Putting the “Green” back in Greensburg

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Griffin Statistics

Griffin Impact Challenge

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Putting the “Green” Back in Greensburg

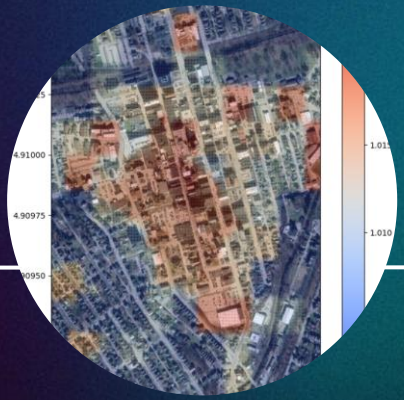
Outline

The Urban Heat Island Effect

- ↑ Heat
- ↑ Electricity
- ↓ Money
- ↓ Community Activity

Methodology

- Sentinel - 1 and 2
- Landsat - 8
- LiDAR
- Machine Learning



Findings

- ↑ City Center Temperatures
- ↓ Suburban Temperatures

Steps For Change

- ↑ Vegetation
- ↑ Vibrancy
- ↑ Community

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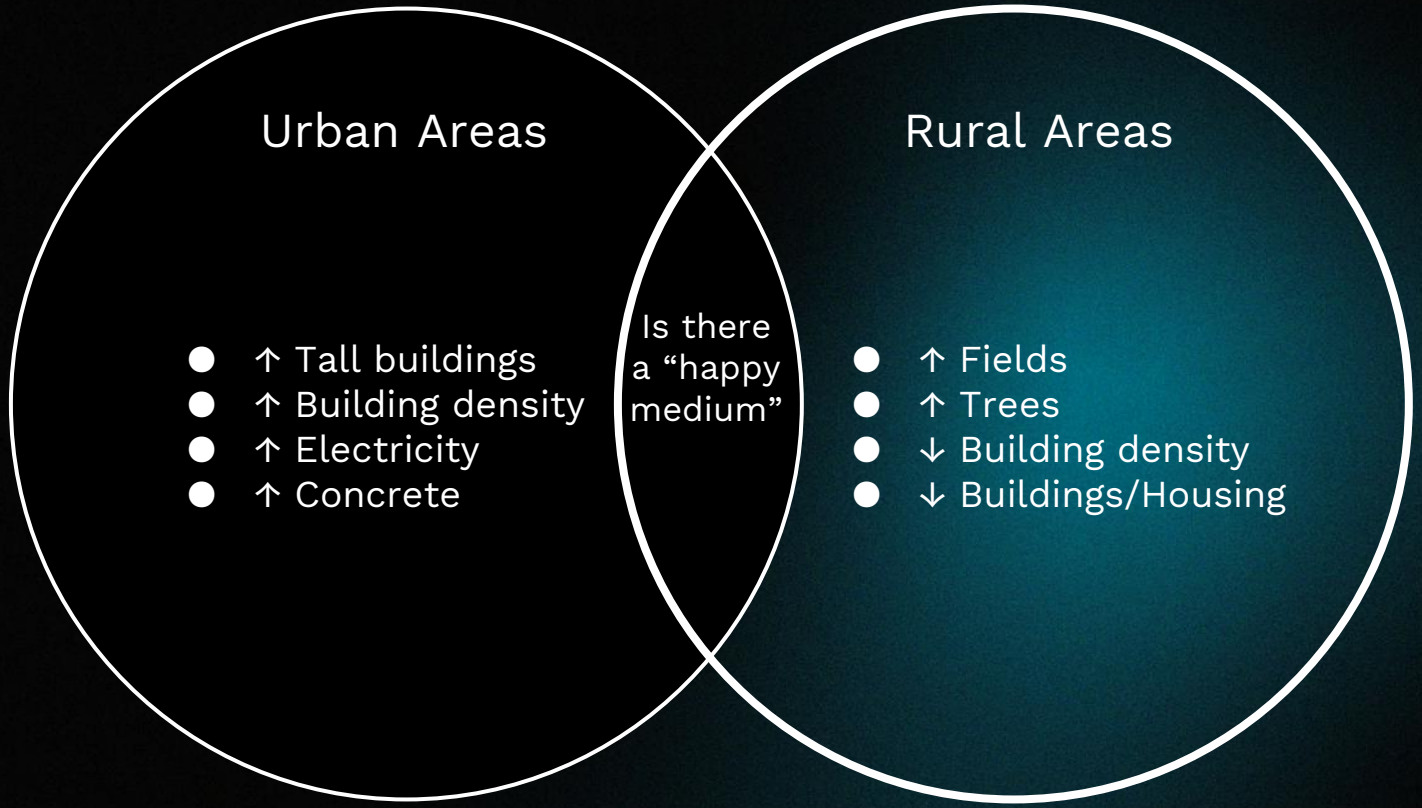

