



Climates Extremes: Causes and Consequences

Provisional Programme

19 & 20 February

Maison de la Poste, Brussels



Monday 19 February

08:30 • **Registration** with welcoming coffee and pastries

09:30 • **Conference Opening**

Ella Jamsin, Operational Director of the Belgian Climate Centre

Valérie Trouet, Scientific Director of the Belgian Climate Centre

09:40 • **Opening Plenary**

Clair Barnes, Research Associate World Weather Attribution, Imperial College London

Thomas Dermine, State Secretary for Economic Recovery and Strategic Investments, in charge of Science Policy

Bas Smets, Landscape Architect, Professor in Practice at the GSD of Oxford University

11:00 • **Parallel Sessions 1**

Compound events and tipping points

SCIENTIFIC SESSION - CHAIR: WIM THIERY (VUB)

Compound events and tipping points in our climate system can lead to severe societal impacts and may accelerate global warming. The session will explore this topic through examples from past abrupt climate and biodiversity changes linked to massive fine dust emissions and tipping points for ocean circulations and ice sheets.

- **Cem Berk Senel** (ROB/VUB)
Chicxulub impact event: Consequences for the climate and biosphere at the end Cretaceous
- **Martinez Montero Marina** (UCL)
Are early warning signals of tipping points useful for climate mitigation policy?
- **Violaine Coulon** (ULB)
Ice sheet tipping points and their impact on sea level
- **Francesco Ragone** (RMI/UCL)
Tipping points of the Atlantic Meridional Overturning Circulation in models and data

Warning systems and risk communication: lessons learned from 2021 floods

FR PANEL DISCUSSION – CHAIR: CATHERINE FALLON (ULIÈGE)

What has been done since the 2021 floods to improve warning systems and risk communication in the event of extreme weather in Belgium? Actors from different government levels and agencies will discuss their roles, lessons learned from that event, and measures implemented to move forward.

Panelists: Valérie Dejardin (Mayor of Limbourg), David Denehau (RMI), Colonel Nicolas Tuts (Protection civile, Crisnée), Antoine Iseux (National Crisis Center)

Nature-based solutions for climate extremes

SCIENTIFIC SESSION – CHAIR: WANNES HUBAU (KMMA)

Nature-based solutions are a crucial part of climate adaptation and mitigation plans and can significantly reduce the impact of climate extremes. The session will highlight Belgian scientific expertise on how nature-based solutions contribute to managing ecosystems and human systems in a warmer world.

- **Wannes Hubau** (KMMA)
Climate extremes and nature-based solutions in the Congo basin
- **Jean-Francois Bastin** (ULiège)
Potential alternative landcovers on Earth – towards an inclusive vision of ecosystem restoration
- **Inne Vanderkelen** (RMI/KULeuven)
Hydrological co-benefits of soil carbon sequestration
- **Patrick Meire** (UAntwerpen)
How the Sigmaphan protects the Schelde valley from extreme storm events: the crucial role of nature-based solutions

12:15 • **Art Performance**

12:45 • **Lunch**

14:00 • **Parallel Sessions 2**

Resilience of transport infrastructure to climate extremes

SCIENTIFIC & EXPERTS PRESENTATIONS – CHAIR: CATHY MACHARIS (VUB)

Extreme weather events damage transport infrastructure and render daily operations difficult, with cascading effects on the economy and society. New constraints from changing climatic conditions require adequate strategies to ensure resilience. The session will explore current knowledge and solutions, as well as the preparedness of public and private transport organisations.

- **Cathy Macharis** (VUB)
Transport and Climate: inconvenient interlinkages
- **Cristina Deidda** (VUB)
Exposure of the European Transport Network to climate extremes
- **Alessandro Gardelli** (University of Bari)
Assessing transport network resilience: empirical insights from real-world data studies
- **Hinko van Geelen** (CRR)
Resilience of road infrastructure
- **Bart Kamoen** (Infrabel)
Preventing damage to Belgian rail from flooding and excessive rainfall
- **Jan Vanhoutte** (NMBS)
Resilience of train operation to climate extremes
- **Pieter Vandermeeren** (Port of Antwerp)
Preparing the Port of Antwerp-Bruges to a changing climate

Systems thinking for climate risks

PANEL DISCUSSION – CO-ORGANISED BY THE SHIFT

Tackling the climate crisis requires a holistic and collaborative approach that goes beyond traditional governance models. The session will explore how applying systems thinking to climate change can improve our understanding of interactions and feedback loops and help design integrated solutions.

Panelists: Sybille van den Hove (Bridging for Sustainability), Pauline Modrie (CHU UCL Namur), Leen Vanhamme (Fluxys), Niels Souverijn (VITO), Adrienne Nizet (The Shift)

Biodiversity and agriculture: resilience to climate extremes

SCIENTIFIC SESSION – CHAIR: NADIA SOUDZILOVSKAIA (UHASSELT)

Extreme weather events affect biodiversity and agriculture in different ways, disrupting biological processes and destabilising ecosystems. The session will present their impacts on biodiversity and agriculture and discuss monitoring of and adaptation to climate extremes for a variety of ecosystems.

