

Main achievements 2015-2016

Outlook 2016-2017

UNESCO Call for Data (Progress Report)

Johan Tidblad & Pasquale Spezzano

**Joint Session of the Steering Body to EMEP and the Working Group on Effects
Second session
Geneva, 13-16 September 2016**

Main achievements 2015-2016 (1/5)

Cooperation with other ICPs:




- ✓ **Contribution to WGE trend report “Trends in ecosystem and health responses to long-range transported atmospheric pollutants” (2015)**

ICP Materials work

- ✓ **ICP Materials Report No 77: Pilot study on the inventory and condition of stock of materials at risk at UNESCO cultural heritage sites. Part IV: The relationship between the environment and the artifact (2015)**
- ✓ **Call for Data on “Inventory and condition of stock of materials at UNESCO cultural heritage sites” - 2015-2017 (2015)**

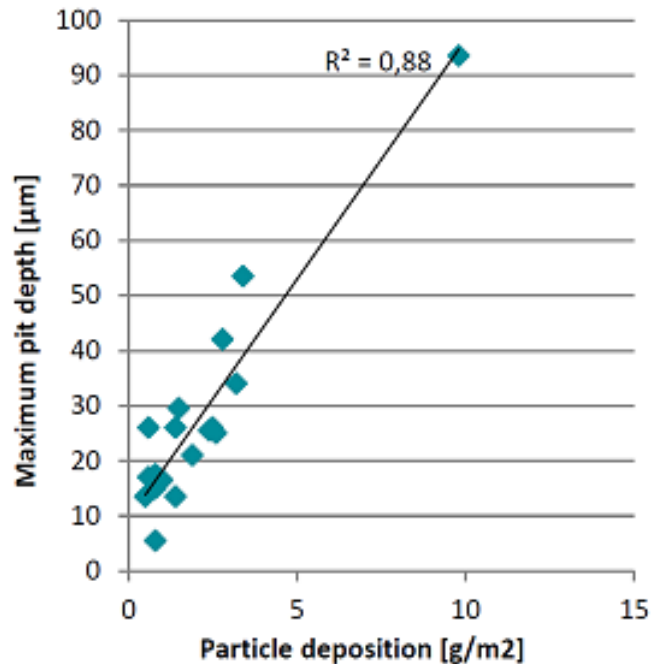
Main achievements 2015-2016 (2/5)

2014-2015 exposure for trend analysis:

-  **The recently completed exposure (2014–2015) includes samples of carbon steel, zinc, copper, limestone and soiling of modern glass.**
-  **Stainless steel was also exposed for the first time at selected sites in the network of test sites.**
-  **In addition, samples exposed for four years (2011–2015) of carbon steel, weathering steel, zinc, aluminum and limestone were withdrawn and will be evaluated.**

Main achievements 2015-2016 (3/5)

2014-2015 exposure for trend analysis - new scientific findings:






A correlation between particulate deposition and the maximum pit depth was found. This is new scientific information where previously only the average corrosion expressed as mass loss was related to the average sulphur dioxide (SO₂) concentration.

Maximum pit depth on aluminium after four years of exposure vs particle deposition

Main achievements 2015-2016 (4/5)

32nd Task Force meeting (Rome, Italy, 11 to 13 May 2016):

-  **15 participants from 12 countries: Croatia, Czech Republic, Finland, France, Germany, Greece, Italy, Norway, Spain, Sweden, Switzerland, and the UK.**
-  **Croatia has previously not participated in the activities of ICP Materials and the contribution is therefore especially welcomed.**
-  **The meeting was also attended by an Italian representative to the Executive Body of the Convention.**

Main achievements 2015-2016 (5/5)

