Air Quality Modelling tools
Towards regional and urban scales

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Serving society
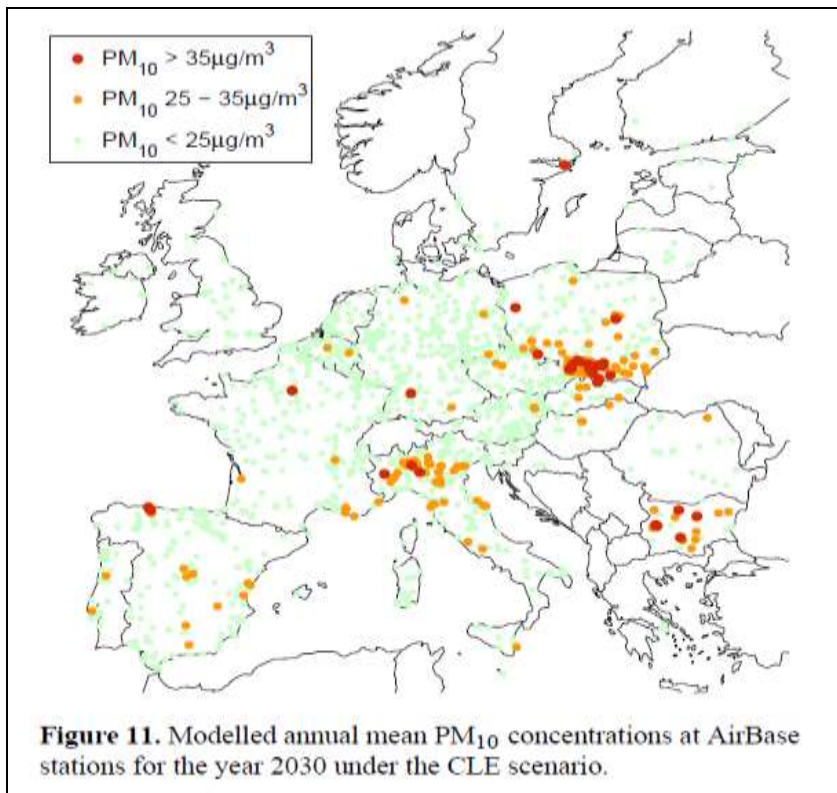Stimulating innovation
Supporting legislation
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Outline

❑ JRC tools for Air quality integrated assessment
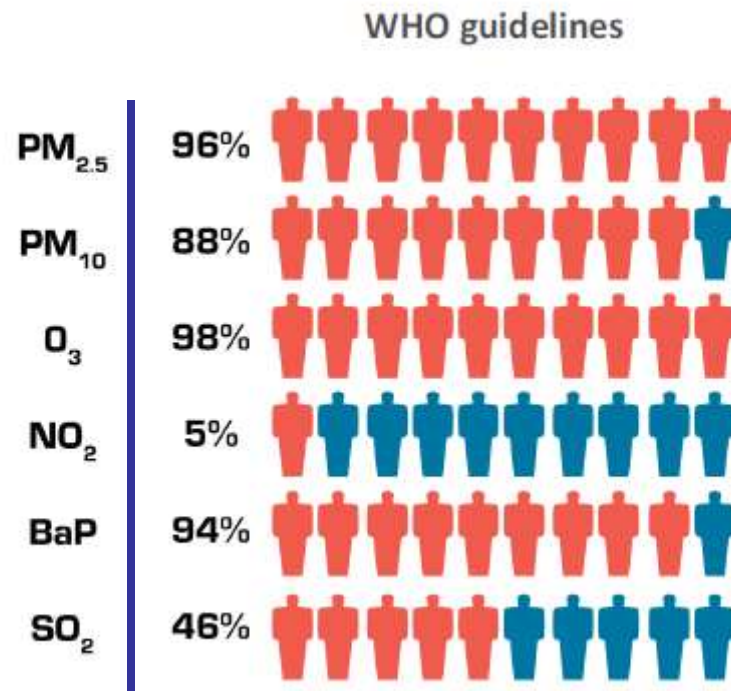
  ▪ From EU wide to regional/urban assessments

❑ FAIRMODE: a European forum for air quality modelling

  ▪ Towards improved modelling practices in the EU

Urban air quality remains an issue

Figure 11. Modelled annual mean PM_{10} concentrations at AirBase stations for the year 2030 under the CLE scenario.
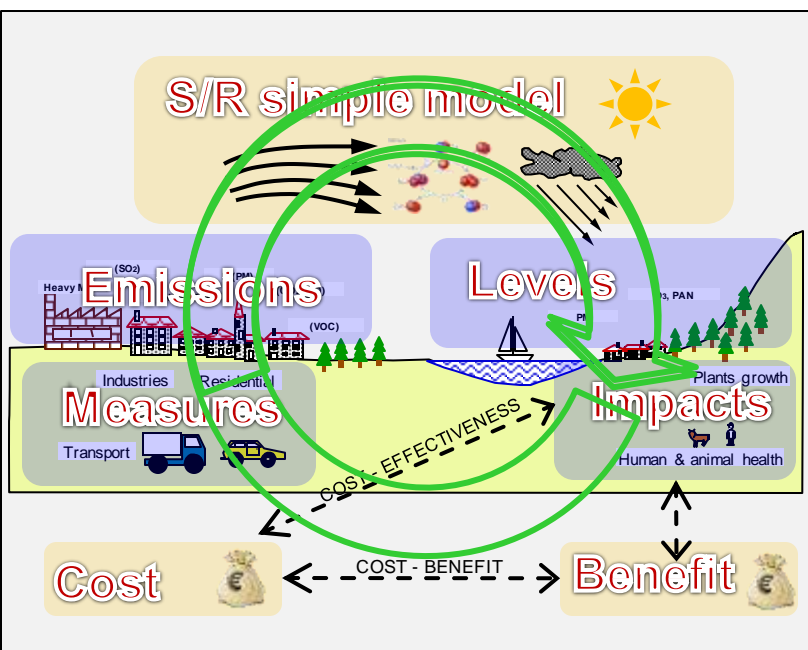
Source: Kiesewetter et al. 2015

