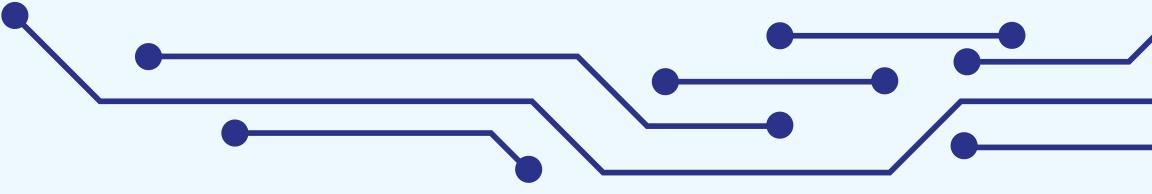


PORTFOLIO



AURELIO JEREMI BASTEN SITINJAK

PROFILE



A fresh graduate with a bachelor's degree in geomatics engineering who is competitive and eager to learn and build new abilities in GIS programming, terrestrial mapping, and the mining business.

CERTIFICATION

- 3D Point Cloud Masterclass | Lidar | CloudCompare By Udemy
- Crash Course on Phyton By Coursera
- Introduction to Git And GitHub By Coursera
- Troubleshooting and Debugging Techniques By Coursera
- Machine Learning With Python (With Honors) By IBM
- TOEFL ITP By ETS (Score: 520)

BACKGROUND EDUCATION



- **INSTITUT TEKNOLOGI SEPULUH NOPEMBER**
Bachelor of Geomatics Engineering
2020 – 2024
GPA : 3.24 / 4.00

WORK EXPERIENCE



- **PT. Adaro Energy Indonesia, Tbk.**
Engineer Intern
July 2023 – Ago 2023



- **PT. Smartech Solutions International**
Pre sales Engineer
September 2024 - December 2024

3D MODELLING OF SUSTAINABLE GREEN NEIGHBORHOOD CITY FOR REDUCING UHI (URBAN HEAT ISLAND) EFFECT THAT AFFECTING POLLUTION LEVEL IN JAKARTA

Background of Project

03

Study Case



Over the past few months, Jakarta has gained notoriety as the world's most polluted city. According to data from the Air Quality Index (AQI) on September 1, 2023, Jakarta recorded an AQI of 163. The elevated AQI in Jakarta can be attributed to various factors, notably the excessive presence of PM2.5 particles, which exceeded the recommended limit set by the World Health Organization (WHO) by 7.4

Main Concerned



The increased level of temperature in Jakarta has resulted in the **UHI (Urban Heat Island) phenomenon**, which means that urban areas experience higher temperatures than surrounding areas. **UHI is our main concern in conducting spatial analysis due to UHI's difficulties.** UHI itself occurs due to land surface modification through urban development that cause

Urgencies



3 GOOD HEALTH AND WELL-BEING

11 SUSTAINABLE CITIES AND COMMUNITIES



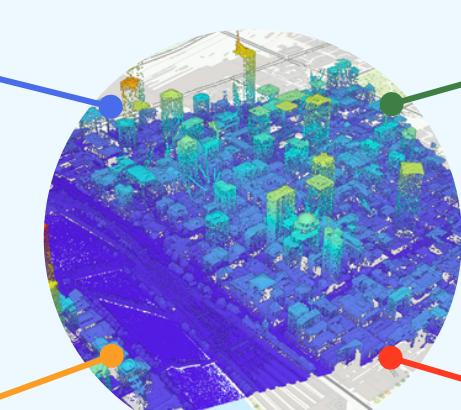
13 CLIMATE ACTION



Development Geospatial Database



Satellite Landsat 8-9 OLI/TIRS Collection 2 Level 1 (acquisition dates were selected on August 22, 2020 and September 12, 2023).



Band usage is Band 4 (Red), Band 5 (Near Infrared), and Band 10 (Thermal Infrared).

