

Innovative Technology for Air Pollution Control

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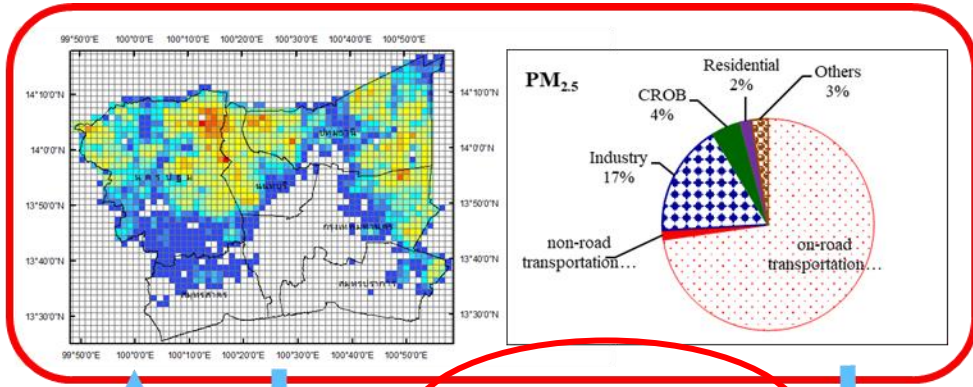
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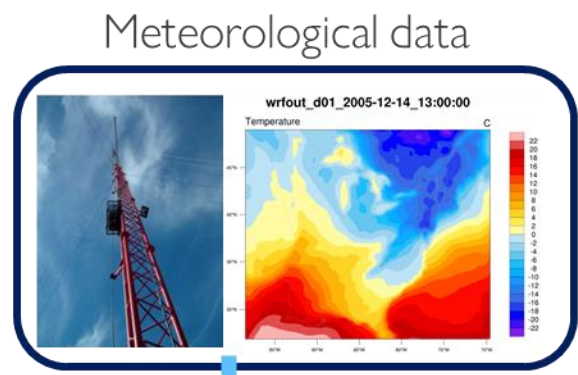
Integrated Approach to set Air Quality Management



