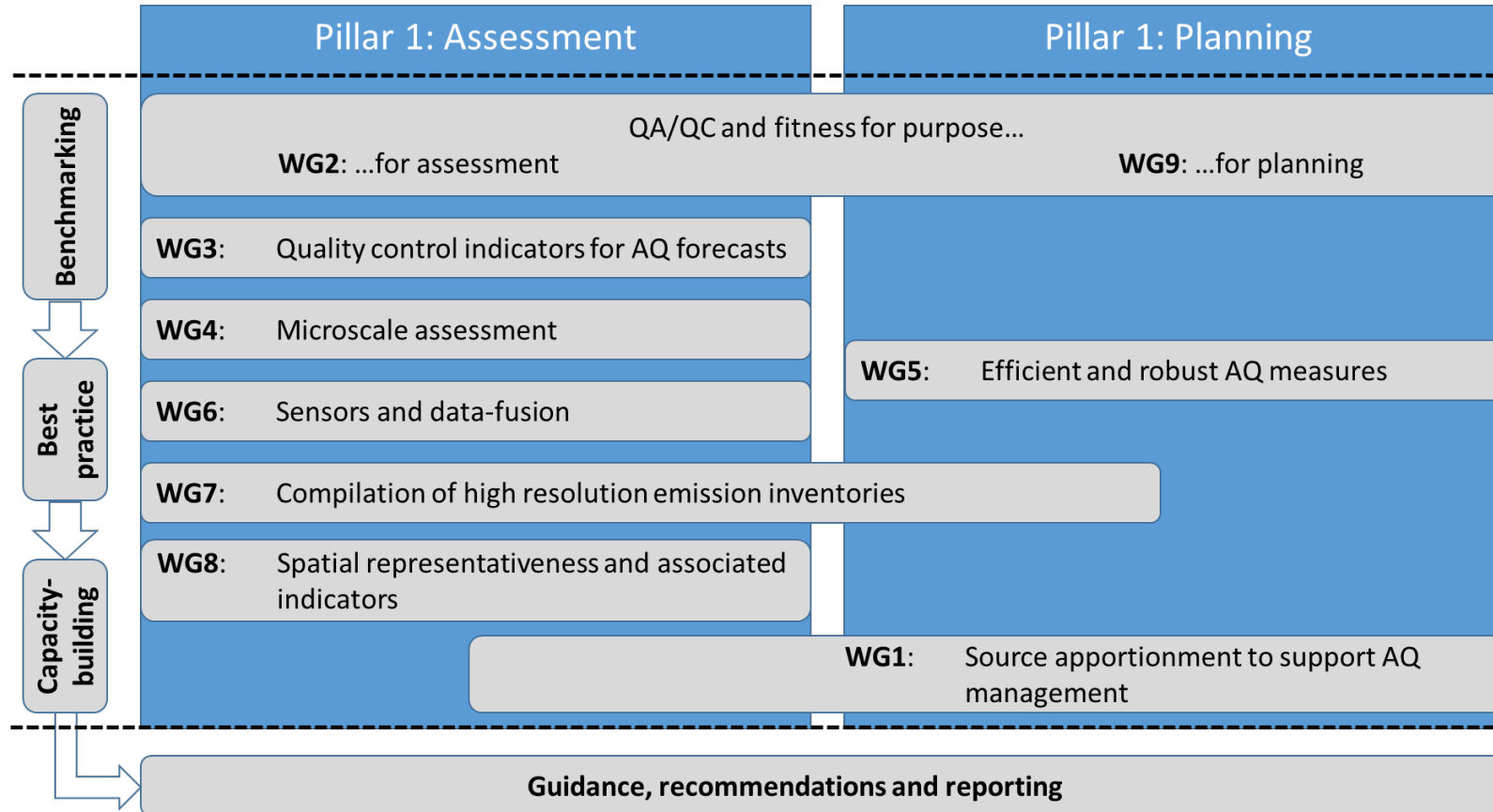


Updates from the FAIRMODE network

E. Pisoni, P. Thunis

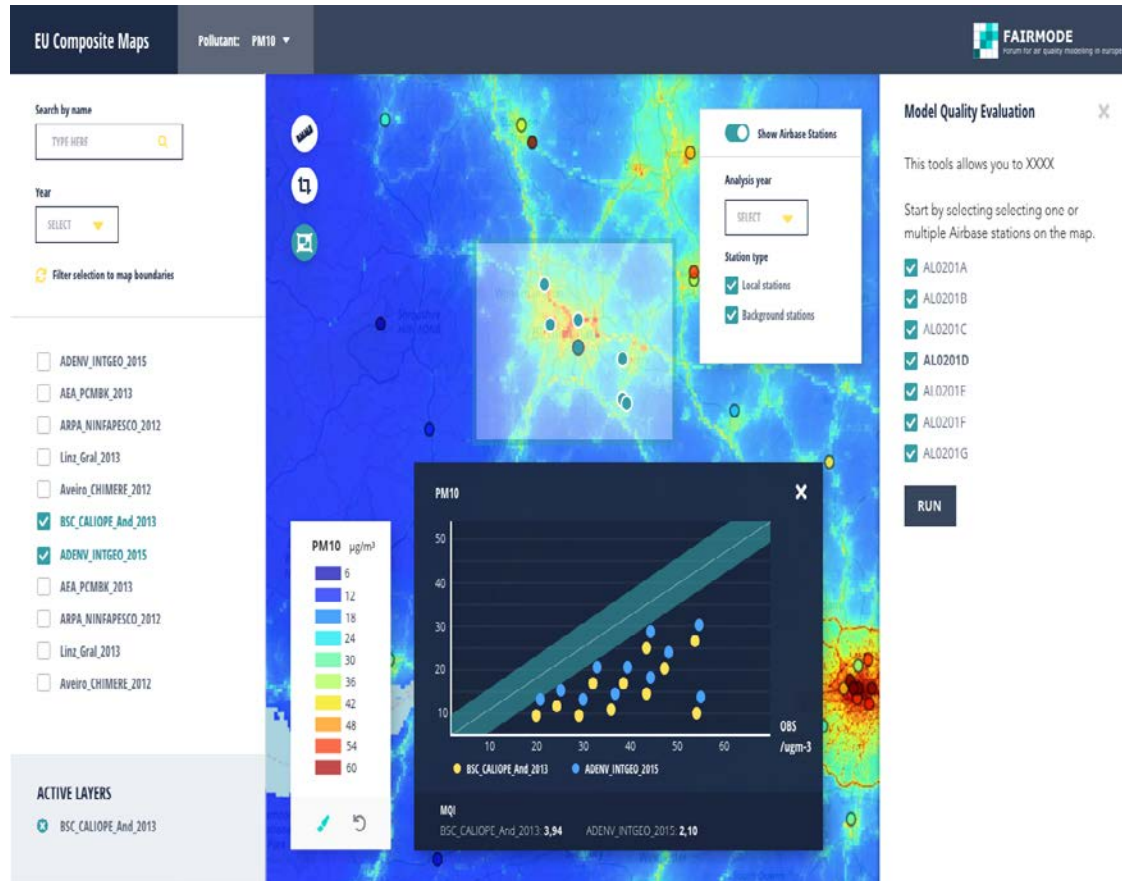
New FAIRMODE roadmap 2023-2025



Outline

- **Assessment (WG2 and WG7):**
 - **The composite mapping platform**
- **Planning (WG9):**
 - The Intercomparison exercise
 - SHERPA updates
- Current work on air quality management practices (WG5)

