

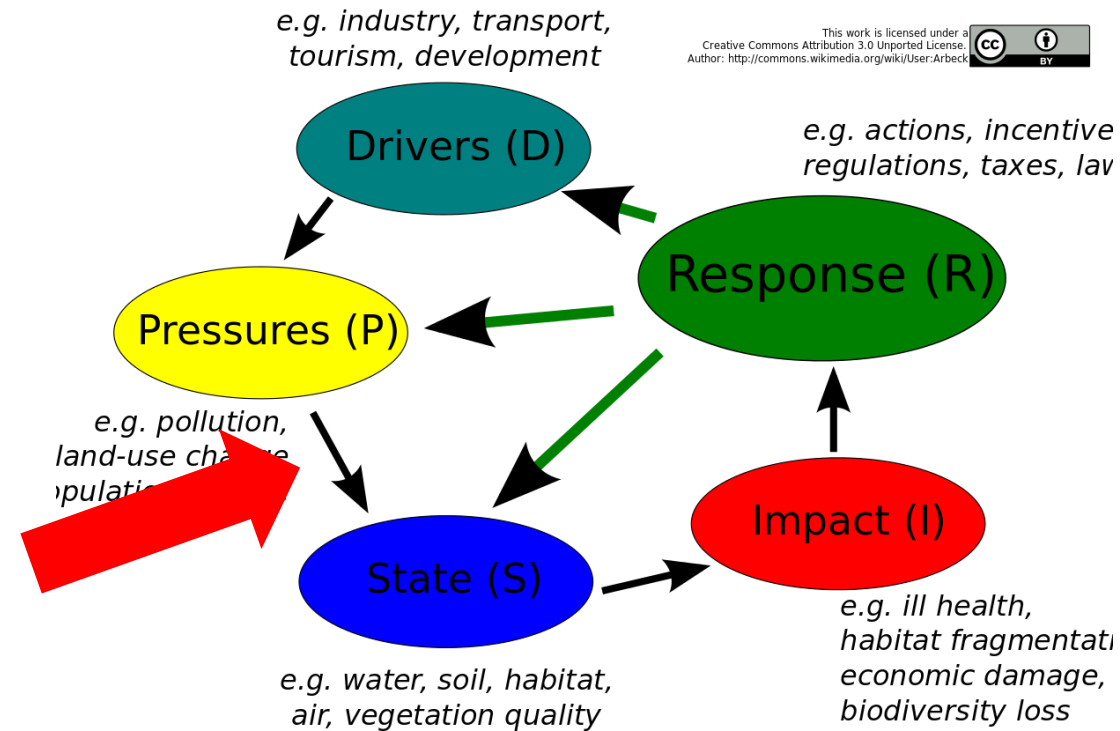
A NEW TFEIP INITIATIVE:

USER ENGAGEMENT AND SPATIAL MAPPING

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› USER ENGAGEMENT AND SPATIAL MAPPING

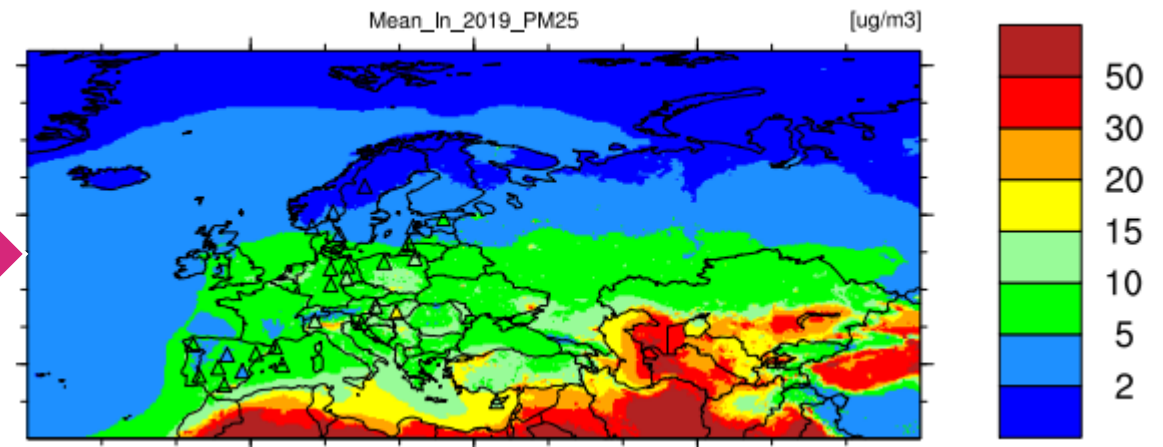
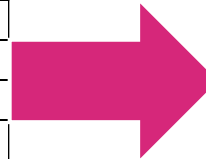
- › Emission inventory community
 - › Annual emissions reporting by sector, by country
 - › Meeting the reporting requirements
 - › Emission ceilings, emission projections
 - › Follow the Guidelines
- › Users (modellers) need
 - › Emissions at hourly level for the entire domain
 - › (...and more...)
- › Ad-hoc solutions used to make emissions fit for modelling



