

# Climate Wunderkammer

Atlas of Hope  
Conference

29 June  
2023

Palazzo  
Badoer

Università  
IUAV di Venezia

La Biennale di Venezia

18. Mostra  
Internazionale  
di Architettura  
Eventi Collaterali





**Climate Wunderkammer**  
**Collateral Event of the 18th International Architecture Exhibition – La Biennale di Venezia**

**Atlas of Hope Conference**

29 June 2023

Join us in Venice for the Atlas of Hope Conference, focused on sharing research and projects from different regions that take climate action and aim to promote a better future. The conference offers a platform for sharing knowledge between invited academics, practitioners and students from all over the world to collaborate on developing narratives of hope through devising possible actions and solutions.

As part of the Climate Wunderkammer exhibition, the Atlas of Hope Conference aims to provide an opportunity to share experiences, research and built environment solutions from diverse international contexts. The conference will highlight the divergent local impacts caused by the climate change crisis, but also the similarities between these different regions. As conference outcome we plan to draw a new *atlas* of impacts, stories and solutions and set the agenda for future climate change research.

Speakers from different regions are invited to report on in-depth local research regarding the impacts of climate change and possible solutions developed for specific regions.

It is planned as a hybrid event, therefore please join us in person or online.

**Date: 29 June**

**Time: 09:00 – 17:00 (CEST)**

**Climate Wunderkammer Website:** <https://climatewunderkammer.org/atlas-of-hope/>

**Online hybrid Sessions link:** <https://events.teams.microsoft.com/event/f1082822-f0a8-4158-a659-fabd1a18e39b@ddfa59c8-38d0-49a3-822e-1d3bcb5bf85b>

**Event Address: Aula Tafuri, Palazzo Badoer, Calle de la Laca, 2468, 30125 Venezia VE, Italy.**

For more information see [Climate Wunderkammer Website](https://climatewunderkammer.org/atlas-of-hope/)

Contact: Jan Hugo - [atlasofhope@gmail.com](mailto:atlasofhope@gmail.com)

Coordinating team: Chrisna du Plessis (UP): [chrisna.duplessis@up.ac.za](mailto:chrisna.duplessis@up.ac.za)  
 Jan Hugo (UP): [jan.hugo@up.ac.za](mailto:jan.hugo@up.ac.za)

Local organising team: Carlo Federico Dall'Omo (IUAV)  
 Vittore Negretto (IUAV)

Curators: Ceren Sezer (RWTH)  
 Christa Reicher (RWTH)  
 Eugenio Morello (POLIMI)  
 Francesco Musco (IUAV)

