

## CONVENTION ON LONG-RANGE TRANSBOUNDARY AIR POLLUTION

International Co-operative Programme on  
Effects on Materials, including Historic and Cultural Monuments

Minutes of the  
34<sup>th</sup> Meeting of the Programme Task Force  
25-27 April, 2018, Zagreb, Croatia

1. Opening of the meeting  
Johan Tidblad opened the meeting and gave the floor to the organisers.
2. Information from the local organisers
3. Introduction of participants  
Mario Stipetić (Ministry of Environment and Energy, Croatia), Danijela Asperger (Faculty Chemical Engineering and Technology, Croatia), Domagoj Mudronja (Croatian Conservation Institute), Ivan JengiĆ (Croatian State Archives), Igor Kozjak (Croatian State Archives), Marinana Mimica Tkalčec (Croatian State Archives), Lea Sović (Faculty of Humanities and Social Sciences, Croatia), Cleo Kosanović (Meteorological and Hydrological Service, Croatia), Sonja Vidič (Meteorological and Hydrological Service), Mirna Bojić (Ministry of Culture, Croatia), Jadranka Skevin Sovic (Meteorological and Hydrological Service, Croatia), Kateřina Kreislová (Czech Republic), Tiina Vourio (Finland), Aurélie Verney-Carron (France), Ruth Keller (Germany), Stefan Brüggerhoff (Germany, by Skype), Pasquale Spezzano (Italy), Terje Grøntoft (Norway), Daniel de la Fuente Garcia (Spain), Johan Tidblad (Sweden), Andrew Gordon (Sweden), Ulrik Hans (Switzerland), Marcus Faller (Switzerland) and Vasile Rus (EGGA, UK)
4. Overview of meeting objectives and approval of the agenda  
Johan Tidblad presented the draft agenda, which was approved.
5. Discussion of 2017 Work plan  
*The following reports were finalised in 2017 and the meeting is expected to approve the reports, with comments if necessary.*
  - (a) ICP Materials Report No 80: UNESCO Call for data part I, interim report  
Pasquale Spezzano gave an overview of the report. The possibility to include wood as a sensitive material to climate effects was discussed. It was concluded that this is possible only if there is some effects of pollutants that could be quantified together with climatic effects.
  - (b) ICP Materials Report No 81: Environmental data report. October 2014 to October 2015  
Terje Grøntoft gave an overview of the report. The recommended use of environmental data in statistical analyses was discussed, for example which SO<sub>2</sub> value to use when there exist parallel measurement with passive samplers and other equipment. It was decided to follow the recommendations given in the report (recommended values marked with \*).

- (c) ICP Materials Report No 82: Trends in corrosion, soiling and pollution 1987-2015  
 Johan Tidblad gave an overview of the report / paper. It was decided that the use of an excel file with all data as supplementary material, as is given in the publication, is a good way to spread our results and should be encouraged in the future.

6. Information from WGE and common work plan items 2018

(a) Draft 2018-2019 workplan for the implementation of the Convention

Johan Tidblad informed about the current bi-annual work plan. The discussion was focussed around cooperation with EMEP and several possible cooperation projects were identified. These are listed under item 8 (medium term work plan) but could be implemented earlier if there is interest from both parties.

(b) Update of the long term strategy for the Convention

Johan Tidblad informed about the process of reviewing the long term strategy for the Convention. After discussion the following items were highlighted as important issues or remaining challenges for ICP Materials (with reference to document ECE/EB.AIR/2017/4):

- Quantification of impacts of measures taken at the regional scale on local and urban air quality relevant for the UNESCO case studies taking benefit of the much welcomed increased resolution of EMEP models
- Quantification of soiling effects based on especially particulate matter including black carbon (BC)
- Continued quantification of acidifying S and N pollutants together with particulate matter for assessment of corrosion

Also, it could be emphasised that to strengthen efforts to protect and safeguard the world's cultural heritage is specifically mentioned in the 2030 Agenda for sustainable development (Goal 11: Make cities inclusive, safe, resilient and sustainable). Air pollution effects on both health and cultural heritage are concentrated in cities and this is worth mentioning in the LTS of the Convention with reference to this goal.

(c) Update of mandate for ICPs and Task Forces

Johan Tidblad presented the mandate and a new version was proposed for submission to the working group on effects according to comments received from group.

(d) Funding flows of the convention and funding efforts by the TFs and ICPs to sustain the activities

Johan Tidblad gave an overview of funding flows of the convention and subsidiary groups.

7. Discussion of 2018-2019 work plan

(a) UNESCO Call for data, plan for continued work

Pasquale Spezzano presented results of the UNESCO call for data and the preliminary report for 2018 on risk evaluation. The following additions were agreed

- Pasquale will consult with those responsible for UNESCO data for a final review
- Pasquale will include pollution and calculated corrosion data for all sites as an annex to the report
- Pasquale will finalise a first draft due by June for distribution to the task force for comments

The report in 2019 will be on cost calculations (maintenance due to corrosion) and will be done for a selection of monuments.

