

Thailand	Nakhon Pathom	1999-2008	9	28.6	0	79	0	5.1
Thailand	Nakhon Phanom	1999-2008	6	28.4	0	79.7	0	4.2
Thailand	Nakhon Ratchasima	1999-2008	24	28.1	0	76.2	0.9	5.8
Thailand	Nakhon Sawan	1999-2008	11	28.9	0	77.4	8.7	5.1
Thailand	Nan	1999-2008	6	28	0	79.3	0	6.7
Thailand	Narathiwat	1999-2008	5	28.2	0	77.4	9.9	6.6
Thailand	Nong Bua Lam Phu	1999-2008	4	28.9	0	81.1	0.1	5.3
Thailand	Nong Khai	1999-2008	7	28.9	2.5	76.7	5.2	4.4
Thailand	Nonthaburi	1999-2008	10	28.4	0	82.2	0	4.5
Thailand	Pathum Thani	1999-2008	8	28.2	0	83.8	0	5.7
Thailand	Pattani	2000-2008	4	27.7	19.6	85.1	0	4.9
Thailand	Phayao	1999-2008	8	28.3	0	81.3	0	5
Thailand	Phetchaburi	1999-2008	5	27.7	0	82.5	0	4.2
Thailand	Phichit	1999-2008	4	28	0.4	81.8	7.5	3.7
Thailand	Phitsanulok	1999-2008	10	28.8	0	75.3	2.5	5.5
Thailand	Phrae	1999-2008	7	28.9	6.6	74	2.7	5.6
Thailand	Prachin Buri	1999-2008	5	28.4	2.7	80.6	2.5	4.9
Thailand	Prachuap Khiri Khan	1999-2008	4	28.3	2.5	75.8	7.4	5.4
Thailand	Ratchaburi	1999-2008	9	28	0	78.9	7.3	5.4
Thailand	Rayong	1999-2008	6	26.4	0	82	2.5	4.6
Thailand	Roi Et	1999-2008	12	28.3	3.3	78.7	4.8	5.6
Thailand	Sa Kaeo	1999-2008	4	28.4	1.3	76.8	0.2	4.5
Thailand	Sakon Nakhon	1999-2008	8	27.9	7.9	80.5	18.6	5.9
Thailand	Samut Sakhon	1999-2008	5	29.1	3.3	76.8	0	5.7
Thailand	Samutprakan	1999-2008	10	28.7	0	72.5	0	4.6
Thailand	Saraburi	1999-2007	6	28.7	2.7	80.6	14.4	4.4
Thailand	Si Sa Ket	1999-2008	12	28.3	1.4	77.9	3.4	5.9
Thailand	Songkhla	1999-2008	7	28.3	0	78.7	0	4.3
Thailand	Sukhothai	2000-2008	6	28.7	0	82.8	0	4.8
Thailand	Suphanburi	1999-2008	7	28.7	2.7	75.5	10.1	5.8
Thailand	Surat Thani	2003-2008	5	28.6	0	79.2	0	7.5
Thailand	Surin	1999-2008	11	28.5	1.4	79.5	1.4	5
Thailand	Tak	1999-2008	3	28.4	12	77.7	20.1	5.2
Thailand	Trang	1999-2008	5	29.1	0	77.7	2.5	4.6
Thailand	Ubon Ratchathani	1999-2008	16	28.1	4.2	78.6	4.7	5.6
Thailand	Udon Thani	1999-2008	16	28.4	0	80	0	6.6
Thailand	Uttaradit	1999-2008	7	28.3	0	82.4	0	6.2
Thailand	Yala	1999-2008	2	27.6	16.7	82.7	16.7	4.3
Thailand	Yasothon	1999-2008	5	27.5	0	82.2	0	5.3
UK	East	1993-2006	226	16.3	0	68.2	0	10.5
UK	East Midlands	1993-2006	183	15.6	0	68.5	0	11.8
UK	London	1993-2006	256	17.5	0	60.9	0	12.2
UK	North East	1993-2006	123	14.6	0	68	0	11.9
UK	North West	1993-2006	323	15.4	0	70.5	0	11

