Update on FAIRMODE

Benchmarking platform for air quality projections

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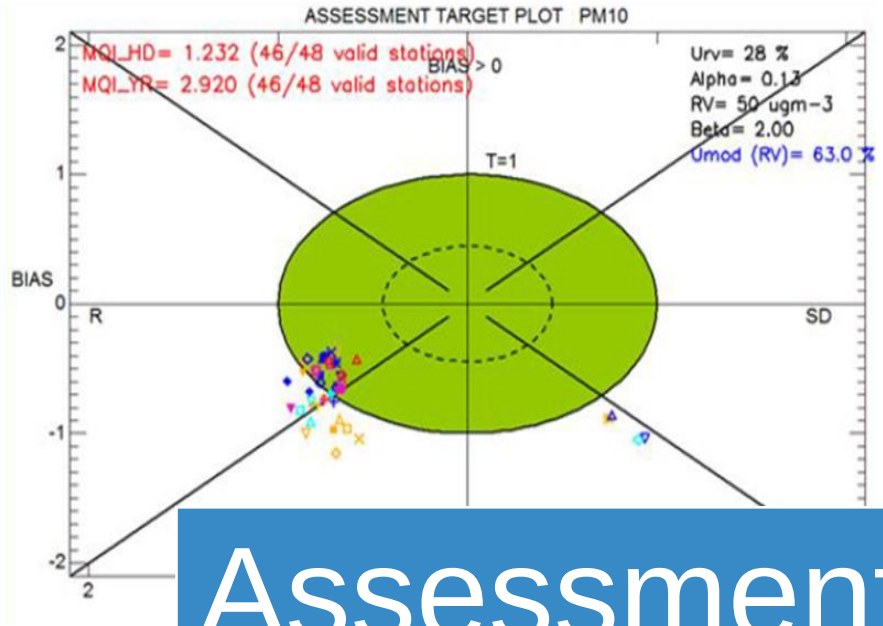
FAIRMODE (Harmonisation and QA/QC)

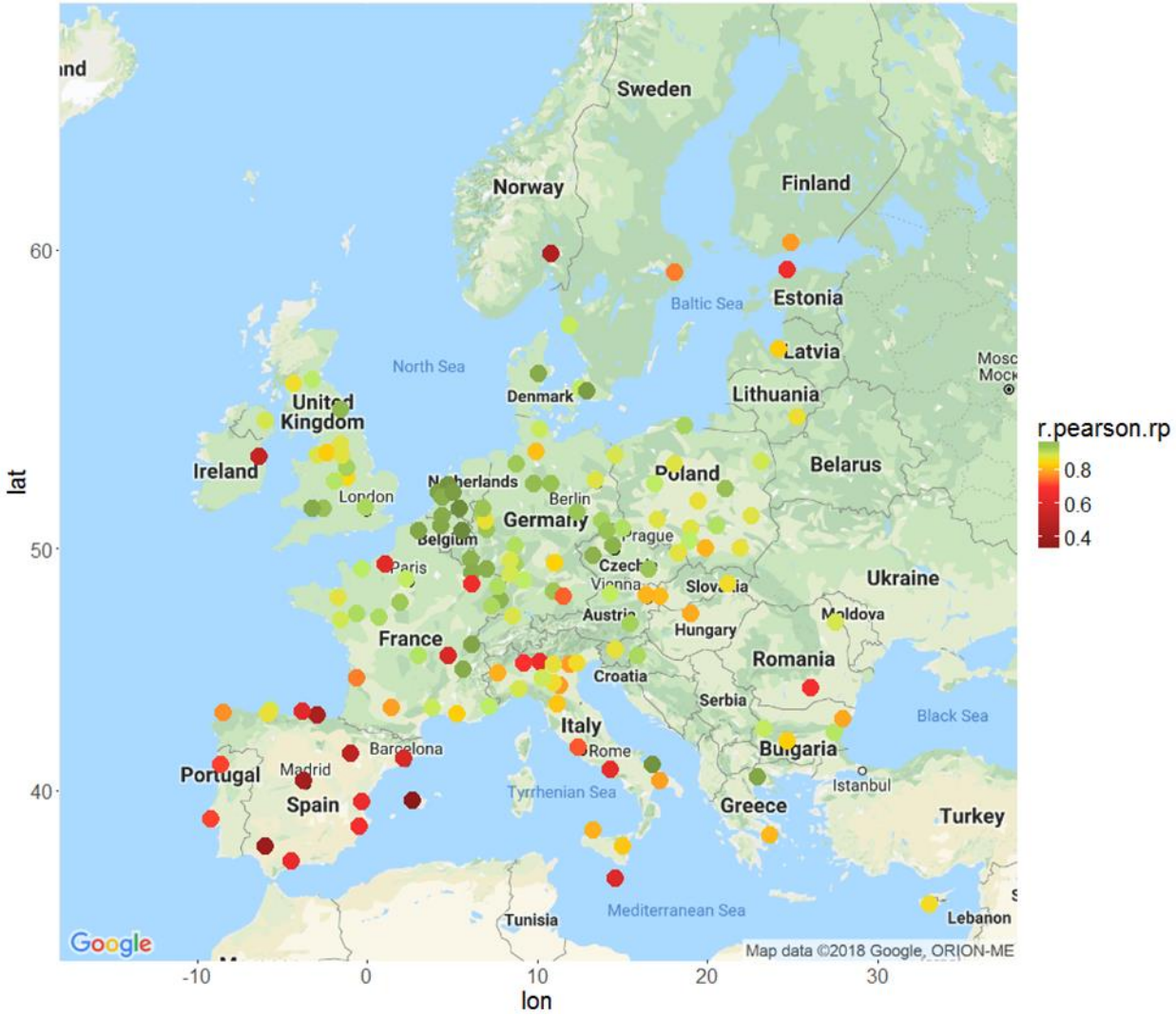
There is need for assessing planning applications

