

WG2

Summary and recommendations for the next workplan

FAIRMODE Technical Meeting
27-29 June 2016, Zagreb, Croatia

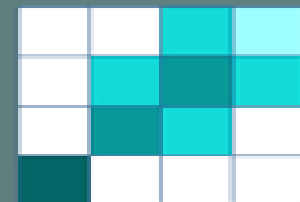
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¹ Barcelona Supercomputing Center - Centro Nacional de Supercomputación, Earth Sciences
Department, Barcelona, Spain.

FAIRMODE

Forum for air quality modelling in Europe



Evaluation of emissions

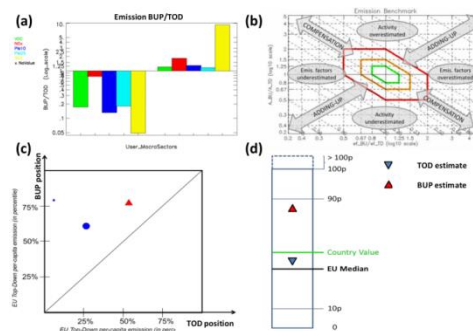
Benchmarking

Best Practice



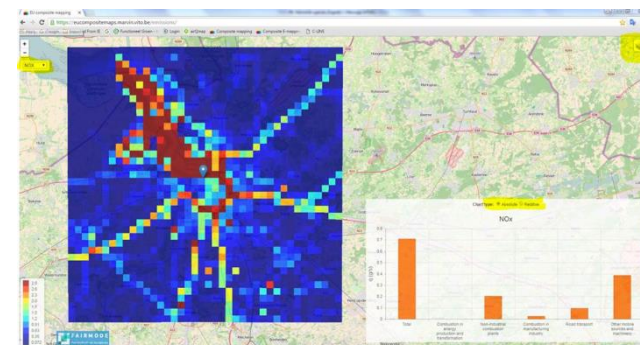
- Mapping (survey)
- Opportunities
- Challenges

△ Emission tool



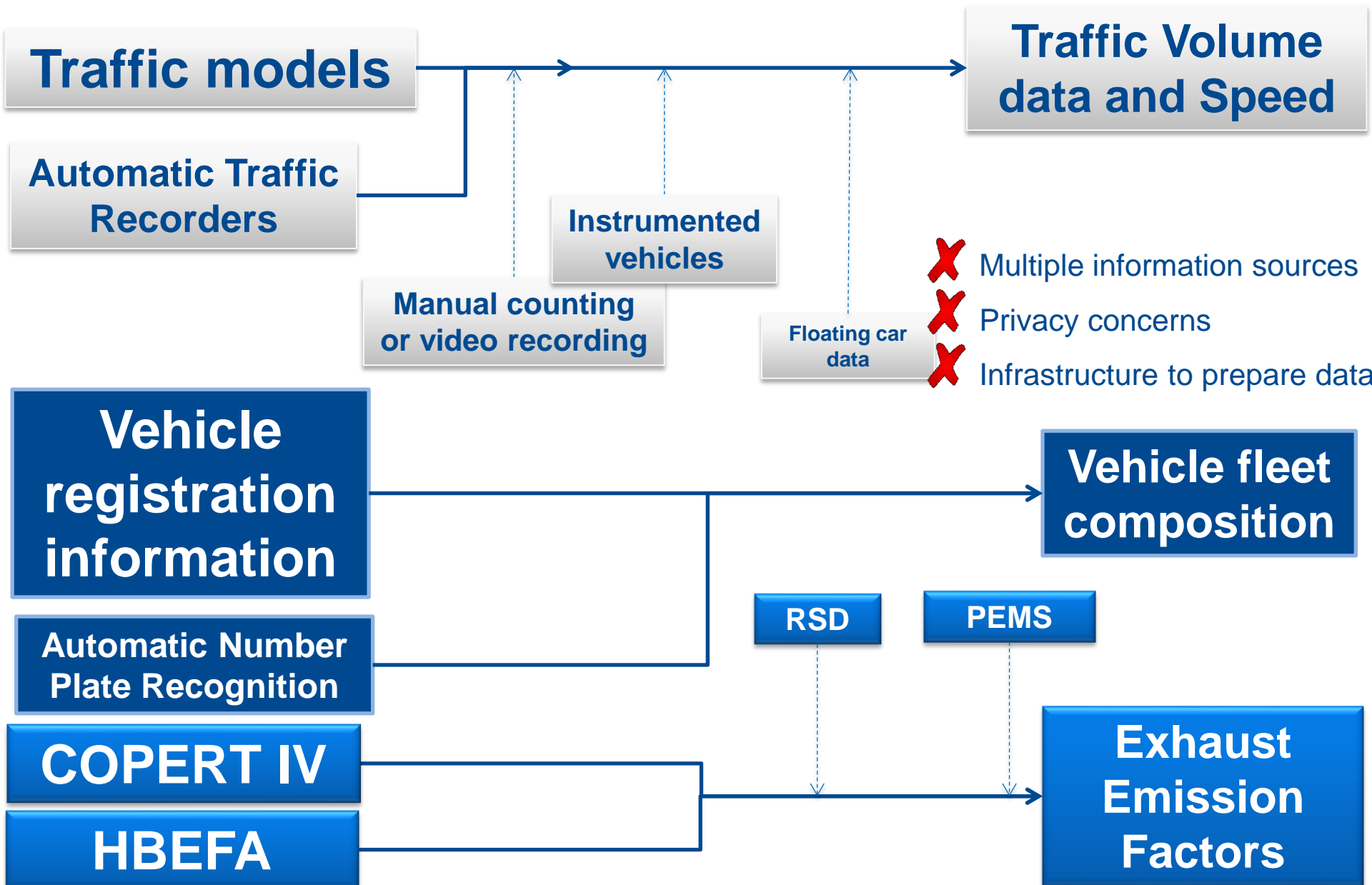
- Training
- Benchmarking Conclusions
- Feedback on the Tool

