

**European Network on New Sensing Technologies for Air Pollution
Control and Environmental Sustainability - *EuNetAir*
COST Action TD1105**

Focus Group Meeting on

Data Analysis of Aveiro Air Quality Sensors Intercomparison

**WHO Collaborating Centre (CC) for Air Quality Management and Air
Pollution Control - Federal Environment Agency (FEA)
Berlin, Germany, 17 April 2015**

Action Start date: 01/07/2012 - Action End date: 30/06/2016 - Year 3: 2014-15 (*Ongoing Action*)

Pollutant correlation with TCO MOX signals



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WG Member

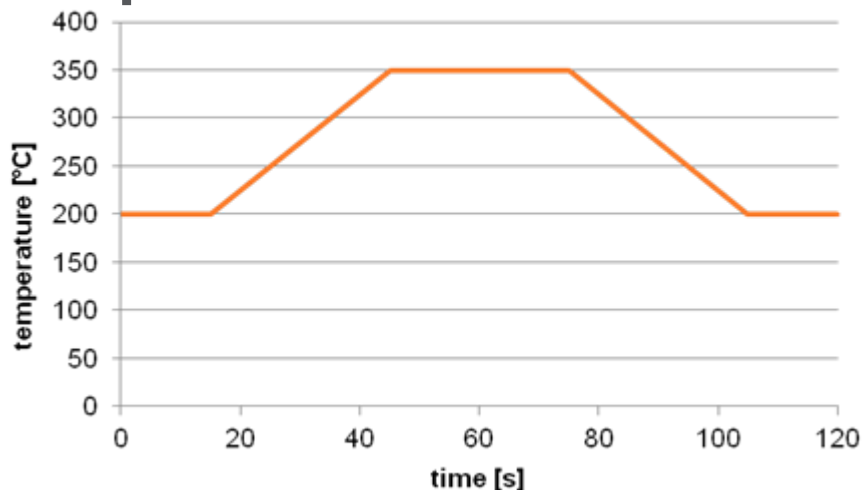