- **Nadia Soudzilovskaia** (UHasselt)
Experimental work to quantify planetary boundaries to climate change
- **Isabel Roldan-Ruiz** (ILVO)
Climate-smart solutions for and from Flemish agriculture
- **Kristof Van Tricht** (VITO)
A remote sensing perspective on climate resilience in agriculture
- **Thierry Hance** (UCL)
Ectotherms and climatic change: adaptations and risks of extreme temperatures
- **Jan Vanaverbeke** (RBINS)
Climate change interacts with the effect of human activities at sea

15:00

● Coffee break

15:30

● Parallel Sessions 3

Resilience of energy infrastructure to climate extremes

SCIENTIFIC & EXPERTS PRESENTATIONS – CO-ORGANISED WITH ENERGYVILLE

Energy infrastructure must be able to withstand extreme weather events to ensure the provision of basic services and the continuity of economic activities. The session will address the resilience of our energy infrastructure through various topics: the impacts of high winds and high temperatures on electricity production and transport, overloads, “Dunkelflaute”, and interdependencies.

- **Ronnie Belmans** (Energyville)
Energy supply: society needs a resilient blood stream
- **Kristof Witvrouwen** (Engie)
Operating large-scale electricity production facilities in a changing climate: challenges and ensuring resilience
- **Pieter Smet** (Elia)
Climate risk management at Elia: preventive actions and emergency response measures
- **Jean-Pierre Hollevoet** (Fluvius)
Operational challenges due to extreme weather conditions
- **Bérénice Crabs** (Belgian Offshore Platform)
Impact of climate extremes on offshore electricity production
- **Leen Vanhamme** (Fluxys)
The importance of an integrated energy vision – how to keep the lights on
- **Bram Verckens** (FOD Economy – DG Energy)
Critical Entities Resilience Directive: identifying and reinforcing weak links

Exposure to climate extremes: dealing with inequities

EN/FR PANEL DISCUSSION – CHAIR: PASCALE VIELLE (UCLouvain)

Populations with low economic and social capital are more likely to be exposed to climate extremes and to experience severe impacts. Several questions related to environmental justice need to be addressed: who are the most vulnerable populations? What are their basic needs? How can they be involved in identifying solutions that are most useful to them?

Panelists: Simon De Muyck (ULB), Françoise Bartiaux (UCL), Charlotte Scheerens (UGent), Laurent d'Ursel (Syndicat des Immenses)

Navigating the climate research funding landscape: finding creative opportunities

PANEL DISCUSSION – CHAIRS: FRANK MONTENY (BELSPO)

Moving towards a climate-neutral and resilient society requires robust scientific knowledge over a wide range of disciplines, in order to support decision-making and foster innovative solutions. The session will present research funding instruments, from the public and private sectors, at Belgian and European levels, and showcase experiences from Belgian researchers.

- **Maike Vancauwenberghe** (Belspo)
BELSPO programme opportunities for climate research in Belgium
- **Marie-Carmen Bex** (Innoviris)
Climate-related research, from theory to practice: the experience of the Brussels-Capital Region
- **Philippe Tulkens** (EU Commission – DG Research and Innovation)
Funding opportunities for Belgian researchers at European level: climate science and the EU Mission on Adaptation
- **Anneke Ernon** (Fondation Roi Baudouin)
Actionable climate research for engaging audiences
- **Belgian stories of transdisciplinary climate-related funding**

16:30 • **Poster Presentation (Part 1)**

17:30 • **Drinks and Networking**

Tuesday 20 February

09:00 • **Registration** with welcome coffee and pastries

10:00 • **Plenary**

Valérie Masson-Delmotte, Paleoclimatologist, Director of Research (Université Paris Saclay)
Jan Rotmans, Captain of Transition, Professor (Erasmus University Rotterdam)

11:00 • **Coffee break**

11:30 • **Parallel Sessions 1**

Physical and mental health impacts of climate extremes

SCIENTIFIC SESSION – CHAIR: ANN DESMET (ULB)

Climate extremes impact human health in numerous ways, increasing the risk of deaths and infectious diseases and undermining health systems. The session will present different perspectives

on the current state of scientific knowledge on how climate change and extremes impact both physical and mental health.

- **Ann Desmet** (ULB)
Feeding two birds with one seed: jointly addressing individual and environmental health via co-beneficial behaviours
- **Alexandre Heeren** (UCL)
Climate change and mental health: What do we know? Where do we go?
- **Natalia Bustos and Raf Aerts** (Sciensano)
Extreme temperatures and mortality in Belgium: surveillance and risk factors
- **Tine Huyse** (MRAC)
Could snail-borne diseases increase under climate change?

Climate risk assessments: bringing together different perspectives

PANEL DISCUSSION – CO-ORGANISED BY CERAC

Climate risk assessments are important tools to inform adaptation strategies. The Climate and Environment Risk Assessment Center (CERAC) is tasked with preparing the first Belgian climate risk assessment. Through discussions with various speakers, they will explore best practices and user needs when it comes to climate risk assessments.

