

Supplementary material

Short-Term Effect of Temperature Change on Non-Accidental Mortality in Shenzhen, China

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Figure S1. Exposure–response relationship between temperature change and risk of non-accidental mortality. Left panels: 3D plots of the exposure–lag–response risks. Right panels: overall exposure–response associations with diurnal temperature change (DTR) and temperature change between neighboring days (TCN).

Figure S2. Bivariate response surface of apparent temperature and temperature change on non-accidental mortality (Left: lag 0–5 for DTR and lag 0 for AT; right: lag 0–5 for TCN and lag 0 for AT).

Table S1. Quasi-Akaike information criterion (Q-AIC) ^a values for DTR-model.

df for DTR	df for DTR lag				
	2	3	4	5	6
2	11664.12	11668.21	11669.57	11671.65	11670.98
3	11668.56	11674.90	11677.82	11681.42	11683.41
4	11664.46	11672.75	11676.73	11682.40	11685.56
5	11668.38	11677.94	11684.11	11688.37	11694.21
6	11671.60	11683.56	11690.40	11696.14	11703.76

^a Quasi Akaike Information Criterion, Q-AIC; its corresponding formula is as follows:
Q-AIC = $-2(\text{maximum log-likelihood}) + 2df*\hat{\phi}$, where $\hat{\phi}$ is the estimated overdispersion parameter.

Table S2. Quasi-Akaike information criterion (Q-AIC) ^a values for TCN-model.

df for TCN	df for TCN lag				
	2	3	4	5	6
2	11617.30	11622.66	11626.89	11631.45	11633.25
3	11620.33	11625.39	11631.84	11638.71	11642.95
4	11623.62	11631.03	11639.00	11647.64	11654.21
5	11626.04	11627.95	11635.78	11646.73	11655.07
6	11618.19	11619.53	11629.69	11642.78	11652.39

^a Quasi Akaike Information Criterion, Q-AIC; its corresponding formula is as follows:
 $Q\text{-AIC} = -2(\text{maximum log-likelihood}) + 2df * \hat{\phi}$, where $\hat{\phi}$ is the estimated overdispersion parameter

Table S3. Spearman's correlation coefficients among different air pollutant concentrations and meteorological factors in Shenzhen from 2013 to 2017.

	Apparent temperature	DTR	TCN	CO	NO ₂	SO ₂	PM ₁₀	PM _{2.5}	O ₃
Apparent temperature	1.00	-0.09*	0.07*	-0.44*	-0.34*	-0.14*	-0.48*	-0.56*	-0.07*
DTR		1.00	0.33*	0.11*	0.27*	0.42*	0.36*	0.31*	0.21*
TCN			1.00	-0.01	0.22*	0.21*	0.18*	0.14*	0.01
CO				1.00	0.55*	0.30*	0.51*	0.54*	-0.17*
NO ₂					1.00	0.56*	0.60*	0.59*	-0.21*
SO ₂						1.00	0.63*	0.57*	0.06*
PM ₁₀							1.00	0.96*	0.33*
PM _{2.5}								1.00	0.33*
O ₃									1.00

Abbreviations: DTR, diurnal temperature change; TCN, temperature change between neighboring days; CO, carbon monoxide; NO₂, nitrogen dioxide; SO₂, sulfur dioxide; PM₁₀, particulate matter less than 10μm in aerodynamic diameter; PM_{2.5}, particulate matter less than 2.5μm in aerodynamic diameter; O₃, ozone.

* $p < 0.01$.

Table S4. Relative risk (95% *CI*) of non-accidental mortality for extreme high DTR at single-day and cumulative lag periods by varying modeling choices.

	Modeling choice	Lag 0	Lag 3	Lag 0–5	Lag 0–7
Full year					
Non-accidental mortality	Main model	1.032(1.008-1.056)	1.010(0.997-1.024)	1.086(0.999-1.180)	1.055(0.951-1.169)
Cardiovascular mortality		1.037(1.002-1.074)	1.018(0.998-1.038)	1.133(0.999-1.286)	1.124(0.961-1.314)
Respiratory mortality		0.961(0.891-1.036)	0.986(0.948-1.025)	0.895(0.696-1.151)	0.924(0.683-1.250)
Male		1.027(0.998-1.057)	1.008(0.992-1.025)	1.070(0.964-1.188)	1.043(0.917-1.187)
Female		1.038(1.002-1.076)	1.013(0.992-1.034)	1.107(0.973-1.260)	1.072(0.913-1.259)
≥65 years old		1.016(0.986-1.047)*	1.016(0.999-1.034)	1.102(0.989-1.229)	1.140(0.997-1.303)
<65 years old		1.044(1.011-1.077)	0.999(0.982-1.015)	1.036(0.933-1.152)	0.932(0.821-1.058)
Non-accidental mortality	Df/year for time trend: 6	1.032(1.009-1.056)	1.010(0.997-1.023)	1.084(1.000-1.176)	1.051(0.951-1.162)
Cardiovascular mortality		1.038(1.003-1.075)	1.017(0.998-1.037)	1.130(1.000-1.278)	1.115(0.958-1.298)
Respiratory mortality		0.993(0.922-1.069)	0.987(0.948-1.028)	0.930(0.718-1.206)	0.894(0.650-1.229)
Male		1.026(0.997-1.056)	1.007(0.991-1.023)	1.063(0.960-1.177)	1.031(0.909-1.169)
Female		1.041(1.004-1.078)	1.014(0.994-1.034)	1.115(0.984-1.265)	1.080(0.925-1.261)
≥65 years old		1.014(0.984-1.044)*	1.013(0.997-1.030)	1.082(0.975-1.201)	1.109(0.976-1.261)
<65 years old		1.050(1.017-1.084)	1.002(0.986-1.018)	1.060(0.955-1.177)	0.954(0.842-1.082)
Non-accidental mortality	Df/year for time trend: 8	1.031(1.008-1.055)	1.009(0.996-1.022)	1.078(0.992-1.172)	1.042(0.940-1.156)
Cardiovascular mortality		1.038(1.002-1.075)	1.018(0.998-1.038)	1.133(0.998-1.288)	1.122(0.958-1.314)
Respiratory mortality		0.960(0.890-1.035)	0.984(0.947-1.024)	0.887(0.689-1.143)	0.913(0.673-1.238)
Male		1.027(0.998-1.057)	1.008(0.991-1.024)	1.067(0.960-1.185)	1.036(0.909-1.180)
Female		1.038(1.002-1.075)	1.011(0.991-1.031)	1.095(0.966-1.242)	1.052(0.900-1.229)
≥65 years old		1.014(0.984-1.045)*	1.015(0.997-1.032)	1.090(0.978-1.215)	1.123(0.982-1.283)
<65 years old		1.055(1.023-1.088)	1.001(0.984-1.019)	1.062(0.951-1.185)	0.942(0.822-1.080)
Cold season					
Non-accidental mortality	Main model	1.063(1.027-1.100)	1.046(1.029-1.064)	1.333(1.192-1.491)	1.407(1.233-1.606)
Cardiovascular mortality		1.066(1.015-1.119)	1.052(1.027-1.077)	1.371(1.171-1.606)	1.470(1.220-1.771)
Respiratory mortality		1.077(0.969-1.198)	1.073(1.017-1.131)	1.529(1.082-2.162)	1.741(1.157-2.620)
Male		1.051(1.009-1.095)	1.036(1.016-1.057)	1.256(1.100-1.434)*	1.306(1.118-1.527)*
Female		1.082(1.031-1.137)	1.063(1.037-1.089)	1.467(1.250-1.721)	1.587(1.314-1.917)

