



CONVENTION ON LONG-RANGE TRANSBOUNDARY AIR POLLUTION
International Co-operative Programme
on
Effects on Materials, including Historic and Cultural Monuments

MINUTES OF THE TWENTY-FIRST MEETING
OF THE PROGRAMME TASK FORCE
April 4-6, 2005, Krakow, Poland

Prepared by the Main Research Centre,
Swedish Corrosion Institute, Sweden

- 1 The twenty-first meeting of the Programme Task Force of the International Co-operative Programme on the Effects on Materials including Historic and Cultural Monuments was held in Krakow, Poland on April 4-6, 2005 (back to back with the final MULTI-ASSESS meeting). The meeting was held in the City Hall and was hosted by the Institute for Precision Mechanics.

- 2 The meeting was attended by representatives from the following Parties to the Convention on Long-Range Transboundary Air Pollution: Austria, Canada, Czech Republic, Estonia, France, Germany, Italy, Latvia, Norway, Poland, Spain, Sweden, Switzerland, United Kingdom, and the Chairman of the Working Group on Effects (WGE) and a member of the Secretariat.

- 3 Mrs Joanna Kobus introduced the meeting on behalf of the organisers. Mr V. Kucera chaired the meeting.

- 4 The main items discussed at the meeting were:
 - a) Information from the Working Group on Effects (WGE)
 - b) Presentations of main results from the multi-pollutant programme (in connection with MULTI-ASSESS meeting)
 - c) Final planning of the new ICP Materials network of test sites for future trend exposures
 - d) Updated information on the EU 6FP project CULT-STRAT
 - e) Information on the UN/ECE Workshop on Economic Impacts of Air Pollution on Cultural Heritage
 - f) Report from the new sub-centre for stock-at-risk and cultural heritage in Italy
 - g) Information on future changes in the organisation of ICP Materials
 - h) Reporting of ICP Materials to WGE and draft achievements

5 Information from the Working Group on Effects (WGE)

The Chairman of the Working Group of Effects (WGE), H.-D. Gregor, informed about the substantive report “Review and assessment of air pollution effects and their recorded trends” and made an overview of the contents of the report. Possible topics for future reports were discussed and economic issues were considered to be important and also the link to both the local and global situation.

The secretary of the Working Group of Effects (WGE), Matti Johansson, made an overview of the Convention with special emphasis on news and changes, i.a.:

- The 1990 Gothenburg multi-pollutant multi-effect Protocol will be in force in 2005 (16 necessary ratifications received)
- New bodies formed on particulate matter and hemispheric air pollution
- New UN reporting guidelines

6 Presentations of main results from the multi-pollutant programme (in connection with MULTI-ASSESS meeting)

The following presentations held at the MULTI-ASSESS meeting included results and statistical evaluation of results from the multi-pollutant programme:

- Martin Ferm: “Nitric acid measurements in connection with corrosion studies”
- Martin Ferm: “Deposition Measurement of Particulate Matter in connection with Corrosion Studies”
- Jan Henriksen: “Environmental data report November 2002 to December 2003”
- Michael Melcher: “Medieval Glass in WP6 of MULTI ASSESS”
- Johan Tidblad: “Statistical evaluation and dose-response functions”
- Daniel Reiss: “Statistical evaluation and dose-response functions”
- Ron Hamilton: Soiling: results and models
- Ron Hamilton: “How do we determine a critical / acceptable level of material damage?”

7 Final planning of the new ICP Materials network of test sites for future trend exposures

Materials for evaluation of corrosion attack to be included in the trend exposure are

- Carbon steel (SVUOM)
- Zinc (EMPA)
- Limestone (BRE)

Possible materials for evaluation of soiling were discussed at the meeting but no final selection was made. Later discussions have resulted in the decision to use both the passive samplers consisting of a filter paper on a cylindrical rod applied in the multi-pollutant programme and the modern glass samples developed by LISA, Paris, during the first exposure period. A comparison of the results will then serve as a basis for a final decision for the following exposure periods.

Regarding measurements of pollution parameters IVL has made an offer to deliver passive samplers (The recommended sampling period is 6 x 2 months. As an example the analysis of all gases (single sampling of SO₂, NO₂, O₃ and HNO₃) and analysis of deposited particles (mass and soiling) using bi-monthly sampling during one year will cost slightly less than 15 000 SEK / site.

The selection of test sites was discussed and all participants were asked about the status of their respective site(s). This is summarised in Annex 2 and the final selection will be made in July 2005 so that the sub-centres can prepare the samples in time before the start of the exposure in October 2005. The Chairman will provide an official letter informing about the trend exposures, which can be used for financing purposes.

8 Information on the new EU 6FP project CULT-STRAT

The Main Research Centre informed about the European Community 6th Framework Programme (EU 6FP) Specific Targeted Research Project (STREP) "Assessment of Air Pollution Effects on Cultural Heritage – Management Strategies" (CULT-STRAT). The three-year project started on 1 August 2004. Two meetings have been held, the kick-off meeting in September 6-7, 2004, Swedish Corrosion Institute, Stockholm, Sweden and the second meeting in February 4-5, 2005, ENEA Headquarters, Rome, Italy. The project will not include any field exposure or measurements but will instead be focused on the use of results for policy purposes.

