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Odour Measurements Using Commercial USB-Stick Sensor Devices

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Actuality/Background

- It`s well known that odour is an important environmental pollution issue because it can affect public amenity and the community's quality of life.

- Odour air pollution is determined by wide spectra of different odorous substances and this kind of pollution is concentrated around sources and mostly arise as a local scale problem.

- According to existing Latvian legislation odour measurements should be done according to standard (reference method) LVS EN 13725:2004 "Air quality. Odour concentration assessment by dynamic olfactometrion" or other comparable method.

- An electronic nose (e-nose) is a device that could be used instead of olfaction method only after proper testing and field observations.

Materials and methods

- In this study we used commercial USB-stick from JLM Innovation (http://www.jlm-innovation.de/) with Figaro (TGS 2602, TGS 2603) sensors.

- The TGS 2602 sensor is highly sensitive to VOCs, H_2S, NH_3, but TGS 2603 sensor to – S & N containing gases.

- Measurements could testing in various environments – urban street canyons, rural background, around oil processing companies, sheep and cow farms, inside cheese factory.

- Additionaly microclimatological measurements were done, such as temperature, wind and relative humidity, how these parametrs affecting result.
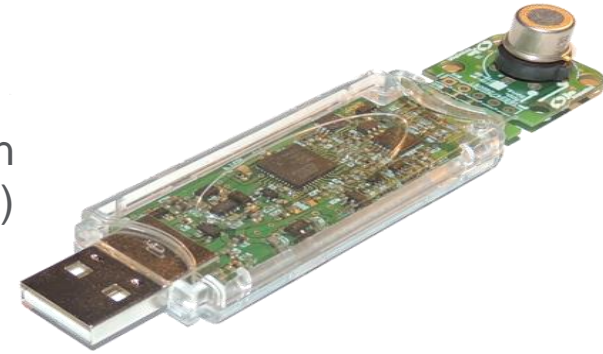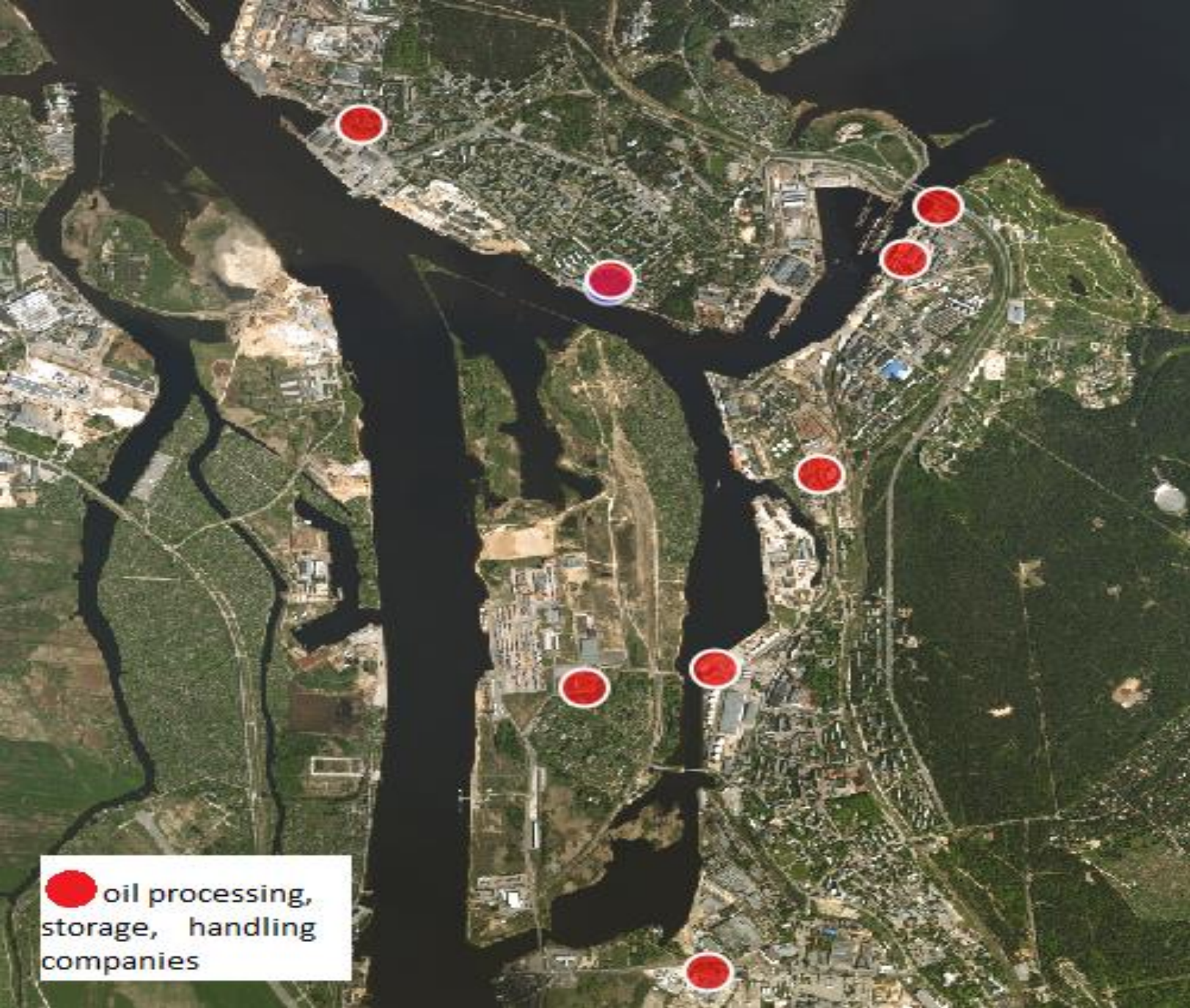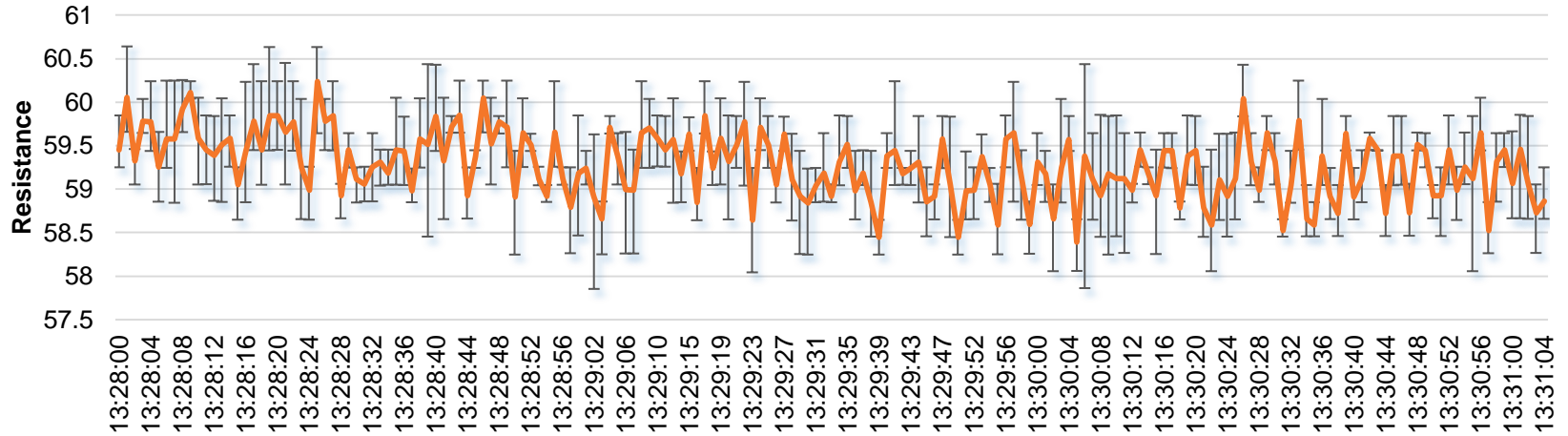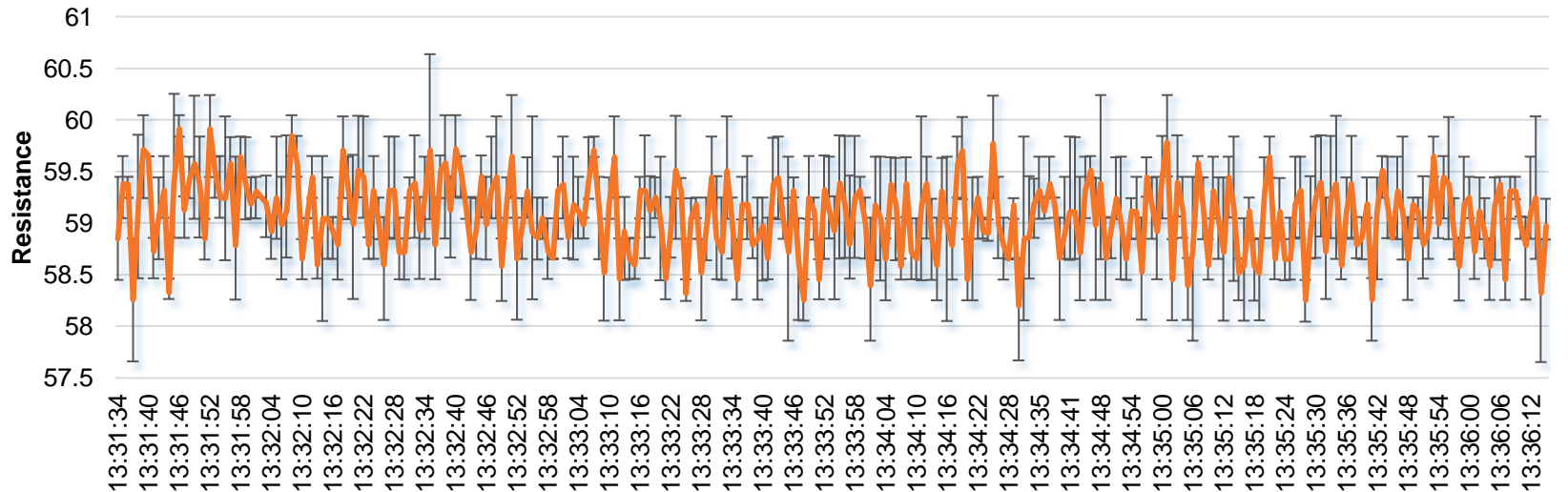
oil processing, storage, handling companies