› USER ENGAGEMENT AND SPATIAL MAPPING

- › Connecting better to the users has been identified numerous times as an area for improvement in the TFEIP work plan
- › For many years inventory compilers and users of emissions (modellers, but also others) have been two different worlds, with limited interaction
- › We will not turn that completely around with this group, but we can make a step in the right direction

NFR sectors to be reported			Main Pollutants (from 1990)				Particulate Matter (from 2000)			
			NOx (as NO ₂)	NMVOC	SOx (as SO ₂)	NH ₃	PM _{2.5}	PM ₁₀	TSP	BC
NFR Code	Long name	Notes	kt	kt	kt	kt	kt	kt	kt	kt
1A1a	Public electricity and heat production		8.49	0.30	0.83	0.33	0.79	0.95	1.06	NR
1A1b	Petroleum refining		1.05	IE	0.49	0.08	0.04	0.05	0.05	NR
1A1c	Manufacture of solid fuels and other energy industries		0.84	0.00	0.00	0.01	0.09	0.09	0.09	NR
1A2a	Stationary combustion in manufacturing industries and construction: Iron and steel		3.85	0.15	4.62	0.02	0.01	0.01	0.01	NR
1A2b	Stationary combustion in manufacturing industries and construction: Non-ferrous metals		0.24	0.00	0.10	0.01	0.01	0.01	0.01	NR
1A2c	Stationary combustion in manufacturing industries and construction: Chemicals		1.41	0.04	0.18	0.04	0.16	0.19	0.21	NR
1A2d	Stationary combustion in manufacturing industries and construction: Pulp, Paper and Print		4.61	0.27	0.52	0.07	0.18	0.21	0.24	NR
1A2e	Stationary combustion in manufacturing industries and construction: Food processing, beverages and tobacco		0.66	0.01	0.10	0.02	0.02	0.03	0.03	NR
1A2f	Stationary combustion in manufacturing industries and construction: Non-metallic minerals		5.50	0.17	0.79	0.17	0.06	0.08	0.09	NR



› THIS 30 MINUTES

- › Introduce and discuss suggested topics
- › Initiate cooperation with other groups
 - › Contribution from FAIRMODE
- › Reach out to you, who would like to contribute to this development?

› OBJECTIVES

1. To improve the guidance for spatial emission distribution, by updating the EMEP/EEA chapter on “Spatial emissions mapping” for the 2023 update of the EMEP/EEA Guidebook
2. To create a repository where emission related information is available which is not reported in inventories but needed for users in order to make (optimal) use of the emission inventories

› 2021 NECD INV. REVIEW ON GRIDDED & LPS DATA

- › Both under LRTAP and NECD, there is a requirement to report gridded emission data every 4 years (next round in 2025)
- › 2021 NECD review recommendations for countries to improve their reporting for **LPS** and **gridded** emissions
 - › 70 recommendations for LPS, 42 for gridding

Figure 3 Number of recommendations, and priority recommendations per Member State for the review of the LPS data

