PORTOFOLIO

AURELIO JEREMI BASTEN SITINJAK

PROFILE

A freshgraduate 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.

BACKGROUND EDUCATION

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

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)

WORK EXPERIENCE

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

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

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

Background of Project

Study Case

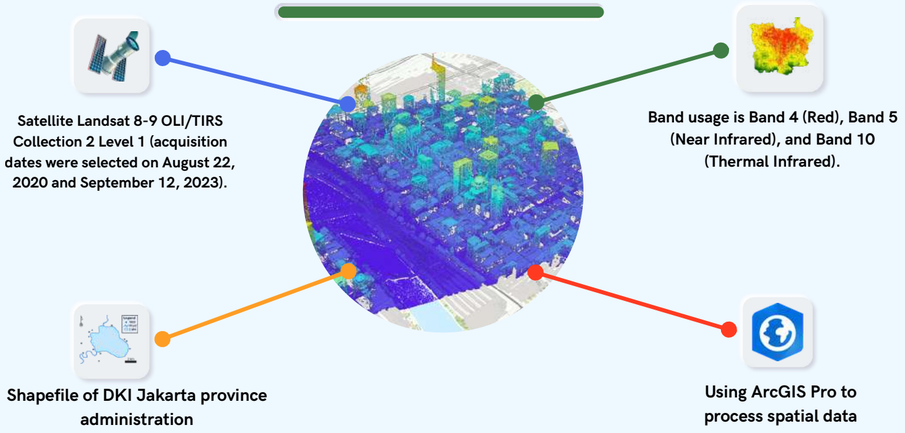
Over the past few months, Jakarta has gained notoriety as the world's most polluted city. According to data from the Air Quality Index (AQI) on September 1, 2023, Jakarta recorded an AQI of 163.
The elevated AQI in Jakarta can be attributed to various factors, notably the excessive presence of PM2.5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

Main Concerned

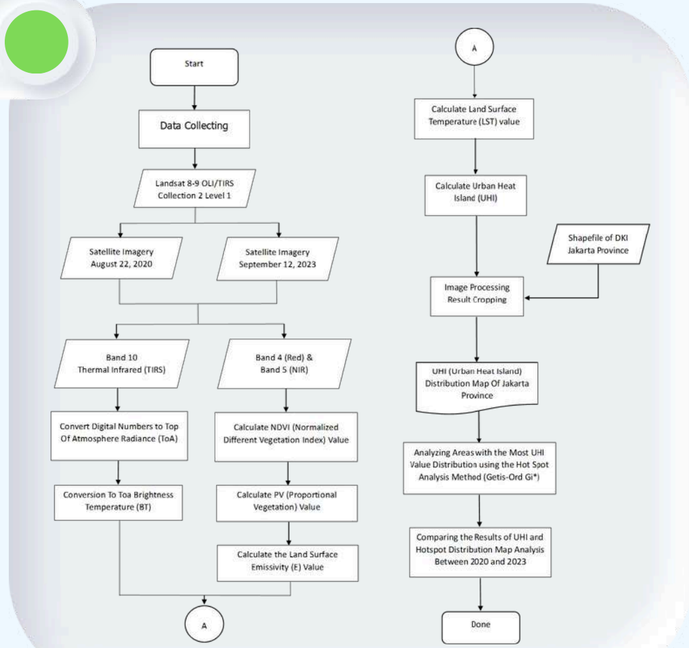
The increased level of temperature in Jakarta has resulted in the **UHI (Urban Heat Island) phenomenon**, which means that urban areas experience higher temperatures than surrounding areas. **UHI is our main concern in conducting spasial analysis due to UHI's difficulties.**
UHi itself occurs due to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

