

European Network on New Sensing Technologies for Air Pollution Control and Environmental Sustainability - *EuNetAir*

COST Action TD1105

Final Meeting at PRAGUE (CZ), 5-7 October 2016

New Sensing Technologies for Air Quality Monitoring

Action Start date: 01/07/2012 - Action End date: 15/11/2016 - EXTENSION: 15/11/2016

CITI-SENSE: From sensor technology to citizen engagement



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cost
EUROPEAN COOPERATION IN SCIENCE AND TECHNOLOGY

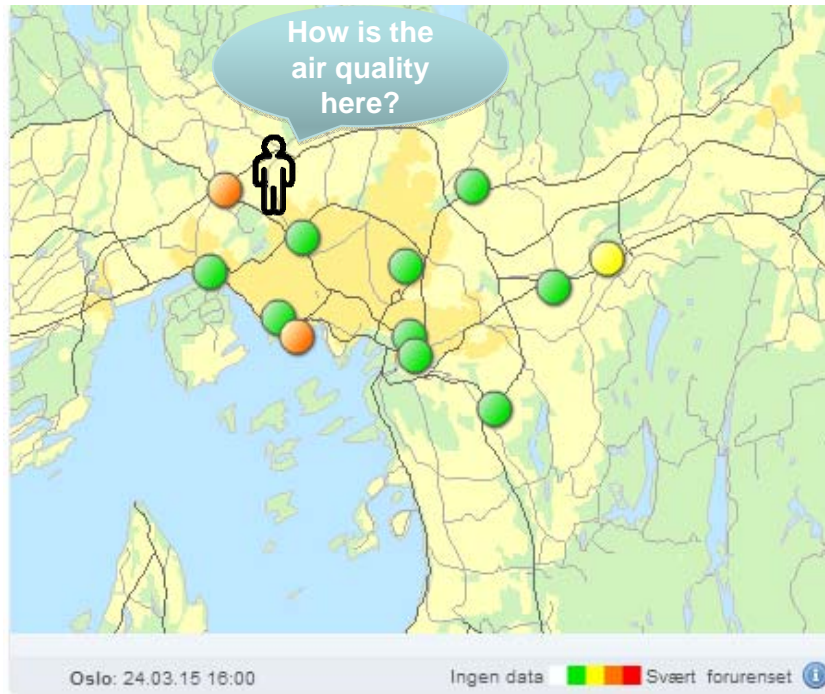


The people behind CITI-SENSE



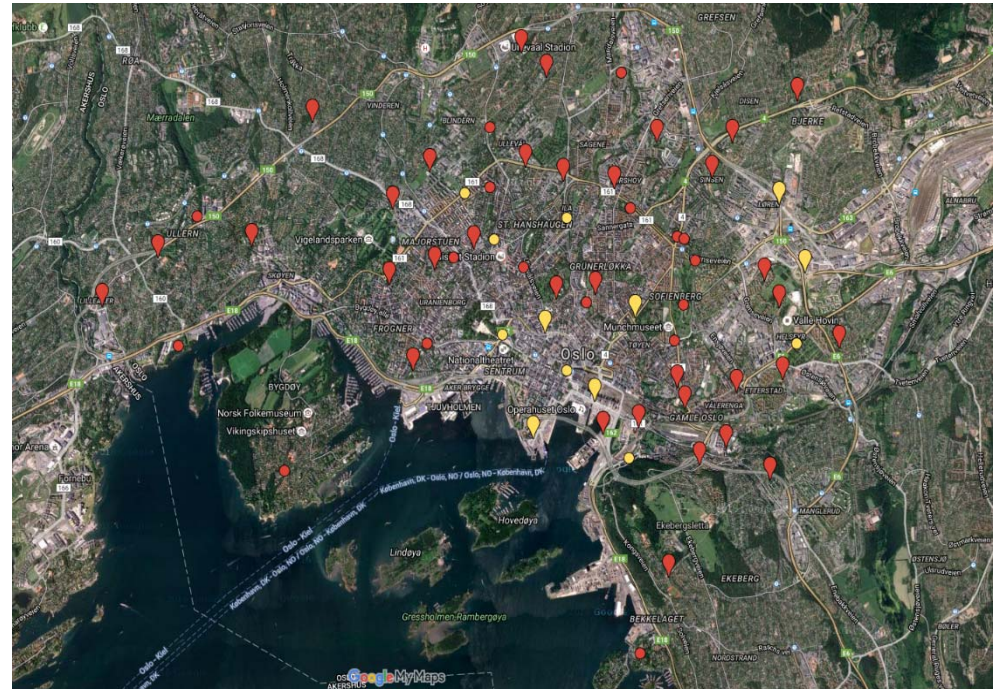
CITI-SENSE in Oslo

Luftkvalitet.info



Few monitoring stations
No real-time data where people are
Absence of personalized data
High accuracy, precision and reliability

Low-cost sensors

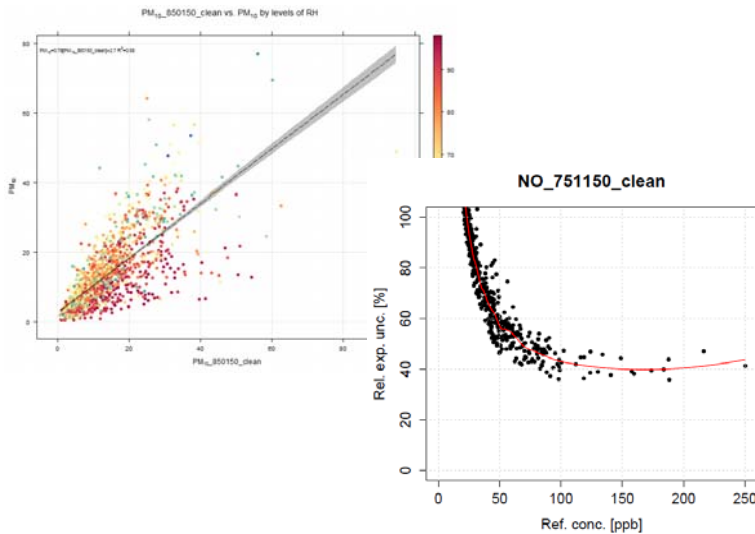
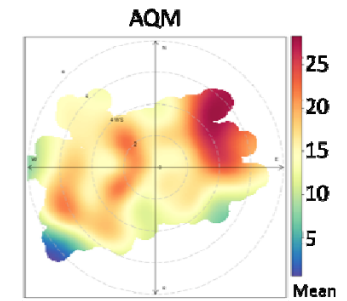
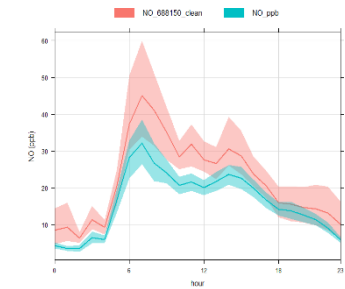
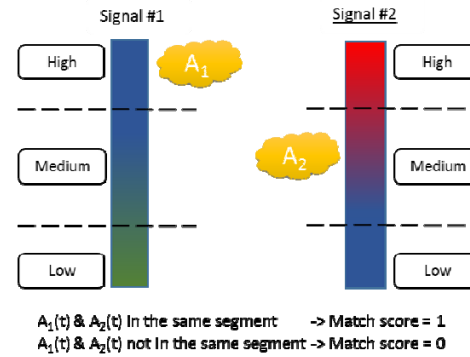
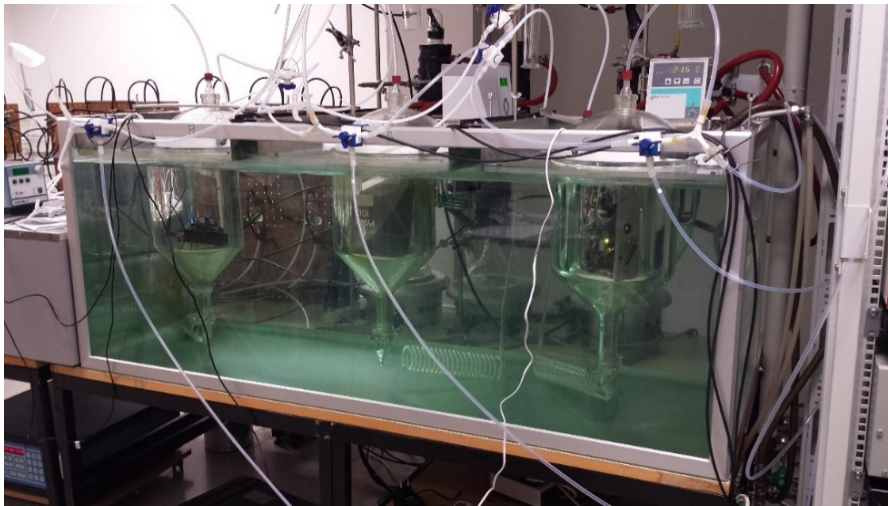