Composite Emission Map



- Benefits
- Requirements
- Outcomes

Traffic Emissions: Most used approaches



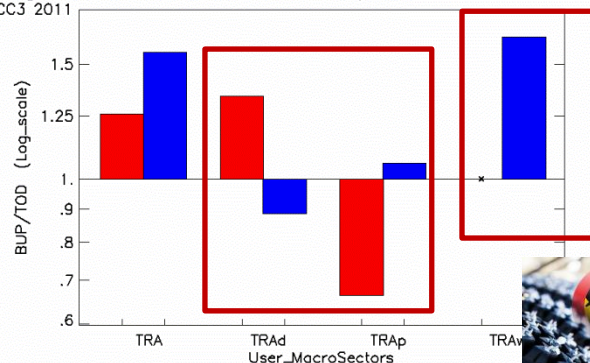
Benchmarking: Bottom Up vs Top Down



- Good progress with the practice of the Δ -tool
- Better understanding of the Diamond Diagram
- Important issues identified (Oslo, Bergen, Trondheim, Greece, Athens, Stockholm, Madrid, London):
 - **Resuspension** (not included in the National Emission Inventories)
 - **Residential Combustion** (practices/spatial proxies cannot be extrapolated from one country to another)
 - **Other mobile sources** (need for a more disaggregated classification)

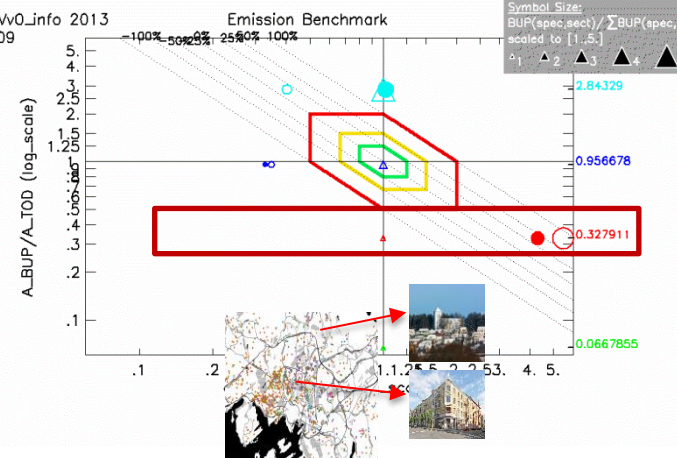
BU_SWE-Region-Stockholm_2013 2013 Emission BUP/TOD
TNO-MACC3 2011

NOx
PM10
x NoValue



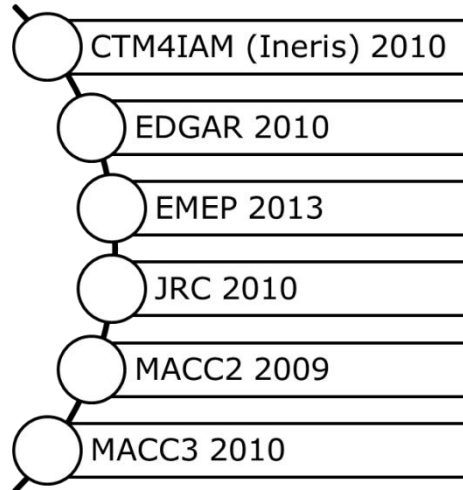
BU_OSLO_NBW0_info 2013
EC4MACS 2009

DOM
IND
OFFROAD
TRA
△ NOx
● PM10
○ PM25

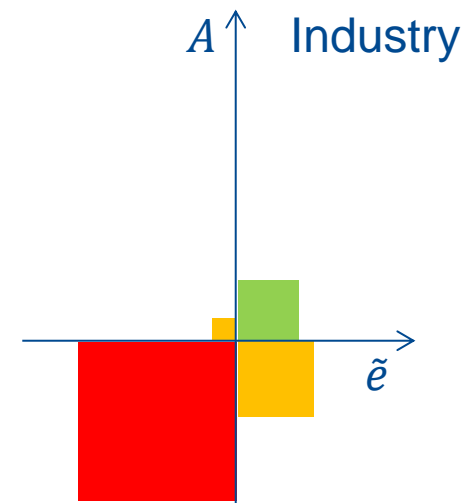
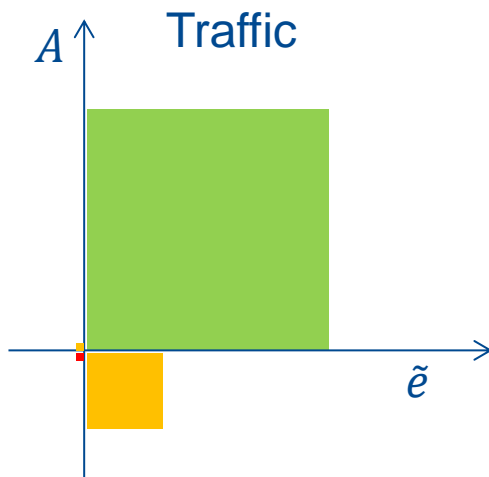


