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**Project consortium SmartAQnet – Aerosol Akademie**

# 15. Newsletter SmartAQnet

**March 2019**





## Newsletter March 19 Smart Air Quality Network

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**WP0: Project management**

Weekly Jour Fixe of the steering committee performed by phone (Tuesday, 15:00), monthly Jour Fixe of the consortium and the F2F meeting 21-22/02/2019 in Karlsruhe were performed.

**WP1: Data mining and campaigns**

HMGU-EPI

- Ongoing installation/substitution/maintenance process of EDM80NEPH and EDM164 in Augsburg together with M. Hank and M. Uebach from Grimm (phase 1).

- Preparation for phase 2:

a) Further meetings on regular base with Thomas Gratz in Environmental Department of Augsburg City Office, further selection of monitoring sites, (primary site categorization, range of the second phase of expansion, responsibility for specific monitoring sites).

b) Eight sites of potential interest already selected for the phase II, five sites of „combustion“ category were confirmed, and two additional sites are initially confirmed

c) Currently we are checking the selecting site regarding the possibilities to install the device and are taking decision about the installation scheme

KIT/IMK-IFU

The measurements of ceilometers to study the North-South profile of mixing layer height in Augsburg are continued at the aerosol measurement station at HSA and at the Klostergarten. Raw and MLH data were collected in the data bank at IGUA for joint analyses together with the ceilometer measurements of IGUA.

Uni\_A

The humidity correction of the Alphasense OPC-N2 devices has been completed. Additionally all Alphasense OPC-N2 units were calibrated to the Grimm EDM180 at the location Fachhochschule.

Two SDS011 devices were put into operation at the university and one SDS011 in the city centre. A further 30 devices were ordered.

**WP2: Data collection / Devices**

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The market observation was continued by collection of all relevant papers in the Gittutorial about low- and middle-cost sensors and smart air quality networks. An overview report of companies relevant for air quality monitoring by middle- and low-cost sensors was finished.

HMGU-EPI

- During the reporting period four calibration/hot spotting tours took place

**WP3: Data aggregation and analyses**

HMGU-EPI

Currently ongoing comparison reports of two Aethalometers (old and new, MAGEE Scientific AE33), measuring black carbon concentration

KIT/IMK-IFU

The sub-contract of KIT/IMK-IFU with Technische Universität Graz (TUG) to develop a small-scale emission inventory for Augsburg is ongoing. Ulrich Uhrner (TUG) applied traffic counting data collected by Andreas Philipp (IGUA) and residential heating data provided in the sub-contract with ZAE by Robert Kunde.

Uni\_A

With the help of the project geodata, first urban feature evaluations were undertaken.

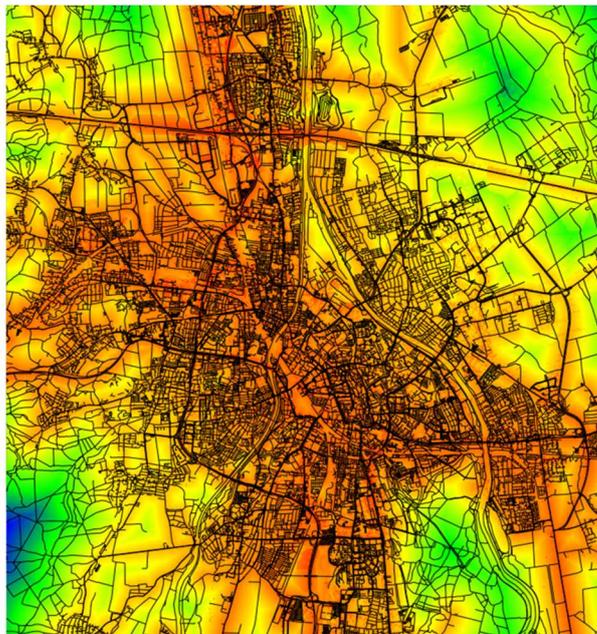


Fig. 1: Hypothetical air-hygienic exposure risk (dimensionless, red high, blue low) based purely on subjectively weighted geodata as a basis for comparison with observational data. The map includes the distances to and the traffic load of traffic roads, the distance to railway lines, an emission factor based on surface types of the Local Climate Zone Classification (created with Landsat 8 satellite data) and the building volume within a radius of 100 meters.

#### WP4: Data application

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A first test run with a neuronal net for particulate matter prediction was started. As predictor the GFS analysis wind speed in 1000 hPa in a domain lon: -5 - 25, lat: 40 - 60 was used and as predictive PM10 3h mean values of the LFU. Explained variances from 0.24 (summer) to 0.49 (winter) could be achieved. The analysis of further predictors should further improve the prediction of particulate matter.

**WP5: Data oriented dissemination and application**

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The Home Page and the Newsletter of the project were developed continuously.  
A small workshop with MAN Energy Solutions was organised on 05 February to discuss future cooperation by measurement and modelling of air quality (report available).

KIT/IMK-IFU

The measurements by the particle monitor GRIMM EDM164 and 10 low-cost particle sensors SDS011 from KIT/TECO by school children at the Werdenfels-Gymnasium in Garmisch-Partenkirchen within the initiative "Jugend forscht" are finished. The school children participated in the result presentation of the contest and won the first price so that they will go to the Bavarian contest. The data analyses and measurement concept was supported by Klaus Schäfer.

Uni\_A

A newspaper article by Sylvia Ehrenreich in the research supplement of the Augsburgener Allgemeine was published on 31. 01. 2019: "Wie steht es um unsere Luft?" This was decidedly called for citizen participation, which also led to a lot of feedback on the day of publication (31.1.).

**Further information**

There is no additional information at this time.