Urgencies

Development Geospatial Database



Data Process With Machine Learning Algorithm



Result Analysis

3 GOOD HEALTH AND WELL-BEING

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

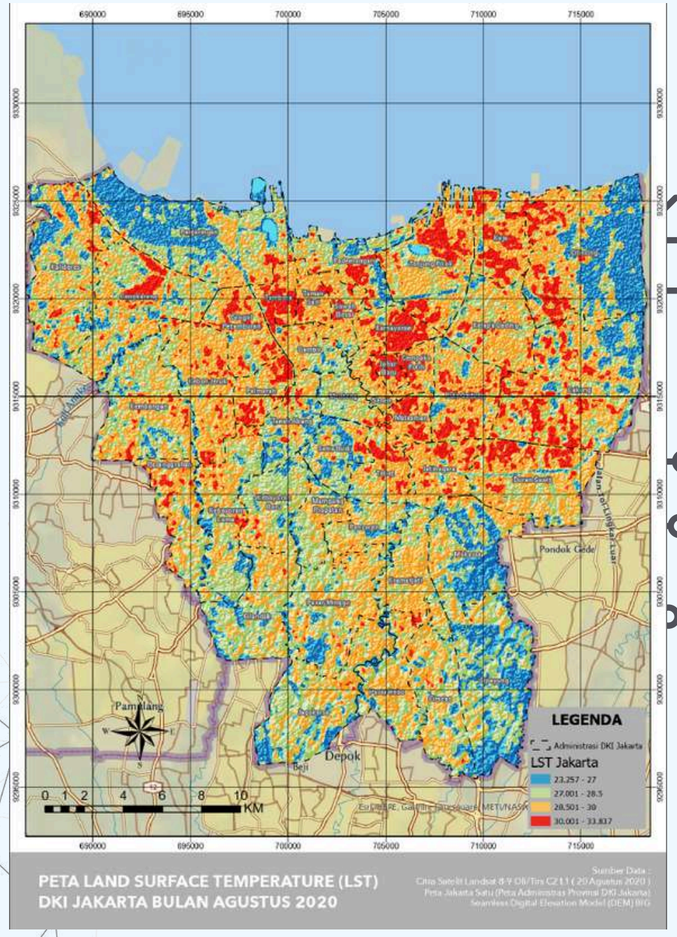
Reducing Urban Heat Island Effect

