

# FAIRMODE 9<sup>th</sup> plenary meeting: Baveno 16-17/02/2016

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The meeting was attended by about 85 participants from 21 countries (see list in Annex 2) among which 18 Fairmode National Contact Points. The meeting aimed at 1) reviewing the status of work and 2) discussing options for future work.

Thomas Henrichs (DG ENV) first provided an update on the Clean Air for Europe package. He highlighted in particular the potential connections with FAIRMODE with regards to the Ambient Air Quality Plans and Measures for which many of the key issues are related to the FAIRMODE Working Group activities. The Clean Air Forum as well as the future need for an evaluation of the Ambient Air Quality Directive, both planned in 2017 have been mentioned.

The meeting started with a joint AQUILA-FAIRMODE session structured around presentations regarding: a) the inter-comparison exercise on spatial representativeness; b) a discussion on the use of air quality sensors for modeling and monitoring and c) possible connections with the “Air Quality in the EU Strategy for the Danube Region” programme. A side event took place to discuss this third item.

Four main sessions were organized to discuss the FAIRMODE current and future activities: a) Status of the CEN WG43 and WG44; b) Composite mapping (mostly focusing on WG1 and WG2 activities on assessment and emissions, respectively); b) Air quality plans (mostly focusing on WG3 and WG4 activities on source apportionment and planning, respectively) and c) the 2017-2019 roadmap.

A summary of the presentations and discussions is organized below. Note that all presentations are available on the FAIRMODE web page.

## **AQUILA-FAIRMODE joint session**

### Inter-comparison exercise on spatial representativeness

The methodologies currently available to assess spatial representativeness are extremely very diverse in their formulation although their scopes are similar. With a view of harmonization in this field an inter-comparison exercise of different spatial representativeness methods is organised. O. Kracht (JRC) presented the current status of the exercise which will be based on the same shared dataset. The dataset is mainly synthetic (i.e. not relying on real observations) and will be based on high resolution model data (average resolution ca. 20 meters on an irregular grid) obtained over the city of Antwerp. From this model data, time series of ca 340 virtual monitoring points will be extracted. In addition, real observations from the existing Antwerp monitoring stations will be supplied. The dataset is currently

being finalized and will be distributed to the participants in due time to allow discussing the results at the next technical meeting. About 20 groups expressed their intention to contribute to the exercise.

#### On the use of sensors for modelling and monitoring

M. Gerboles (JRC) presented an overview of the currently available sensors technologies, highlighting their strengths and limitations (including costs and performances). He also reported about a new open source sensor platform (AirSenseEUR) and a protocol of evaluation of sensors that is currently being developed in the CEN TC 264 WG 42 (sensors). N. Castell (NILU) showed the possible uses of such sensors in various projects from a modelling point of view, highlighting the quality issues when using sensors, showing occasional differences between sensor performances and manufacturer specifications. B. Stacey (RICARDO) led a brief discussion on the potential and limitations of these new technologies. The paradox between the high opportunities given by low cost sensors and the lack of suitability of the European policy for Air Quality monitoring to apply this new measurement paradigm was highlighted. Additionally, the need for independent evaluation of sensors was mentioned giving the possibility to all stakeholders to be informed in time about real measurement accuracy of low-cost sensors.

## **Status of the CEN WG43 and WG44**

#### Status of WG43 on Model quality objectives

C. Guerreiro (NILU) presented the current status of CEN-TC264/WG43 on model quality objectives, and in particular on the outcome of the kick-off meeting held in Dusseldorf on October 13-14, 2015. One of the main outcomes is the decision to start with a technical specification (TS), to be turned out in a European standard, later on if requested. This first meeting mostly focused on defining the scope of the TS. Ten countries are currently represented in WG43 which will hold its next meeting on 19-20 April 2016 in Kjeller (Norway).

#### Status of WG44 on source apportionment

C. Belis (JRC) presented the current status of CEN-TC264/WG44 on source apportionment and in particular on the outcome of the kick-off meeting held in Dusseldorf on October 13-14, 2015. As for WG43, one of the main decisions was to start with a technical specification (TS). This first meeting mostly focused on defining the scope of the TS. Eleven countries are currently represented in WG44 which will hold its next meeting on 20-21 April 2016 in Kjeller (Norway), back to back with WG43.

One main point of discussion related both to WG43 and WG44 was the need to ensure regular and strong connections as well as transparent communication between WG43 and FAIRMODE. This should be favored by the fact that most of the CEN WGs participants are part of FAIRMODE.

