

Supplemental Materials



Figure S1: 100 equal-area evaluation regions for weighted evaluation to account for the unequal distribution of monitoring data, shown in the global sinusoidal projection across the study region. In assessing model performance, all monitors are reweighted such that each evaluation region contributes equally to overall performance.

Variable	Mean absolute SHAP
IDW interpolation	8.651
elevation (m)	0.318
latitude (°)	0.109
time, cosine	0.101
imperviousness (%)	0.099
wateriness (%)	0.093
longitude (°)	0.082
time, sine	0.075
LST, night, Aqua (K)	0.074
LST, night, Terra (K)	0.057
land cover, water	0.045
landform, valley	0.043
topological position index	0.043
enhanced vegetation index	0.037
landform, valley, narrow	0.032
land cover, deciduous forest	0.031
LST, day, Terra (K)	0.031
land cover, developed, open space	0.030
land cover, woody wetlands	0.027
land cover, pasture/hay	0.025
landform, upper slope	0.025
landform, lower slope, warm	0.024
landform, lower slope	0.022
land cover, mixed forest	0.022
LST, day, Aqua (K)	0.021
land cover, evergreen forest	0.020
land cover, shrub/scrub	0.019
land cover, cultivated crops	0.013
landform, lower slope, flat	0.011
landform, peak/ridge	0.010
landform, upper slope, flat	0.010
land cover, emergent herbaceous wetlands	0.010
land cover, grassland/herbaceous	0.009
land cover, barren	0.007

Table S1: Full table of mean absolute SHAPs (from cross-validation of all hours of 2013).