Air Quality Monitoring



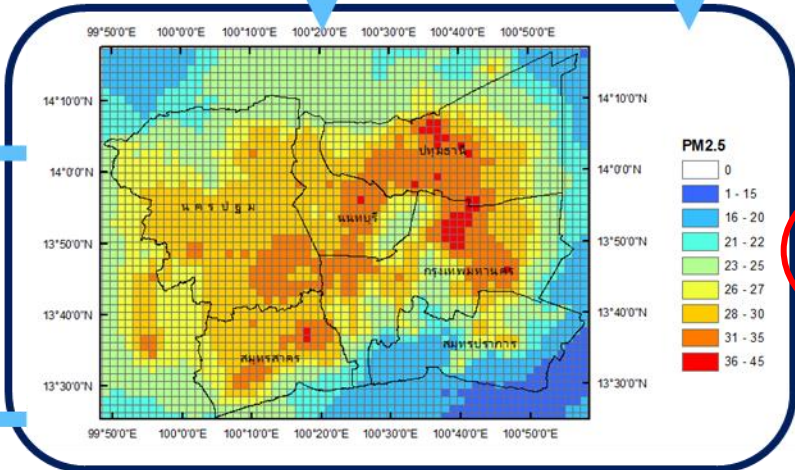
Emission Inventory



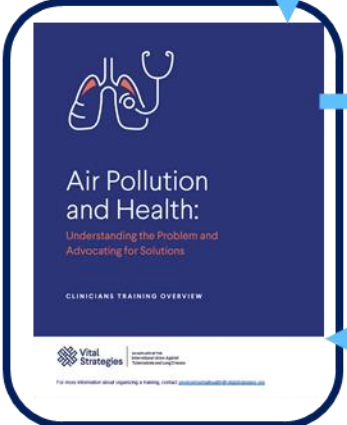
Meteorological data



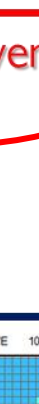
Air Quality Management



Air Quality Modeling



Impact Assessment



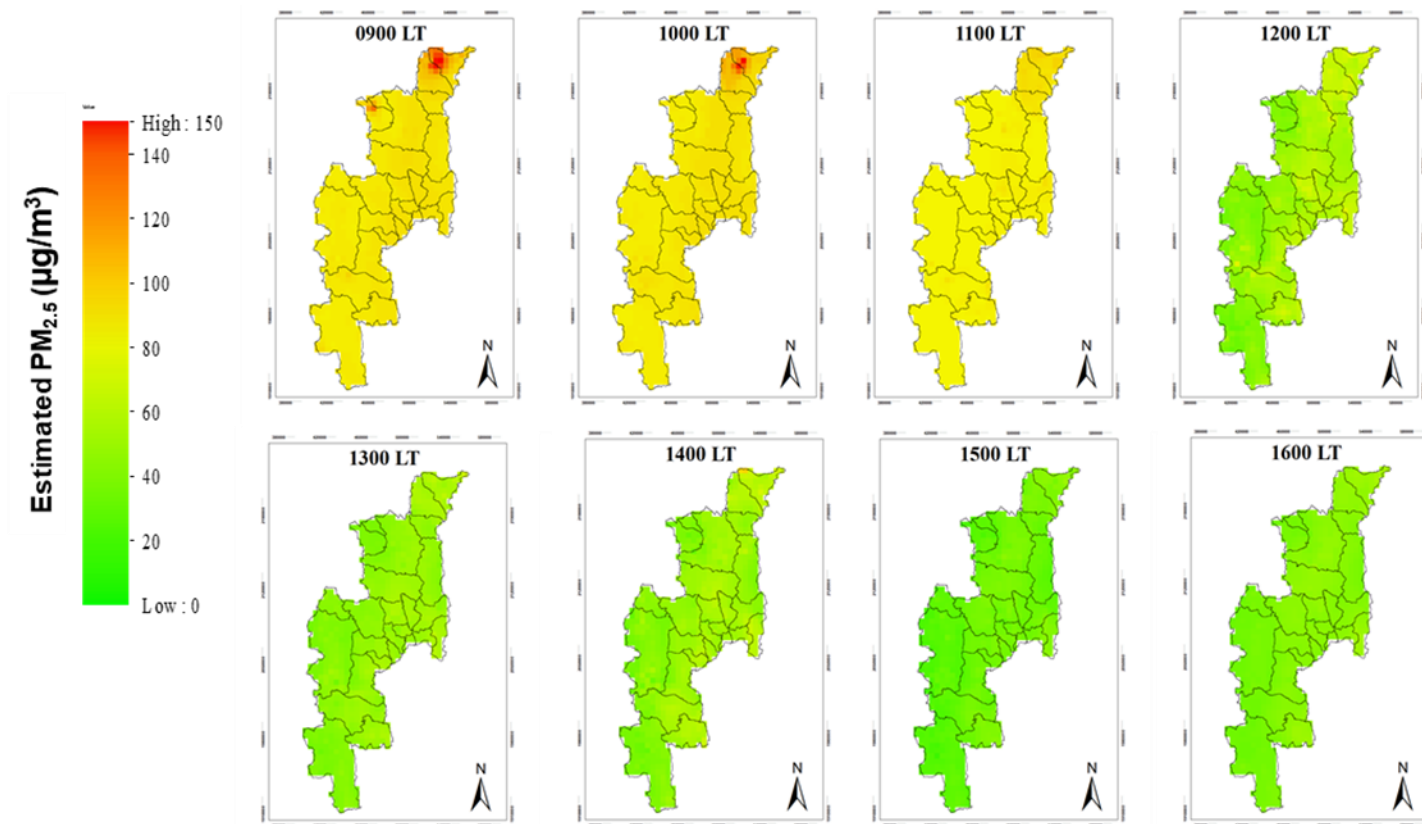
1) Innovation in Air Quality Monitoring



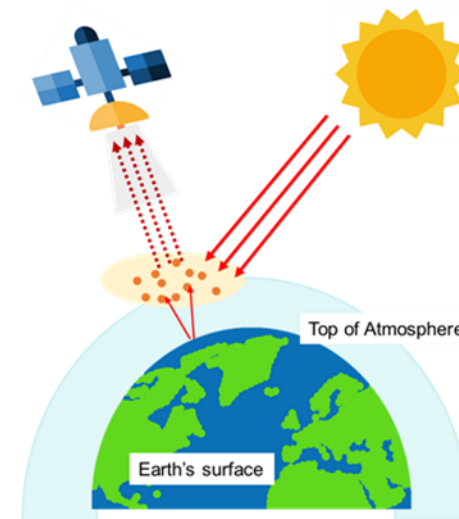
Traditional Methods

- Certified reference method – high quality data, but very expensive (capital, operation & maintenance)
- Classified as roadside, residential, commercial, industrial and mixed (residential and industrial), upwind, downwind
- Monitoring stations in Thailand:
 - General sites: 100-800 m from roads
 - Curbside/roadsides (3-5 m from traffic lanes)