3S GmbH, Saarbruecken / Germany

Scientific context and objectives

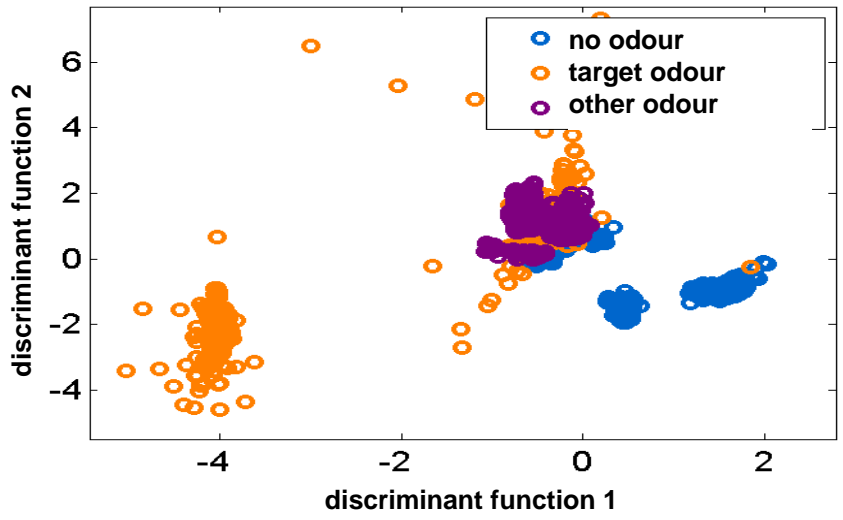
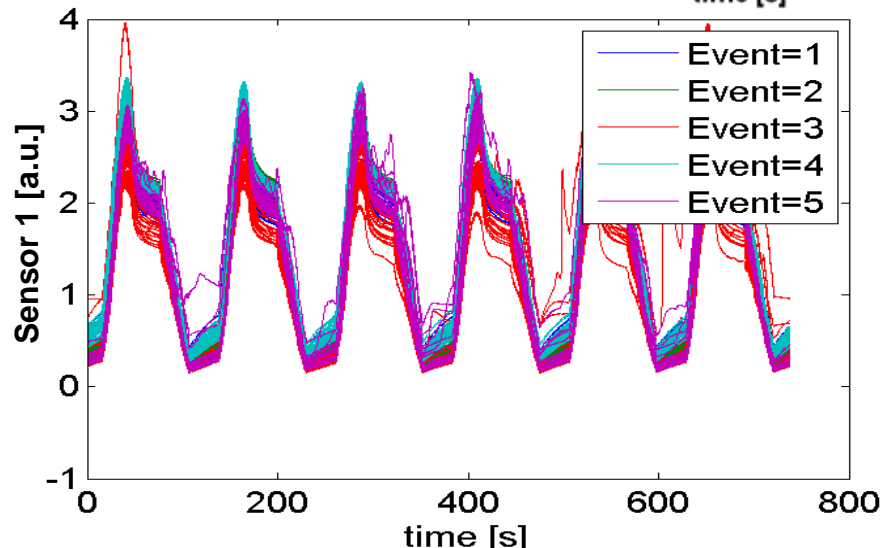
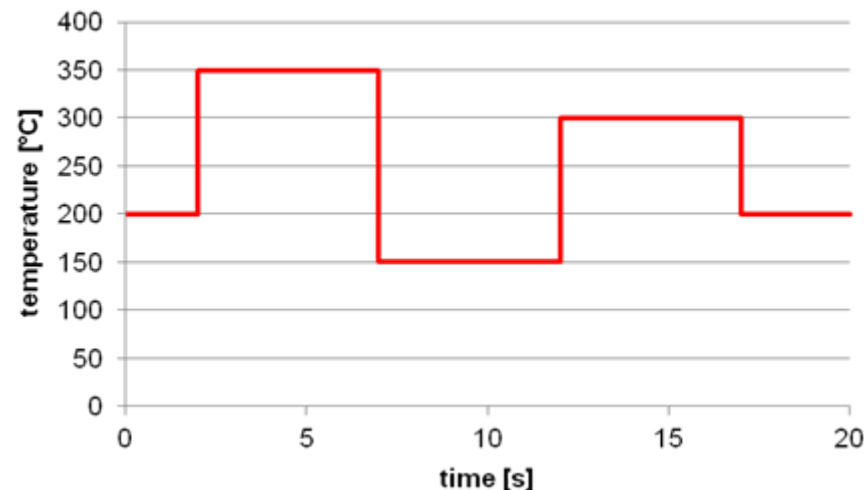
- **Background:** Low-cost metal oxide (MOX) gas sensors can be used intelligently for odor assessment by temperature cycled operation (TCO).
- USAAR-LMT (Andreas Schütze's group) and 3S have long experience with TCO MOX measurements in lab equipment and indoor air quality (IAQ)
- **Aim:** Transfer of methodology from lab and IAQ to outdoor measurements, for emission situations as well as perceived nuisance (Denglish term: immission)

