AQSens:
An Interoperable Platform Integrating Citizen Science and Authoritative Air Quality Data

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OVERVIEW

- European project conducted by the Joint Research Centre (JRC) of the European Commission

- Supporting the development of AQ Sensor Networks in Europe

- Integrating smart sensors and modelling for air quality monitoring in cities

- Complement authoritative sensor networks with affordable sensing devices (AQSens boxes)
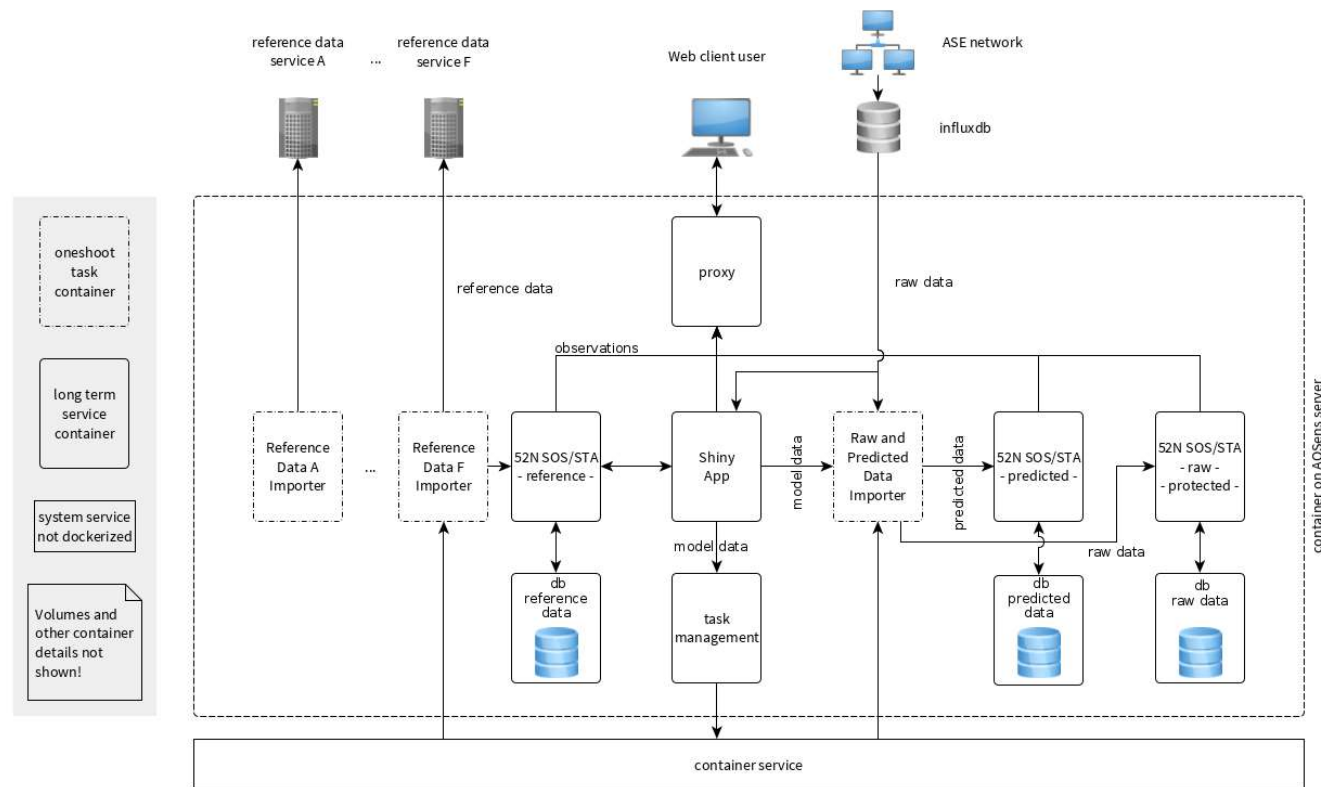
TASKS

