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*Atmospheric Chemistry & Physics*

Supporting Information for

**A wedge strategy for mitigation of urban warming in future climate scenarios**

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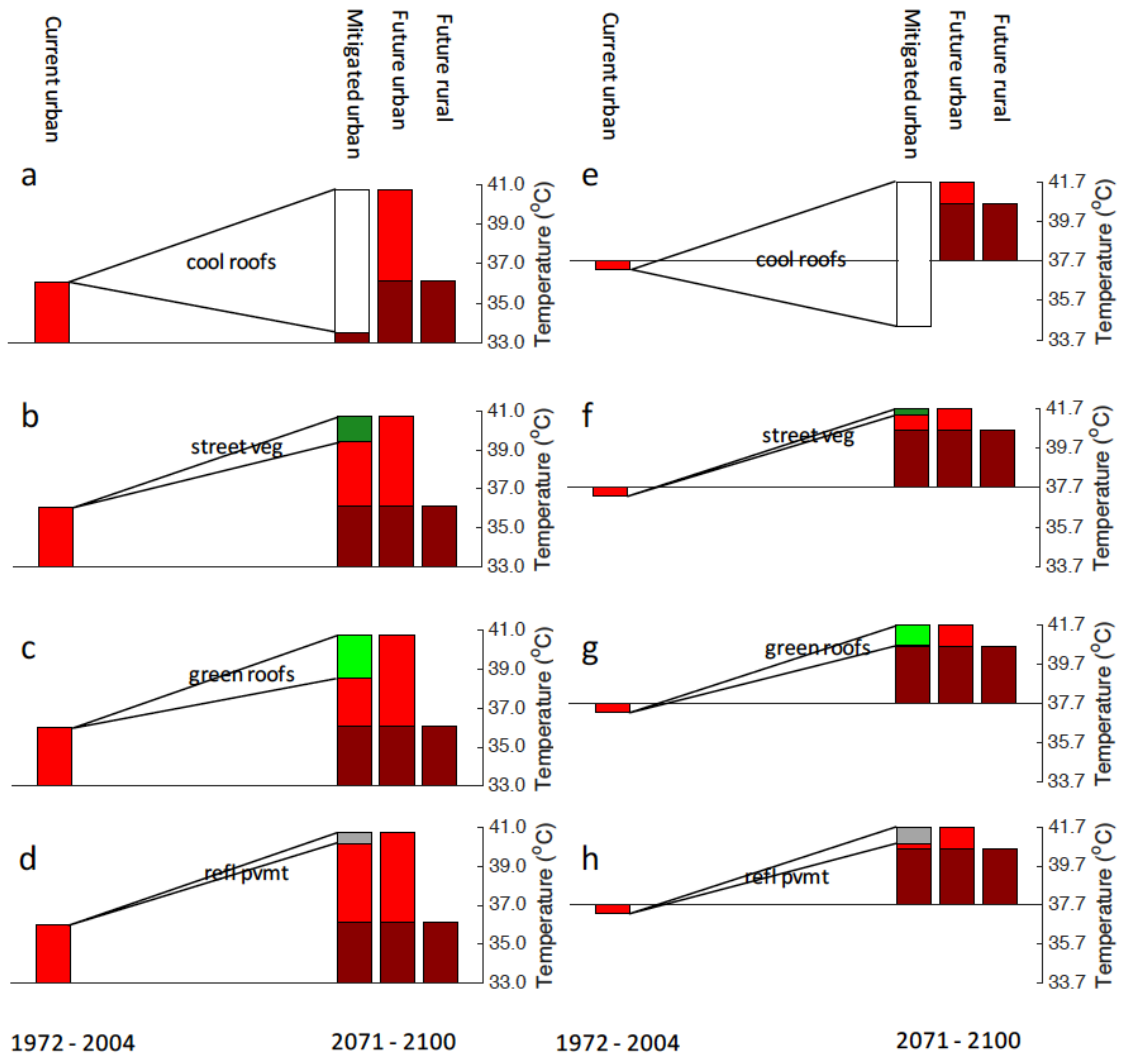
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Figures S1 to S2

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**Additional Supporting Information (Files uploaded separately)**

