

WG3 recommendations on the IPR provisions in the field of source apportionment

Fairmode Plenary meeting, Baveno, 12-13/02/2015

FAIRMODE 
Forum for air quality modelling in Europe



FAIRMODE TECHNICAL MEETING OLSO 28-29 APRIL 2014 EXTRACT OF THE MINUTES

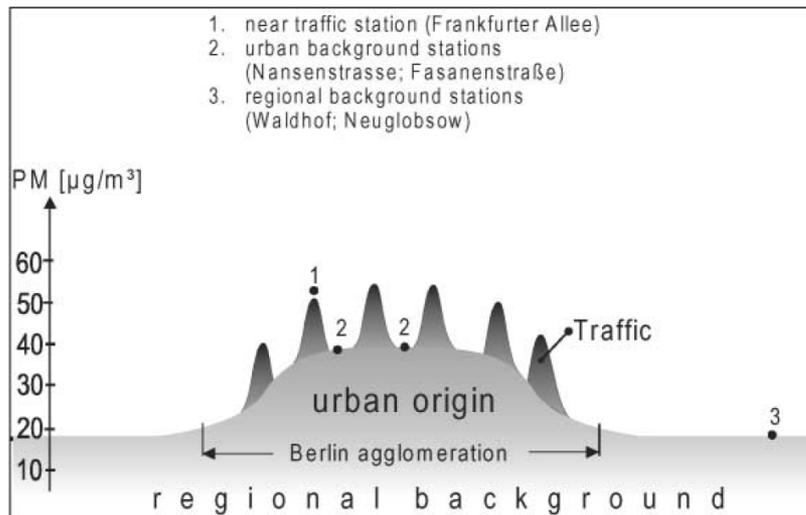
“Concern was expressed by the WG 3 members about the current provisions in the e-reporting mechanism which are not fully consistent with the atmospheric processes associated with pollution sources and their spatial patterns and the way they are reported in many up-to-date methodologies.”



Guidance to Decision 2011/850/EU

How much of the exceedance at that single location of maximum exceedance can be accounted for by each of the sources listed.

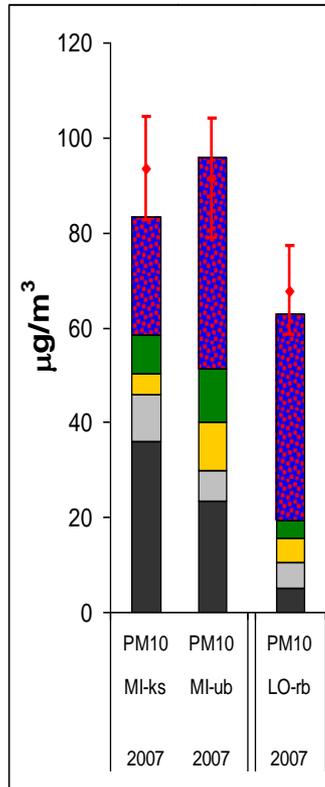
- **Regional background** is the split of total regional background in $\mu\text{g}/\text{m}^3$.
- **Urban background increment** represents the concentrations arising from emissions within towns or agglomerations, which are not direct local emissions (in $\mu\text{g}/\text{m}^3$).
- **Local increment** identifies contributions from sources in the immediate vicinity of the exceedance situation.



Lenschow et al., 2001 AE



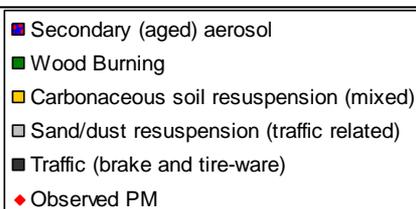
- The incremental approach is an exploratory simplified model with many assumptions (Belis et al., 2013 Atmospheric Environment).
- It works for the total mass of the pollutants in areas with certain characteristics: flat, ventilated, sources mainly located in the cities (e.g. Berlin, Paris).
- It is not suitable for areas with stagnation, strong thermal inversion and relevant emissions outside the cities (e.g. The Netherlands, Po Valley, Visegrad area).
- It is not applicable to estimate the contribution of the single sources because some of them have higher contributions in the background area than in the city (e.g. agriculture, biogenic, biomass burning, secondary aerosol formation). This would lead to negative increments!
- In this approach, to estimate the «differences» either increment or decrement are necessary at least three estimations .