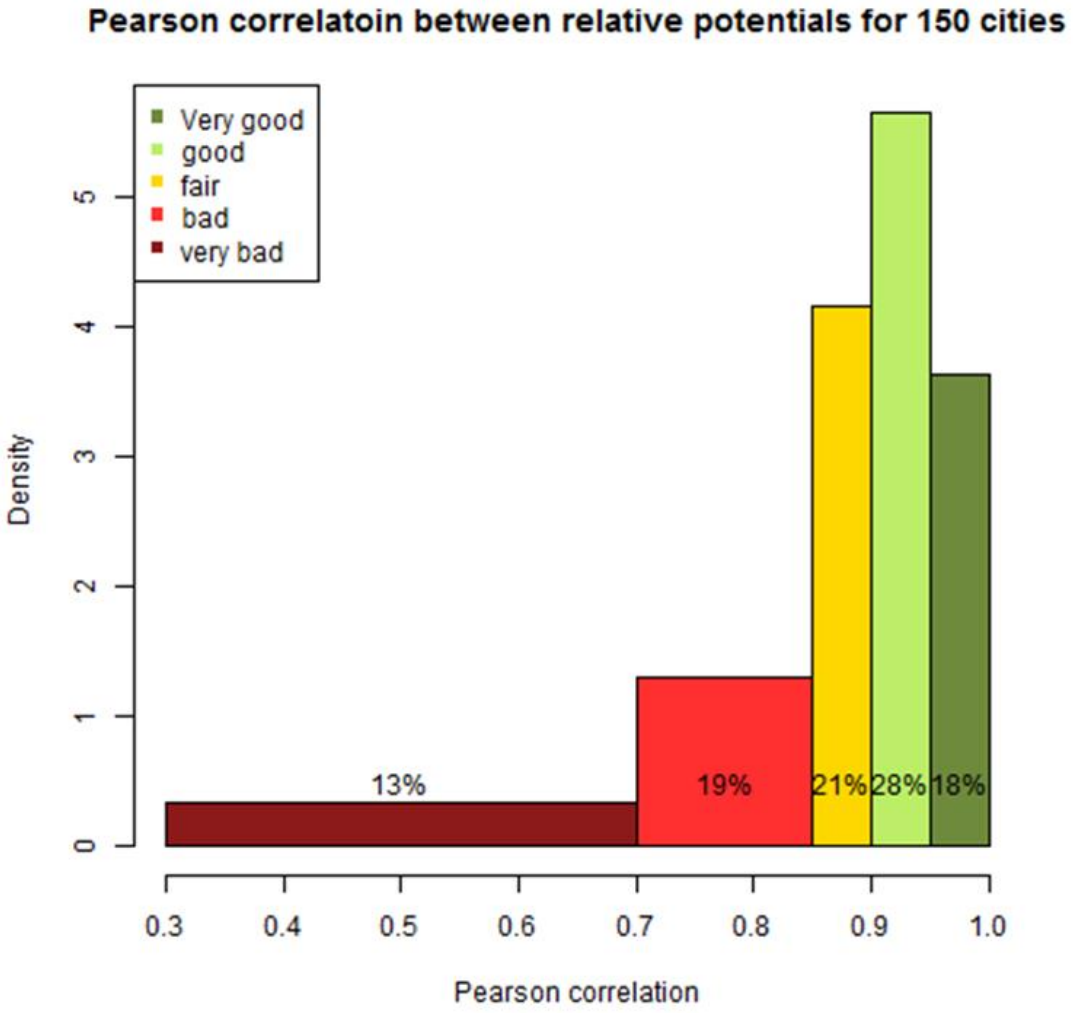


Assessment

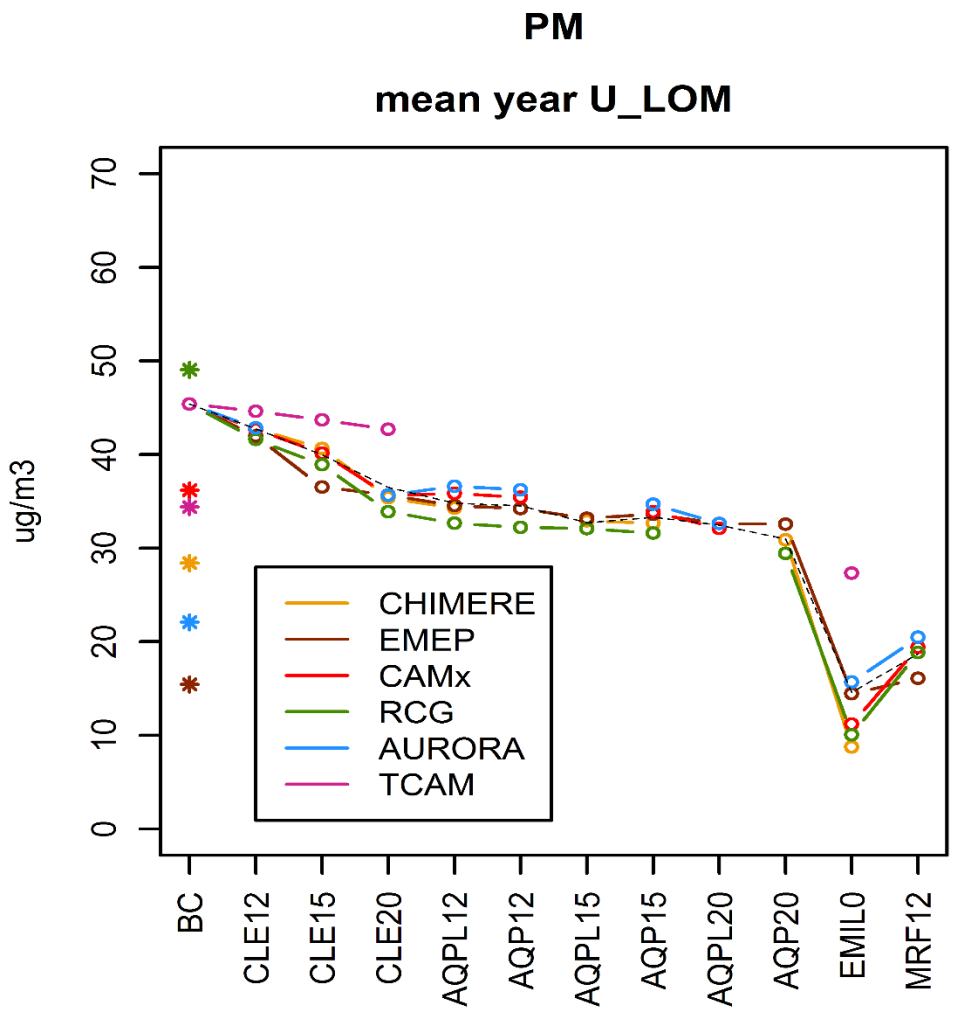
Planning