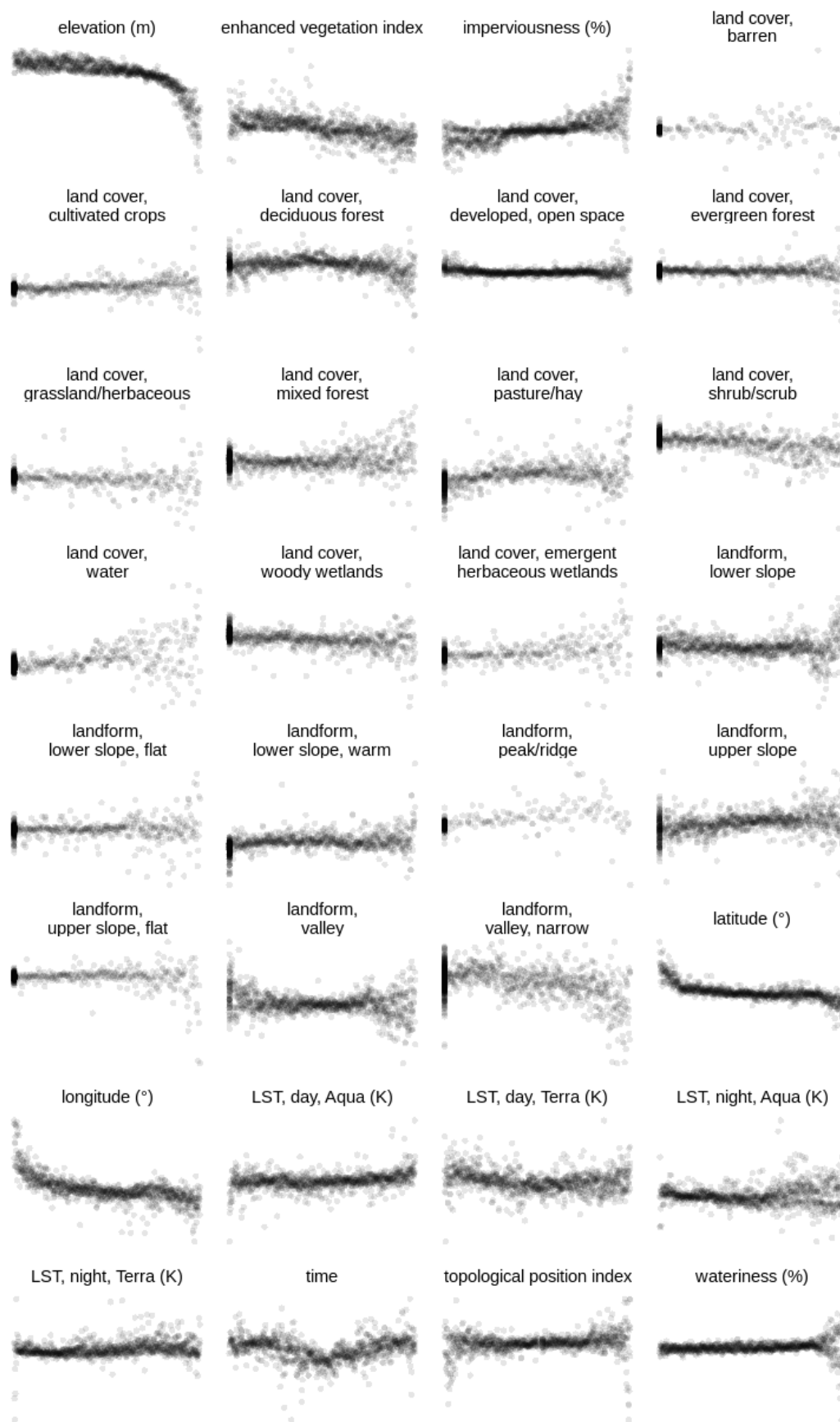


Figure S2: Scatterplots of SHAPs vs. values for each predictor. Only 1,000 randomly selected cases are plotted. The axes are scaled individually per plot.

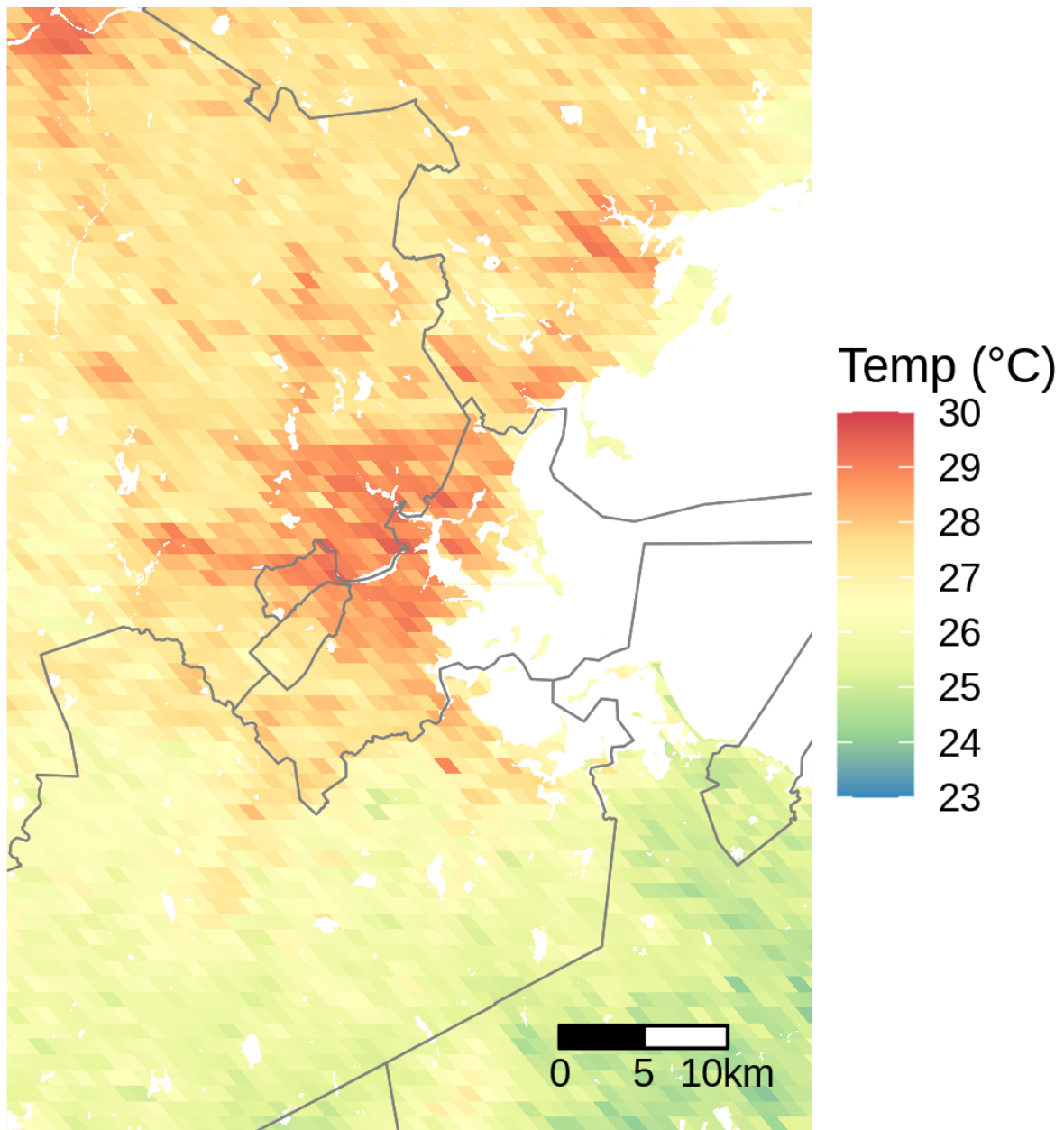


Figure S3: Maps of 1-km temperature predictions at midnight EDT on 22 July 2011 around Boston, Massachusetts. County borders are shown.

