Call for Data

"Inventory and condition of stock of materials at UNESCO cultural heritage sites"

2015-2016

Joint Session of the Steering Body to EMEP and the Working Group on Effects
First session
Geneva, 14-18 September 2015
Call for data proposed by ICP Materials

Thirty-first meeting of the ICP Materials Task Force, NILU (Norwegian Institute for Air Research), Kjeller, Norway (22-24 April 2015). 19 participants from 14 countries, the Secretariat of the LRTAP Convention, ICP Waters.

The Task Force of ICP Materials agreed to launch a Call for Data on “Inventory and condition of stock of materials at UNESCO cultural heritage sites”.

A preannouncement letter was sent to Heads of Delegations to the WGE on 18 June 2015 for early information purposes only.
Call for data proposed by ICP Materials

The purpose of the call would be:

✓ To disseminate the experience gained during the “Pilot study on the 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.
Pilot study on the inventory and condition of stock of materials at risk at UNESCO cultural heritage sites

The UNESCO study is presented in four separate reports: I Methodology (Report 68); II Determination of stock of materials at risk for individual monuments (Report 70); III Economic evaluation (Report 73); and IV The relationship between the environment and the artefact (Report 77).
Pilot study on the inventory and condition of stock of materials at risk at UNESCO cultural heritage sites

Limestone corrosion map, first year exposure (μm year$^{-1}$) for the city of Athens

Limestone soiling map (% loss in reflectance after 5 years) for the city of Prague
the estimated recession rate for limestone after one year of exposure for the five cultural heritage sites is well above the background corrosion rate (3.2 µm y⁻¹).

predicted soiling rate of limestone indicate that the “tolerable soiling before action” (35% loss in reflectance) will be reached within 4-7 years after any restoration work. For cultural heritage objects a period of 10-15 years is considered to be appropriate.
Pilot study on the inventory and condition of stock of materials at risk at UNESCO cultural heritage sites

Concluding remarks (2):

✓ material deterioration costs due to air pollution has been estimated in 9.2 - 43.8 € m⁻² y⁻¹, These costs add to the estimated costs in background areas (14 - 28 € m⁻² y⁻¹).

✓ SO₂ is still an important deteriorating agent for limestone but not more the dominant factor. Nitric acid and particulate matter seem to play a prominent role in determining damage of limestone.

✓ The improvement of air quality between 2000 and 2010 has produced a small improvement: limestone recession rate (estimated from environmental data) decreased of about 5-8% and the loss of reflectance after five years decreased of a few percentage points.
Call for data proposed by ICP Materials Template (1)

- Site information
- Characterization of the built cultural heritage
- Concentration of air pollutants
- Climate
- Additional information

As simple as possible without losing the chance to acquire essential information
The spreadsheet named “Property data” is intended to collect information on the historic/cultural monument and should preferably be filled by a person involved in the management of the property.

The spreadsheet named “Environmental data” is intended to collect data on concentration of air pollutants, meteoclimatic parameters and precipitations relevant to the UNESCO site previously identified and should preferably be filled by an experienced person in environmental monitoring.
Call for data proposed by ICP Materials

Possible sources of data related to built heritage, in each country:

✓ National Commissions for UNESCO;
✓ ICOMOS (International Council on Monuments and Sites) National Committees;
✓ Conservation and restoration institutions;
✓ Government institutions, agencies and other relevant authorities;
✓ Local institution, Coordinators, Property Managers.
Call for data proposed by ICP Materials

How data will be used:

- Preliminary screening of UNESCO cultural heritage sites based on simple classification of the environment.
- Identification of the UNESCO cultural heritage sites that are at a potential risk of corrosion or soiling.
- Damage assessment (corrosion, soiling) based on dose-response functions for selected materials.
- Assessment of stock of material at risk for individual cultural objects.
- Assessment of the cost of air pollution damage to selected materials at risk.
Call for data proposed by ICP Materials

- The format of the Template is flexible and can accommodate any type of information.

- General instructions for data submissions are reported in a separate “Explanatory note”.

- More detailed explanations about details needed are directly provided in the Excel spreadsheets.

- In case of a WGE adoption, the Call for Data is planned to be launched in late 2015, with an anticipated deadline for data submission on mid-March 2016.
Welcome to ICP Materials
32nd meeting
May 11-13, 2016
Saint Petersburg, Russian Federation

Thank you for your attention!

Any questions?