Publications & presentations ICP Materials

- ✓ Kreislova K, Geiplova H, Skorepova I, Skorepa J and Majtas D (2015). Actual maps of atmospheric corrosivity for the Czech Republic. Proceedings of EUROCORR 2015, Graz, Austria
- ✓ Roots O (2015). ICP materials. Long-term studies at the Lahemaa monitoring station, Estonia. Proceedings of the Estonian Academy of Sciences, 64 (1), 43-52
- ✓ Kreislova K and Geiplova H (2016). Prediction of the long-term corrosion rate of copper alloy objects. Materials and Corrosion, 67(2), 152-159
- ✓ Christodoulakis J, Tzanis C, Varotsos C A, Ferm M and Tidblad J (2016). Impacts of air pollution and climate on materials in Athens, Greece. Atmospheric Chemistry and Physics Discussion, doi:10.5194/acp-2016-196
- ✓ Tidblad J and Thierry D (2016). Evaluation of corrosion products and trends in corrosion rates for aluminium exposed at different atmospheric environments in Europe, EUROCORR 2016, 12-15 September, Montpellier, France

Outlook 2016-2017 (1/2)

Exposures for trend analysis:

- ✓ **Report: First results from 2014-2015 exposure (2016)**
- ✓ **Report: Technical Manual of exposure programs (2016).**
- ✓ **Report: Trends in pollution, corrosion and soiling for the period 1987-2015 (2017)**
- ✓ **Start of new exposure (2017)**

UNESCO Call for Data

- ✓ **Overview of contributions & participation (2016)**
- ✓ **Status report (2017)**

Outlook 2016-2017 (2/2)

2017-2018 exposure for trend analysis

- ✓ **The next exposure will start in 2017, and will consist of two sets of samples, exposed for 1 year and 4 years, respectively.**
- ✓ **Exposure will be performed in the network of atmospheric corrosion test sites, currently 26 stations in 18 countries.**
- ✓ **Croatia is a new country and may join the exposure program by providing test sites.**

Call for data

The purpose of the call would be:

- ✓ To disseminate the experience gained during the “Pilot study on inventory and condition of stock of materials at risk at UNESCO cultural heritage sites”;
- ✓ To retrieve information on UNESCO cultural heritage sites for the assessment of the stock of materials;
- ✓ To identify UNESCO sites at risk in individual countries;
- ✓ To assess the damage to selected materials of the identified sites and to evaluate damage cost;
- ✓ To involve new countries in the activities of ICP Materials.

History

- ✓ **The Programme Task Force agreed to launch the Call for Data at its 31st meeting (Kjeller, Norway, 22-24 April 2015);**
- ✓ **A pre-announcement letter was sent to Heads of Delegations to the WGE (18 June 2015);**
- ✓ **A proposal for the Call was approved at the 1st joint session of the Steering Body to the EMEP and the WGE (Geneva, 14-18 September 2015);**
- ✓ **The Call for Data was launched on 22 October 2015.**

Documents provided by the call

- ✓ Call text;
- ✓ Explanatory notes;
- ✓ Template for submission of data;
- ✓ Brochure exemplifying the approach (brochure pilot study UNESCO sites).

Data	Notes
Site information	
Country	
State, province or region	
Name of the site	According to the UNESCO World Heritage List (for example: Historic Centre of Florence, Italy; Acropolis of Athens, Greece, etc.)
Description of the artistic/cultural realization to which the following data relate	Please, specify the individual building/monument to which the following information relates (for example: Cathedral of Santa Maria del Fiore, Florence, Italy; The Parthenon, Athens, Greece, etc.)
Characterization of the cultural heritage (Materials and structural data)	
Total surface of building(s)/monument(s), m ²	
Monument: masonry	
Spandrels	
Render / Mortar / Plaster	
Bricks	Please, report all available/estimated data. The amounts of different materials may be reported as total amount (m ²), percentage (%) or simply as yes/no
Ceramics	
Stone	
Wood	
Painted surfaces	
Glass	
Others	
Additional information (optional)	
Environment, conservation, maintenance, restoration	Please provide information, if available, on the state of conservation, conservation approaches, history of conservation and cost of maintenance/ventilation interventions. Please, provide references to reports and/or websites dealing with the Property and with monitoring and restoration projects. Relevant documents can be sent together with this template when submitting data.