≥65 years old		1.030(0.987-1.075)*	1.052(1.031-1.075)	1.330(1.158-1.527)	1.548(1.317-1.820)*
<65 years old		1.107(1.056-1.160)	1.038(1.014-1.062)	1.333(1.144-1.553)	1.235(1.028-1.482)
Non-accidental mortality		1.061(1.024-1.099)	1.045(1.027-1.063)	1.322(1.179-1.482)	1.394(1.218-1.595)
Cardiovascular mortality		1.065(1.014-1.118)	1.051(1.026-1.076)	1.363(1.164-1.598)	1.458(1.209-1.759)
Respiratory mortality		1.077(0.966-1.201)	1.071(1.014-1.131)	1.517(1.063-2.165)	1.716(1.128-2.612)
Male	Df for time trend:2	1.049(1.006-1.093)	1.035(1.014-1.057)	1.246(1.088-1.4260*)	1.294(1.103-1.517)*
Female		1.081(1.028-1.136)	1.061(1.035-1.088)	1.455(1.237-1.711)	1.570(1.296-1.902)
≥65 years old		1.028(0.984-1.074)*	1.051(1.029-1.074)	1.319(1.146-1.518)	1.534(1.301-1.809)*
<65 years old		1.105(1.054-1.159)	1.036(1.012-1.061)	1.322(1.132-1.543)	1.222(1.015-1.471)
Non-accidental mortality		1.056(1.021-1.093)	1.041(1.024-1.059)	1.294(1.157-1.448)	1.358(1.189-1.551)
Cardiovascular mortality	Df for time trend:4	1.061(1.011-1.114)	1.047(1.022-1.073)	1.337(1.141-1.567)	1.423(1.179-1.717)
Respiratory mortality		1.075(0.966-1.196)	1.071(1.015-1.129)	1.512(1.067-2.143)	1.716(1.136-2.592)
Male		1.046(1.004-1.090)	1.033(1.012-1.054)	1.228(1.075-1.403)	1.270(1.086-1.486)
Female		1.074(1.023-1.128)	1.056(1.030-1.082)	1.411(1.201-1.657)	1.511(1.249-1.829)
≥65 years old		1.024(0.981-1.069)*	1.048(1.025-1.070)	1.292(1.123-1.486)	1.495(1.269-1.762)*
<65 years old		1.100(1.050-1.153)	1.033(1.009-1.057)	1.293(1.108-1.507)	1.190(0.990-1.431)
Warm season					
Non-accidental mortality		1.014(0.991-1.038)	1.003(0.991-1.015)	1.028(0.952-1.110)	1.007(0.920-1.101)
Cardiovascular mortality		1.031(0.984-1.080)	1.006(0.983-1.029)	1.063(0.914-1.236)	1.016(0.851-1.213)
Respiratory mortality		0.999(0.901-1.108)	1.016(0.967-1.069)	1.084(0.778-1.511)	1.165(0.796-1.706)
Male	Main model	1.018(0.983-1.054)	1.006(0.989-1.023)	1.048(0.935-1.174)	1.031(0.903-1.177)
Female		1.016(0.968-1.066)	0.998(0.975-1.022)	1.007(0.860-1.178)	0.963(0.802-1.157)
≥65 years old		1.039(0.999-1.080)	1.013(0.994-1.033)	1.108(0.977-1.257)	1.073(0.926-1.243)
<65 years old		0.992(0.950-1.036)	0.991(0.970-1.012)	0.948(0.824-1.091)	0.928(0.788-1.093)
Non-accidental mortality		1.015(0.991-1.039)	1.003(0.991-1.015)	1.029(0.953-1.111)	1.008(0.921-1.102)
Cardiovascular mortality		1.030(0.985-1.078)	1.006(0.984-1.029)	1.061(0.915-1.230)	1.015(0.854-1.207)
Respiratory mortality		1.002(0.904-1.111)	1.017(0.968-1.069)	1.091(0.784-1.519)	1.170(0.801-1.711)
Male	Df for time trend:2	1.018(0.983-1.054)	1.006(0.989-1.023)	1.049(0.936-1.175)	1.032(0.904-1.178)
Female		1.016(0.968-1.067)	0.998(0.975-1.022)	1.007(0.860-1.178)	0.962(0.801-1.155)
≥65 years old		1.039(0.998-1.081)	1.013(0.993-1.033)	1.109(0.974-1.261)	1.073(0.923-1.248)
<65 years old		0.994(0.952-1.038)	0.991(0.970-1.012)	0.950(0.825-1.093)	0.927(0.787-1.092)
Non-accidental mortality	Df for time	1.017(0.990-1.044)	1.004(0.991-1.017)	1.036(0.950-1.129)	1.013(0.916-1.120)

Cardiovascular mortality	trend:4	1.035(0.988-1.085)	1.010(0.986-1.033)	1.085(0.931-1.265)	1.044(0.872-1.249)
Respiratory mortality		0.998(0.899-1.107)	1.014(0.965-1.067)	1.072(0.767-1.497)	1.147(0.781-1.685)
Male		1.020(0.984-1.057)	1.007(0.990-1.026)	1.058(0.940-1.190)	1.044(0.909-1.198)
Female		1.015(0.967-1.066)	0.998(0.974-1.022)	1.004(0.857-1.176)	0.959(0.797-1.154)
≥65 years old		1.040(1.000-1.082)	1.014(0.995-1.034)	1.117(0.981-1.271)	1.083(0.931-1.260)
<65 years old		0.993(0.951-1.037)	0.991(0.970-1.013)	0.951(0.826-1.095)	0.931(0.790-1.098)

Bold values represent statistically significant results ($p < 0.05$).

* Significant results of Z tests for the difference between the two relative risks of subgroup analysis ($p < 0.05$).

The 99th percentile of DTR distribution (10.8 °C for the full year, 11.5 °C for the cold season and 8.8 °C for the warm season) with reference to the minimum relative risk in each subgroup.

Table S5. Relative risk (95% *CI*) of non-accidental mortality for extreme high DTR at single-day and cumulative lag periods with adjustment for the TCN variable.