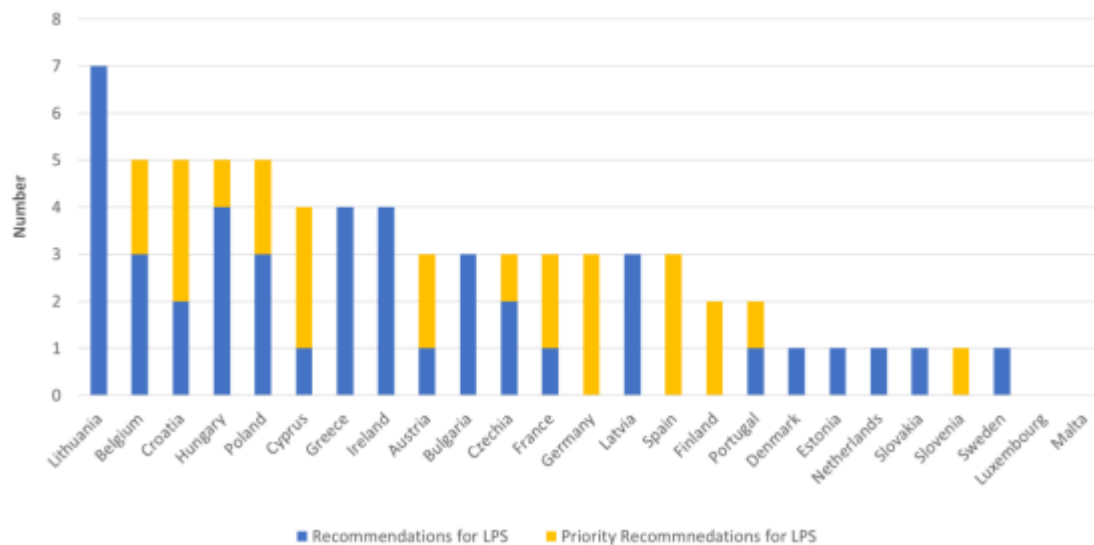
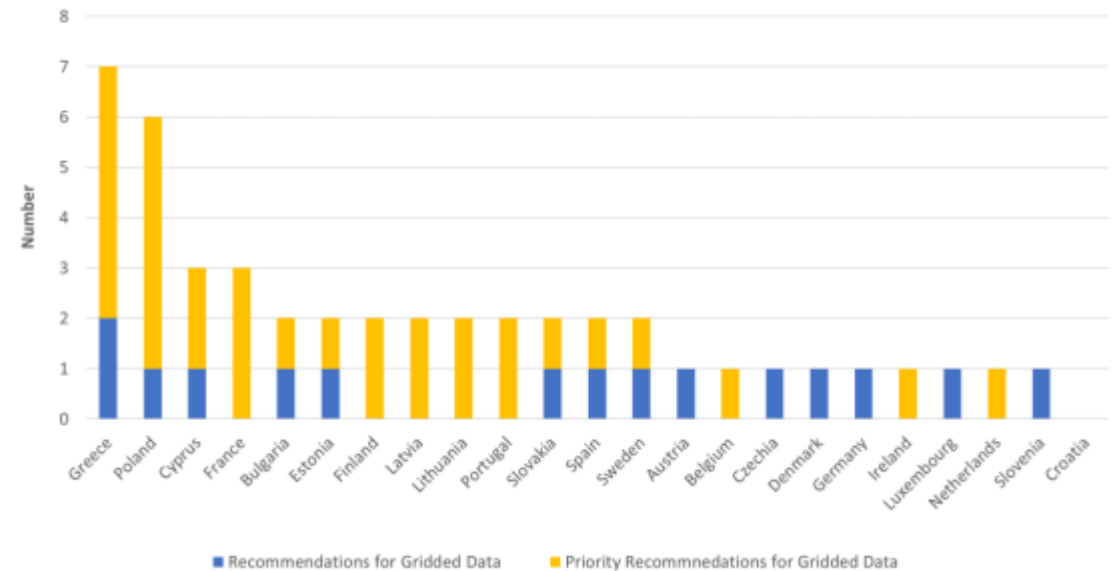


Figure 4 Number of recommendations, revised estimates and (unquantified potential) technical corrections per Member State for the review of the gridded data



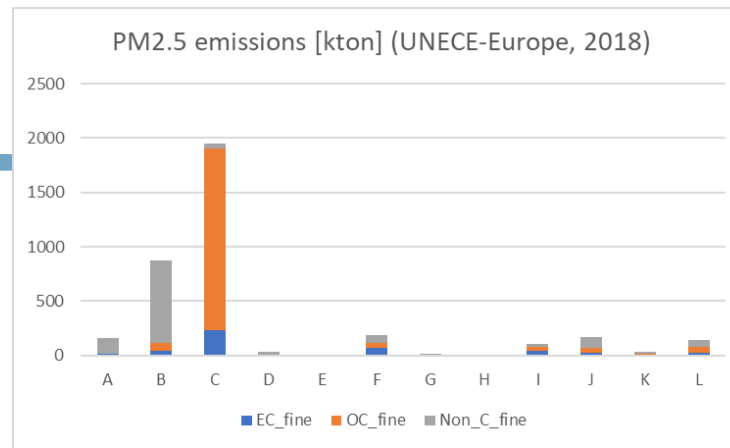
Source: [Horizontal NECD review report 2021](#)