Increased spatial coverage
Real-time data where people are
Personalized services
Less accurate data

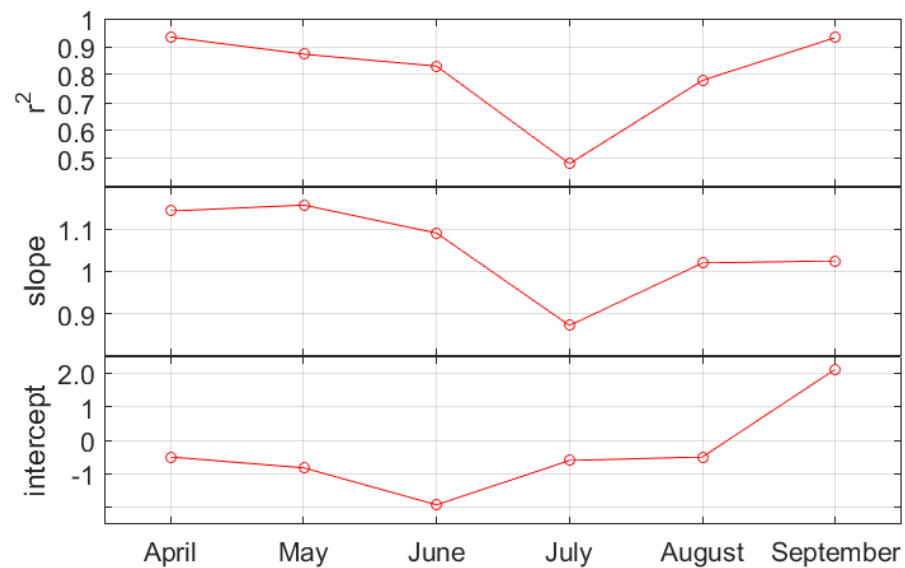
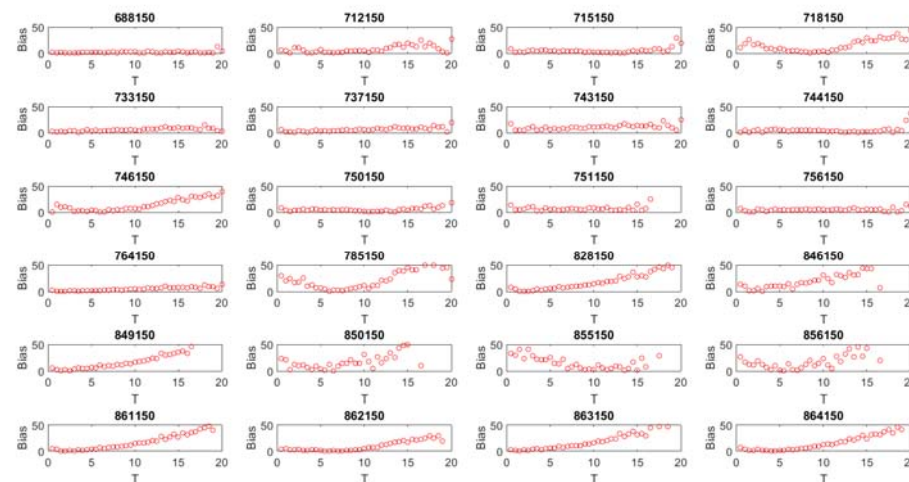
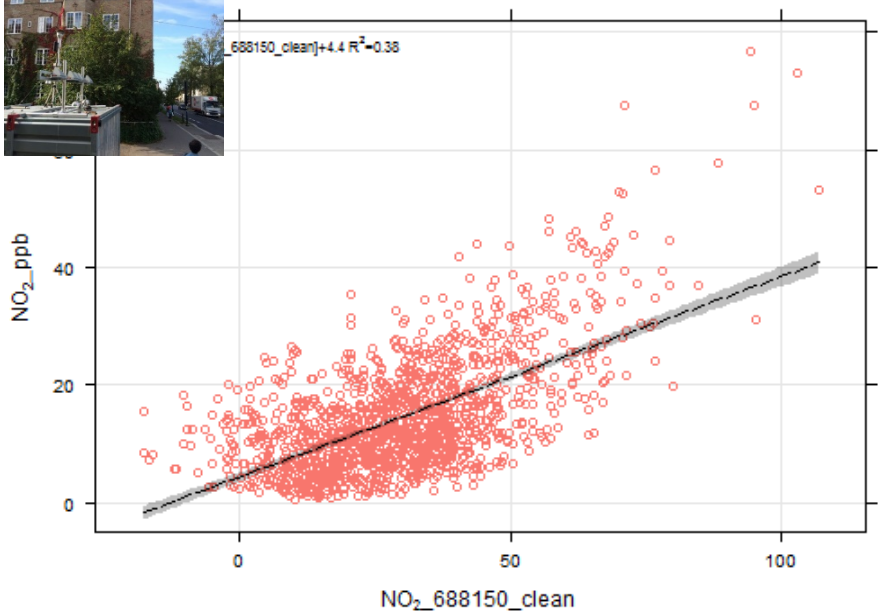
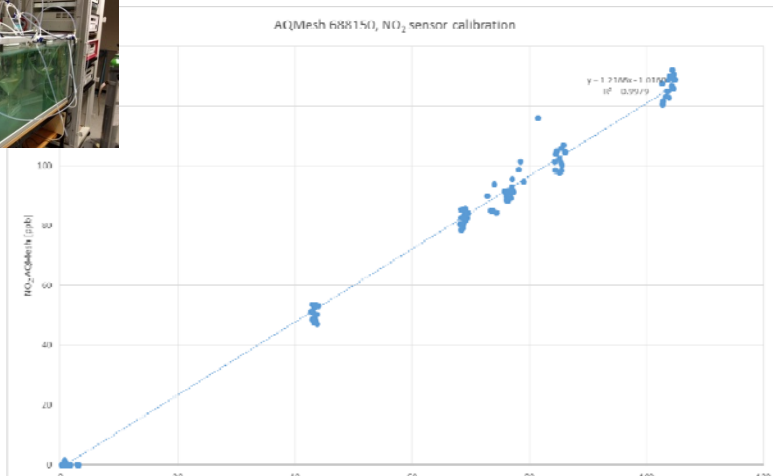
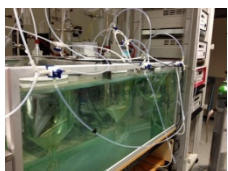
Collecting air quality data: low-cost sensor-based platforms



