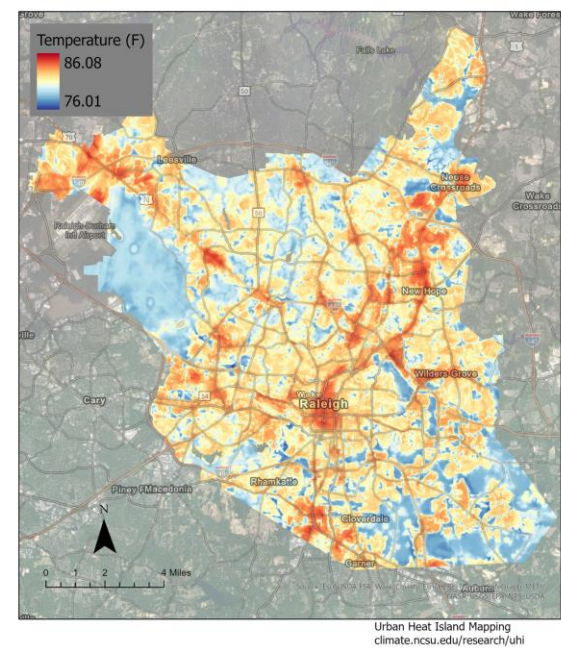


Background

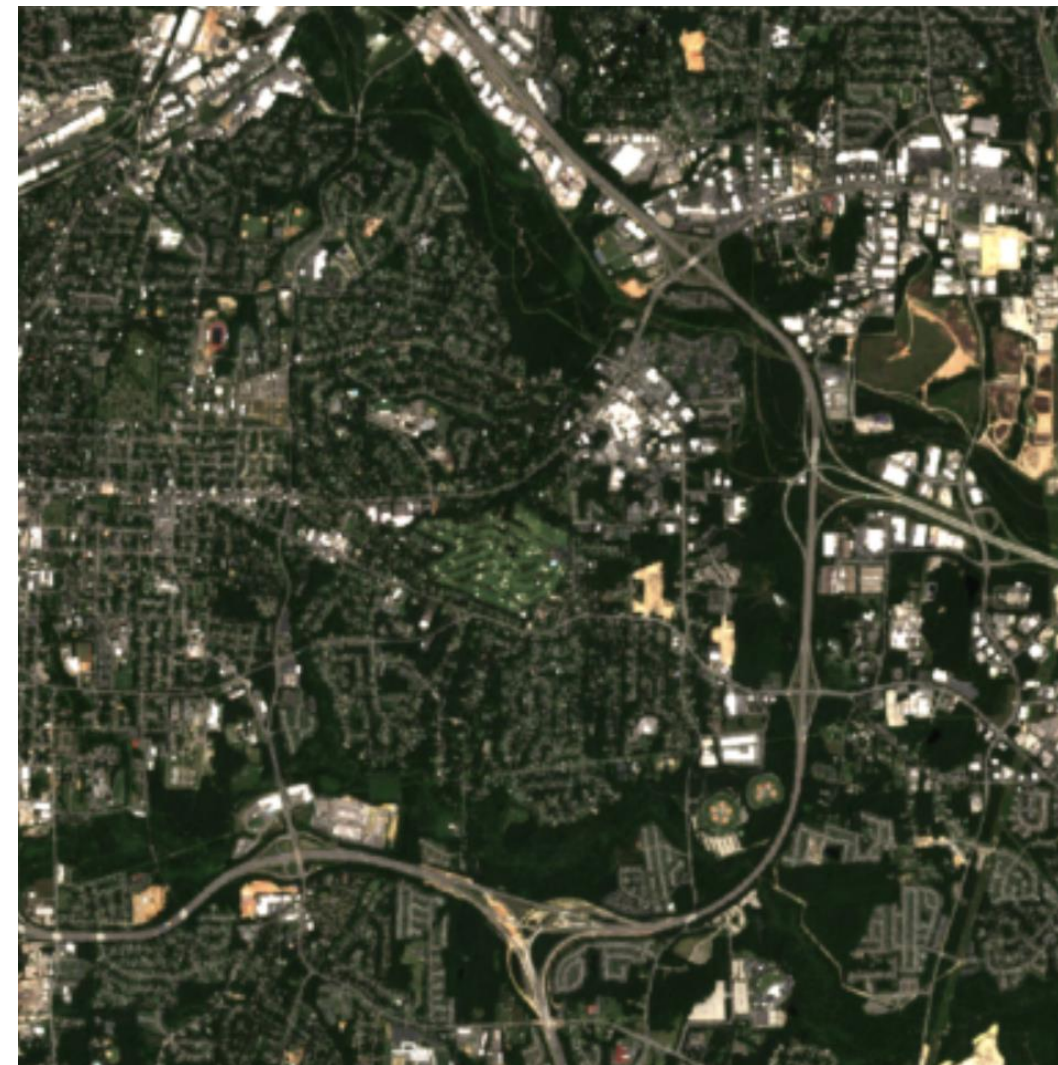
The urban heat island effect occurs when modern infrastructure absorbs and re-emits heat to a greater extent than natural elements, leading to elevated temperatures.

