FAIRMODE

You asked for Critical Remarks –

Here are a few subjective views after having heard the talks and ‘glanced over’ the two “Scoping Papers”:

Meso - and Micro Scales: The two scoping papers reveal predominantly “meso- scale”- thinking !

You criticise, e.g., that in the EU AQD terms like "uncertainty" remain ambiguous.

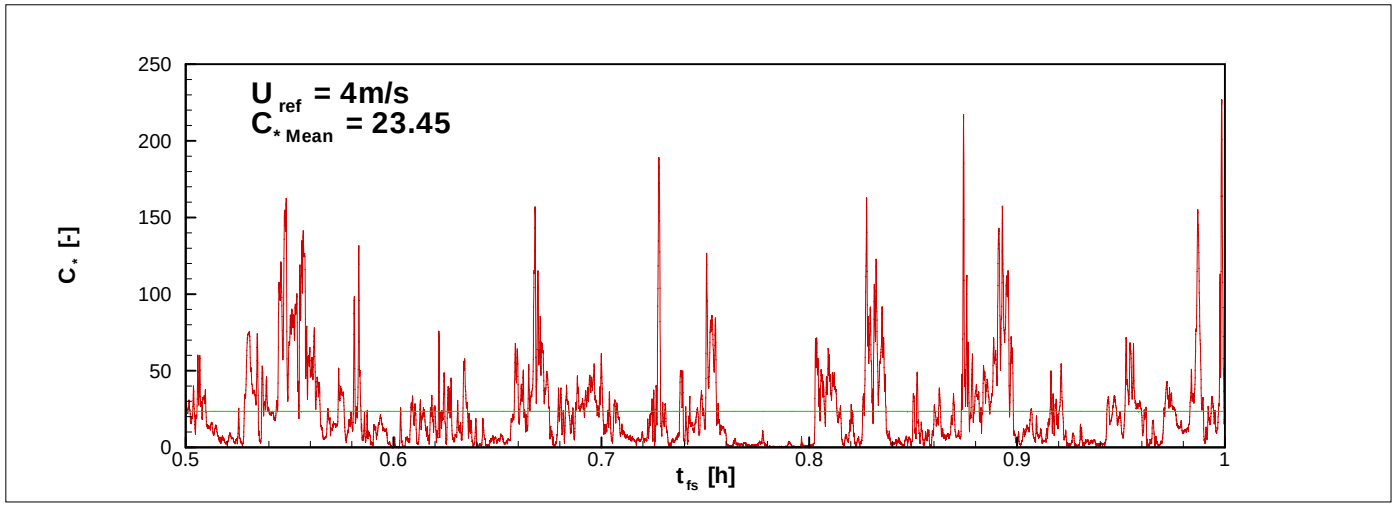
You use terms which are ill-defined too. Examples:

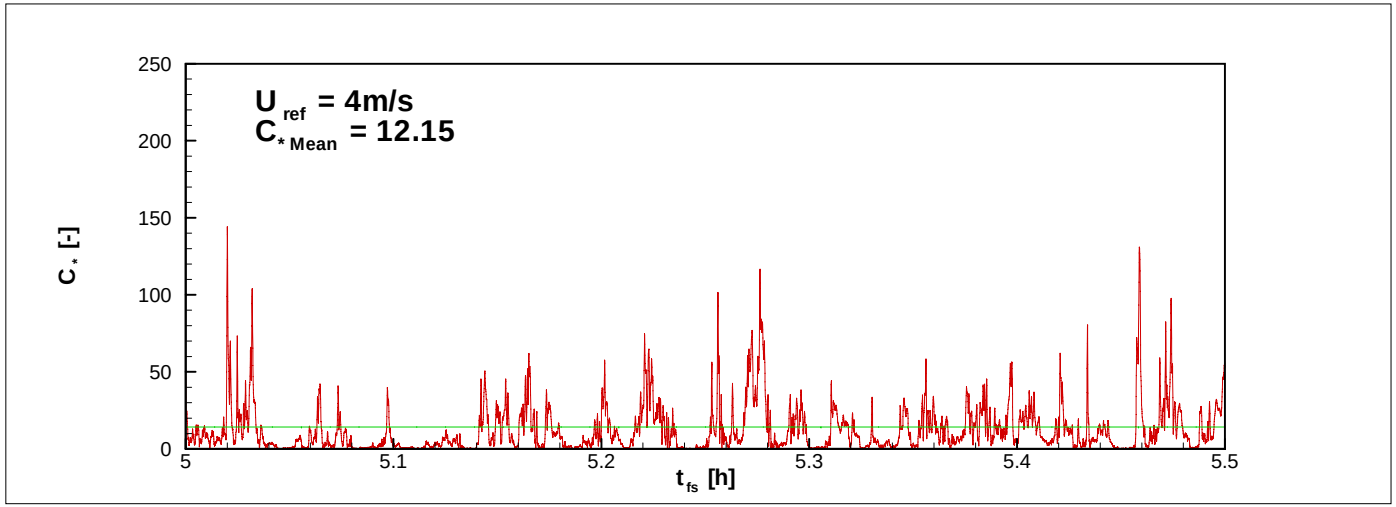
- **Representativeness**
- **Variability and Uncertainty**
- **Evaluation and Validation**
- **Fitness for Purpose**
- **……**