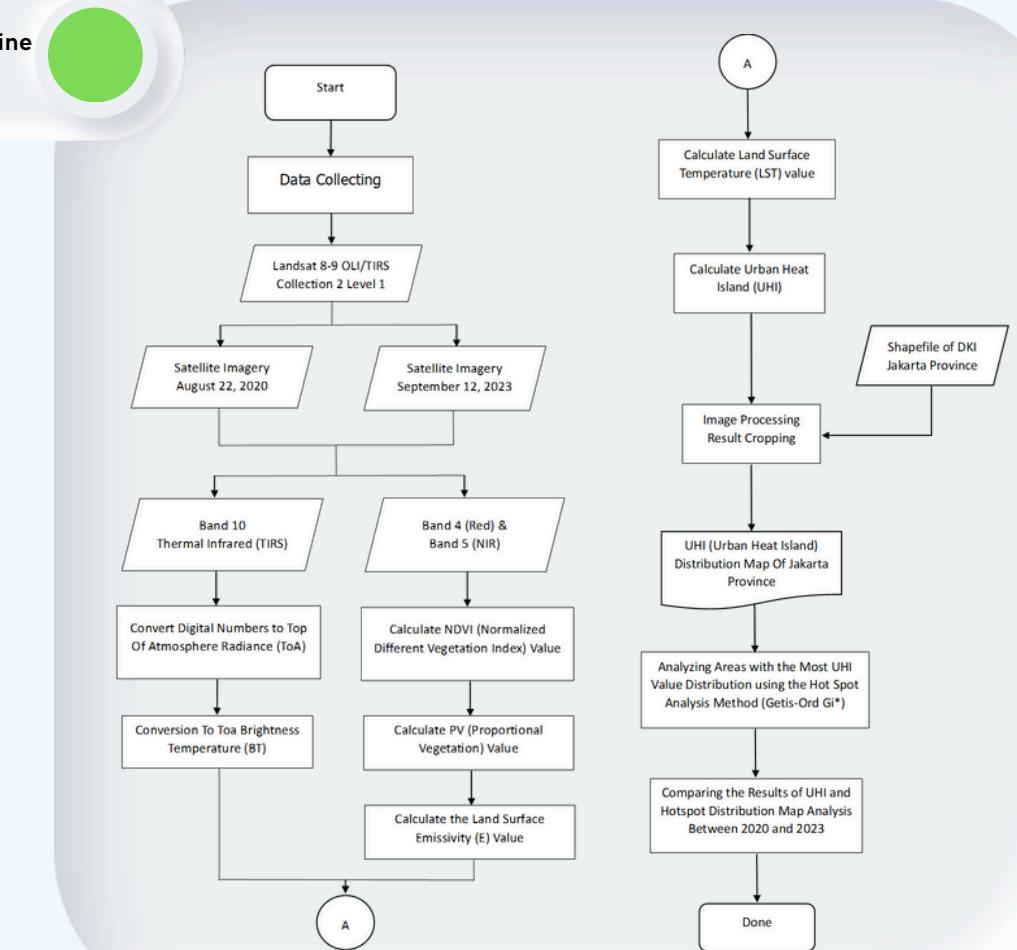


Shapefile of DKI Jakarta province administration



Using ArcGIS Pro to process spatial data

Data Process With Machine Learning Algorithm



Result Analysis



Planning the **green neighborhood** practices through involving sustainable practices attached with **city forms** and **technologies** can provide to the **needs of communities** and **ecological**.



