (-0.15, 0.20) | 0.03 (-0.16, 0.23) | 0.03 (-0.17, 0.24) |
| | sTemp_cold | 0.20 (0.03, 0.38) | 0.21 (0.01, 0.41) | 0.21 (0.01, 0.41) |
| U.S. 86 cities | Without sTemp | 0.23 (0.06, 0.39) | 0.22 (0.06, 0.39) | 0.23 (0.06, 0.39) |
| | sTemp: DLNM | 0.00 (-0.17, 0.17) | -0.02 (-0.19, 0.15) | -0.02 (-0.19, 0.16) |
| | sTemp_heat+sTemp_cold | 0.14 (-0.02, 0.31) | 0.13 (-0.04, 0.29) | 0.13 (-0.04, 0.29) |
| | sTemp_heat | 0.14 (-0.02, 0.31) | 0.13 (-0.03, 0.30) | 0.13 (-0.03, 0.30) |
| | sTemp_cold | 0.22 (0.06, 0.38) | 0.22 (0.05, 0.38) | 0.22 (0.06, 0.39) |

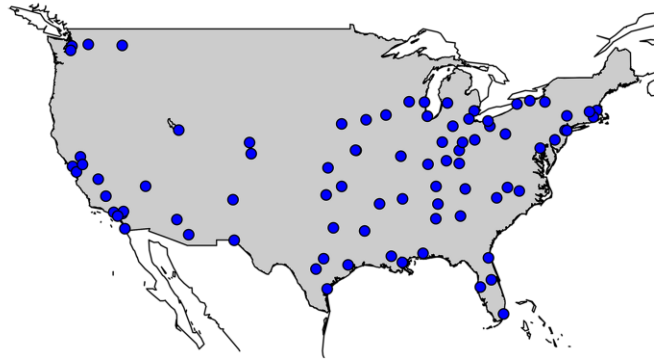
eTable 5. Percent increase (95% CI) in daily nonaccidental mortality associated with a 10 $\mu\text{g}/\text{m}^3$ increase in tomorrow's maximum 8-h average ozone in eight European cities or a 10 ppb increase in tomorrow's 24-h average ozone in 86 U.S. cities using different temperature control methods and different cut-offs for temperature categories.

| Region | Temperature control methods | Cut-offs for temperature categories | | |
|----------------------|-----------------------------|-------------------------------------|------------------------------------|------------------------------------|
| | | 20 th /80 th | 15 th /85 th | 10 th /90 th |
| European 8 cities | Without sTemp | 0.18 (0.00, 0.35) | 0.18 (0.01, 0.36) | 0.15 (-0.02, 0.32) |
| | sTemp: DLNM | 0.01 (-0.17, 0.18) | -0.01 (-0.19, 0.18) | 0.01 (-0.17, 0.19) |
| | sTemp_heat+sTemp_cold | -0.02 (-0.22, 0.17) | -0.01 (-0.20, 0.19) | -0.01 (-0.20, 0.18) |
| | sTemp_heat | 0.00 (-0.17, 0.18) | -0.01 (-0.19, 0.17) | 0.00 (-0.17, 0.18) |
| | sTemp_cold | 0.20 (0.02, 0.37) | 0.20 (0.02, 0.37) | 0.17 (0.00, 0.35) |
| U.S. 86 cities | Without sTemp | 0.22 (0.05, 0.38) | 0.21 (0.05, 0.38) | 0.22 (0.05, 0.38) |
| | sTemp: DLNM | 0.00 (-0.17, 0.17) | 0.00(-0.17, 0.17) | 0.00 (-0.17, 0.17) |
| | sTemp_heat+sTemp_cold | 0.14 (-0.03, 0.30) | 0.13 (-0.03, 0.30) | 0.14 (-0.03, 0.30) |
| | sTemp_heat | 0.14 (-0.02, 0.31) | 0.14 (-0.02, 0.31) | 0.15 (-0.02, 0.31) |
| | sTemp_cold | 0.21 (0.05, 0.37) | 0.21 (0.04, 0.37) | 0.21 (0.04, 0.37) |