UK	South East	1993-2006	342	16.3	0	70.1	0	10.5
UK	South West	1993-2006	233	15.8	0	74.1	0	9.8
UK	Wales	1993-2006	143	15.4	0	74.8	0	9.5
UK	West Midlands	1993-2006	233	15.6	0	66.9	0	11.8
UK	Yorkshire & Humber	1993-2006	225	15.3	0	69.5	0	11.1
USA	Akron, OH	1985-2006	33	20.3	0	72.2	0.1	10.1
USA	Albuquerque, NM	1985-2006	22	23.8	0	37.3	0.1	14.1
USA	Allentown-Bethlehem, PA	1985-2006	18	21.2	0	70.6	0.8	10.9
USA	Atlanta, GA	1985-2006	96	25.4	0	67.9	0	10.6
USA	Atlantic City, NJ	1985-2006	14	22.1	0	74.6	1.6	10.6
USA	Austin, TX	1985-2006	21	28.4	0	62.4	1	10.4
USA	Bakersfield, CA	1985-2006	26	26.4	0	39	1.4	9.1
USA	Baltimore, MD	1985-2006	99	23.2	0	69.8	0.1	11.1
USA	Barnstable-Yarmouth, MA	1997-2006	7	19.7	0.4	79.8	1.6	12.2
USA	Baton Rouge, LA	1985-2006	19	27.2	0	73.1	0	7.8
USA	Bergen-Passaic, NJ	1985-2006	73	23.4	0	64.4	0.1	13.1
USA	Birmingham, AL	1985-2006	53	25.6	0	69.8	0.1	9.8
USA	Boston, MA	1985-2006	145	20.9	0	69.1	0.1	13.7
USA	Brownsville, TX	1985-2006	11	28.9	0	71.6	0.5	6.2
USA	Buffalo, NY	1985-2006	66	19.8	0	70.2	0	10.2
USA	Canton-Massillon, OH	1985-2006	24	20.3	0	72.2	0.1	10.1
USA	Charleston, WV	1985-2006	15	22.3	0	73.4	0.3	9
USA	Charlotte, NC	1985-2006	25	24.8	0	68.4	0	10.2
USA	Chattanooga, TN	1985-2006	19	25	0	70.1	0.2	8.9
USA	Chicago, IL	1985-2006	347	21.1	0	68.9	0	10.9
USA	Cincinnati, OH	1999-2006	18	22.4	0	73.6	0.8	9
USA	Cleveland, OH	1985-2006	125	20.7	0	71.2	0	9.4
USA	Columbia, SC	1985-2006	24	26.2	0	67.8	0	9.4
USA	Columbus, OH	1985-2006	49	22	0	68.4	0.2	9.8
USA	Dallas, TX	1985-2006	82	28.1	0	59.9	0	11.4
USA	Dayton, OH	1985-2006	33	21.6	0	68.9	0.3	10.4
USA	Daytona Beach, FL	1985-2006	33	27.1	0	75.9	0.4	6
USA	Denver, CO	1985-2006	56	20.7	0	45.1	0.1	15.4
USA	Des Moines, IA	1985-2006	17	22	0	69.1	0.2	10.4
USA	Detroit, MI	1985-2006	227	21	0	68.3	0.2	10
USA	Dutchess County, NY	1985-2006	12	20.1	4.3	71.1	4.3	12.4
USA	El Paso, TX	1985-2006	22	26.8	0	40.6	0	14.9
USA	Erie, PA	1985-2006	16	20.3	0	71.5	0.8	9.8
USA	Flint, MI	1985-2006	24	19.6	0	72.1	0.1	9.9
USA	Fort Myers-Cape Coral, FL	1985-2006	23	28.2	0.1	73.2	2	6.2

