

Mobile Measurements and Applications of Smart Air Quality Networks

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Measurement networks utilizing mobile and stationary low-cost sensors for particulate matter are developing as a trend in the context of citizen science but also developed in atmospheric and environmental science and for administrative interests. However, devices for mobile measurements on aerial and ground-based platforms are still under development and their operational use still quite demanding. However, also the characteristics of the produced datasets concerning the variability of spatial and temporal coverage as well as reliability may be quite challenging for implementation of applications based on those networks. In order to learn more about these difficulties within the SmartAQnet project [1], an experimental statistical forecast model will be developed using reference class forecasts and neuronal networks for several meteorological and urban environment predictors, addressing the temporal variability. Further a spatial traffic routing application will be developed, which allows people to decide preferred routes based on pollution and may help to avoid critical situations at pollution hot spots.

References

- [1] Matthias Budde, Till Riedel, Michael Beigl, Klaus Schäfer, Stefan Emeis, Josef Cyrus, Jürgen Schnelle-Kreis, Andreas Philipp, Volker Ziegler, Hans Grimm, Thomas Gratza (2017) SmartAQnet: Remote and In-Situ Sensing of Urban Air Quality, Proc. SPIE 10424, Remote Sensing of Clouds and the Atmosphere XXII, 104240C, doi:10.1117/12.2282698