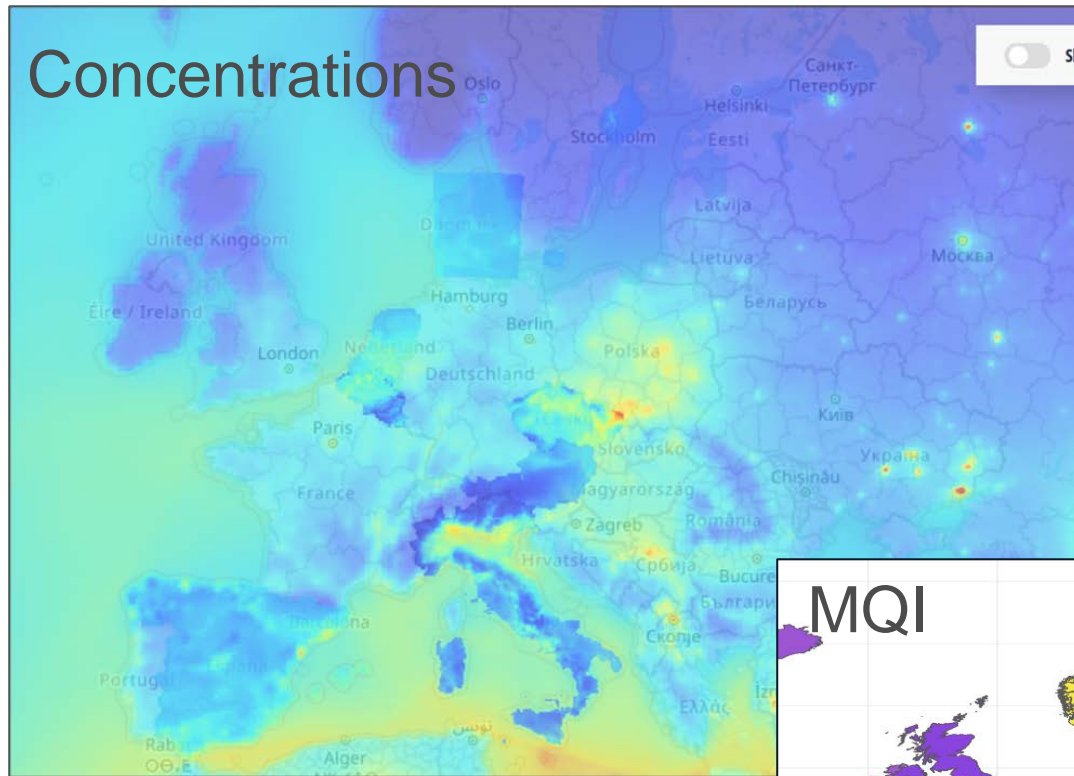
WG1: Assessment - MQI Flexible interface



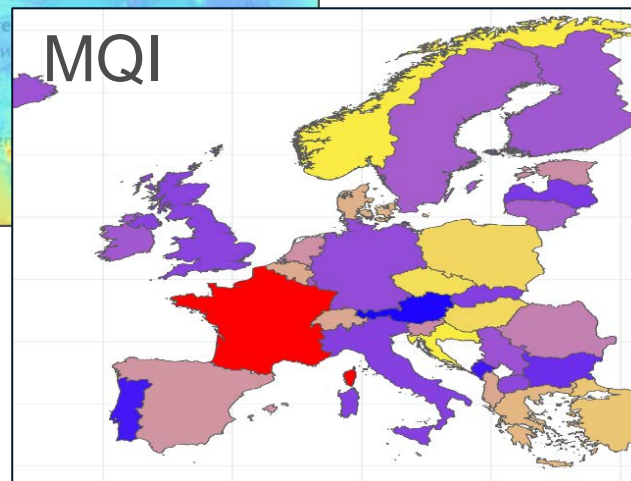
Main aim: allow participants to check the quality of their concentration fields through a flexible MQI interface

- ❖ Available for NO₂, PM₁₀, PM_{2.5} and O₃
- ❖ Calculates MQI values based on user-defined:
 - Set of AIRBASE stations by classification
 - Geographical area (NUTS3, AQ zone, country)
 - Optional number of stations – it is possible to remove specific stations
 - CEN/FAIRMODE vs AAQD formulations

