City in the Forest: Atlanta Environmental Data + Mapping Hackathon Guide

If you are looking for **data…**
- jump to Atlanta Open Data Resources

If you are looking for **project inspirations…**
- jump to Atlanta Environmental Initiatives / News

If you are looking to apply **some cool methods**…
- jump to Environmental Data Tutorials

If you are frustrated at your code or **need support**…
- Ask for help from Xiaofan (R, Python) and Sichen (Javascript; Web-based)!

If you are done with the day and **want to chill**…
- Consider contributing to the OpenStreetMap (OSM) humanitarian mapping! You can map buildings and roads that help Turkey and Syria on-ground teams to navigate the rescues and evaluate the impacts of the recent Earthquakes. It is fun and rewarding! You need to sign up to register a mapping task and there is a tutorial walkthrough for beginners. It should be fairly easy to start if you have experience with GIS or OSM, but no prior experience is required. Ask Xiaofan if you have any questions.
  For Turkey:https://tasks.hotosm.org/explore?location=Turkey
  For Syria: https://tasks.hotosm.org/explore?location=Syria

Atlanta Open Data Resources

Note: Many resources are not specific to Atlanta but can be filtered/clipped to Atlanta

Government Data

- Atlanta Regional Commission Open Data & Mapping Hub
- City of Atlanta Department of City Planning Open Data
- Atlanta Police Department Open Data
- Fulton County GIS Portal
- Georgia Geospatial Information Office

General Data Portals

- Data Commons Place Explorer - Atlanta
- Data USA - Atlanta
- Mapping America

Environment / Energy

- EPA Environmental Dataset Gateway
- AirNow - Air Quality Data
- How's My Waterway?
- USGS Earth Explorer
- NOAA Climate Data
- USDA Forest Service National Datasets
- NASA Earth Observations
- US Department of Energy Data Explorer
- US State Energy Data System (SEDS)

Transportation

- Atlanta Micromobility Dashboard
- GDOT Traffic Analysis & Data Application (TADA)
- GDOT Georgia Crash Data
- FTA National Transit Database
- Uber Movement

Demographics

- US Census Bureau

Equity

- [Climate and Economic Justice Screening Tool](#)
- [USDA Food Access Research Atlas](#)
- [National Eviction Map](#)

Economic Development

- [US Bureau of Labor Statistics](#)
- [US Bureau of Economic Analysis](#)
- [FRED Federal Reserve Bank of St. Louis](#)
- [HUD Building Permit Database](#)

Health

- [CDC Data Catalog](#)

Education

- [Atlanta Public Schools Insights](#)
- [US Department of Education Open Data Platform](#)

Atlanta/Georgia Environmental Initiatives + News

Note, some descriptions below the dataset are taken from their respective websites.

[Finding the Flint](#) (#River #Aerotropolis)

Finding the Flint envisions the restoration of urban streams and reconnection of communities to the Flint River headwaters, both physically and culturally. While we can't daylight the river under the airport, a wide array of collaborators have mapped opportunities for meaningful preservation and restoration of greenspaces along the headwaters. The effort has created a table for diverse stakeholders to come together around the river's restoration.

[Chattahochee Riverkeeper](#) (#River #Water)

The Chattahoochee River is one of the smallest river systems in the entire country to provide water supply to a major metropolitan city. The Chattahoochee River watershed faces many threats to its chemical, physical and biological health and integrity, including: 1) Storm-water and wastewater pollution, 2) Increased water consumption, 3) Landscape changes that interrupt natural flow patterns, 4) A changing climate.

Although river health has improved in recent decades, more than 1,000 miles of waterways within the Chattahoochee watershed still do not meet water-quality standards. And that means potential health threats to people and wildlife that come in contact with it.

[Cop City / South River Forest](#) (#Trees #Forest #Advocacy)

There was a controversial land swap that resulted in loss of trees, a fight for the forest that garnered national attention from activists, and generally a lot of ill feelings on the local stage about this public safety facility that's poised to be built in a forest that was previously slated as public green space.

ThreadATL wrote about it a couple of years ago. The fallout from the city's awful decision to ignore the Atlanta City Design concept for the park has been terrible to watch.

[Trees Atlanta](#) (#Trees #Forest #Advocacy)

As a proud steward of Atlanta's urban forest, Trees Atlanta is a unique community resource for sustainable growth and design, educational programs, and volunteer opportunities. We pursue our mission through a variety of programs including small and large tree planting, forest restoration, adult and youth education, tree care and advocacy. Since our beginnings in 1985, Trees Atlanta has taken a grassroots approach by working directly with residents, neighborhood groups and schools to reach common conservation goals. In all neighborhoods where we work, the planting and restoration work become a catalyst for cooperation and civic responsibility. The results are added beauty, increased shade, cooler temperatures, cleaner air and untold growth in civic pride and community involvement.

