



## UN ECE CONVENTION ON LONG-RANGE TRANSBOUNDARY AIR POLLUTION

### INTERNATIONAL COOPERATIVE PROGRAMMES ON INTEGRATED MONITORING OF AIR POLLUTION EFFECTS ON ECOSYSTEMS

32<sup>ND</sup> ICP IM TASK FORCE MEETING, 28-30 MAY 2024

PRAGUE, THE CZECH REPUBLIC

WEDNESDAY MAY 29 – ICP INTEGRATED MONITORING TASK FORCE MEETING

The separate IM TF meeting was attended by experts (18 in person and 6 online) from the following Parties to the Convention on Long-range Transboundary Air Pollution (CLRTAP): Austria, Czech Republic, Estonia, Finland, Germany, Italy, Latvia, Netherlands, Norway, Poland, Russian Federation, Spain, Sweden. The list of participants is attached as Annex I. The agenda is presented as Annex II. Detailed notes from the Joint TF meeting will be available in the meeting report of ICP Waters (to be included on web pages of ICP Waters, see <http://www.icp-waters.no>). Presentations from the thematic sessions are available from <https://www.slu.se/en/Collaborative-Centres-and-Projects/integrated-monitoring/meetings/>

## A. FORMALITIES

### 1. Opening of the TF meeting

Mr. Ulf Grandin opened the meeting and thanked the hosts for their generous hosting of the meeting

### 2. Approval of the agenda

The TF approved the agenda

### 3. Approval of the minutes from the 31<sup>ST</sup> ICP IM Task Force meeting, 2023

Approved. These minutes are available on the ICP IM web site at the programme centre:  
<https://www.slu.se/en/Collaborative-Centres-and-Projects/integrated-monitoring/meetings/>

### 4. The ICP IM Programme Centre

#### a) The staff

Head of IM Programme Centre: Dr. James Kurén Weldon  
Senior researcher: Associate Professor Martyn Futter  
Data base: Dr. Pernilla Rönnback and Dr. Hampus Markensten  
Expert on heavy metals: Associate Professor Karin Eklöf

#### b) The web site

The international ICP IM web page is found at [www.slu.se/en/icp-im](http://www.slu.se/en/icp-im).

### **c) The Annual Report**

The annual report is now an SLU publication, in PDF format only but citable with an ISBN number and DOI. As of last year, it contains maps showing trends in data at IM sites for some key variables of policy interest, that will be updated in each edition of the report.

The next IM annual report will be available for the EMEP/WGE joint September meeting in Geneva. The PC noted that more material is needed, and particularly encourages all countries to submit a short update on their activities and any publications, although more extensive contributions are also most welcome.

## **B. REPORTS**

### **5. The IM database**

Mr. Hampus Markensten presented database issues. The international IM database is running well, and the automatic data validation seem to work well. Many fewer error reports were generated in the 2023 reporting than previously. During the last year, new routines has been developed for handling of changes in the database. Improvements were made to validation routines, and some SCODE's will be changed to be consistent with the manual. SCODES are problematic – they are supposed to be four characters but sometimes this is reduced (e.g. by Excel) to fewer, causing problems. We now fill with zeros to remedy this, e.g. not A1 but 00A1. This will come in future validation reports.

Ms Pernilla Rönnback noted that 12 countries have reported data for 2022 and this year we have also received data from two new sites in Poland. Most of the submitted files are already approved for import to the data base. The proportion of data submissions within the deadline were also presented: 2022 90%, 2023 75% on time.

Submission of data should be made to [im-database@slu.se](mailto:im-database@slu.se).

### **6. The Annual Report**

The 33<sup>rd</sup> annual report from IM is under way. Each country is encouraged to submit a few paragraphs and optionally photos on the current state at their IM sites. This is a free format and is intended as an informal update to share with the network and remind the wider readership of the report that our participating countries are active. Longer reports, e.g. summaries of articles published using IM data or other reports, are also of course most welcome. The deadline for submissions is the end of June.