# ATLAS OF HOPE

## Programme

### 29 June 2023

1 09:00 – 10:15	<b>Opening &amp; Keynote</b>	<p><b>Welcome: Prof. Chrisna du Plessis</b> (UP) (Chair)  <b>Prof. Francesco Musco</b> (IUAV) &amp; <b>Prof. Benno Albrecht</b> (IUAV)  Key Note Address: <b>Irene Bonvissuto</b> (European Commission)  <b>The Climate Wunderkammer Archive</b>  Prof. Eugenio Morello, Dr Israa Mahmoud (POLIMI) &amp; Prof. Bige Tuncer (SUTD)</p>
2 10:15 – 11:30	<b>Session 1</b>	<p><b>Practice stream:</b>  <b>Findings from regional or local built environment response strategies.</b>  Session Chair: Prof. Christa Reicher (RWTH)  Speakers: <b>Prof. Andy van den Dobbelsteen</b> (TUDelft)  <b>Dr Ir Ceren Sezer</b> (RWTH)  <b>Prof. Marilys Nepomechie</b> (UIA)  <b>Prof. Christa Reicher</b> (RWTH)</p>
11:30 – 11:45	Tea/Coffee Break	
3 11:45 – 13:30	<b>Session 2</b>	<p><b>Science stream:</b>  <b>Regional or local impacts and their solution.</b>  Session Chair: Dr Ir Ceren Sezer (RWTH)  Speakers: <b>Dr Jan Hugo</b> (UP)  <b>Prof. Liane Thuvander &amp; Prof. Monica Billger</b> (Chalmers)  <b>Prof. Bige Tuncer &amp; Cem Ataman</b> (SUTD)  <b>Prof. Eugenio Morello &amp; Dr Israa Mahmoud</b> (POLIMI)  <b>Prof. Francesco Musco &amp; Dr Carlo Federico Dall'Omo</b> (IUAV)  <b>Dr Daniele Santucci</b> (RWTH)</p>
13:30-14:30	Lunch	
4 14:30 - 15:55	<b>Keynote Workshop</b>	<p>Key Note Address: <b>Andrea Gori</b> (Illumiem)  <b>World café workshop</b>  <i>The following will be discussed.</i></p> <ol style="list-style-type: none"> <li><i>Theme 1: What are the shared and differing climate change impacts and/or sectors affected in the different regions? (Moderator Prof. Liane Thuvander)</i></li> <li><i>Theme 2: How are response strategies adjusted to be locally applicable? (Moderator Prof. Eugenio Morello)</i></li> </ol>
15:55-16:15	Tea/Coffee Break	
5 16:15 – 17:00	<b>Closing statements</b>	<p><b>Report Back &amp; Discussion.</b>  <i>Feedback from Rapporteurs</i>  <i>Open discussion towards formulating a framework for locally responsive climate change action</i> (Chair: Prof. Chrisna du Plessis).  <b>Closing Statements:</b> Dr Jan Hugo (UP) (co-chair)  <b>Post-conference discussion (CW team)</b></p>
17:00-18:00		

## Keynote speakers

### Irene Bonvissuto

#### European Commission

*Team leader Mission on Adaptation to Climate Change*



*Irene Bonvissuto works in the adaptation and resilience to climate change unit in DG Climate Action in the European Commission and is specifically involved in the implementation of the related EU Mission. An environmental engineer as background, Irene has worked before on emissions reduction thematic, being closely involved with the development of renewable energy sources in Europe and their safe and effective integration in the electricity networks. She is as such a strong believer of adaptation and mitigation being two sides of the same coin: the climate change imperative.*

### Andrea Gori

#### illuminem Founder & CEO



*Andrea is an entrepreneur & global expert in sustainability, green tech and energy transition. He is the founder and Chief Earth Officer (CEO) of illuminem.com, the leading source of sustainability information and one of AngelList's 'Top Digital Media Startups'. Previous to illuminem he served as the Boston Consulting Group's (BCG) Global Green Champion, where he delivered projects covering sustainable investments, transformation and innovation for multinationals & governments. Andrea was a speaker in panels/events hosted by the United Nations Conference of the Parties (COP), Davos, TedX, and several universities around the world. He is also a published author in the Journal of Financial Engineering, and he is awarded by Startup Italia as one of the 'Italy's Leading Innovators' of 2023.*

# Conference proceedings

## Opening Address

**Title: The Climate Wunderkammer Archive**

**Speaker** Prof. Eugenio Morello (POLIMI), Dr Israa Mahmoud (POLIMI & Prof. Bige Tuncer (SUTD)

The Climate Wunderkammer anticipates what it means to live this unique experience in everyday life, learning from places already undergoing comparable transformations due to climate change. The Collective Archive accumulates and shares the narratives, emotions, experiences, and solutions arising from the tangible impacts of climate change experienced worldwide. Young generations have limited memories of the past; however, they apprehend how rapidly transformations are happening, and can help make the 'invisible visible' by comparing before and after the climate risky event has hit our regions, communities, and places.

We illustrate the construction of the taxonomy of the collective archive, organized around the classification of projects based on the climate hazard(s), the location, and the sustainable development goals addressed by each project. We report the first considerations and analysis of the first set of projects collected worldwide. The aim is to enrich and consolidate the archive over time and develop a database of searchable and inspirational projects for students and professionals in planning and architecture, who might learn about narratives and solutions to climate challenges that have no borders.