Data	Explanatory notes
Atmospheric parameters	
Year	
Location of measurement station	Please, report all available data. Year: the year to which the data relate (possibly the most recent year); Location of measurement station: geographic latitude and longitude of the measurement station (possibly the monitoring station nearest to the site). Please, indicate the source of the data. All data expressed as annual averages.
SO ₂ , µg/m ³	
NO ₂ , µg/m ³	
O ₃ , µg/m ³	
PM ₁₀ , µg/m ³	
Metereological parameters	
Year	
Location of measurement station	Please, report all available data. Year: the year to which the data relate (possibly the most recent year); Location of measurement station: geographic latitude and longitude of the measurement station (possibly the monitoring station nearest to the site). Please, indicate the source of the data. All data expressed as annual averages.
Temperature, °C	
Relative humidity, %	
Precipitation	
Year	
Location of measurement station	Please, report all available data. Year: the year to which the data relate (possibly the most recent year); Location of measurement station: Geographic latitude and longitude of the measurement station (possibly the monitoring station nearest to the site). Please, indicate the source of the data. All data expressed as annual averages.
Amount of precipitation, mm/year	
pH of precipitation	

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ENEA
Italian National Agency for New Technologies,
Energy and Sustainable Economic Development

Date: 16 October 2015

Subject: Call for Data on "Inventory and condition of stock of materials at UNESCO cultural heritage sites" 2015-2017.

Dear Madam or Sir,

The International Co-operative Programme on Effects on Materials, including Historic and Cultural Monuments (ICP Materials) is pleased to invite you to participate to the Call for Data on "Inventory and condition of stock of materials at UNESCO cultural heritage sites" which has been adopted by the Working Group on Effects (WGE) during the first joint session of the Steering Body to the EMEP and WGE (Geneva, 14-18 September 2015).

The main objective of this Call for Data is to collect available information to be used for the identification of UNESCO cultural heritage sites that are at a potential risk of corrosion or soiling and to provide relevant data on the adverse effects of air pollution on cultural heritage materials. This ICP Materials Call for Data is in line with the requirements of the LRTAP Convention's Long-Term Strategy, and with the work plan for 2014-2015.

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ENEA
Italian National Agency for New Technologies,
Energy and Sustainable Economic Development

International Co-operative Programme on Effects on Materials, including Historic and Cultural Monuments (ICP Materials).

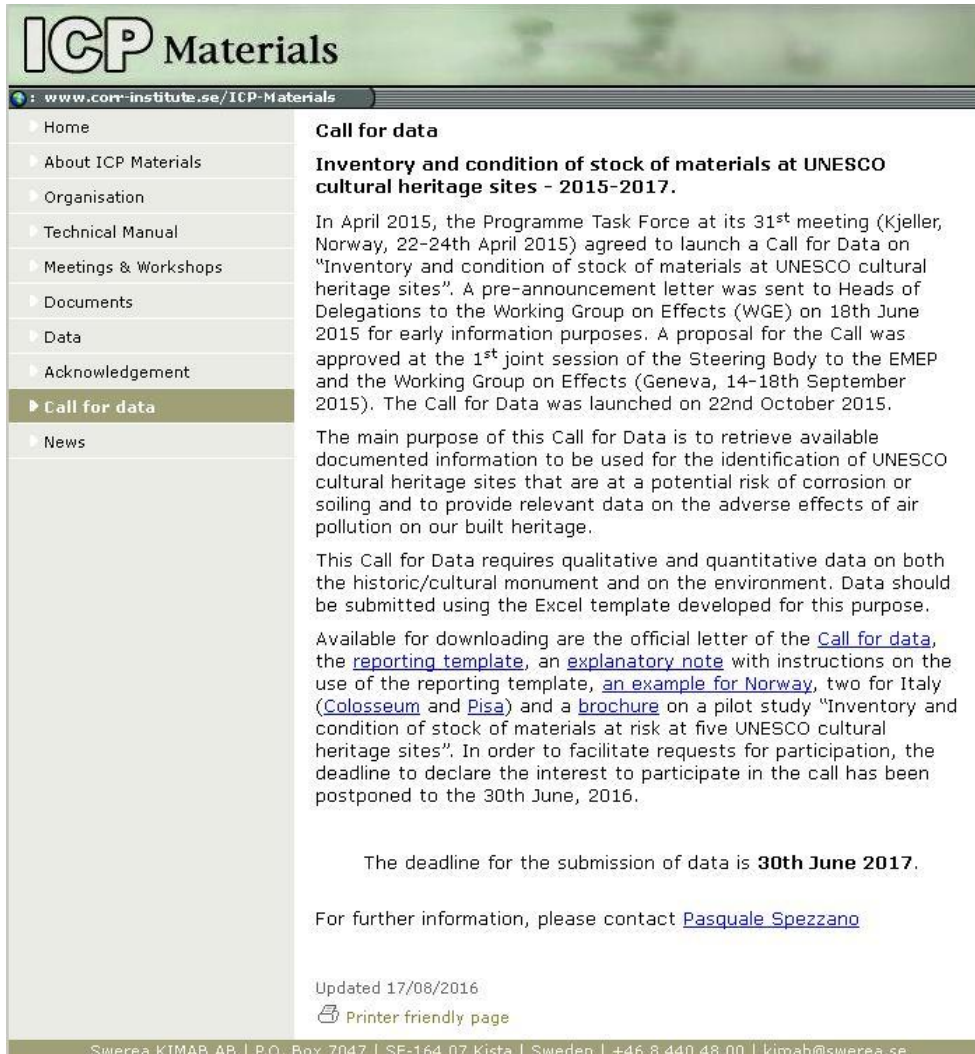
Call for Data on "Inventory and condition of stock of materials at UNESCO cultural heritage sites" – Explanatory notes.