DESCRIPTION of Sensors Database to be Used

- TCO principle **Sensor 1 (Macro)**

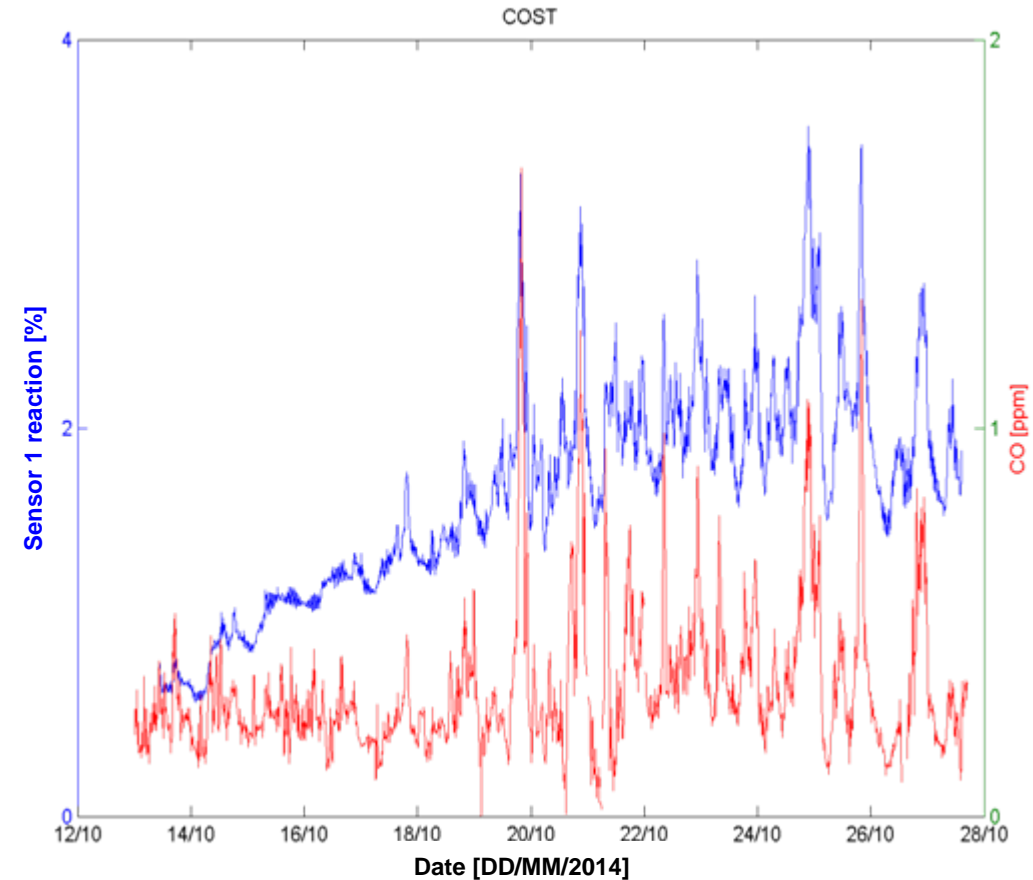
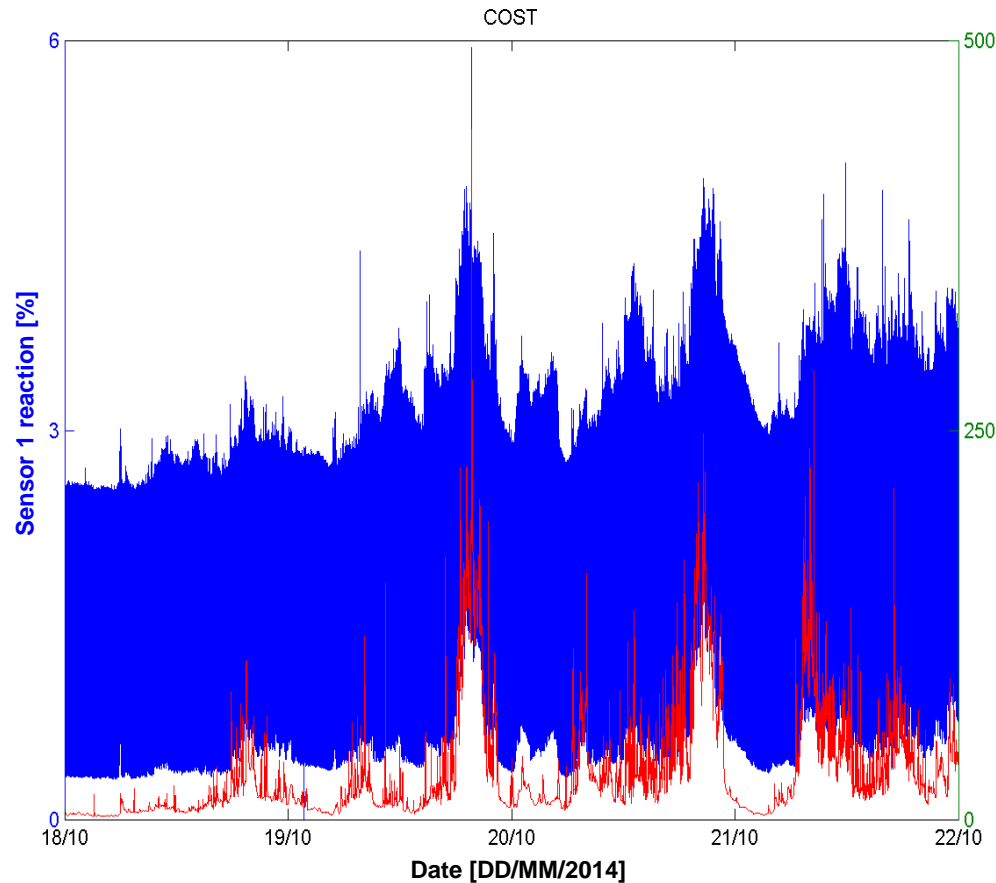