Benchmarking: Top Down vs Top Down

Inventories

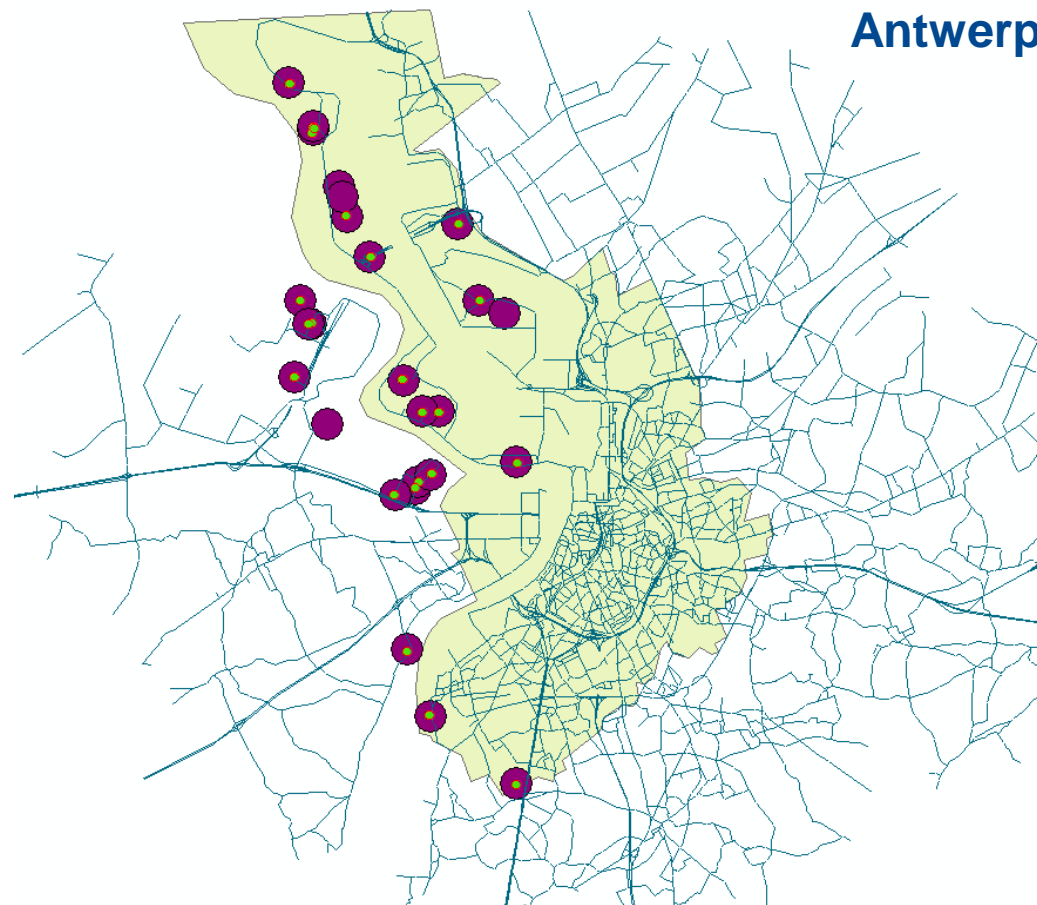


Regions



Recurrent issue → Problem with industry and residential combustion

Antwerp



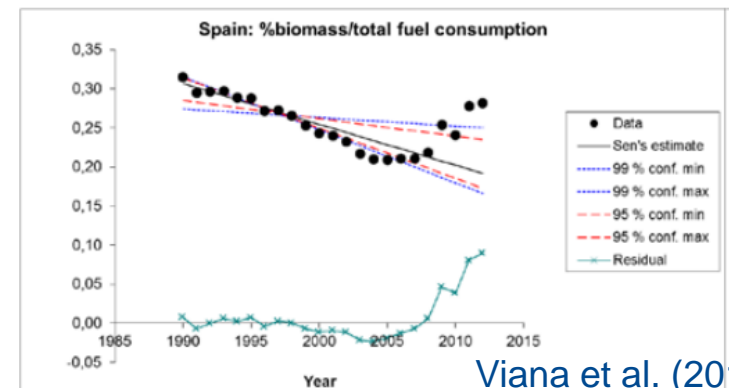
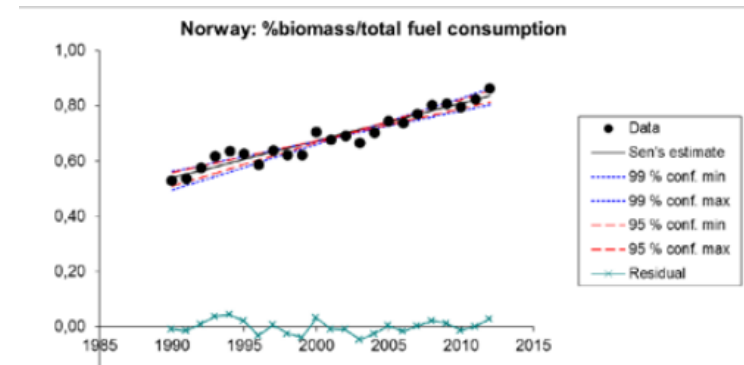
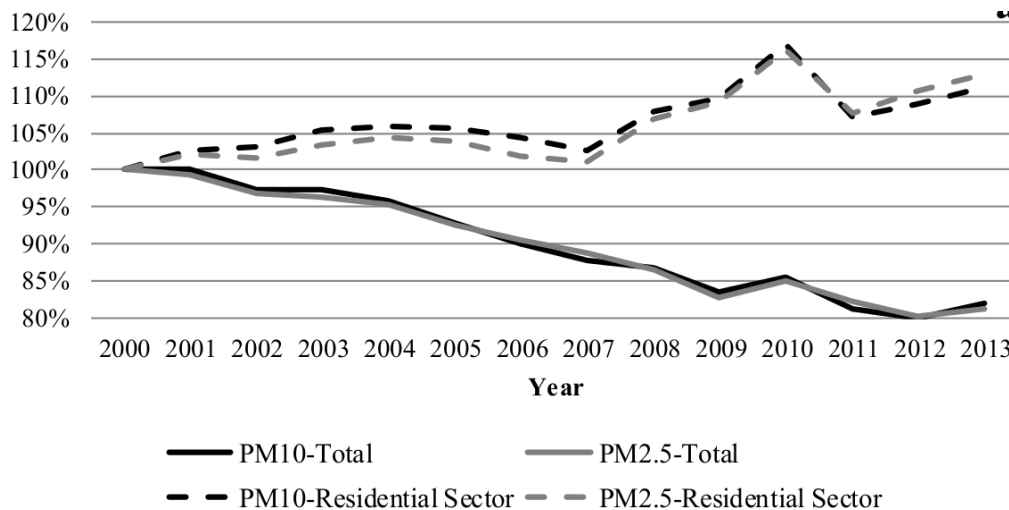
- E-PRTR database
 - Geographical Location
 - Emissions
- Diffuse industrial emissions (small combustion installations)