2. MQI & Concentration maps



Based on best performing results at NUTS2/3 level



<https://doi.org/10.5194/gmd-15-5271-2022>
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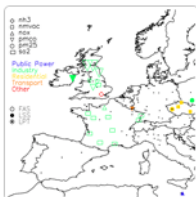
Article Assets Peer review Metrics Related articles

Methods for assessment of models |

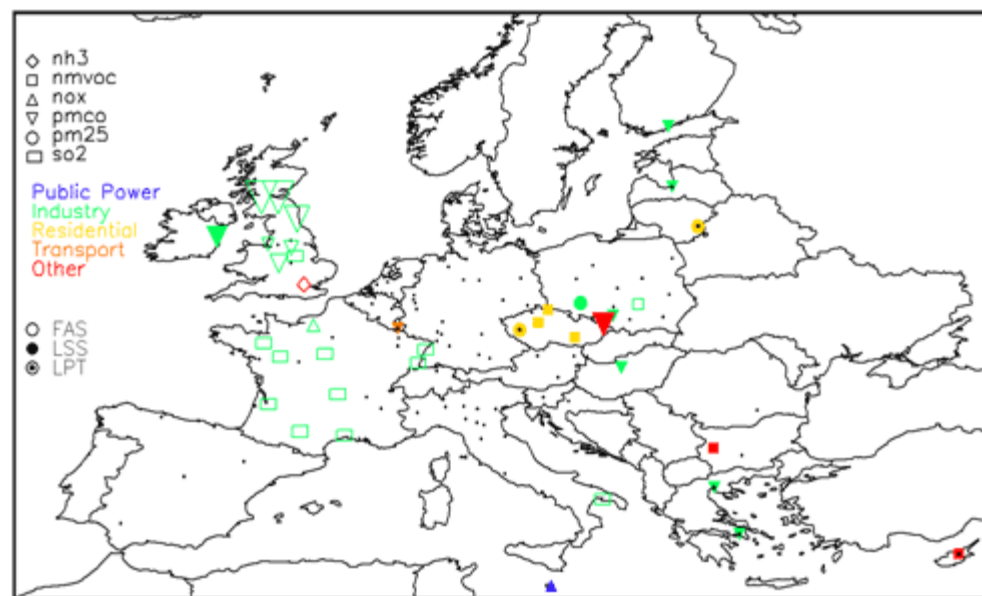
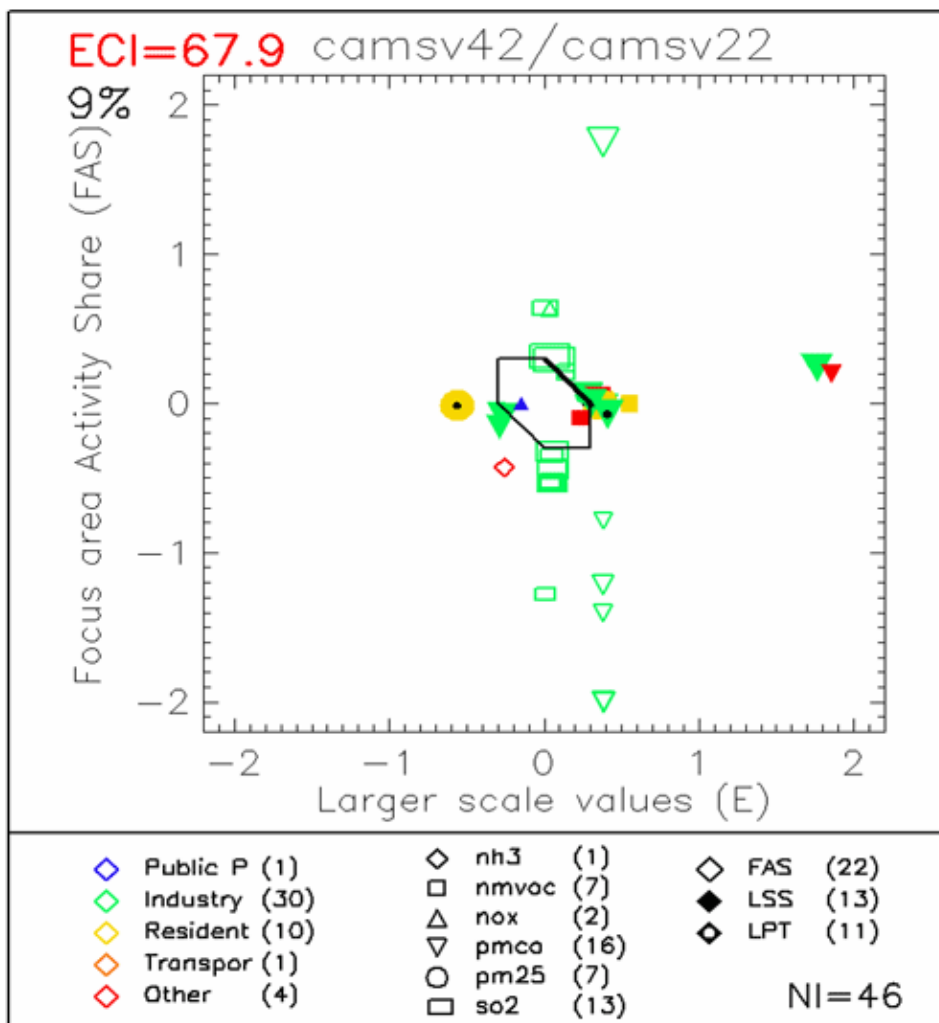
08 Jul 2022

