



# WG1 - Source apportionment

*Status of activity and plan for 2025*

FAIRMODE PLENARY MEETING  
Prague - 5-6 March 2025





## Activities for 2023-2025 (Proposed in 2023)

- **Consolidating the fitness for purpose source apportionment (SA) guide**
  - complementarity of SA approaches (**P.I. vs Tagging** vs RMs...)
  - extension to O<sub>3</sub>, **NO<sub>2</sub>**
  - Extension to PMcoarse
- **Supporting the reporting of SA results and update of documentation**
  - Delivery of SA results (e-reporting)
  - harmonization of emission categories/factors
- **Developing a SA protocol in support to planning**
  - **key components, Sequence, Purpose, complementarity...**
  - **Contribution to WG44**
- **Interacting with CEN**
  - **Technical Specifications on source-oriented SA methods**
- **Increase the interaction with the CAMS community (guidance related to SA)**
  - **Time plans to be discussed with CAMS**



- Most of the activities contributed to both Assessment and Planning
- Some activities have been not started -> Could they be part of the new roadmap?
- The request of DGENV to draft a technical guidance on AQ modelling partially changed the priorities -> Partially different results and outcomes were obtained
- Some topics (e.g. complementarity of SA methods) required in-depth discussions and are not yet finalized
- SA intercomparison exercises require relevant efforts -> Proposing less constrained exercises is easier, but less effective to contribute to benchmarking and guidance