Background

The International Co-operative Programme on Effects on Materials, including Historic and Cultural Monuments (ICP Materials) was launched in 1985 within the scope and the activities of the Convention on Long-range Transboundary Air Pollution. The aim of the Programme is to fill some of the major gaps in scientific knowledge in the area of materials corrosion influenced by atmospheric pollutants by performing a quantitative evaluation of multi-pollutant effects on atmospheric corrosion on both technically important materials and materials used in historic and cultural monuments.

Many of the materials used in the construction of historic and cultural monuments are very sensitive

ICP Materials Web site



The screenshot shows the ICP Materials website. The header includes the ICP Materials logo and the URL www.corr-institute.se/ICP-Materials. A navigation menu on the left lists: Home, About ICP Materials, Organisation, Technical Manual, Meetings & Workshops, Documents, Data, Acknowledgement, Call for data (highlighted), and News. The main content area is titled 'Call for data' and contains the following text:

Inventory and condition of stock of materials at UNESCO cultural heritage sites - 2015-2017.

In April 2015, the Programme Task Force at its 31st meeting (Kjeller, Norway, 22-24th April 2015) agreed to launch a Call for Data on "Inventory and condition of stock of materials at UNESCO cultural heritage sites". A pre-announcement letter was sent to Heads of Delegations to the Working Group on Effects (WGE) on 18th June 2015 for early information purposes. A proposal for the Call was approved at the 1st joint session of the Steering Body to the EMEP and the Working Group on Effects (Geneva, 14-18th September 2015). The Call for Data was launched on 22nd October 2015.

The main purpose of this Call for Data is to retrieve available documented information to be used for the identification of UNESCO cultural heritage sites that are at a potential risk of corrosion or soiling and to provide relevant data on the adverse effects of air pollution on our built heritage.

This Call for Data requires qualitative and quantitative data on both the historic/cultural monument and on the environment. Data should be submitted using the Excel template developed for this purpose.

Available for downloading are the official letter of the [Call for data](#), the [reporting template](#), an [explanatory note](#) with instructions on the use of the reporting template, [an example for Norway](#), two for Italy ([Colosseum](#) and [Pisa](#)) and a [brochure](#) on a pilot study "Inventory and condition of stock of materials at risk at five UNESCO cultural heritage sites". In order to facilitate requests for participation, the deadline to declare the interest to participate in the call has been postponed to the 30th June, 2016.

The deadline for the submission of data is **30th June 2017**.

For further information, please contact [Pasquale Spezzano](#)

Updated 17/08/2016
[Printer friendly page](#)

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A page dedicated to the Call for Data has been added to the ICP Materials website, where all documents and some examples of the reporting template are available for downloading.