[Drawdown Georgia GHG Emissions Tracker](#) (#Emissions)

Led by our very own Prof. Bill Drummond, Drawdown Georgia is a statewide initiative working to catalyze a Georgia beyond carbon. Our road map lays out a vision for scaling Georgia-specific climate solutions in ways that prioritize equity and public health, create jobs, and nurture the natural environment. Our goal is to help Georgians build a new, sustainable future based on our diversity, our ingenuity, and our shared humanity.

[For Climate Resilience, Atlanta Needs to Better Match Transit & Density](#) (#Transit #Climate #Housing)

A new [Brookings report](#) looks at three metro areas — Atlanta, Chicago, and D.C. — to make an important point: we need to vastly improve connectivity between urban development and transit expansion. The failures of the past on that count have contributed to climate issues.

[Smart Sea Level Sensors in Savannah](#) (#CoastalFlooding #Georgia)

Our goal is to provide real-time information about water levels across Chatham County to aid in emergency planning and response during episodes of flooding associated with storms, king tides, and other environmental events. The sea level data also provide a unique and important dataset to aid scientists, engineers, and regional planners in quantifying the short- and long-term risks associated with continued sea level rise.

[One Hundred Miles](#) (#CoastalResilience #Conservation #Georgia)

One hundred miles is a coastal nonprofit working to protect and preserve Georgia's coast through advocacy, education, and citizen engagement.

The organization has a map that highlights issues around Georgia Coast and how you can get involved. https://onehundredmiles.org/advocate/

[Community Garden Resource Center by Food Well Alliance](#) (#SocialImpact #Advocacy #Garden #Food)

The Community Garden Resource Center aims to help gardens thrive with support through the annual Community Garden Grant, compost deliveries, workshops and trainings, volunteer support, and more. We are currently working to adjust the timing of our grant cycle to better align with your needs, safely revamp our volunteer program, and deliver more educational content digitally.

[Southface Institute](#) (#Buildings #Energy #Resilience Planning)

Southface is a nonprofit on a mission to promote sustainable homes, workplaces, and communities through education, research, advocacy, and technical assistance.

Their websites include various reports, case studies, and resources for topics ranging from clean energy planning, sustainability and resilience planning, land use and natural resource planning, sustainable and resilient community development, and community and stakeholder engagement.

[Partnership for Southern Equity](#) (#Advocacy #Energy #EnvironmentalJustice)

The Partnership for Southern Equity (PSE) advances policies and institutional actions that promote racial equity and shared prosperity for all in the growth of metropolitan Atlanta and the American South. **Focusing on four key areas: energy, growth, health and opportunity**, PSE

has developed strong partnerships, which have resulted in a series of successful policy initiatives that helped elevate and enable the communities we serve.

[UrbanHeatATL](#) (#Heat #Sensors #ClimateJustice)

Led by our very own Prof. Brian Stone, UrbanHeatATL is a cross-disciplinary collaboration empowering students and the Atlanta community through mapping extreme heat in underserved communities. The initiative aims to use this data, collected by community members, to further environmental and climate justice in Atlanta. Data available at: https://urbanheatatl.org/data/

Environmental Data Tutorials

Beginner (little knowledge in GIS and/or R)
- [Create maps in Kepler.gl](#)
- [Create maps in QGIS (Youtube Video)](#)
- [Create maps in R](#)
- [Introduction to Environmental Data Science (in R environment)](#)

Intermediate (some foundations in GIS and/or R and/or Python)
- [Analyze Air Pollution Data from EPA and Visualize Spatial and Temporal Variations (requires R)](#)
- This NSF NEON (National Ecological Observatory Network) website consists of many tutorials on R and/or Python related to extracting, visualizing, and analyzing environmental data. Search through all the tutorials [here](#). Some example tutorials are listed below.
  - [Get Started with NEON Data: A Series of Data Tutorials](#)
  - [Extract values from a raster in R](#)
  - [Visualize Precipitation Data in R to Better Understand 2013 flooding events in Colorado](#) (data included)
  - [Visualize Stream Discharge Data in R to Better Understand the 2013 flooding events in Colorado](#) (data included)

Advanced (Going heads down with GIS and/or R and/or Python)
- [Visualize Air Pollution Data with openair R package](#) (e.g., Directional Analysis with Wind and Pollution Roses; Polar Plots; Time-series)
- [Extract, Visualize, and Analyze Google Earth Engine Data and Imagery with geemap python package](#); Youtube Video tutorials available (e.g., land use cover mapping; plot Earth Engine data; remote sensing classification)

- [Extract, Visualize, and Analyze Google Earth Engine Data and Imagery with rgee R package](#) (GEE only supports Python and Javascript access, so R access is a bit more complicated and requires Python in the environment)

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