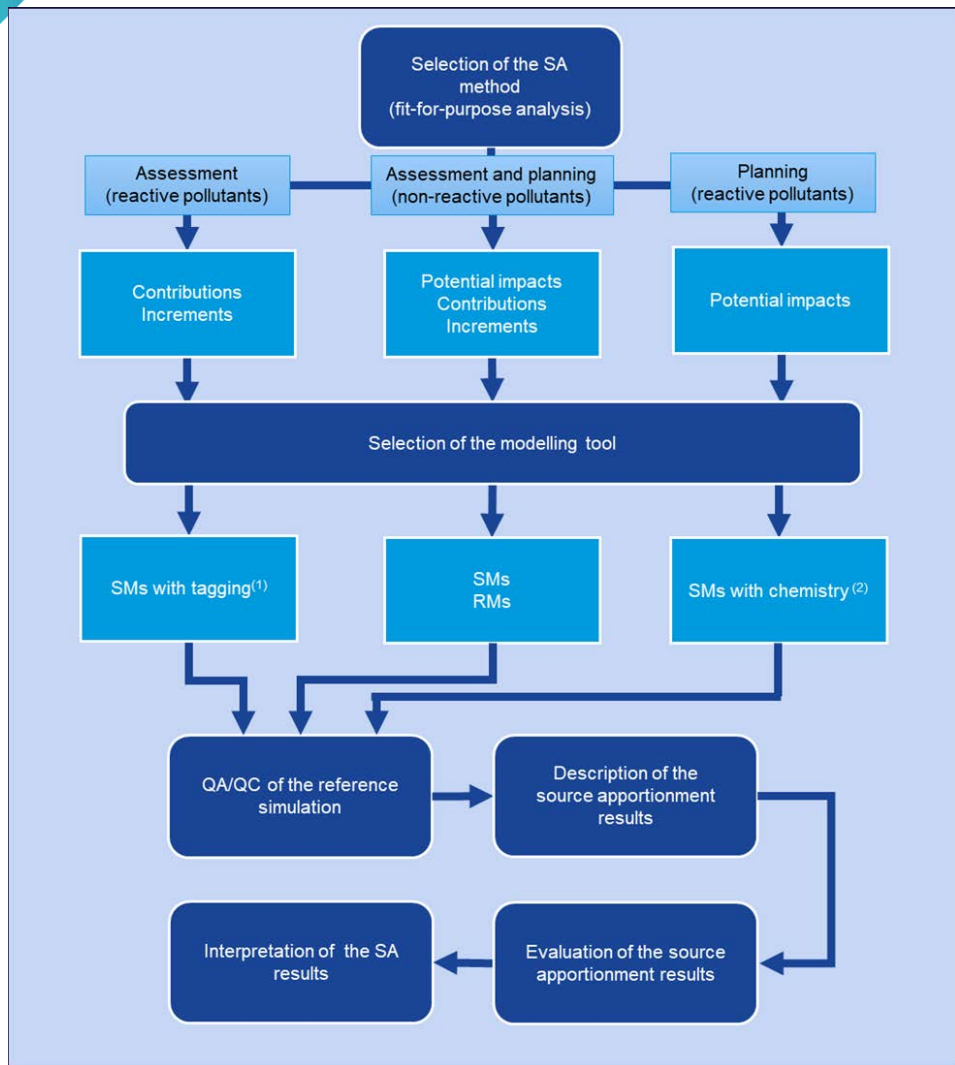


Team	Model	Domain	Period	Sectors	Receptors	Scenarios
VITO	ATMOS (IFDM + OSPM + RIO)	Local domain consisting of Hoogstraten and Wuustwezel rural to suburban area	2017 (hourly)	Traffic & Agriculture	Hoogstraten and Wuustwezel, ST1, ST2, RT3, RT4, RT5, SB06, RB07, RB08	scen P1 "NOX"
UAVR	CAMX (UA-CAMx)	Aveiro region (1 km resolution)	10/12/-31/12 2017 (hourly)	Industrial combustion & Traffic	Aveiro and surroundings (UT01, SB02, SI03)	SCEN P1 and TAG complete
IASS	WRF-Chem	Nested domains over EU and Berlin (3 km)	2015 February (hourly)	Traffic & Res. Heating	Berlin (UB1, UB2, UB3)	scen P1 complete / TAG "NOX"
RSE	CAMX (RSE-CAMx)	Po Valley (4km) and Milan region (1 km)	2017 Jan-Mar (hourly)	Traffic and Residential heating	UB1 (IT1692A - MI PASCAL); UT1 (IT0761A - MI LIGURIA); UT2 (IT0480A - S.S.GIOVANNI); UB (IT1650A - SARONNO); UB3 (IT1965A - LODI)	scen P1/TAG "ALL"
TNO	LOTOS	Nested domains over EU and Berlin (0.125°x0.0625° resolution)	2018 (hourly)	Road transport & Energy-Industries	Berlin (UB01, UB02, UB03); Brandenburg (RB04, RB05, RB06, RB07)	scen P1/TAG "NOX"
CONCAWE	SHERPA(Chimere)+QUARK (IFDM kernel)	Europe (SHERPA 0.1°*0.1 degree + QUARK 100*100m)	Yearly average	Depending on the receptors	All receptors of the other modelling teams	scen P1 "NOX"

- Results were updated and integrated with new simulations and models
- Additional analysis were performed
- Guidance should be updated too
- Further analysis (e.g. hourly resolution results) could be carried out

Model	Domain	Period	Sectors	Receptors	Cons.	Addit.	NOX vs ALL	City	Receptor	TAG vs BF
ATMOS: (IFDM + OSPM + RIO)	Local domain consisting of Hoogstraten and Wuustwezel rural to suburban area	2017 (hourly)	Traffic & Agriculture	Hoogstraten and Wuustwezel ST1, ST2, RT3, RT4, RT5, SB06, RB07, RB08						
CAMX (UA-CAMx)	Aveiro region (1 km resolution)	10/12/-31/12 2017 (hourly)	Industrial combustion & Traffic	Aveiro and surroundings (UT01, SB02, SI03)						
WRF-Chem	Nested domains over EU and Berlin (3 km)	2015 February (hourly)	Traffic & Res. Heating	Berlin UB1, UB2, UB3						
CAMX (RSE-CAMx)	Po Valley (4km) and Milan region (1 km)	2017 jan-mar (hourly)	Traffic and Residential heating	UB1 (MI PASCAL); UT1 (MI LIGURIA); UT2 (S.S.GIOVANNI); UB (SARONNO); UB3 (LODI)						
LOTOS	Nested domains over EU and Berlin (0.125°x0.0625° resolution)	2018 (hourly)	Road transport & Energy-Industries	Berlin (UB01, UB02, UB03); Brandenburg (RB04, RB05, RB06, RB07)						
SHERPA(Chimere)+QUARK (IFDM kernel)	Europe (SHERPA 0.1°*0.1 degree + QUARK 100*100m)	Yearly average	Depending on the receptors	All receptors of the other modelling teams						