### **7. Activities during 2023/24**

Mr Ulf Grandin summarised some key activities since the last Task Force meeting:

- The IM chairs and/or Programme Centre represented IM at eight international meetings directly related to the IM core activities: ninth joint EMEP and WGE September meeting, the EMEP and WGE Extended bureaux, Task Force meetings for ICP M&M, ICP Vegetation and ICP Forests and the Saltsjöbaden VI meeting.
- The Programme Centre received the 2022 data from most IM sites, data are now stored in the ICP IM database; see also agenda item 5.
- Salar Valinia co-chaired a thematic session on biodiversity at the joint WGE-EMEP September meeting in Geneva. See also agenda item 9.
- Interested IM sites participated in the pilot study on passive samplers for atmospheric Hg. It was noted that the study will continue, but shipping costs for sending samples to Canada must be paid by the participating partners.

- The IM Programme Centre finished a report on dynamic modelling of vegetation response from atmospheric pollution. This is available from the website under Publications.

**a) The current Work Plan (2024-2025)**

- Scientific paper on effects of N and S deposition on vegetation community stability over time
- Scientific paper/report on: (a) trends in HM fluxes across ICP IM sites; and (b) assessment of mercury data gathered by new passive samplers
- Make ICP IM database open access under feasible licence and principles, and publish associated data paper
- Initiate revision and update of IM manual
- Provide update in long-term changes in atmospheric deposition and runoff water chemistry of sulfate, inorganic N and acidity
- Elaborate proof of concept for development of above-ground vegetation monitoring in ICP IM sites using drone remote sensing

Mr. Ulf Grandin presented the current workplan (see list above). Ms. Gisela Pröll noted that Austria is also beginning work with drone surveys, and Ms. Line Grottian noted that drones will also begin to be used at the Neuglobsow site in Germany. Mr. Ulf Grandin suggested that given this increase in interest in drone-based monitoring and research we should aim for a joint IM report on this subject, which was agreed to be returned to when the projects have proceeded.

**b) The 2026-27 work plan**

Mr Ulf Grandin asked for suggestions for the next workplan. Mr. Thomas Scheuschner suggested a classification of our sites, looking at deposition and expected trends in climate, then grouping sites according to these factors, also to see where we have gaps in network coverage. Mr Martin Forsius noted that biodiversity and critical loads are important for policy, especially currently and that this indicates a closer co-operation with CDM would be desirable. The possibility of updating the work done on modelling biodiversity in 2018 (Dirnböck et al., 2018, Holberg et al., 2018) with new data was raised. Mr. Thomas Scheuschner noted that the shiny app used to present data from Neuglobsow (presentation during the joint meeting) could be a useful way to present the whole IM dataset once it is opened up.

**8. Cooperation with eLTER**

Mr. James Kurén Weldon updated the meeting on the co-operation agreement with eLTER, which is proceeding well. For example, eLTER is currently defining its standard observation protocols, many of which are based on WGE protocols (IM, Waters and Forests). This process also involves much work developing standardized metadata, which will be very useful to us in the open publication of our data, a clear mutual benefit of co-operation. It was noted that it is important to emphasise that WGE protocols are being used more widely and that they are influential.

**9. Report from Biodiversity session at the 2023 Geneva meeting**

Mr Salar Valinia updated the meeting on the thematic session on air pollution and biodiversity held during the joint WGE EMEP session in September 2023. This was done particularly in the context of the implementation of the Kunming-Montreal Global Biodiversity Framework and overall cooperation with the Convention on Biological Diversity. The WGE recommended endorsement and collaboration with Montreal biodiversity protocol. A working group will be set up to develop this, and if you are interested in joining the group please let the PC know.

**10. The Gothenburg Protocol – Explanation and Update**

Mr. Salar Valinia gave a presentation on the revision of the Gothenburg Protocol and the role of IM. The Protocol sets national emission ceilings for 2010 up to 2020 for four pollutants: sulphur (SO<sub>2</sub>), nitrogen oxides (NO<sub>x</sub>), volatile organic compounds (VOCs) and ammonia (NH<sub>3</sub>). The protocol was amended in 2017 to include national emission reduction commitments for main air pollutants to be achieved in 2020 and beyond.

The ICPs are requested to provide data and evaluations on long term effects in monitored ecosystems. To comply with this request the meeting was asked to agree a data call and provide the IM Programme Centre with high resolution time series data for throughfall S and N, runoff S and N, and vegetation raw data for calculation of Ellenberg indices.

