

# INTERNATIONAL POLAR FOUNDATION

CONNECTING SCIENCE  
AND SOCIETY



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*" SCIENCE AND TECHNOLOGY, COMBINED WITH A LACK OF SELF-UNDERSTANDING AND A PALAEOLITHIC OBSTINACY, BROUGHT US WHERE WE ARE TODAY. NOW SCIENCE AND TECHNOLOGY, COMBINED WITH FORESIGHT AND MORAL COURAGE, MUST SEE US THROUGH."*

*" The future of life ", Edward O. WILSON*

# CONNECTING SCIENCE AND SOCIETY

THE INTERNATIONAL POLAR FOUNDATION SUPPORTS POLAR SCIENTIFIC RESEARCH FOR THE ADVANCEMENT OF KNOWLEDGE, THE PROMOTION OF INFORMED ACTION ON CLIMATE CHANGE, AND THE DEVELOPMENT OF A SUSTAINABLE SOCIETY.

## SCIENCE, POLAR REGIONS & CLIMATE CHANGE



The International Polar Foundation was created with the objective of providing a novel interface between science and society, and was recognised by Belgian Royal Statute as a foundation for the public good in 2002. The Foundation seeks to bring

about a keener appreciation of the role of science, particularly research in the Polar Regions, through a re-examination of the planet's interconnections, its fragility, the impact of human actions on the environment, and the evolution of millennial climate cycles.

As we advance through the 21st century, there is an urgent need to find coherent responses to questions concerning our relationship with the Earth, with particular regard to climate change. The impact of human activities on the finite, fragile biosphere on which we depend for survival has disturbed natural cycles. The future depends on our ability to objectively unravel the complexity of natural variations and to analyse the risks of a deviation. This heightened understanding will enable us to make a rapid and intelligent response to the unprecedented situations that humanity currently faces. The longer we wait before taking substantive action, the more limited our choices.

Researchers in the Polar Regions are actively trying to fill gaps in knowledge that will address the uncertainties surrounding the pace, magnitude and direction of change related to global warming. Painstaking research on the polar ice caps of Antarctica and Greenland has yielded evidence of the

causal link between human-related carbon dioxide emissions, mean surface temperature, and climate change.

Even better tools are now needed to further assess future risks from warming phenomena, which could accelerate the melt of polar ice sheets and cause sea levels to rise.

The dual function of the Arctic's sea ice also has a part to play. Its particular sensitivity to warming trends on the planet make it both an early warning system and a reflective shield that keeps warming partially in check.