Ton/year	NO _x	PM ₁₀	PM _{2.5}
Local dataset (2012)	12488	425	219
CLRTAP (2010)	12589	0	0
E-PRTR (2012)	11422	106	0

Use of wood and other biomass in residential sector **enhanced by:**

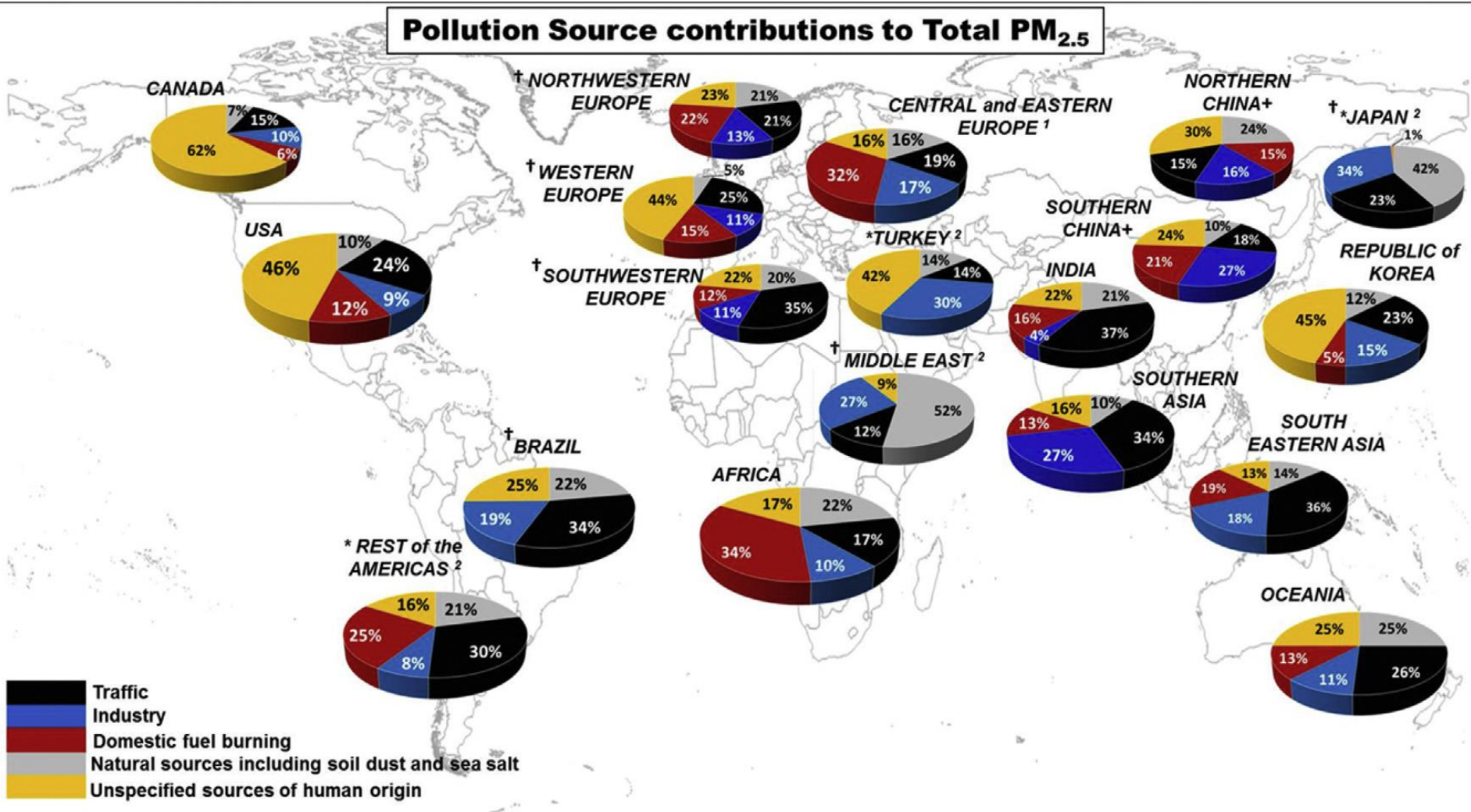
- **National GHG strategies** and targets for renewable energy
- Increase during the **economic crisis** of other fuel prices (e.g. fuel oil)

