



Minutes from the TFEIP/EIONET 2019 Annual Meeting

Notable decisions are highlighted in [Blue](#).

The TFEIP held its annual meeting jointly with the EEA's EIONET network on 13-15th May 2019 in Thessaloniki, Greece. The meeting was well attended with a total of 109 participants representing over 38 Parties and organisations.

The co-chairs were pleased to note good discussion on several topical issues, in particular progress in updating the EMEP/EEA Emissions Inventory Guidebook.

Welcome

George Dimarelos, Thessaloniki's Deputy Mayor for Urban Resilience & Development Programmes, opened the meeting and welcomed the participants. The co-chairs warmly thanked the Deputy Mayor for his welcome and the Aristotle University of Thessaloniki for hosting the meeting. The Co-Chairs then presented the agenda.

Introduction and International News

An overview of recent international news was presented by the Co-Chairs. The Gothenburg Protocol will be reviewed, and this provides an opportunity to reflect upon potential future change and improvements to emissions reporting requirements including adjustment procedures. It is expected that the review will assess opportunities to increase focus on BC, condensables and the quality of emission inventories. Once more details of the review process are known, the TFEIP will consider how best it may support the activity.

An overview of the process for updating and finalising chapters of the 2019 EMEP/EEA Air Pollutant Emissions Inventory Guidebook (the 'Guidebook') was presented by the Co-Chairs.

The work, performed by a TFEIP ad hoc group, to update the Annex I CLRTAP reporting template was presented by Germany. [The TFEIP approved the new template subject to its endorsement by the EMEP Steering Body in September. The template shall subsequently be made available by CEIP for use by Parties for the February 2020 reporting round.](#)

The status of emissions reporting within the CLRTAP was presented by the Centre on Emissions Inventories and Projections (CEIP). There are still some substantial (and persistent) gaps in reporting. CEIP also provided feedback from the 2018 Stage 3 review, where four of the Parties (Belarus, Moldova, Ukraine and Armenia) reviewed did not respond to any Expert Review Team questions, and one Party provided only limited responses (Azerbaijan).

[The TFEIP will raise this issue with the EMEP Steering Body and CLRTAP Secretariat, so that they can consider how best to address the negative situation.](#)

CEIP also presented the extent to which they undertake gap filling before making data available for modellers. In some cases, this gap filling accounts for up to 50% of the EMEP area.

MSC-West showed that the positive improvement in the resolution of gridded emissions in the EMEP region reported by Parties has resulted in substantial improvements to the results of modelling studies. They also explained that potential discrepancies were noted for a few Parties and invited these Parties to an exchange of information on these points.

The European Commission provided an update on the National Emissions Ceilings Directive (NECD) and in particular the emission inventory reviews for Member States that are planned for future years. Activities include not just the review of historical emission estimates, but also projections and National Air Pollution Control Programmes (NAPCPs) – all of which will be reviewed in 2019, and in future years as part of the EC's multi-year review programme.

Expert Panel Sessions (held in Parallel)

The Combustion and Industry, Transport and Agriculture and Nature expert panels met in parallel.

Combustion & Industry

The following presentations were given:

- Presentation of the changes to the Guidebook Chapters (Expert Panel Co-Chair)
 - The changes included: 1A1 Large combustion plants; 1A4 Small Combustion; 1B2c Venting and Flaring; 2A5a Quarrying and mining; 2D3i/2G Other product use
- Discussion on reporting of PM including/excluding condensables in small combustion (Expert Panel Co-Chairs, All)
- Continued work on European solvents emissions (European Solvents Industry Group)
- Quantification of emissions from domestic and service sectors in cities (Techne Consulting)
- New information on PCB emissions (UBA-Germany)
 - This included discussions around PCB congeners, and recently finished and ongoing measurement studies for various combustion activities
- List of clear errors in the Guidebook and solutions (Expert Panel Co-Chair)
- Work plan 2020-2021 (Expert Panel Co-Chair)

The following improvements were approved for inclusion in the Guidebook:

- 1A1 – Updated Heavy Metals emission factors for Tier 1 and 2 in refineries (CONCAWE)
- 1B2c – Updated Heavy Metals emission factors and NO_x/CO in Tier 2 for flaring (CONCAWE)
- 2D3i/2G – Introduction of new Tier 2 methods for aircraft de-icing (following input from Switzerland)
- 1A4 – Update of the EF tables for biomass combustion presenting EFs for total PM (including condensables) and a separate table for filterable only EFs Germany explained that it can be challenging to change from filterable to total PM for small combustion, as their measurement standard is based on filters. A change of reporting to include condensables for this sector would therefore require new measurements to be undertaken (also on old stove technologies to ensure time series consistency). Germany proposed to not change the emission factors for small-combustion sources to represent total PM, but instead to provide a factor for the modellers to do the conversion from filterable only to total PM. In the subsequent discussion, it was noted that countries might themselves choose to develop such factors in their national context to allow such a conversion, and that use of the current adjustment procedure may be

appropriate should the change in methodology have any compliance-related implications. It was also recalled that the TFEIP's decision to recommend including the condensable component for small-combustion sources (amongst others) has already been agreed at the 2018 meeting of the EMEP Steering Body and was put forward to the CLRTAP Executive Body. EMEP shall finalise a methodological proposal together with an assessment of the scientific consequences of its application for the Executive's Body meeting in December 2019.

