Trade-Offs between Urban Green Space and Densification: Balancing Outdoor Thermal Comfort, Mobility, and Housing Demand

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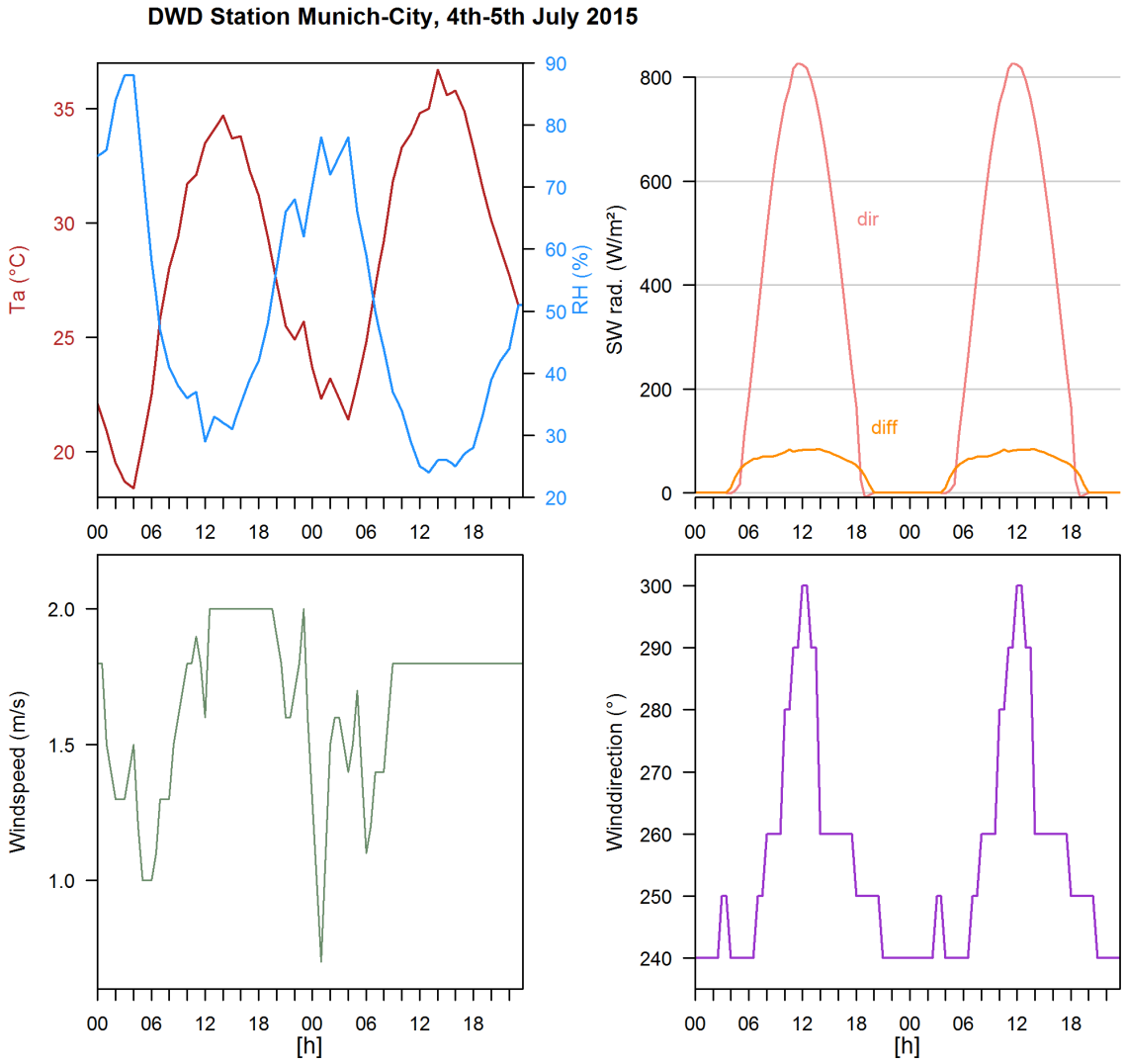