Captions for Movies S1 to S2



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1972 - 2004

2071 - 2100

1972 - 2004

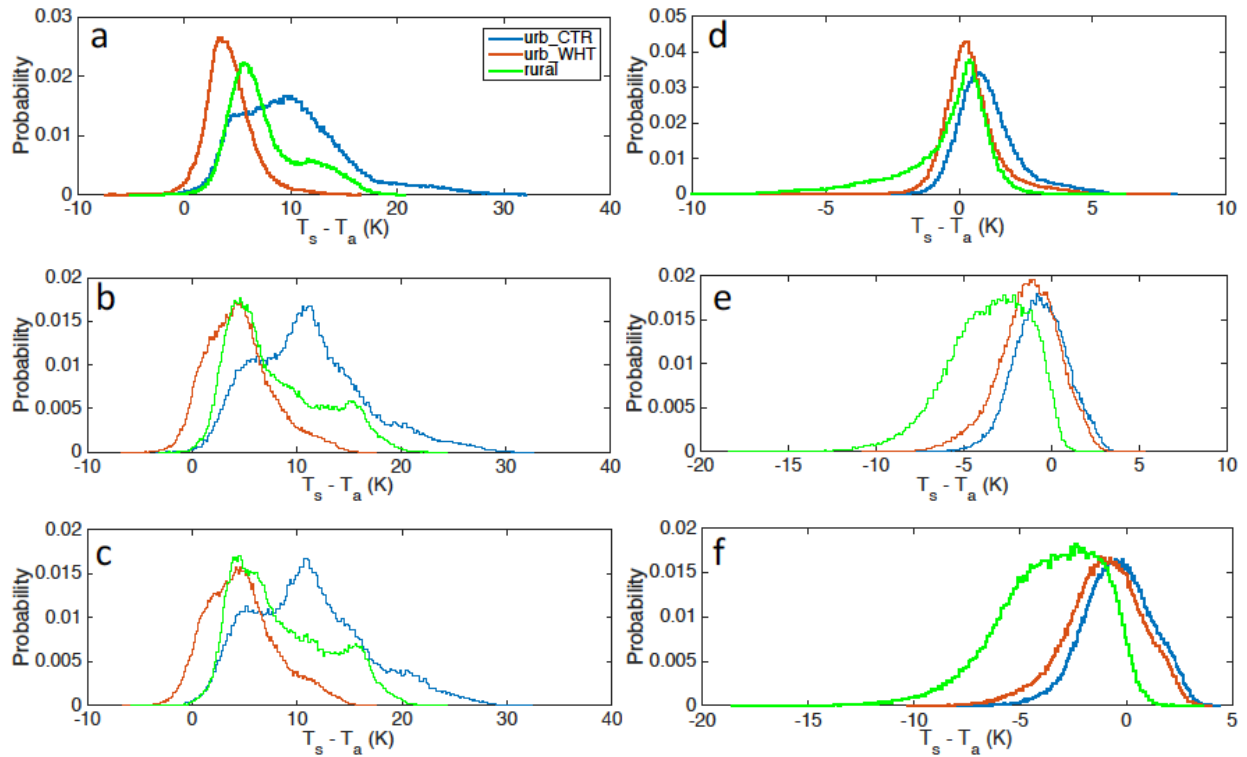
2071 - 2100

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**Supplementary Figure S1:** UHI mitigation wedges for daytime using cool roofs, street vegetation, green roofs and reflective pavement for the cities in the temperate and dry climate zones under the RCP4.5 scenario (a, b, c, d: temperate climate; e, f, g, h: dry climate). The horizontal line marks the midday rural surface temperature under the current climate conditions, and all other temperatures are midday mean values relative to this rural background.

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31 **Supplementary Figure S2:** Distribution of the vertical temperature difference (surface temperature minus air  
 32 temperature at the first model grid height) for all the selected cities. a, b, c : daytime; d, e, f: nighttime. a, d: current  
 33 climate (1972-2004); b, e: RCP 4.5 (2071-2100); c, f: RCP 8.5 (2071-2100); urb\_CTR and urb\_WHT denote urban  
 34 land unit from control and cool-roof simulations, respectively.

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36 **Supplementary Table S1:** Changes in the daytime urban surface temperature (K) associated with various urban  
 37 mitigation methods under the current climate and the two RCP scenarios. Data are mean value  $\pm$  1 standard error.

