

## Partners:

- **Project Coordinator:** Fraunhofer-Gesellschaft zur Förderung der angewandten Forschung e.V. (DE)
- National Trust of England, Wales and Northern Ireland (GB)
- Faculty of Mechanical Engineering, Czech Technical University in Prague (CZ)
- Center for Documentation of Cultural & Natural Heritage (Egypt / EG)
- Institute of Atmospheric Sciences and Climate, Italian National Research Council (IT)
- Consultant for Conservation Risk Assessment, Jonathan Ashley-Smith (GB)
- Faculty of Civil Engineering, University of Zagreb (HR)
- School of Built & Natural Environment, Glasgow Caledonian University (GB)
- Holography Lab and Laser Applications Division, Institute of Electronic Structure and Laser, Foundation for Research and Technology (GR)
- Grantham Research Institute on Climate Change and the Environment, London School of Economics & Political Science (GB)
- Department of Conservation, Technical University Munich (DE)
- Environmental Research Center, Fondazione Salvatore Maugeri (IT)
- Max Planck Institute for Meteorology (DE)
- The National Institute of Cultural Heritage, French Ministry of Culture and Communication (FR)
- Unit Building Physics and Systems, Eindhoven University of Technology (NL)
- Faculty of Civil and Geodetic Engineering, University of Ljubljana (SI)
- Centre for Indoor Environment, Building Physics and Energy, Gradbeni Institute ZRMK (SI)
- Engineering Consulting & Software Development Jan Radon (PL)
- Krah & Grote Measurement Solutions (DE)
- TB Käferhaus GmbH (AT)
- Campus Gotland, Uppsala University (formerly Gotland University) (SE)
- Kybertec Ltd. (CZ)
- Freelance conservator-restorer Andreas Weiß (DE)
- Haftcourt Ltd. (SE)
- Doerner Institut, Bavarian State Painting Collections (DE)
- Restoration Centre, Bavarian Administration of State Palaces, Gardens and Lakes (DE)
- ACCIONA Infrastructure (ES)

### Associated cooperation partners:

- Department of Conservation, Prussian Palaces and Gardens Foundation Berlin-Brandenburg (DE)
- The Evangelical Church (RO)



This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration under grant agreement No 226973.  
Duration: 60 months (01/11/2009- 31/10/2014)  
Website: [www.climateforculture.eu](http://www.climateforculture.eu)



## Climate for Culture

Damage risk assessment, economic impact and mitigation strategies for sustainable preservation of cultural heritage in times of climate change

## Public Event

# EU Project *Climate for Culture* Presentation of Results

9 – 10 July 2014

8.30 – 17.00

Max Joseph Saal, Munich Residenz  
Residenzstraße 1, 80333 Munich

hosted by  Bayerische  
Schlösserverwaltung



© Bayerische Schlösserverwaltung



## Programme

### Wednesday, 9 July 2014

Time	Speaker / Topic
<b>8.30</b>	<b>Conference office opens / registration</b>
<b>9.00</b>	Welcome <i>N.N. Bavarian Administration of State Palaces, Gardens and Lakes (DE)</i> Introduction <i>Klaus Sedlbauer, Fraunhofer Institute for Building Physics (DE)</i>
<b>9.30</b>	Keynote lecture The climate of tomorrow – what do we know and what we don't know <i>Guy Brasseur, German Climate Service Center (DE)</i>
<b>10.15</b>	The "Climate for Culture" project – an overview <i>Johanna Leissner, Constanze Fuhrmann, Ralf Kilian, Uta Pollmer and Urban Kaiser, Fraunhofer-Gesellschaft (DE)</i>
<b>11.00</b>	<b>Coffee</b>
<b>11.30</b>	Dynamical downscaling of anthropogenic climate change simulations for Europe: from global climate model results to data suitable as input for building simulations <i>Daniela Jacob and Lola Kotova, Max-Planck Institute for Meteorology (DE)</i>
<b>11.50</b>	Downscaling the effect of anthropogenic climate change with a regionally coupled atmosphere-ocean-model <i>Uwe Mikolajewicz, Max-Planck Institute for Meteorology (DE)</i>
<b>12.10</b>	Climate change impact on cultural heritage <i>Dario Camuffo and Chiara Bertolin, Institute of Atmospheric Sciences and Climate, Italian National Research Council (IT)</i>
<b>12.45</b>	<b>Lunch</b>