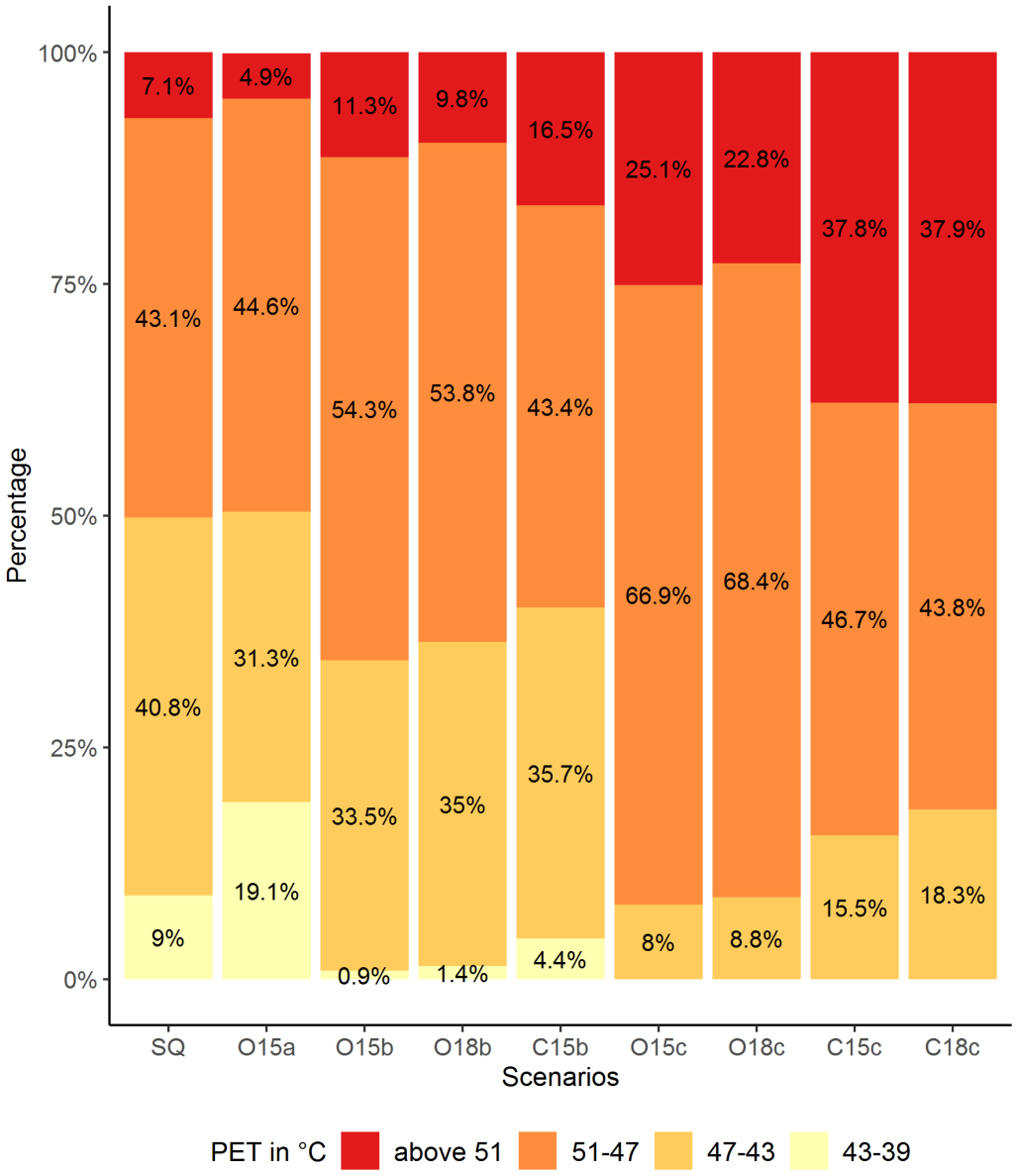
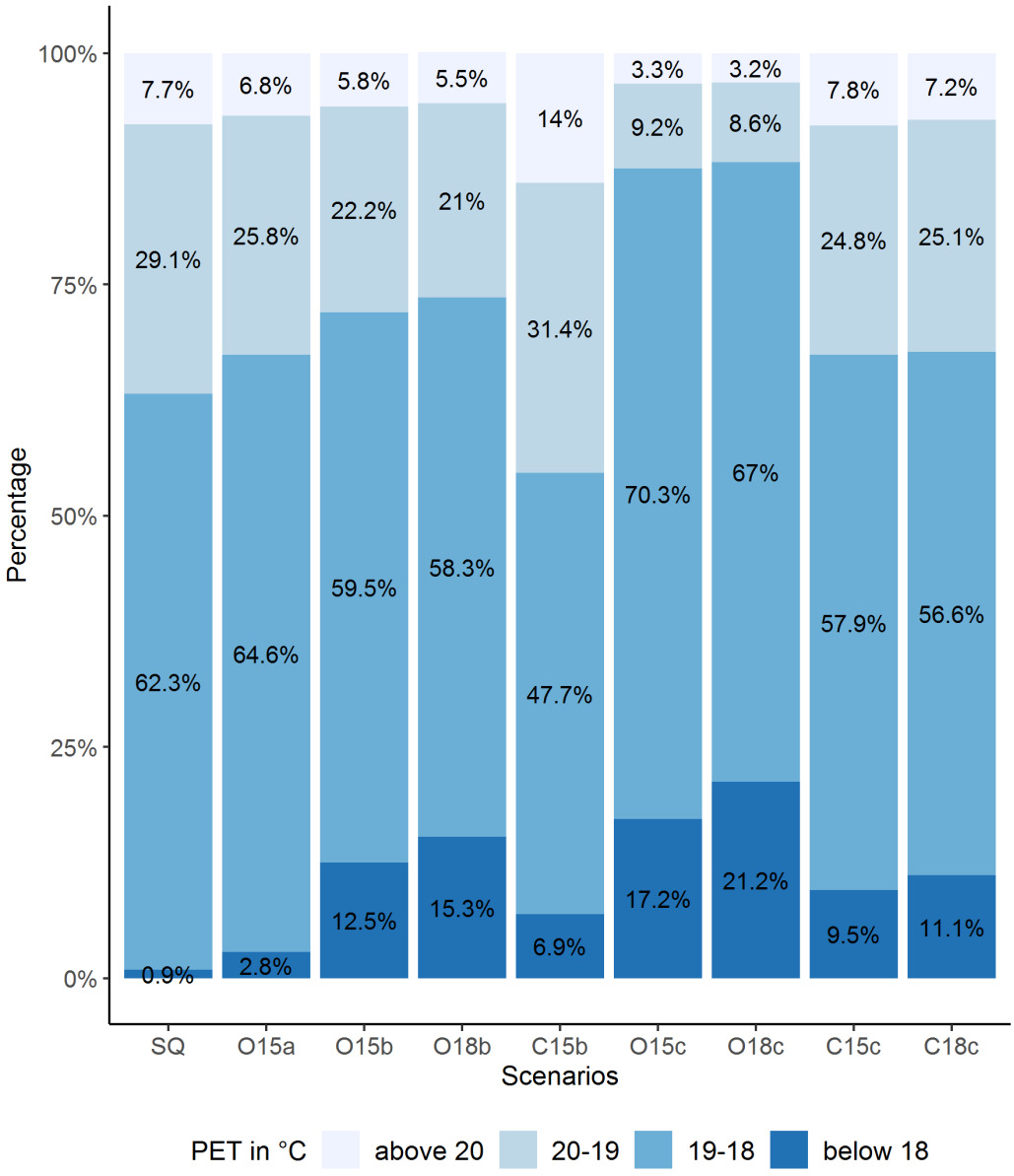
Supplements to article "Trade-offs between urban green space, mobility demands and outdoor thermal comfort in densifying neighbourhoods" (Erlwein and Pauleit)