(b) Discussion of on-going exposure for trend analysis, including plan for update of technical manual

Johan Tidblad gave an overview of the start of the exposure for trend analysis and Terje Grøntoft presented an overview of the reporting of environmental data. The following was agreed (complementary information as indicated below should be sent before summer vacations to Johan for update of the technical manual)

- Descriptions of test sites
  - Mirna Bojić will send information on Croatia test site descriptions.
  - Tiina Vourio will send information on Hämeenlinna exposure site position change.
  - Stefan Brüggerhoff gave an update of the exposure in Bottrop were it was noted that painted samples exposed 14 days after start of all other samples. Stefan will also submit complementary information regarding description of non-active German sites.
- Reporting of environmental data and passive samplers
  - Passive samplers should be returned to IVL as soon as exposure is finished, not waiting for subsequent withdrawals (the samplers should not be stored by the national focal points).
  - Temperature data should not be reported in the form to IVL. This data is reported in the usual manner to NILU, which then reports to IVL. All other anomalies in data should be reported in the form sent to IVL as indicated in the form.
  - Terje Grøntoft will send the environmental data template to all. Environmental data shall be reported in one batch and as complete as possible after withdrawal of the samples and before the next task force meeting.
  - Chloride data may also be reported if measured by the wet candle method (optional)
- Materials
  - Tiina Vourio will send info about coated sample marking in order to update the technical manual.
  - Aurelie Verney-Carron will send new boxes for return shipping of stone materials in sheltered position. She will also send information to be included in the updated version of the technical manual.

(c) Scientific presentations and discussion

A number of scientific presentations were held as given in an annex to the minutes. These are also available for download at the ICP Materials home page. All presenters are especially thanked for their contribution to the meeting.

(d) 35<sup>th</sup> meeting of the Programme Task Force

Aurelie Verney-Carron made an offer to host the next meeting and it was decided that it should be held in Paris 24-26<sup>th</sup> April 2019 (subject to confirmation)

8. Medium term work plan (2020-2021)

(a) Update of the mapping manual

After the scientific presentations on economic evaluation of corrosion and soiling, a future possible update of the mapping manual was considered. The following items were highlighted

- It is timely to include information on soiling (dose-response functions and tolerable levels) in the mapping manual

- Harmonisation with ISO 9224 should be considered where appropriate
- The list of publications should be updated and with a reference to the ICP Materials home page

(b) Cooperation with EMEP

Several work items to be done in cooperation with EMEP was identified

- Inclusion of pH of precipitation as model output from EMEP (priority)
- Production of historic data (before 2000) for the new high resolution model to be used for validation
- Different aspects on particulate concentration including but not limited to
  - BC
  - PM10
  - Chlorides deposition
- Specific campaigns in urban areas or in areas with important sites

(c) Chloride measurements

- In order to introduce measurements of chloride with the wet candle method it is necessary to verify that it is possible to use 3 monthly measurements instead of monthly measurements, as is the usual practice. At the meeting Czech Republic, Norway, Sweden, Switzerland and possibly Croatia indicated willingness to partake in such a study. Johan Tidblad will send a letter to ICP Materials group with an enquiry of participation.

(d) Future revisions of dose-response functions

- Especially for zinc it is a need to revise the dose-response function. This could be included as a future work item considered for cooperation between Markus Faller, Katerina Kreislova and Johan Tidblad.

9. Dissemination of results

(a) Scientific publications and presentations

- It was emphasised that it is good practice to discuss with the group before publication of an article if using ICP Materials data
- Terje Grøntoft is planning a publication on soiling costs. It was proposed to include Aurelie Verney-Carron as co-author, and possibly Johan Tidblad.
- Otherwise, no ICP Materials publications are planned for 2018.

(b) Other ways of involving scientists outside ICP Materials

Markus Faller informed of a presentation of ICP Materials at the 3-Länder-Korrosionstagung. It is evident that not everyone doing exposure of materials are aware of ICP Materials and therefore all are encouraged to spread information about ICP Materials.

(c) Development of web page (*Johan Tidblad*)

The web page is continuously updated and documentation from the meeting including all presentations will also be available after the meeting.

10. Financing of the programme and discussion of relevant H2020 and other European calls.

The financing situation in individual countries was discussed. The situation varies substantially from country to country. There is no call at the moment that was discussed.

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Scientific presentations held at the  
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### *Presentations of national activities*

*J. Škevin Sović and M. Bojić*

Overview of activities in Croatia for the year 2017. Program ICP Materials.

*Danijela Ašperger*

Anodic sampling of archaeological alloys for chromatographic analysis

*Domagoj Mudronja*

Scientific research during conservation restoration work on Peristyle of Diokletian`s palace in Split, Croatia

*Markus Faller*

New Swiss Exposure Programme 2014-2018

### *Methods for calculation of costs of corrosion and soiling due to air pollution*

*Johan Tidblad*

Mapping manual. Current recommendations for calculation of materials costs resulting from air pollution

*Terje Grøntoft*

Maintenance costs for European zinc and Portland limestone due to air pollution since 1980s

*Aurélie Verney-Carron*

Calculation of costs caused by the soiling and the cleaning of glass

*Johan Tidblad*

Analysis and socioeconomic factors for the transport sector – a case study of soiling in Sweden

*Pasquale Spezzano*

Methods to calculate costs of corrosion and soiling of materials due to air pollution.

*Tim Yates / Johan Tidblad*

Assessing the risks to the built heritage - do the benefits from reducing pollution justify the costs?