Results I

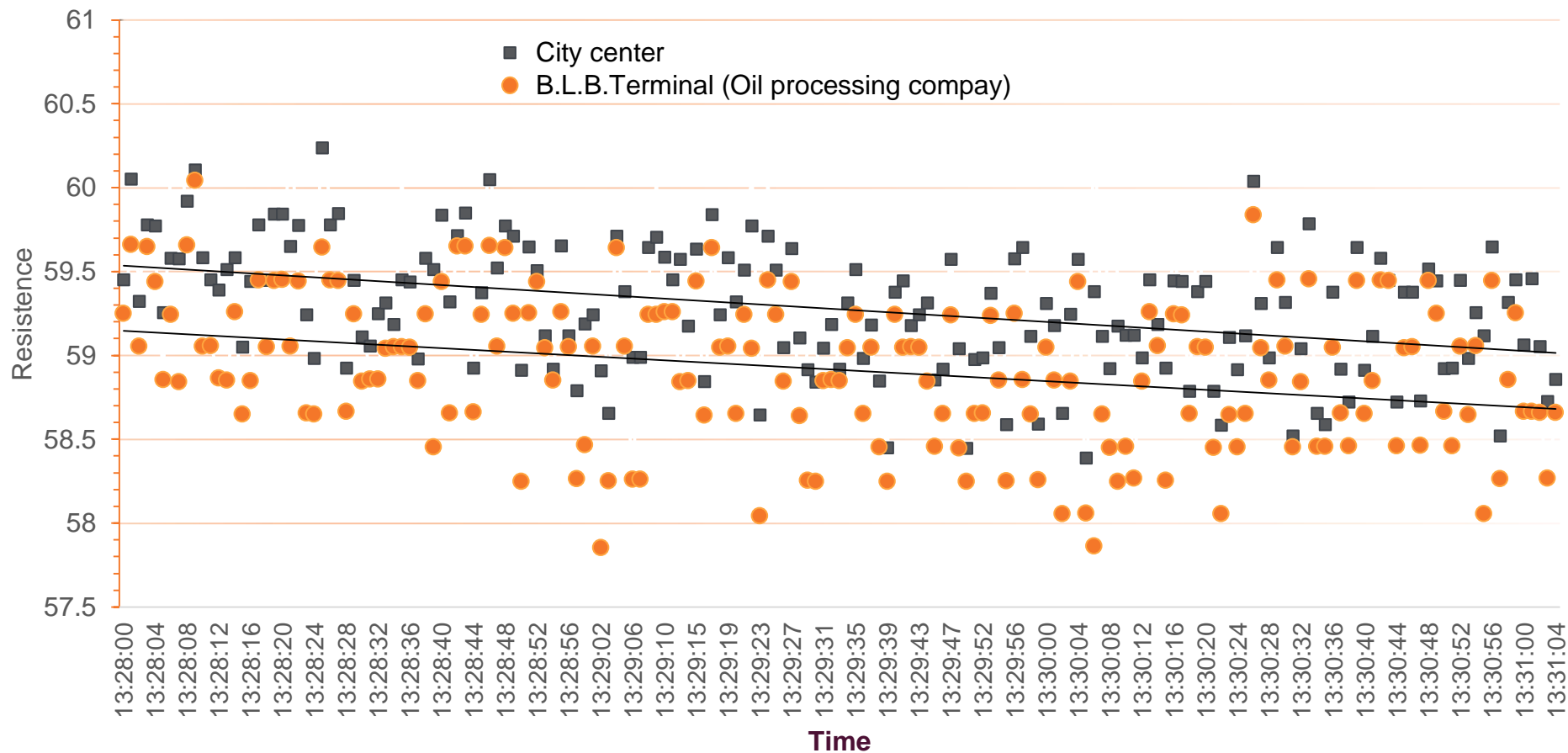Alberta/Antonijas street (Faculty of Geography and Earth Science)

Dzirnavu iela street/ Riga city center

Results II

Measurement comparison with the USB stick in the city center and oil processing company

FIRST CONCLUSIONS

- MOX sensors show significant difference between urban and rural sites while slight difference was found on urban canyons with changing traffic intensity.

- Comparing various environments better response of sensor found inside (e.g Cheese factory) what excludes microclimatological influence.

- Used MOX USB stick is easy to operate, cheap and energy saving device with fast recovery time (some seconds)

- A lot of job for future – moving from qualitative measurements to quantitative algorithms

Thank you for your attention!