Comparison S-CHIMERE / S-EMEP





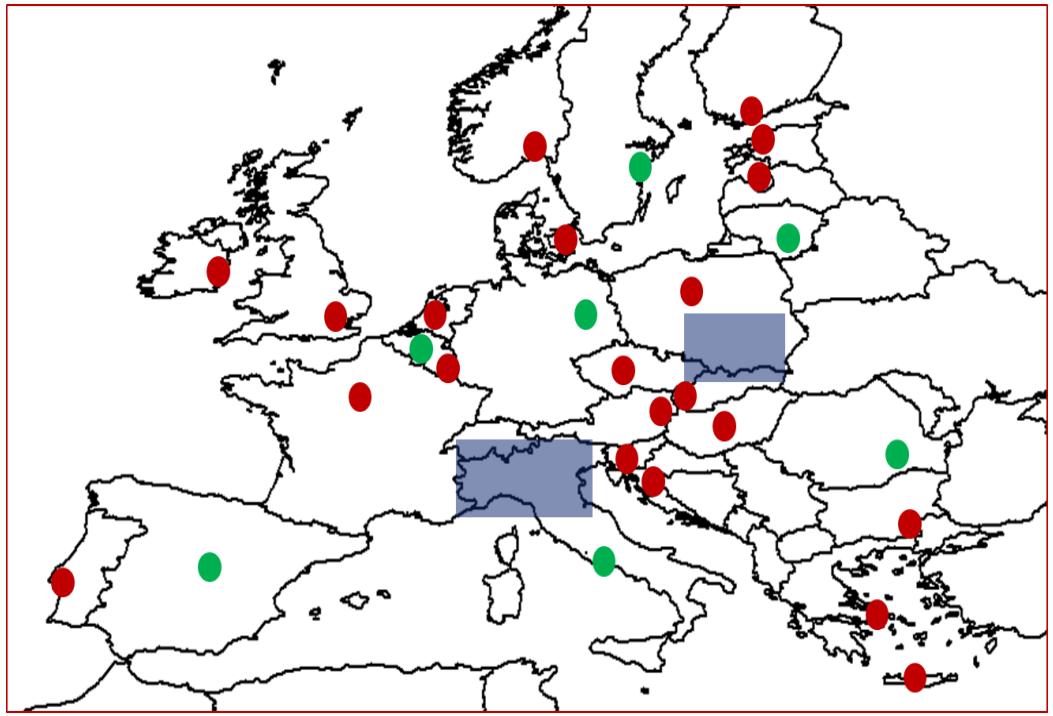
Inter-comparisons help understanding



POMI exercise (2012)