The proposed changes to chapter 2A5a (Quarrying and Mining), to introduce a new Tier 2 methodology supported by Germany, were approved pending the latest comments being resolved, as was the newly developed calculation tool.

The proposed changes to chapter 2D3i/2G (Other Solvent Use and Other Product Use) for introducing a new Tier 2 method for lubricant use was not approved. Clarifications are needed particularly on availability of activity data.

A number of comments addressing the information in the Guidebook have been raised, including from the teams undertaking the NECD reviews. [A live list of Guidebook issues will be shared on the TFEIP website in a structured way, and Parties are asked to review the list and volunteer resources to try to address any issues.](#) This improvements list will also highlight issues that have been successfully resolved. The issues will be divided into two distinct categories: correction of clear mistakes (e.g. unit errors, typos, etc.); and more fundamental issues that require literature study or new measurements (e.g. outdated EFs, missing sources etc.).

Transport

The following presentations were given:

- ECAMED: A Technical Feasibility Study for the Implementation of an Emission Control Area (ECA) in the Mediterranean Sea (CITEPA)
- POP and Heavy Metal Emissions from marine engines, Nordic programme (VTT)
- The Contribution of Brake Wear Emissions to Particulate Matter in Ambient Air (Ricardo Energy and Environment)
- JRC's Activities in Road Vehicle Testing and Emission Factors Development (JRC)
- Experiences of semi-volatile (SVOC) and particulate matter (PM) emission measurements (VTT)
- New Developments on road transport chapter (Expert Panel Co-chairs)
- Non-exhaust traffic emissions in the UK's inventory (Ricardo Energy and Environment)
- 2018-2019 Workplan (Expert Panel Co-Chairs)

Several new developments have taken place in the road transport chapter. Implemented updates and new elements include:

- Revision of emission factors for mopeds and motorcycles
- Calculation of the fossil fuel fraction in biodiesel
- Revision of Euro 6 evaporation emission factors
- Revision of Euro 6 LCVs emission factors
- Review of exhaust NMVOC specification profile

NMVOC emissions profile and PAH and HM EFs following review and uptake of the Nordic Study were successfully adopted. New exhaust emission factors for motorcycles which sees a conversion of Tier 1 and Tier 2 EFs to kg/Mj were also adopted.

The guidebook 1A3b Road transport and [1.A.3.b.v Gasoline Evaporation](#) chapters were recommended for adoption, subject to minor amendments.

New emission factors for electrified vehicles (diesel hybrids, plug-in hybrids, battery electric vehicles) will be recommended for next year. Similarly, a review of non-exhaust PM EFs (PM_{2.5} over PM₁₀) will be recommended for next year. Further research is required on rail abrasive emissions, as research is showing there might be high emission levels of copper. Ricardo's presentation on brake wear showed that clearly an update is required on how these particulate matter emissions are measured. Emission degradation functions for light duty vehicles will be also reviewed.

Agriculture & Nature

Discussions were carried out regarding Guidebook updates to chapters 3B Manure Management and 3D Agricultural Soils. Key decisions to the Guidebook include:

For emissions from **3B livestock housing and manure storage** –

- Emission factors are currently based on median values of available measurements, but this will be changed to use the mean (harmonisation with IPCC),
- Identify if 'hidden data' exists, i.e. data and studies published in countries' native languages which have therefore not been utilised and presented, and
- [A review by an ad hoc group \(to be established\) will be carried out with the expectation of a recommendation for adoption before September.](#)

For emissions from **3D Agricultural Soils**, EFs have not been updated for many years, and the following decisions were made (with regards to NH₃):

Field-applied liquid manure –

- [An ad hoc group will be formed](#) to investigate the sensitivity of emissions to precipitation, initially testing with UK precipitation data, [with the aim of working towards recommending adoption before September](#), or waiting until the next Guidebook improvement round in 2022-2023.