WHO guidelines

Source: EEA

- ✓ **An EU wide approach does not solve all compliance issues**
- ✓ **"hot spots" remain where local measures might be more effective**
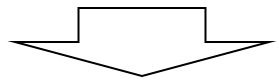- ✓ **IAM models need to use adequate resolution**
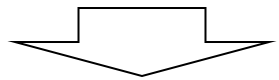
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Regional / Urban Integrated Assessment

Questions addressed

- Is there a potential for action ?
- Which sector/pollutant should be prioritized?
- What is the best area for action (country, region...)?

- For a given budget, what is the optimal set of measures to best reduce air pollution?
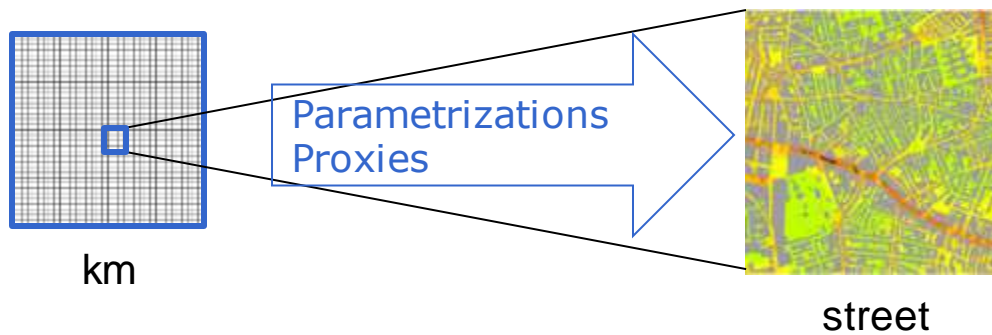
- Support EU Air Quality impact assessment with regional/urban focus
- Support Regional Authorities in designing and assessing AQ plans

Next steps

❑ Time downscaling: from year averages to episodes (challenge: non-linearities)

❑ Spatial downscaling; From grid cell (km) to street (m)

km

Parametrizations
Proxies

street

❑ Improve accuracy of all model components and inputs

fairmode.jrc.ec.europa.eu

European Commission

FAIRMODE is a Forum for **Air Quality Modeling** chaired by the JRC created for **exchanging experience** and results from air quality modeling in the context of the Air Quality Directive and for promoting the use of modeling for regulatory purposes in a **harmonized** manner between Member States.

FAIRMODE relies on **QA/QC to improve modelling practices** *in:*

- *assessing air quality levels*

- *assessing plans and measures to abate Air pollution*

- *ensuring consistency among emission inventories*
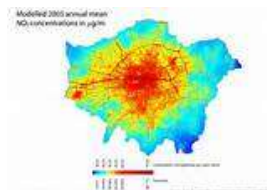
- *determining origin of exceedances*
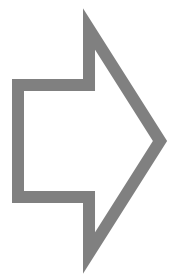
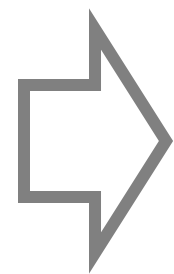Figure 4. Source apportionment of ambient PM2.5 in Beijing

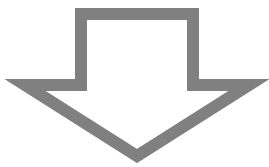Joint Research Centre

FAIRMODE

Harmonisation & QA/QC

Guidance
to Member States and Regional Authorities

Training

Towards Standardisation

Selected achievements

Definition of common model quality objectives (MQO) for air quality modeling. MQO are necessary to ensure that a sufficient level of quality is reached for policy support. Steps towards a CEN European standard have been initiated.

Contribution to the review of the Thematic Strategy on Air Quality (2012): Recommendations on the use of air quality modeling, some of them specifically addressing quality assurance issues (e.g. consistency of emission inventories, quality of the assessment).

SPECIEUROPE is a repository of source profiles developed by the JRC. The target users are source apportionment and emission experts working on the identification of atmospheric pollution sources in urban or background areas in Europe

Benchmarking tools: systematically developed within each Fairmode sub-activities to support the design and testing of QA/QC methodologies. These tools also allow Member States to share their experience and datasets (http://aqm.jrc.ec.europa.eu/DELTA/).

Thank-You