USA	Fort Pierce-Port St. Lucie, FL	1985-2006	15	27.2	0	77.2	7.4	5.3
USA	Fort Worth-Arlington, TX	1999-2006	21	28.2	0	57.2	0.8	12.1
USA	Fresno, CA	1985-2006	30	26.2	0	40.4	1.4	8.3
USA	Ft. Lauderdale, FL	1985-2006	72	27.4	0	76.6	7.4	4.9
USA	Galveston, TX	1991-2006	10	27.1	1.6	74.3	1.6	8.8
USA	Gary, IN	1985-2006	28	20.9	0	69.7	0	11.5
USA	Grand Rapids, MI	1985-2006	24	19.9	0	71.1	0.1	10.5
USA	Greensboro, NC	1985-2006	20	23.7	0	70.9	0	9.8
USA	Greenville, SC	1985-2006	18	24.5	0	69.9	0.2	10.3
USA	Hamilton, OH	1999-2006	6	22.4	0	73.6	0.8	9
USA	Harrisburg-Carlisle, PA	1992-2006	7	22.6	0	71.2	7.9	10.9
USA	Hartford, CT	1985-2006	47	20.8	0	69.5	0.6	11.4
USA	Honolulu, HI	1985-2000	24	27.5	0	62.8	0.1	5.2
USA	Houston, TX	1985-2006	116	28	0	70	0	8.5
USA	Indianapolis, IN	1985-2006	47	22.2	0	70.5	0	10.2
USA	Jacksonville, FL	1985-2006	39	27	0	74.8	0.1	6.7
USA	Jersey City, NJ	1985-2006	32	23.4	0	64.4	0.1	13.1
USA	Kansas City, MO-KS	1985-2006	67	23.4	0	69.7	0.1	10.9
USA	Knoxville, TN	1985-2006	25	24.1	0	71	0.1	8.9
USA	Lakeland-Winter Haven, FL	1985-2006	29	27.9	1.6	74	1.6	6.3
USA	Lancaster, PA	1992-2006	12	21.9	0	74.1	7.9	11.4
USA	Lansing, MI	1985-2006	11	19.4	0	72.6	0.3	10.1
USA	Las Vegas, NV-AZ	1985-2006	56	30.7	0	21.5	0.3	10.4
USA	Little Rock, AR	1985-2006	17	26.3	0	68.3	3.8	9.7
USA	Los Angeles, CA	1985-2006	380	20.4	0	74.2	0.3	6.9
USA	Louisville, KY	1985-2006	42	24.2	0.2	67.7	0.4	9.8
USA	Lubbock, TX	1985-2006	11	25.3	0	53.8	0.1	14.4
USA	Madison, WI	1985-2006	15	19.7	0	72.2	0.1	9.9
USA	McAllen-Edinburg-Mission, TX	1999-2006	7	29.9	0	63.5	1.1	8.1
USA	Melbourne- Titusville-Palm Bay, FL	1985-2006	19	27.1	2.9	77.8	10.2	5.2
USA	Memphis, TN	1985-2006	47	26.5	0	65.8	1.2	9.8
USA	Miami, FL	1985-2006	119	28.5	0	73.2	0	5.9
USA	Middlesex, NJ	1985-2006	33	21.8	1.1	71	1.2	14.6
USA	Milwaukee, WI	1985-2006	72	20.3	0	70.7	0	11.3
USA	Minneapolis-St. Paul, MN	1985-2006	74	20.4	0	66.8	0	11.2
USA	Mobile, AL	1985-2006	23	26.8	0	73.1	0.2	8.2
USA	Monmouth-Ocean, NJ	1992-2006	40	21.7	7.6	66.8	13.3	12.1
USA	Myrtle Beach, SC	1985-2006	8	25.6	5.9	75.8	6.4	8.6