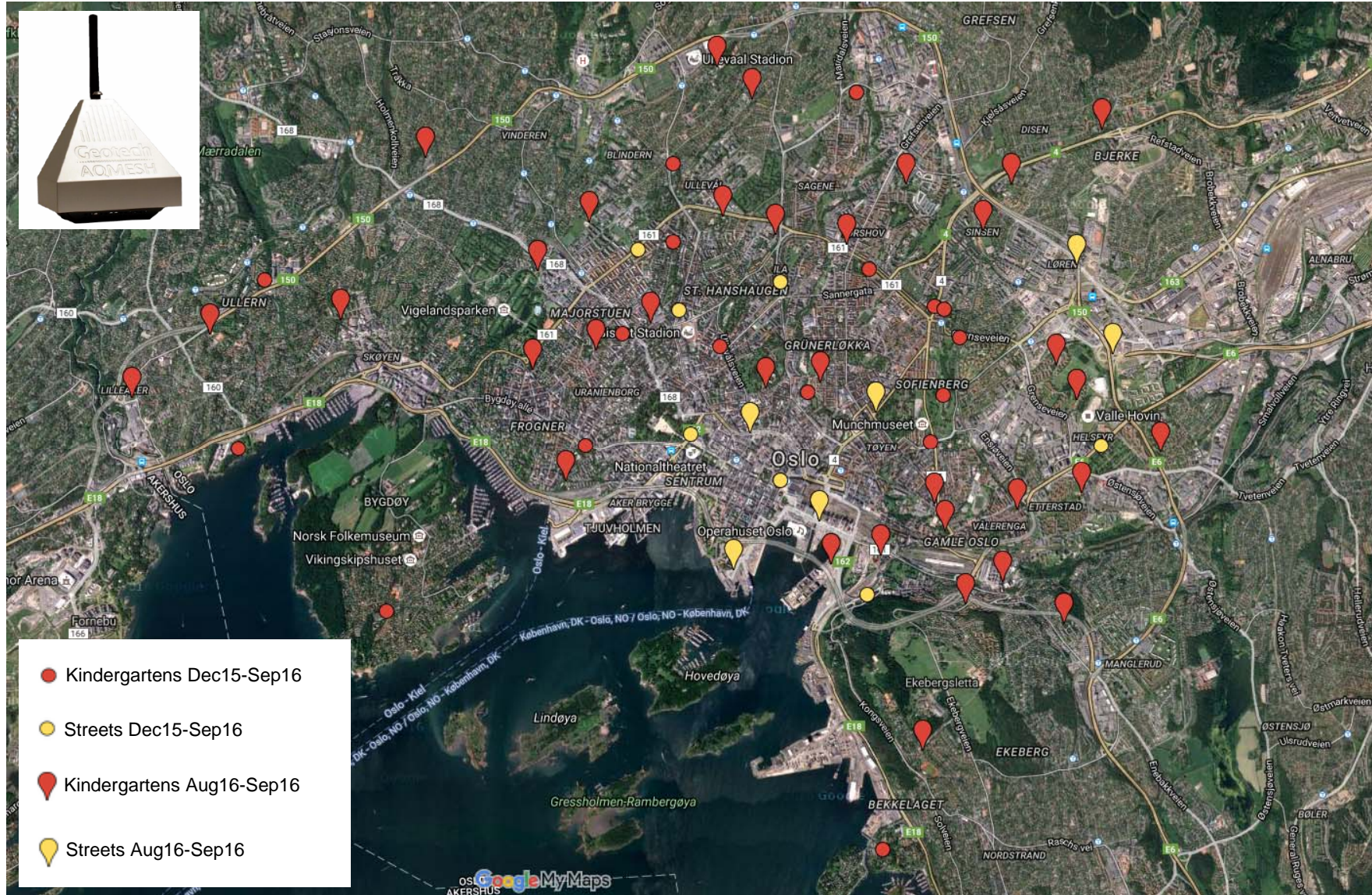
Data quality: calibration in the laboratory and in the field



Data quality: calibration in the laboratory and in the field

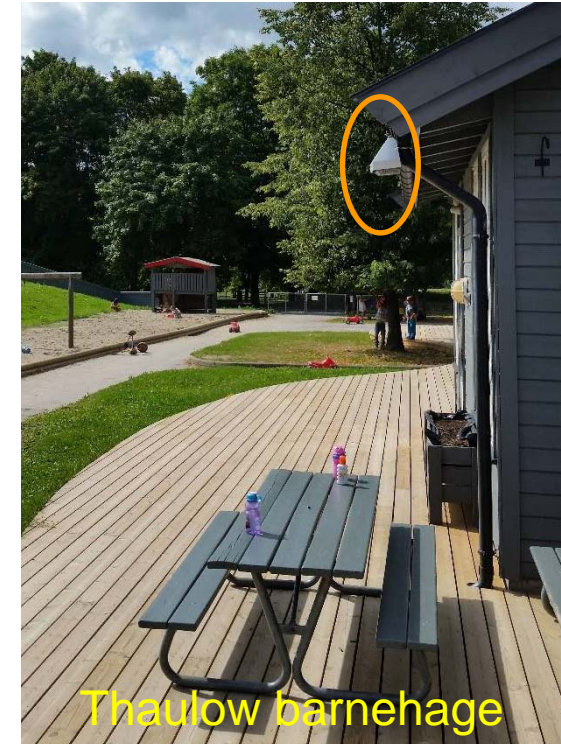


AQMesh deployment in 51 kindergartens and 13 streets in Oslo



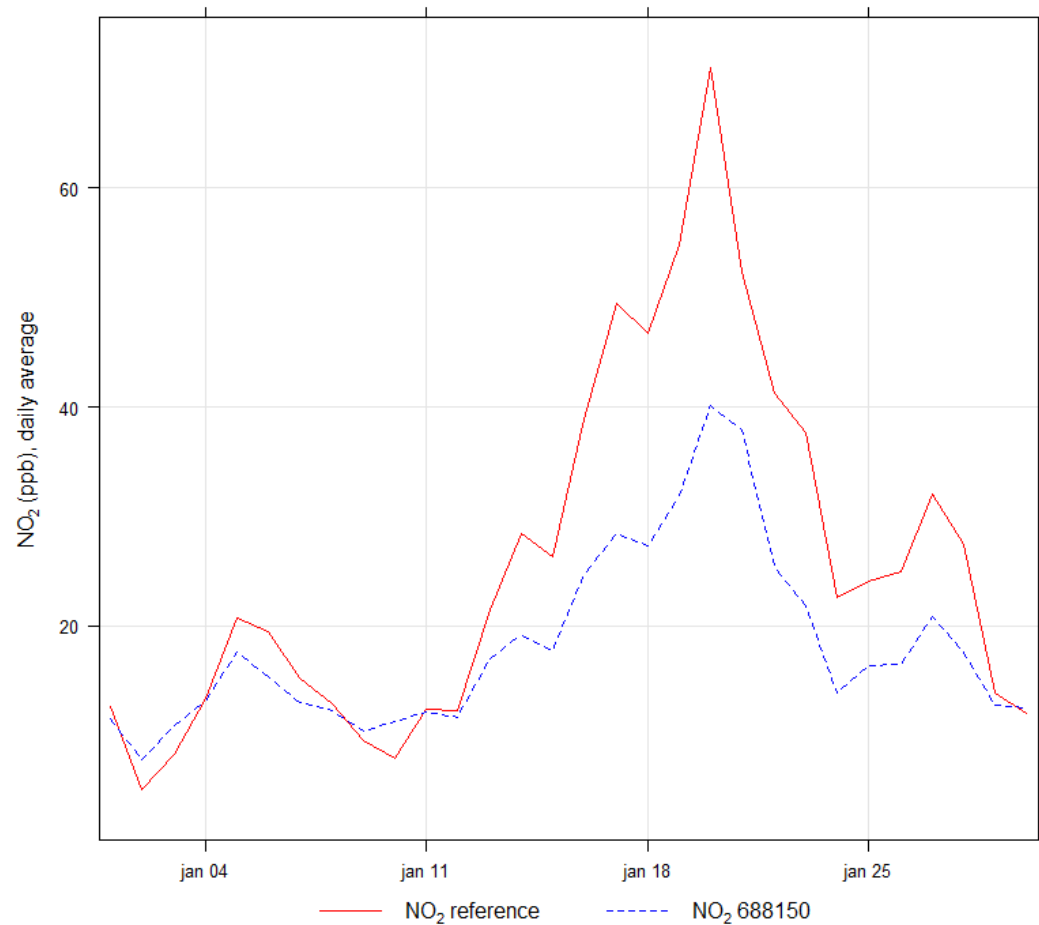
AQMesh deployment in 51 kindergartens and 13 streets in Oslo