## Session 1

**Title: The University Campus as Hope for a Sustainable Future**

**Speaker** Prof. Andy van den Dobbelsteen (TUDelft)

Universities can be the frontrunners and exemplars of climate action and sustainable development. Perhaps they should be, as places where science, knowledge and experiments can pave the way for other organisations and cities, being small cities themselves or integrated parts of their host city.

As one of the first of a growing number of universities, TU Delft has decided to take serious climate action on and from its campus. This entails the complete scanning and possible adjustment of education, in order to deliver the engineers, designers and planners the world needs. A second focus is on sustainable innovation in research and testing this or in the direct vicinity: the campus needs to become one large living lab. A third focus regards sustainable operations of everything done on and from the campus, from energy use and mobility to procurement and food. The fourth and not least focus is on engagement of the entire campus community in the sustainable transition of the university, within the context of the city of Delft and metropolitan region of Rotterdam – The Hague.

TU Delft has set five sustainability goals, which need to be met by the year 2030. This is essential, because waiting until Paris Agreement year 2050 would be too late for wide transition, and it would take away the opportunity to test new concepts and technology before they can be applied in cities and other organisations. University campuses are catered for experiment and improvement of novel solutions and they can take this societal goal even more seriously than before, becoming beacons of hope for a sustainable future. Andy van den Dobbelsteen will present and discuss the vision, ambition and action plan of his university, as well as the struggles that go along the process of getting it implemented

**Title: Re-imagining open public spaces for climate resilience and action at university campuses**

**Speaker** Dr ir Ceren Sezer (RWTH)

This research offers a conceptual and analytical framework to inform and test spatial design strategies and processes to contribute climate resilience and action aligning with the decarbonization at university campuses. It focuses on two integrated perspectives for decarbonization in open public spaces. Active mobility, which is about physical retrofitting of the built environment to promote walking and cycling, integrated with public transport. Second, energy efficiency refers to optimal reduction of energy consumption in existing urban structures through changing user habits and developing efficient urban typology and physical design. The framework consists of four interconnected pillars: physical, social, governance and technology, measured through quantitative and qualitative indicators. The long-term vision of the research is to adopt a spatial strategy for decarbonization of university campuses to promote inclusive, resilient and liveable campuses.

**Title: A Curriculum for Resilience**

**Speaker** Prof. Marilys Nepomechie (UIA)

The speaker will present two initiatives that foreground sustainability and resilience as core tenets in architecture education.

New updates to the UNESCO-UIA Charter for Architecture Education that focus on training a future generation of architects to design the built environment in a manner that mitigates against environmental degradation, while addressing equity, access, public health, and public space. The UNESCO-UIA Charter is the guiding document of the international UNESCO-UIA Validation System for Architecture Education. It is also the basis of the Canberra Accord for Architecture Education, an international agreement among accreditation/validation systems from around the world. Supporting academic credential portability, the Accord includes the national validation systems of the following world nations (listed alphabetical order) and affects the professional education of tens of thousands of future architects: Canada, China, Commonwealth Association of Architects, Hong Kong, Chinese Taipei, Japan, Korea, Mexico, South Africa, and the United States.

An international Award for Innovation in Architecture Education focusing on advances in pedagogy. In this cycle, as part of a collaboration with the UIA Sustainable Development Goals Commission, the award has focused on academic program instruction that foregrounds the advancement of sustainability and resilience in the built environment. To honor regional differences worldwide, winners were identified from each of the 5 UIA regions. They represent best practices in academic programs around the globe.

**Title: The Rhenish coal-mining area – a spatial strategy process for a region in fundamental structural change**

**Speaker** Prof. Christa Reicher (RWTH)

With the political decision to phase out lignite mining at an early stage by 2038 at the latest, the transformation region of western Germany, the Rhenish mining area in the triangle of cities between Aachen, Mönchengladbach, Düsseldorf and Cologne, is facing enormous social, economic and design challenges. The "largest landscape construction site in Europe" is to become - according to the claim and the objective - the first climate-neutral model region in Europe.

A total of 2.4 million people live in the Rhenish mining region and are affected to varying degrees by structural change. But what strategies and concepts can be used to successfully transform a region that has been shaped by mining, industry and resettlement since the 19th century? What does a process design look like that brings together the experiences and expectations of local people with expert knowledge and generates thrust for the transformation process?