- The project covers a broader context:
  - Compare the capability and performance of lower-cost sensor systems to measure air pollution with conventional monitoring and modelling
  - Develop a traceable calibration technique for lower-cost sensor systems
  - Elaborate on a potential way to integrate lower-cost sensor systems in existing monitoring networks and modelling systems
  - Develop a platform for integration and visualization of data from sensors
  - Establish guidance on the use of lower-cost sensor systems and their interrelationship with already existing conventional monitoring and modelling systems
- AQSens Data Platform is one element of the project to support the exchange of air quality data
- Deployment of 85 sensor boxes in three cities: Antwerp (Belgium), Oslo (Norway), Zagreb (Croatia)
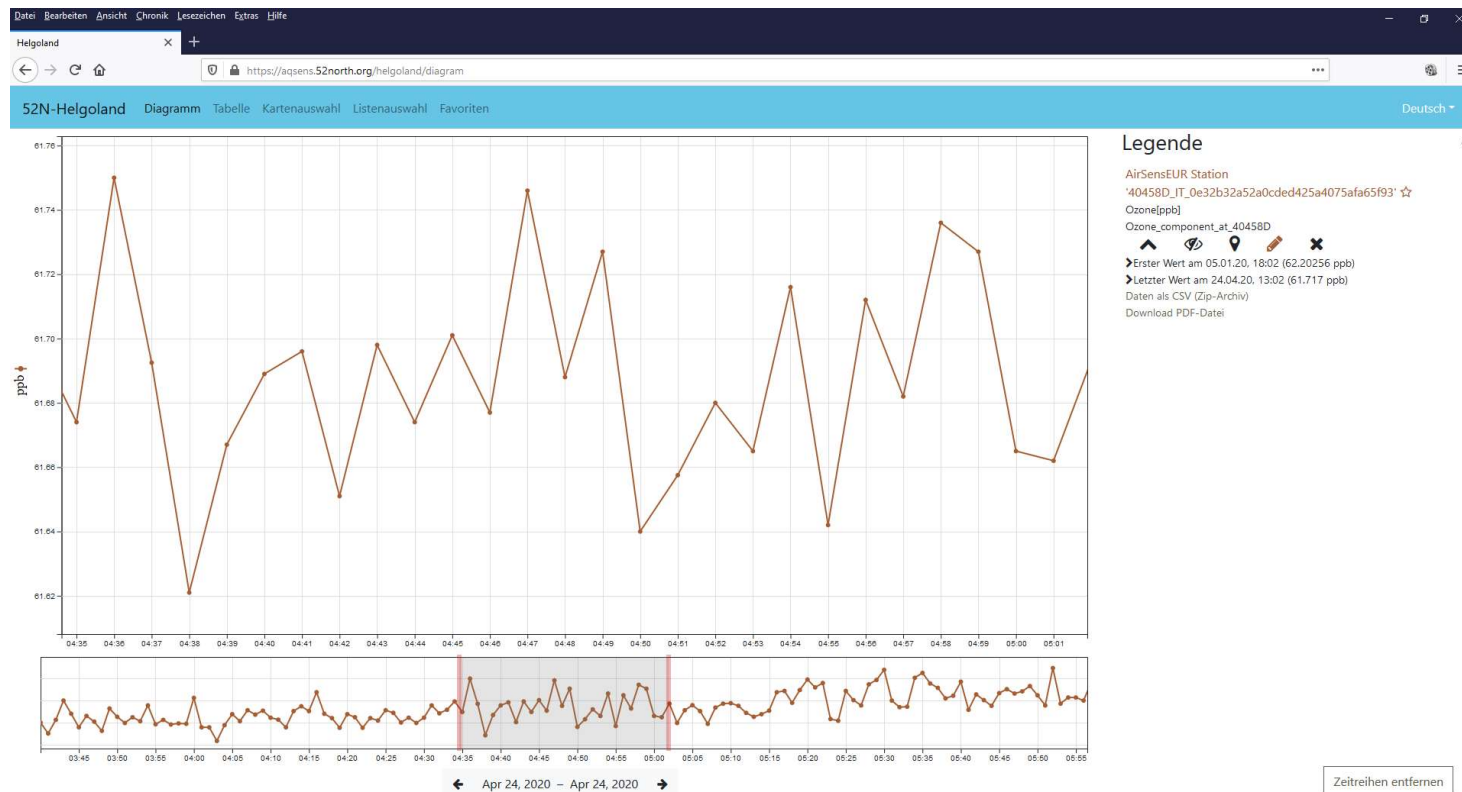
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AQSens Data Platform

- Integrate different data sources
  - Raw data of AQSens sensor boxes
  - Reference data from authoritative measurement networks
- Perform validation of incoming data (based on R)
- Enable interoperable access to the collected data via INSPIRE compliant interfaces
  - OGC Sensor Observation Service
  - OGC SensorThings API
- Provide means for visually exploring the collected data (Web viewer)
- All components will be available as open source software

System Architecture

reference data
service A

...

reference data
service F

Web client user

ASE network

influxdb

oneshoot
task
container

long term
service
container

system service
not dockerized

Volumes and
other container
details not
shown!

proxy

reference data

raw data

observations

Reference
Data A
Importer

...

Reference
Data F
Importer

52N SOS/STA
- reference -

Shiny
App

model data

Raw and
Predicted
Data
Importer

predicted data

52N SOS/STA
- predicted -

52N SOS/STA
- raw -
- protected -

db
reference
data

model data

task
management

db
predicted
data

raw data

db
raw data

container on AQSens server

container service

Visualization

THANK YOU FOR YOUR ATTENTION!

Questions?

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