Example from the Po Valley 2007 (Larsen et al, 2012):

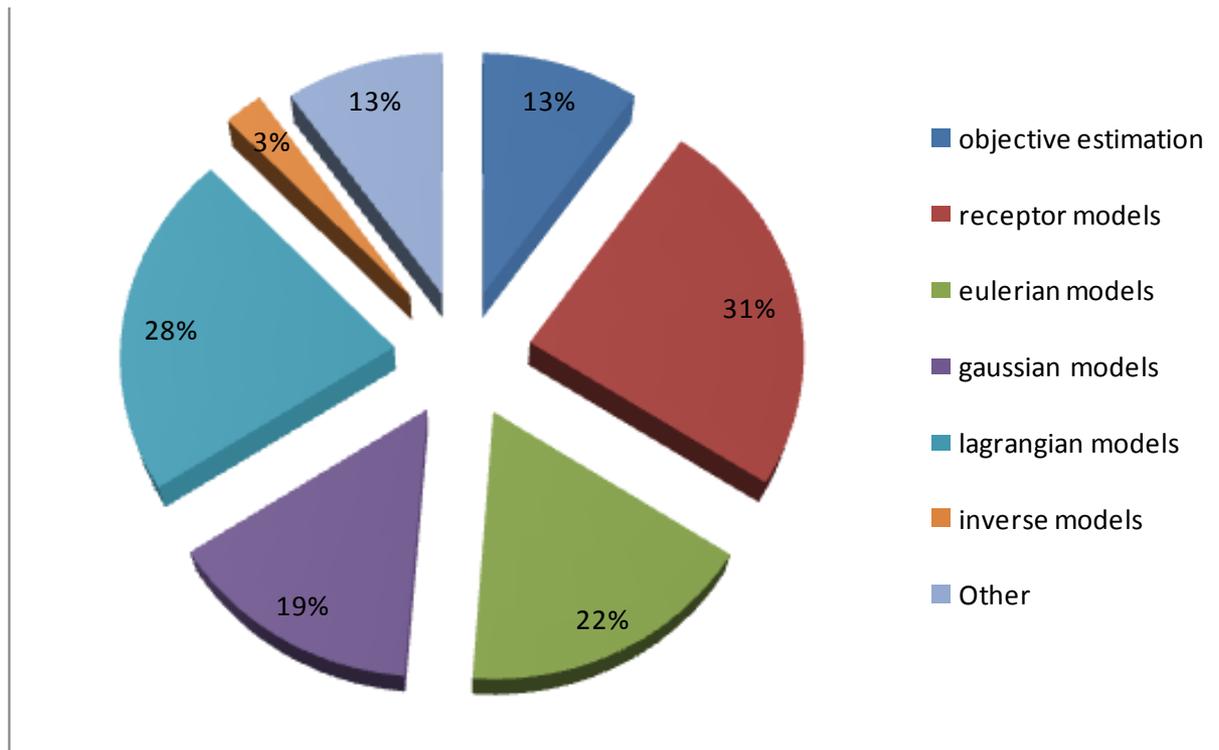
Secondary – aged higher in rural bkg. than urban bkg.
Soil resuspension higher in urban bkg than kerbside

- When urban background levels are higher than those in the cities, MS should report negative increments?
- What happens with studies carried out in a single urban background site? No increment can be calculated
- Moreover, if there are sources contributing to rural background and not to the urban background, the incremental approach risks to underestimate the urban sources by subtracting a regional background higher than the real one.





APPRAISAL FP7 PROJECT. Source Apportionment Methodologies used to design Air Quality Plans 53 questionnaire answers throughout Europe



<http://www.appraisal-fp7.eu/site/images/download/APPRAISALreportD26v1.pdf>



WG3 RECOMMENDATIONS

1. WG3 recommends to report the “contribution” of every source at a given site without assuming there is an increment.
2. The IPR list of sources is not exhaustive. WG3 recommends to refer to widely recognised systems for the classification of emission sources (SNAP, CORINAIR, NFR-UNECE, etc.). Pollutants formed in the atmosphere are referred to as “secondary” and when possible attributed to their precursor’s sources.
3. The IPR makes reference to specific procedures (e.g. Lenschow, NO₂ procedure). In order to allow users to choose the SA methodology most suitable for their situation, WG3 recommends to compile comprehensive lists of methodologies and relevant scientific/technical literature.
4. Such lists should also report method capabilities derived, for instance, from intercomparison exercises or benchmarking tools to test their performances and uncertainties.