Lack of regulation of small combustion appliances (**Eco-design Directive**)



Contributions to cities' ambient particulate matter

Pollution Source contributions to Total PM_{2.5}

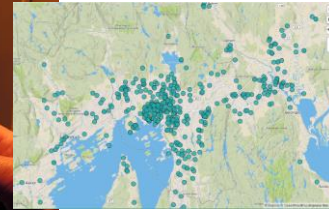
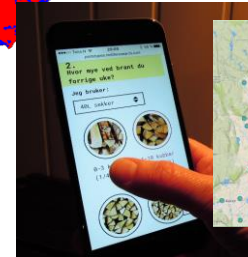
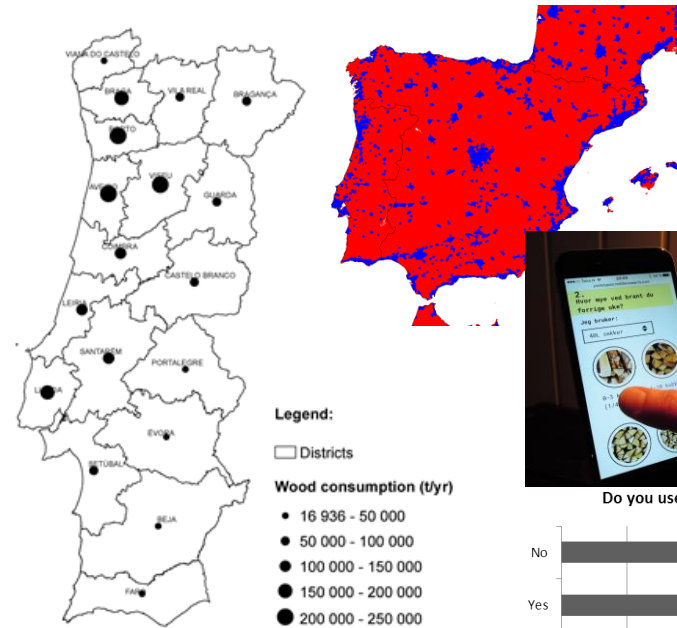


Karagulian et al. (2015)

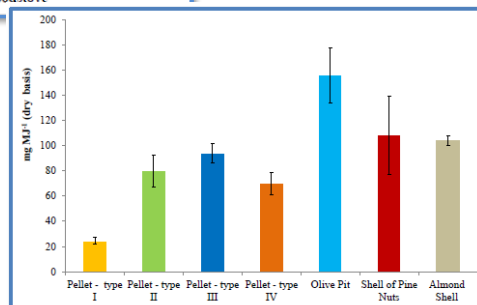
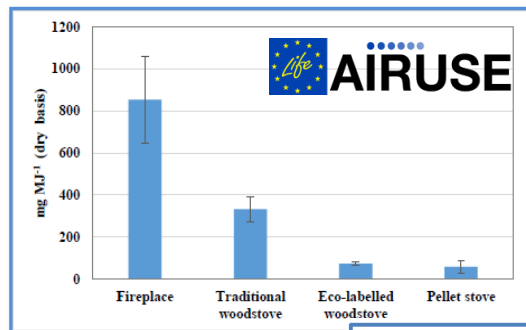
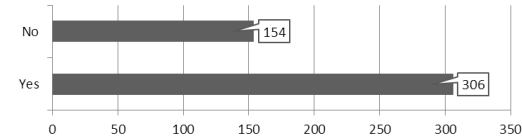
Residential Combustion: Activity Data and Emission Factors

Activity data:

- Survey questionnaires
- Population maps (rural/urban)
- Crowdsourcing, web crawling, image recognition



Do you use wood burning for residential heating?



Emission Factors:

- Type of appliance (open fireplace, traditional stove)
- Type of solid fuel (pellets, olive pit)