USA	Naples, FL	1985-2006	9	28.1	5.1	73.8	6.9	5.5
USA	Nashua, NH	1985-2006	14	19.4	6.1	69	6.5	12.5
USA	Nashville, TN	1985-2006	30	24.9	0	67.9	0	9.4
USA	Nassau-Suffolk, NY	1985-2006	120	21.2	0	74	7.6	11.9
USA	New Haven-Meriden, CT	1985-2006	47	20.8	0	69.5	0.6	11.4
USA	New London, CT	1985-2006	11	20.7	1.6	70.2	2.2	12.8
USA	New York, NY	1985-2006	425	23.4	0	64.5	0	13
USA	Newark, NJ	1985-2006	68	23.4	0	64.4	0.1	13.1
USA	Newburgh, NY	1985-2006	15	20.5	0.3	70.4	0.9	11.4
USA	Oakland, CA	1985-2006	84	18.1	9.5	67.3	9.6	9
USA	Ocala, FL	1985-2006	17	27.2	0.6	73.1	0.9	6.4
USA	Oklahoma City, OK	1985-2006	36	25.8	0	63.3	0.2	11.9
USA	Omaha, NE	1985-2006	22	22.3	0	69.4	0.1	10.5
USA	Orange County, CA	1985-2006	96	22.3	0	65.7	2.5	7.8
USA	Orlando, FL	1985-2006	49	27.8	0	73.2	0.2	6
USA	Pensacola, FL	1985-2006	14	27.3	0	73.8	4.6	9
USA	Philadelphia, PA-NJ	1985-2006	280	23.6	0	66.9	0	11.6
USA	Phoenix, AZ	1985-2006	118	33.2	0	27.3	0	12
USA	Pittsburgh, PA	1985-2006	97	20.9	0	69.7	0.1	10.4
USA	Portland, ME	1985-2006	14	18.5	0	73.7	0.4	12.2
USA	Portland, OR	1985-2006	65	19.4	0	61.9	0.2	10.4
USA	Providence-Fall River, RI-MA	1985-2006	11	20.9	0.1	71.5	0.3	12.6
USA	Punta Gorda, FL	1985-2006	10	28.1	1.3	73.9	3.1	5.6
USA	Raleigh, NC	1985-2006	18	24.5	0	71.6	0.1	9.2
USA	Reading, PA	1985-2006	22	24.5	0	71.6	0.1	9.2
USA	Riverside-San Bernardino, CA	1998-2006	55	25.3	0.2	49.4	7.8	10
USA	Rochester, NY	1985-2006	40	19.6	0	72.1	0.1	9.7
USA	Rockford, IL	1985-2006	14	20.7	0	70.6	0.2	10.5
USA	Sacramento, CA	1985-2006	47	23	0	50.3	6.4	9.7
USA	Saginaw, MI	1985-2006	12	19.6	0.8	70.6	0.8	10.8
USA	Salinas, CA	1998-2006	4	17.1	0	70.7	20.8	8.3
USA	Salt Lake City, UT	1985-2006	27	22.8	0	37	0.4	12.3
USA	San Antonio, TX	1985-2006	58	28.4	0	61.7	0	9.8
USA	San Diego, CA	1985-2006	115	20.9	0	73.5	0	6.5
USA	San Francisco, CA	1985-2006	77	17.6	0	69.4	0.1	8.1
USA	San Jose, CA	1985-2006	50	21	3.3	56.2	3.4	8.1
USA	Sarasota-Bradenton, FL	1985-2006	38	28	2.9	73.6	2.9	6
USA	Scranton--Wilkes-Barre--Hazleton, PA	1985-2006	45	20	0	70.9	0.7	10.9
USA	Seattle, WA	1985-2006	70	17.5	0	66.4	0	10.8
USA	Shreveport, LA	1985-2006	16	27.2	0	67.4	0.1	9.8
USA	Spokane, WA	1985-2006	21	18.3	0	46.8	0.2	14.4