Reducing Urban Heat Island Effect



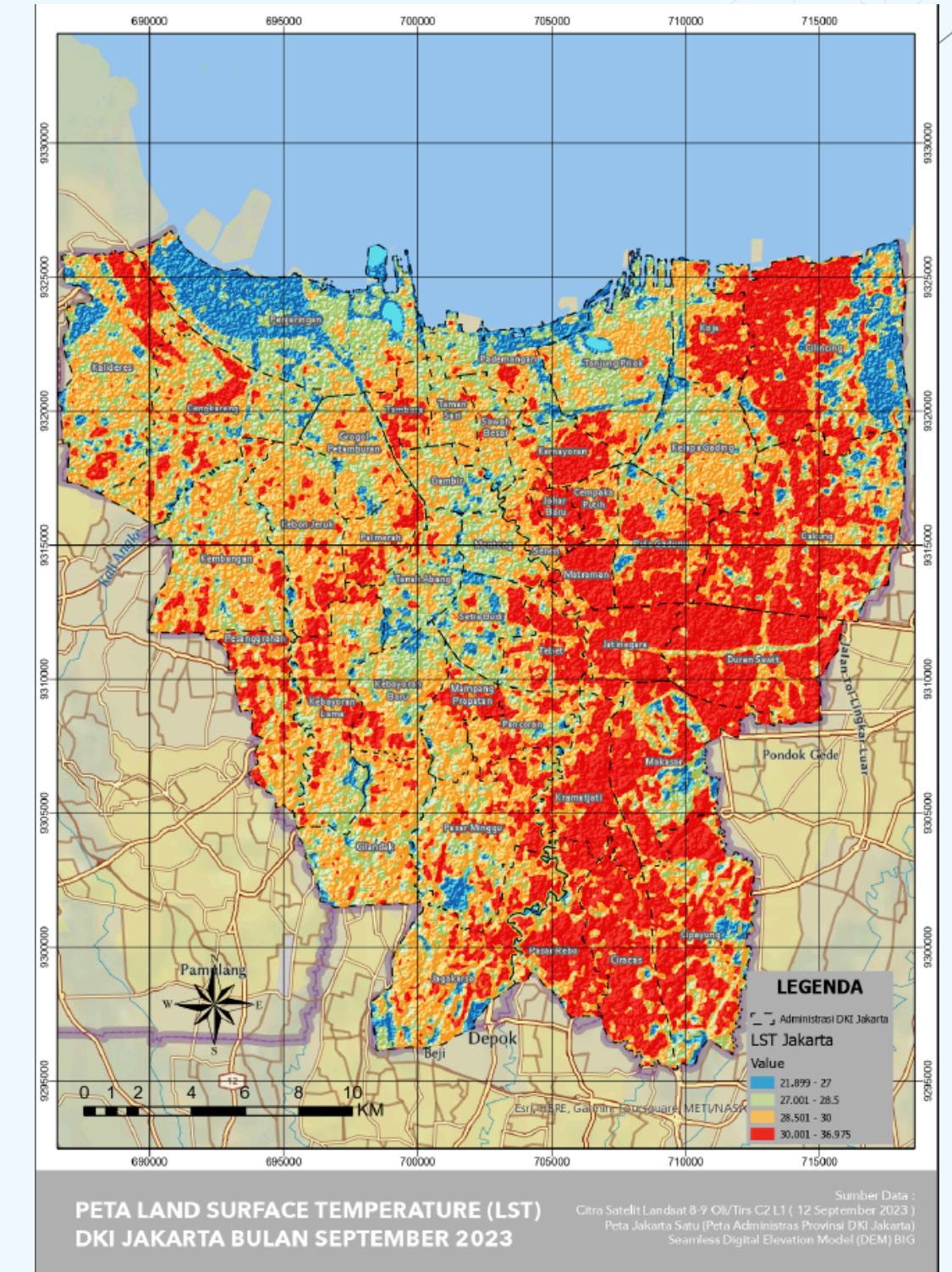
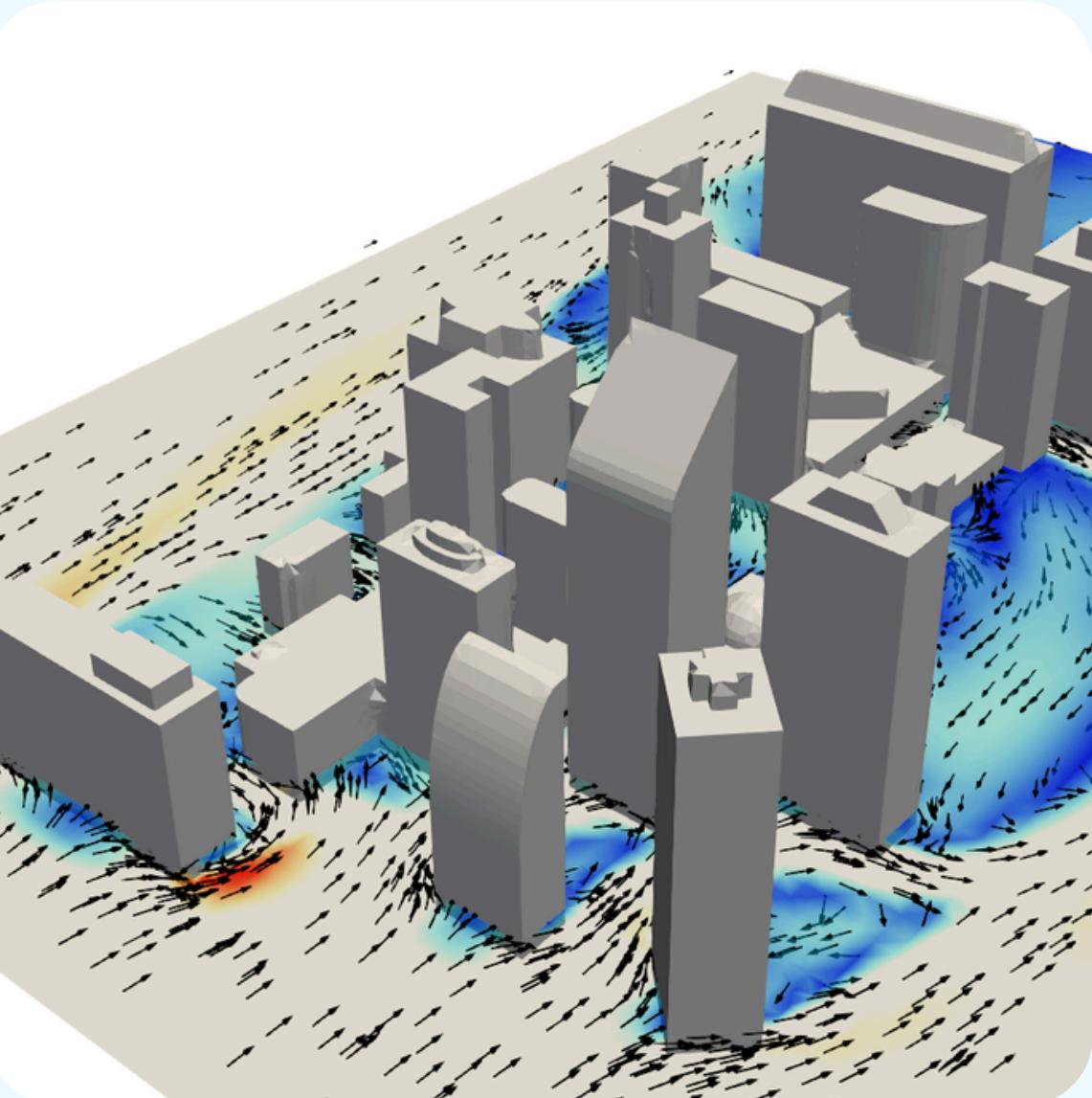
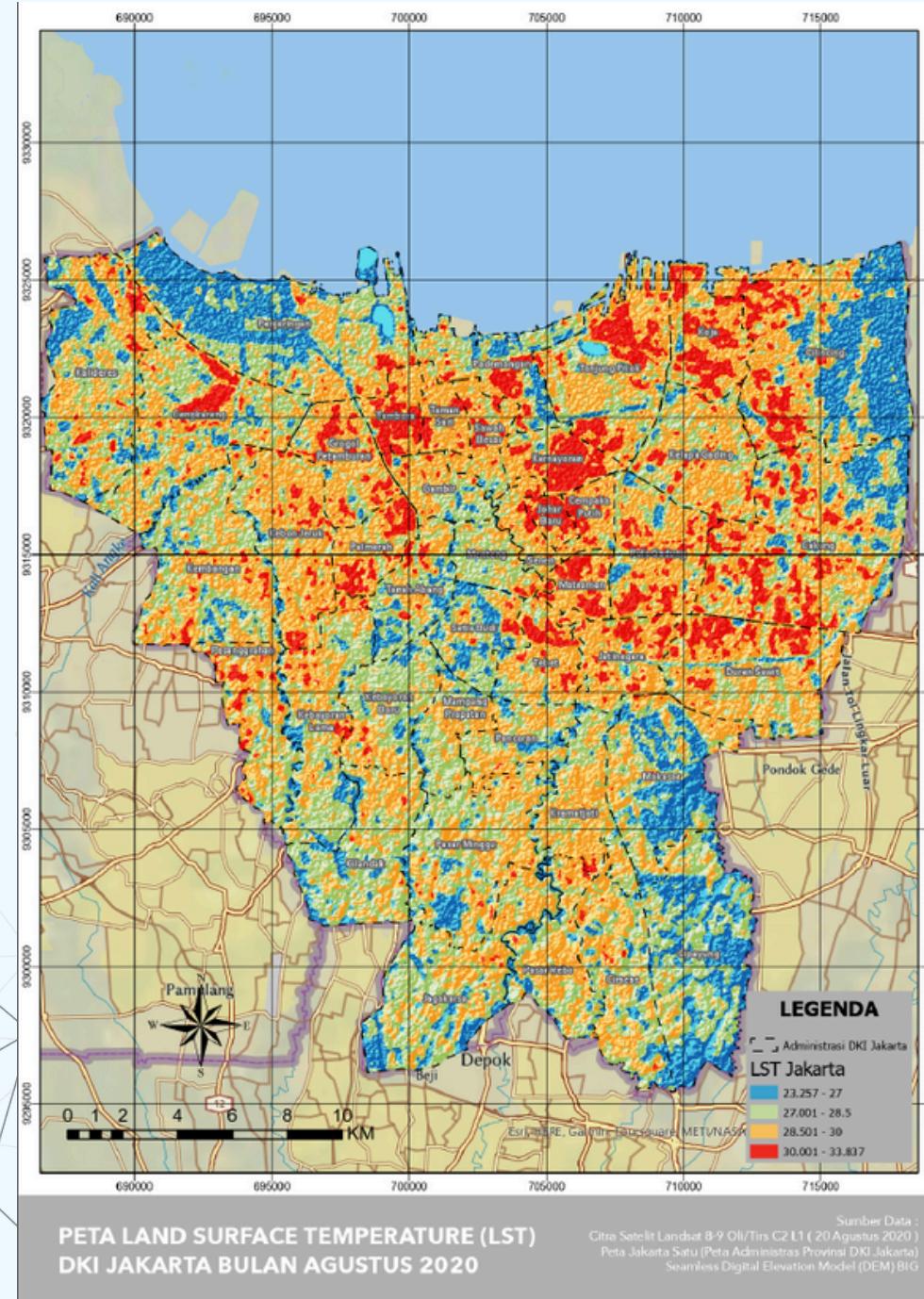
Green spaces increases **ecological quality**, make **shade**, reduce **heat temperature**, and diminish the probability of **flooding**.



