

# Climate Change in an Era of Uncertainty

5<sup>th</sup>-7<sup>th</sup> of July 2017  
Palacio Miramar – San Sebastian



## THE SCHOOL

The BC3/UPV-EHU Summer School is a multidisciplinary three-day course that provides the latest climate science knowledge and insights from some of the **best climate experts** from **leading universities and research centers in Europe**. The 2017 edition of the Summer School, titled **"Climate Change in an Era of Uncertainty"**, will deal with some of the critical issues and debates that currently predominate in the climate policy arena. The course is structured in three parts: the first devoted to climate science, the second focusing on impacts and adaptation, and the third centered on mitigation and climate policy.

The 2017 edition of the BC3/UPV-EHU Summer School will comprise **11 lectures, 2 round tables, 1 panel discussion and 1 role-playing game session** involving researchers from a **wide range of disciplines** (Biology, Economics, Engineering, Geography, Geology, Law, Meteorology, Oceanography, Physics and Paleontology). The School is not designed as a set of unconnected pieces, but rather it allows its participants to **put all the pieces together to build a coherent "story"** that we will try to describe in what follows.

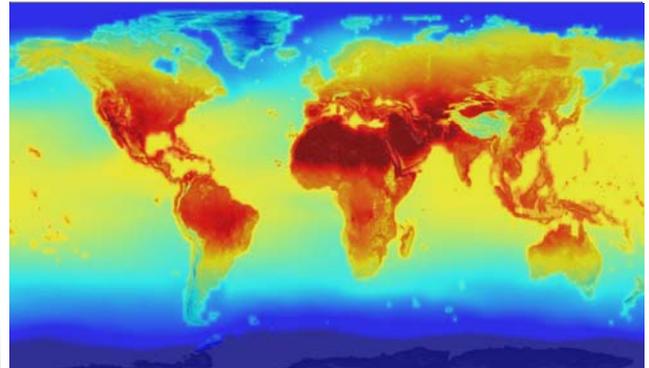
## THE START OF A HUMAN-INFLUENCED AGE

The evidence of **humanity's impact on the planet** is overwhelming. In this Summer School we depart from the scientific consensus, clearly expressed in the reports of the Intergovernmental Panel on Climate Change (IPCC), on the anthropogenic nature of current climate change. **Prof. Faria**, Ikerbasque Research Professor and Ramon y Cajal Fellow at BC3, will summarise the most **recent advances and challenges in climate science** [5th of July, 9:15-10:00].

However, the IPCC deals with part of a whole set of changes to not just the atmosphere, but the oceans, the biogeochemical flows and the biosphere integrity, that calls into question the sustainability of current patterns of development. Thus, very recently, a group of internationally recognized geologists has reached the conclusion that human impact on Earth is so profound that a new geological epoch, **the Anthropocene**, needs to be declared. **Prof. Leinfelder** (Freie Universität Berlin), former CEO of the Berlin Museum of Natural History and Germany's advisor on global environmental change, will provide us with an account of how our modern biosphere is extensively impacted and shaped by human technology [5th of July, 12:00-12:45].

## IN COMMAND, BUT OUT OF CONTROL

The latest IPCC assessments tell us that we can hold global warming below 2 °C and maintain high levels of economic growth throughout the 21st century. However, they also warn us that due to its global,



long term and irreversible nature, as well as the level of uncertainty it involves, it is a difficult problem to deal with. In fact, several evidences suggest that **climate change is moving faster than previously predicted**. Since satellite data records began in 1978, Arctic sea-ice extent during summer has experienced a 50% loss and an **ice-free summer** in the Arctic Ocean is now projected to occur by 2040 or even earlier. **Prof. Wadhams**, Head of the Polar Ocean Physics Group, in the Department of Applied Mathematics and Theoretical Physics, University of Cambridge will talk about Arctic Climate Change feedbacks [5th of July, 10:00 -10:45] and their implications.

Thus, given that change in human behavior happens slowly and that it will take many decades before the world economy makes a shift to new, cleaner forms of energy, some argue that we should already start looking toward a direct technological solution to climate change. Therefore, **geoengineering** (deliberate and large-scale intervention in the Earth's climatic system) has started to be considered as part of a portfolio of responses to fight climate change. **Dr. Niemeier**, from the Max Plank Institute for Meteorology in Hamburg, will discuss the possible efficiency, risks and implications of the different types of climate engineering techniques [5th of July, 11:15-12:00].



## SHALL WE ALWAYS HAVE PARÍS?

No country can control the climate risks it faces alone. Without agreement to a major increase in mitigation ambition, the chance to limit climate risks to below 2 °C will disappear. This explains why the international community has spent more than two decades of international attempts under the United Nations (UN) to forge collective action on climate change. Following limited participation in the Kyoto Protocol (1997) and the lack of agreement in Copenhagen (2009), the UN climate talks in Paris ended with a deal that exceeded expectations. Reaching an international agreement on mitigation is far from easy. There are so many aspects that make it difficult and some of them will be illustrated in the **role-game** scheduled for the second day of the Summer School [6th of July, 15:30-17:30]. At the end of 2015, with the so-called Paris Agreement, the international community was full of hope. The Paris Agreement provided a solid foundation for substantial progress on climate change. Even if the limits that the so-called Intended National Domestic Contributions placed on future greenhouse gas emissions were too weak to ensure that the agreed 2 °C limit on warming will not be breached, these national pledges could form the basis of a virtuous circle of ambition. Successful implementation of the pledged emission reductions would be crucial for this virtuous circle to take place and a key game-changer would be political leaders' capacity to generate a clear expectation for the energy and other sectors on low-carbon development.