- Several models applied to Po valley Lombardy region.
- After several adjustments and several scenarios simulated → normalized responses to emission changes are similar!

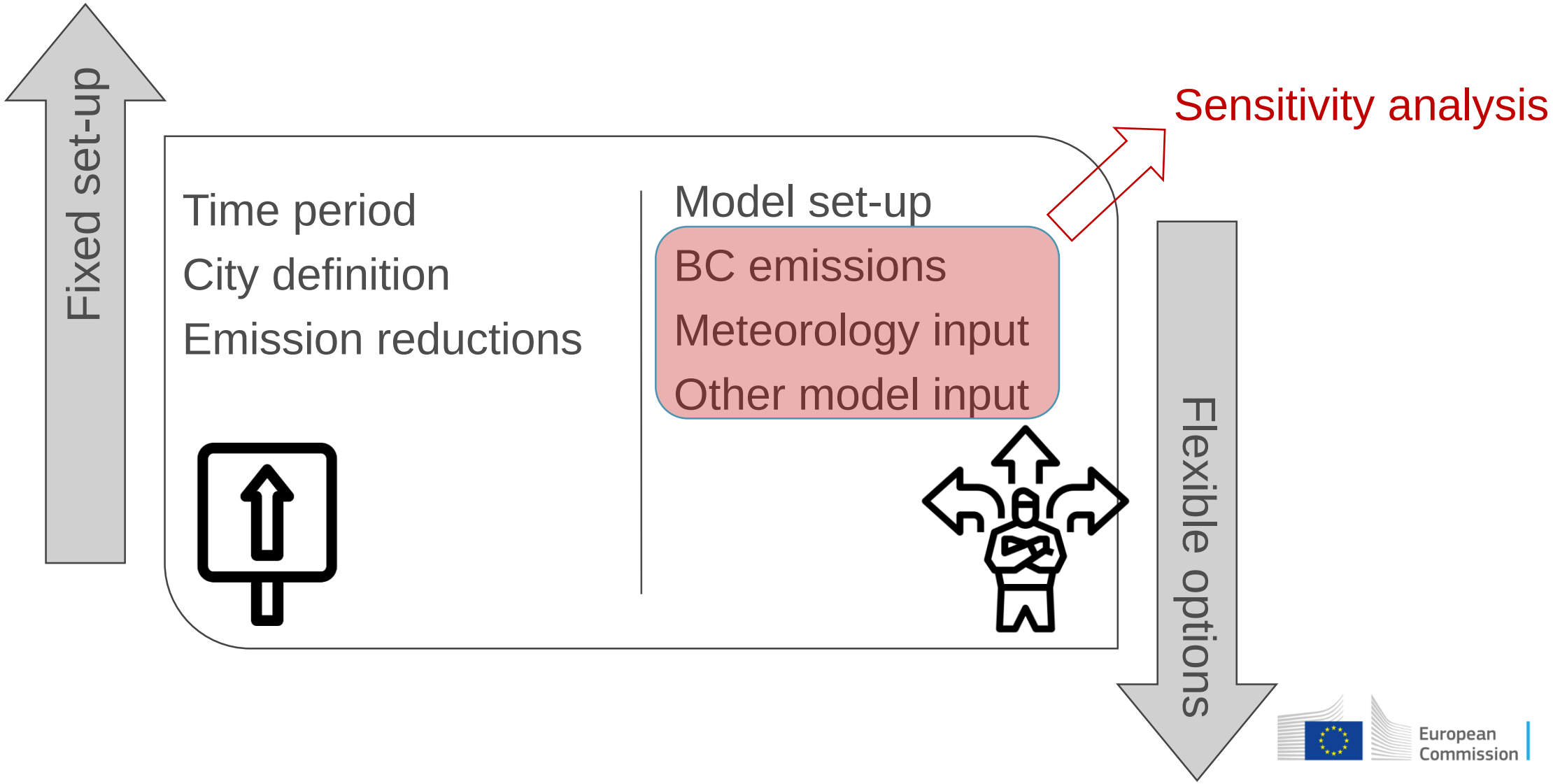
FAIRMODE CT9 (Robustness of AQ projections)



Platform intended to benchmark and understand differences among modelling system responses to urban emission changes.