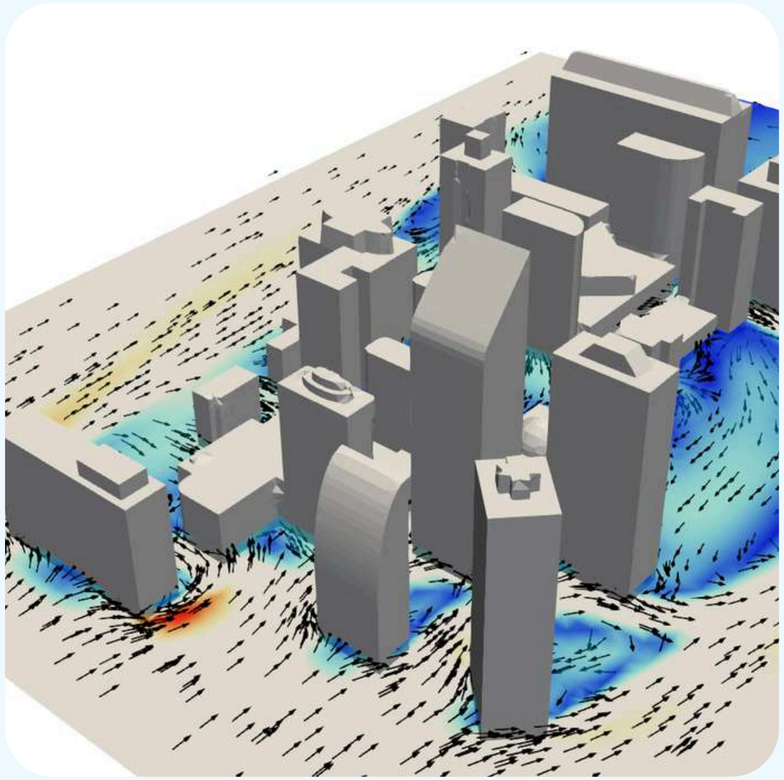
11 SUSTAINABLE CITIES AND COMMUNITIES

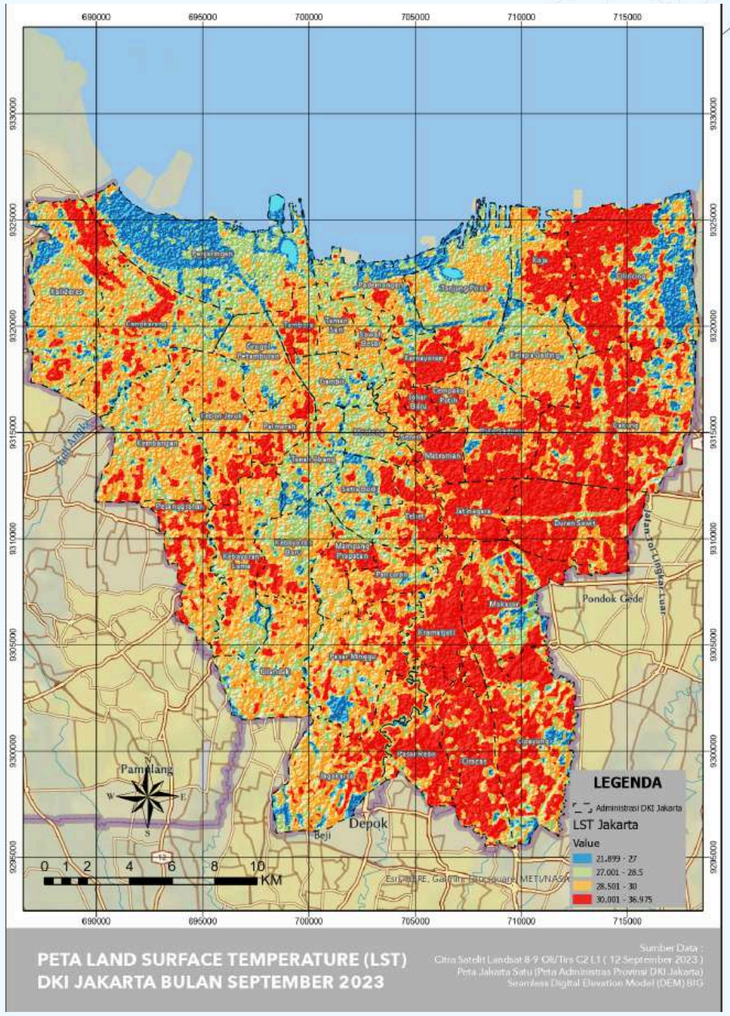
Green spaces increases **ecological quality**, make **shade**, reduce **heat temperature**, and diminish the probability of **flooding.**