› SPATIAL EMISSIONS DISTRIBUTION

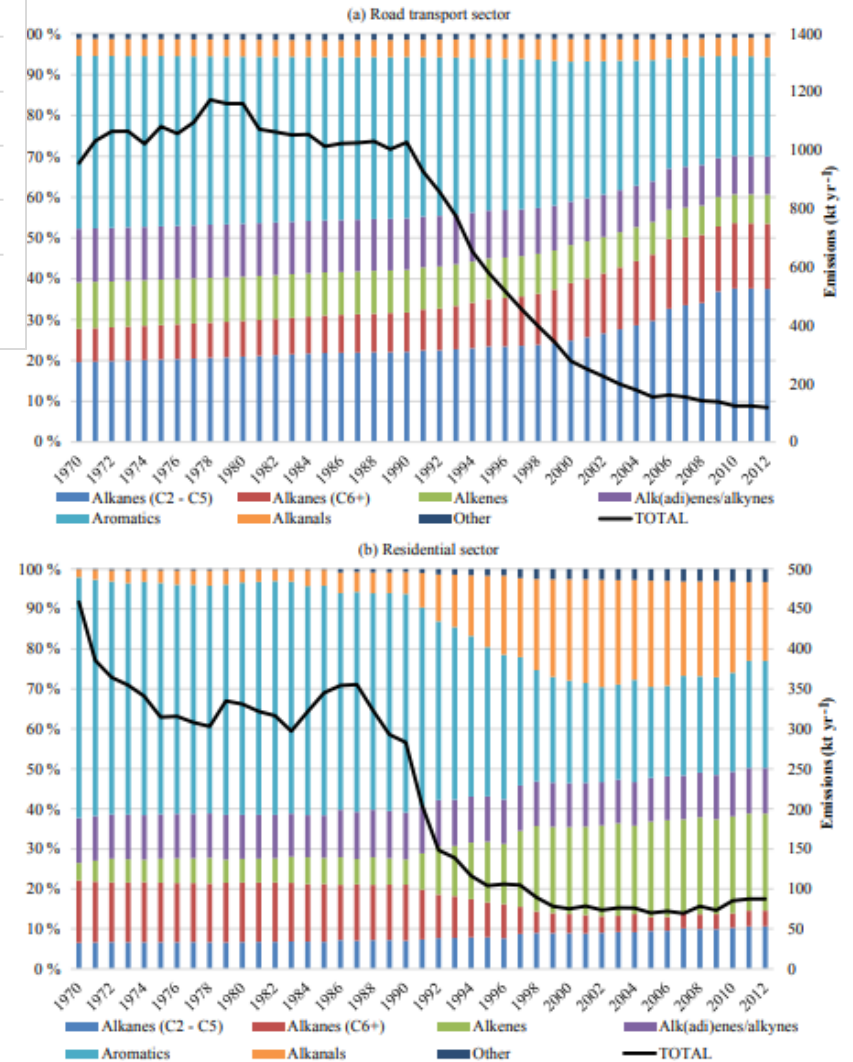
- › Also some issues found in multiple countries, e.g.
 - › Scope of the emissions to be reported (spatial extent)
 - › Proxies used (or not used)
 - › Consistency with national emissions
 - › Fuel sold vs. fuel used
- › Take away some of the lessons learned on how we can improve guidance in the EMEP/EEA Guidebook chapter on “Spatial emissions mapping” to make things more clear
- › At the same time, perform a general chapter review
- › Update the Guidebook chapter and feed this into the formal 2023 EMEP/EEA Guidebook update process

▶ BUT WE NEED MORE...

Temporal variability in road transport
(Guevara et al. 2021)



NMVOC speciation (Huang et al. 2017)



PM speciation (Kuenen et al. 2022 / Ref2)