Updated time schedule

- ✓ **In order to facilitate participation, the Programme Task Force at its 32nd meeting (Rome, Italy, 11-13rd May 2016) agreed to postpone the deadline for the submission of data to the 30th June 2017.**
- ✓ **It was also agreed that a period of time of three years is acceptable to complete the collection and the analysis of the data.**

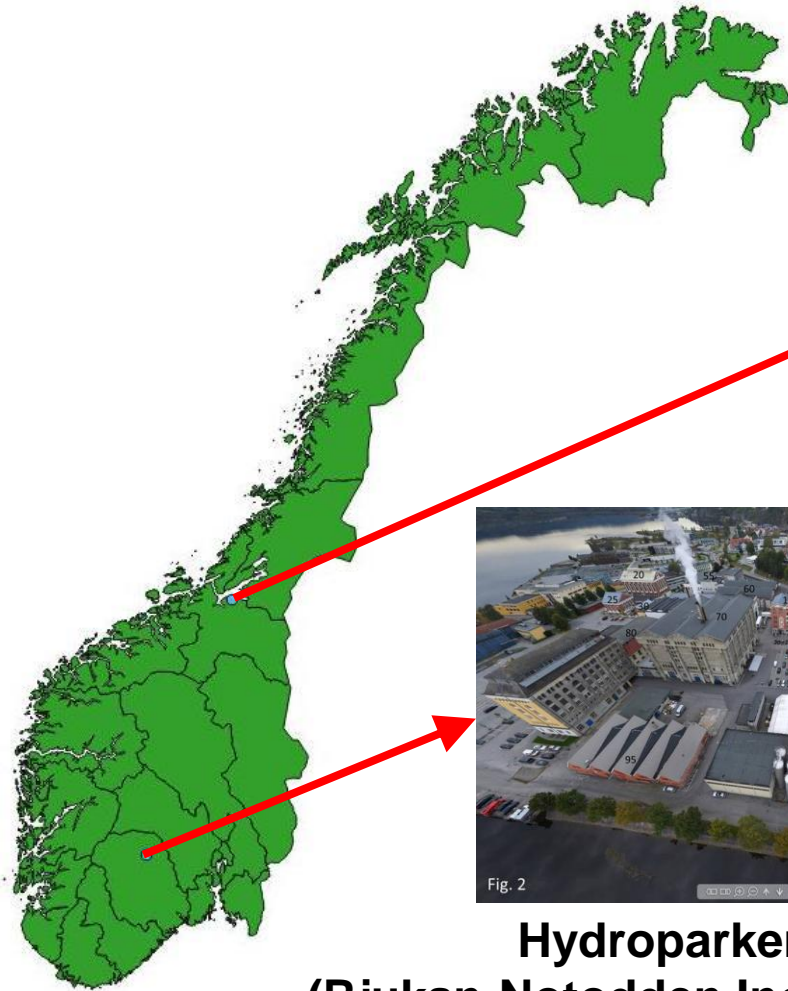
Countries that have declared their intention to participate

To date, the following countries have shown interest in the Call for Data:

- ✓ **Croatia**
- ✓ **Germany**
- ✓ **Italy**
- ✓ **Norway**
- ✓ **Sweden**
- ✓ **Switzerland**

Norway

Data for two sites have already been reported.