## **FAIRMODE session on composite mapping**

### Update on WG1 (Assessment)

An updated version of the guidance document on MQO and benchmarking is being finalized and will be made available on the Fairmode web site for discussion. Among the main changes, a review of the overall MQO formulation to propose a way forward to account for the open issues discussed at the technical meeting and a revised best practice section. Specific notes on 1) MQO for forecast; 2) yearly vs. hourly/daily MQO and exceedance indicators are also available on request. Volunteers have been identified to review these documents and test the proposed methodologies. An updated version of the guidance document will be available by end February. S. Janssen will coordinate the review and testing of the above mentioned documents/methodologies for the technical meeting (June 2016). The plenary discussion also led to the need of considering cases where few stations are available to test the MQO, as a new open issue in the guidance.

### Update on WG2 (Emissions)

WG2 focuses its current work on two topics: the benchmarking of emission inventories in selected cities and the compilation of good practices for urban emission estimation, with a focus on road transport sources. L. Tarrason presented some updates regarding the benchmarking methodology developed to secure the consistency of detailed bottom-up (BUP) emission inventories with those compiled for regulatory purposes at local, national and European scale (TOD). The results obtained with the new version of the  $\Delta$ -Emission Tool (2.1), which has already been distributed among the WG2 participants, will be discussed and analysed in the next technical meeting, with a focus on the differences between BUP and TOD city inventories and the traffic and residential combustion sectors. M. Guevara (BSC) and L. Tarrason (NILU) also reported on the identification of best available data sources and methods to compile urban traffic emissions. An exhaustive analysis of scientific literature reveals that the use of car data derived from different type of sensors (global positioning systems, wireless traffic sensors, car-borne sensors and traffic cameras) is steadily gaining importance in the practises to determine traffic emissions.

### Composite Mapping Exercise

S. Janssen and W. Peelaerts (VITO) provided an overview of the composite mapping exercise stressing out the high level of responses (47 deliveries including 17 national contact points) but also the need to improve the delivery itself (too many manual operations) in view of the next round of maps uploads. The first maps as well as the underlying IT platform developed jointly by VITO and the JRC have been presented. Possible ways forward to organize the work around these maps (and harmonize them) have been discussed, as well as the possibility of adding emission layers to it. Although many options do exist to improve data visualization (e.g. adding measurements or model performance reports to the maps) work can start with the current version of the platform. At this stage the easiest solution will consist in motivating bi-lateral discussions to understand differences behind neighboring or overlapping maps, but more general cross-cutting activities could be organized in the future. It has also been decided to restrict

this IT platform to FAIRMODE participants. Finally the composite maps exercise is also seen as a way of providing guidance to the e-reporting process in the future. S. Janssen will coordinate the related activities prior to the next technical meeting.

## **FAIRMODE session on air quality plans**

### Status of the inter-comparison on source apportionment

G. Pirovano (RSE) gave an overview of the on-going inter-comparison exercise on source apportionment which involves about 60 participants. This is the first time, both source oriented and receptor oriented (based on observations) approaches are compared on a common test case (North of France). The intercomparison is expected to provide not only information about the models' performance but also better understanding of models' behavior providing the basis for more robust SA approaches. Most of the results, currently being received and analyzed will be discussed at the next technical meeting. Possible connections between this inter-comparison exercise and the WG on planning have been discussed and will be strengthened in future.

### A new tool to support air quality plans: SHERPA

A new JRC tool to support the design and the assessment of air quality plans has been presented by E. Pisoni (JRC). The added value of this tool to support the harmonization activities of WG4 on planning but also to strengthen the connections with WG3 on source apportionment have been discussed. A SHERPA training day has been announced to take place in Ispra on June 9-10, 2016.

### Status of the FAIRMODE support to the e-reporting process

C. Belis (JRC) presented an overview of the FAIRMODE support to e-reporting and in particular of the new report summarizing all activities performed so far. In particular: a) the survey on e-reporting (responses from NCP); b) the Fairmode technical support to e-reporting (to provide support to the EEA on the better definition of two e-reporting data-flows for modelling) and c) the feedback on IPR and source apportionment. Support to e-reporting remains one of the key FAIRMODE fields of activity that will further develop, among others through the current and future activities on the composite mapping, source apportionment and on air quality planning.

