Supplementary Material: Urban forests as main regulator of the evaporative cooling effect in cities

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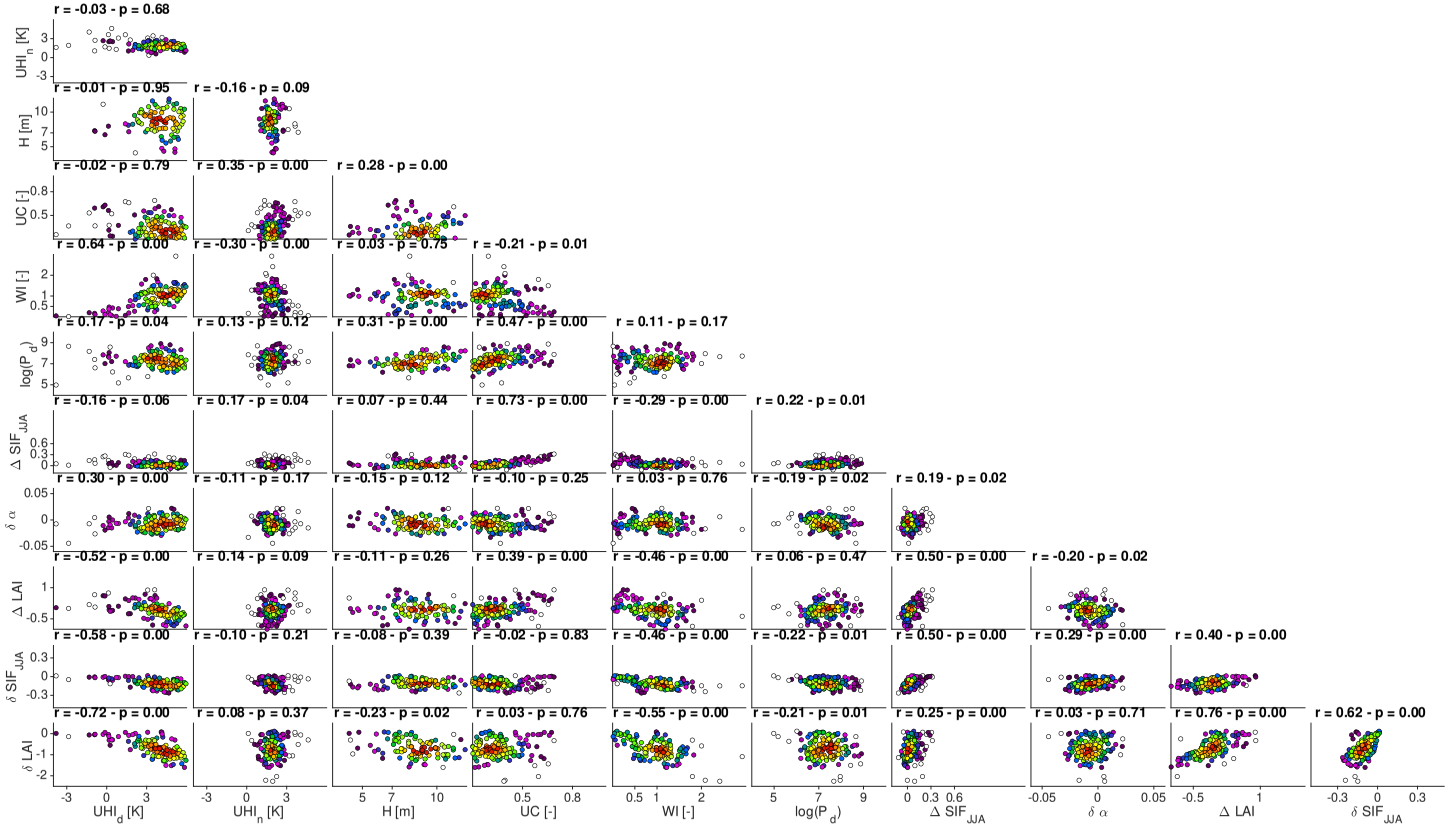

Figure S1: Density plots between June-July-August (JJA) daytime surface urban heat island intensity (UHI_d), nightime surface urban heat island intensity (UHI_d), average building height (H), fraction of impermeable areas (UC), wetness index (WI), the logarithm of the population density ($\log(\mathrm{P}_d)$), the difference in scaled SIF with the vegetated fraction (P_f) ($\Delta\mathrm{SIF}_{JJA} = SIF_u/P_f - SIF_r/P_f$) during JJA between the cities and their rural surroundings, the difference in black sky albedo ($\delta\alpha$), the difference in scaled LAI (ΔLAI$= LAI_u/P_f - LAI_r/P_f$) during JJA, the difference in raw values of SIF ($\delta\mathrm{SIF}_{JJA}$) and the difference in raw values of LAI (δLAI) during JJA. Panel titles show the Pearson correlation coefficient and the corresponding p-value.