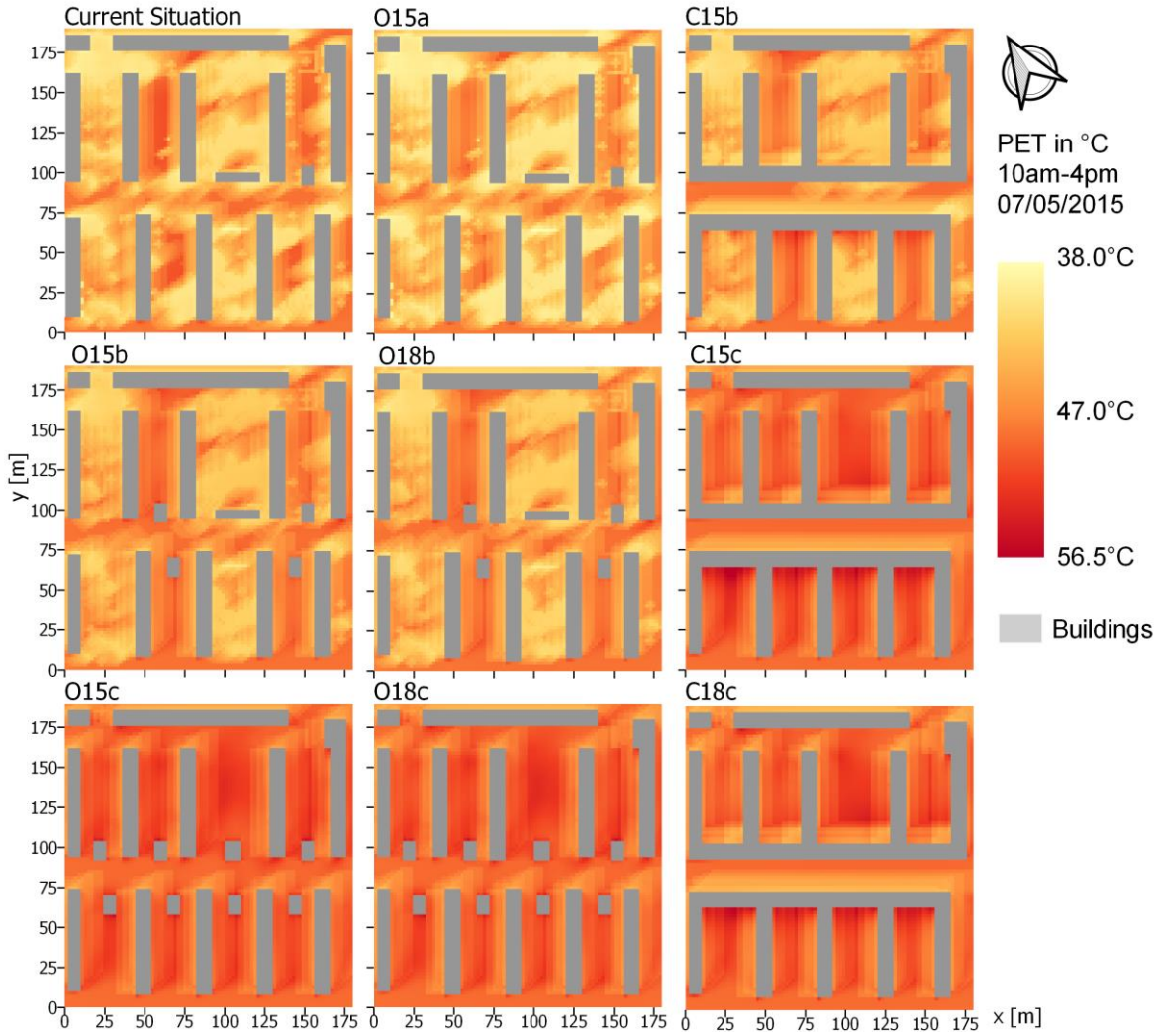
S 1. Meteorological input variables for the ENVI-met simulation 4th-5th July 2015.