However, in March 2017 President Donald Trump dramatically changed **the US approach to climate change**, tearing up President Barack Obama's progress on climate policy. This has opened up a new source of uncertainty: that related to the way in which different countries and regions will react to the 180-degree turn in US' climate policy. **Prof. Bohringer**, from the University of Oldenburg, will deal with the uncertain future of **international climate agreements after Trump** [7th July, 11:00-11:45], whereas **Mrs. Ribera** (Director of the Institute for Sustainable Development and International Relations), **Dr. Averchenkova** (Grantham Research Institute, LSE) and **Prof. Sanz** (Director of BC3) will discuss the **challenges and opportunities for international climate policy after the 2016 US Presidential elections** [7th of July, 12:00-14:00].



## WITH OR WITHOUT U.S.

After the turn-around of US Climate Policy, meeting the goal of keeping the global average temperature rise below 2 °C above pre-industrial levels will demand much greater efforts from the rest of countries and regions. In doing so, markets and technological change will play a very important role. Thus, accelerated **deployment of renewable energy** (and energy efficiency measures) are the key elements of the transition to a low carbon economy and stronger price signals from phasing out inefficient fossil fuel subsidies and carbon pricing will be required, helping to provide a level playing field.

Dramatic recent and projected falls in the costs of renewable energy are making it competitive with fossil fuels. According to the International Energy Agency, last year marked a "turning point" for renewables. Led by wind and solar, renewables represented more than half the new power capacity around the world. **Prof. Linares** (Universidad de Comillas) and **Dr. Saenz de Miera** (Iberdrola) will talk about the **role and potential of renewable energy sources** for the deep decarbonization of the global economy from an academic and business perspective, respectively [7th of July, 9:00-9:45 and 9:45-10:30].



## ADAPTATION, RISKS, LOSSES AND DAMAGES

Since mitigation of greenhouse gas emissions by responsible countries has so far been insufficient to "*prevent dangerous anthropogenic interference with the climate system*", most countries are forced to undertake disaster risk reduction and adaptation measures to prevent permanent loss and damage. The current and future scale of climate change implies serious risk to the lives and livelihoods of those who are poor, most vulnerable and least to blame. **Prof. Markandya** will discuss the influence of the level of ambition of the climate agreement on the risk of **failure to achieve the Sustainable Development Goals** set for 2030. [6th of July, 12:15-13:00].

Since coastal development around the globe has accelerated in the past half century, and many cities, critical infrastructures and great part of the world population are located in coastal areas, one of the greatest challenges for many countries is to learn how to cope with sea level rise. **Prof. Losada**, Research Director at IH Cantabria, will discuss recent **sea level rise science and adaptation strategies**. [6th of July, 11:30-12:15].

Sea level rise is an impact of climate change that involves some very important features for climate policy. First, it constitutes a slow onset process and therefore there exist limits to how far disaster risk reduction and adaptation to sea level rise can reduce loss and damage. **Prof. Mechler**, Deputy Director of the Risk and Resilience research program at IIASA, will present a possible way forward on the issue of **loss and damage** under the UNFCCC. [6th of July, 9:45-10:30]. Second, sea level rise is an impact of climate change where large uncertainties are present and therefore, leads to the necessity to deal with uncertainty when making decisions. Thus, **Prof Neumann**, Ikerbasque Research Professor and Ramon y Cajal Fellow at BC-3 will talk about how to deal with **Uncertainty in Climate Policy**. [6th of July, 9:00-9:45].



BC3/UPV-EHU SUMMER SCHOOL KEY INFORMATION:  
<http://summerschool.bc3research.org/>

5<sup>th</sup>-7<sup>th</sup> of July 2017, Palacio Miramar, San Sebastian (Spain)

**Registration period:** open from 22<sup>nd</sup> of March to 3<sup>th</sup> of July

**Fees** of the school:

From May 1 to May 31	125€
From June 1 to July 3	150€

**Registration:** <https://admin.uik.eus/matriculation/en>

Contact information: [summerschool@bc3research.org](mailto:summerschool@bc3research.org)

The BC3-UPV/EHU Summer School is suitable for:

- PhD students, postdoctoral fellows and other researchers.
- Policy makers.
- Development professionals that deal with the impact of climate change and its related policies.
- Companies facing carbon regulation and seeking a greater understanding of the issues.
- Professionals within private sector companies dealing with climate change through corporate social responsibility .

DIRECTORS OF THE 7TH EDITION OF THE BC3/UPV-EHU SUMMER SCHOOL



Dr. Mikel González-Eguino  
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