Data collected at the kindergartens



AQMesh deployment in 51 kindergartens in Oslo

Data collected at the kindergartens, January 2016

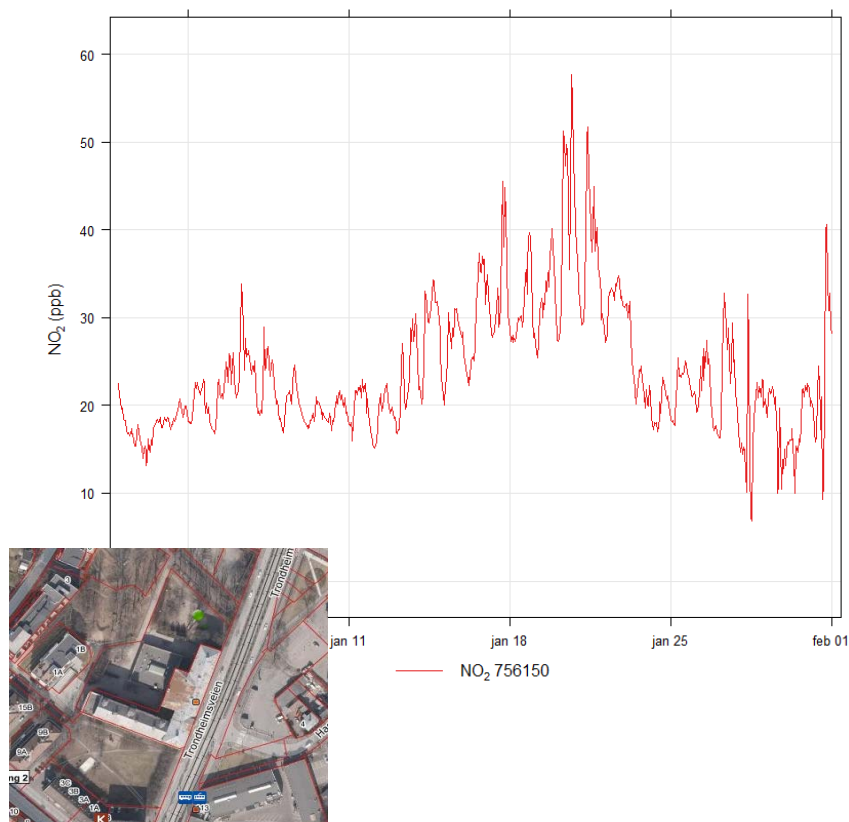


AQMesh deployment in 51 kindergartens in Oslo

Data collected at the kindergartens, January 2016

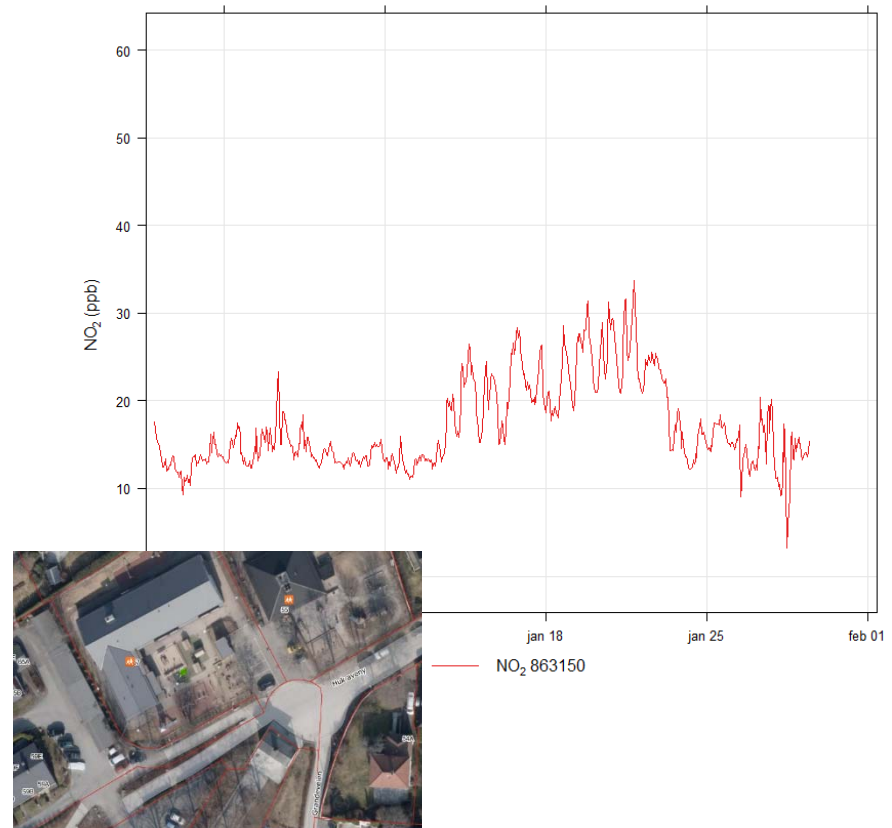
Area with high traffic

Sophies hage barnehage



Area with no traffic

Bergebo barnehage

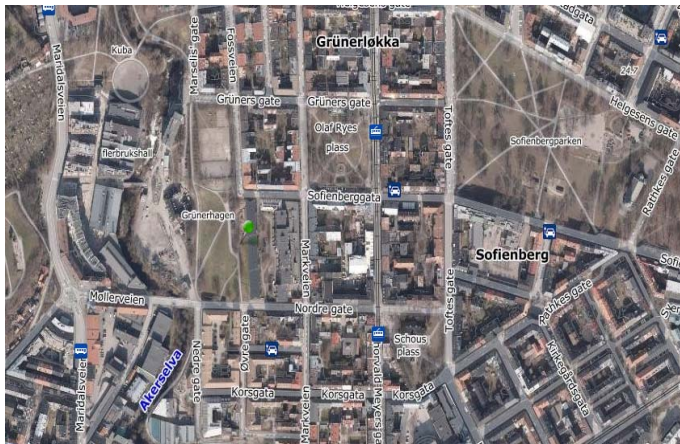


AQMesh deployment in 51 kindergartens in Oslo

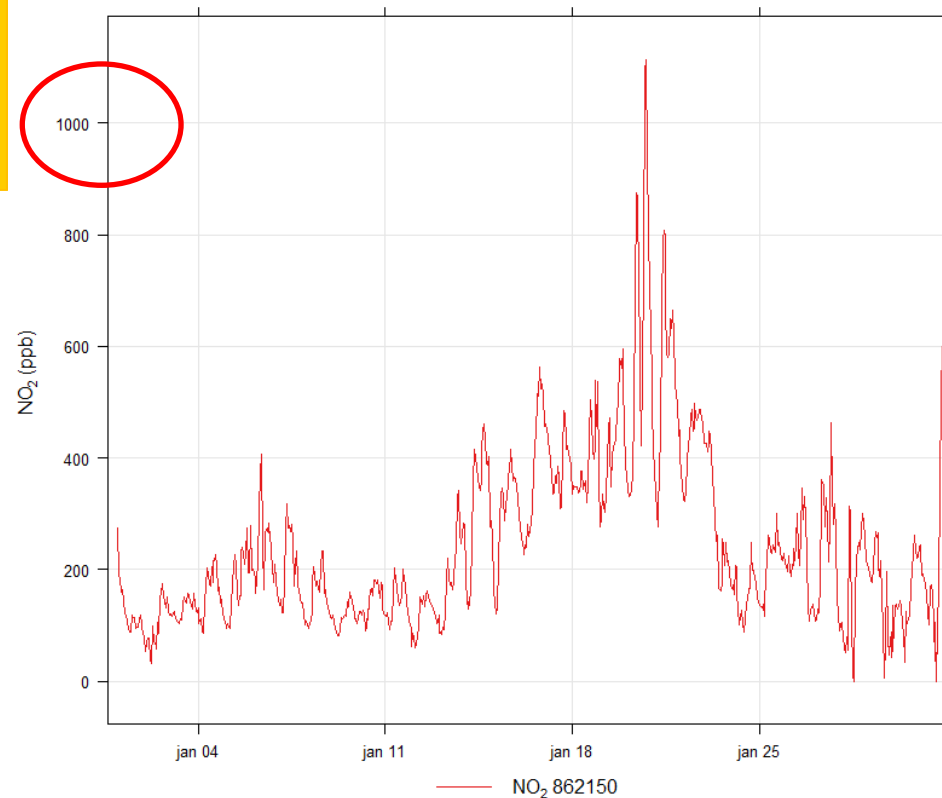
Data collected at the kindergartens, January 2016

Area with low-medium traffic

Absolute values are not reliable. However, the platform can detect differences between low and high concentrations.