Raleigh Evening Temperature (7-8pm)
July 23, 2021



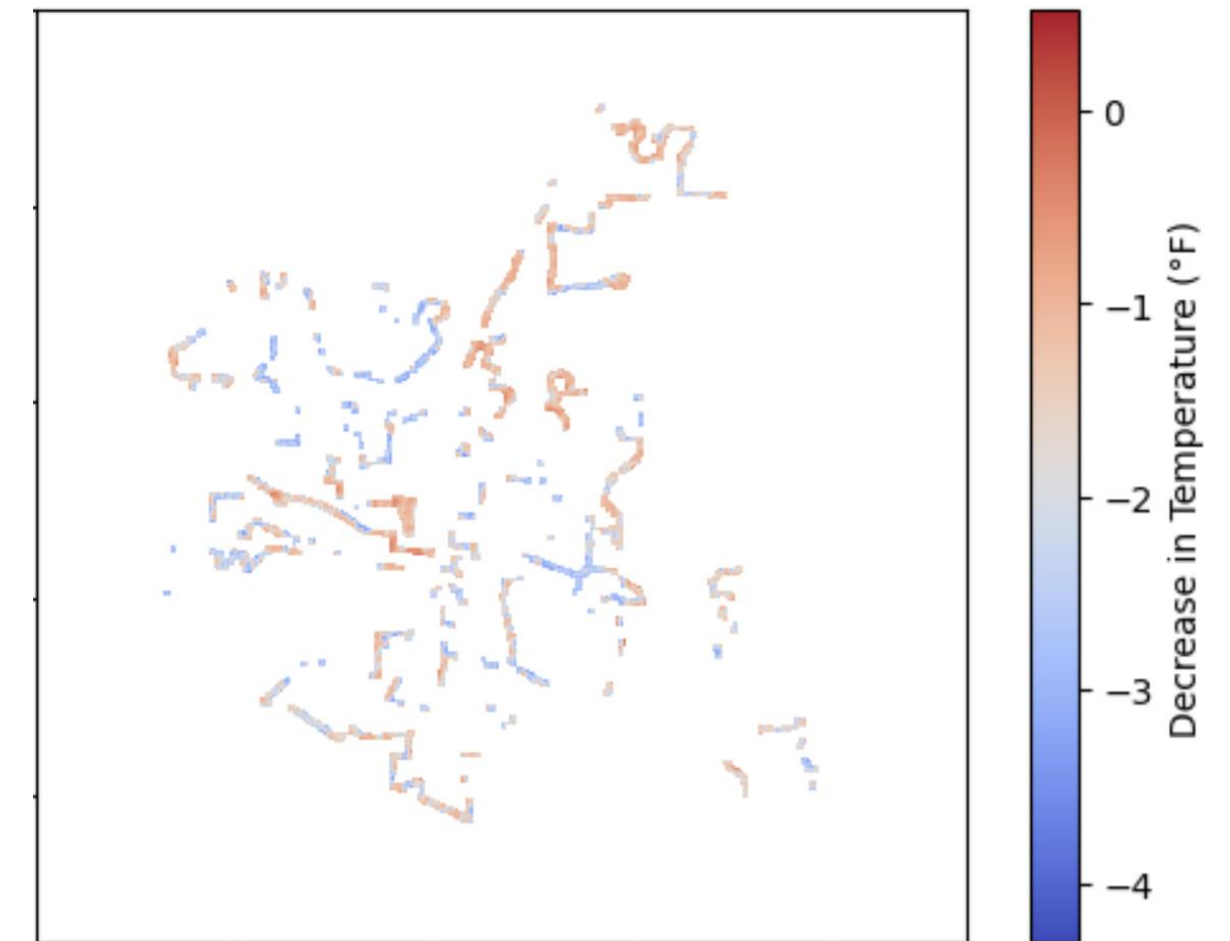
Maximum temperature difference of 10.07°F between urban and non-urban areas