→ **A Glossary of Terms is missing**

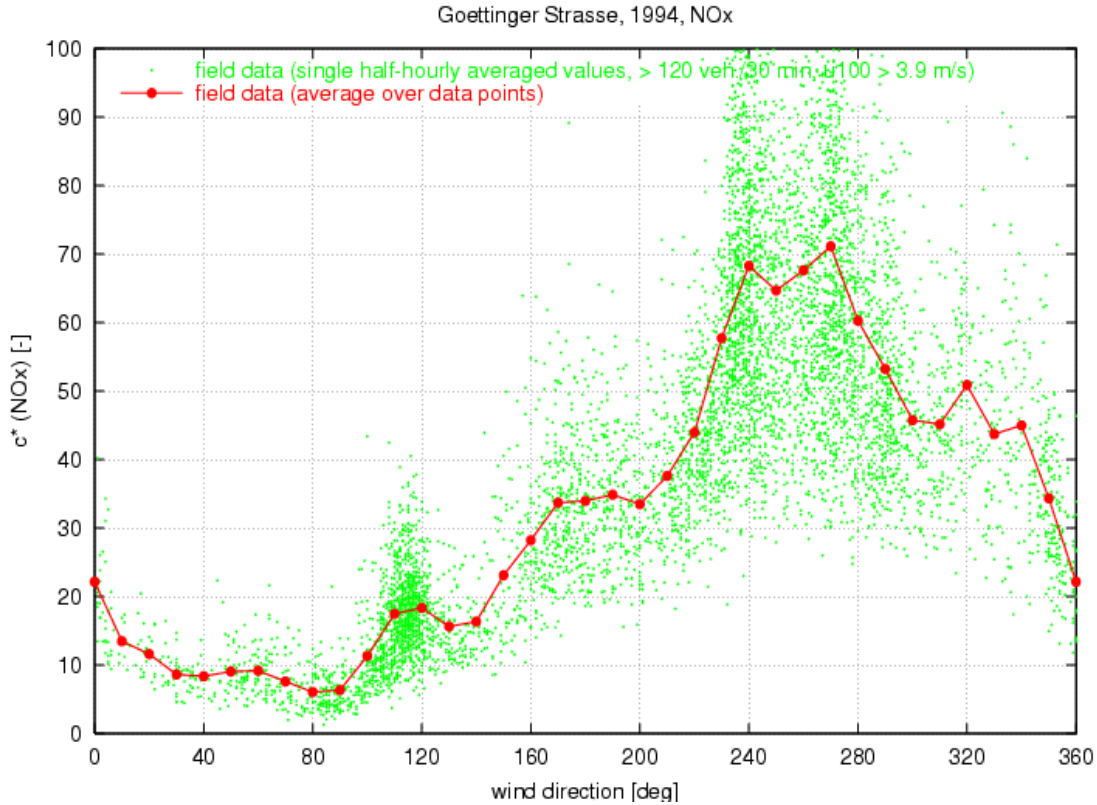
“Representativeness errors arise when comparing point observations with gridded model averages”

Concentration Time Series from a Street Canyon





30 min Mean Concentration Values from a Street Canyon



- 30 min and 60 min averages are too short to be representative
- Longer average times are not adequate due to the diurnal cycle
- Short time averages taken in the field have the character of snapshots only.

from Helge Olesen:

- **FAIRMODE is a modellers' network in support of the new EU Air Quality Directive.**
- **It is a joint action by EEA and JRC / Ispra.**
- **Two work groups**
  - **WG1 on Guidance on the Use of Models**
  - **WG2 on Quality Assurance of Models**

Who delivers the data ???
Who cares for the QUALITY of DATA ???