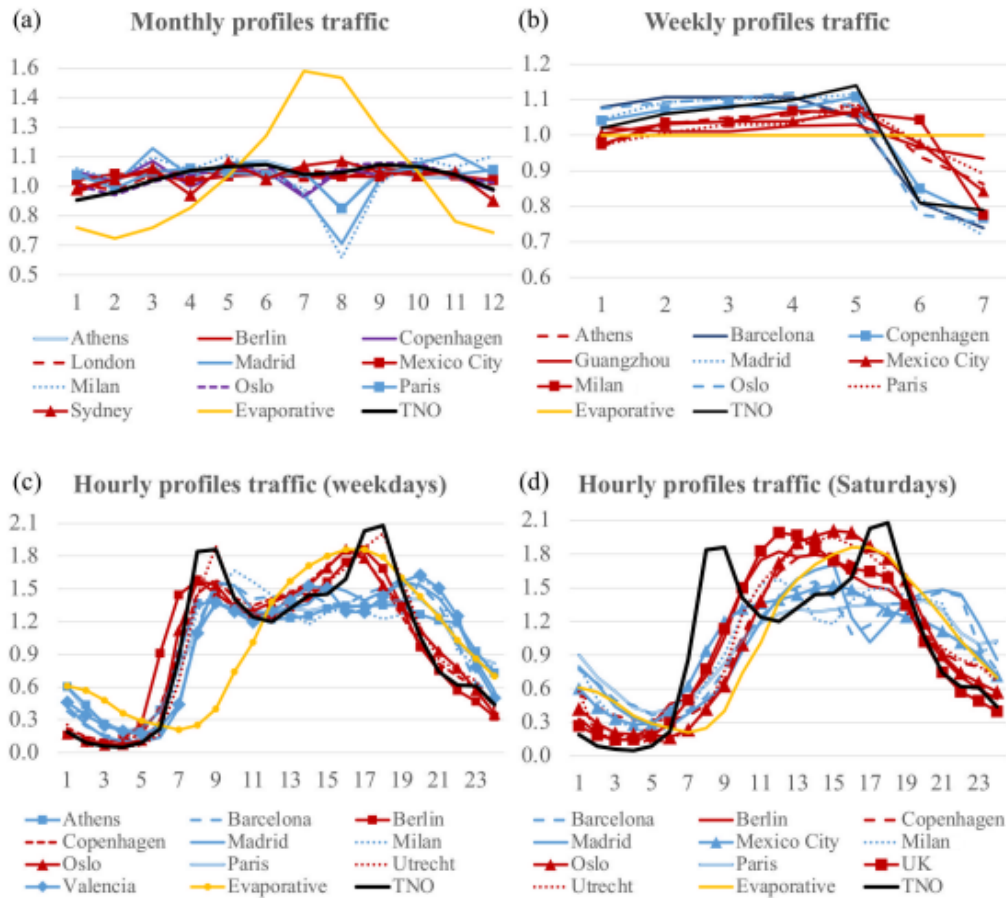


Figure 5. Total NMVOC emissions and their speciation for (a) the road transport sector and (b) the residential sector in 1970–2012.

› EMISSION RELATED INFORMATION

- › Emission inventories provide annual emissions, per sector, per pollutant, spatially distributed every 4 years
- › Modellers need
 - › Temporal variability: AQ models from (sub-)national to European scale typically use an hourly resolution
 - › Information on how to split lumped pollutants such as NMVOC, PM10, PM2.5 but also NOx and SOx
 - › Vertical information: height at which the emission is released, ideally with information to calculate plume rise
 - › Partially or non-reported sources, e.g. resuspension, biogenic emissions, soil emissions, emissions from volcanoes, etc. – shipping, aviation
 - › And if you ask a modeller... even more than just this
- › This information will not come from inventory compilers (either no information or no requirement for reporting) but for some specific elements inventories can provide valuable inputs
- › Dialogue between people that prepare and use emission inventories to
 - a) prioritise the most important points
 - b) get the best possible information!

› PRACTICALLY

- › Create an overview document
 - › Some information presented in the document itself
 - › Most information accessible through links to other data sources and/or ongoing work
- › First version of repository by next year if possible, can later be updated/added upon
- › Status as stand-alone document prepared by TFEIP (and other groups), or possibly an additional chapter of / Annex to the EMEP/EEA Guidebook (to be discussed)

› COLLABORATION IS KEY

- › Limited (or no) budgets => hence difficult to really achieve things
- › Involve more people, from TFEIP but also from other groups (having providers & users together)
- › Reach out to groups working with emission data
 - › TFMM
 - › FAIRMODE
 - › ...

Convention on Long-Range Transboundary Air Pollution

emep

Co-operative programme for monitoring and evaluation of the long-range transmissions of air pollutants in Europe

EMEP Task Force on Measurements and Modelling (TFMM)



FAIRMODE

Forum for air quality modelling in Europe

› NEXT STEPS

- › Form a group of interested people
 - › Please let me know if you are interested

- › Discuss in the next months with the interested people on what to prioritise, who can do what, etc.
 - › Bring together the relevant expertise
 - › No (or limited) new (scientific) work – but bring together knowledge and information already out there
 - › No deadline, but aim to have a first version in place by next year
 - › No immediate proposed changes to reporting, maybe some recommendation at a later stage

- › Initiate work on the Guidebook chapter during summer, leading to a draft updated chapter by the end of the year

› INTERESTED TO CONTRIBUTE?

- › You are very welcome!
- › Send an email: Jeroen.Kuenen@tno.nl

- › Suggestions are welcome to suggest a better name for this Expert Panel!