A multi-pollutant and multi-sectorial approach to screening the consistency of emission inventories

Philippe Thunis , Alain Clappier, Enrico Pisoni, Bertrand Bessagnet, Jeroen Kuenen, Marc Guevara, and Susana Lopez-Aparicio



Timing: by August receive results, during FAIRMODE TM (4th-6th of October) we will discuss the results



Country totals (LPT)
 Country sectorial share (LSS)
 Urban share (FAS).

Outline

- Assessment:
 - The composite mapping platform
- **Planning:**
 - **The Intercomparison exercise**
 - **SHERPA updates**
- Current work on air quality management practices

FAIRMODE CT9 OBJECTIVES

For a given mitigation scenario, models provide different absolute results C_{scen}

BUT, HOW DO THEY BEHAVE ON DELTAS?

$$\Delta = C_{scen} - C_{bc}$$

What is the order of magnitude of the differences? How to evaluate these differences? Which indicators?

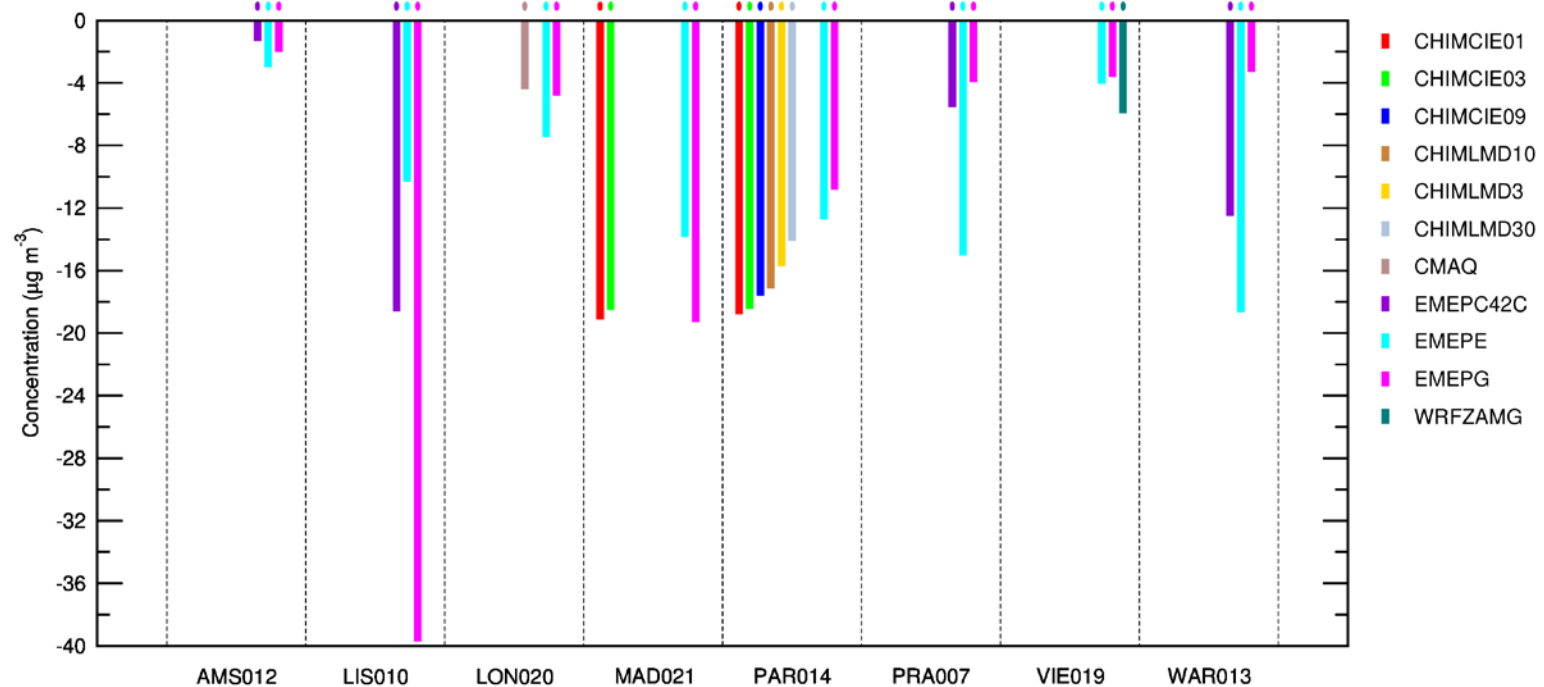
Can we explain the differences, what are the main drivers?

Assess the robustness of deltas for urban policies!

10 models participating

- > Short term (ST) on episodes (PM10, O3)
 - Emissions reduced only during 2015 episodes*
- > Long term (LT) simulations (PM10)
 - Emissions reduced the whole year 2015*
- > Two reductions so far:
 - 25% and 50% from a base case (BC)
- > Reduced species depends on target pollutants
 - PM10: PPM, NOx, VOC, NH3, SO2, ALL*