	Lag 0	Lag 3	Lag 0–5	Lag 0–7
Full year				
Non-accidental mortality	1.029(1.005-1.053)	1.010(0.996-1.023)	1.079(0.992-1.174)	1.054(0.950-1.169)
Cardiovascular mortality	1.032(0.996-1.070)	1.017(0.997-1.038)	1.125(0.991-1.278)	1.126(0.962-1.318)
Respiratory mortality	0.957(0.886-1.033)	0.982(0.944-1.021)	0.874(0.677-1.127)	0.896(0.659-1.217)
Male	1.024(0.994-1.054)	1.008(0.991-1.025)	1.065(0.959-1.184)	1.045(0.917-1.190)
Female	1.036(0.999-1.074)	1.012(0.992-1.033)	1.100(0.965-1.253)	1.066(0.908-1.253)
≥65 years old	1.013(0.983-1.045)*	1.016(0.998-1.033)	1.094(0.981-1.221)	1.135(0.992-1.298)
<65 years old	1.042(1.010-1.076)	1.000(0.984-1.017)	1.042(0.937-1.160)	0.947(0.833-1.076)
Cold season				
Non-accidental mortality	1.053(1.016-1.091)	1.043(1.025-1.062)	1.302(1.161-1.459)	1.387(1.214-1.585)
Cardiovascular mortality	1.050(0.999-1.103)	1.046(1.021-1.072)	1.318(1.123-1.546)	1.432(1.189-1.726)
Respiratory mortality	1.072(0.960-1.196)	1.070(1.014-1.129)	1.504(1.055-2.145)	1.717(1.135-2.597)
Male	1.041(0.999-1.086)	1.034(1.013-1.055)	1.228(1.074-1.405)	1.290(1.104-1.507)
Female	1.073(1.020-1.129)	1.059(1.033-1.086)	1.432(1.216-1.687)	1.560(1.289-1.889)
≥65 years old	1.020(0.976-1.066)*	1.049(1.027-1.072)	1.294(1.123-1.491)	1.521(1.292-1.791)*
<65 years old	1.099(1.047-1.153)	1.035(1.011-1.060)	1.308(1.119-1.529)	1.221(1.016-1.468)
Warm season				
Non-accidental mortality	0.981(0.945-1.019)	0.998(0.979-1.017)	0.970(0.857-1.098)	1.004(0.868-1.161)
Cardiovascular mortality	1.020(0.982-1.060)	1.003(0.984-1.022)	1.034(0.913-1.172)	0.999(0.863-1.156)
Respiratory mortality	0.993(0.898-1.097)	1.012(0.963-1.062)	1.051(0.761-1.452)	1.124(0.775-1.628)
Male	1.018(0.983-1.054)	1.006(0.988-1.023)	1.047(0.933-1.174)	1.030(0.900-1.178)
Female	1.007(0.960-1.057)	0.993(0.970-1.017)	0.974(0.832-1.140)	0.931(0.775-1.118)
≥65 years old	1.035(0.996-1.077)	1.011(0.992-1.031)	1.095(0.963-1.244)	1.059(0.912-1.229)
<65 years old	0.989(0.947-1.032)	0.989(0.968-1.010)	0.936(0.813-1.077)	0.915(0.777-1.078)

Bold values represent statistically significant results ($p < 0.05$).

* Significant results of Z tests for the difference between the two relative risks of subgroup analysis ($p < 0.05$).

The 99th percentile of DTR distribution (10.8 °C for the full year, 11.5 °C for the cold season and 8.8 °C for the warm season) with reference to the minimum relative risk in each subgroup.

Table S6. Relative risk (95% *CI*) of non-accidental mortality for extreme high DTR at single-day and cumulative lag periods with adjustment for co-pollutants.

Pollutants		Lag 0	Lag 3	Lag 0–5	Lag 0–7
NO ₂ +PM ₁₀ +CO +SO ₂ +O ₃	Full year				
	Non-accidental mortality	1.012(0.991-1.033)	1.003(0.992-1.015)	1.029(0.955-1.108)	1.015(0.928-1.111)
	Cardiovascular mortality	1.019(0.983-1.057)	1.013(0.993-1.034)	1.089(0.957-1.240)	1.104(0.943-1.291)
	Respiratory mortality	0.944(0.862-1.034)	0.980(0.937-1.025)	0.853(0.632-1.152)	0.893(0.639-1.249)
	Male	1.002(0.992-1.012)	1.000(0.995-1.006)	1.004(0.968-1.041)	1.000(0.958-1.045)
	Female	1.025(0.988-1.062)	1.008(0.988-1.029)	1.068(0.937-1.216)	1.045(0.893-1.224)
	≥65 years old	1.003(0.971-1.036)	1.012(0.994-1.030)	1.063(0.947-1.195)	1.110(0.966-1.276)
	<65 years old	0.967(0.925-1.010)	1.007(0.982-1.032)	1.001(0.855-1.173)	1.116(0.920-1.354)
	Cold season				
	Non-accidental mortality	1.025(0.987-1.065)	1.032(1.013-1.052)	1.201(1.061-1.360)	1.300(1.128-1.498)
	Cardiovascular mortality	1.013(0.959-1.069)	1.035(1.008-1.063)	1.201(1.008-1.432)	1.353(1.107-1.654)
	Respiratory mortality	1.047(0.934-1.174)	1.052(0.995-1.113)	1.351(0.929-1.964)	1.514(0.987-2.324)
	Male	1.007(0.961-1.054)	1.019(0.996-1.042)*	1.105(0.952-1.283)*	1.180(0.996-1.398)*
	Female	1.055(0.999-1.115)	1.054(1.026-1.082)	1.372(1.149-1.639)	1.520(1.240-1.862)
	≥65 years old	1.003(0.956-1.053)	1.041(1.017-1.066)	1.227(1.049-1.434)	1.450(1.216-1.730)*
	<65 years old	1.055(1.003-1.110)	1.020(0.995-1.046)	1.165(0.987-1.376)	1.121(0.925-1.359)
	Warm season				
	Non-accidental mortality	1.059(0.982-1.142)	1.017(0.979-1.057)	1.153(0.897-1.482)	1.085(0.809-1.454)
	Cardiovascular mortality	1.092(0.967-1.232)	1.023(0.962-1.088)	1.225(0.818-1.836)	1.104(0.688-1.771)
	Respiratory mortality	1.037(0.773-1.391)	1.080(0.934-1.248)	1.522(0.584-3.969)	1.950(0.649-5.856)
	Male	1.071(0.971-1.180)	1.027(0.978-1.079)	1.226(0.887-1.695)	1.176(0.806-1.716)
	Female	1.005(0.990-1.020)	1.000(0.992-1.008)	1.005(0.956-1.057)	0.994(0.937-1.054)
	≥65 years old	1.140(1.025-1.267)	1.054(0.999-1.111)	1.480(1.042-2.102)	1.367(0.908-2.059)
	<65 years old	0.972(0.867-1.090)	0.975(0.920-1.033)	0.857(0.585-1.254)	0.819(0.526-1.276)
NO ₂ +PM _{2.5} +CO +SO ₂ +O ₃	Full year				
	Non-accidental mortality	1.015(0.993-1.038)	1.004(0.992-1.017)	1.037(0.958-1.123)	1.021(0.927-1.124)
	Cardiovascular mortality	1.022(0.985-1.060)	1.014(0.993-1.035)	1.096(0.961-1.250)	1.106(0.943-1.297)
	Respiratory mortality	0.952(0.869-1.042)	0.983(0.940-1.028)	0.872(0.647-1.175)	0.908(0.650-1.267)