Anticipating Climate Change

OUTPUT

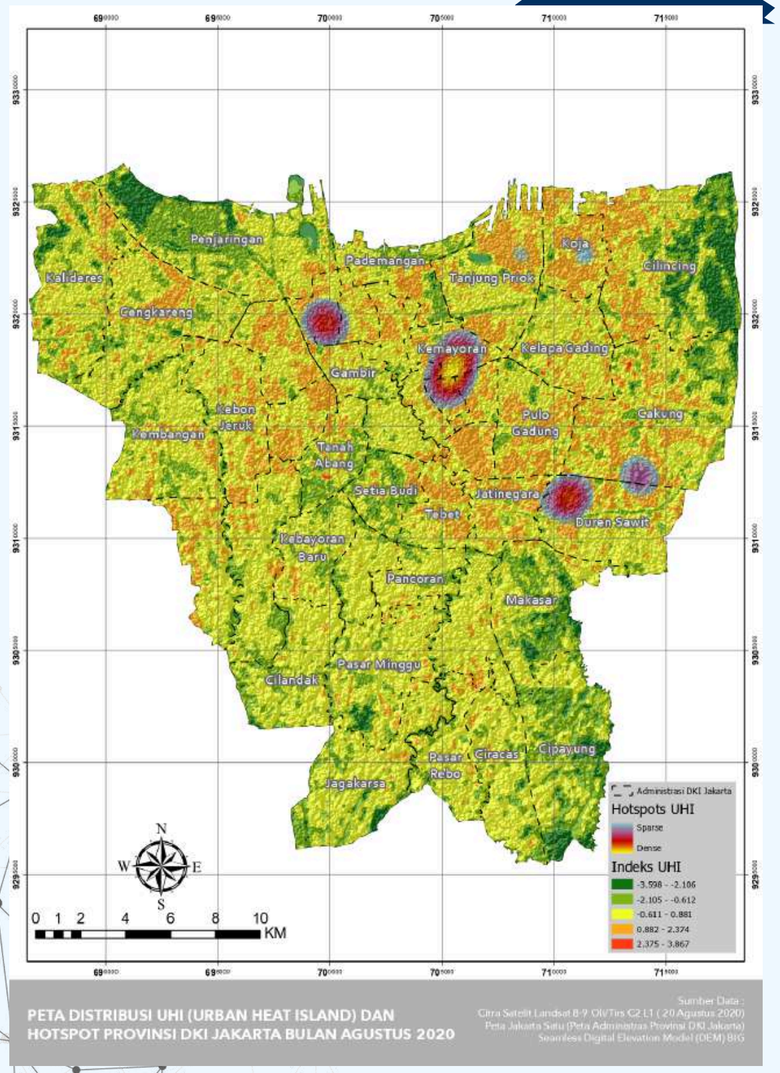






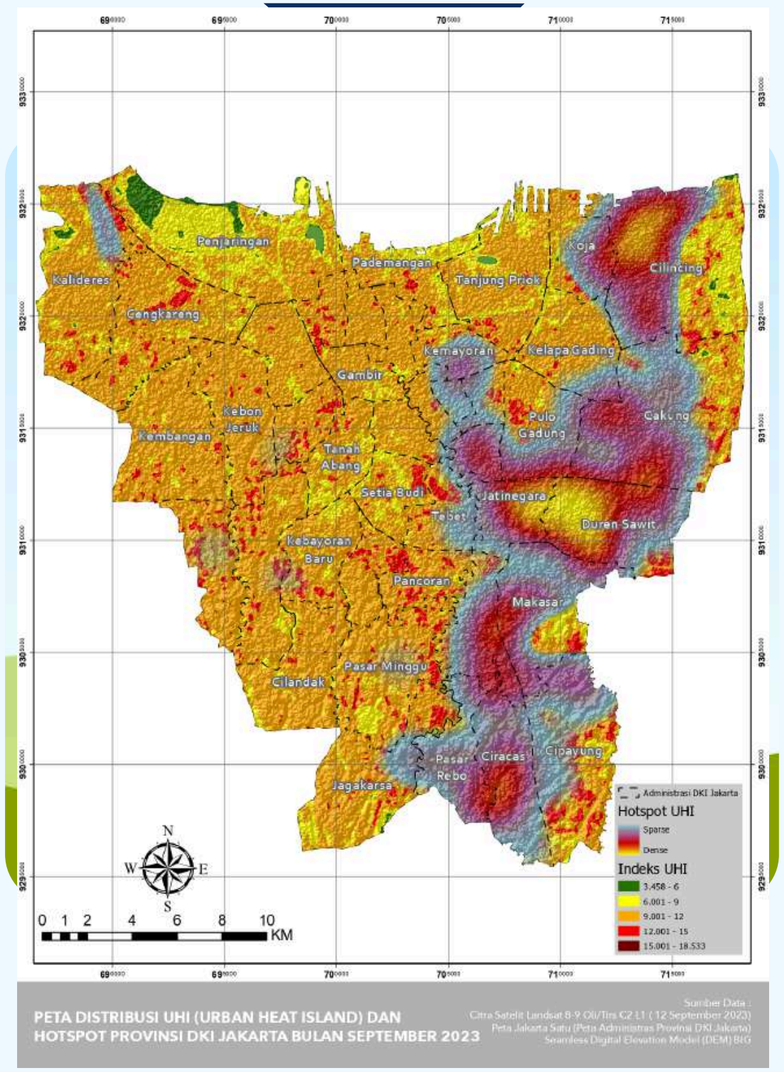
Data Visualisation of Urban Heat Island using NDVI and BIM (Building Information Modelling) in 3D model

OUTPUT



PETA DISTRIBUSI UHI (URBAN HEAT ISLAND) DAN HOTSPOT PROVINSI DKI JAKARTA BULAN AGUSTUS 2020

Sumber Data :
Citra Satelit Landsat 8-9 OliTirs C2 L1 (20 Agustus 2020)
Peta Jakarta Satu (Peta Administrasi Provinsi DKI Jakarta)
Seamless Digital Elevation Model (DEM) BIG