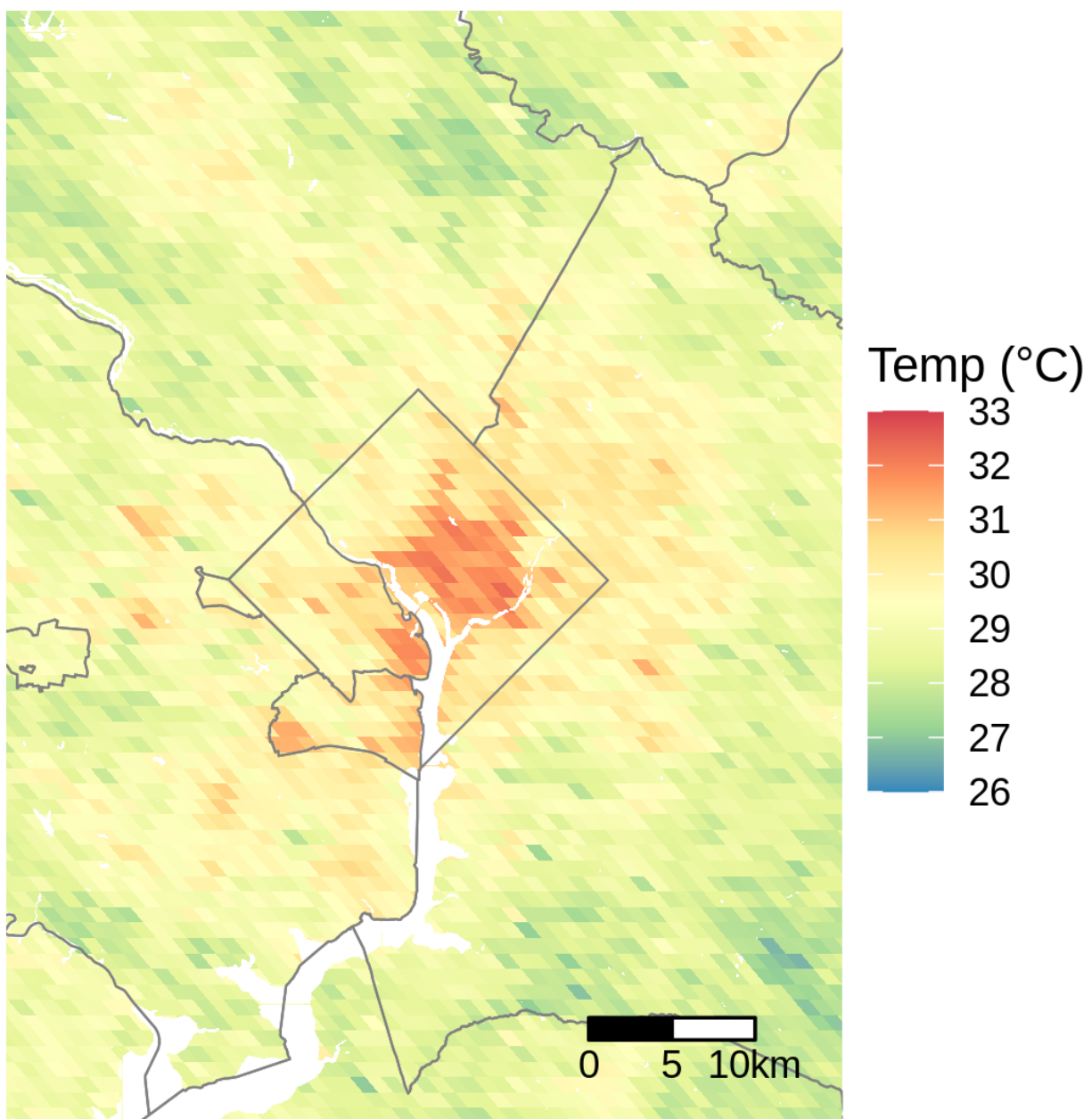


Figure S4: Maps of 1-km temperature predictions at midnight EDT on 22 July 2011 around Washington, DC. County borders are shown.