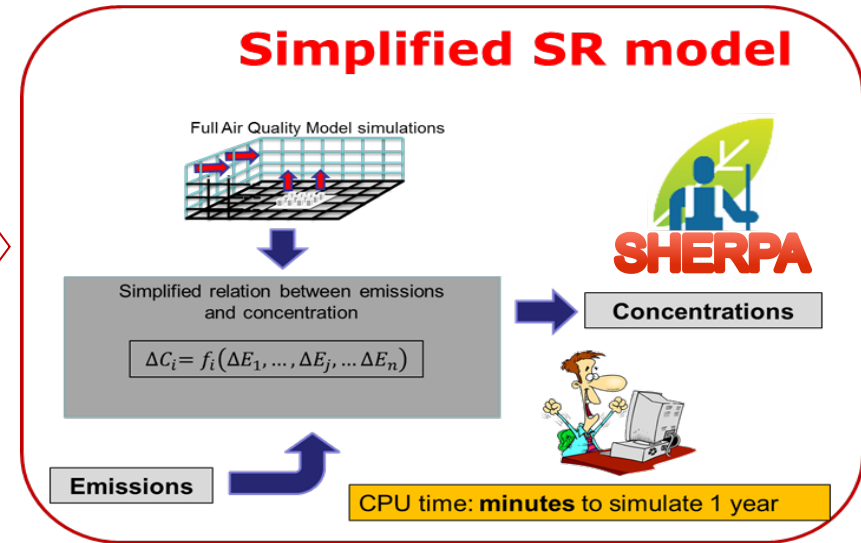
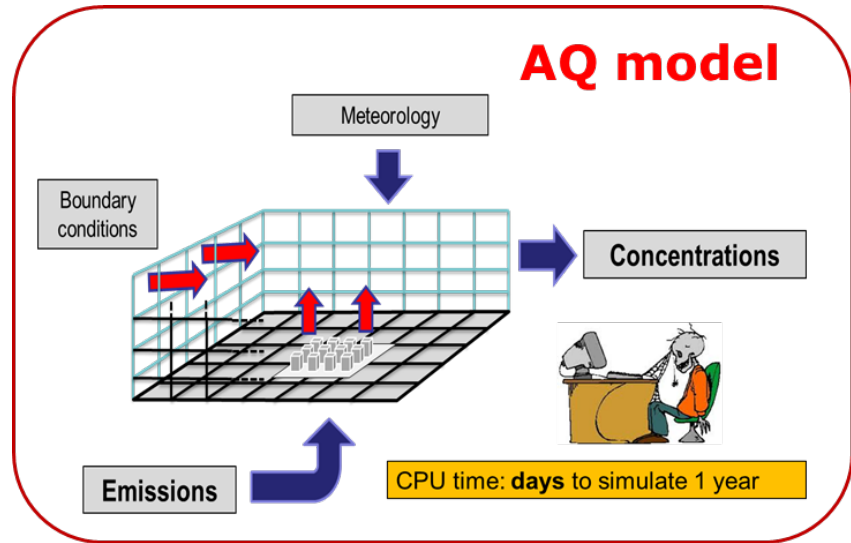
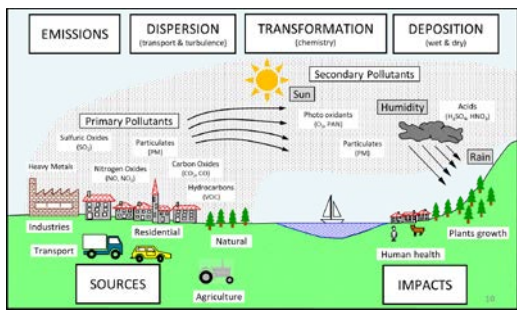
AbsPOTENTIAL50% 95p PM10
ALL reduction (ST)



Next steps

- High variability observed in our first results
- Next steps
 - ✓ Paper I (presentation of the exercise)
 - ✓ In depth work in sub groups on the impact of:
 - *Resolution (CIEMAT, LMD, NKUA, CACP-UH)*
 - *Chemistry (CIEMAT, NKUA)*
 - *Emissions (Alexander de Meij – METCLIM/JRC)*
 - ✓ ...

The concept of SHERPA



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Contents lists available at ScienceDirect

Journal of Environmental Management

journal homepage: www.elsevier.com/locate/jenvman

Research article

On the design and assessment of regional air quality plans: The SHERPA approach

P. Thunis ^{a,*}, B. Degraeuwe ^a, E. Pisoni ^a, F. Ferrari ^b, A. Clappier ^c

^a European Commission, Directorate for Energy, Transport and Climate, Ispra, Italy