PETA DISTRIBUSI UHI (URBAN HEAT ISLAND) DAN HOTSPOT PROVINSI DKI JAKARTA BULAN SEPTEMBER 2023

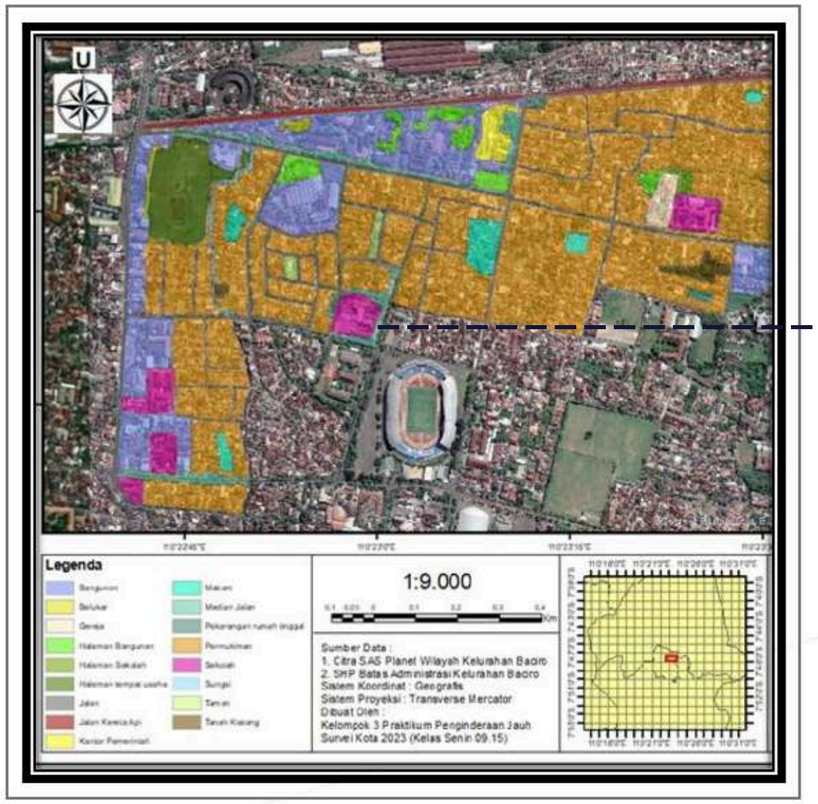
Sumber Data :
Citra Satelit Landsat 8-9 OliTirs C2 L1 (12 September 2023)
Peta Jakarta Satu (Peta Administrasi Provinsi DKI Jakarta)
Seamless Digital Elevation Model (DEM) BIG

URBAN HEAT ISLAND WITH HOTSPOT DENSITY ANALYSIS

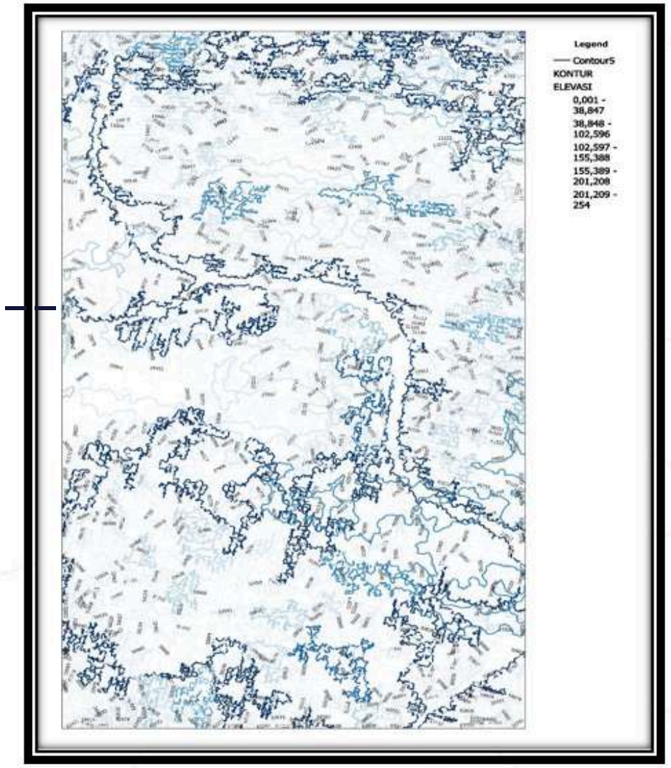
- 22 August 2020 in some parts of the UHI region experienced **negative conditions (no UHI occurred)**, namely between the intervals of **-3,598 to 3,867** degrees celsius
- UHI (Urban Heat Island) distribution map was made, which obtained **positive UHI results (UHI occurred)** on 12 September 2023, 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