# Status of activities – SA protocol



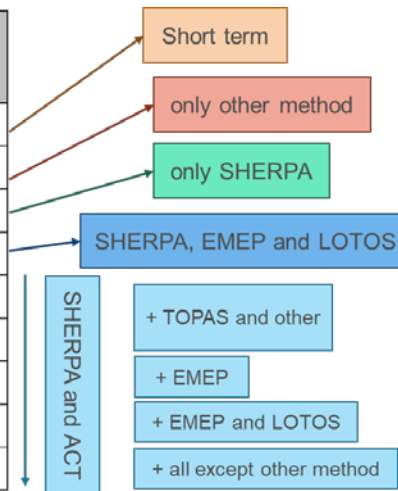
- A first version of a QA/QC protocol for SA application has been introduced in the Tech Support Document for AAQD implementation
- The Protocol is based on FAIRMODE WG1 experience and guidance
- Could it be a starting point also for the FAIRMODE guidance on SA as well as the T.S. under discussion in CEN/WG44?
- How?



# Status of activities – Interaction with CAMS

- CAMS and FAIRMODE community organized a few meetings to better harmonize FAIRMODE definitions, nomenclature, fit-for-purpose indications, etc.. and CAMS implementation of SA tools -> Several changes were introduced in CAMS website -> Any further steps are needed?
- An exercise was proposed involving FAIRMODE and CAMS communities aiming at:
  - Testing the effectiveness of EU tools (CAMS and SHERPA) to perform SA analysis in the context of AQ planning
  - Deriving some insights on the complementarity of SA methods
  - Optionally comparing EU tools based results with «local» tools
- Activity to be finalised in 2025

Participants	Time scale	SHERPA	CAMS- ACT	CAMS- EMEP- SR	CAMS- LOTOS- EUROS	TOPAS	Other method
INERIS (Palmira Messina)	Short-term	No	Yes	Yes	No	No	No
ARPAE (Roberta Amorati)	Long-term	No	No	No	No	No	Yes
INERIS (Elsa Real)	Long-term	Yes	No	No	No	No	No
LANUV NRW (Sabine Wurzler)	Long-term	Yes	No	Yes	Yes	No	No
CIEMAT (Mark Theobald)	Long-term	Yes	Yes	No	No	Yes	Yes
RSE (Elena De Angelis)	Long-term	Yes	Yes	No	No	Yes	Yes
Uni. Aveiro (Alexandra Monteiro)	Long-term	Yes	Yes	Yes	No	No	No
ARPA Lombardia (Loris Colombo)	Long-term	Yes	Yes	Yes	Yes	No	No
DHMZ (Velimir Milić)	Long-term	Yes	Yes	Yes	Yes	Yes	No





# Proposals for 2025

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- **Exercise on EU and local tools for SA in support to AQ planning**
  - Further analysis of the available results will be carried out for each tool (i.e. SHERPA, ACT,...)
  - A few VC will be organized in the next months
  - Possible questions/topics:
    - Which approaches were implemented and which results were obtained?
    - Did the participants take advantage of FAIRMODE guidance in implementing the tools and analysing the results?
    - Did the tools help the participants in solving their AQ problem?
- **FAIRMODE guidance on SA**
  - Details will be discussed in the dedicated session
- **Complementarity of the SA methods (mainly for the next roadmap)**
  - Should we design and organize an ad hoc exercise producing datasets including both contributions and impacts?
  - Would it be feasible at least for a few groups? And interesting too?
  - A «relaxed» deadline and/or the use of already available datasets could help (e.g. REMY, CAMEO,...)?