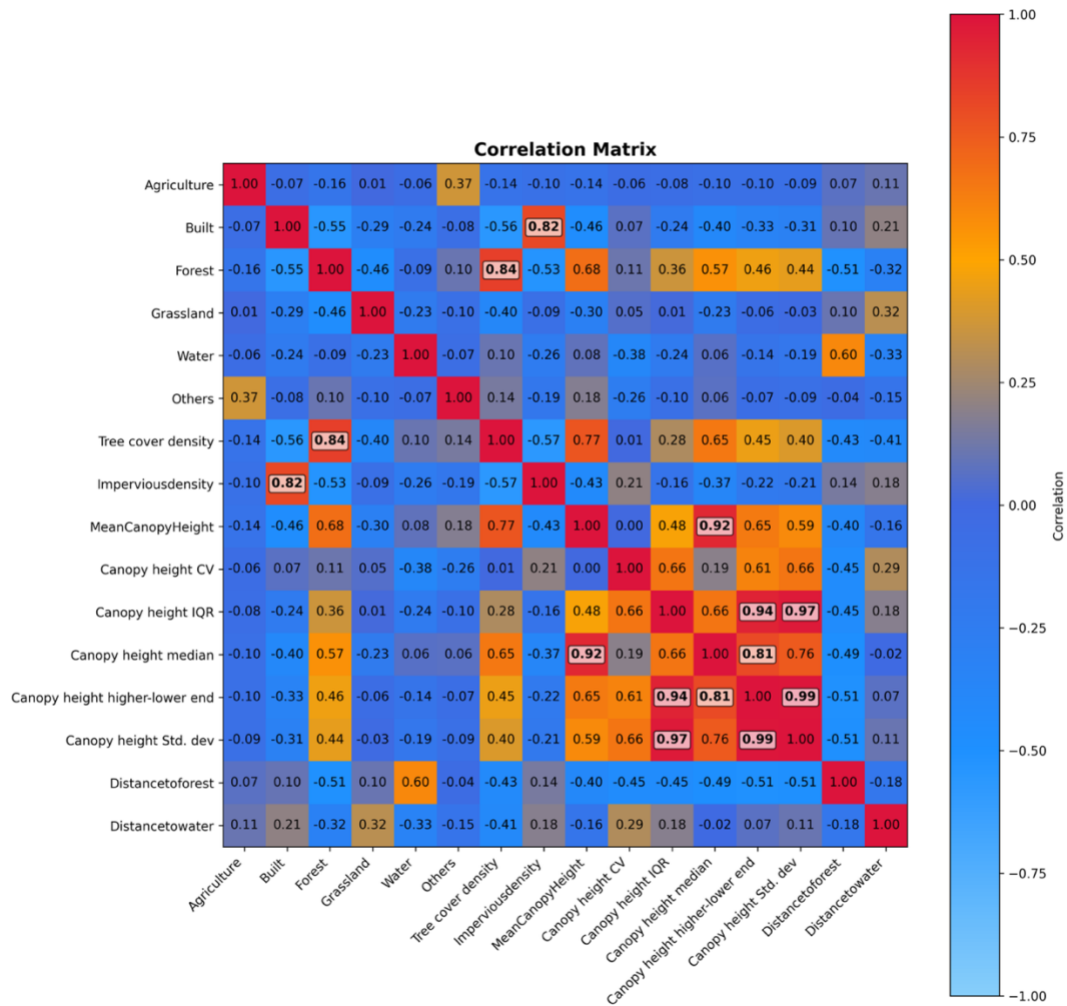


Supplementary file

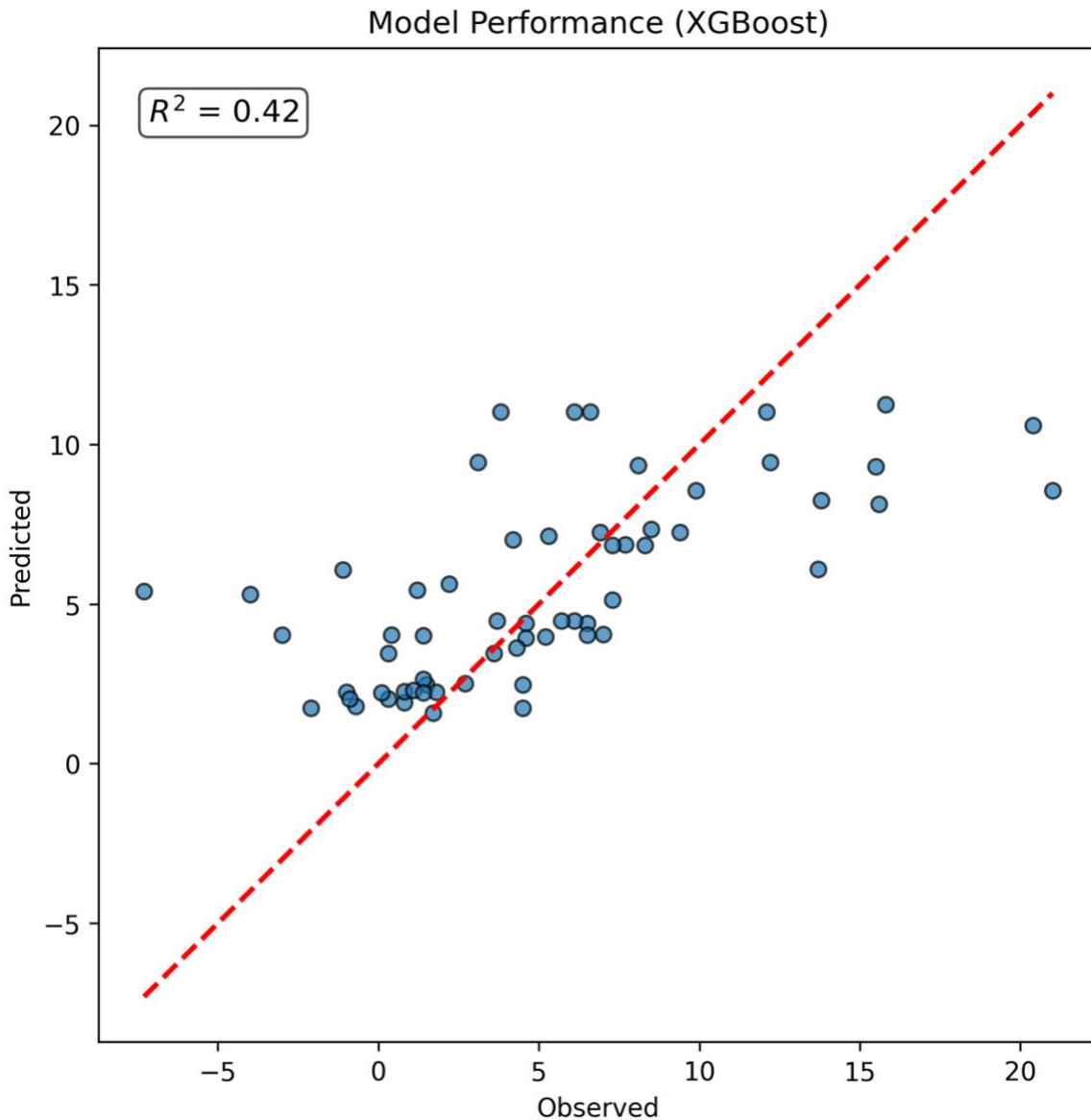
TableS 1. Performance comparison of regression models for predicting temperature difference. Model performance was evaluated using R², RMSE, and MAE. XGBoost showed the best predictive performance, with the highest R² value and the lowest RMSE and MAE values among the tested models.

Regression Model	R ²	RMSE	MAE
Linear Regression	-0.07	5.04	3.84
RandomForest	0.09	4.64	3.55
XGBoost	0.30	4.32	3.25



FigureS 1. Correlation matrix showing the relationships among land cover, vegetation structure, and distance variables. Strong positive correlations were observed among canopy height metrics, particularly between canopy height standard deviation and canopy height higher–lower end, as well as between canopy

height IQR and canopy height standard deviation. Forest cover was strongly positively correlated with tree cover density, while built-up area was strongly positively correlated with impervious density.



FigureS 2. Observed versus predicted temperature difference values from the XGBoost regression model. The dashed red line represents the 1:1 reference line, where predicted values equal observed values. The model showed moderate predictive performance, with an R^2 value of 0.42.