The "Integrated Spatial Strategy 2038+", which was launched in an intensive regional discourse, takes up the development potentials and talents of the region and derives spatial future paths from them. The spatial strategy is thus a central building block for mastering this "structural change task of the century".

## Session 2

**Title: Coordinating climate change action in South African informal settlements**

**Speaker** Dr Jan Hugo (UP)

The perpetual growth of informal settlements in the Southern African region presents to many migrants the only means to participate in local urban economies. While the growth and efficiencies of informal settlements are noteworthy, these settlements also contribute to the vulnerability of our cities due to their limited infrastructure investment, location in highly exposed climate change hazards areas, and chronic resource constraints. This presentation will share some findings from a collection of projects currently undertaken in Melusi, an informal settlement in Tshwane, South Africa, highlighting ongoing work documenting climate change impacts and the need to coordinate response measures. While discussing the overall project we will also focus on one aspect of the project: heat stress exposure on a dwelling level as an example of a climate change action measure. While we find that individual response measures to adapt these informal dwellings significantly lowers heat stress exposure under current conditions, their efficacy is limited in the future. As a result, we advocate integrated response measures that leverage individual bottom-up action with collective communal strategies to effectively enable climate change action.

**Title: Climate visualizations for stakeholder dialogue**

**Speaker** Prof. Liane Thuvander & Prof. Monica Billger (Chalmers)

Urban planning, design, and management deal with complex problems - creating liveable, inclusive and environmentally adapted cities – which requires collective knowledge. Cities often have ambitious climate goals and to reach them, a variety of stakeholders such as planners, property owners, or energy companies need to take actions. Hereby, it is necessary to communicate and collaborate with each other. Digital Twins, increasingly developed for whole cities, can simulate and visualize the pulse of the city and have a large potential to help to make better-informed decisions and to improve stakeholder communication, not at least through climate impact visualization. Ongoing research will be presented with a specific focus on communication and dialogue abilities of visualization to support planning, design, construction, management of the built environment, and not at least to reach out to the public and civil society. The presented examples cover visualization of goal conflicts, energy and climate scenarios for buildings stocks, narratives based on different kinds of dilemmas connecting climate adaptation/mitigation measure and social aspects. The visualization implementations range from digital viewer on the web for experts to an exhibition at a Science center in Gothenburg, Sweden, using the digital twin concept as a meeting place for the city's various stakeholder groups.

**Title: Data-Driven Design for Climate Action**

**Speaker** Prof. Bige Tuncer & Cem Ataman (SUTD)

Data-driven design holds immense potential in the development of effective climate action, particularly when approached through human-centered methodologies. By harnessing a diverse range of big and small data from various sources, scales, and timeframes, both quantitative and qualitative, we can cultivate a comprehensive understanding of climate challenges and facilitate the creation of localized and context-specific solutions. One prominent area of focus is the application of passive design solutions to mitigate the urban heat island effect and enhance outdoor comfort in green urban spaces, utilizing multi-source data collected from urban greenery parks in tropical climates. The aim is to identify strategies that improve the thermal comfort of urban environments by leveraging insights derived from the data. Another critical aspect revolves around the involvement of stakeholders in driving climate actions. Through citizen engagement in decision-making processes, inclusive dialogue, and collaborative platforms, we can foster the development and implementation of climate initiatives in a democratic and equitable manner. Furthermore, citizen participation amplifies the reach and scale of these actions, mobilizing diverse communities, grassroots organizations, and citizen-led initiatives. To ensure long-term sustainability, it is crucial to consider data from built and green environments, as well as the experiences of urban residents. This approach promotes human-centered design principles, fosters the adoption of innovative environmentally friendly practices, and advocates for systemic localized adaptation strategies by analyzing multi-source data to build a more resilient and sustainable future.