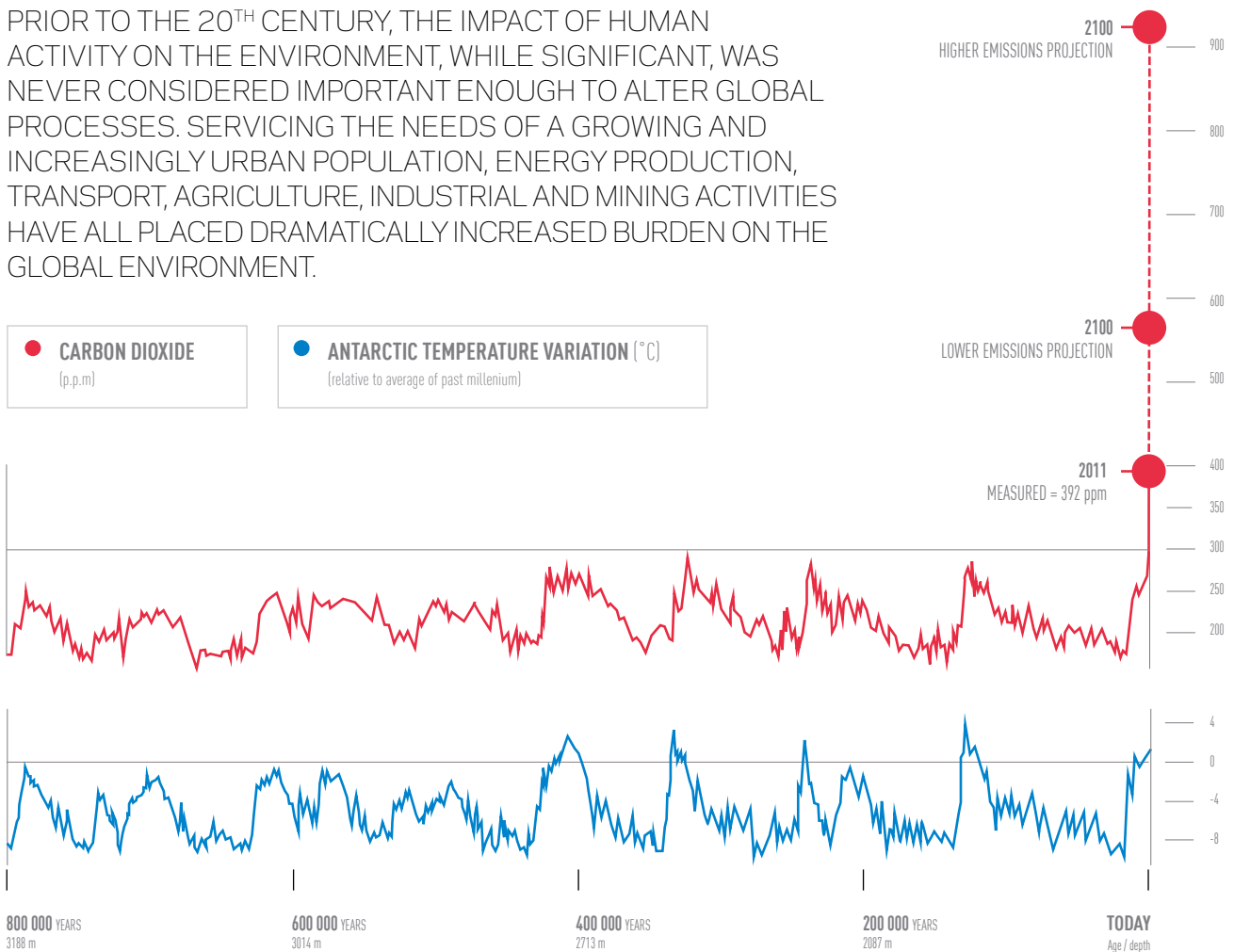
Due to the crucial role of the Poles in regulating the Earth's heat balance, it is necessary to sustain scientific efforts towards understanding these mechanisms, and to facilitate the transmission of the latest scientific findings to the wider public. To this end, the International Polar Foundation supports the efforts of the global scientific community by providing new tools for disseminating and communicating research findings, and by leveraging support for research infrastructure and activities.

A handwritten signature in black ink, reading 'Alain Hubert'.

**Alain Hubert,**  
International Polar Foundation president

# CLIMATE CHANGE WITHOUT FRONTIERS

PRIOR TO THE 20<sup>TH</sup> CENTURY, THE IMPACT OF HUMAN ACTIVITY ON THE ENVIRONMENT, WHILE SIGNIFICANT, WAS NEVER CONSIDERED IMPORTANT ENOUGH TO ALTER GLOBAL PROCESSES. SERVICING THE NEEDS OF A GROWING AND INCREASINGLY URBAN POPULATION, ENERGY PRODUCTION, TRANSPORT, AGRICULTURE, INDUSTRIAL AND MINING ACTIVITIES HAVE ALL PLACED DRAMATICALLY INCREASED BURDEN ON THE GLOBAL ENVIRONMENT.



European Project for Ice Coring in Antarctica [EPICA] - Dome C ice core data [Jouzel *et al.*, 2007; Lüthi *et al.*, 2008]; U.S. Global Change Research Program, 2009 and NOAA, 2012

As these multiple stresses begin to adversely affect the environment's capacity to regenerate, long-term effects are no longer limited to local and regional impacts, but have influence over planet-wide systems such as the climate. Man-made greenhouse gas concentrations - carbon dioxide in particular - risk tilting the heat balance of the Earth, provoking climate effects that will prove difficult to contain.

There is a clear need for an intelligent and considered global response; this must include reducing our use of fossil fuels - the largest single source of emissions. How we approach future energy equations will be largely dependent on local conditions.