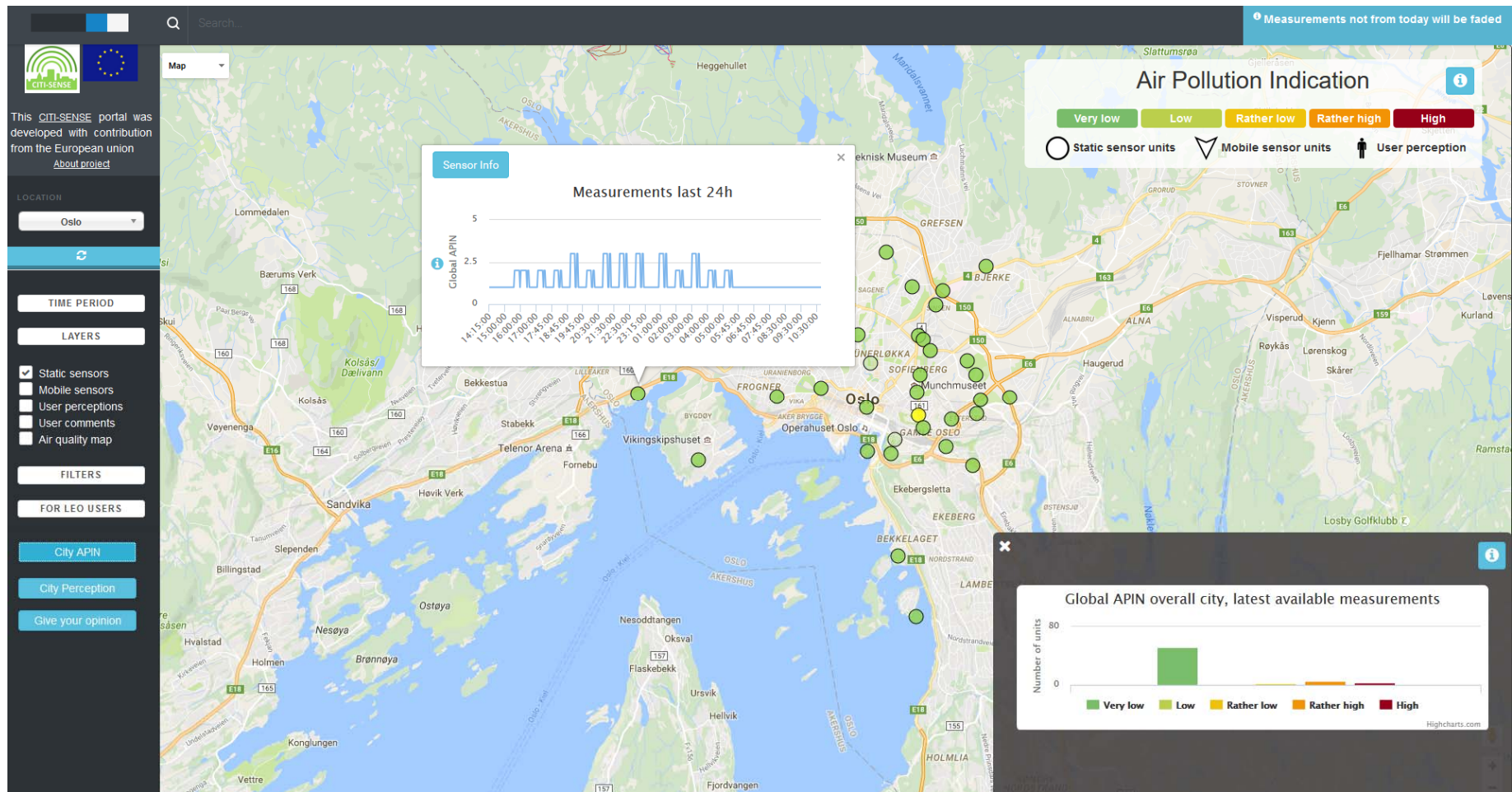


Grünerhagen barnehage



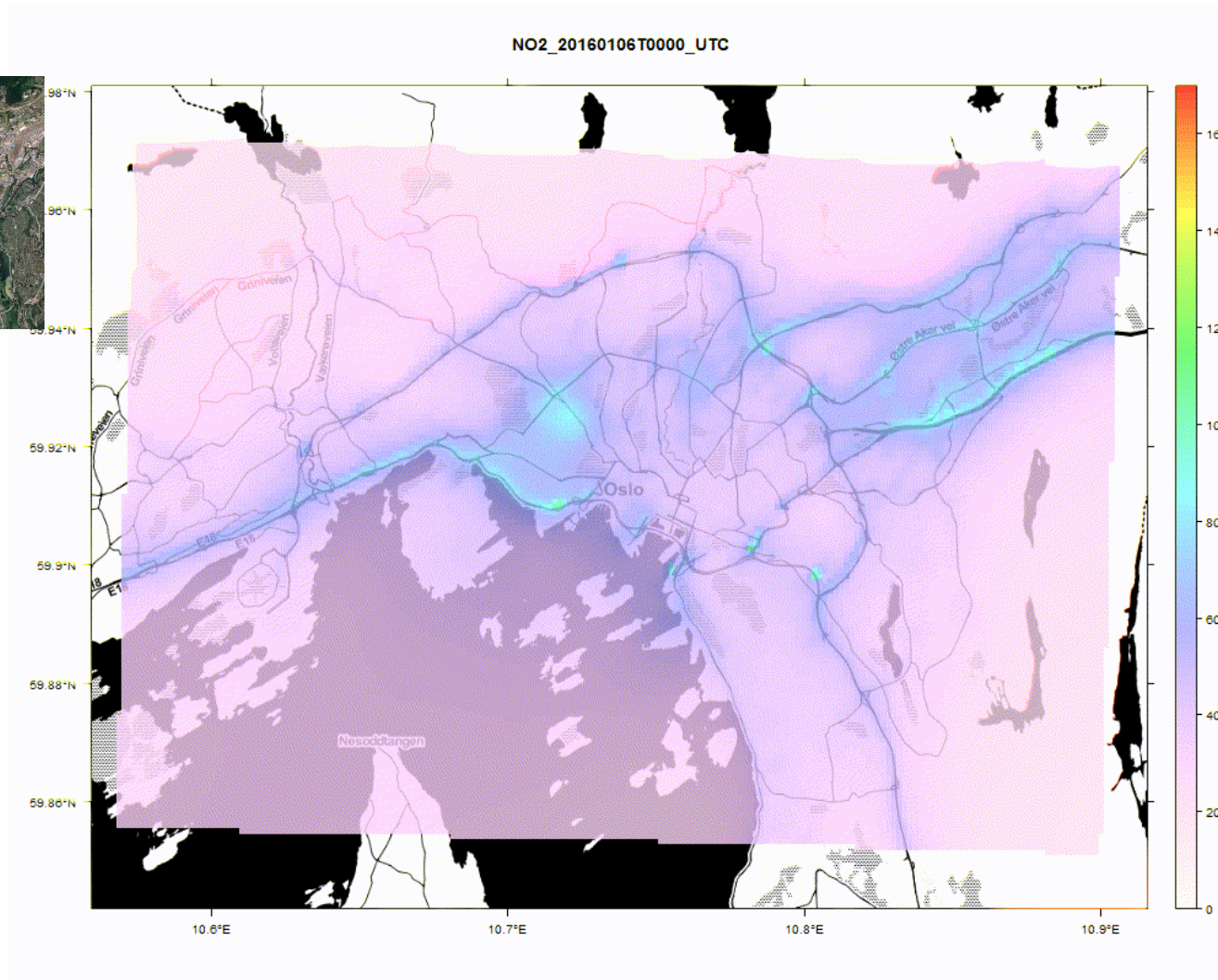
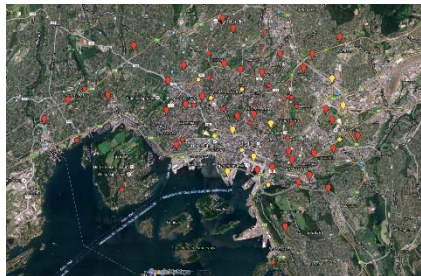
AQMesh deployment in 51 kindergartens and 13 streets in Oslo

Visualization of air quality information



AQMesh deployment in 51 kindergartens and 13 streets in Oslo

Detailed air quality maps



WG4 Session.
**Mapping Urban Air
Quality using Low-Cost
Sensors: Opportunities
and Challenges**
Philipp Schneider

Portable LEO platform carried by 32 volunteers



APRIL							
Uke	Ma	Ti	On	To	Fr	Lø	Sø
14	1	2	3	4	5	6	
15	7	8	9	10	11	12	13
16	14	15	16	17	18	19	20
17	21	22	23	24	25	26	27
18	28	29	30				

MAI							
Uke	Ma	Ti	On	To	Fr	Lø	Sø
18			1	2	3	4	
19	5	6	7	8	9	10	11
20	12	13	14	15	16	17	18
21	19	20	21	22	23	24	25
22	26	27	28	29	30	31	

JUNI							
Uke	Ma	Ti	On	To	Fr	Lø	Sø
22							
23	2	3	4	5	6	7	8