Anticipating Climate Change



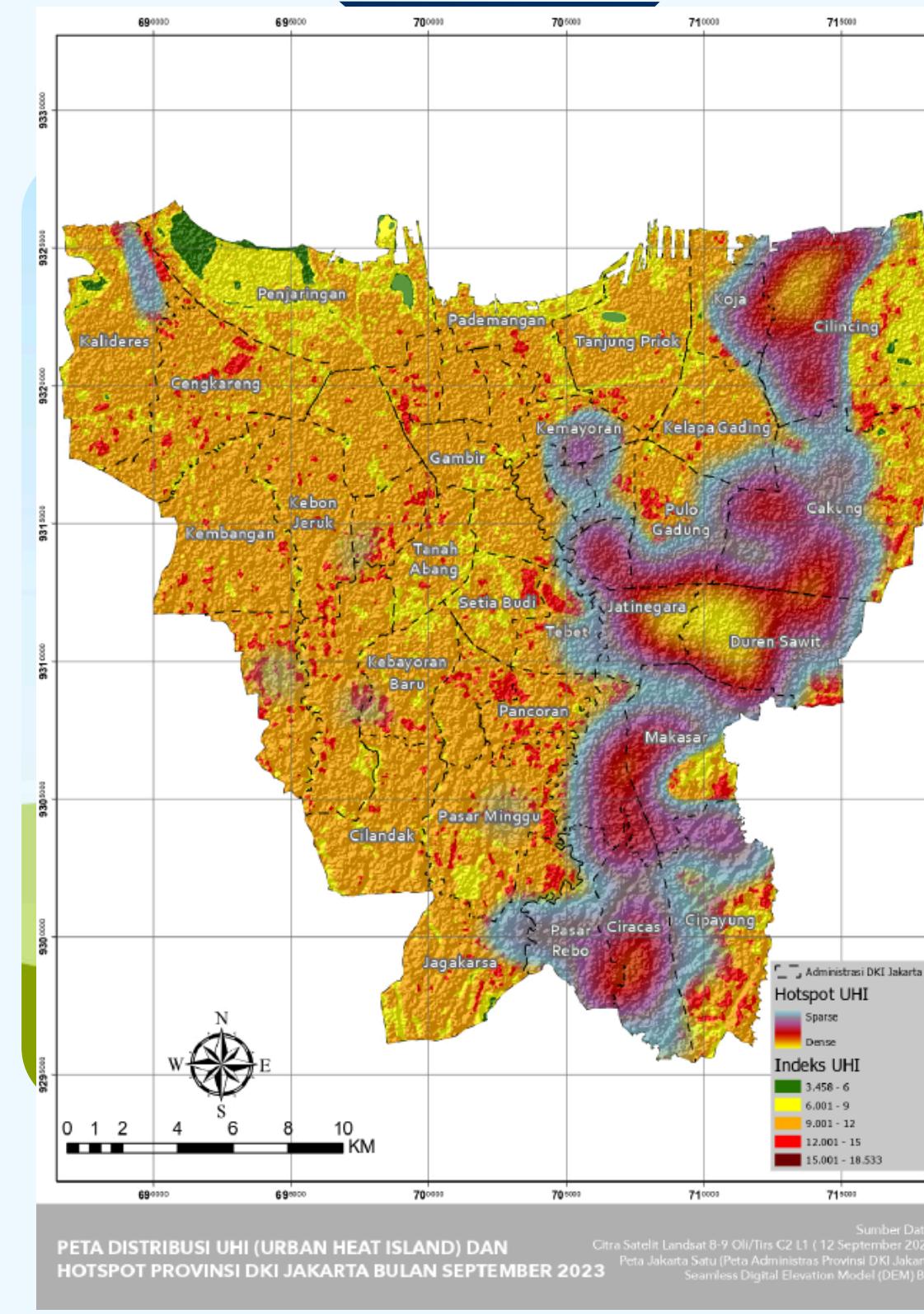
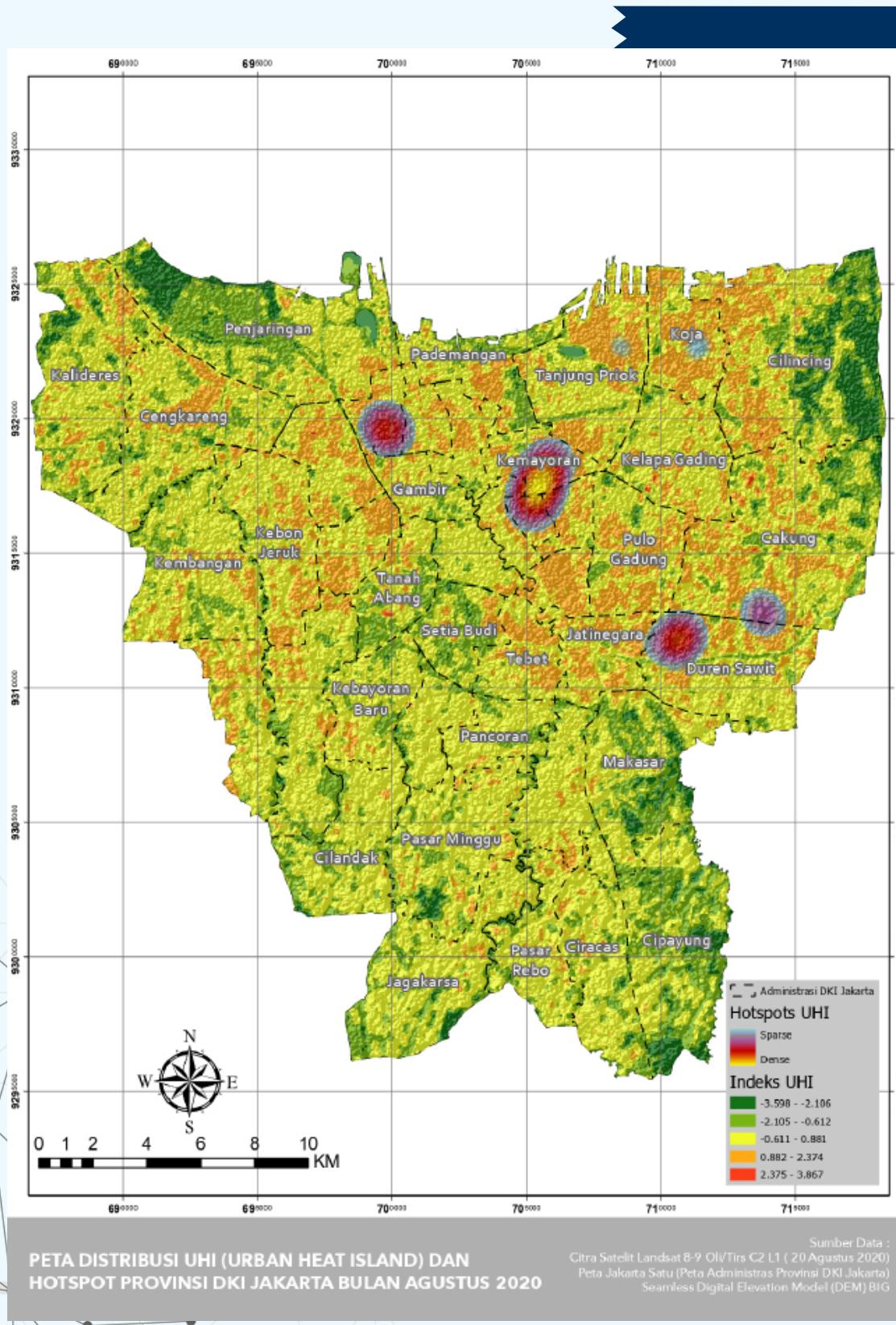
OUTPUT