Regulatory and financial instruments will be necessary to meet the challenge, but cannot replace voluntary grass roots action at local and global levels, or the implementation of new techniques for energy efficiency, carbon sinks, renewable energies, enhanced environmental operating standards and low carbon intensity products.

# PLATFORMS FOR POLAR SCIENCE

THE INTERNATIONAL POLAR FOUNDATION SUPPORTS POLAR SCIENCE ACTIVITIES USING SEVERAL PLATFORMS, INCLUDING LOGISTICS AND INFRASTRUCTURE SUPPORT AT PRINCESS ELISABETH ANTARCTICA POLAR RESEARCH STATION, COMMUNICATIONS VIA THE SCIENCEPOLES WEBSITE, AND FINANCIAL LEVERAGING PLATFORMS IN PARTNERSHIP WITH THE INBEV-BAILLET LATOUR FUND, PROVIDING RESEARCH EQUIPMENT AND FELLOWSHIPS TO PROMOTE FIELD RESEARCH IN ANTARCTICA.



## SCIENCEPOLES: COMMUNICATING POLAR SCIENCE

[www.sciencepoles.org](http://www.sciencepoles.org)

Scientific research in the Polar Regions is essential to understanding the Earth, its history, regional ecosystems, and the workings of the global climate system. The SciencePoles website is a key tool in the International Polar Foundation's commitment to communicate this research to the wider scientific community and general public.

Since 2005, SciencePoles has continued to expand and broaden coverage of polar science, featuring interviews with leading scientists, news on the latest developments in Arctic and Antarctic research from both the natural and social sciences, and upcoming events and links to polar resources.

## INBEV-BAILLET LATOUR ANTARCTICA FELLOWSHIP

[www.polarfoundation.org](http://www.polarfoundation.org)

The InBev-Baillet Latour Antarctica Fellowship is awarded annually to young polar scientists, providing them with the means to pursue scientific research in the Antarctic, in the vicinity of Princess Elisabeth Antarctica station.

A joint initiative of the InBev-Baillet Latour Fund and the International Polar Foundation, the Fellowship promotes scientific excellence in Antarctica and polar science's crucial role in furthering our understanding of the Earth. With a growing demand for high quality polar research that can inform international policy on climate and sustainable development, the accomplishments and experiences of InBev-Baillet Latour Antarctica Fellowship scientists serve as an inspiration to students.

## SUPPORTING SCIENCE IN THE FIELD

[www.antarcticstation.org](http://www.antarcticstation.org)

As operator and manager of the Princess Elisabeth Antarctica station, the International Polar Foundation provides logistics and infrastructure support to the international scientific community.

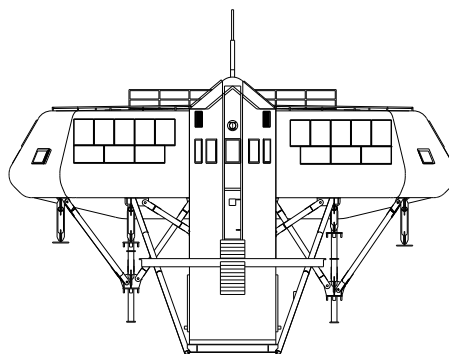
The station is located in a relatively isolated region of Antarctica, where the Foundation ensures safe conditions for field research, provides cargo and personnel logistics, experienced polar guides, field accommodation and mobile laboratory facilities, as well as managing environmental impacts.







# PRINCESS ELISABETH ANTARCTICA



## THE WORLD'S FIRST ZERO EMISSION RESEARCH STATION

AS AN ANTARCTIC LEGACY PROJECT OF THE 2007-2009 INTERNATIONAL POLAR YEAR, PRINCESS ELISABETH ANTARCTICA RESEARCH STATION WAS DESIGNED AND BUILT TO RESPECT THE LETTER AND SPIRIT OF THE MADRID PROTOCOL TO THE ANTARCTIC TREATY. BUT THE PROJECT WENT A STEP FURTHER: PRINCESS ELISABETH IS THE WORLD'S FIRST ZERO EMISSION POLAR RESEARCH STATION.