24	9	10	11	12	13	14	15
25	16	17	18	19	20	21	22
26	23	24	25	26	27	28	29
27	30						

APIN 666BA0D9

1

Measured 31/03/2016 08:44:00 GMT+0200
Updated: 31/03/2016 08:45:41 GMT+0200

05:00 05:30 06:00 06:30

— APIN

LOCATION: Oslo

TIME PERIOD

LAYERS

- Static sensors
- Mobile sensors
- User perceptions
- User comments
- Air quality map

FILTERS

FOR LEO USERS

See user track

ras01

Go

Air Pollution Indication

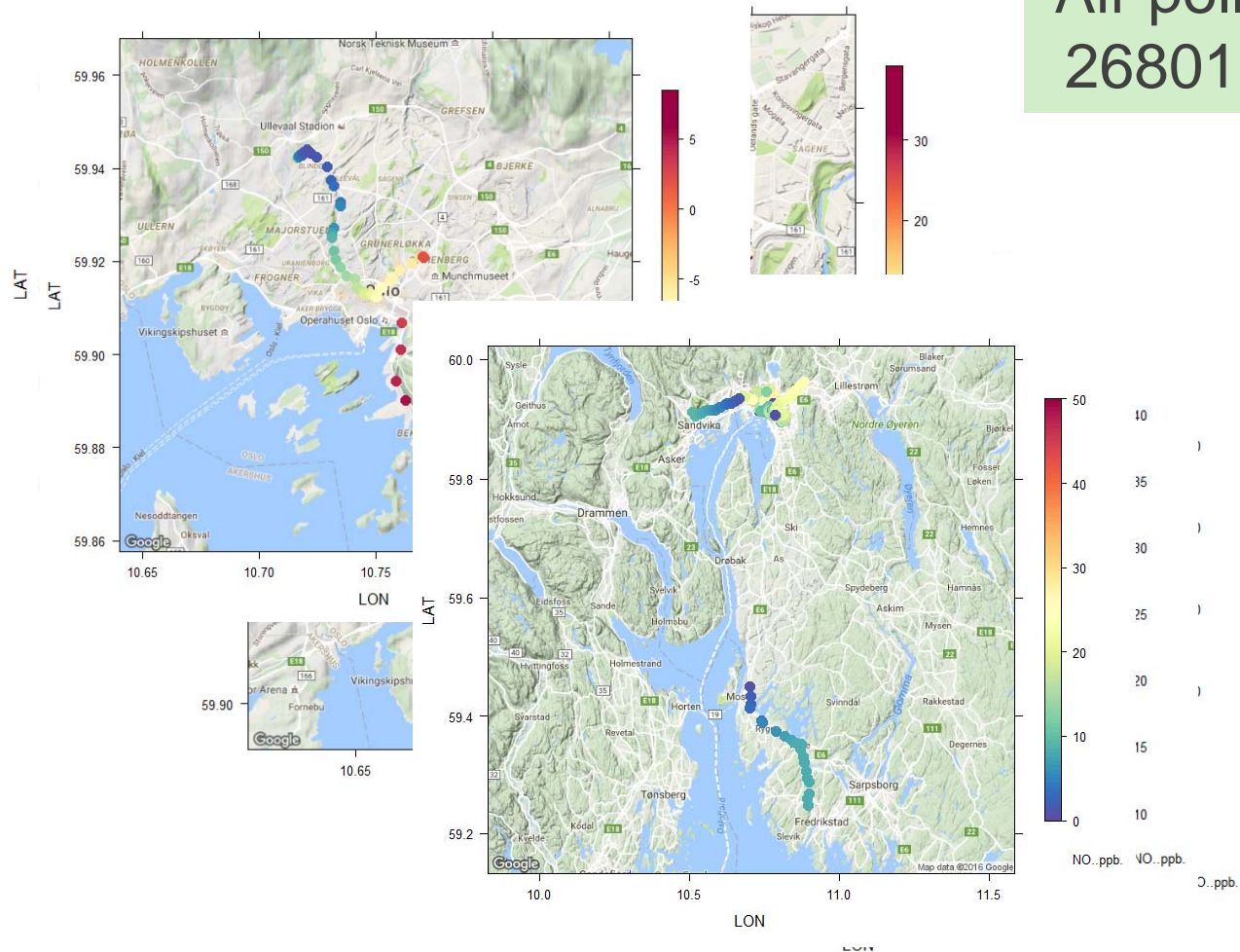
Very low Low Rather low Rather high High

Static sensor units Mobile sensor units User perception

Portable LEO platform carried by 32 volunteers

Data collected by the volunteers

Air pollution measured at 26801 points in 9 weeks



Collecting air quality perception data: questionnaires and apps

W Civicflow.com/task/participate/150

Air quality in Oslo (English version)

Who can improve air quality in Oslo?