Assessment



Fairmode Practice Wheel

Planning



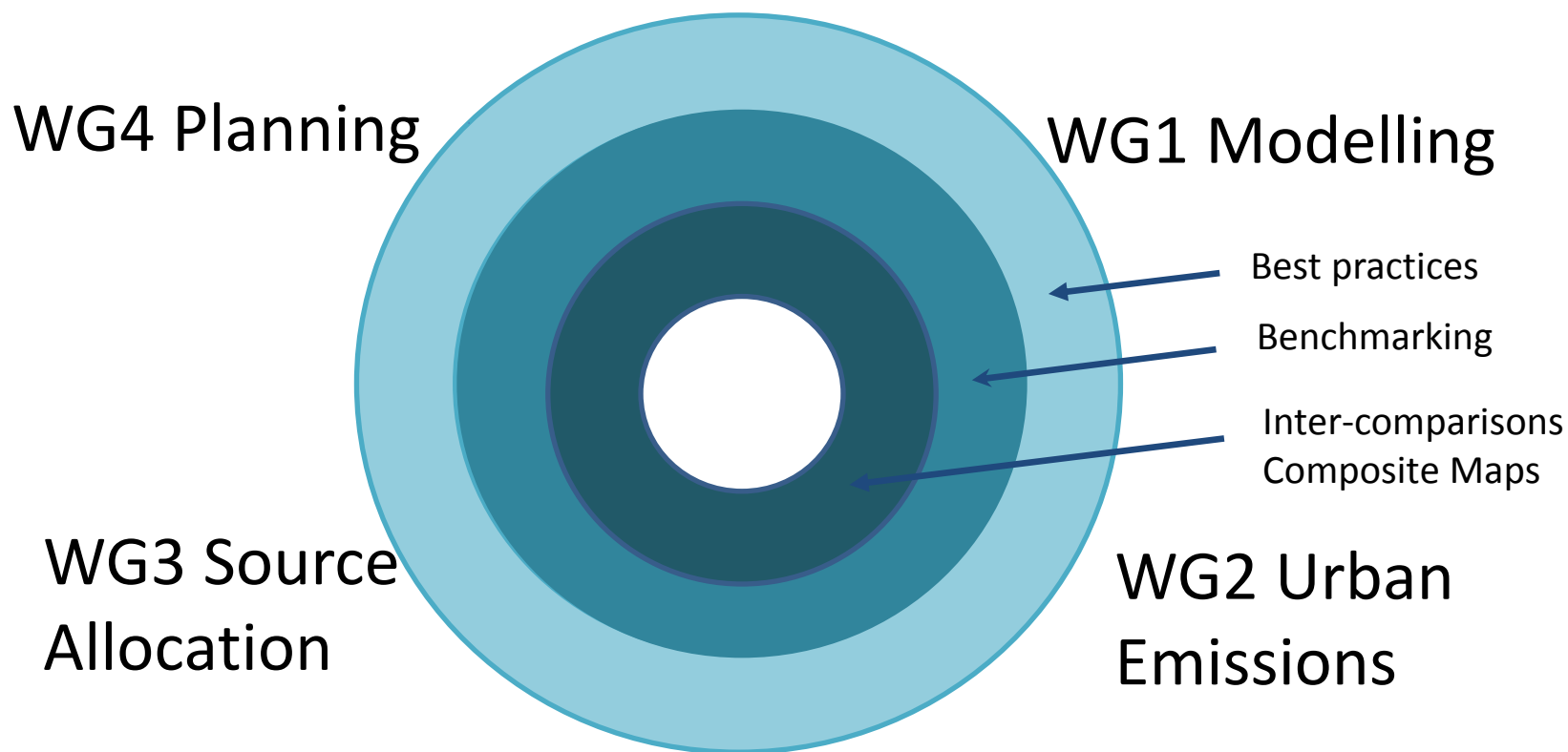
Emissions



**Source
apportionment**



"THE FAIRMODE KNOWLEDGE WHEEL"

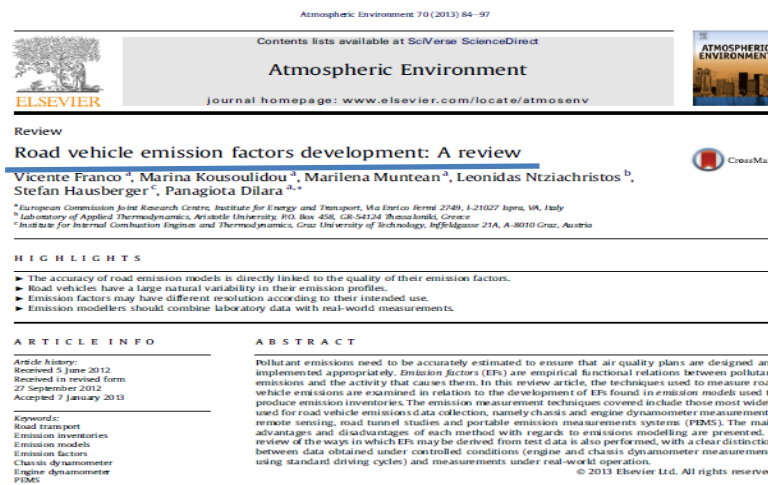


Best practices 2017-2019

Possible focus for WG2 emission work

- Resuspension
- Residential combustion - Wood burning
- Small combustion and industry
- Agriculture

Priorities in terms of expertise or relevance to Plans&Programs work



What should FAIRMODE do in terms of best practices?

- Promote best practices, how?
- Publications?
- Literature reviews?
- Experience exchanges?
- JRC reports?

Benchmarking 2017-2019

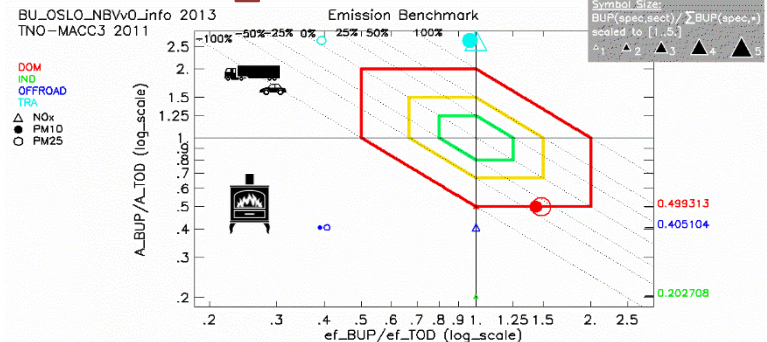
- WG2 goal as a group is to provide local emission information knowledge to urban, regional, national and European assessments

How to involve more people on FAIRMODE emission benchmarking ?

