

Research and Innovation Needs of WG3: Env. Measurements & Air-Pollution Modelling

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Role in COST Action: WG Leader



Priorities and roadmap

- What do we want to provide on the long term - in relation to routine monitoring and public information?
- Micro-sensors should not substitute but supplement routine monitoring devices
- Future routine networks may look very different from today's and include low cost sensors!?
- The green route through the city or access to information about pollutant load at address might be future goals



Priorities and roadmap

- Still many unknowns in respect to health effects
 - e.g. what in PM is causing negative health effects - constituents, ultrafine?
- Airborne allergens may also be an issue of interest - >20% suffer from hay fever but monitoring still based on 1950/1960 technology
- Assessment of health effects of emissions from agricultural sources (fungal spore, animal material, ammonia)
- Assessment of health effects from wood stoves
 - 600.000 wood stove devices in DK (biggest single source of PM in DK)



- **Many air pollutants** (chemical and biological) have strong urban components. Robust urban models (not street canyon models) are lagging behind compared with LRT models and this puts limits on our understanding on urban air quality.
- This is also relates to robust **footprint** modelling methods that can work on both urban and regional scale.
- **Citizens involvement** projects should also in the future be encouraged.



- An consequence of the limited use and a focus on forward modelling (e.g. the approaches used in Citi-sense but also in other systems at Aarhus, Cambridge, Bulgaria) is that the model systems are very difficult to expand to other air pollutants as they are highly dependent on one of two things: 1) high quality and very detailed emissions inventories or 2) access to low cost sensors in a dense network. Here it seems as only a few components can be measured.



- Observations seem mainly fixed to stationary stations on ground. Use of portable observations (e.g. on busses) should be explored much more.
- This also includes the use of drones. Secondly there is a great need of observations that are obtained away from the surface and in the free atmosphere. Both in relation to campaigns but also on the more routine basis.
- Need for best practice regarding exposure modelling - which models for which purposes - scale, type etc.



PM monitoring strategies should be

- improved - complementary by particle counts not only mass measurements
- even more PM measurements in more than 2 channels (PM10, PM2.5) should be investigated.
- EC/OC measurements in 1h ?
- discretization should be considered.