The Urban Heat Island Effect

Thermal image taken of a street in New Mexico

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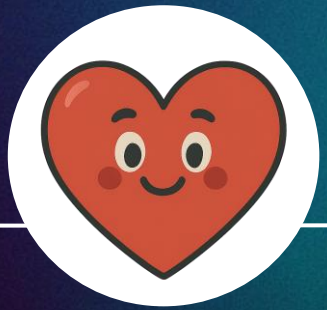
The Costs of Urban Heat Islands

Energy Costs

For a 1.8 degree fahrenheit increase there is a 0.5-5% increase in energy.

Economic Costs

Greensburg companies paying higher electricity bills due to electricity demands.



Health Impacts

Increased risk of health related injuries on warmer day.

Livability

Less pleasant for public foot traffic.

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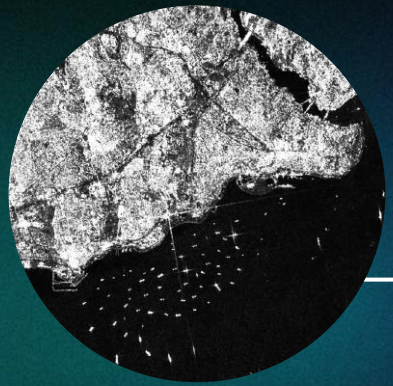
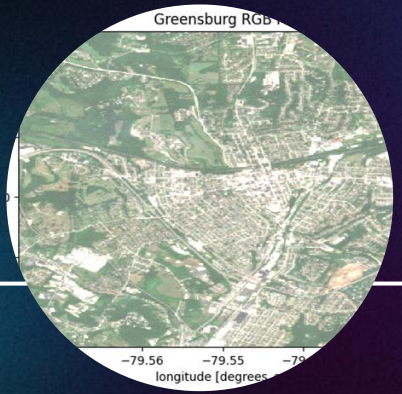
Methodology

July 20, 2024 Data Collected



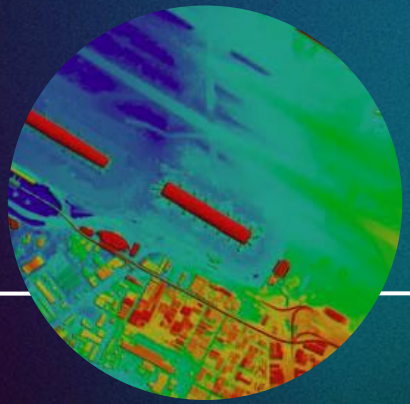
Sentinel - 1 Satellite

- VV
- VH
- Grey Scale Bands



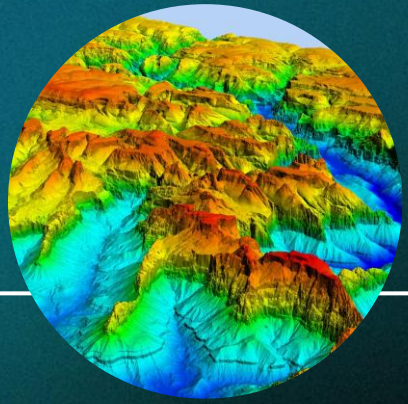
Sentinel - 2 Satellite

- B1 - B12
- B8A
- Color Bands



Landsat - 8 Satellite

- Thermal
- Near Infrared
- Red
- Green
- Blue



LiDAR Satellite

- DSM (Total Elevation)
- DTM (Natural Elevation)
- HAG (Building Height)