Male	1.004(0.991-1.018)	1.001(0.993-1.008)	1.008(0.959-1.058)	1.001(0.943-1.062)
Female	1.027(0.990-1.066)	1.010(0.989-1.031)	1.080(0.946-1.232)	1.059(0.902-1.243)
≥65 years old	1.006(0.974-1.039)	1.013(0.995-1.032)	1.074(0.956-1.206)	1.121(0.975-1.289)
<65 years old	1.019(0.984-1.056)	0.989(0.971-1.007)	0.964(0.857-1.084)	0.878(0.768-1.004)
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Cold season				
Non-accidental mortality	1.027(0.988-1.067)	1.033(1.014-1.053)	1.209(1.068-1.369)	1.310(1.137-1.509)
Cardiovascular mortality	1.015(0.962-1.071)	1.035(1.008-1.063)	1.206(1.012-1.437)	1.352(1.107-1.652)
Respiratory mortality	1.050(0.936-1.178)	1.055(0.997-1.116)	1.373(0.945-1.996)	1.545(1.008-2.369)
Male	1.009(0.964-1.056)	1.020(0.997-1.043)*	1.114(0.960-1.293)*	1.189(1.004-1.408)*
Female	1.055(0.999-1.115)	1.055(1.027-1.083)	1.377(1.153-1.644)	1.528(1.249-1.871)
≥65 years old	1.006(0.959-1.056)	1.043(1.019-1.068)	1.244(1.064-1.454)	1.474(1.237-1.757)*
<65 years old	1.054(1.002-1.109)	1.020(0.994-1.046)	1.162(0.984-1.371)	1.117(0.922-1.353)
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Warm season				
Non-accidental mortality	1.058(0.981-1.141)	1.016(0.978-1.055)	1.145(0.890-1.472)	1.074(0.801-1.439)
Cardiovascular mortality	1.087(0.963-1.228)	1.022(0.961-1.087)	1.211(0.808-1.814)	1.093(0.681-1.754)
Respiratory mortality	1.040(0.776-1.395)	1.078(0.933-1.246)	1.518(0.583-3.956)	1.920(0.640-5.762)
Male	1.069(0.969-1.178)	1.025(0.975-1.077)	1.208(0.873-1.670)	1.150(0.788-1.679)
Female	1.005(0.990-1.020)	1.000(0.993-1.008)	1.006(0.957-1.058)	0.995(0.938-1.055)
≥65 years old	1.139(1.024-1.266)	1.054(0.999-1.111)	1.479(1.042-2.101)	1.370(0.910-2.062)
<65 years old	0.971(0.866-1.089)	0.972(0.917-1.030)	0.844(0.577-1.235)	0.799(0.513-1.245)

Bold values represent statistically significant results ($p < 0.05$).

* Significant results of Z tests for the difference between the two relative risks of subgroup analysis ($p < 0.05$).

The 99th percentile of DTR distribution (10.8 °C for the full year, 11.5 °C for the cold season and 8.8 °C for the warm season) with reference to the minimum relative risk in each subgroup.

Table S7. Relative risk (95% *CI*) of non-accidental mortality for extreme high DTR at single-day and cumulative lag periods with adjustment for apparent temperature.

Apparent Temperature		Lag 0	Lag 3	Lag 0–5	Lag 0–7
Df = 2	Full year				
	Non-accidental mortality	1.032(1.009-1.056)	1.011(0.997-1.024)	1.088(1.001-1.182)	1.057(0.954-1.172)
	Cardiovascular mortality	1.040(1.004-1.076)	1.019(0.999-1.040)	1.143(1.008-1.297)	1.134(0.970-1.326)
	Respiratory mortality	0.958(0.889-1.033)	0.986(0.948-1.025)	0.891(0.693-1.146)	0.924(0.683-1.251)
	Male	1.027(0.998-1.057)	1.009(0.992-1.025)	1.073(0.966-1.191)	1.045(0.919-1.189)
	Female	1.039(1.002-1.076)	1.013(0.993-1.034)	1.109(0.975-1.262)	1.074(0.916-1.261)
	≥65 years old	1.017(0.987-1.048)*	1.017(1.000-1.035)	1.108(0.994-1.235)	1.145(1.002-1.309)
	<65 years old	1.044(1.011-1.077)	0.999(0.982-1.015)	1.036(0.932-1.151)	0.932(0.821-1.058)
	Cold season				
	Non-accidental mortality	1.063(1.027-1.100)	1.046(1.029-1.064)	1.332(1.192-1.490)	1.404(1.231-1.602)
	Cardiovascular mortality	1.065(1.015-1.118)	1.052(1.027-1.078)	1.374(1.174-1.609)	1.480(1.228-1.783)
	Respiratory mortality	1.078(0.969-1.198)	1.072(1.017-1.131)	1.529(1.082-2.161)	1.738(1.157-2.612)
	Male	1.050(1.008-1.094)	1.037(1.016-1.058)	1.257(1.101-1.435)*	1.309(1.120-1.529)*
	Female	1.084(1.032-1.138)	1.062(1.036-1.088)	1.463(1.247-1.716)	1.572(1.301-1.898)
	≥65 years old	1.031(0.988-1.075)*	1.052(1.030-1.075)	1.329(1.158-1.526)	1.545(1.315-1.815)*
	<65 years old	1.107(1.057-1.161)	1.038(1.014-1.062)	1.332(1.143-1.552)	1.232(1.027-1.479)
	Warm season				
	Non-accidental mortality	1.017(0.991-1.044)	1.004(0.991-1.016)	1.035(0.952-1.126)	1.010(0.915-1.115)
	Cardiovascular mortality	1.038(0.991-1.087)	1.009(0.986-1.032)	1.083(0.931-1.258)	1.031(0.863-1.231)
	Respiratory mortality	0.993(0.897-1.099)	1.014(0.965-1.065)	1.063(0.767-1.472)	1.146(0.785-1.673)
	Male	1.021(0.986-1.058)	1.007(0.990-1.025)	1.059(0.944-1.188)	1.039(0.908-1.190)
	Female	1.014(0.967-1.064)	0.998(0.974-1.021)	1.002(0.859-1.169)	0.959(0.800-1.150)
	≥65 years old	1.037(0.999-1.077)	1.012(0.994-1.032)	1.104(0.975-1.249)	1.069(0.924-1.237)
	<65 years old	0.997(0.956-1.040)	0.993(0.973-1.014)	0.963(0.840-1.104)	0.941(0.801-1.105)
Df = 4	Full year				
	Non-accidental mortality	1.032(1.008-1.056)	1.010(0.997-1.024)	1.085(0.998-1.180)	1.054(0.951-1.169)
	Cardiovascular mortality	1.037(1.002-1.074)	1.017(0.997-1.038)	1.130(0.997-1.282)	1.118(0.956-1.307)

Respiratory mortality	0.961(0.891-1.036)	0.986(0.948-1.025)	0.895(0.696-1.152)	0.924(0.682-1.251)
Male	1.027(0.998-1.057)	1.008(0.992-1.025)	1.068(0.962-1.186)	1.040(0.914-1.183)
Female	1.039(1.002-1.076)	1.013(0.993-1.034)	1.111(0.976-1.264)	1.077(0.918-1.265)
≥65 years old	1.016(0.986-1.047)*	1.017(0.999-1.034)	1.103(0.989-1.230)	1.141(0.998-1.305)
<65 years old	1.044(1.011-1.077)	0.998(0.982-1.015)	1.034(0.930-1.149)	0.929(0.818-1.055)
Cold season				
Non-accidental mortality	1.062(1.026-1.100)	1.047(1.029-1.065)	1.334(1.193-1.492)	1.410(1.236-1.609)
Cardiovascular mortality	1.066(1.015-1.119)	1.052(1.027-1.078)	1.373(1.172-1.608)	1.473(1.222-1.776)
Respiratory mortality	1.076(0.968-1.197)	1.073(1.018-1.131)	1.531(1.082-2.166)	1.749(1.162-2.633)
Male	1.050(1.008-1.094)	1.037(1.016-1.058)	1.257(1.101-1.435)*	1.310(1.120-1.531)*
Female	1.082(1.030-1.137)	1.063(1.037-1.089)	1.468(1.251-1.722)	1.589(1.316-1.920)
≥65 years old	1.030(0.987-1.075)*	1.053(1.031-1.075)	1.331(1.159-1.528)	1.551(1.320-1.823)*
<65 years old	1.107(1.056-1.160)	1.038(1.014-1.063)	1.334(1.145-1.555)	1.238(1.031-1.487)
Warm season				
Non-accidental mortality	1.014(0.991-1.038)	1.003(0.991-1.015)	1.028(0.952-1.111)	1.007(0.920-1.102)
Cardiovascular mortality	1.030(0.984-1.077)	1.006(0.983-1.029)	1.060(0.914-1.229)	1.015(0.853-1.207)
Respiratory mortality	0.999(0.901-1.108)	1.016(0.967-1.069)	1.084(0.778-1.512)	1.166(0.796-1.708)
Male	1.018(0.983-1.054)	1.006(0.988-1.023)	1.047(0.935-1.173)	1.030(0.902-1.177)
Female	1.015(0.967-1.066)	0.998(0.975-1.023)	1.007(0.861-1.179)	0.966(0.804-1.160)
≥65 years old	1.038(0.999-1.080)	1.013(0.994-1.032)	1.106(0.975-1.255)	1.070(0.924-1.241)
<65 years old	0.992(0.950-1.036)	0.991(0.970-1.013)	0.950(0.826-1.094)	0.932(0.792-1.098)