- Sensor 2 (Micro)**



DESCRIPTION of Sensors Database to be Used

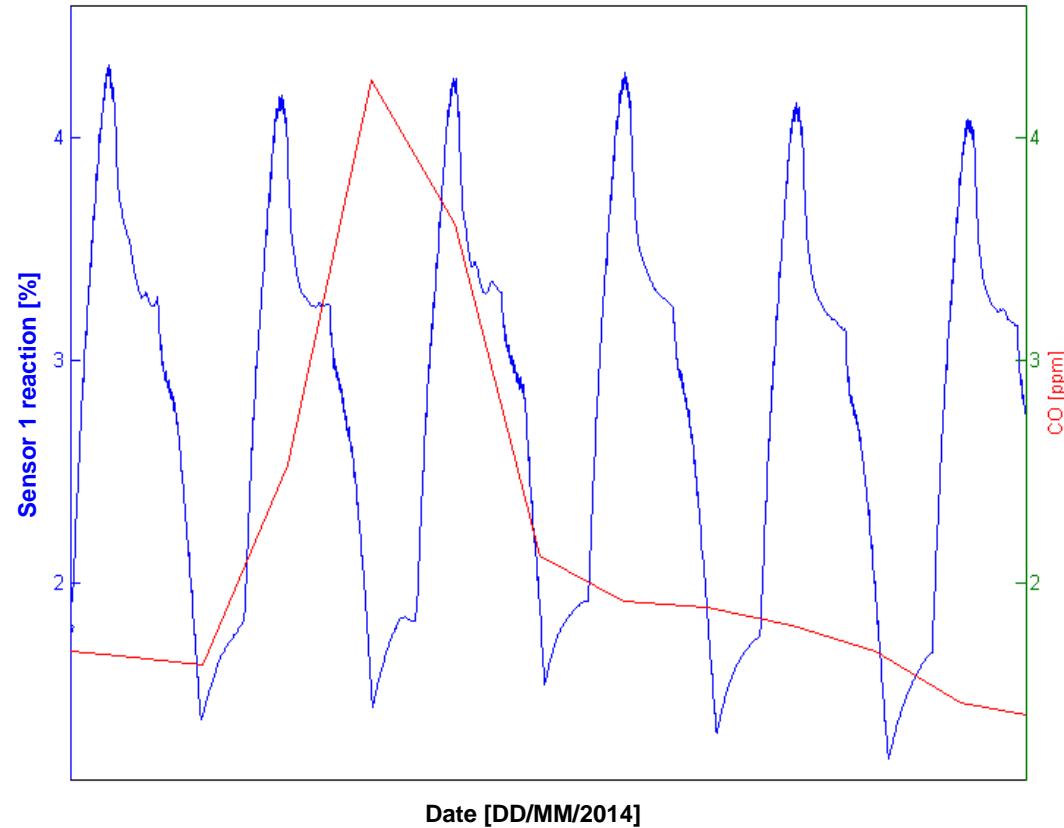
- First correlation experiments MOX vs. reference data