- Promote composite map exercise
- Bilateral group communication – skype meetings
- Training sessions with presentations

- METHOD: Evaluation of Local inventories vs Europeanwide inventories in the Δ -emission benchmarking tool

Oslo – TNO_MACC-III

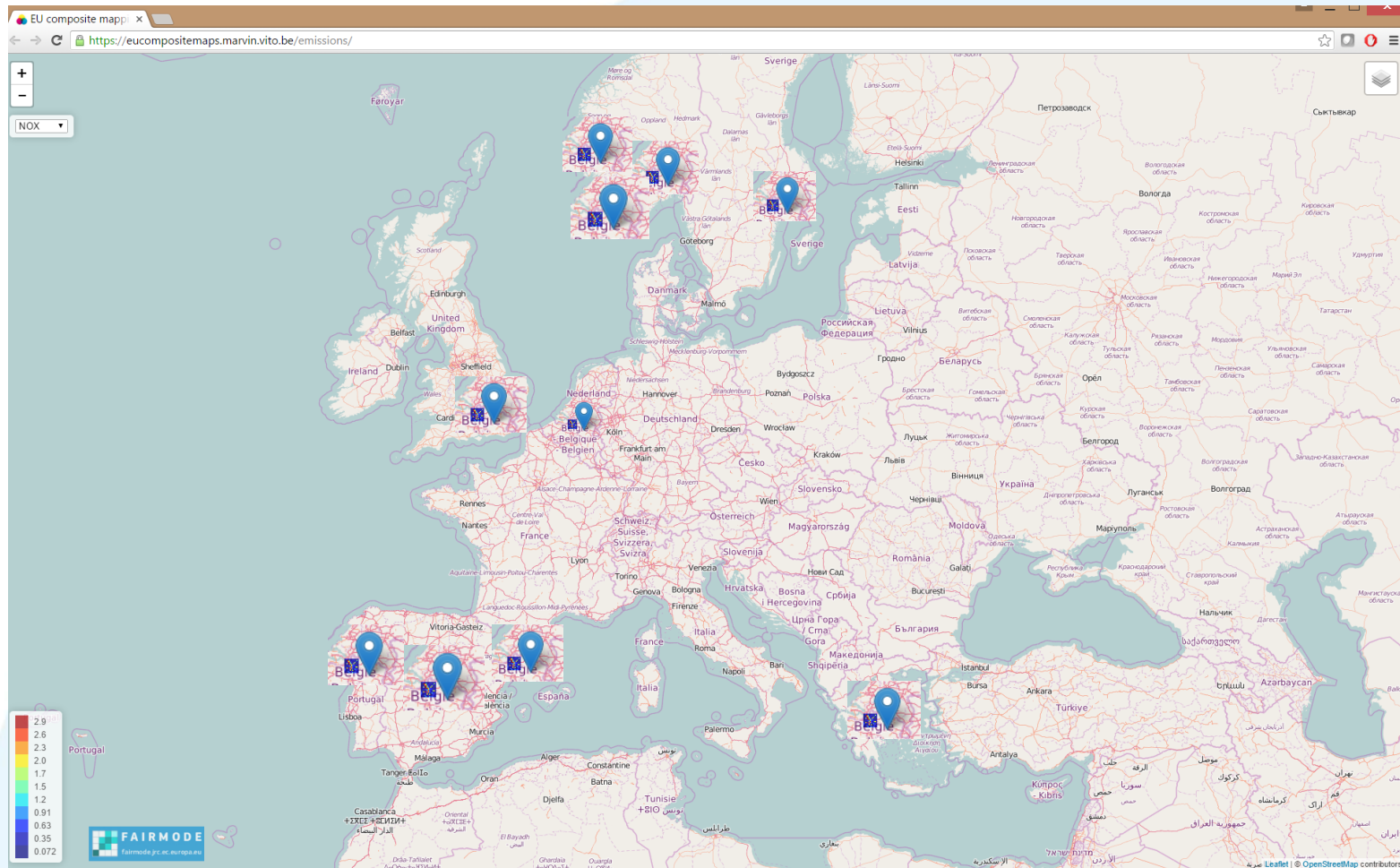


Composite Emission Mapping Exercise

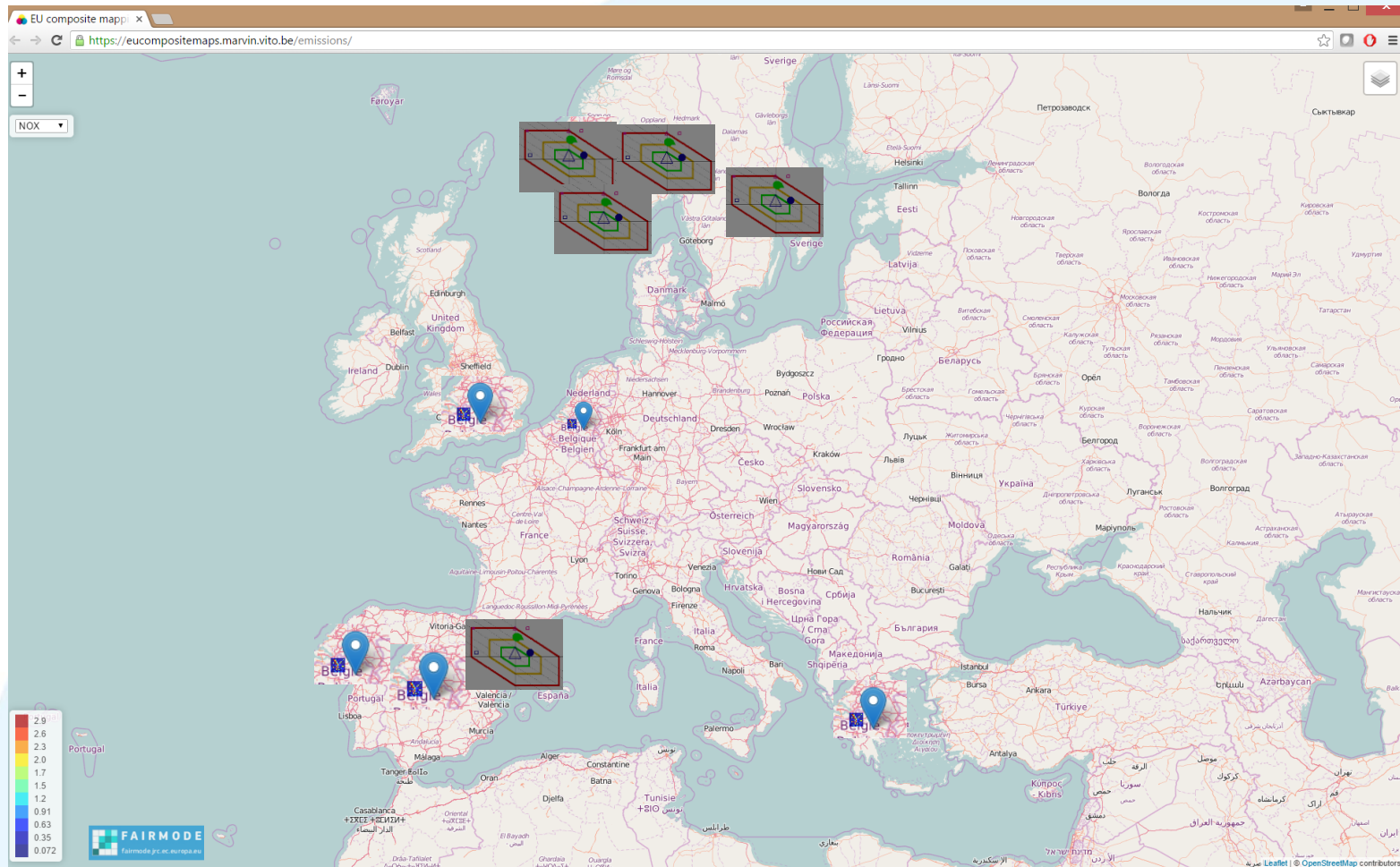
WG2 added value

- ✓ Contribution to the «FAIRMODE Practice Wheel»
 - Assessment of emissions in «National plans & programs»
 - Identification of relevant measures from knowledge on the share of emissions
- ✓ WG2 local knowledge can (in time) add to a complete Europe-wide composite map and provide relevant feedback to improve TD inventories from EMEP (regulatory), TFIAM (EC4MACS) and CAMS (TNO-MACC)
- ✓ Emission information can help interpreting CTM results and differences between countries

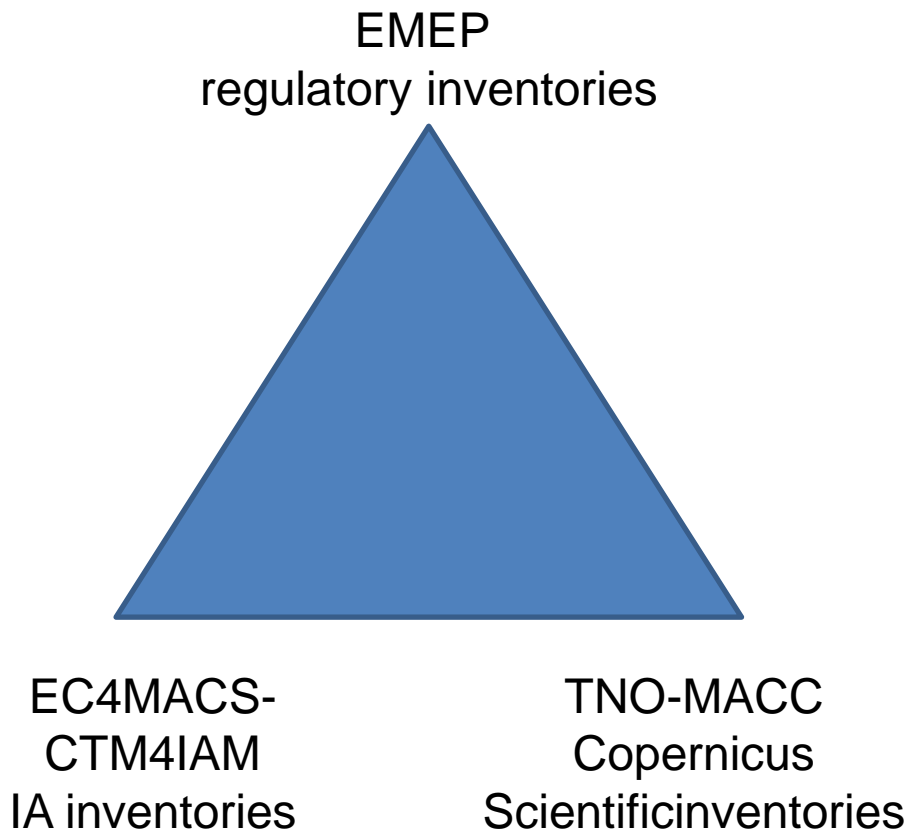
Composite mapping for emissions



Composite mapping for emissions



Dissemination - I



- Consider a video for training on how to use the tool
- Upload Training presentation on how to interpret the results from the tool
- JRC-reports
- Participation at relevant meeting meeting sfor feedback to EMEP, MACC and E inventory
- GEIA presentation – joint publication

Dissemination - II

- Identification of appropriate fora to report on FAIRMODE benchmarking and competence building capabilities in support for Air quality policies
- GEIA ?
- CCAC ?
- Covenant of Majors ?
- ICLEI ?
- TFEIP, TFIAM...

Save the Date!



The 18th GEIA Conference

Emissions Science for a Healthy Environment:

The interplay of human versus natural influences on climate and air quality emissions

13 – 15 September 2017



University of Hamburg
Max-Planck Institute for Meteorology
Hamburg, Germany

Details available soon at www.geiacenter.org