9 Information of the UN/ECE Workshop on Economic Impacts of Air Pollution on Cultural Heritage

The workshop will be a Joint workshop of CULT-STRAT (Assessment of Air Pollution Effects on Cultural Heritage – Management Strategies), and ICP Materials Task Force and NEBEI (Network of Experts on Benefits and Economic Instruments) of the UNECE Convention on Long-Range Transboundary Air Pollution.

The workshop will be held on January 26-27 2006 (location to be decided)

10 Report from the new sub-centre for stock-at-risk and cultural heritage in Italy

Results of mapping of UNESCO Cultural Heritage Monuments together with environmental data from EMEP and preliminary corrosion maps of sandstone and limestone were presented. It was evident that also climate in addition to pollution has an effect on corrosion.

11 Information on future changes in the organisation of ICP Materials

The Main Research Centre informed about a shared chairmanship between Sweden and Italy, which started in January 2005. The change was originally initiated from the Swedish Environmental Protection Agency, which currently provides the funding for the Main Research Centre.

A preliminary plan of division of work between Sweden and Italy was presented. It was emphasised that from now on all communication related to co-ordination of the programme should be sent both to Sweden (V Kucera and J Tidblad) and Italy (S Doytchinov).

12 Reporting from ICP Materials to the Working Group on Effects including achievements and work plan

The following items were addressed during the meeting and will be finalised before the end of 2005 (organised according to pollutant as requested by WGE):

Acidification

- Statistical evaluation of results from the multi-pollutant exposure programme resulting in possible candidates for models describing the corrosion in terms of environmental pollutants.
- Further development of dose-response functions based on the multi-pollutant exposure programme and the one-year extension programme resulting in a final selection of dose-response functions for carbon steel, zinc, copper, bronze, limestone and glass materials representative of medieval stained glass windows.
- Start of new trend exposure programme (fall 2005)

Ozone

- Ozone is included in the new dose-response function for copper.
- HNO₃ is included in the new dose-response functions for zinc and limestone. A relation has been obtained, which enables calculation of HNO₃ levels based on NO₂, O₃, temperature and relative humidity.

Particulate matter

- Threshold levels for effects of PM (PM₁₀) on materials have been identified for soiling of materials based on developed dose-response functions.
- Inclusion of PM in dose-response functions for corrosion

Cross-cutting issues

- 21st Task Force Meeting, 4-6 April, Krakow, Poland (back to back with MULTI-ASSESS).
- Apply Programme results for mapping of areas with increased risk of corrosion: Maps of UNESCO's World Heritage sites classifying risk of corrosion.
- Develop the activities of the Programme's sub-centre on cultural heritage and stock at risk: Plan and implementation for subdivision of activities between Italy and Sweden.
- Workshop on material damage to cultural heritage in cooperation with NEBEI and CULT-STRAT: Detailed planning of workshop to be held on 26-27 January 2006.

13 Next meeting

The twenty-second meeting of the Programme Task Force will be held in Paris, France April 3-5, 2006 back to back with the 4th meeting of the CULT-STRAT project.

14 Address list

The updated address list is shown in Annex 1

Annex 1 - Updated address list, Wednesday May 11, 2005.

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Annex 2 – List of test sites for the new trend exposures

No	Name	Country	Possibility for Inclusion	Comment
1	Prague-Letnany	Czech Republic	Yes	
3	Kopisty	Czech Republic	Yes	
5	Ähtäri	Finland	(No)	Contact will be made
7	Waldhof-Langenbrügge	Germany	No	
9	Langenfeld-Reusrath	Germany	No	
10	Bottrop	Germany	(Yes)	Subject to confirmation
13	Rome	Italy	Yes	
14	Casaccia	Italy	Yes	
15	Milan	Italy	Yes	
16	Venice	Italy	Yes	
21	Oslo	Norway	Yes	
23	Birkenes	Norway	Yes	
24	Stockholm	Sweden	Yes	
26	Aspvreten	Sweden	Yes	
27	Lincoln Cathedral	United Kingdom	Yes	
31	Madrid	Spain	Yes	
33	Toledo	Spain	Yes	
34	Moscow	Russian Federation	(No)	Contact will be made
35	Lahemaa	Estonia	(Yes)	Subject to confirmation
36	Lisbon	Portugal	No	
37	Dorset	Canada	Yes	Possible change of site
40	Paris	France	Yes	
41	Berlin	Germany	(Yes)	Subject to confirmation
43	Tel Aviv	Israel	No	
44	Svanvik	Norway	Yes	
45	Chaumont	Switzerland	Yes	Additional sites possible
46	London	United Kingdom	No	
47	Los Angeles	USA	No	
49	Antwerpen	Belgium	(Yes)	Subject to confirmation
50	Katowice	Poland	Yes	
	Riga	Latvia	(Yes)	Subject to confirmation
	Athens	Greece	(No)	Contact will be made
	Vienna	Austria	(Yes)	Subject to confirmation
	Summary		Yes	18 sites
			(Yes)	6 sites
			(No)	3 sites
			No	6 sites