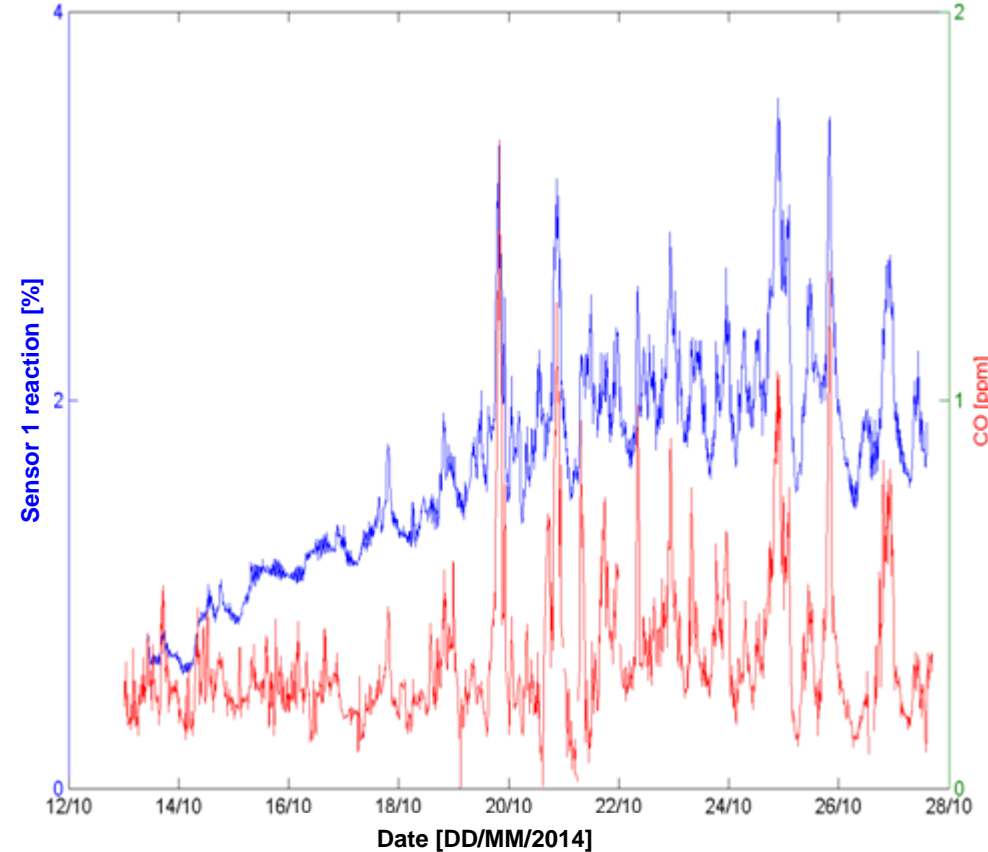
DESCRIPTION of Sensors Database to be Used