Results



Satellite image of part of Raleigh

- An example of one intervention strategy: increase vegetation for areas that are among the hottest but have low vegetation coverage, and their surroundings, simulating buffer zones.

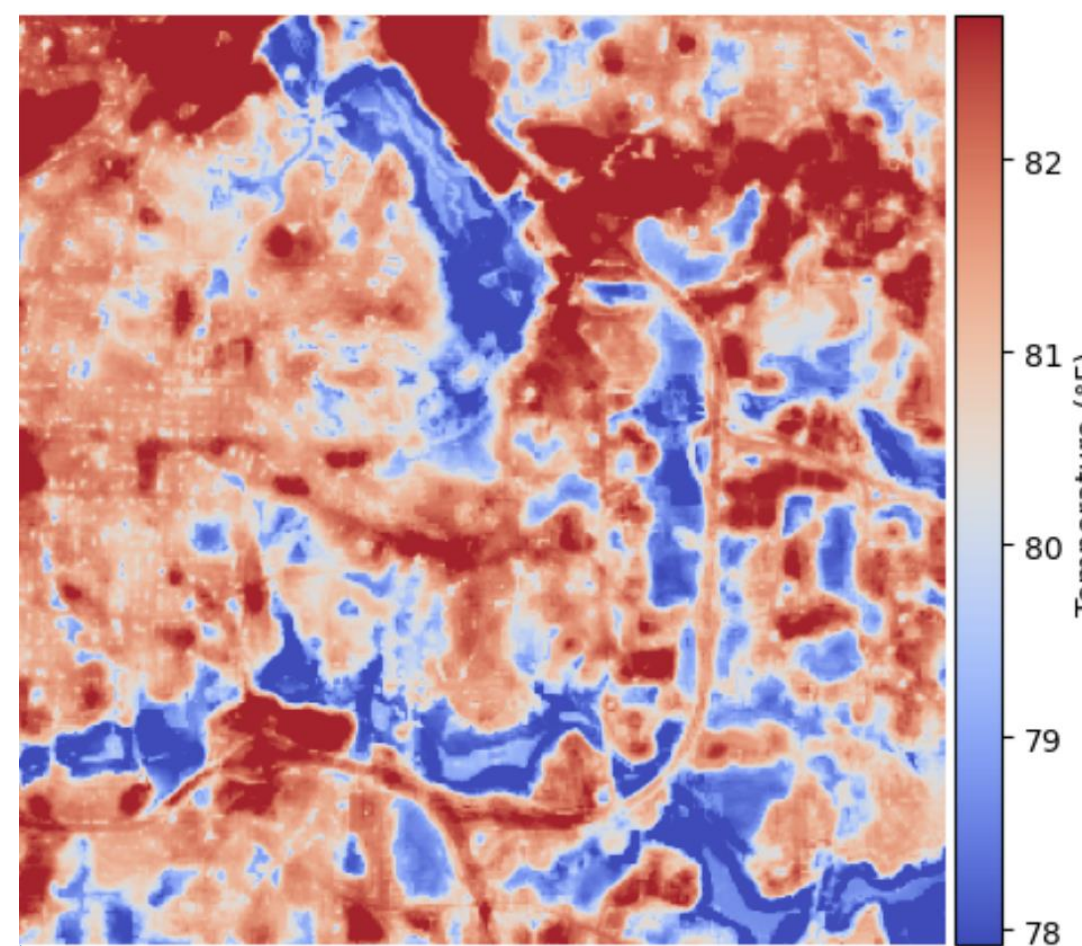
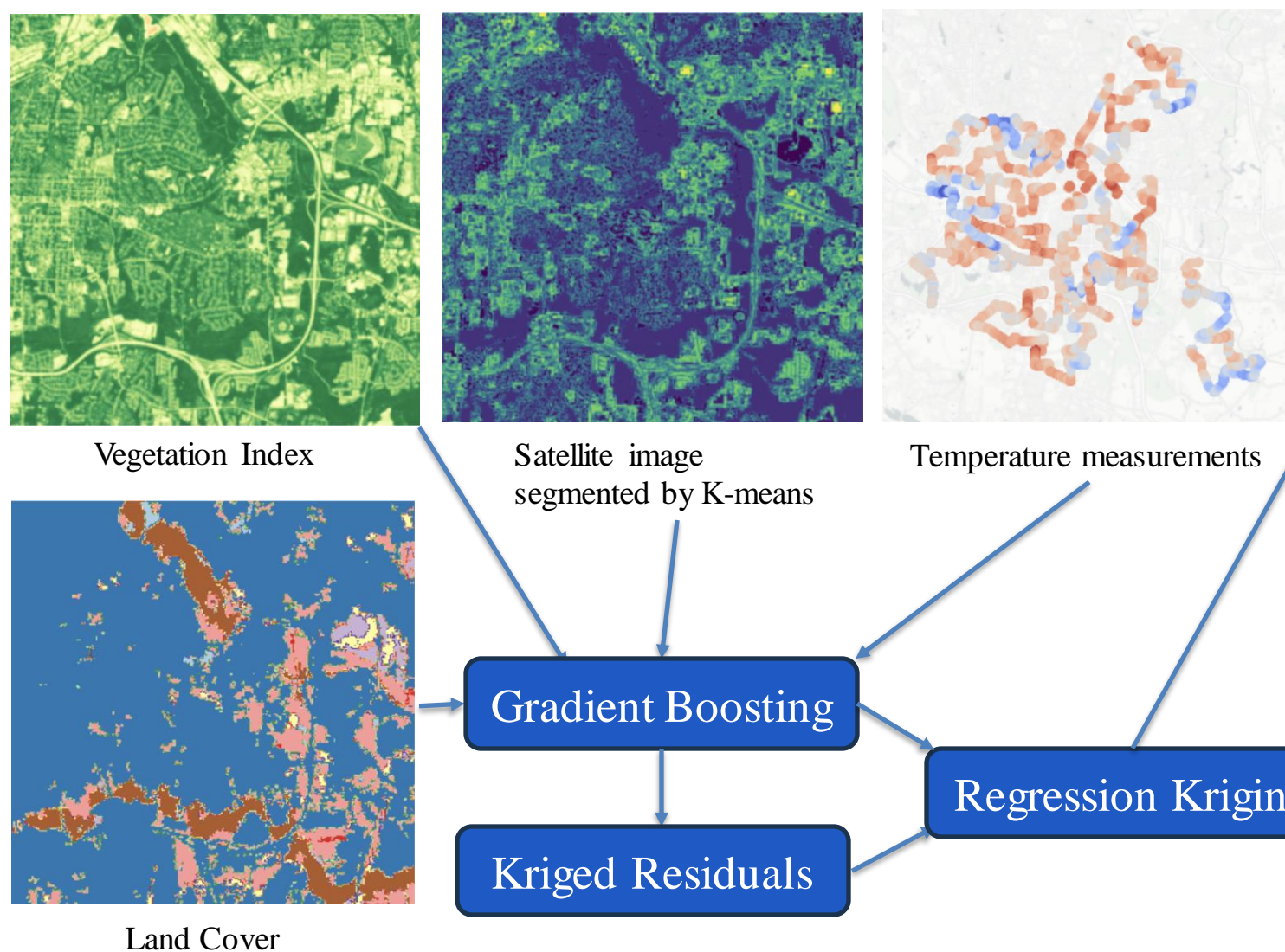


Temperature decreased

Objectives

- Develop an interpretable model that understands the impacts of landscape modifications on local temperatures
- Analyze potential interventions as a starting point for greater policy change

Methods



Temperature prediction

	Gradient Boosting	Kriged Residuals	Regression Kriging
R ²	~0.50	~0.87	~0.95

Future Work

- Investigate the non-linear relationship between interventions and temperature
- Explore applying this framework to more cities
- Link changes to urban heat islands with changes to energy consumption and health outcomes

References

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