- Main pollutants: PM, NO2 and O3
- Addressing both episodes and yearly averages.
- Theoretical emission reduction scenarios
- Intended both to local and European scale modelling systems.
- A “permanent” platform rather than an exercise

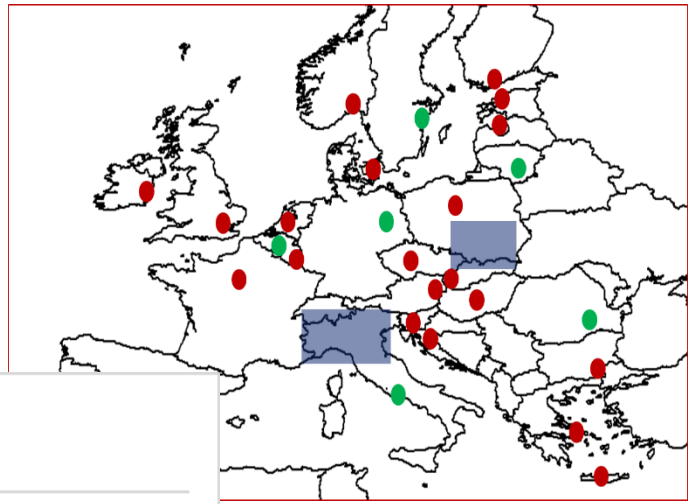
Fixed vs flexible set-up & sensitivity analysis

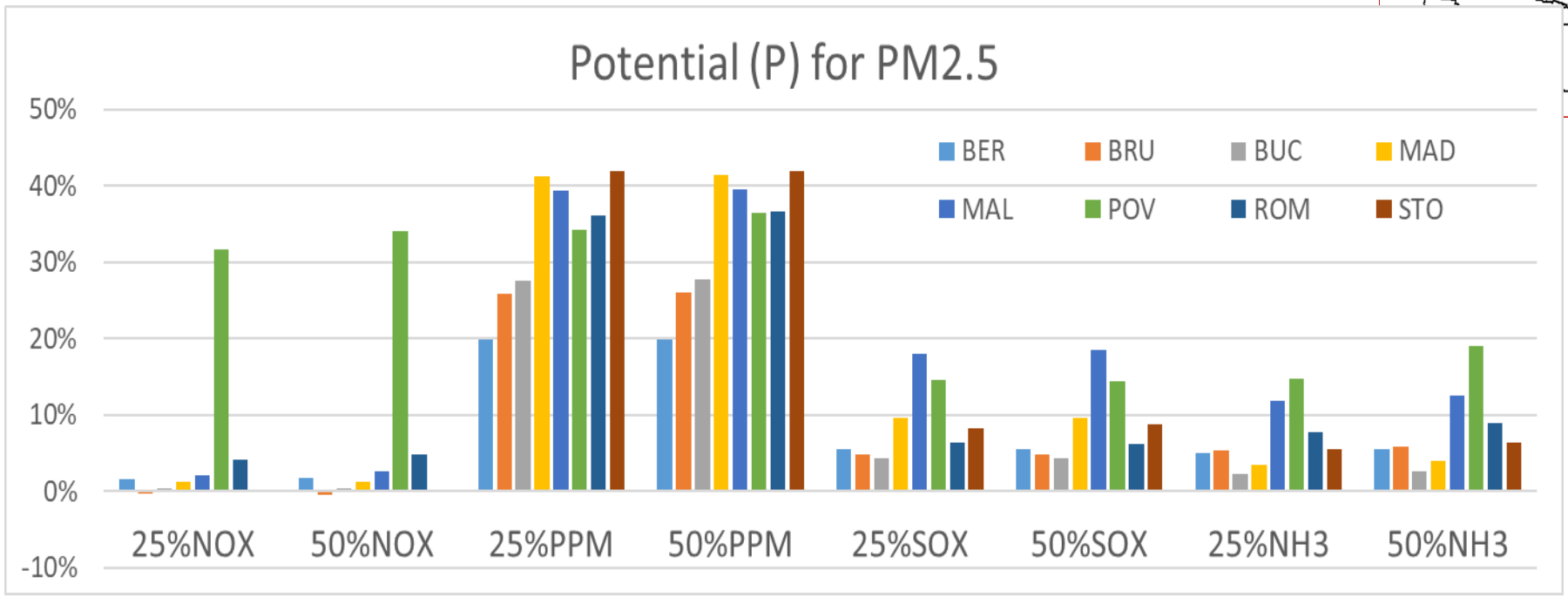


Results example and comparison indicators

$$P_{city}^{centerpoint}(\alpha) = \frac{\Delta C_{city}^{centerpoint}(\alpha)}{\alpha}$$

