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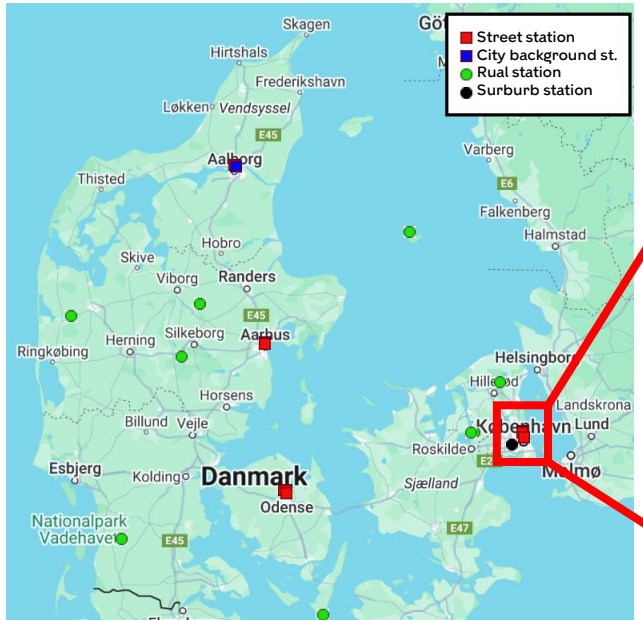
Copenhagen Air View

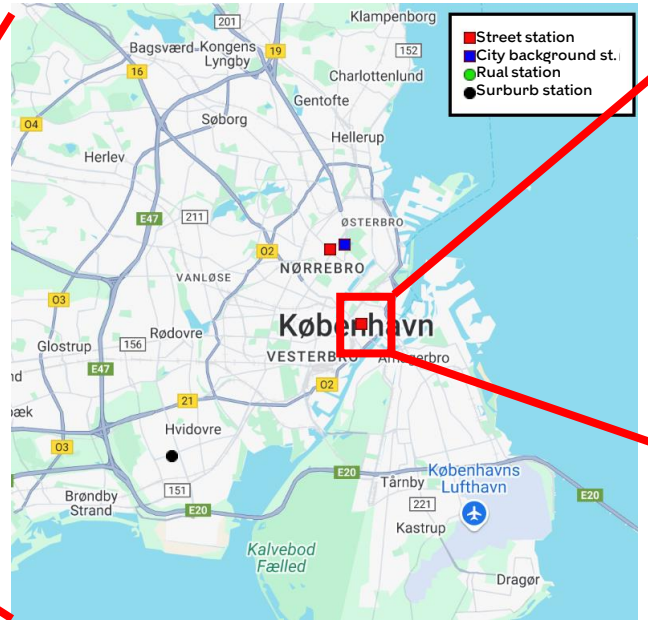
Agenda

- Former monitoring program
  - DCE
- Copenhagen Air View project
  - Political wish for increased knowledge
  - Considerations in terms of citizens science (London approach)
  - Project results
- Current monitoring program
  - Force Technology
- Questions

Former monitoring program

- Danish Centre For Environment And Energy (DCE) manage national Danish data reporting in accordance with international conventions.
- DCE work with mathematical models that can describe how air pollutants are transported, converted and deposited, thus providing a level of detail that ranges from local pollution in a street to nationwide and global air pollution.





Copenhagen Air View project
- Political wish for increased knowledge

- On June 10th 2018, a collaboration between the City of Copenhagen and Google is announced, to measure the air pollution in Copenhagen street by street.
  - The partnership supports Citizens' Representative adopted proposal (April 18, 2018) to increase measurements of the city's air quality beyond the state standards.

- On October 9th 2018, the Google Street View car is presented, which has advanced air measurement equipment to measure air pollution in the middle of the street.
  - At the same time, a partnership consisting of the City of Copenhagen, Google, Utrecht University, Aarhus University (DCE) and the University of Copenhagen is presented.
  - The university partners are particularly important as they are guaranteeing the quality of the measurements and therefore the creation of results.

Copenhagen Air View project
- Considerations in terms of citizens science

Location + Meteorology

Latitude & Longitude
Vehicle Speed and Heading
Wind Direction
Wind Speed
External Temperature
External Pressure

Lab-Grade Instrumentation

Black Carbon: photoacoustic extinction
Nitric Oxide: chemiluminescence
Nitrogen Dioxide: cavity-attenuation phase shift spectroscopy
Particular matter: PM10; PM2.5 and PM0.1
Sample rate: 1 Hz

VS

Copenhagen Air View project
- Project results

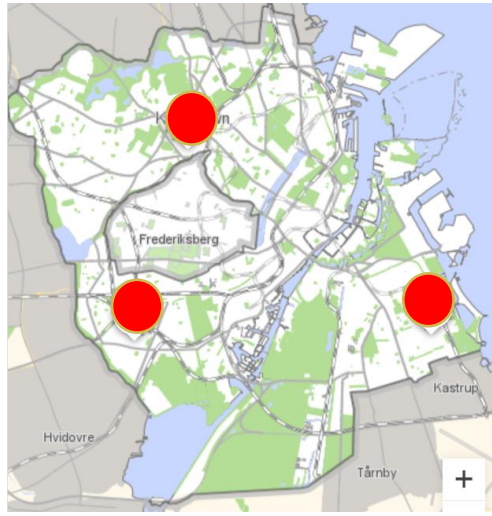
- On May 25th 2021, the final project results will be published.
  - All roads in Copenhagen is measured at least 6 times, with one measurement per second.
  - Measurements of 1 second have been collected into road segments of approx. 30 meters.
  - NO2 data for each road segment represents a long-term average value.
  - Soot (Black Carbon) and ultrafine particles (UFP) represent the long-term daily values.

- Just over 6 million measurements made publicly available at: https://www.opendata.dk/city-of-copenhagen/airview

- 3 interactive maps for ultrafine particles (UFP), soot (Black Carbon) and NO2: (https://insights.sustainability.google/labs/airquality)

Current monitoring program

- On April 28th 2020, Force Technology won a bid for placement of five measuring stations to be bought by the City of Copenhagen for providing long-term measurement at specific site around the city to also get spatial measurements.
- The measurements are presented in yearly reports.
- The five location was reduced to three with the budget from 2023.
- The results from Copenhagen Air View program are not yet used in any capacity due to discussions about their validity when compared to other measurements conducted using monitoring stations.



Questions