Satellite for Air Quality Monitoring



Spatial distribution of $PM_{2.5}$ concentration for different hours (09.00LT to 16.00LT) on February 7th, 2018

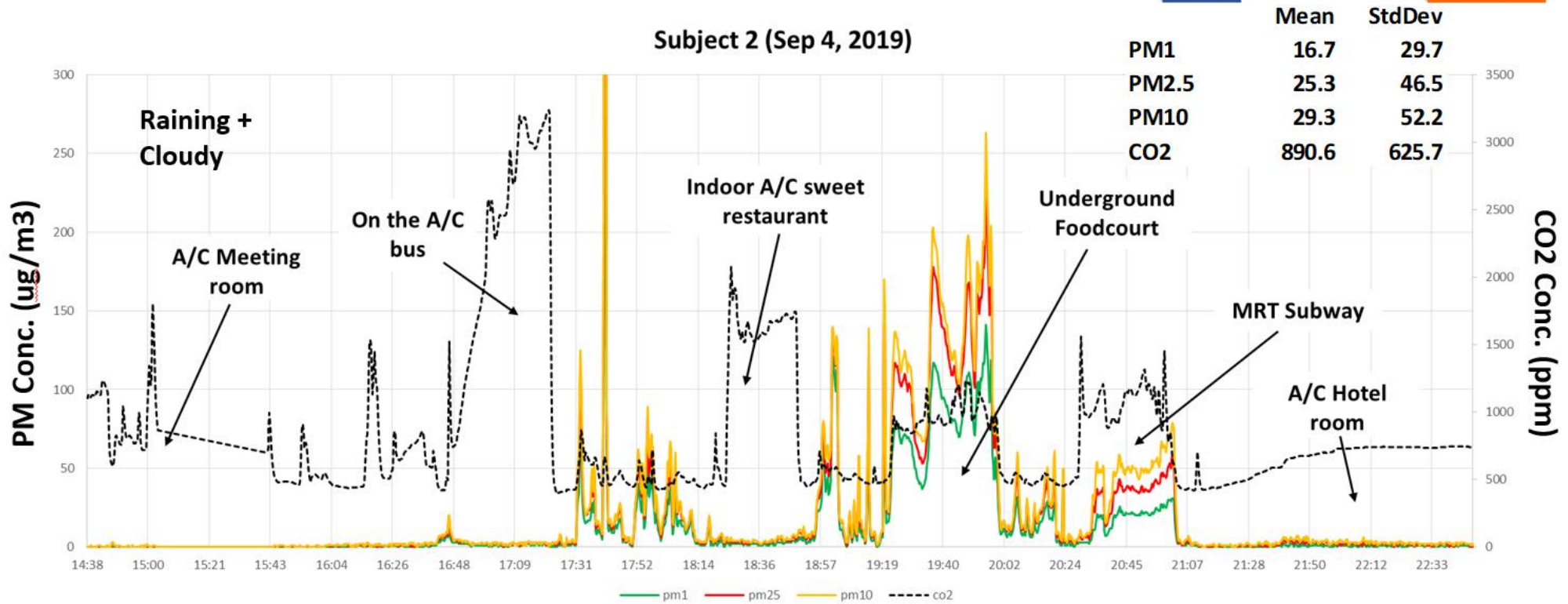
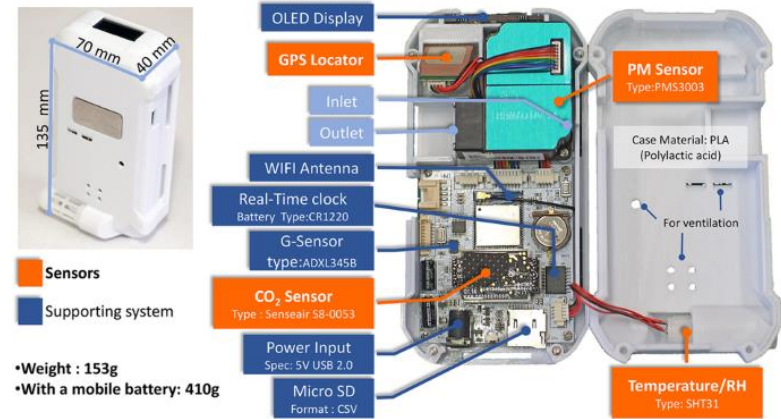