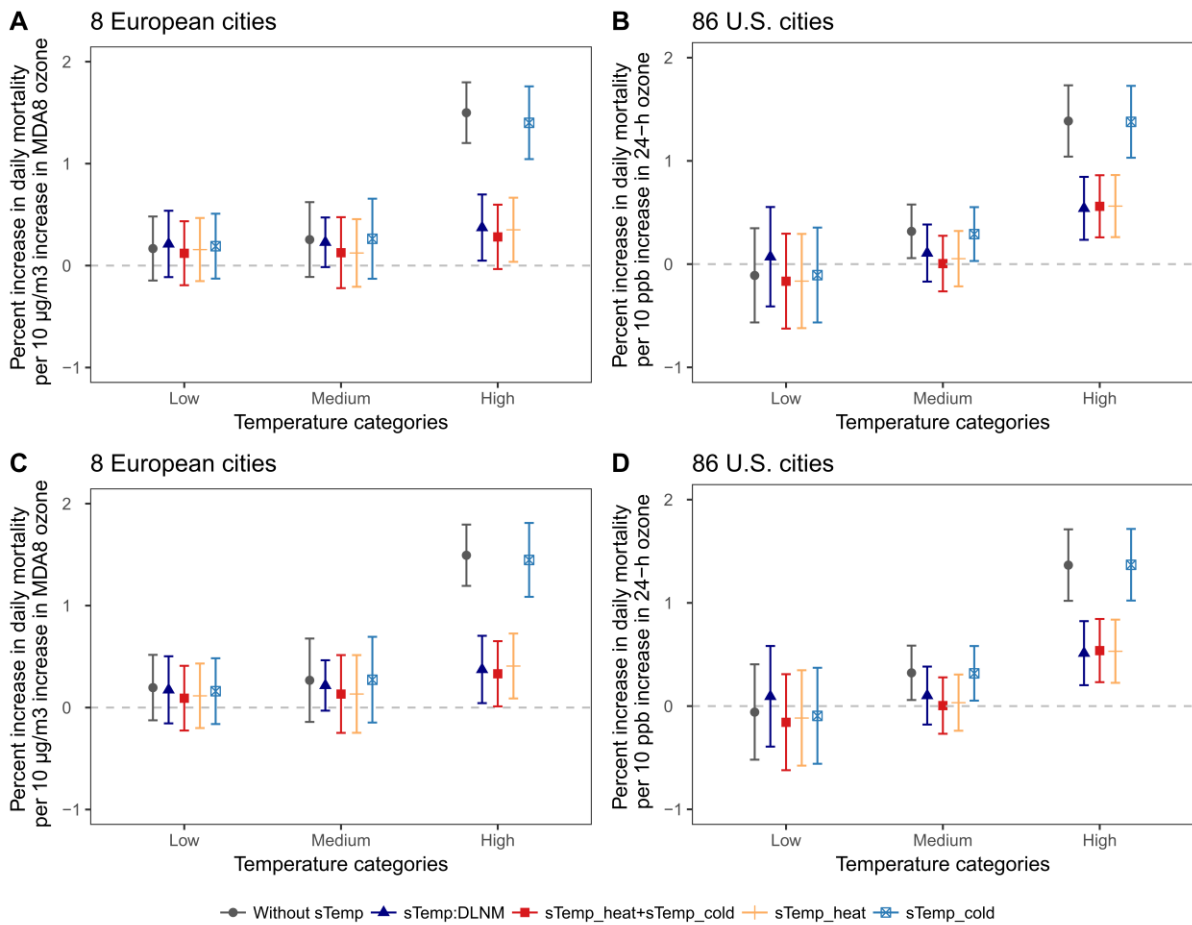
(A) 8 European cities



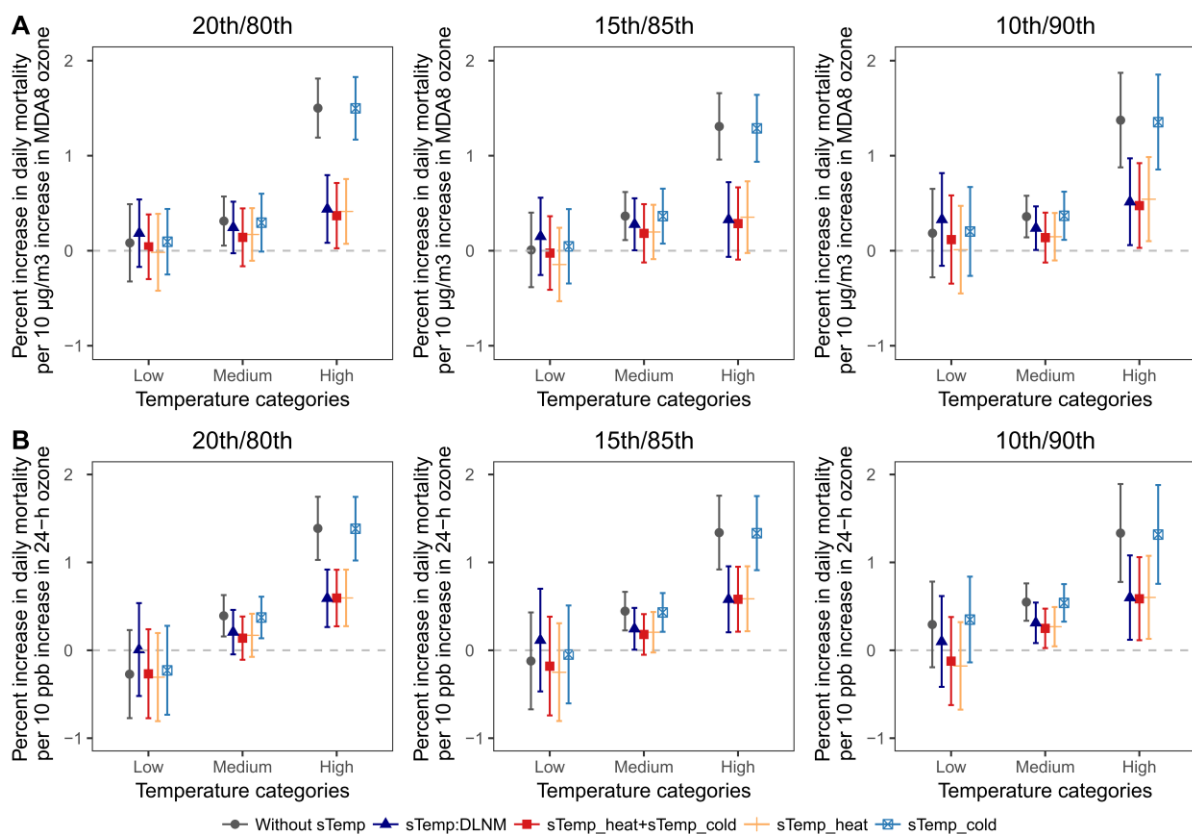
(B) 86 US cities



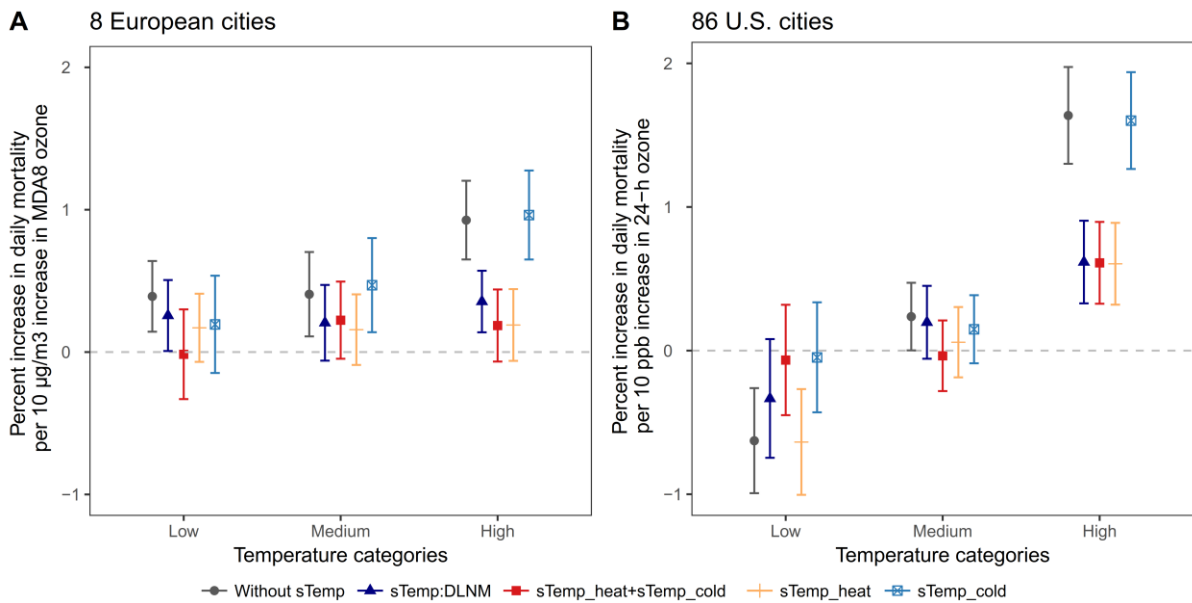
eFigure 1. Geographical distributions of the eight European cities and 86 U.S. cities included in this study.



eFigure 2. Sensitivity analysis of modified ozone-related mortality risk estimates (95% CI) by temperature under different temperature control methods using 8 degree of freedom (df) per year for time trend (A for European cities and B for U.S. cities) and 10 df per year for time trend (C for European cities and D for U.S. cities). Temperature was categorized into low (<25th percentile), medium (25th-75th percentile), and high (>75th percentile) levels. Without sTemp: no adjustment for nonlinear temperature effects; sTemp: DLNM, sTemp_heat+sTemp_cold, sTemp_heat, and