

**Supplementary Table S1.** Spearman correlation analysis of cardiovascular mortality and environmental elements

Variables	PM <sub>2.5</sub>	PM <sub>10</sub>	SO <sub>2</sub>	CO	NO <sub>2</sub>	O <sub>3_8h</sub>	Wind	Rain	Temp	Pres	Suntime	Rh	Mortality
PM <sub>2.5</sub>	1.000												
PM <sub>10</sub>	0.945**	1.000											
SO <sub>2</sub>	0.611**	0.612**	1.000										
CO	0.778**	0.726**	0.534**	1.000									
NO <sub>2</sub>	0.818**	0.800**	0.743**	0.770**	1.000								
O <sub>3_8h</sub>	-0.297**	-0.248**	-0.513**	-0.293**	-0.370**	1.000							
Wind	-0.153**	-0.072*	-0.196**	-0.248**	-0.372**	0.121**	1.000						
Rain	-0.163**	-0.181**	-0.210**	-0.157**	-0.236**	0.104**	0.115**	1.000					
Temp	-0.473**	-0.442**	-0.758**	-0.519**	-0.590**	0.734**	0.108**	0.217**	1.000				
Pres	0.427**	0.383**	0.597**	0.483**	0.577**	-0.540**	-0.265**	-0.321**	-0.762**	1.000			
Suntime	-0.259**	-0.235**	-0.189**	-0.145**	-0.123**	0.360**	-0.110**	-0.261**	0.205**	0.017	1.000		
Rh	0.009	-0.102**	0.005	0.164**	0.007	-0.199**	-0.343**	0.317**	-0.013	-0.070*	-0.442**	1.000	
Mortality	0.097**	0.121**	<b>0.216**</b>	0.082**	<b>0.136**</b>	-0.106**	0.051	-0.096**	<b>-0.229**</b>	<b>0.169**</b>	-0.020	<b>-0.164**</b>	1.000

**Note.** \*\* $P < 0.01$ .

**Supplementary Table S2.** Two-sample Z-test between groups at different levels of DTR and TCN, values indicate  $P$ , with  $P < 0.05$  representing significant differences

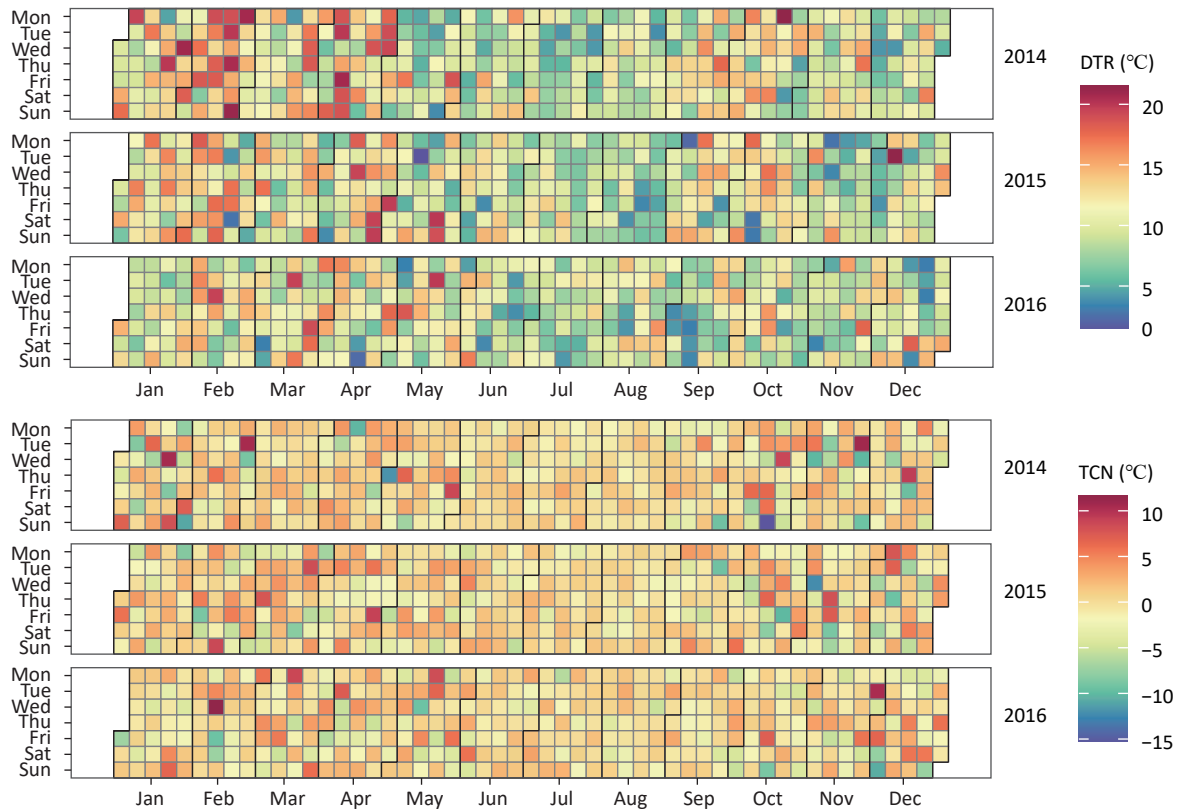
Variables	High DTR	Low DTR	High TCN	Low TCN
Male vs. Female	0.103	0.154	0.974	0.042
Hot vs. Full year	0.139	0.906	0.119	0.573
Cold vs. Full year	0.015	0.126	0.134	0.021
Cold vs. Hot	0.043	0.013	0.031	0.038