- Search for features to overcome drift problem

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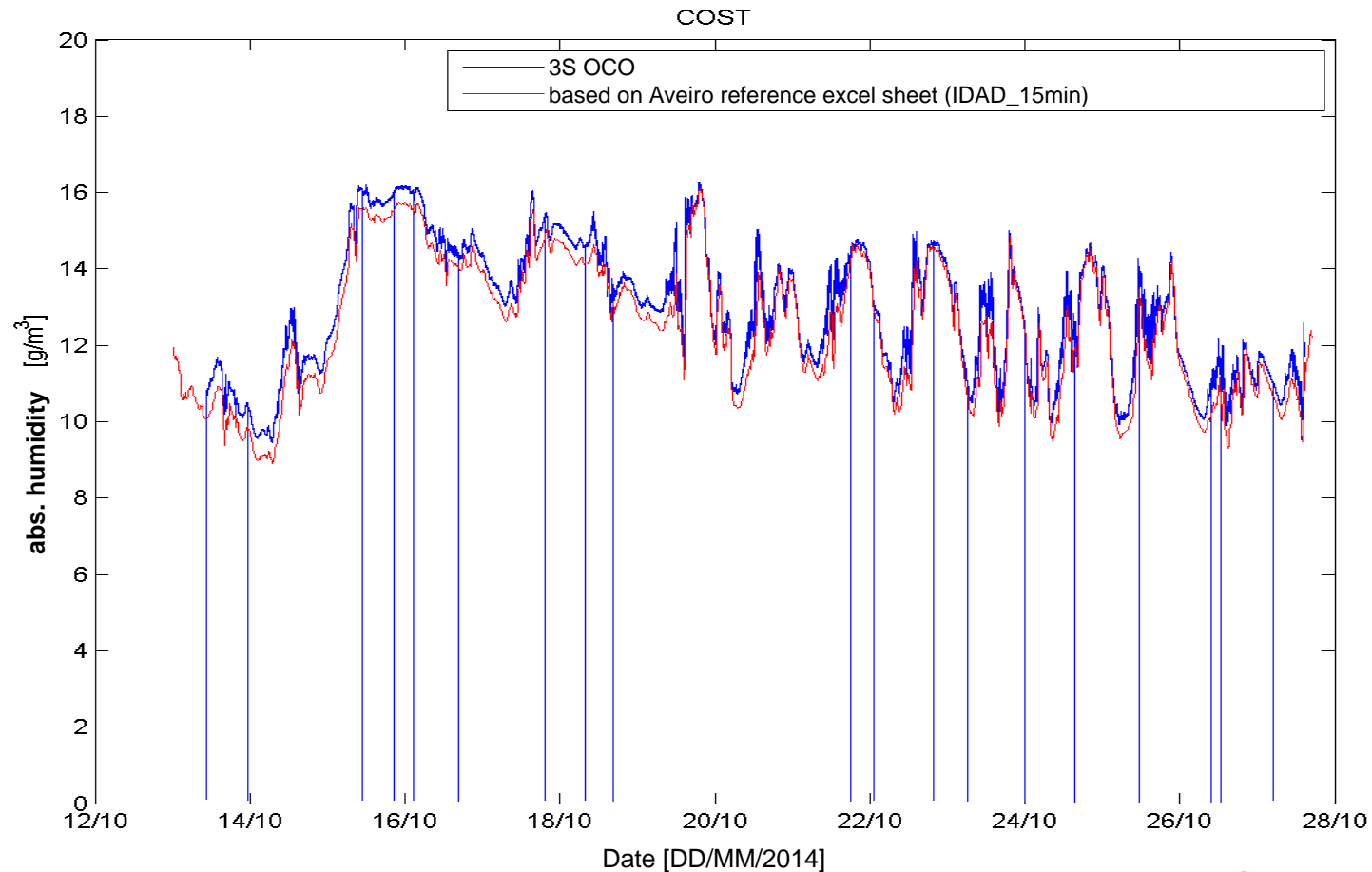


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DESCRIPTION of Sensors Database to be Used