Field-applied solid manure -

- [An ad hoc group will be formed](#) to investigate whether there is any 'hidden' data available from Parties, and to use the mean not median in calculations, and then [to work towards recommending the chapter for adoption before September.](#)

Synthetic N fertiliser application –

- Add application rate to the list of dependent variables,
- investigate some inconsistencies in the underlying model, and
- [advise delaying revision until 2022](#)

Pesticide application –

- [Recommended adoption of methodology for emissions of HCB \(3Df\)](#), with some minor changes from version presented in 2019

[The agricultural emissions tool was accepted and recommended for adoption](#), subject to revision for any changes to EFs (as outlined above).

There were discussions on the extent to which information should be made available to Parties when drafting and proposing updates to the Guidebook. It was considered that wide dissemination of information concerning proposed updates is needed during the open review, as addressing major comments once the open review has ended can be challenging. There was the suggestion that more rigorous methodological development processes are needed, and that the methodologies used by the IPCC provide a useful example. However, this would require increased resources.

Further discussions indicated a need for a workshop on ammonia emissions from crops in order to make progress. Direct and indirect emissions of nitric oxide from soils were discussed, with hopes that the UK will undertake a review and methodology development. The expert panel also shared their thoughts about international activities related to nitrogen, especially Task Force on Reactive Nitrogen (TFRN) who are meeting on 1-2nd October.

The 2019-2020 workplan for the expert panel includes:

- Continue updating NH₃ EFs from synthetic fertiliser and manure application
- Revise direct emissions methodology for direct nitric oxide emissions
- Develop methodology for indirect emissions of nitric oxide
- Continue collaboration with TFRN
- Review whether updates are required to ensure consistency with IPCC
- Investigate whether it is possible to quantify marine emissions of NH₃
- Consider whether improvements need to be made to BC emissions from on-field burning and other similar combustion sources.

Projections Expert Panel

The projections panel met in plenary.

Carlo Trozzi (Techne Consulting) gave a presentation on tools, methods and case studies in emissions projections for regional and local air quality plants. Anne Misra and Eirini Karagianni (Ricardo Energy and Environment) gave summaries from the European Commission's air pollutant emission projections support project, waste projections guidance and gave recommendations.

The expert panel co-chairs then ran a session about finalising the general and sectoral projection guidance chapters in the Guidebook, and updates to the Annex IV (projections) reporting template.

Suggested updates to the projections chapter of the EMEP/EEA Guidebook included:

- Additional general text on several subjects including planning, institutional arrangements, historical emissions inventory, QA/QC and TCCCA, consistency with GHG projections and other policy areas, and reporting of projections and PaMs

- There is a lack of consistency with the historical year definition between the NEC Directive (Annex IV part 2) and the 2014 Guidelines for Reporting Emissions and Projections Data under CLRTAP. The NECD states 'National emission projections shall be consistent with the national annual emission inventory for the year x-3', whereas the CLRTAP Guidelines state 'calculated projections should be consistent with the latest inventory'. The Projections Chapter in the EMEP/EEA Guidebook is consistent with the CLRTAP reporting guidelines, with good practice for the starting point defined 'to be most recent inventory year'.
- Proposed section headings have been created for the projections section of the IIR, to inform Parties what information is needed in the IIR as currently information on projections is limited in the IIRs
- [An ad hoc group will be formed to decide what from the main body of the European Commission's consultancy report will go into the projections chapter in the Guidebook.](#)
- [A separate ad hoc group will be created to formalise the update of the Annex IV projections reporting template, ready for adoption before September.](#) The template currently lacks transparency due to the level of detail provided.

Feedback and Decisions

The Expert Panel leaders reported back from their panel meetings, and draft 2020-2021 workplans were presented. Expert Panel Leaders will finalise and circulate by 31st May.

A discussion session took place surrounding the topic 'TFEIP - The Next 10 Years'. The participants were split into break-out groups and discussed questions posed by the Co-chairs. Each group then provided feedback to all participants. Participants enjoyed the session and would like to see similar exercises carried out in the future. The Co-chairs will compile more detailed feedback and will make it available through the TFEIP website.

The draft TFEIP workplan for 2020-2021 was proposed, and draft conclusions from the meeting were presented and agreed.

Based on the recommendations from the Expert panels, the EMEP/EEA guidebook 2019 was approved by the TFEIP, subject to the changes specified by the Expert panels being undertaken following the meeting. Changes to the general guidance chapters were also approved, subject to incorporation of some limited information from the on-going IPCC Guidelines 2019 refinement process into certain general guidance chapters following the meeting, and a correction being made to the uncertainty methodology noted by Switzerland.

Germany commented on the approach being used for reporting condensables, noting their preference for a different approach. However, the co-chairs noted that the existing approach had been discussed and agreed in 2018 and was therefore no longer open for discussion but that transparency of the methodology will be ensured in the Guidebook.

The 'Feedback and Decisions' session was followed by the New Science and EIONET session (scheduled in parallel with the ERMES plenary session).