**Supplementary Table S3.** Basic statistics of meteorological factors, concentrations of air pollutants and cardiovascular mortality in Harbin, China, from 2014 to 2016

Variables	Mean (SD)	Minimum	Percentile					Maximum
			5th	25th	50th	75th	95th	
Full year								
DTR (°C)	10.6 (3.7)	1.5	4.8	8.0	10.4	13.1	17.3	21.5
TCN (°C)	0.0 (3.2)	-15.2	-5.3	-1.6	0.1	1.8	5.0	11.6
Mean Temperature (°C)	5.3 (15.4)	-26.1	-19.4	-9.4	7.5	19.6	25.3	29.0
Relative Humidity (%)	65.4 (15.0)	15.0	36.0	57.0	67.0	76.0	88.0	97.0
Air Pressure (hPa)	1000.3 (9.5)	973.2	986.2	993.0	999.6	1007.6	1016.2	1025.2
NO <sub>2</sub> (µg/m <sup>3</sup> )	48.5 (20.7)	15.0	23.0	34.0	43.0	59.0	88.2	145.0
SO <sub>2</sub> (µg/m <sup>3</sup> )	41.1 (45.2)	3.0	6.0	9.0	21.0	61.0	139.3	234.0
CVD mortality	71 (13)	41	52	63	70	79	93	133
Male	41 (8)	15	29	36	40	46	56	75
Female	30 (7)	14	20	25	29	34	42	62
Cold season								
DTR (°C)	11.2 (3.8)	2.8	5.0	8.6	10.6	13.7	17.8	21.5
TCN (°C)	0.1 (3.8)	-12.0	-7.0	-2.0	0.2	2.3	6.0	11.6
Mean Temperature (°C)	-10.3 (8.5)	-26.1	-22.3	-16.7	-11.9	-4.9	6.1	13.5
Relative Humidity (%)	66.0 (12.7)	19.0	43.0	60.0	67.0	74.0	87.0	97.0
Air Pressure (hPa)	1007.6 (7.1)	989.2	995.2	1002.9	1008.0	1012.7	1019.2	1025.2
NO <sub>2</sub> (µg/m <sup>3</sup> )	62.8 (21.0)	17.0	34.0	48.0	60.0	73.3	102.0	145.0
SO <sub>2</sub> (µg/m <sup>3</sup> )	79.8 (46.3)	18.0	30.0	45.0	67.0	102.0	182.5	234.0
CVD mortality	74 (13)	41	55	65	72	81	95	133
Male	42 (8)	19	30	37	42	47	58	71
Female	31 (7)	14	21	26	30	35	45	62
Hot season								
DTR (°C)	9.2 (2.7)	3.7	4.8	7.1	9.3	11.1	13.9	16.9
TCN (°C)	0.0 (1.8)	-5.9	-3.2	-1.0	0.1	1.1	2.6	5.9
Mean Temperature (°C)	22.7 (2.8)	14.2	18.4	20.6	22.6	24.7	27.1	29.0
Relative Humidity (%)	72.4 (10.6)	43.0	52.7	66.0	73.0	80.8	89.0	96.0
Air Pressure (hPa)	991.7 (4.3)	974.6	984.3	989.0	991.8	994.8	998.4	1001.8
NO <sub>2</sub> (µg/m <sup>3</sup> )	34.7(9.5)	17.0	21.0	28.0	33.5	40.0	52.0	69.0
SO <sub>2</sub> (µg/m <sup>3</sup> )	8.1 (3.2)	3.0	4.0	6.0	8.0	10.0	13.0	29.0
CVD mortality	65 (11)	41	49	57	64	72	84	132
Male	38 (8)	15	28	33	37	43	51	75
Female	27 (6)	15	19	23	27	31	37	57

**Supplementary Table S4.** The cumulative effects of stratified seasons and genders within lag 0–10 days

Subgroups	DTR		TCN	
	High level	Low level	High level	Low level
Full year	1.164 (1.079, 1.256) <sup>a</sup>	0.942 (0.849, 1.044)	1.211 (1.073, 1.366) <sup>a</sup>	0.745 (0.639, 0.869)
Hot season	1.333 (1.088, 1.633) <sup>a</sup>	0.945 (0.847, 1.055)	1.030 (0.751, 1.412)	0.787 (0.536, 1.157)
Cold season	1.285 (1.135, 1.454) <sup>a</sup>	0.904 (0.843, 0.969)	1.367 (1.067, 1.750) <sup>a</sup>	0.609 (0.473, 0.785)
Males	1.136 (1.041, 1.240) <sup>a</sup>	0.896 (0.795, 1.010)	1.261 (1.097, 1.449) <sup>a</sup>	0.793 (0.672, 0.937)
Females	1.186 (1.072, 1.312) <sup>a</sup>	1.017 (0.886, 1.167)	1.262 (1.074, 1.483) <sup>a</sup>	0.855 (0.704, 1.037)



**Supplementary Figure S1.** Calendars of time series analysis for daily average DTR and TCN in Harbin, China, from 2014 to 2016. <sup>a</sup>*P* < 0.05.