S2: Heat distribution (PET) for each scenario at 2 pm, 5th July 2015 represented in stacked barcharts. All percentages refer to the total model area. Labelling of scenarios: O/C = open vs. closed rows, 15/18 m building height, a = one carpark (100% trees), b = 4 carparks (65-53% trees), c = eight carparks (zero trees).



S3: Heat distribution (PET) for each scenario at 4 am, 6th July 2015 represented in stacked barcharts. All percentages refer to the total model area. Labelling of scenarios: O/C = open/closed rows, 15/18 m building height, a = one carpark (100% trees), b = 4 carparks (65-53% trees), c = eight carparks (zero trees).



S4. Simulated PET values 10 am - 4 pm on 5th July 2015 for the current situation and the eight densification scenarios (1.4 m height). (O = open rows, C = closed rows, 15/18 = 15/18 m building height, a/b/c = 1/4/8 underground car parks).

scenario	SVF	ΔSVF	T_{mrt}	ΔT_{mrt}	T_a	ΔT_a	PET	ΔPET
SQ	0.24		54.2		39.2		49.8	
O15a	0.22	-0.02	53.5	-0.7	38.9	-0.3	46.7	-0.5
O15b	0.33	0.09	66.2	12	39.2	0	49.3	2.1
O15c	0.48	0.24	71.3	17.1	40	0.8	49.8	2.6
C15b	0.28	0.04	65.3	11.1	39.4	0.2	49.2	2.0
C15c	0.41	0.17	70.7	16.5	39.2	0	49.8	2.6
C18c	0.38	0.14	70.7	16.5	39.2	0	49.8	2.6
O18b	0.31	0.07	66	11.8	39.7	0.5	49.2	2.0
O18c	0.46	0.22	71.4	17.2	39.9	0.7	49.8	2.6

S5. SVF, average Tmrt, Ta, PET results for all scenarios and their relative difference to the base case on 5th July 2015 at 2 pm.