



UNIVERSITI
TEKNOLOGI
MARA

College of
Built Environment

Poster Book

IIIDBEE X 2023
20 JANUARY 2023
*International Invention, Innovation & Design Exposition
for Built Environment and Engineering 2023*

**College of Built Environment
UiTM Puncak Alam**
20 January 2023 | Friday

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Generations of Professional Excellence

Unleashing Potentials
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EYE IN THE SKY: DETERMINING NO2 EMISSIONS SOURCES

IIDBEE

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College of
Built
Environment
(CBE)

INTRODUCTION

- Globally, Nitrogen Dioxide (NO₂) is a greenhouse gas emissions from human activities. It is also a pollutant of concern in urban areas. Urban area, oil and gas industry and powerplant is the main sources of NO₂ emissions.
- Daily satellite data of the Sentinel-5P NO₂ and other traces gases is available since 2018.

ISSUES/ PROBLEM

STATEMENT

- The Continues Air Quality Monitoring Station (CAQMS) used to monitor air quality in Malaysia are limited in number thus covered sparse area.
- Using GEE allows a fast production of map in determining perhaps new sources of emissions location.
- Using GEE allows for the latest daily high-resolution air quality satellite.

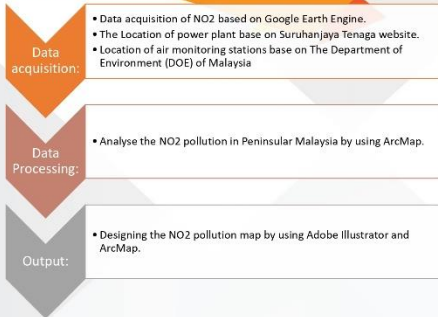
OBJECTIVES

- To use satellite in order to produce daily, weekly, monthly NO₂ emission maps.
- To relate NO₂ emissions hotspot from satellite with activity on the ground.

Full Scale Map Scan Here:



METHODOLOGY



FINDINGS

- The area that have power plants and located near the urban area, providing the highest NO₂ which is the hotspot of air pollutions in peninsular Malaysia.
- The urban area, oil and gas industry and power plants is the main of NO₂ emissions sources in peninsular Malaysia.

CONCLUSION

- The power plant that has the highest watt capacity is the biggest contribution in NO₂ emissions.
- Air quality monitoring using satellites is better than using continuous and manual methods because it can cover the entire Malaysian peninsula.

NOVELTY

- Providing locations capital city each sates, locations of power plant with the NO₂ pollutions hotpots.
- using GEE which help in processing the satellite data with very fast processing capability and speed