Data Visualisation of Urban Heat Island using NDVI and
BIM (Building Information Modelling) in 3D model

OUTPUT

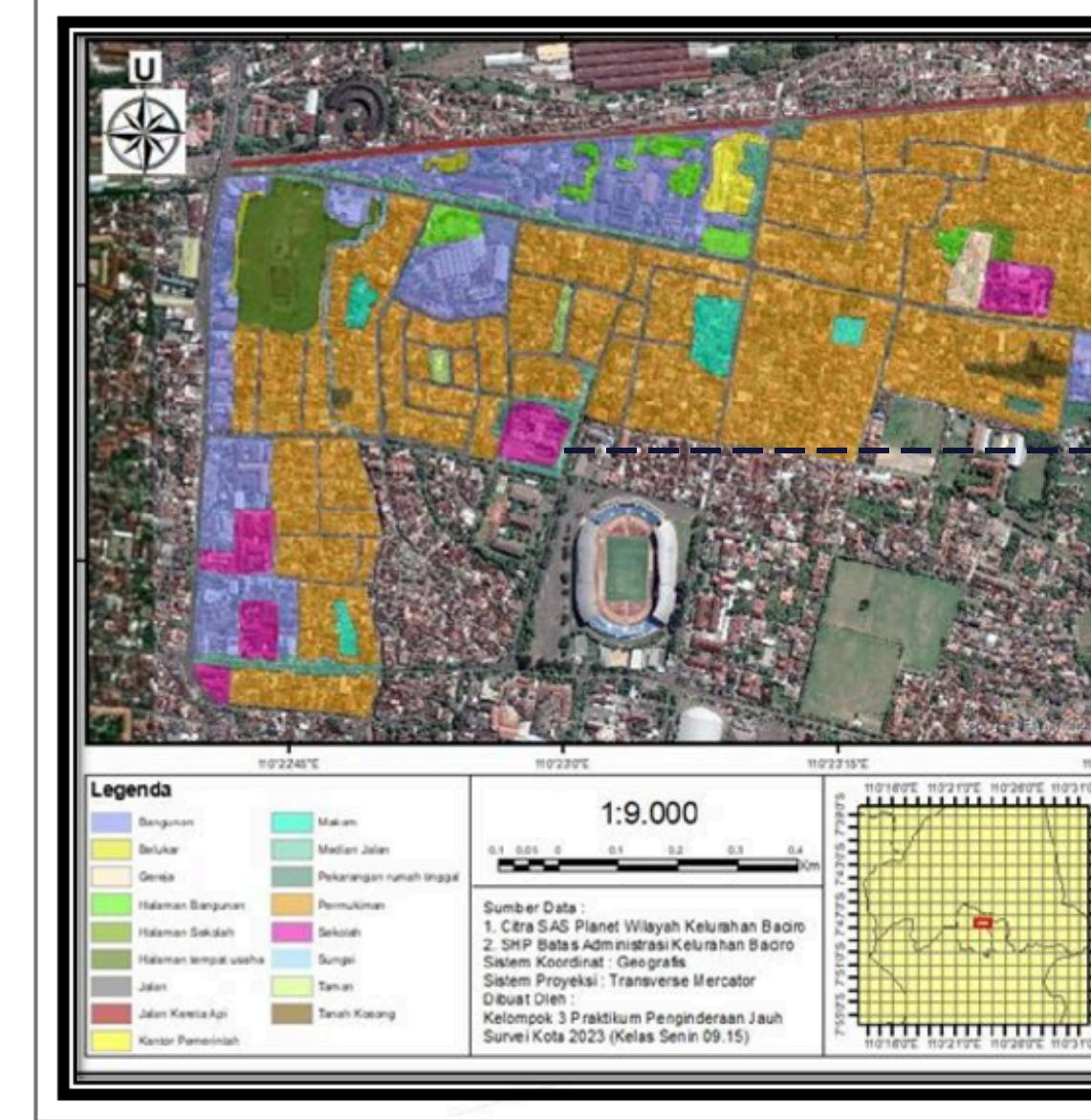
URBAN HEAT ISLAND WITH HOTSPOT DENSITY ANALYSIS