sTemp_cold: adjustment for non-linear temperature effects by using the distributed lag nonlinear model, both heat and cold effects, only heat effect, and only cold effect, respectively; MDA8: daily maximum 8-h average.



eFigure 3. Sensitivity analysis of modified ozone-related mortality risk estimates (95% CI) by temperature under different temperature control methods using different cut-offs for temperature categories in European cities (A) and U.S. cities (B). Temperature was categorized into low, medium, and high levels based on the cut-offs of 20th/80th, 15th/85th, and 10th/90th percentiles. Without sTemp: no adjustment for nonlinear temperature effects; sTemp: DLNM, sTemp_{heat}+sTemp_{cold}, sTemp_{heat}, and sTemp_{cold}: adjustment for non-linear temperature effects by using the distributed lag nonlinear model, both heat and cold effects, only heat effect, and only cold effect, respectively; MDA8: daily maximum 8-h average.



eFigure 4. Sensitivity analysis of modified ozone-related mortality risk estimates (95% CI) by temperature under different temperature control methods using an alternative temperature stratification method by fitting ozone within temperature strata in European cities (A) and U.S. cities (B). Temperature was categorized into low, medium, and high levels based on the cut-offs of 20th/80th, 15th/85th, and 10th/90th percentiles. Without sTemp: no adjustment for nonlinear temperature effects; sTemp: DLNM, sTemp_heat+sTemp_cold, sTemp_heat, and sTemp_cold: adjustment for non-linear temperature effects by using the distributed lag nonlinear model, both heat and cold effects, only heat effect, and only cold effect, respectively; MDA8: daily maximum 8-h average.