PROJECT

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

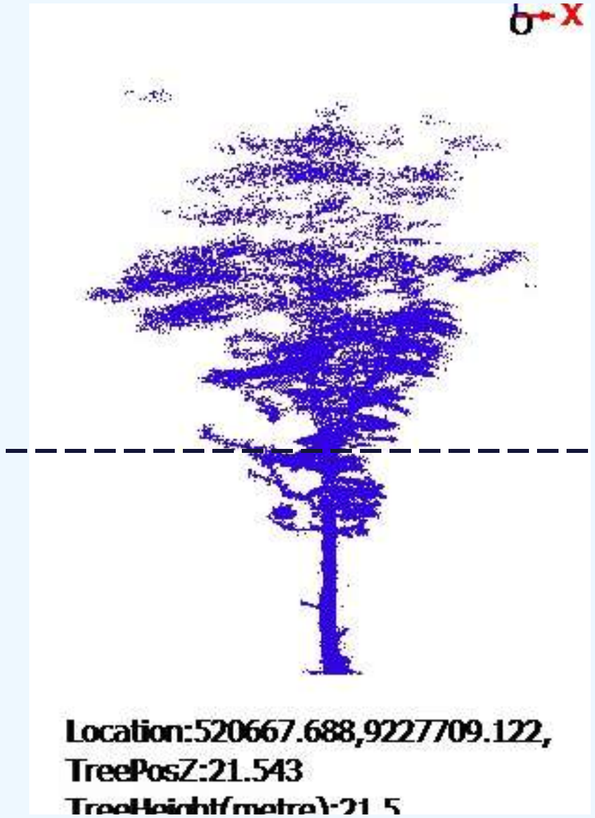


Land Cover Analysis



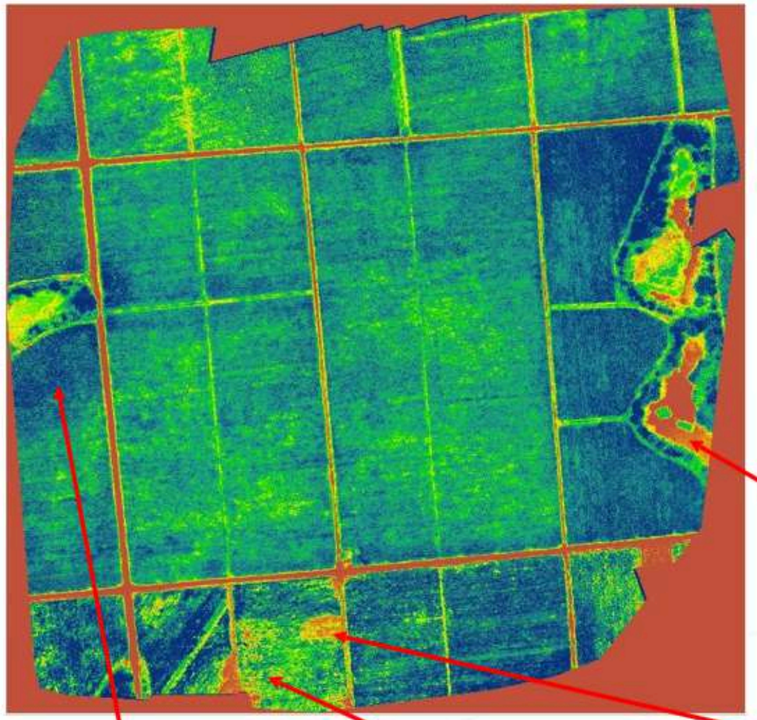
Contour Map

PORTOFOLIO



pointcloud result post-oprocessing data by backpack lidar

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



Location: Lampung

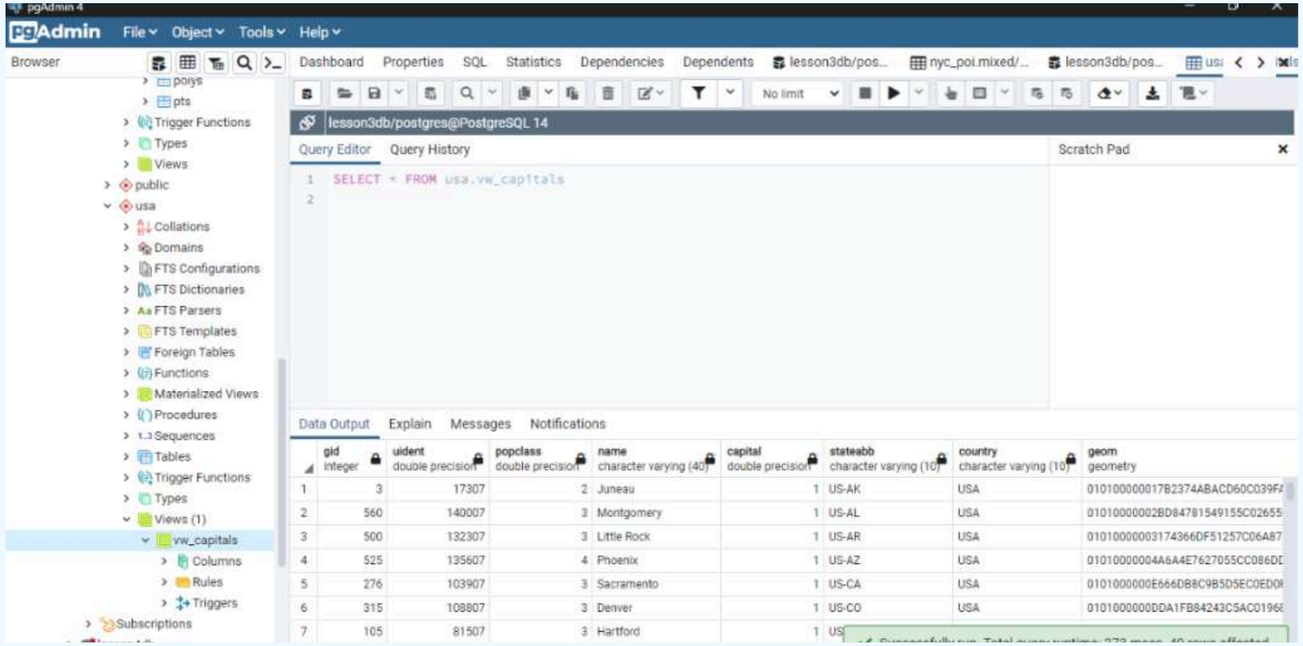
1. Using multispectral Micasense RedEdge MX sensor
2. Analysis focused on *Near Infrared* reflectance signal with various transformation vegetation index