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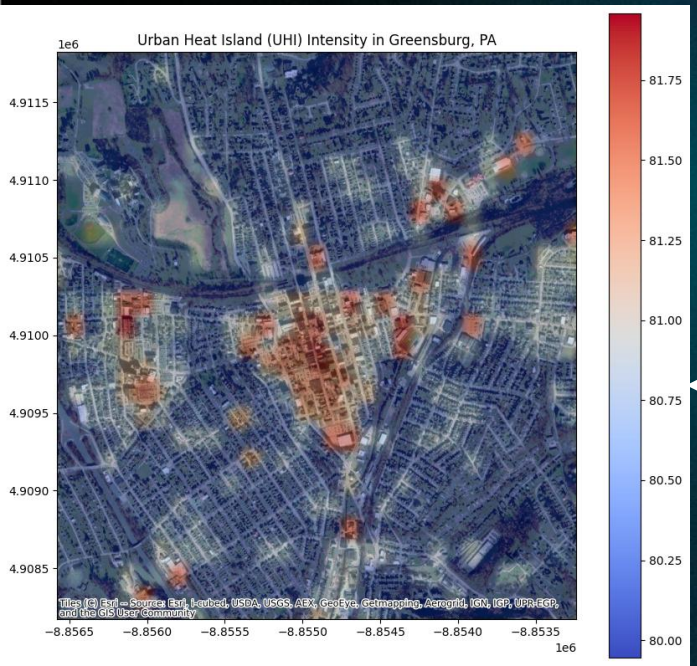
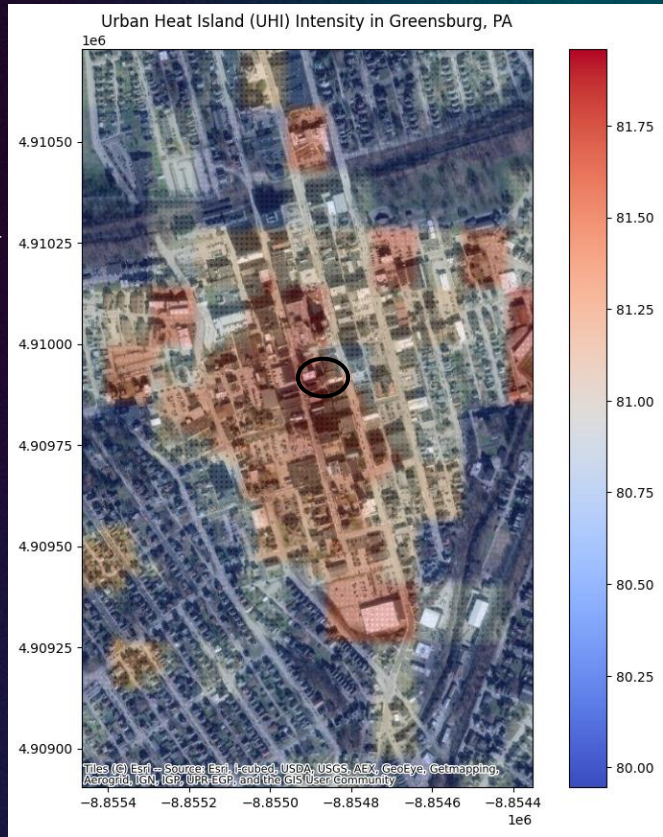
Findings

- Clear indication of Urban Heat Island Effect
- 2 degree fahrenheit increase in downtown Greensburg
- Hottest area is the proximity to the courthouse



Downtown

Greensburg



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Steps For Change

Green Spaces

- ↑ Greenery which improves landscape of downtown
- Offer tax incentives to property owners

Red Maple Trees

- 10$ for 30 seeds
- Community Planting
- Education Opportunity
- ↑ Tree Canopy Shade

Community Pool

- In-ground swimming pool
- $50,000 - $ 100,000
- Community Activity

Roof Solar Panels

- ↑ Electricity
- Renewable Energy
- Dissipates Heat
- $15,000 to $35,000 before incentives

Steps For Change

References

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