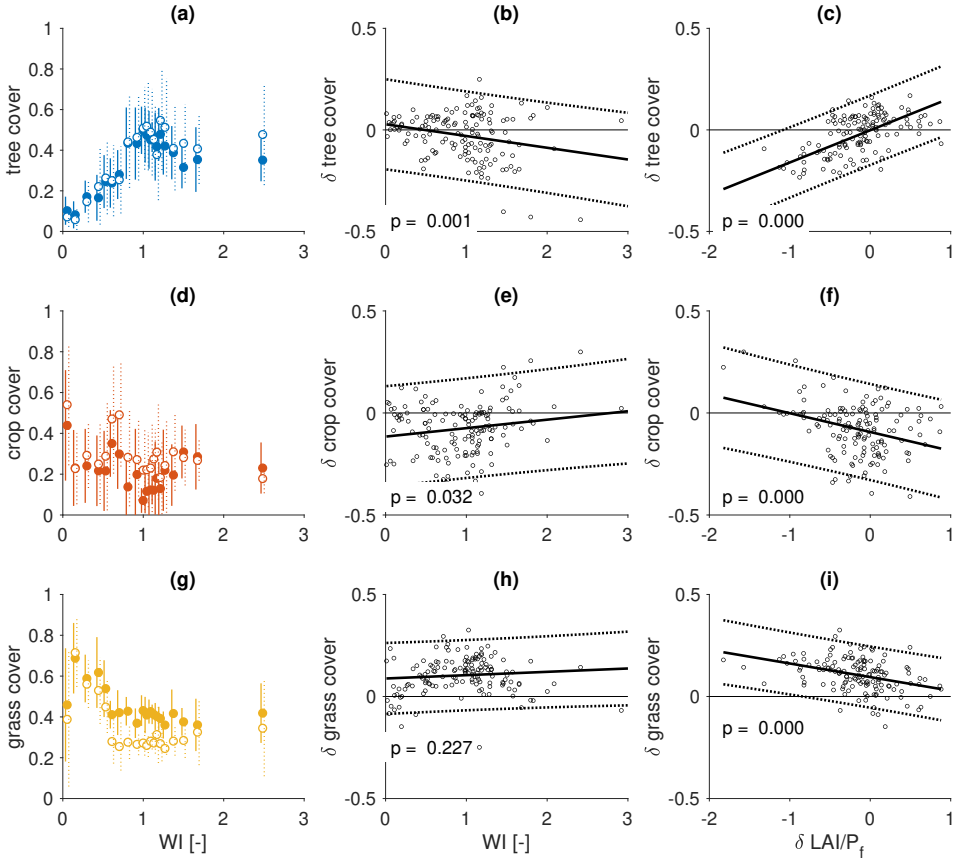

Figure S2: (a,d,g) Dependence of the fraction forest cover (blue), crop cover (orange) and grass/shrub cover (yellow) on WI. Filled markers correspond to urban clusters and empty markers to their corresponding rural area. Bar length represents a standard deviation of the cities within the corresponding WI bin. Solid bars correspond to urban clusters and dashed bars to their corresponding rural area. Each bin size contains 5% of the cities. Scatterplot between wetness index and the difference in tree cover fraction (b), crop cover fraction (e) and grass cover fraction (h). Solid lines correspond to a fitted linear model and dashed lines to its uncertainty bounds. (c,f,i) same as (b,e,h) but for $\delta \mathrm{LAI}/\mathrm{P}_f$.

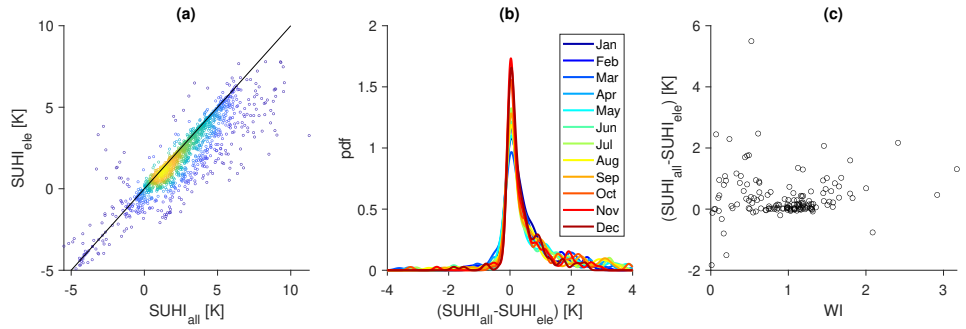

Figure S3: (a) Density plot between day time SUHI (SUHI$_d$) calculated using the entire rural band of 10 km (SUHI$_{all}$) and just the areas with an elevation difference <50 meters from the corresponding city cluster (SUHI$_{ele}$). (b) Probability density functions of the difference between SUHI$_{all}$ and SUHI$_{ele}$ for each month. (c) Scatter plot between the difference of SUHIs estimated using all pixels and pixels restricted based on elevation vs the wetness index (WI).

	SUHI$_d$	SUHI$_n$	H	UC	WI	log(PPL$_d$)	δSIF$_{JJA}$	$\delta\alpha$	δ LAI
SUHI$_d$	1.00	-0.03	-0.01	-0.02	0.64	0.17	-0.58	0.30	-0.72
SUHI$_n$	-0.03	1.00	-0.16	0.35	-0.30	0.13	-0.10	-0.11	0.08
H	-0.01	-0.16	1.00	0.28	0.03	0.31	-0.08	-0.15	-0.23
UC	-0.02	0.35	0.28	1.00	-0.21	0.47	-0.02	-0.10	0.03
WI	0.64	-0.30	0.03	-0.21	1.00	0.11	-0.46	0.03	-0.55
log(PPL$_d$)	0.17	0.13	0.31	0.47	0.11	1.00	-0.22	-0.19	-0.21
δSIF$_{JJA}$	-0.58	-0.10	-0.08	-0.02	-0.46	-0.22	1.00	0.29	0.62
$\delta\alpha$	0.30	-0.11	-0.15	-0.10	0.03	-0.19	0.29	1.00	0.03
δ LAI	-0.72	0.08	-0.23	0.03	-0.55	-0.21	0.62	0.03	1.00

Table S1: Correlation coefficients shown in Figure 3a of the main manuscript