Bold values represent statistically significant results ($p < 0.05$).

* Significant results of Z tests for the difference between the two relative risks of subgroup analysis ($p < 0.05$).

The 99th percentile of DTR distribution (10.8 °C for the full year, 11.5 °C for the cold season and 8.8 °C for the warm season) with reference to the minimum relative risk in each subgroup.

Table S8. Relative risk (95% *CI*) of non-accidental mortality for extreme high DTR at single-day and cumulative lag periods with adjustment for lag periods.

		Lag 0	Lag3	Lag 0-5	Lag 0-7
Lag period: 5 days	Full year				
	Non-accidental mortality	1.032(1.004-1.060)	1.012(0.996-1.027)	1.093(1.001-1.192)	
	Cardiovascular mortality	1.048(1.006-1.092)	1.014(0.991-1.038)	1.125(0.985-1.284)	
	Respiratory mortality	1.024(0.945-1.109)	0.998(0.952-1.045)	1.011(0.777-1.315)	
	Male	1.019(0.985-1.054)	1.014(0.995-1.034)	1.095(0.980-1.222)	
	Female	1.052(1.009-1.096)	1.007(0.983-1.031)	1.087(0.951-1.242)	
	≥65 years old	1.017(0.983-1.053)	1.017(0.997-1.036)	1.104(0.989-1.232)	
	<65 years old	1.050(1.010-1.092)	1.006(0.983-1.029)	1.081(0.953-1.227)	
	Cold season				
	Non-accidental mortality	1.048(1.006-1.092)	1.056(1.034-1.078)	1.375(1.224-1.544)	
	Cardiovascular mortality	1.064(1.004-1.127)	1.057(1.027-1.088)	1.405(1.194-1.654)	
	Respiratory mortality	1.072(0.943-1.218)	1.082(1.014-1.154)	1.587(1.104-2.283)	
	Male	1.029(0.980-1.080)	1.048(1.023-1.074)	1.302(1.135-1.494)	
	Female	1.080(1.018-1.146)	1.068(1.036-1.100)	1.498(1.267-1.771)	
	≥65 years old	1.021(0.970-1.075)	1.065(1.038-1.092)	1.398(1.213-1.611)	
	<65 years old	1.083(1.024-1.147)	1.045(1.015-1.075)	1.349(1.147-1.585)	
	Warm season				
	Non-accidental mortality	0.985(0.970-0.999)	1.003(0.996-1.011)	1.000(0.957-1.045)	
	Cardiovascular mortality	1.019(0.957-1.084)	1.005(0.973-1.038)	1.042(0.869-1.250)	
	Respiratory mortality	0.957(0.847-1.081)	1.026(0.967-1.089)	1.090(0.773-1.538)	
	Male	1.030(0.991-1.071)	0.998(0.978-1.018)	1.019(0.910-1.142)	
	Female	1.041(0.985-1.101)	0.983(0.955-1.012)	0.957(0.813-1.125)	
	≥65 years old	1.059(1.012-1.108)	1.002(0.979-1.025)	1.067(0.936-1.218)	
	<65 years old	1.007(0.958-1.059)	0.981(0.957-1.007)	0.916(0.792-1.059)	
Lag period: 14 days	Full year				
	Non-accidental mortality	1.014(1.000-1.029)	1.005(0.994-1.016)	1.039(0.972-1.111))	1.026(0.947-1.112)
	Cardiovascular mortality	1.018(0.995-1.041)	1.006(0.989-1.023)	1.049(0.944-1.166)	1.033(0.910-1.173)
	Respiratory mortality	1.009(0.951-1.070)	0.995(0.952-1.040)	0.984(0.743-1.302)	0.943(0.670-1.328)

Male	1.012(0.992-1.033)	1.004(0.989-1.019)	1.032(0.939-1.134)	1.020(0.910-1.144)
Female	1.017(0.994-1.041)	1.006(0.989-1.023)	1.047(0.941-1.166)	1.032(0.907-1.174)
≥65 years old	1.022(1.000-1.045)	1.013(0.997-1.030)	1.091(0.984-1.211)	1.098(0.968-1.246)
<65 years old	1.009(0.985-1.032)	0.997(0.980-1.015)	0.995(0.891-1.111)	0.963(0.843-1.101)
Cold season				
Non-accidental mortality	1.059(1.034-1.084)	1.045(1.027-1.062)	1.317(1.184-1.465)	1.394(1.230-1.579)
Cardiovascular mortality	1.069(1.034-1.106)	1.051(1.027-1.076)	1.371(1.180-1.593)	1.454(1.219-1.735)
Respiratory mortality	1.084(1.008-1.166)	1.072(1.019-1.128)	1.537(1.111-2.127)	1.723(1.177-2.521)
Male	1.042(1.012-1.072)*	1.033(1.012-1.054)*	1.224(1.078-1.390)*	1.280(1.102-1.486)*
Female	1.085(1.049-1.122)	1.063(1.039-1.089)	1.476(1.269-1.716)	1.592(1.333-1.901)
≥65 years old	1.059(1.028-1.090)	1.050(1.029-1.072)	1.351(1.184-1.541)	1.461(1.252-1.705)
<65 years old	1.058(1.024-1.093)	1.038(1.014-1.061)	1.272(1.100-1.471)	1.309(1.104-1.553)
Warm season				
Non-accidental mortality	0.987(0.962-1.013)	0.993(0.975-1.011)	0.953(0.849-1.070)	0.952(0.831-1.091)
Cardiovascular mortality	0.975(0.935-1.016)	0.989(0.961-1.018)	0.924(0.767-1.112)	0.936(0.753-1.163)
Respiratory mortality	1.012(0.940-1.089)	1.015(0.965-1.068)	1.092(0.789-1.513)	1.135(0.776-1.661)
Male	1.009(0.987-1.031)	1.006(0.991-1.022)	1.040(0.943-1.147)	1.045(0.932-1.172)
Female	1.008(0.977-1.040)	0.999(0.977-1.022)	1.004(0.869-1.160)	0.983(0.826-1.169)
≥65 years old	1.021(1.002-1.040)	1.012(0.999-1.026)	1.085(0.997-1.180)	1.091(0.988-1.204)
<65 years old	0.987(0.958-1.017)	0.990(0.970-1.011)	0.94(0.824-1.073)	0.93(0.796-1.086)

Bold values represent statistically significant results ($p < 0.05$).