Ms. Gisela Pröll suggested adding meteorological data to this list, temperature and precipitation, while Mr. Thomas Scheuschner was interested in precipitation within the growing period. The TF meeting agreed these suggestions so the list of raw data to be provided is:

- Throughfall S and N,
- Runoff S and N,
- Vegetation raw data for calculation of Ellenberg indices.
- Temperature
- Precipitation

Please provide the programme centre with these data as soon as possible. Mr Salar Valinia emphasised that we need to produce short, punchy documents for policymakers. Lengthy scientific documents will not read by this important target audience.

## **11. Extended IM**

Mr. Salar Valinia updated the meeting on the Extended IM programme. We are working on the extended ICP IM with interest from Poland, Norway, Sweden, Netherlands, Belgium and Denmark. The work continues and our hope is to have set sites from more countries during 2025.

Mr. Albert Bleeker gave an update on the situation in the Netherlands, which has re-started some monitoring after dropping out of ICP Forests, ICP Vegetation and ICP IM some years back due to financial reasons. Due mostly to NECD reporting requirements there are now 12 sites with measurements, and they are interested in joining this activity to IM, linking to previous data and picking up trends again. The IM Programme Centre encouraged the Mr. Bleeker to contact the PC for bilateral discussions.

Ms. Alessandra de Marco informed that Romania is interested in joining, and there are 12 level 2 Forests plots there that could be suitable. The IM Programme Centre encouraged the Romanian contact persons to contact the PC for bilateral discussions.

Mr. Salar Valinia explained that NECD has led to lots of good monitoring but that not so much is done with the data after reporting. If sites also report to e.g. ICP IM, then more research use can be made of the data. The aim should be to harmonise NECD reporting and reporting to ICP IM so it can be done just once for both rather than making new work.

Ms. Gisela Pröll asked what the role of NFPs is here? Mr Salar Valinia answered that the next steps involve how to harmonise and that NFPs should report on sites in your country that report to NECD that might be suitable. Please look in your national reporting and see what might be possible for your country.

## **C. DISCUSSIONS AND DECISIONS**

## 12. Data submission

The Task Force decided that the National Focal Points or other assigned data providers should submit quality-controlled data from 2023 by 1 December 2024, in accordance with the IM manual.

## 13. Open data

Mr. James Kurén Weldon gave a short overview of the open data proposals. Two points were up for a decision at this meeting:

- mandate the IM Programme Centre to make the database publically available , under a Creative Commons by attribution licence and aiming to meet FAIR principles, in accordance with the signed permissions from participating member countries.
- mandate the Programme Centre to draft a data paper describing the publically available IM data, with co-authorship for data owners.

Submitted data not made publically available will still be stored in the IM database, and available on request to the IM Programme centre, as it has been working until now.

Mr. Martin Forsius noted that Finland’s data is provided by different institutions with different positions on this, so part of the data will be opened. He suggested changing the wording in the first proposal from “participating member countries” to “participating institutions” because of such issues, which was agreed. Mr Thomas Scheuschner said that Germany agrees with the proposals but would like download statistics to be made available, which the PC can do in future. Mr. David Elustondo expressed a preference for the existing model or the ICP Forests model of by request access. Mr. James Kurén Weldon replied that Spain can continue to apply that model to their data if desired, and they will be available by request as before, not appearing in the open database or the data paper. Ms. Alessandra de Marco wondered about sites that are both in ICP IM and ICP Forests now that their data access models are diverging – this is a question that the institutions running sites have to consult on and figure out, the PC will simply publish data we have written permission to publish.

After the discussion, the meeting approved the two points for decision, subject to the amendment of the first point to “mandate the IM Programme Centre to make the database publicly available, under a Creative Commons by attribution license and aiming to meet FAIR principles, in accordance with the signed permissions from participating *institutions*” (the amendment in *Italics*).