**Title: Regional or local impacts and their solution**

**Speaker** Prof. Eugenio Morello & Dr Israa Mahmoud (POLIMI)

Recently, climate change events have been hitting the European continent with more frequency and intensity, confirming the prediction scenarios elaborated by IPCC (2018). Nonetheless, the current trends of planning for contrasting these effects are still weakened by the fable involvement of stakeholders within the implementation phases of climate actions. Moreover, within the urban planning and policy debate, scientific research still lacks evidence on how co-creation and collaborative governance approaches could improve the impact on climate action and consequent policies.

We report on the context of Milan and Northern Italy and the climatic events to which this region is most subject. The North Italian context is, in fact, particularly vulnerable to extreme events relating mainly to (i) a variation in the rainfall regime (long periods of droughts alternate with intense and prolonged rainfall) and (ii) extreme temperatures, which cause the occurrence of heat waves and heat islands, which are becoming more frequent in all the periods of the year, intense and prolonged.

In our work and research experiences within the local context and authorities, we had the opportunity to test different approaches and solutions to tackle climate action. Relevant considerations to boost climate action in the planning practice include: (i) climate governance models and tools to enhance sharing of knowledge and collaboration among local stakeholders towards a pro-active empowerment of society; (ii) adopting climate design and planning principles and values so that climate itself becomes a feature for generating design and managing cities; (iii) rethinking the role of nature in planning and design practices to become priority, shifting its meaning from nature as a simple solution to address our challenges, to nature as a stakeholder and target of the planning action.

References:

IPCC. (2018). *Summary for Urban Policy makers: What the IPCC Special Report on Global Warming of 1.5°C for means for Cities* (Issue December). <http://doi.org/10.24943/SCPM.2018%3E>

**Title: Adaptation Experiences from the North Adriatic Region**

**Speaker** Prof. Francesco Musco & Dr Carlo Federico Dall'Omo (IUAV)

This abstract emphasizes the need for cohesive strategies and efficient resource utilization to address climate change challenges and enable territorial adaptation in the North Adriatic Region. It highlights ongoing processes aimed at streamlining adaptation efforts. The research and design work by the Planning Climate Change Lab at the Università Iuav di Venezia underpins this presentation. The contribution provides an overview of ongoing initiatives, demonstrating how process rationalization and project convergence can enhance adaptation. Insights and lessons from this case study serve as a valuable resource for regions facing similar climate challenges. By examining the North Adriatic Region, this presentation elucidates key factors for effective adaptation, including synchronized strategies, resource optimization, and coordinated project management. Lessons and best practices from this study can guide other regions in enhancing climate resilience. In conclusion, this abstract emphasizes the need for cohesive strategies and efficient resource utilization in addressing climate change and enabling adaptation in the North Adriatic Region. It highlights the significance of evidence-based research, collaborative design, and informed decision-making as pillars for comprehensive and adaptive climate change mitigation and resilience approaches.

**Title: Hyperlocal Dynamic Sensing for Heat Stress Mitigation**

**Speaker** Dr Daniele Santucci (RWTH)

Urban citizens are highly exposed to extreme microclimatic conditions. In fact, extreme heat is the first cause of summertime mortality and has specific impacts on communities with pre-existing health conditions and the elderly. Due to the intrinsically artificial nature of urban climate and the consequent archipelago of microclimates that are generated by the built environment, preventing heat stress at the human scale becomes crucial to reducing fatalities and achieving public health.

Since microclimatic manipulation is hardly implementable on a vast urban scale, the mapping of urban systems becomes a fundamental component to generate knowledge and information. The data, which needs to be accessible and consistent, creates evidence and a common base to define and prioritize interventions, detecting the most exposed places.

To approach this need while generating impact for people, we developed sensing methods with a portable georeferenced device and implement it through a participatory process that puts the human dimension at its core. Due to its cumulative and dynamic nature, the *Climatewalk* method generates a spatiotemporal recording of microclimates that depicts variations and thermal intensities as humans perceive them, including the subjective physiological and psychological components. This method is a transferrable living lab, an in-vivo experiment that reflects people's everyday physical experiences. The resulting mapping represents microclimatic conditions on the walked trajectories detecting variations with a high spatiotemporal resolution generating microclimatic knowledge, that becomes the base to reconsider climate as a common, variable, immaterial spatial infrastructure.