Time	Speaker / Topic
<b>14:00</b>	The „Climate for Culture“ approach: from global climate to works of art <i>Ralf Kilian, Fraunhofer Institute for Building Physics (DE)</i>
<b>14.20</b>	Building simulation as a tool for future projections of indoor climates in historic buildings <i>Florian Antretter, Fraunhofer Institute for Building Physics (DE)</i>
<b>14:50</b>	Risk and damage assessment <i>Jonathan Ashley Smith, Consultant for Conservation Risk Assessment (GB)</i>
<b>15.20</b>	What will be the implications for energy use in historic buildings in Europe in the future? <i>Tor Broström, Campus Gotland, Uppsala University (SE) and Jos van Schijndel, Technical University Eindhoven (NL)</i>
<b>15.45</b>	<b>Coffee</b>
<b>16.15</b>	Assessing the impact of climate change on conservation heating in National Trust historic houses <i>Nigel Blades and Katy Lithgow, National Trust (GB)</i>
<b>16.30</b>	Stakeholder experiences - putting "Climate for Culture" in the context of the National Trust <i>Katy Lithgow, National Trust UK (GB)</i>
<b>16.50</b>	Socio-economic impact of climate change and cultural heritage: How do we value the welfare of future generations? Results from the visitor surveys in England, Sweden, Romania, Germany and Italy <i>Susanna Mourato, Eleni Fimerelli and Chris Gaskell, Grantham Research Institute on Climate Change and the Environment, London School of Economics &amp; Political Science (GB)</i>
<b>17.20</b>	Experience with the visitor surveys in Germany <i>Constanze Fuhrmann and Johanna Leissner, Fraunhofer Brussels</i>
<b>17.35</b>	Discussion and conclusion
<b>18.00</b>	<b>End of the day</b>



## Thursday, 10 July 2014

Time	Speaker / Topic
8.30	Conference office opens / registration
9.00	Welcome
9.15	Learning from history – cultural heritage in times of climate change <i>Andreas Burmester and <u>Melanie Eibl</u>, Doerner Institut (DE)</i>
9.35	Collecting and assessing climate data – the “Climate for Culture” database <i><u>Henk Schellen</u>, Technical University Eindhoven (NL)</i>
9.55	Isopleth ranges of historic materials <i><u>Nicole Krueger</u>, Wolfgang Hofbauer and Ralf Kilian, Fraunhofer Institute for Building Physics (DE)</i>
10.10	Experimental investigation on surface monitoring of materials in environmental conditions <i><u>Vivi Tornari</u>, Eirini Bernikola, Kostas Hatzigiannakis, Michalis Andrianakis and Nota Tsigarida, Institute of Electronic Structure and Laser, Foundation for Research and Technology (GR); Chiara Bertolin and Dario Camuffo, Institute of Atmospheric Sciences and Climate, Italian National Research Council (IT); Johanna Leissner, Fraunhofer Institute for Silicate Research (DE)</i>
10.40	Sorption model for the risk assessment of moisture derived deterioration of wood <i>Pavel Zítek and <u>Tomáš Vyhliďal</u>, Faculty of Mechanical Engineering, Czech Technical University in Prague (CZ); Vivi Tornari and Eirini Bernikola, Institute of Electronic Structure and Laser, Foundation for Research and Technology (GR)</i>
11.00	Coffee
11.30	Mechanical degradation of a historic wooden cabinet: modelling of heat and moisture induced strain based on a reconstruction of the historical indoor climate <i><u>Zara Huijbregts</u>, Henk Schellen and Jos van Schijndel, Technical University Eindhoven (NL)</i>
11.45	The wall heating system (Temperierung) at Brezice Castle in Slovenia <i><u>Mihael Mirtiĉ</u>, Gašper Stegnar and Marjana Šijanec Zavrl, Centre for Indoor Environment, Building Physics and Energy, Building and Civil Engineering Institute ZRMK (SI)</i>
12.00	Dubrovnik cathedral and St. Barbara’s chapel - building simulation, validation and mitigation strategies <i><u>Vlatka Rajĉić</u>, Ana Skender and Domagoj Damjanović, Faculty of Civil Engineering, University of Zagreb (HR)</i>
12.15	Lunch

Time	Speaker / Topic
13.30	Indoor climate control and mitigation strategies: methods and decision-making <i><u>Tomáš Vyhliďal</u> and Jiří Šolc, Faculty of Mechanical Engineering, Czech Technical University in Prague (CZ); Gustaf Leijonhufvud and Tor Broström, Campus Gotland, Uppsala University (SE); Ralf Kilian, Fraunhofer Institute for Building Physics (DE)</i>
14.00	Sustainability in historic buildings is possible: A résumé of our “Climate for Culture” research studies <i><u>Jochen Käferhaus</u>, TB Käferhaus GmbH (AT)</i>
14.20	Application of computational fluid dynamics (CFD) models for risk assessment and mitigation of indoor climates in historical buildings <i><u>Goran Simeunovic</u>, Tomáš Vyhliďal and Pavel Zítek, Faculty of Mechanical Engineering, Czech Technical University in Prague (CZ)</i>
14.35	Generic sacred buildings – generating indoor climate and risk maps using an automated risk assessment method <i><u>Mathias Winkler</u> and Florian Antretter, Fraunhofer Institut for Building Physics (DE)</i>
14.50	Coffee
15.15	Assessment of the hygro-thermal and energy performance of cultural heritage buildings in current and future climate change scenarios <i>Paul Baker and <u>Anastasios Markopoulos</u>, School of Built &amp; Natural Environment, Glasgow Caledonian University (GB); Nigel Blades, National Trust (GB); Florian Antretter, Fraunhofer Institute for Building Physics (DE)</i>
15.30	“Climate for Culture” – the decision-making support system <i>Aleš Sládek and Oto Sládek, Kybertec Ltd. (CZ); <u>Vlatka Rajĉić</u>, Faculty of Civil Engineering, University of Zagreb (HR)</i>
16.00	DigiChart – a software for digitizing analogue data charts from thermo-hygrographs <i>Jan Radon, Engineering Consulting &amp; Software Development Jan Radon (PL)</i>
16.15	Identification of the influence of climatic changes on heritage assets using a 3D optical microscope system <i>Violeta Bokan Bosiljkov, Petra Štukovnik and <u>Roko Źarnić</u>, Faculty of Civil and Geodetic Engineering, University of Ljubljana (SI)</i>
16.35	Discussion and conclusion
18.00	Start of evening event and reception in the Kaisersaal