## 14. The IM manual – group discussion

An introduction to the issue of revising the manual was given by Mr. Ulf Grandin. During the last revision (2022) and especially during the preparation of the new data validation routines, inconsistencies and outdated methods were discovered. Also, several variables are currently reported in an aggregated form that makes them probably not useful in any contemporary research. If we aim at making the data publically available, the data must be at a resolution that can interest users, which some reported variables currently are not. As an example, a revision of the BI subprogramme was presented. The main change is reporting of diameter of all individual trees on the monitoring plots instead of number of trees of a certain species within a diameter interval of 10 cm, e.g. number of spruces with a diameter between 10 and 20 cm. This will allow more accurate estimates of total biomass and elements in the biomass, needed for catchment budgets.

It was noted by the Chair that for some variables we could borrow the ICP Forests methodology, to not re-invent a method and to facilitate cooperation.

The meeting participants broke into three smaller groups to discuss these issues by themes: Water chemistry, Soil chemistry and other soil variables, Ground vegetation

Some key conclusions from these initial discussions were that Mr Pavel Krám pointed out both alkalinity moles and equivalent are requested by different subprogrammes, but we should pick one as they are the same. Some site-specific limitations were pointed out by the soil group which mean that the recommended plot layout is not always possible. Generally, it was noted that there is a need for more clarity in methods, and better metadata about how data are produced. The vegetation group noted that a revision of taxonomy and species codes used is long overdue. Mr. James Kurén Weldon pointed out that these discussions were intended to begin the process, rather than reach conclusions, and the PC will set up a workspace in Microsoft Teams, Google Drive or similar platform and invite all to discuss and work on concrete revisions in online shared documents

#### **15. The IM logo**

Mr. Ulf Grandin presented a suggestion for a new IM logo. The existing logo for IM is old, low resolution and not well suited to many uses. There was general approval of the new design, but all involved in IM are invited to suggest revisions on the suggested draft (or to suggest another logo). The deadline for this is August 31. Mr. Thomas Scheuschner asked if a vector file can be sent out to facilitate this. The Programme Centre will do so.

#### **16. The IM network**

**Tour de table.** This point was passed over in favour of short written reports from all countries to the Programme Centre (James) for inclusion in the Annual Report.

#### **17. Next Task Force meeting, 2025**

The next Task Force meeting will be held in Dessau-Roßlau, Germany, 23.04. – 25.04.2025. The meeting will be at the German Federal Environment Agency (UBA).

#### **18. Other business**

Mr. Pavel Krám noted that it is unfortunate that the UK is no longer part of the network when there are still UK sites doing similar monitoring work. Perhaps the Extended IM Programme could be used to encourage some to rejoin the IM network.

#### **19. End of meeting**

Mr. Ulf Grandin thanked all for their participation and closed the meeting.

## APPENDIX 1 – ATTENDEES OF ICP IM TF MEETING

### **In person attendance**

Cornelius Oertel

Alessandra de Marco

Gisela Pröll

Martin Forsius

Albert Bleeker

Lieke Vlaar

Adéla Holubová Šmejkalová

Pavel Krám

Thomas Scheuschner

Angelika Köbl

Kairi Lõhmus

Karin Eklöf

Line Grottian

Pernilla Rönnbäck

Hampus Markensten

James Kurén Weldon

Ulf Grandin

Salar Valinia

### **Online attendance**

Barabara Albiniak

Jussi Vuorenmaa

Dāvis Kloviņš

Anna Degórska

Mikolaj Majewski

Victoria Vertyankina

## APPENDIX II – AGENDA

### **Agenda separate Task Force meeting ICP Integrated Monitoring**

#### A. Formalities

1. Opening of the TF meeting
2. Approval of the agenda
3. Approval of the minutes from the 31<sup>st</sup> ICP IM Task Force meeting, 2023
4. The ICP IM Programme Centre

#### B. Reports

5. The IM database
6. The Annual Report
7. Activities during 2023/24
  1. a) The current Work Plan (2024-2025)
  2. b) The 2026-27 work plan
8. Cooperation with eLTER
9. Report from Biodiversity session at the 2023 Geneva meeting
10. The Gothenburg Protocol – Explanation and Update
11. Extended IM

#### C. Discussions and decisions

12. Data submission
13. Open data
14. The IM manual – group discussion
15. The IM logo
16. The IM network
17. Next Task Force meeting, 2025
18. Other business
19. End of meeting