* Significant results of Z tests for the difference between the two relative risks of subgroup analysis ($p < 0.05$).

The 99th percentile of DTR distribution (10.8 °C for the full year, 11.5 °C for the cold season and 8.8 °C for the warm season) with reference to the minimum relative risk in each subgroup.

Table S9. Relative risk (95% *CI*) of non-accidental mortality for extreme high TCN at single-day and cumulative lag periods by varying modeling choices.

Modeling choices		Lag 0	Lag 3	Lag 0-5	Lag 0-7
Non-accidental mortality					
Full year	Main model	1.086(1.058-1.115)	1.043(1.027-1.060)	1.342(1.213-1.486)	1.331(1.180-1.500)
Cold season		1.132(1.091-1.175)	1.071(1.050-1.093)	1.258(1.177-1.345)	1.611(1.384-1.876)
Warm season		1.063(1.023-1.106)	1.033(1.009-1.056)	1.248(1.077-1.445)	1.242(1.043-1.480)
Full year	Df/year for time trend: 6	1.091(1.063-1.121)	1.047(1.031-1.064)	1.375(1.243-1.522)	1.371(1.216-1.545)
Cold season	Df for time trend: 2	1.136(1.094-1.179)	1.077(1.055-1.098)	1.267(1.184-1.355)	1.682(1.444-1.961)
Warm season		1.064(1.024-1.106)	1.033(1.010-1.057)	1.254(1.083-1.451)	1.250(1.050-1.488)
Full year	Df/year for time trend: 8	1.086(1.057-1.115)	1.043(1.026-1.059)	1.337(1.209-1.480)	1.323(1.174-1.491)
Cold season	Df for time trend: 4	1.128(1.088-1.170)	1.067(1.047-1.089)	1.250(1.170-1.334)	1.566(1.348-1.820)
Warm season		1.064(1.023-1.106)	1.033(1.010-1.057)	1.252(1.081-1.450)	1.248(1.047-1.487)
Full year	Lag period: 5 days	1.069(1.040-1.098)	1.042(1.025-1.058)	1.311(1.193-1.440)	
Cold season		1.110(1.067-1.156)	1.062(1.039-1.086)	1.215(1.133-1.303)	
Warm season		1.059(1.015-1.105)	1.039(1.014-1.064)	1.281(1.111-1.478)	
Full year	Lag period: 14 days	1.080(1.050-1.111)	1.056(1.033-1.080)	1.418(1.235-1.629)	1.501(1.267-1.779)
Cold season		1.119(1.084-1.155)	1.090(1.065-1.116)	1.241(1.169-1.318)	1.923(1.610-2.298)
Warm season		1.073(1.038-1.109)	1.054(1.028-1.080)	1.393(1.191-1.630)	1.483(1.225-1.795)
Cardiovascular mortality					
Full year	Main model	1.117(1.073-1.163)	1.066(1.041-1.092)	1.538(1.317-1.795)	1.567(1.304-1.881)
Cold season		1.145(1.087-1.207)	1.087(1.056-1.118)	1.289(1.172-1.417)	1.814(1.462-2.250)
Warm season		1.112(1.045-1.183)	1.052(1.015-1.091)	1.434(1.136-1.811)	1.398(1.058-1.847)
Full year	Df/year for time trend: 6	1.123(1.079-1.169)	1.071(1.046-1.097)	1.586(1.359-1.850)	1.630(1.359-1.955)
Cold season	Df for time trend: 2	1.147(1.089-1.209)	1.090(1.060-1.121)	1.294(1.177-1.423)	1.865(1.504-2.311)
Warm season		1.112(1.045-1.183)	1.053(1.015-1.091)	1.438(1.140-1.814)	1.402(1.063-1.850)
Full year	Df/year for time trend: 8	1.116(1.072-1.162)	1.064(1.039-1.090)	1.525(1.306-1.781)	1.548(1.289-1.859)
Cold season	Df for time trend: 4	1.141(1.084-1.203)	1.083(1.053-1.114)	1.280(1.166-1.407)	1.767(1.426-2.190)
Warm season		1.114(1.047-1.185)	1.055(1.017-1.093)	1.452(1.151-1.833)	1.421(1.077-1.877)
Full year	Lag period: 5 days	1.118(1.073-1.165)	1.064(1.039-1.090)	1.523(-1.32-1.757)	
Cold season		1.146(1.083-1.213)	1.085(1.052-1.119)	1.289(1.169-1.422)	

Warm season		1.129(1.055-1.207)	1.042(1.003-1.082)	1.385(1.103-1.738)	
Full year		1.120(1.073-1.170)	1.086(1.050-1.123)	1.691(1.368-2.090)	1.853(1.430-2.402)
Cold season	Lag period: 14 days	1.152(1.101-1.205)	1.114(1.077-1.152)	1.312(1.204-1.430)	2.265(1.756-2.923)
Warm season		1.098(1.043-1.157)	1.069(1.027-1.112)	1.530(1.193-1.962)	1.638(1.210-2.216)
Respiratory mortality					
Full year		1.071(0.976-1.175)	1.034(0.978-1.093)	1.265(0.885-1.809)	1.246(0.817-1.899)
Cold season	Main model	1.178(1.048-1.324)	1.089(1.022-1.160)	1.352(1.095-1.669)	1.779(1.096-2.887)
Warm season		1.081(0.933-1.253)	1.085(0.996-1.183)	1.627(0.933-2.838)	1.935(0.999-3.746)
Full year	Df/year for time trend: 6	1.072(0.977-1.176)	1.033(0.978-1.092)	1.263(0.886-1.800)	1.237(0.814-1.879)
Cold season	Df for time trend: 2	1.191(1.057-1.342)	1.110(1.041-1.183)	1.386(1.118-1.718)	2.097(1.285-3.420)
Warm season		1.088(0.940-1.261)	1.092(1.002-1.190)	1.692(0.973-2.941)	2.034(1.055-3.921)
Full year	Df/year for time trend: 8	1.070(0.975-1.174)	1.033(0.978-1.092)	1.261(0.882-1.804)	1.242(0.814-1.895)
Cold season	Df for time trend: 4	1.179(1.049-1.326)	1.089(1.022-1.160)	1.354(1.096-1.673)	1.774(1.092-2.884)
Warm season		1.080(0.932-1.252)	1.084(0.994-1.182)	1.617(0.927-2.821)	1.917(0.990-3.714)
Full year		1.052(0.958-1.156)	1.029(0.975-1.087)	1.216(0.876-1.688)	
Cold season	Lag period: 5 days	1.179(1.041-1.336)	1.027(0.958-1.101)	1.328(1.069-1.649)	
Warm season		1.031(0.879-1.209)	1.162(1.064-1.269)	2.182(1.281-3.715)	
Full year		1.001(0.907-1.106)	0.987(0.913-1.067)	0.936(0.575-1.524)	0.881(0.485-1.600)
Cold season	Lag period: 14 days	1.168(1.058-1.289)	1.123(1.043-1.209)	1.347(1.115-1.626)	2.405(1.370-4.223)
Warm season		1.107(0.978-1.253)	1.096(0.996-1.205)	1.749(0.963-3.177)	2.051(0.990-4.246)

Bold values represent statistically significant results ($p < 0.05$).