## Partners:

- **Project Coordinator:** Fraunhofer-Gesellschaft zur Förderung der angewandten Forschung e.V. (DE)
- National Trust of England, Wales and Northern Ireland (GB)
- Faculty of Mechanical Engineering, Czech Technical University in Prague (CZ)
- Center for Documentation of Cultural & Natural Heritage (Egypt / EG)
- Institute of Atmospheric Sciences and Climate, Italian National Research Council (IT)
- Consultant for Conservation Risk Assessment, Jonathan Ashley-Smith (GB)
- Faculty of Civil Engineering, University of Zagreb (HR)
- School of Built & Natural Environment, Glasgow Caledonian University (GB)
- Holography Lab and Laser Applications Division, Institute of Electronic Structure and Laser, Foundation for Research and Technology (GR)
- Grantham Research Institute on Climate Change and the Environment, London School of Economics & Political Science (GB)
- Department of Conservation, Technical University Munich (DE)
- Environmental Research Center, Fondazione Salvatore Maugeri (IT)
- Max Planck Institute for Meteorology (DE)
- The National Institute of Cultural Heritage, French Ministry of Culture and Communication (FR)
- Unit Building Physics and Systems, Eindhoven University of Technology (NL)
- Faculty of Civil and Geodetic Engineering, University of Ljubljana (SI)
- Centre for Indoor Environment, Building Physics and Energy, Gradbeni Institute ZRMK (SI)
- Engineering Consulting & Software Development Jan Radon (PL)
- Krah & Grote Measurement Solutions (DE)
- TB Käferhaus GmbH (AT)
- Campus Gotland, Uppsala University (formerly Gotland University) (SE)
- Kybertec Ltd. (CZ)
- Freelance conservator-restorer Andreas Weiß (DE)
- Haftcourt Ltd. (SE)
- Doerner Institut, Bavarian State Painting Collections (DE)
- Restoration Centre, Bavarian Administration of State Palaces, Gardens and Lakes (DE)
- ACCIONA Infrastructure (ES)

### Associated cooperation partners:

- Department of Conservation, Prussian Palaces and Gardens Foundation Berlin-Brandenburg (DE)
- The Evangelical Church (RO)



This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration under grant agreement No 226973.  
Duration: 60 months (01/11/2009- 31/10/2014)  
Website: [www.climateforculture.eu](http://www.climateforculture.eu)



Climate for Culture

Damage risk assessment, economic impact and mitigation strategies for sustainable preservation of cultural heritage in times of climate change

## Closing Ceremony EU Project *Climate for Culture*

10 July 2014

18.00 – 22.30

Kaisersaal, Munich Residenz

Residenzstraße 1, 80333 Munich

hosted by



Bayerische  
Schlösserverwaltung



© Bayerische Schlösserverwaltung



18.00 – 19.00 **Apéro and light refreshments**

**Musical programme:**

***pizzicato - The Munich String Quartet***  
*Minuets and Music – From Mozart to the 1920s*

21.00 – 22.30 **Reception and buffet**

**Johannes Hintersberger**

*State Secretary, Bavarian State Ministry of Finance, Regional  
Development and Regional Identity*

**Bernd Schreiber**

*President, Bavarian Administration of State Palaces,  
Gardens and Lakes*

**Dr. Angelika Niebler**

*Member of the European Parliament*

**Prof. Dr. Alfred Gossner**

*Executive Vice President for Finance, Controlling and Information  
Systems, Fraunhofer-Gesellschaft*

**Dr. Kurt Vandenberghe**

*Director, European Commission, Directorate General for  
Research and Innovation*

**Keynote: *The Cultural History of Climate***

**Prof. Dr. Wolfgang Behringer**

*University of Saarbrücken*

**Moderation**

**Dr. Johanna Leissner**

*Coordinator, Fraunhofer-Gesellschaft*