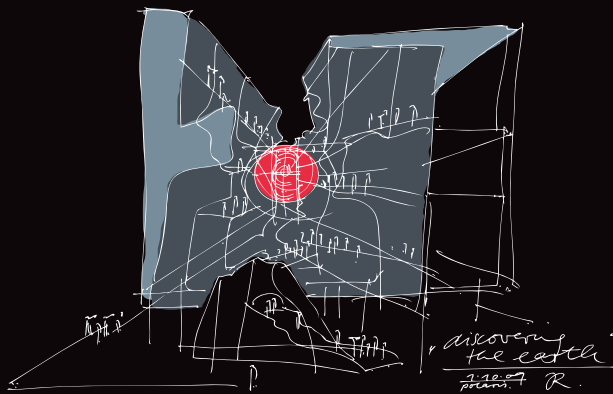
Located in East Antarctica's Sør Rondane Mountains, Princess Elisabeth Antarctica welcomes scientists from around the world to conduct research in this little-studied and pristine environment.

Operated by the International Polar Foundation, in partnership with the Belgian Polar Secretariat, the station is an evolving technical prototype.

Princess Elisabeth Antarctica's design and construction seamlessly integrates passive building technologies, renewable wind and solar energy, water treatment facilities, continuously monitored power demand and a smart grid for maximising energy efficiency.

The success of Princess Elisabeth Antarctica marks an important development in the philosophy of sustainable development, demonstrating how the climate challenge can be met through goodwill and collaboration between civil society, business and governments. The project proves how readily accessible technology can be harnessed to achieve a low carbon society, without compromising our collective or individual wellbeing.

The energy solutions perfected at Princess Elisabeth Antarctica are already being successfully commercialised by the project's technical partners for use in mainstream applications that will redefine energy use in our homes, offices and schools, and in every home, town and city across the world.



# POLARIS CLIMATE CHANGE OBSERVATORY

THE POLARIS CLIMATE CHANGE OBSERVATORY (PCCO) IS A KEY PROJECT OF THE INTERNATIONAL POLAR FOUNDATION, INFORMING PUBLIC PERCEPTION OF THE ROLE OF SCIENCE IN ISSUES OF MAJOR SOCIAL IMPORTANCE.

This state-of-the-art, interactive facility, neither a museum nor a science centre, is designed to be an immersive experience. The Polaris Climate Change Observatory is a physical space where the most recent polar research findings can be displayed through innovative and attractive installations, and their global context explained.

The goal of the PCCO is to provide tools for improving public understanding of the mechanisms driving climate change, and possible responses to prevent or adapt to change.

Exploring and understanding the natural workings of the Earth's climate, the PCCO will retrace the evolution of the Earth's climate, and its possible future. The Observatory will also set out to explain the current drivers of climate change arising from human activities (including industry and agriculture), and how our future actions will depend on our capacity to understand the pace and direction of change.

The International Polar Foundation is working with local partners to establish Polaris Climate Change Observatories in several regional locations around the World. The Polaris Climate Change Observatory regional platforms will provide the public, policy makers, industry and civil society with a forum for interaction and for developing the collaborative actions required for an adapted response to global development in the face of climate change.





# POLAR EDUCATION

EDUCAPOLES, THE INTERNATIONAL POLAR FOUNDATION'S SCIENCE EDUCATION PLATFORM, DELIVERS A FRESH, ACCESSIBLE APPROACH TO THE SCIENTIFIC PROCESS BY ENABLING TEACHERS TO EXPLORE CLIMATE AND POLAR SCIENCE WITH THEIR STUDENTS THROUGH THE USE OF CREATIVE TOOLS AND LEARNING METHODS.



## CLASS ZERO EMISSION

Class Zero Emission brings new interactive methods into the classroom, reaching school age children and their teachers with current science knowledge on climate change.

Designed for use across national borders and in multiple languages, Class Zero Emission provides classes with pedagogical tools and the methodology of science through hands-on experiments and interactive games that can be integrated into existing curricula. The classes allow students to follow in the footsteps of research scientists and polar explorers, and learn practical ways of applying 'sustainable' actions to their daily lives.