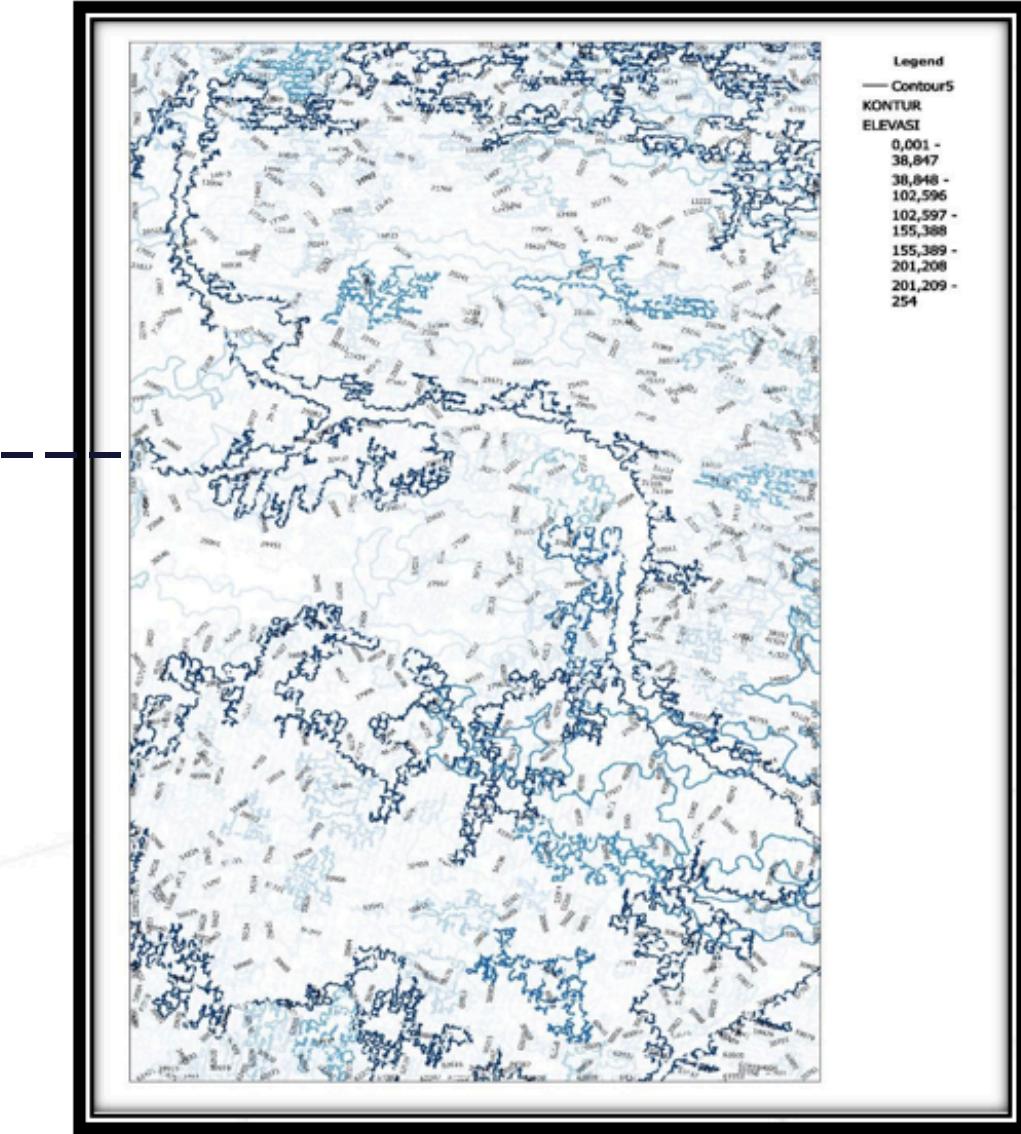
- 22 August 2020 in some parts of the UHI region experienced **negative conditions (no UHI occurred)**, namely between the intervals of **-3,598 to 3,867** degrees celsius
- UHI (Urban Heat Island) distribution map was made, which obtained **positive UHI results (UHI occurred)** on 12 September 2023, between the intervals of **3,458 to 18,533** degrees Celsius.
- Hotspot analysis obtained the **Duren Sawit** District area as the **highest hotspot point** and has the same condition, namely experiencing UHI between 22 August 2020 and 12 September 12, 2023

A land cover Analysis Map in Yogyakarta for segmentizing purposes and Contour Map of its area