COMMERCIALIZATION

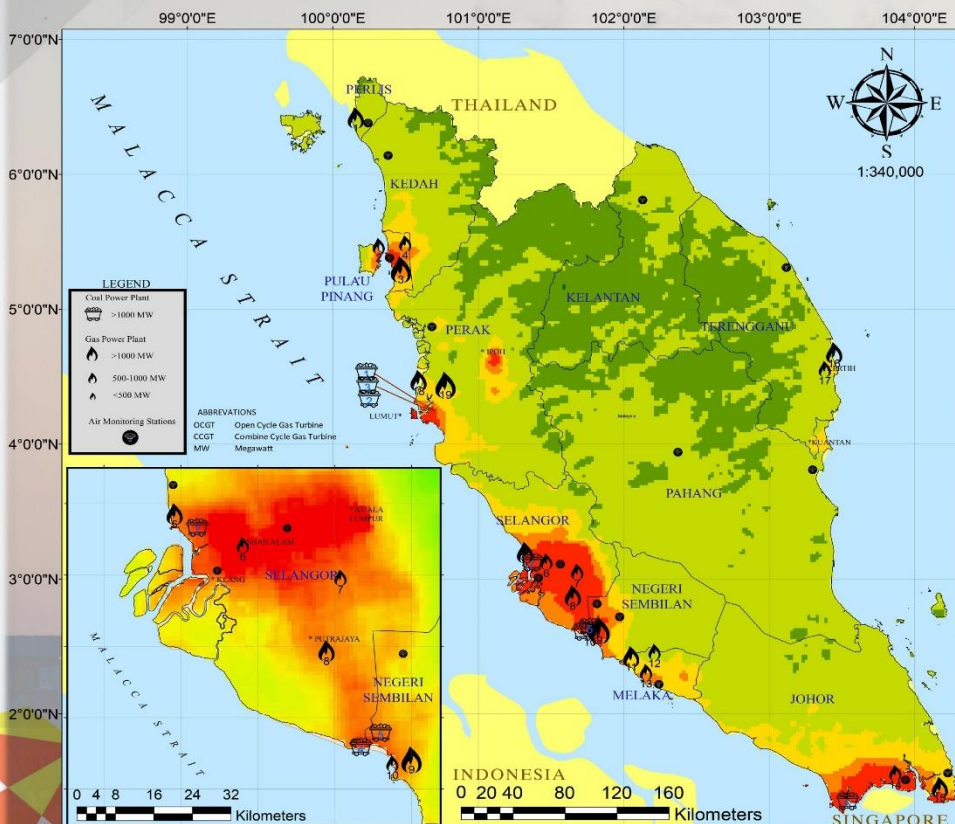
- This can be develop as an app for public and government body update of pollution sources.
- Can be use to calculate malaysia GHG emission rate as to comply to Paris agreement which has been done by other country

CONFERENCES & PUBLICATION

- Quantifying NO₂ Reduction Before and During Covid-19 Movement Control Order In Major Cities And Industrial Area In Peninsular Malaysia Using Satellite Data Observation Nurul Farhani Binti Hashim, Pauziyah Mohammad Salim, Siti Aekbal Salleh and Aion Nisa Othman DICREMBEE 2021

REFERENCES

- C. Bassani, F. Vichi, G. Esposito, M. Montagnoli, M. Giusto, and A. Ianniello, "Nitrogen dioxide reductions from satellite and surface observations during COVID-19 mitigation in Rome (Italy)," Environ. Sci. Pollut. Res., vol. 28, no. 18, pp. 22981–23004, 2021, doi: 10.1007/s11356-020-12141-9.
- I. Manisalidis, E. Stavropoulou, A. Stavropoulos, and E. Bezirtzoglou, "Environmental and HealthImpacts of Air Pollution: A Review," Front. Public Heal., vol. 8, 2020, doi: 10.3389/fpubh.2020.00014



geomass
GEOMATICS SCIENCE STUDENT SOCIETY

NO2 EMISSIONS SOURCES IN PENINSULAR MALAYSIA 2022

No.	Power station (GAS)	Plant Capacity (MW)
1	Beris CCGT	330
2	Relau CCGT	330
3	Prat TNB CCGT	307.1
4	SAS Prati CCGT	300
5	Kapar Energy Ventures OCGT	789
6	Changkat Balak CCGT	275
7	Putrajaya CCGT	249
8	Kuala Langat CCGT	675
9	Tanjung Lela CCGT	3429
10	Port Dickson CCGT	436
11	Panglima Power CCGT	720
12	PowerMax CCGT	814
13	Pakuawan Power (MPPS) CCGT	322
14	TNB Seremban CCGT	375
15	Perangang Power CCGT	600
16	YTL (Prati) CCGT	385
17	Sultan Ismail (Prati) CCGT	375
18	GB Lumei CCGT	640
19	Seger Lumei CCGT	1100
	Total	21488

No.	Power Station (COAL)	Plant Capacity (MW)
1	TNB Muar S	3000
2	TNB Janamanjung M4	3010
3	Janamanjung B1MC	2010
4	Janah East Power	2000
5	Imah	1400
6	Tanjung Bin Energy	1000
7	Kapar Energy Ventures	1486
	Total	9966

Percentage of NO2



NOx Emissions Sources