- ✓ Near real-time $PM_{2.5}$ data
- ✓ Hourly $PM_{2.5}$ distribution in the absent of monitoring stations
- ✓ Plan the outdoor activities

Samermi, et al. (in preparation)

** Only method that can cover large scale monitoring **

2) Personal Exposure



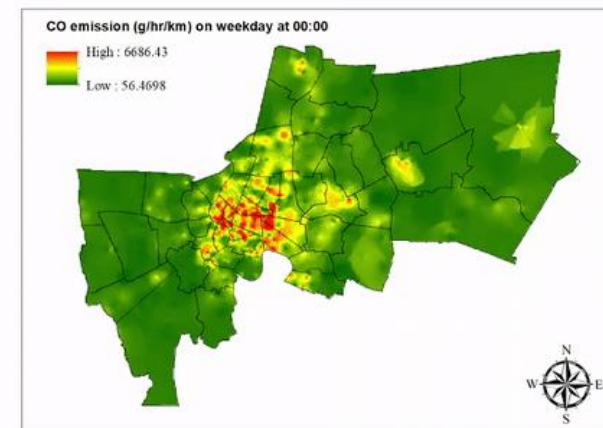
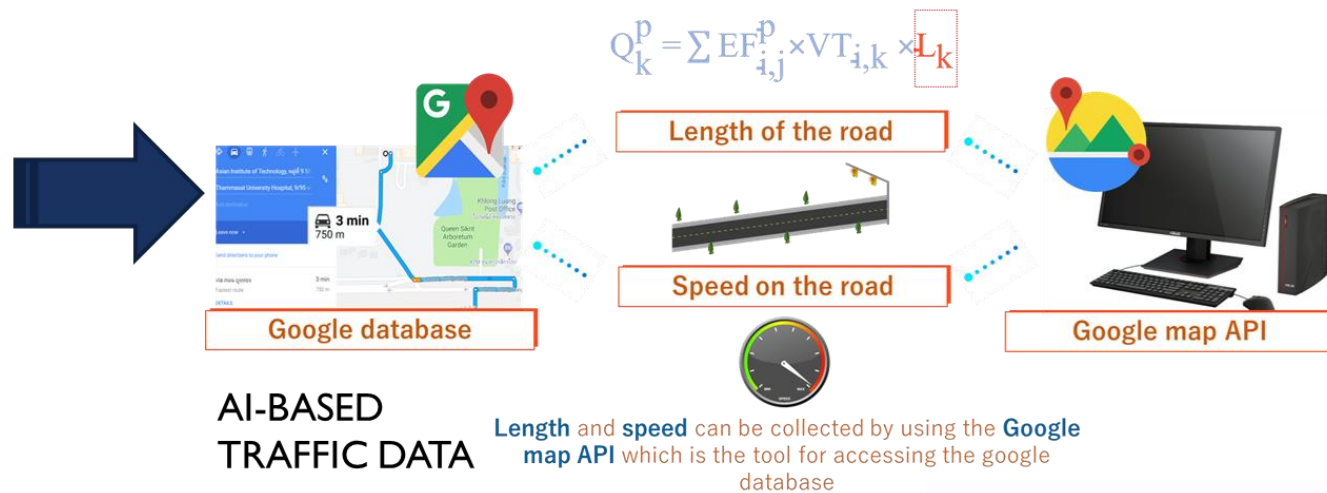
- CO2 conc. --> high --> indoor environment
- PM conc. --> high --> next to combustion source
- High CO2 + High PM --> indoor environment with combustion sources in that microenvironment