PROJECT

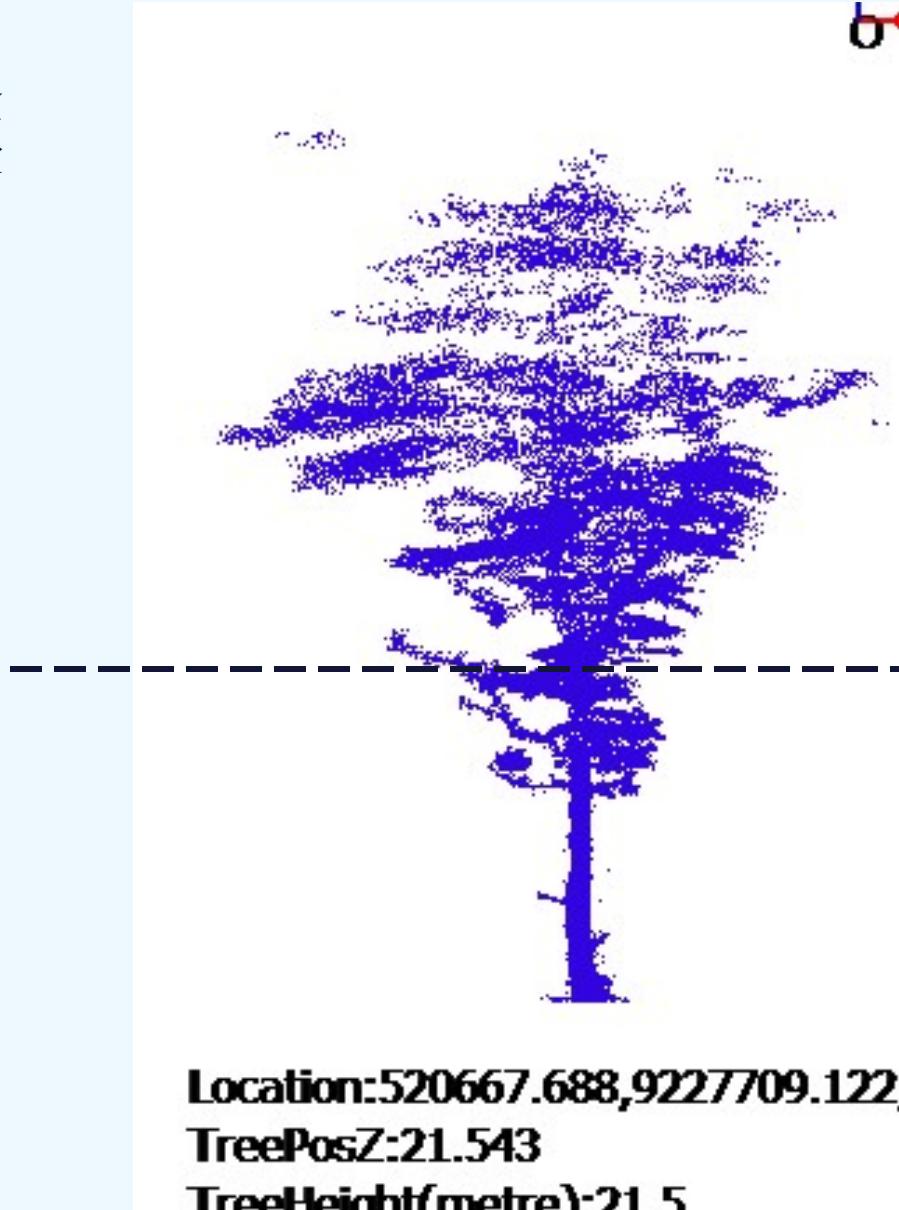
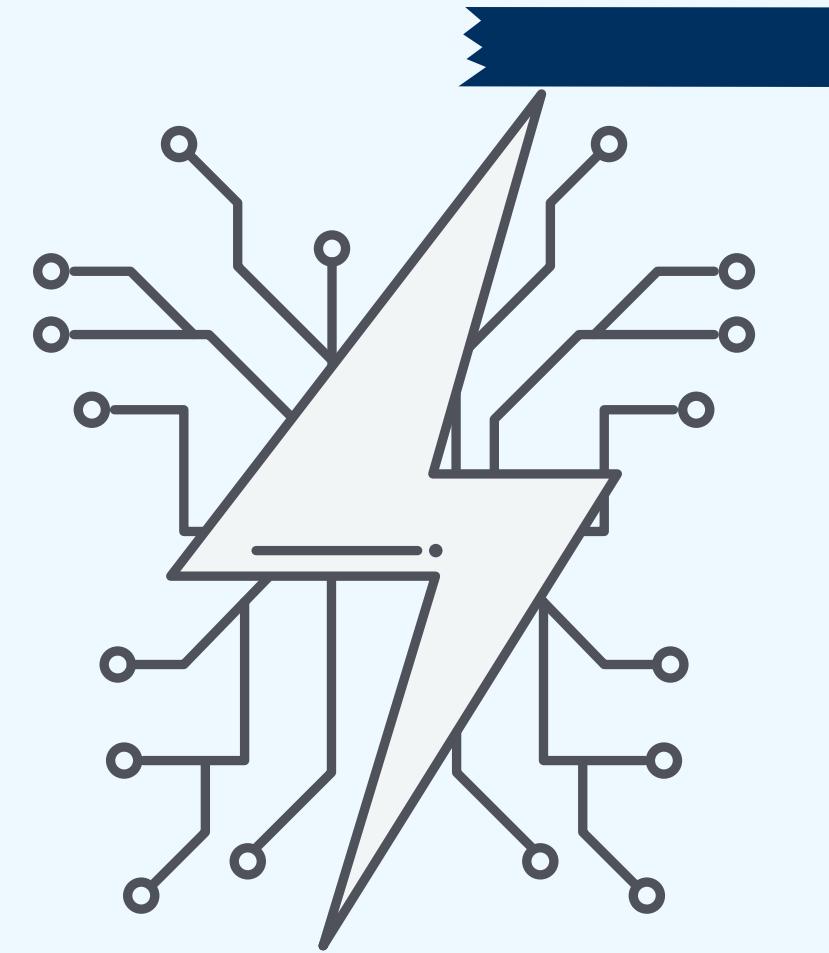