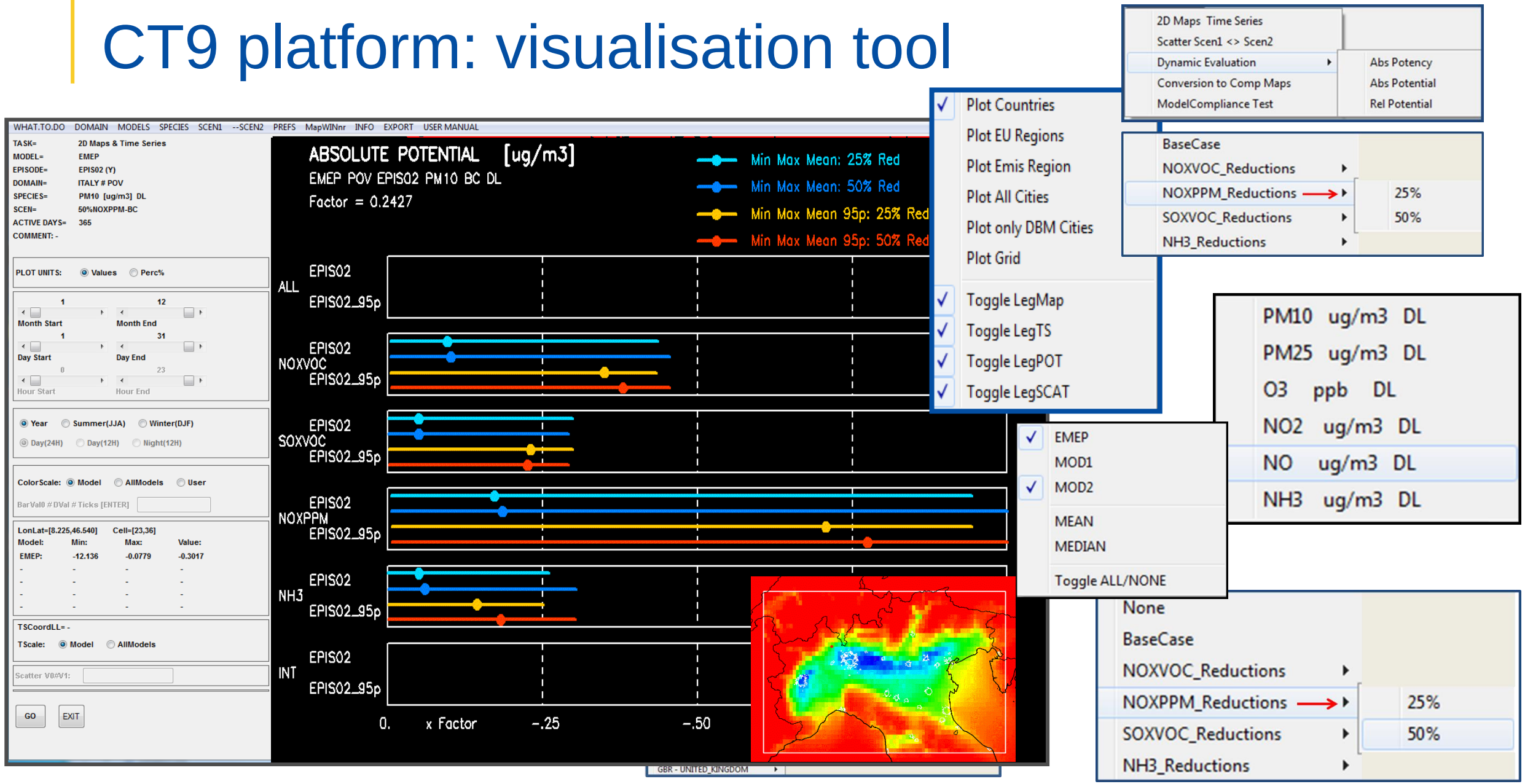
$$City = FUA$$





European Commission

CT9 platform: visualisation tool

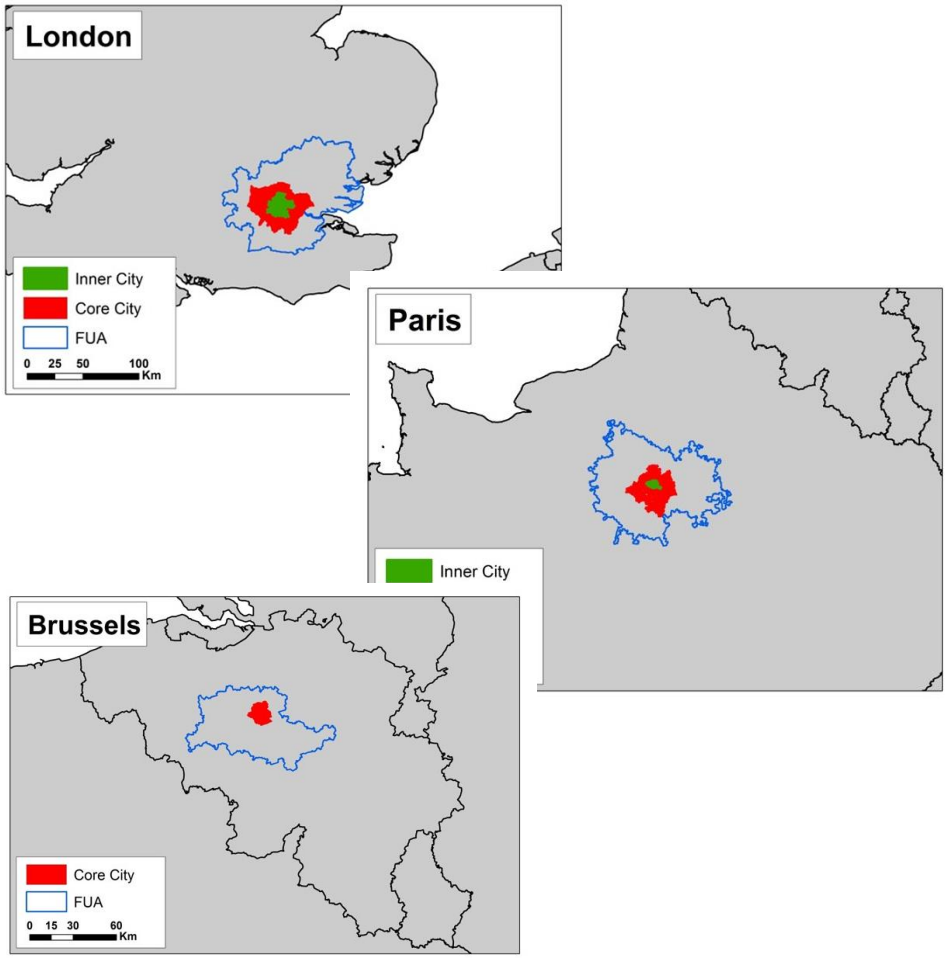


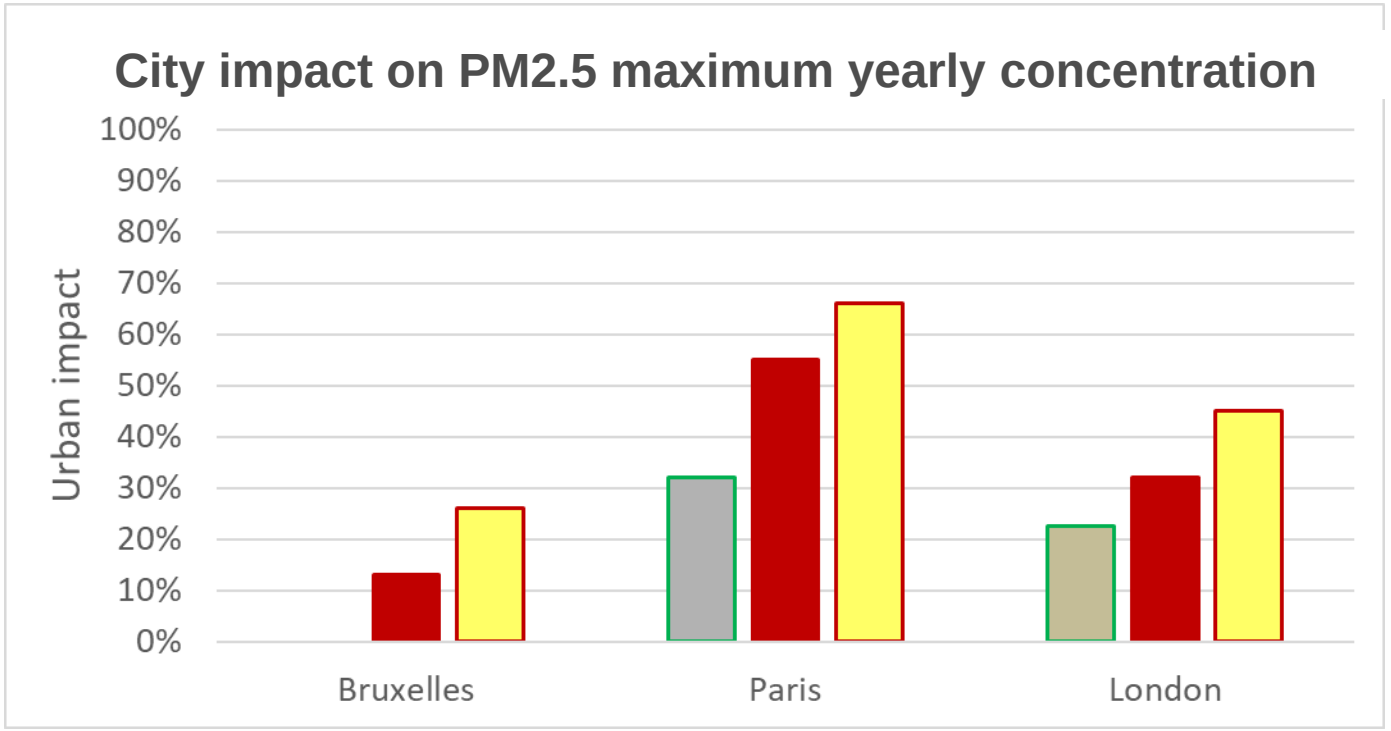
Considerations on the setup of an EPCAC exercise to assess the city role in AQ

Definitions and methodological issues

European Commission

What do we intend by city?