<b>Current</b>					
<b>Method</b>	<b>Process</b>	<b>Dry</b>	<b>Continental</b>	<b>Temperate</b>	<b>All</b>
Cool roof	albedo	-6.8 $\pm$ 0.5	-3.9 $\pm$ 0.4	-6.4 $\pm$ 0.3	-5.6 $\pm$ 0.3
Street vegetation	net effect	-0.1 $\pm$ 0.1	-0.5 $\pm$ 0.1	-1.2 $\pm$ 0.1	-0.7 $\pm$ 0.1
Green roof	albedo	0.0 $\pm$ 0.0	0.0 $\pm$ 0.0	0.2 $\pm$ 0.0	0.1 $\pm$ 0.0
	convection	0.0 $\pm$ 0.0	0.0 $\pm$ 0.0	0.0 $\pm$ 0.0	0.0 $\pm$ 0.0
	evaporation	-0.6 $\pm$ 0.1	-0.6 $\pm$ 0.1	-1.1 $\pm$ 0.2	-0.8 $\pm$ 0.1
	net effect	-0.6 $\pm$ 0.1	-0.6 $\pm$ 0.1	-0.9 $\pm$ 0.2	-0.7 $\pm$ 0.1
Reflective pavement	albedo	-1.0 $\pm$ 0.0	-0.5 $\pm$ 0.0	-0.6 $\pm$ 0.0	-0.7 $\pm$ 0.0
<b>RCP 4.5</b>					
<b>Method</b>	<b>Process</b>	<b>Dry</b>	<b>Continental</b>	<b>Temperate</b>	<b>All</b>
Cool roof	albedo	-7.3 $\pm$ 0.6	-5.1 $\pm$ 0.4	-7.3 $\pm$ 0.3	-6.5 $\pm$ 0.3
Street vegetation	net effects	-0.3 $\pm$ 0.1	-0.7 $\pm$ 0.1	-1.3 $\pm$ 0.2	-0.9 $\pm$ 0.1
Green roof	albedo	0.0 $\pm$ 0.0	0.0 $\pm$ 0.0	0.1 $\pm$ 0.0	0.1 $\pm$ 0.0
	convection	0.0 $\pm$ 0.0	0.0 $\pm$ 0.0	0.0 $\pm$ 0.0	0.0 $\pm$ 0.0
	evaporation	-1.0 $\pm$ 0.2	-1.2 $\pm$ 0.1	-2.3 $\pm$ 0.4	-1.6 $\pm$ 0.2
	net effect	-1.0 $\pm$ 0.2	-1.2 $\pm$ 0.1	-2.2 $\pm$ 0.4	-1.6 $\pm$ 0.2
Reflective pavement	albedo	-0.9 $\pm$ 0.0	-0.6 $\pm$ 0.0	-0.6 $\pm$ 0.0	-0.7 $\pm$ 0.0
<b>RCP 8.5</b>					
<b>Method</b>	<b>Process</b>	<b>Dry</b>	<b>Continental</b>	<b>Temperate</b>	<b>All</b>
Cool roof	albedo	-7.4 $\pm$ 0.6	-5.0 $\pm$ 0.4	-6.8 $\pm$ 0.3	-6.3 $\pm$ 0.3
Street vegetation	net effect	-0.3 $\pm$ 0.1	-0.6 $\pm$ 0.1	-1.1 $\pm$ 0.1	-0.7 $\pm$ 0.1
Green roof	albedo	0.0 $\pm$ 0.0	0.0 $\pm$ 0.0	0.1 $\pm$ 0.0	0.0 $\pm$ 0.0
	convection	0.0 $\pm$ 0.0	0.0 $\pm$ 0.0	0.0 $\pm$ 0.0	0.0 $\pm$ 0.0
	evaporation	-1.1 $\pm$ 0.3	-1.3 $\pm$ 0.1	-2.1 $\pm$ 0.3	-1.6 $\pm$ 0.2
	net effect	-1.1 $\pm$ 0.3	-1.3 $\pm$ 0.1	-2.0 $\pm$ 0.3	-1.6 $\pm$ 0.2
Reflective pavement	albedo	-0.9 $\pm$ 0.1	-0.5 $\pm$ 0.0	-0.5 $\pm$ 0.0	-0.6 $\pm$ 0.0

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**List of Movie Captions:**

**Movie S1** An urban neighborhood in Switzerland with roof pixels retaining their natural reflectance values

**Movie S2** Same with Movie S1 but with roof pixels replaced by saturation reflectance values to simulate the SOLAREFLECT coating material