3) Innovation in Emission Inventory Development



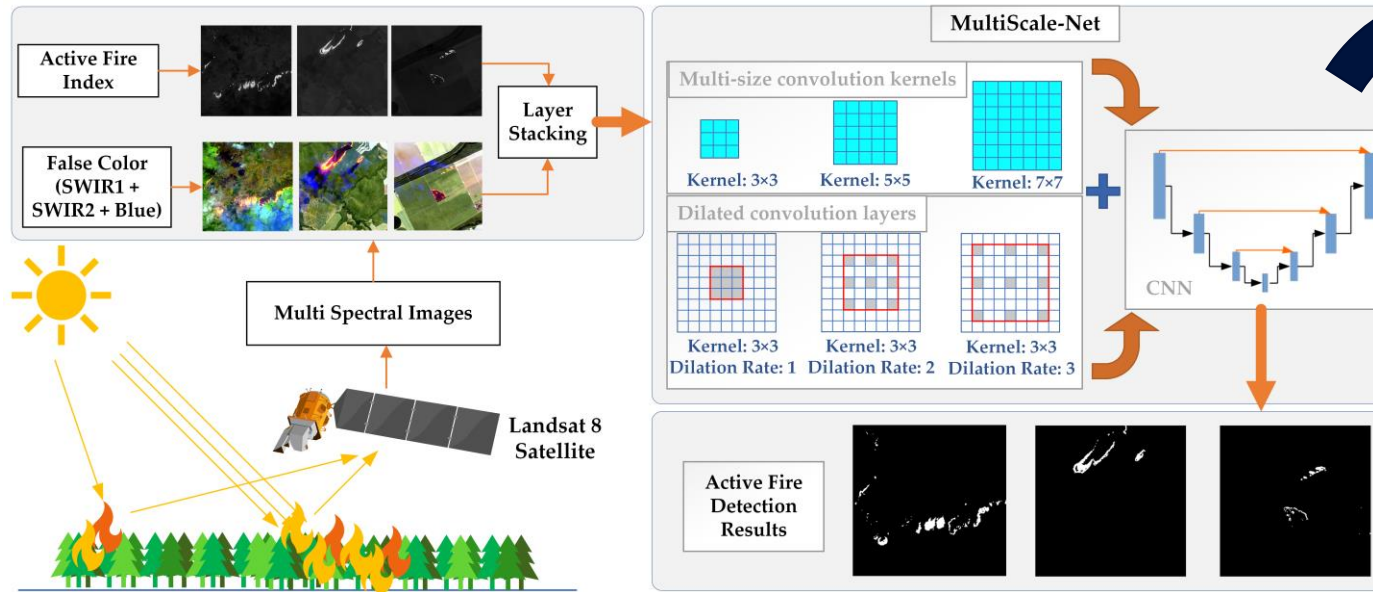
TRADITIONAL
TRAFFIC SURVEY

EMISSION INVENTORY FOR TRAFFIC

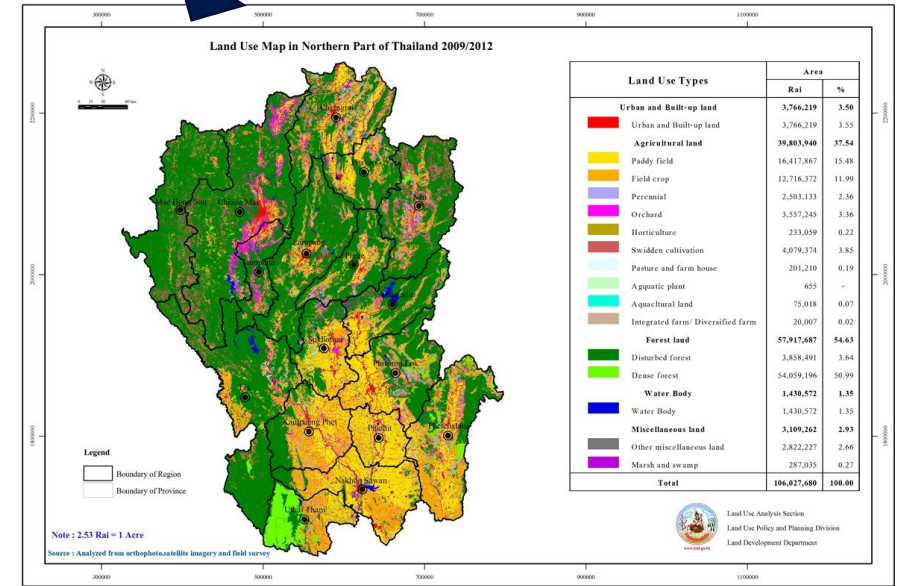


Open Burning Emission Inventory

Real-time retrieval of fire hotspots



Automatic overlay with land use



Source: Rostami et al (2022)

Real-time open burning emission

Emission Factors & Biomass loading for different crops





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THANK YOU