The 99th percentile of TCN distribution (3.3 °C for the full year, 3.9 °C for the cold season and 2.7 °C for the warm season) with a reference of 0 °C.

Table S10. Relative risk (95% *CI*) of non-accidental mortality for extreme high TCN at single-day and cumulative lag periods with adjustment for the DTR variable.

	Lag 0	Lag 3	Lag 0–5	Lag 0–7
Non-accidental mortality				
Full year	1.085(1.055-1.115)	1.043(1.026-1.060)	1.336(1.202-1.486)	1.324(1.170-1.499)
Cold season	1.125(1.082-1.170)	1.068(1.046-1.090)	1.244(1.160-1.335)	1.575(1.344-1.845)
Warm season	1.069(1.027-1.112)	1.034(1.011-1.059)	1.266(1.091-1.470)	1.255(1.053-1.497)
Cardiovascular mortality				
Full year	1.113(1.067-1.161)	1.063(1.037-1.090)	1.513(1.287-1.778)	1.539(1.275-1.859)
Cold season	1.135(1.074-1.199)	1.081(1.049-1.113)	1.267(1.147-1.400)	1.746(1.395-2.186)
Warm season	1.114(1.046-1.187)	1.053(1.015-1.092)	1.442(1.139-1.826)	1.402(1.060-1.853)
Respiratory mortality				
Full year	1.094(0.993-1.206)	1.045(0.987-1.107)	1.365(0.942-1.978)	1.341(0.871-2.067)
Cold season	1.197(1.059-1.352)	1.096(1.026-1.171)	1.391(1.116-1.734)	1.855(1.125-3.059)
Warm season	1.127(0.969-1.311)	1.102(1.011-1.203)	1.835(1.045-3.222)	2.119(1.093-4.108)

Bold values represent statistically significant results ($p < 0.05$).

The 99th percentile of TCN distribution (3.3 °C for the full year, 3.9 °C for the cold season and 2.7 °C for the warm season) with a reference of 0 °C.

Table S11. Relative risk (95% *CI*) of non-accidental mortality for extreme high TCN at single-day and cumulative lag periods with adjustment for co-pollutants.

Pollutants		Lag 0	Lag 3	Lag 0–5	Lag 0–7
NO ₂ +PM ₁₀ +CO +SO ₂ +O ₃	Non-accidental mortality				
	Full year	1.080(1.050-1.111)	1.041(1.024-1.059)	1.321(1.185-1.472)	1.314(1.158-1.492)
	Cold season	1.115(1.073-1.159)	1.064(1.042-1.086)	1.225(1.142-1.313)	1.537(1.314-1.796)
	Warm season	1.059(1.017-1.103)	1.031(1.007-1.056)	1.234(1.059-1.438)	1.231(1.026-1.475)
	Cardiovascular mortality				
	Full year	1.111(1.065-1.160)	1.064(1.037-1.091)	1.515(1.284-1.787)	1.548(1.276-1.879)
	Cold season	1.126(1.066-1.190)	1.077(1.046-1.109)	1.250(1.132-1.380)	1.712(1.371-2.136)
	Warm season	1.105(1.036-1.179)	1.050(1.011-1.091)	1.412(1.107-1.802)	1.384(1.037-1.848)
	Respiratory mortality				
	Full year	1.081(0.980-1.193)	1.043(0.983-1.106)	1.332(0.911-1.947)	1.329(0.852-2.072)
	Cold season	1.171(1.035-1.324)	1.089(1.020-1.163)	1.338(1.071-1.671)	1.797(1.092-2.957)
	Warm season	1.121(0.962-1.306)	1.104(1.009-1.208)	1.840(1.030-3.287)	2.166(1.092-4.297)
NO ₂ +PM _{2.5} +CO +SO ₂ +O ₃	Non-accidental mortality				
	Full year	1.081(1.051-1.112)	1.042(1.024-1.059)	1.327(1.191-1.478)	1.320(1.163-1.498)
	Cold season	1.116(1.073-1.160)	1.063(1.042-1.086)	1.225(1.142-1.314)	1.534(1.312-1.793)
	Warm season	1.060(1.018-1.103)	1.031(1.007-1.056)	1.235(1.060-1.440)	1.233(1.028-1.478)
	Cardiovascular mortality				
	Full year	1.114(1.067-1.163)	1.066(1.039-1.093)	1.531(1.298-1.805)	1.568(1.293-1.902)
	Cold season	1.125(1.065-1.189)	1.077(1.046-1.109)	1.248(1.130-1.378)	1.706(1.367-2.130)
	Warm season	1.108(1.039-1.182)	1.052(1.013-1.093)	1.429(1.120-1.823)	1.401(1.048-1.871)
	Respiratory mortality				
	Full year	1.085(0.984-1.198)	1.046(0.987-1.109)	1.360(0.931-1.986)	1.365(0.877-2.127)
	Cold season	1.170(1.034-1.323)	1.090(1.021-1.164)	1.336(1.070-1.669)	1.812(1.101-2.983)
	Warm season	1.112(0.955-1.296)	1.102(1.007-1.206)	1.811(1.014-3.237)	2.156(1.085-4.284)

Bold values represent statistically significant results ($p < 0.05$).

The 99th percentile of TCN distribution (3.3 °C for the full year, 3.9 °C for the cold season and 2.7 °C for the warm season) with a reference of 0 °C.

Table S12. Relative risk (95% *CI*) of non-accidental mortality for extreme high TCN at single-day and cumulative lag periods with adjustment for apparent temperature.

Apparent Temperature		Lag 0	Lag 3	Lag 0–5	Lag 0–7
Df = 2	Non-accidental mortality				
	Full year	1.087(1.058-1.116)	1.044(1.027-1.060)	1.345(1.215-1.488)	1.332(1.182-1.502)
	Cold season	1.132(1.091-1.174)	1.071(1.050-1.093)	1.257(1.176-1.344)	1.611(1.383-1.875)
	Warm season	1.064(1.024-1.106)	1.033(1.010-1.057)	1.250(1.080-1.4470)	1.244(1.044-1.482)
	Cardiovascular mortality				
	Full year	1.120(1.076-1.166)	1.067(1.042-1.093)	1.551(1.329-1.811)	1.579(1.315-1.896)
	Cold season	1.147(1.088-1.209)	1.087(1.057-1.118)	1.292(1.176-1.421)	1.817(1.464-2.255)
	Warm season	1.115(1.049-1.187)	1.054(1.016-1.093)	1.449(1.148-1.829)	1.409(1.067-1.861)
	Respiratory mortality				
	Full year	1.067(0.973-1.171)	1.032(0.977-1.091)	1.251(0.876-1.788)	1.234(0.810-1.881)
	Cold season	1.178(1.049-1.324)	1.089(1.022-1.160)	1.352(1.096-1.669)	1.779(1.097-2.886)
	Warm season	1.075(0.928-1.244)	1.083(0.994-1.181)	1.602(0.921-2.789)	1.914(0.989-3.702)
Df = 4	Non-accidental mortality				
	Full year	1.086(1.058-1.115)	1.043(1.027-1.060)	1.343(1.213-1.487)	1.331(1.180-1.501)
	Cold season	1.132(1.091-1.174)	1.071(1.050-1.093)	1.258(1.177-1.345)	1.615(1.387-1.880)
	Warm season	1.063(1.023-1.106)	1.032(1.009-1.056)	1.248(1.077-1.445)	1.241(1.041-1.479)
	Cardiovascular mortality				
	Full year	1.115(1.071-1.161)	1.065(1.040-1.091)	1.530(1.310-1.786)	1.562(-1.30-1.876)
	Cold season	1.145(1.087-1.207)	1.087(1.057-1.118)	1.289(1.172-1.417)	1.816(1.463-2.253)
	Warm season	1.111(1.044-1.183)	1.052(1.015-1.091)	1.433(1.135-1.810)	1.396(1.057-1.845)
	Respiratory mortality				
	Full year	1.072(0.976-1.176)	1.034(0.978-1.093)	1.267(0.886-1.811)	1.246(0.817-1.900)
	Cold season	1.176(1.047-1.322)	1.089(1.023-1.160)	1.349(1.092-1.665)	1.791(1.104-2.904)
	Warm season	1.081(0.933-1.253)	1.085(0.995-1.183)	1.628(0.933-2.839)	1.936(0.999-3.749)