Panelists: Luc Bas (CERAC), Miriam Kennedy (UK Climate Change Committee), Griet Verstraeten (Flemish Department of Environment), Wim Van Lancker (KULeuven)

Sea level extremes and marine heatwaves

SCIENTIFIC SESSION – CHAIR: STEF LHERMITTE (KULEUVEN)

The session will address the latest findings on extreme sea level changes and marine heatwaves across different spatial and temporal scales, from the global mean IPCC results to regional scales for Antarctica and the North Sea. Results from the North Sea project 'Coastal Vision' developed by the Government of Flanders will also be presented.

- **Aimée Slangen** (NIOZ)
IPCC sea level findings
- **Stef Lhermitte** (KULeuven)
What happens in Antarctica, does not stay in Antarctica
- **Aida Alvera-Azcárate** (ULiège)
Marine heatwaves in the North Sea: causes and consequences, a focus on the events of 2022
- **Edward van Keer** (Flemish Administration of mobility and public works)
Coastal Vision, more than coastal protection

12:30 • Lunch

14:00 • **Parallel Sessions 2**

Impacts of climate extremes on the carbon cycle

SCIENTIFIC SESSION – CHAIR: MAHESH SHA (BISA)

Through their impacts on ecosystems, climate extremes, such as droughts and heat waves, may alter the carbon cycle and its interactions with the climate system. The session will highlight Belgian scientific expertise on the disturbances caused by climate extremes to the global carbon cycle, both in Belgium and globally.

- **Mahesh Sha** (BISA)
Measurement techniques for quantifying CO₂ in the atmospheric and their role in understanding extreme events

- **Bernard Heinesch** (ULiège)
Responses of terrestrial ecosystem CO2 fluxes to droughts and heat waves: insights from the ICOS network
- **Marilyn Roland** (UAntwerpen)
Coping with climate extremes: understanding the response of forests and heathlands in Flanders
- **Griet Neukermans** (UGent)
The ocean's biological carbon pump: potential sensitivities to climate change

Insuring climate risks: towards public-private partnerships

PANEL DISCUSSION – CO-ORGANISED BY ASSURALIA

Climate extremes pose serious challenges for the insurance sector and the people and companies in need of insurance. What are the options for climate risk transfer in Belgium? The session will provide key information on the situation in Belgium, then focus on the specific risk of drought and its implications for (re)insurance.

Panelists: Hein Lannoy (Assuralia), Barbara Van Speybroeck (Assuralia), Gust Van Lysebetten (Buildwise – WTCB), Philippe Courouble (Axa Belgium), Patrick Schepens (Guy Carpenter)

How to create (media) impact with your research

WITH TOON VERLINDEN (THE FLOOR IS YOURS)

Sharing a research project with the public can be challenging. Media outreach offers a great opportunity to create a broader impact by reaching out a larger audience. The session proposes a speed course on how to present research results in an appealing and accessible way to raise awareness about climate change.

15:00 ● Coffee break

15:30 ● Parallel Sessions 3

Attribution of climate extremes

SCIENTIFIC SESSION – CHAIR: FRANSCESCO RAGONE (RMI/UCL)

Attribution science seeks to determine the role of climate change in the likelihood or intensity of extreme weather events. The session will give an overview of the World Weather Attribution methodology and of the latest findings on attribution of heatwaves, intense precipitations and sea ice cover.

- **Lesley De Cruz** (RMI/VUB)
Attribution study of the July 2021 floods
- **Wim Thiery** (VUB)
When attribution meets demography
- **François Massonnet** (UCL)
Recent and future Arctic and Antarctic sea ice extremes: causes and consequences

Q&A with the Belgian Climate Centre

PANEL DISCUSSION WITH THE TEAM OF THE BELGIAN CLIMATE CENTRE

The Belgian Climate Centre was established one year and half ago and is now organising the 1st Belgian Science for Climate Action Conference. The Centre is also developing projects aimed at connecting scientists and decision-makers, providing relevant climate services and improving knowledge transfer. Come and meet the team and discover their upcoming activities.

Cities and climate extremes

SCIENTIFIC SESSION – CHAIR: RAFIQ HAMDİ (RMI)

Cities are both vulnerable to climate extremes and major sources of emissions. From the latest IPCC findings to best practices in urban mitigation and adaptation, the session will explore the different challenges cities face in a warmer world and will provide insights on how to make cities climate resilient.

- **Rafiq Hamdi** (RMI)
What the latest physical science of climate change means for cities and urban areas
- **Sara Top** (UGent)
From sensor to future urban climate
- **Sesil Koutra** (UMons)
Energy transition in urban areas
- **Jens Aerts** (SWECO)
Modelling extremes, designing resilience

16:30 ● **Poster Presentation (Part 2)**

17:30 ● **Closing Session**

More information on our website: <https://scienceforclimateaction.be>.