New Science and EIONET Sessions

This was held in parallel with the ERMES plenary session.

The following new science presentations were given:

- Using inventories for policy support (DEFRA, UK)
- Emissions Database for Global Atmospheric Research (JRC)
- Update on uncertainties of the agriculture emissions on the Netherlands (TNO)
- Copernicus Atmospheric Monitoring Service (TNO)

After an overview of EEA activities, the following EIONET presentations were given by EEA:

- Update from EEA and EIONET network
- Improving data processing to improve feedback with countries
- Cross-cutting analysis on GHG and Air Pollution PaMs

The Co-chairs warmly thanked again the Aristotle University of Thessaloniki for hosting the meeting, and their hospitality. The Co-Chair also thanked the UK, Finland and the EEA for supporting the co-chairs of the TFEIP. The meeting was then closed.

Joint ERMES and TFEIP Transport Workshop

Welcome and Introduction

The workshop Co-Chairs Georgios Fontaras (JRC) and Martin Adams (EEA) welcomed the participants and introduced the agenda.

Martin Adams (EEA) reflected on the current focus of transport-related work by the EEA and more broadly, and in particular the trend towards an integrated systemic approach to policy development, for example linking air quality transport policy with energy, urban development, noise, mobility etc. He raised the need for a convergence in the methodologies supporting road transport emission inventories (Guidebook & HBEFA).

Zlatko Kregar (EC) provided an update of transport work within the EC. Novel concepts and new technologies are being considered for suitability in inclusion in future emission standards. Studies will run across 2019-2020, and then at least two years will be required before realistic proposals for legislation can be drafted.

Leon Ntziachristos (LAT/Emisia) led a discussion on the needs for TFEIP and priorities in terms of emission factors, methods and assistance from the research community. The TFEIP has flagged some needs which ERMES should consider by helping steer future research. Questions and ideas discussed included:

- Is all PM₁₀ in the PM_{2.5} fraction?
- Do we really have a good understanding/estimates of tyre and brake wear? And road wear?
- We need a better consideration of whether all PM measurements include condensables
- There is very little recent measurement of Cd, Hg, Pb exhaust emissions, and very little data on non-exhaust emissions (e.g. brake wear)
- Whether there are some pollutants we should be reporting (e.g. HCB, PAH, Dioxins/Furans) and whether some are not in fact needed (e.g. BC)
- Protocols require NMVOC, but NMHC is measured. Significant differences might exist, but not enough information is known and further research is required
- Gaps in data need to be addressed and potential differences in definition/approach might exist e.g. average speed

Several Parties provided overviews on national activities from funding organisations:

- Sweden has an urgent need for additional climate change PaMs, with ambitious targets. There is a need to reduce passenger car kms by 2030 in order to meet targets. There are plans to reduce transport emissions, including renewable energy in the transport sector.
- Germany has stated that GHG emissions in the transport sector have not really changed and reaching 2050 emission targets will be difficult. PaMs needed for more climate-friendly freight transport (rail upgrades, HDV tolls, grants for inland shipping etc.), in addition to policy instruments for passenger transport (car sharing, walking/cycling etc.)
- Switzerland discussed remote sensing measurements used in their country, and different exhaust emission measurements.

Australia gave an overview of COPERT-Australia and “POP” (a second by second road transport model). They detailed remote sensing activities and novel approaches introduced in the RS field.

Jens Borcken (IIASA) gave an overview of remote sensing Research Activity. The CONOx database has over 1M records from over 20 measurement campaigns. Analysing random subsets of the data shows how many records are needed to obtain a value that is close to the mean of the full datasets. Only several hours of monitoring are required to obtain a value that has good representativeness of the “real” mean in the case of Euro 4 and 5 vehicles.

Brief presentations of H2020 projects by ERMES members were also given:

- CARES - City Air Remote Emission Sensing. A three-year project which aims to support implementation of traffic remote sensing
- uCARE – aimed at car owners, and is making information available to support owners in making the right environmental decisions
- GVI Projects – a project to design an environmental star rating system (not dissimilar to a “green NCAP”). Project to finish in 2020
- SCIPPER – A three-year project which looks at shipping contributions to inland air pollution. Measurement and modelling campaigns have been undertaken, using a range of measurement approaches (single ships, drones, on-land arrays)
- DIAS - Investigating diagnostic and anti-tampering systems for vehicles.
- TUBE – A four-year project looking at the health impacts of ultrafine particles from transport (e.g. on inflammation in the brain)
- MODALIS - A three-year project investigating modifying driver behaviour to lower emissions

Philippe Degeilh (IFPEN) gave a brief presentation on Connected Mobility for AQ and the development of an online application for the needs of the French government.

The Co-Chairs closed the workshop by thanking ERMES and TFEIP members for attending and those who presented.