Bold values represent statistically significant results ($p < 0.05$).

The 99th percentile of TCN distribution (3.3 °C for the full year, 3.9 °C for the cold season and 2.7 °C for the warm season) with a reference of 0 °C.

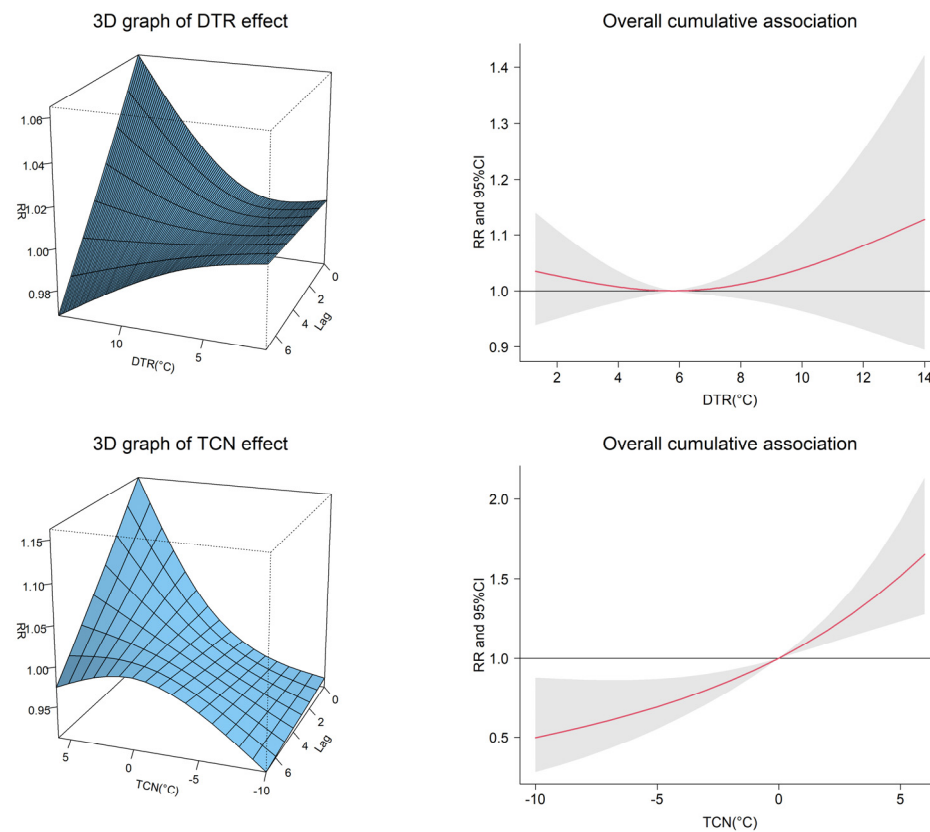


Figure S1. Exposure–response relationship between temperature change and risk of non-accidental mortality. Left panels: 3D plots of the exposure–lag–response risks. Right panels: overall exposure–response associations with diurnal temperature change (DTR) and temperature change between neighboring days (TCN).

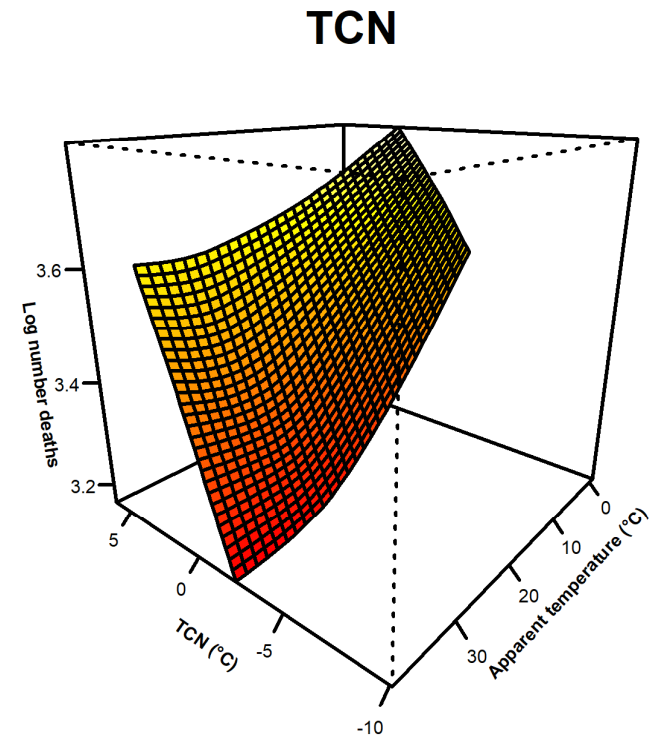
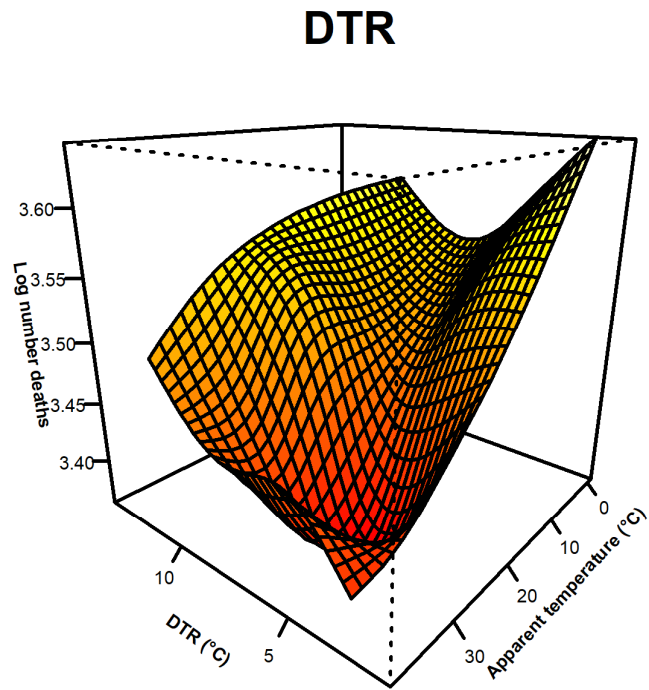


Figure S2. Bivariate response surface of apparent temperature and temperature change on non-accidental mortality (Left: lag 0–5 for DTR and lag 0 for AT; right: lag 0–5 for TCN and lag 0 for AT).