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Many data sets are available but most of them do not have the quality which is necessary for model validation !

Validation data sets need to be

1. **complete (initial and boundary conditions, source strength, geometry….),**
2. **representative (with respect to time and space),**
3. **quality assured (known uncertainties),**
4. **model specific.**

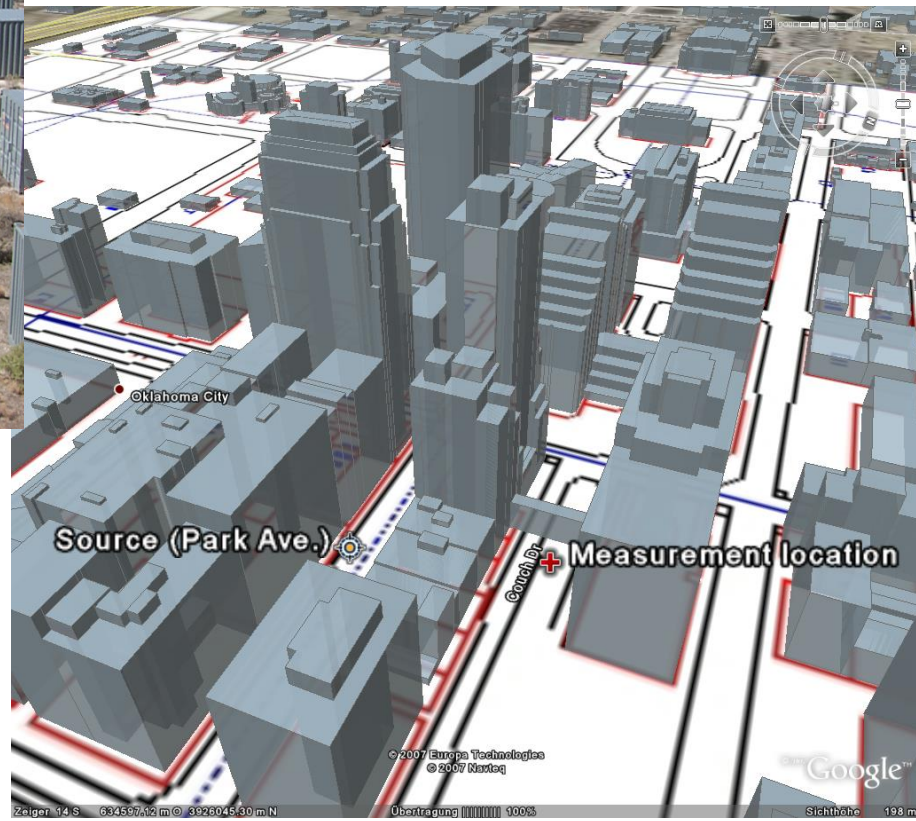
Which data sets do you believe will qualify as reliable standards ???

Technical Meteorology

Within the urban roughness layer obstacles dominate the dispersion. Computer power gets cheaper every day. Obstacle resolving prognostic models get a much bigger share than in the past.

IS THAT TAKEN INTO ACCOUNT ??

COST 732 “Quality Assurance and Improvement of Micro-Scale Meteorological Models”: Work in Progress



Technical Meteorology

Technical Meteorology

Quality assurance of models in not a question of "right" or "wrong" in a scientific sense.

It is a knowledge-based activity and has a lot to do with consensus building within the community of model developers and users.

The best we can do is improving "the culture within which models are developed and applied".

IS A TOP DOWN APPROACH APPROPRIATE HERE ??

from Helge Olesen:

Table 6: showing the modelling quality objectives, called 'uncertainty', as stated in Annex I of the directive.

Modelling uncertainty	SO2, NO2, NOx and CO	Benzene	PM10, PM2.5 and Pb	Ozone and related NO and NO2	Benzo(a)pyrene, PAH, arsenic, cadmium, nickel, total gaseous mercury
Hourly	50 %	—	—	50 %	—
8 hour averages	50 %	—	—	50 %	—
Daily averages	50 %	—	Not yet defined	—	—
Annual averages	30%	50 %	50 %	—	60 %*

* Uncertainty estimate in the heavy metals directive is defined slightly differently to the directive uncertainty

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on ambient air quality and cleaner air for Europe