USA	Springfield, MA	1985-2006	28	20.8	0	69.5	0.6	11.4
USA	St. Louis, MO-IL	1985-2006	96	24.5	0	65.5	0.2	10.7
USA	Stamford-Norwalk, CT	1985-2006	42	21.4	0	71.6	0.7	12.3
USA	Stockton-Lodi, CA	1985-2006	17	23.6	0	48.1	12.5	10.1
USA	Syracuse, NY	1985-2006	26	19.8	0	71.1	0.2	9.4
USA	Tacoma, WA	1985-2006	26	17.8	8.1	64.9	8.1	8.8
USA	Tampa-St. Petersburg-Clearwater, FL	1985-2006	50	28	0	73.7	0	6.1
USA	Toledo, OH	1985-2006	28	20.8	0	70.4	0.8	10.2
USA	Trenton, NJ	1985-2006	18	21.6	0	75.3	0	13.8
USA	Tucson, AZ	1985-2006	39	29.5	0	33.7	0.5	14.7
USA	Tulsa, OK	1985-2006	30	26.1	0	64.7	0.1	11.2
USA	Utica-Rome, NY	2001-2006	4	19.3	0	74.6	1	8.9
USA	Ventura County, CA	1985-2006	25	18.9	4.5	81.4	4.8	6.9
USA	Virginia Beach, VA	1985-2006	57	24.9	0	72.2	0.3	9.6
USA	Washington, DC-MD-VA	1985-2006	44	24.4	0	67.2	0.2	11.3
USA	West Palm Beach-Boca Raton, FL	1985-2006	72	28	0	75.2	0.1	5.1
USA	Wichita, KS	1985-2006	21	24.9	0	62.6	0	12.4
USA	Wilmington, DE	1985-2006	23	22.8	0	70.9	0.8	11.1
USA	Worcester, MA	1985-2006	38	19	0.1	71.2	2.6	13.1
USA	York, PA	1992-2006	9	22.1	0	73.3	7.9	10.4
USA	Youngstown-Warren, OH	1985-2006	26	19.6	0	73.7	0.1	9.9
Vietnam	Ho Chi Minh City	2010-2013	34	28.4	0	78.8	0	5.2
Vietnam	Hue	2009-2013	2	29.1	1.1	72.1	1.1	14.1

Argentina	Cordoba	2005-2015	37	23.6	0	67.5	0	13.1
Argentina	Buenos Aires	2005-2015	131	23.6	0	67.9	0	11.2
Argentina	Rosario	2005-2015	38	23.4	0	70	0	11.4
Australia	Brisbane	1988-2009	59	24.2	0	70.6	0	8.5
Australia	Melbourn	1988-2009	140	20.1	0	65.7	0	11.4
Australia	Sydney	1988-2009	161	22.2	0	70.7	0	10.7
Brazil	Belem	1997-2011	44	26.5	0.3	87.5	0.3	5.1
Brazil	Belo Horizonte	1997-2011	153	23.5	0.2	70	0.2	12.3
Brazil	Brasilia	1997-2011	37	21.8	0.2	75.8	0.3	11.4
Brazil	Cuiaba	1998-2011	13	27.2	15.2	80.8	14.9	7.4
Brazil	Curitiba	1997-2011	44	20.8	5.2	80.9	6.9	7.8
Brazil	Fortaleza	1997-2011	61	27.4	0.1	78.6	7.5	6.3
Brazil	Goiania	1997-2011	44	24.7	0.2	73.1	0.2	10.4
Brazil	Joao Pessoa	1997-2011	20	28.1	1	74.3	8.6	5.3
Brazil	Maceio	1997-2011	24	26.2	13.2	75.5	14	5.5
Brazil	Manaus	1997-2011	32	26.6	0.1	86.2	0.4	6.5
Brazil	Porto Alegre	1997-2011	63	24.1	5.2	74	5.2	8.8
Brazil	Recife	1997-2011	85	27.2	0.1	74.3	0.2	6.2
Brazil	Salvador	1997-2011	73	27	0.1	79.8	0.1	5.4
Brazil	Sao Luis	1997-2011	27	26.9	0	83.5	0	6
Brazil	Sao Paulo	1997-2011	279	22.8	0.4	75.4	1.2	9.6
Brazil	Teresina	1997-2011	19	27	4.3	79.5	12.3	9.7
Brazil	Vitoria	1997-2009	13	26.8	0.9	76.5	11.7	7.3
Canada	Abbotsford	1986-2009	8	17	0.6	71.9	0	8.8
Canada	Calgary	1986-2009	38	14.4	0.5	62.8	0	13.8
Canada	Edmonton	1986-2009	44	15.4	0.5	69.8	0	10.9
Canada	Halifax	1986-2009	21	16.9	0	78.1	0	12
Canada	Hamilton	1986-2009	33	18.8	0.1	70	0	11.5
Canada	Kingston	1986-2009	11	18.8	4	71.3	0.1	10.9
Canada	Kitchener	1986-2009	20	17.9	0.1	70	0.2	11
Canada	London Ontario	1986-2009	28	18.8	0	73.9	0	9.8
Canada	Montreal	1986-1999	76	18.6	0.6	70.7	0	10.4
Canada	Ottawa	1986-2009	39	18.6	0.1	70.8	0	11.2
Canada	Regina	1986-2009	15	16.2	0.1	65.9	0	13
Canada	Saint John's	1986-2009	12	15.3	1.4	78.6	0	11.3