Land Cover Analysis



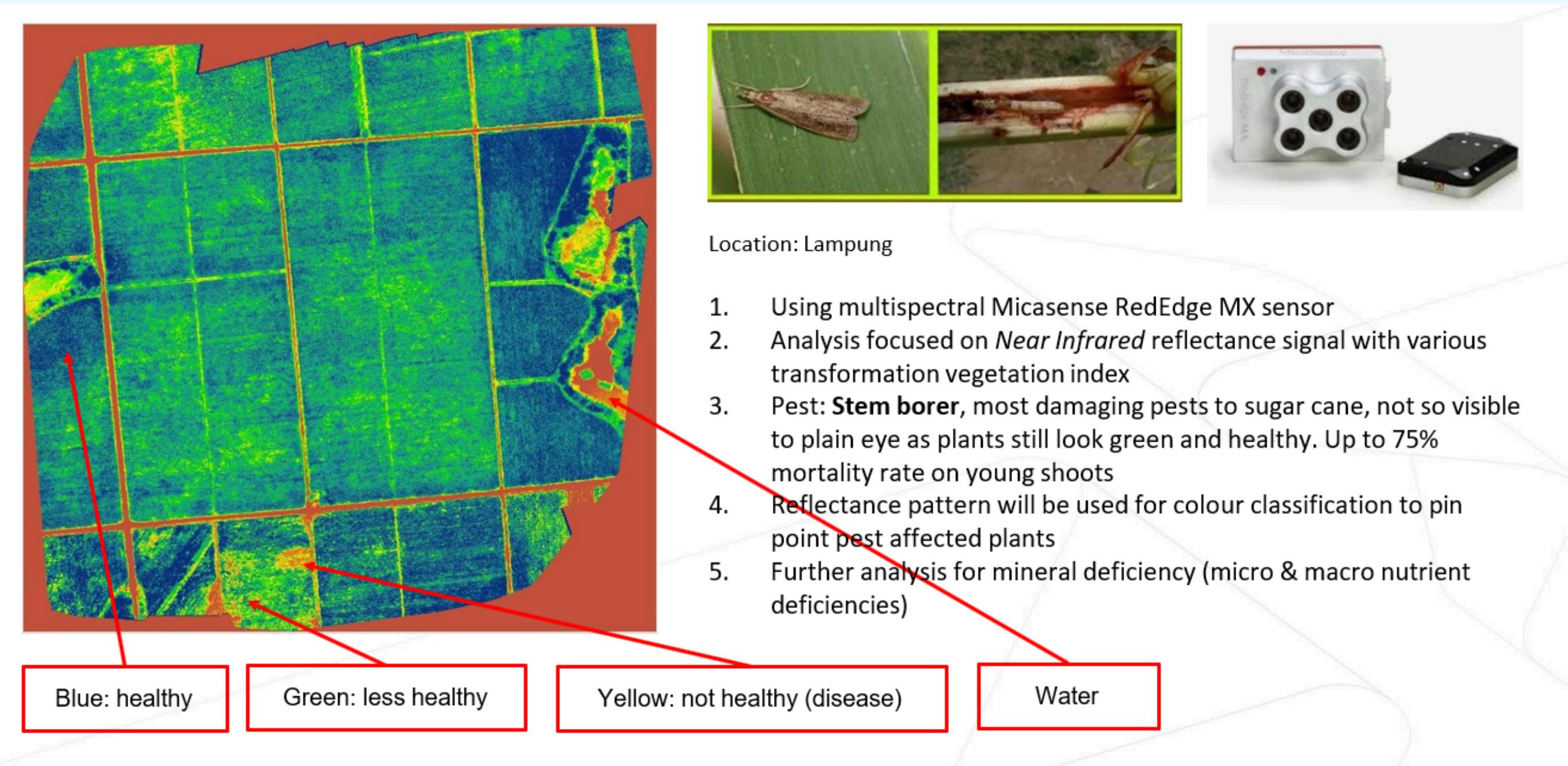
Contour Map

PORTOFOLIO



pointcloud result post-processing data by backpack lidar

NDVI ANALYSIS FOR SUGARCANE FIELD BASED ON AERIAL PHOTOGRAPHY THAT WE ALREADY TOOK



The screenshot shows the pgAdmin 4 interface. The left sidebar is the 'Browser' panel, which lists various database objects like 'poys', 'pts', 'Trigger Functions', 'Types', 'Views', 'public', 'usa', 'Collations', 'Domains', 'FTS Configurations', 'FTS Dictionaries', 'FTS Parsers', 'FTS Templates', 'Foreign Tables', 'Functions', 'Materialized Views', 'Procedures', 'Sequences', 'Tables', 'Trigger Functions', 'Types', 'Views (1)', and 'Subscriptions'. A specific view named 'vw_capitals' is selected under 'Views (1)'. The main area is the 'Query Editor' tab, containing the following SQL code:

```
1 SELECT * FROM usa.vw_capitals
```

Below the query editor is a table titled 'Data Output' showing the results of the query. The columns are: gid, uident, popclass, name, capital, stateabb, country, and geom. The data includes rows for Juneau, Montgomery, Little Rock, Phoenix, Sacramento, Denver, and Hartford.

The screenshot shows the pgAdmin 4 interface. The left sidebar is the 'Browser' panel, listing 'Schemas (4)' (nyc_pol, nyc_poi, public, usa), 'Tables (3)' (census2010, cities, states), and other objects like 'Collations', 'Domains', 'FTS Configurations', 'FTS Dictionaries', 'FTS Parsers', 'FTS Templates', 'Foreign Tables', 'Functions', 'Materialized Views', 'Procedures', 'Sequences', 'Columns', 'Indexes', 'Constraints', 'RLS Policies', 'Rules', 'Triggers', 'Trigger Functions', and 'Types'. The 'states' table is selected. The main area is the 'Query Editor' tab, containing the following SQL code:

```
1 ub_region, ST_Transform(geom,2163) AS geom FROM usa.state
```

Below the query editor is a table titled 'Data Output' showing the results of the query. The columns are: gid, uident, popclass, name, and capital. The data includes rows for Juneau, Dover, Frankfort, Annapolis, Augusta, Jefferson City, Helena, Bismarck, and Bismarck.

Designing a database query using PostgreSQL