Administrative unit

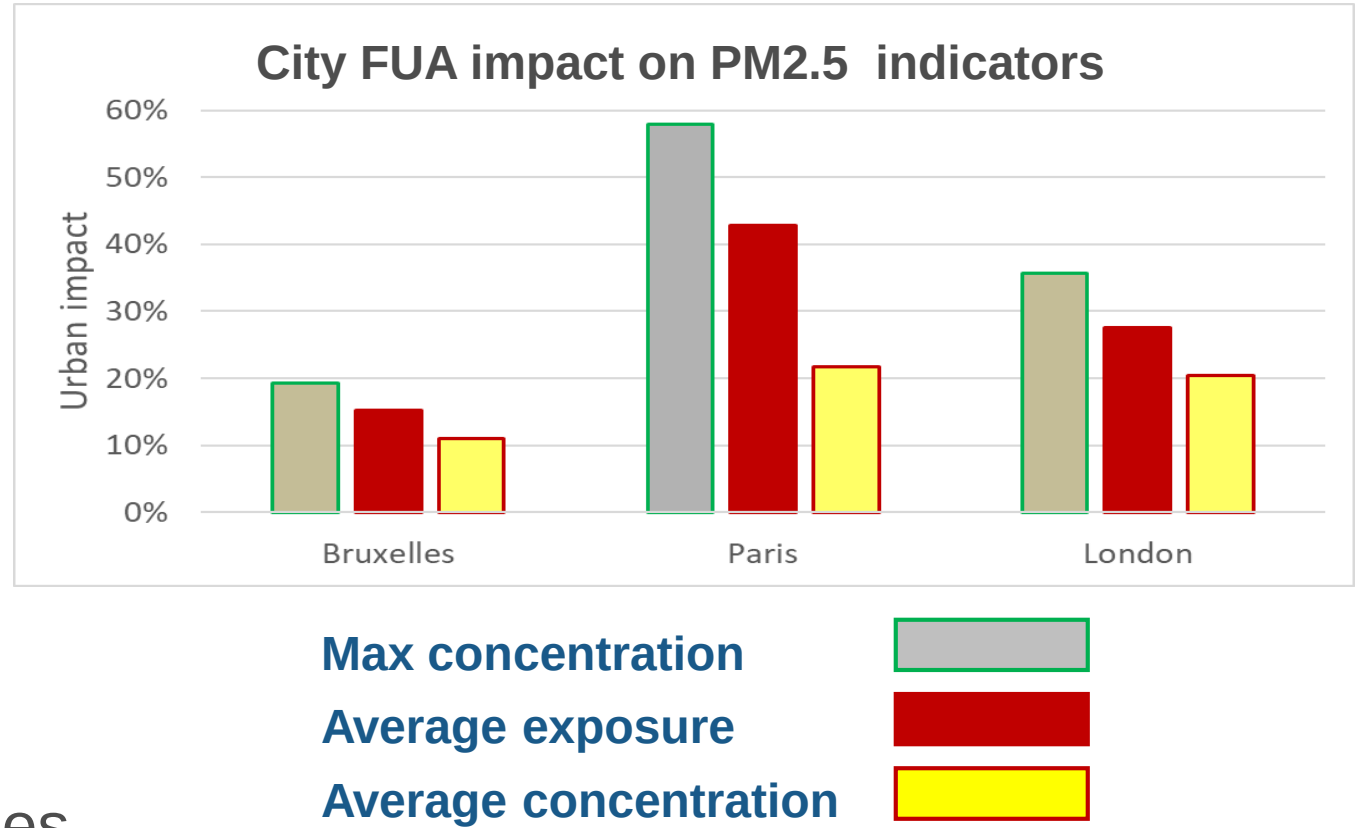
City Core

Functional Urban area

European Commission

Importance of the selected indicator

- $Conc_{max} \rightarrow \overline{Exposure} \rightarrow \overline{Conc}$



- Episodes vs. long term averages

Methodological options to assess the background?

The urban background can be defined in many ways:

A. Urban concentration reached when city emissions = 0

B. Urban concentration extrapolated from a limited city emission reduction (e.g. SHERPA at 50%, CAMS at 20%)

C. Mass of the precursor related compounds (tagging/labeling techniques)

D. Measured rural background (e.g. GAINS, TSAP)

E. (A or B or C or D) + Implicit/explicit assumptions (Point sources, Secondary…)

In general: A ≠ B ≠ C ≠ D ≠ E

Conclusions

- The indicators choices (impact on the exercise setup) and methodological assumptions will likely drive the findings and policy messages of the exercise
- Synergies / collaborations with the CT9 FAIRMODE exercise ?

Thank-you

European Commission