### Abatement measures: a new topic for FAIRMODE?

One key component of air quality plans are their emission abatement measures, a topic not yet addressed within FAIRMODE. To launch the discussion, A. Monteiro (U. Aveiro) gave a brief overview of the main challenges met when designing air quality plans and in particular the choice of appropriate abatement measures in her region. The main challenges include the selection of efficient measures (in terms of impact) as well as the harmonization needed in terms of measure definition. Both topics could be addressed in Fairmode, mostly through WG2 (emissions) and WG4 (planning) with the support of source apportionment for validation purpose. SHERPA could be a useful instrument to harmonize the methodology used to quantify the impacts of abatement measures.

## FAIRMODE ROADMAP 2017-2019

### From benchmarking and guidance to practice

Fairmode currently has a three steps approach: Benchmarking → Guidance → Training applied consistently in all its working groups. The objective of this session was to discuss the best way to ensure that the methodologies and guidance's developed in Fairmode and shared with the National Contact Points (NCP) are applied in practice at all levels (national to regional to urban). S. Nordmann (UBA Germany) and L. Malherbe (INERIS) presented the current approaches followed in Germany and France, respectively. In particular S. Nordmann reported on the outcomes of the first FAIRMODE-Germany workshop organized in July 2015 whereas L. Malherbe highlighted the dissemination process in France through the LCSQA (Central Laboratory for Air Quality Monitoring) and AASQAs (Regional Associations responsible for Air Quality Monitoring). To reinforce this connection between national and sub-national scales, a proposal to invite a few key regions/cities (in agreement with NCP) to participate closely to the Fairmode work has been made and discussed.

### Which key future activities for FAIRMODE?

This session organized as a panel discussion aimed at identifying possible directions for the time period 2017-2019.

- S. Janssen (WG1 - Assessment) highlighted the need to 1) consolidate the on-going work on the Model Quality Objectives in collaboration with the CEN TC264/WG43 and to 2) use at best the starting composite mapping exercise to harmonize further model practices.
- L. Tarrason (WG2 – Emissions) foresees WG2 to continue its work at the urban scale but with possible extension of the current activities on transport to other key sectors (e.g. residential, agriculture...). She also mentioned the importance of better connecting the emission WG's work to new emerging measurements techniques, including sensors.
- Beside the exploitation and analysis of the on-going inter-comparison exercise, C. Belis (WG3 – Source apportionment) stressed the need of a continued support to e-reporting, contribution to CEN-TC264/WG44 as well as to increase the connections with WG4 on planning. Other points mentioned included an improved communication of the FAIRMODE results to the external world as well the need to strengthen activities at the regional scale.
- A. Clappier (U. Strasbourg) (WG4 – Planning) called for a consolidation of the current activities for the period 2017-2019, rather than engaging in new activities. He emphasized the need for WG4 to reinforce its connections with the activities of WG2 (emissions) and WG3 (source apportionment). The efficiency of the abatement measures in terms of impact on air quality levels (discussed during the first day) is also a promising topic that could become one of the core WG4 activities.
- For T. Henrichs (DG ENV) the potential of the FAIRMODE activities is not yet fully exploited and the future roadmap should address possible ways to improve this. The current orientation of the activities towards 1) a better support to air quality planning (including potential abatement

measures) and 2) regionalization are seen as positive steps forward. Facilitating governance at all levels should be seen as one of the key outcome of the FAIRMODE work.

- M. Houssiau (EEA) thanked FAIRMODE for its support to the e-reporting process so far and called for a continuous support on these aspects in the future.

The FAIRMODE steering group will circulate a first draft 2017-2019 roadmap to the NCP in the autumn 2016.

## **A.O.B**

### **Next FAIRMODE technical meeting: Zagreb – June 2016**

The next technical meeting is organized at the Croatian Chamber of Economy, in Zagreb (Croatia) on 27-29/06/2016. A back to back meeting on the Danube strategy will be organized. Contact: S. Vidic.

### **Harmonisation conference**

The 17th international conference on Harmonisation within Atmospheric Dispersion Modelling for Regulatory Purposes will take place in Budapest (HU) on 9-12/05/2016. Similarly to the previous events, one of the topics of the conference will be “Use of modelling in support of EU air quality directives, including FAIRMODE” ([www.harmo.org](http://www.harmo.org))

### **ITM Conference**

The next ITM conference is organized in Crete (Greece) from 3 to 7 October 2016. A specific session on “Policy support” will be organized to which FAIRMODE participants are kindly invited to participate

### **Source apportionment: Collaboration IAEA-FAIRMODE**

Due to the affinity between an IAEA project, focused on the support of air quality management in the Europe region, and WG3 objectives it was proposed to organize joint activities such as training courses open for the participation of FAIRMODE experts. Further information will be distributed upon confirmation of the agreement"