Table S4. Further detail of model fit statistics summarised on Figure 1.

Name on Figure	Weather variables		Functional form of variable 2	df of weather terms	deviance (mean)	qAIC (mean)
	1*	2				
1 Null	0	0		0	2464	2653.6
2 RH	RH	0		12	2432	2645.3
3 Dewpoint	dewpoint	0		12	2424.4	2636.7
4 Temperature	tmean	0		12	2387.1	2595.9
5 App temp	app temp	0		12	2389.3	2598.3
6 RH A	tmean	RH	linear	15	2379.4	2593.6
7 RH B	tmean	RH	quadratic	18	2375.9	2596.4
8 RH C	tmean	RH	cubic	21	2372.2	2598.7
9 Dewpoint A	tmean	dewpoint	linear	15	2379.5	2593.7
10 Dewpoint B	tmean	dewpoint	quadratic	18	2375.5	2595.8
11 Dewpoint C	tmean	dewpoint	cubic	21	2371.3	2597.5
Interaction models						
12 linear	tmean	RH	linear	18	2374.9	2594.9
13 3groups A	tmean	RH	linear	21	2372.4	2599.1
14 3groups B	tmean	RH	linear	21	2372.2	2598.8
15 3groups C	tmean	RH	linear	21	2371.3	2597.8
16 3groups D	tmean	RH	linear	21	2373.2	2597.8
17 3groups E	tmean	RH	linear	21	2371.5	2596.4
18 3groups F	tmean	RH	linear	21	2372	2597

Notes: Abbreviations: RH=relative humidity, temp=temperature, app temp=apparent temperature, qAIC=quasi Akaike Information Criterion. All weather terms are included as distributed lag linear models (DLNMs) with stratified lag structure over lags 0,1,2-3. The first weather variable listed is included in all models as a 4df natural cubic spline. All models from 6 include temperature (4 df natural cubic spline) plus a range of humidity terms. Models 6-8 include RH as linear(A), quadratic(B) and cubic (C) polynomials, and 9-11 the same for dewpoint. Models 12-18 include, in addition to a linear term for RH, a range of forms of interaction between temperature (temp) and linear RH: linear temperature (12); separate RH slopes for each of three groups of temperature with cutpoints defined by location-specific (13-15) and global (16-18) percentiles.

Table S5: Distribution of same and cross-lag correlations of daily temperature (T) and relative humidity (RH) measurements.

	correlation of TI0 with:			correlation of RH10 with:		
	mean	10%ile	90%ile	mean	10%ile	90%ile
TI0	1.00	1.00	1.00	-0.40	-0.78	-0.01
TI1	0.60	0.48	0.71	-0.17	-0.40	0.08
TI2	0.28	0.17	0.40	-0.07	-0.18	0.05
TI3	0.11	0.00	0.21	-0.02	-0.09	0.04
RHI0	-0.40	-0.78	-0.01	1.00	1.00	1.00
RHI1	-0.21	-0.50	0.08	0.46	0.34	0.59
RHI2	-0.12	-0.27	0.04	0.16	0.06	0.28
RHI3	-0.06	-0.15	0.02	0.05	-0.02	0.12

Notes: Abbreviations: TI_i=temperature lagged to i days, RH_i = relative humidity lagged to i days, Correlations were partial with respect to time trends as modelled in the epidemiological study.