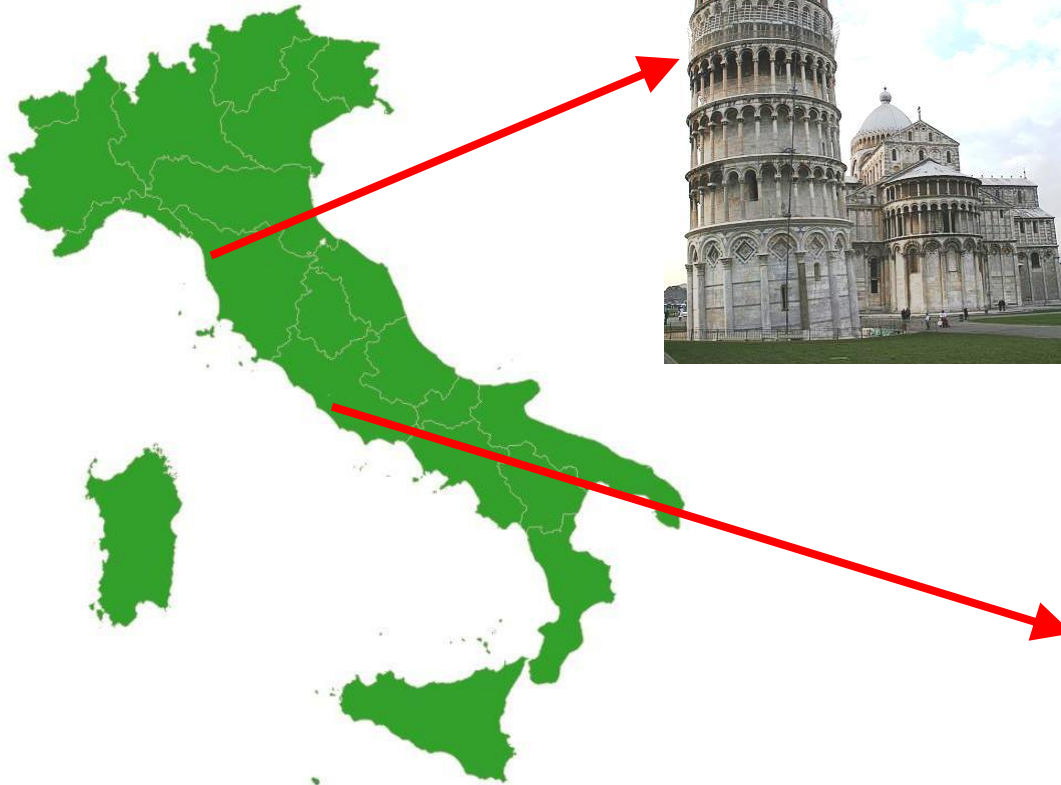
**Nidarosdomen
Nidaros Cathedral
(not UNESCO site
but interesting
in this context)**



**Hydroparken, Notodden
(Rjukan-Notodden Industrial Heritage Site)**

Italy

Data for two sites have already been reported.



**The Tower of Pisa
(Piazza del Duomo, Pisa)**



**The Colosseum
(Historic Centre of Rome)**

Switzerland

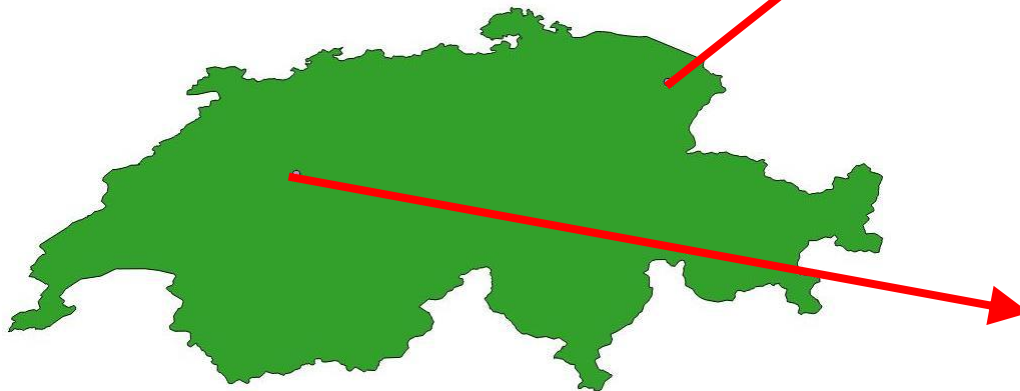
Two sites have been selected.
Data collection is in progress.



Abbey of St. Gall



**Bern Minster
(Old City of Berne)**



Croatia, Germany and Sweden

- ✓ **Croatia: 6 (or 7) heritage sites are viable for the study, including the Historical Complex of Split and the Historic City of Trogir.**
- ✓ **Germany: a preliminary screening of sites will be performed to exclude sites not interesting regarding to air pollution.**
- ✓ **Sweden: a preliminary screening of sites will be performed to exclude sites not interesting regarding to air pollution.**

Welcome to ICP Materials 33rd meeting

May 10-12, 2017

Hämeenlinna, Finland



Thank you for your attention!

Any questions?