3. Pest: **Stem borer**, most damaging pests to sugar cane, not so visible to plain eye as plants still look green and healthy. Up to 75% mortality rate on young shoots
4. Reflectance pattern will be used for colour classification to pin point pest affected plants
5. Further analysis for mineral deficiency (micro & macro nutrient deficiencies)

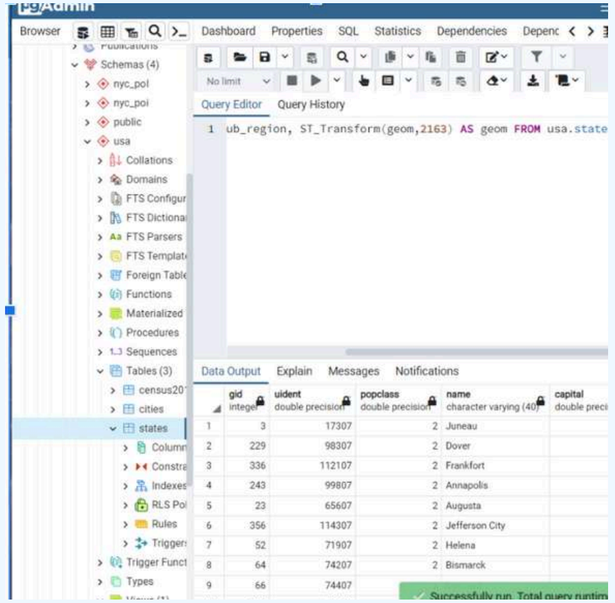
Blue: healthy

Green: less healthy

Yellow: not healthy (disease)

Water





Designing a database query using PostgreSQL