13. In your opinion, which 3 groups can contribute the most to improving the air quality in Oslo? (Select a maximum of 3 options).

- Industry and commerce
- The municipality (e.g., city council)
- Regional and central governmental bodies
- People who spend most of their time in the city (e.g., residents, workers, students)
- Scientists
- Commuters
- Other (Please indicate)

14. In relation to the previous question, can you please add the type of contribution you have in mind for each of the 3 groups you selected?

15. How do you think citizens should participate in policy-making on urban air quality? (Select a maximum of 3 options)

- Via public surveys
- Via participation in public meetings and hearings
- As members of citizen advisory committees
- Via open online discussions (e.g., web forums, mobile phone apps, social media, etc.)
- Via a referendum
- Via voting in elections
- Citizens should not be involved
- Other (Please indicate)

<< >>

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Description

CityAir will allow you to report on how you perceive the air quality where you are. This information will help to create a citizens air quality map, and answer the question, how do citizens perceive the air pollution in their city? Join us, and help us to colour the city. It is very easy!

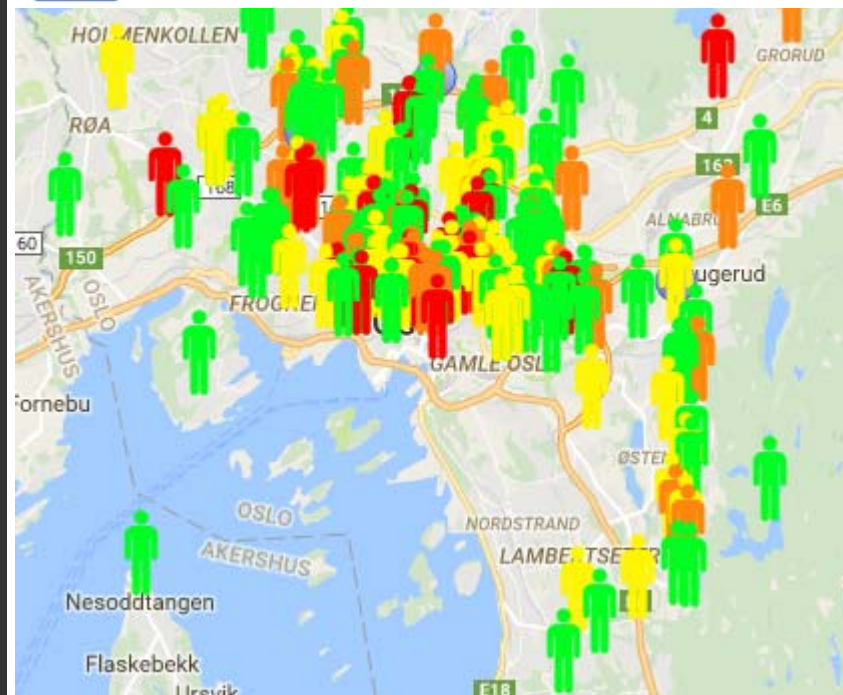
[CityAir Perception Support](#)

[...More](#)

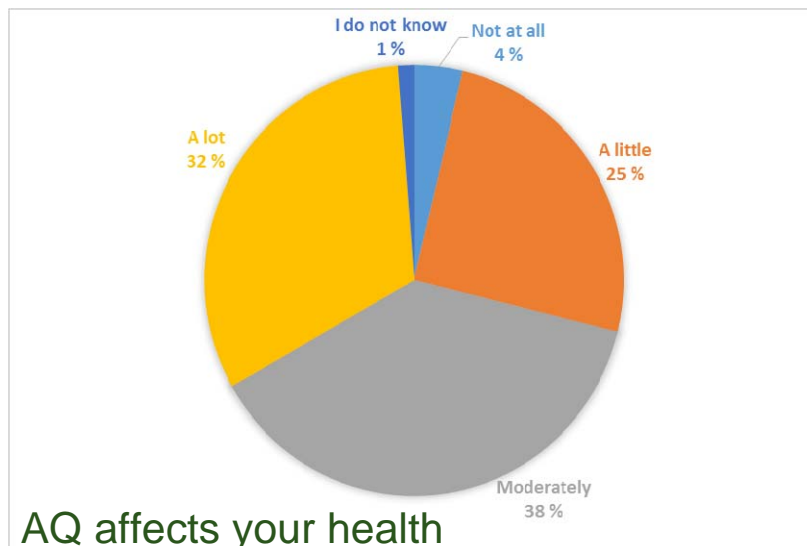
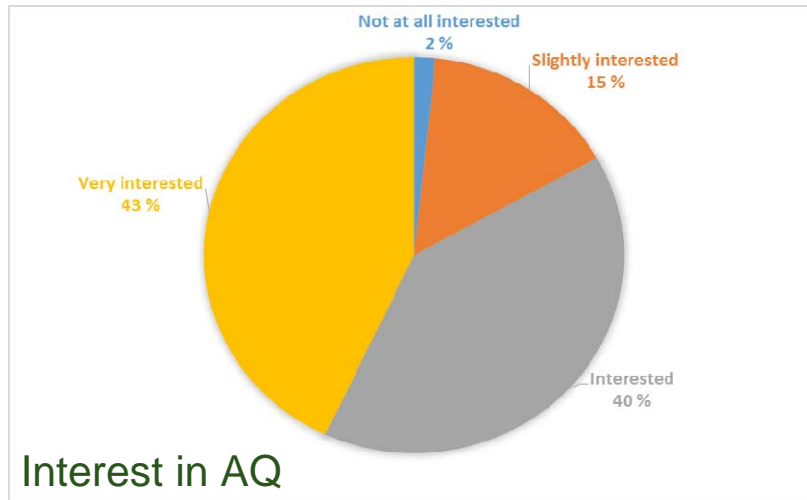
What's New in Version 1.3.1

- you can share your marker using your Facebook application
- added no-network handling

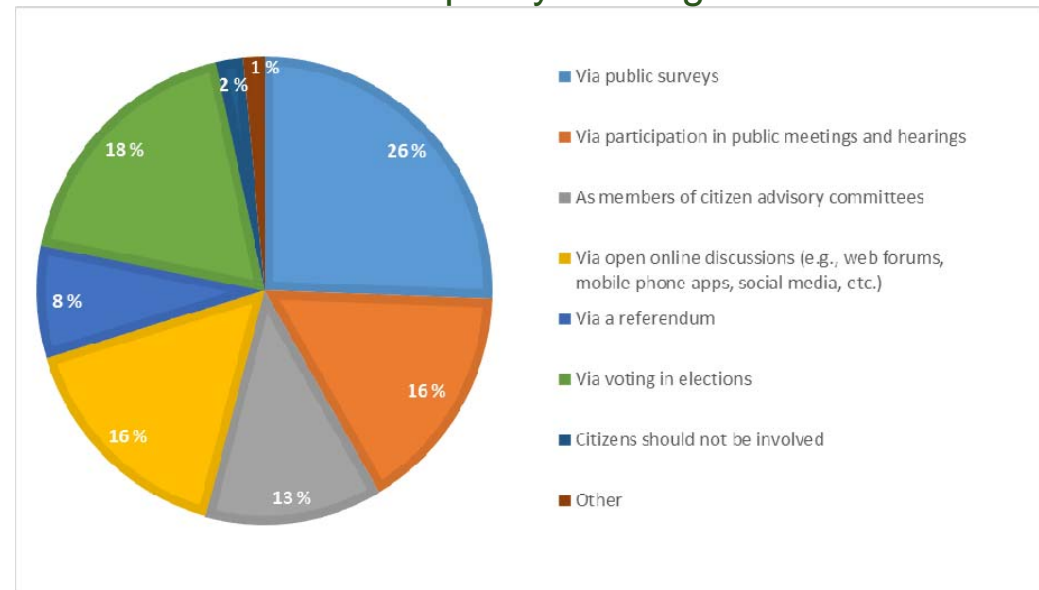
[View in iTunes](#)