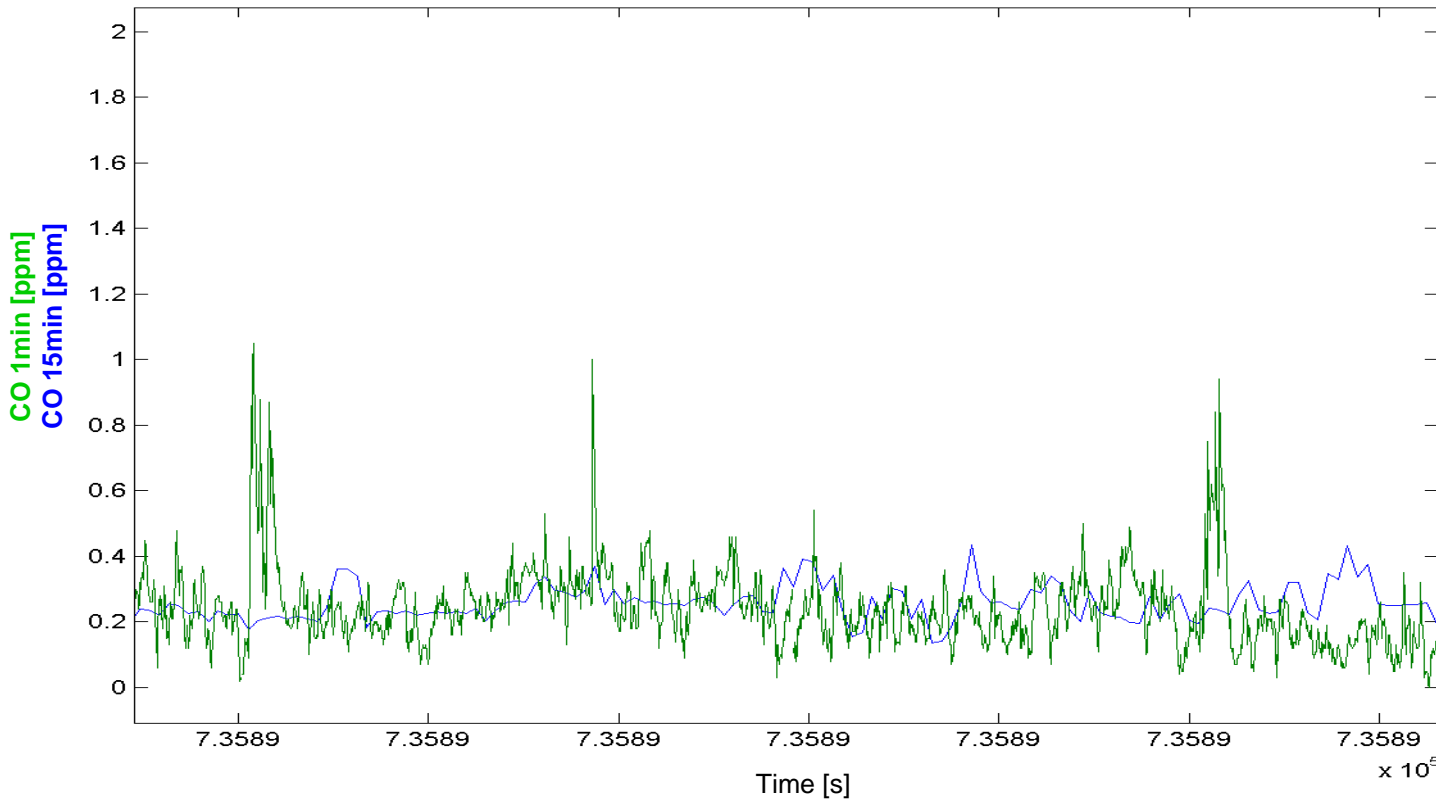
- Internal r.H./T „reference sensor“ vs. Aveiro reference



DESCRIPTION of Sensors Database to be Used

- Issues with reference data

- 1min / 15min data differ, e.g. in CO data
- Gaps in data e.g. CO, CO₂



CONCLUSIONS

- **Goals for 3S:**
 - Low-cost, single-sensor-single-drift multi-information approach verified by reference measurements
 - Introduction of other (non-MOX) principles in versatile outdoor device
- **Known problems:**
 - Sensor 1 data holds few information dimensions (slow cycle / reaction)
 - Sensor 2 data lost
- **Contribution to further intercomparison efforts by:**
 - Further investigation on Aveiro data
 - Input of available 3S data into database
 - Update for WG on 3S intercomparison experiment in France