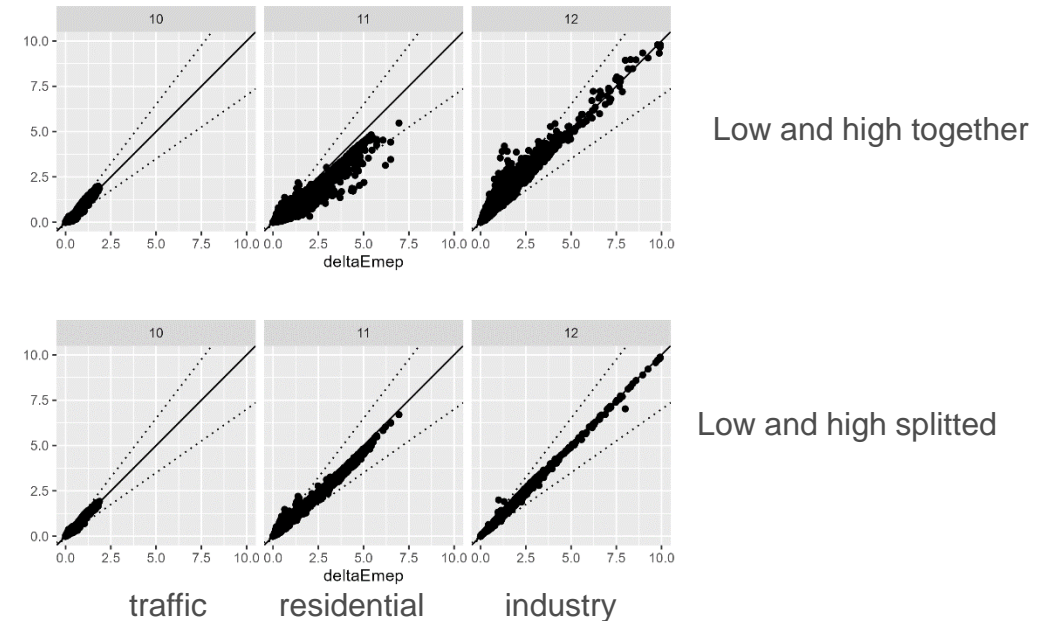
^b Terr'Aria srl, Via M. Gioli 132 20125 Milan, Italy

^c Université de Strasbourg, Laboratoire Image Ville Environnement, Strasbourg, France

New features

New features

- CAMS v6.1+condensables, 2019
- EMEP v4.45
- Low and High level sources
- Seasonal
- Nov 2023 - new PM2.5 atlas



Outline

- Assessment:
 - The composite mapping platform
- Planning:
 - The Intercomparison exercise
 - SHERPA updates
- **Current work on air quality management practices**

Checklist for air quality measures

- Context and measure's general description
- 'Source' (emissions)
- 'Receptor' (concentrations)
- Methodology used

Importance of meta-information

Specific meta information

‘Source’ (emissions)

- Over which **spatial area** is the measure applied (city, street, ...)?
- Is the measure applied year long, or for specific **time** periods?
- Over **which sectors/activity** is the measure applied ? Over **which** pollutants ?
- By **how much** does measures reduce emission (full, 20%, ...) ?
- Which **methodology** to estimate the emission change ?

‘Receptor’ (concentrations)

- **Which indicator** to assess the impact of the measure (e.g. concentration, pop exposure)?
- Over which **spatial area** do you average the indicator (city, street, set of stations, ...)?
- Over which **time period** do you average the indicator (hours, days, year, ...)?
- By **how much** does the indicator change as a response to the application of the measure?
- Which **methodology** do you use to quantify the concentration change (e.g. brute force ...)?

Possible common exercise

Focus on few measures common in air quality plans and / or climate plans:

- Residential sector: Increasing energy efficiency in buildings
- Transport sector: Increasing the electrification of the fleet

Compile the 'checklist' to see how to report measures, so that others could replicate it on their domain:

- We collect and discuss experiences

From reported data, we could then:

- Check and compare the proposed methodologies
- Check the variability in terms of estimated emission changes / AQ changes

Conclusions

We provided updates on different activities

- Assessment (composite mapping platform)
- Planning (The Intercomparison exercise and SHERPA updates)
- Current work on air quality management practices

All activities are open ... we welcome increased interactions with TFIAM

Thank you



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