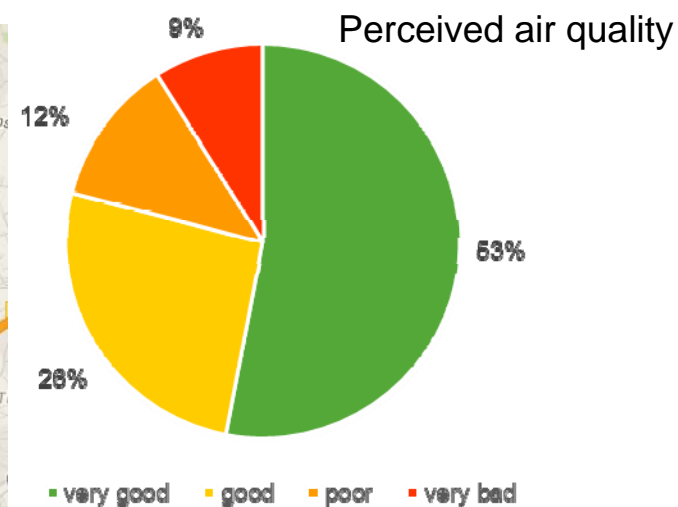
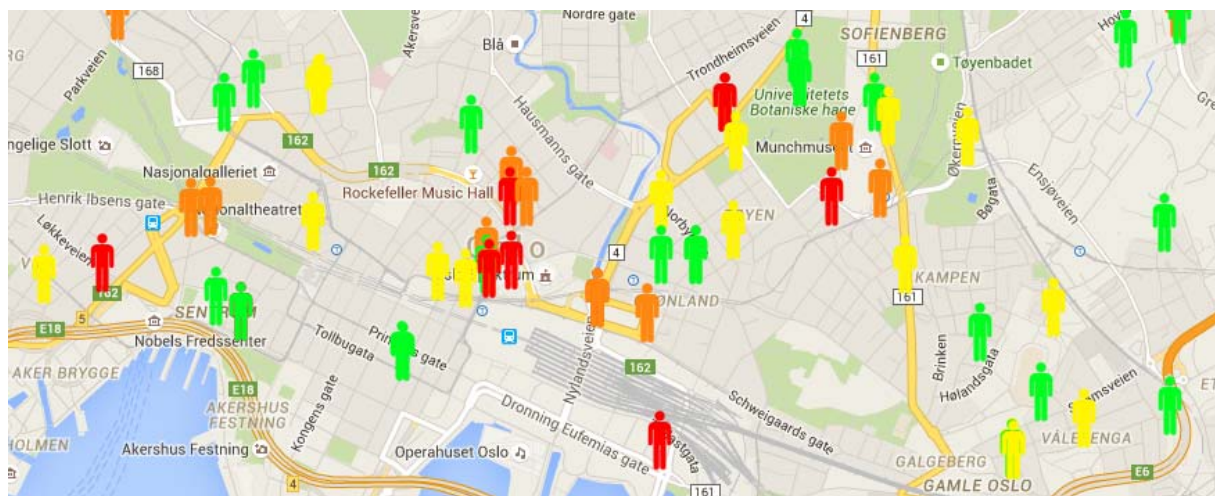
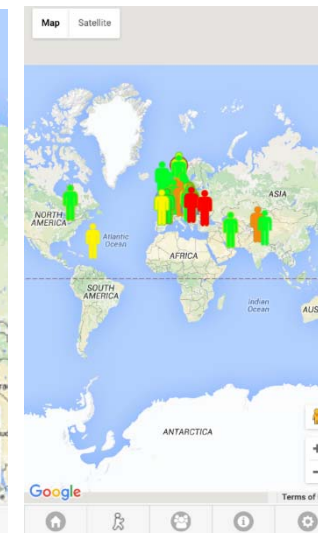
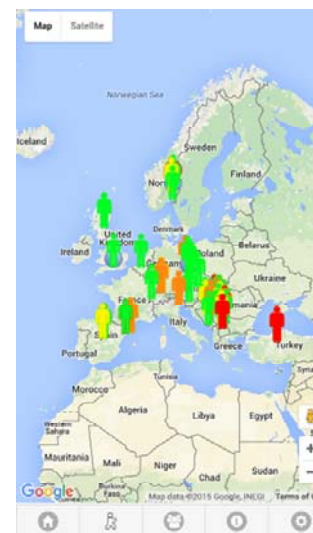
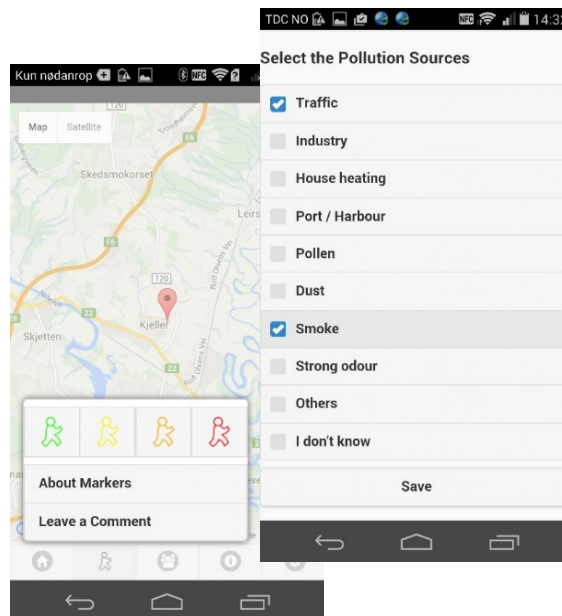
On-line air quality perception questionnaire



Citizen involvement in policy-making



CityAir app – giving citizens a voice



Engaging with Oslo's citizens face-to-face and through Facebook



User evaluation with important feedback from citizens

- Evaluation form
- Focus groups
- Interviews



CITI-SENSE evaluering av brukervennlighet

Vi vil gjerne ha tilbakemelding om produkter og verktøy CITI-SENSE-prosjektet har utviklet. For at vi skal kunne utvikle tjenestene våre videre er det viktig å vite hva du mener om dem, så vi setter stor pris på at du bruker 5 minutter på å fylle inn tilbakemeldingsskjemaet vårt. Tusen takk for hjelpen!

*Må fylles ut

1. Hvilket produkt evaluerer du? (se bilder nedenfor) *

- [1] Luftkvalitets-overvåkingsenhet Atekeia Little Environmental Observatory (LEO) (Personal air monitoring toolkit (LEO))
- [2] CityAir smartphone app
- [3] Spørreundersøkelse om oppfatning av luftkvalitet (Online air quality perception questionnaire)
- [4] Miljø-overvåkingsutstyr for offentlige rom (Environmental monitoring toolkit for public spaces)
- [5] Data-visualiserings-nettsider (Data visualisation web page)
- [6] Nettsider for å laste ned data (Data download web page)
- [7] CITI-SENSE Citizens' Observatories nettportal (CITI-SENSE Citizens' Observatories Web Portal)



[1]



[2]



[3]



[4]



[5]



[6]



[7]

Thank you for your attention

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