



Measuring NO, NO₂, CO₂ and O₃ with low-cost sensors

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Inexpensive sensors measuring ambient gas concentrations can be integrated in sensor units forming dense sensor networks. The utilized sensors have to be sufficiently accurate as the value of such networks directly depends on the information they provide. Thus, thorough testing of sensors before bringing them into service and the application of effective strategies for performance monitoring and adjustments during service are key elements for operating the low-cost sensors that are currently available on the market.

We integrated several types of low-cost sensors into sensor units (Alphasense NO₂ B4/B42F/B43F, Alphasense NO B4, SensAir CO₂ LP8, Aeroqual O₃ SM50), run them in the field next to instruments of air quality monitoring stations and performed tests in the laboratory.

The poster summarizes our findings regarding the achieved sensor accuracy, methods to improve sensor performance as well as strategies to monitor the current state of the sensor (drifts, sensitivity) within a sensor network.