Class Zero Emission can be tailored to each geographical location in which it is deployed. By creating a local link, the classroom activities become more relevant to the lives of the children for whom they are created.

# ARCTIC FUTURES

## SCIENCE-POLICY INTERFACES

THE ARCTIC IS UNDERGOING DRAMATIC CHANGES. AS CLIMATE CHANGE ALTERS THE REGION AND INTEREST IN NATURAL RESOURCES AND COMMERCIAL SHIPPING GROWS, THERE IS A NEED TO ADDRESS MANY CHALLENGES, SUCH AS HOW TO DEVELOP THE REGION SUSTAINABLY, WHILE RESPECTING THE NATURAL ENVIRONMENT AND RIGHTS AND TRADITIONS OF ITS INDIGENOUS INHABITANTS.

The International Polar Foundation takes a proactive role in raising the level of public interest in key issues surrounding the future development of the Arctic, by organising and participating in a number of initiatives that foster and promote ongoing dialogue between Arctic stakeholders and empower inhabitants of the Circumpolar North:

### ARCTIC FUTURES SYMPOSIUM:

Organised by the International Polar Foundation and the Fondation Prince Albert II de Monaco, this interdisciplinary event sees Arctic stakeholders, including prominent international policymakers, scientists, academics, Arctic indigenous peoples and industry representatives engaging in open and frank discussions on the future of the Arctic.

Held annually in Brussels, Arctic Futures focuses on building cooperation and dialogue, also exploring matters such as the development of search and rescue capabilities, indigenous affairs, transport and infrastructure, scientific research and monitoring, ecosystem stewardship and management of natural resource development.

"The success of Arctic Futures demonstrates how international cooperation and dialogue are key to achieving sustainable Arctic policies that benefit the people that live and work there, to protect the region's fragile ecosystem and to explore the way forward for scientific research and the development of natural resources"- Nighat Amin, International Polar Foundation Vice-President.



### UNIVERSITY OF THE ARCTIC:

The Foundation, as a member of the University of the Arctic grouping, contributes expertise on education and outreach on polar issues to this multinational consortium. The University of the Arctic aims to empower residents of the Circumpolar North and to ensure sustainable development of the region, by building human capital through higher education.

### ARCTIC NGO FORUM:

The Foundation actively participates in this international forum focussing on environmental issues facing the Arctic. The forum contributes to the development of Arctic policies that support sustainable development, raises awareness and provides expert opinion on emerging issues.

### EU ARCTIC INFORMATION CENTRE:

Spearheaded by the Arctic Centre at the University of Lapland in Rovaniemi, Finland, the EUAIC will work to bring together EU and Arctic stakeholders. To ensure sustainable development in the Arctic, the Centre will provide reliable knowledge that can be used by policymakers and the wider public.

# THE IPF IN BRIEF

## HONORARY PRESIDENT:

HRH Prince Philippe of Belgium

## FOUNDERS:

Alain Hubert - Polar Explorer, Civil Engineer, Mountain Guide

André Berger - Climatologist, Emeritus Professor at UCL (Belgium), Honorary President of the European Geo Sciences Union

Hugo Declair - Glaciologist, Emeritus Professor at VUB (Belgium)

## HONORARY MEMBERS:

Roger Barry, National Snow and Ice Data Centre (NSIDC), USA

Paul Crutzen, Max Planck Institute, Mainz, Germany

Ivan Frolov, Arctic and Antarctic Research Institute (AARI), Russia

Claude Lorius, Laboratoire de Glaciologie et Géophysique de l'Environnement (LGGE), France

Lawrence Mysak, McGill University, Canada

Olav Orheim, Norwegian Research Council, Norway

Dahe Qin, China Meteorological Administration (CMA), China

Chris G. Rapley, University College London (UCL), UK

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Konrad Steffen, Swiss Federal Institute of Technology (ETH Zurich), Switzerland

Jorn Thiede, St Petersburg State University, Russia

Svein Tveitdal, GRID Arendal, UNEP, Norway

Okitsugu Watanabe, National Institute of Polar Research (NIPR), Japan

## EXECUTIVE BOARD:

Alain Hubert : President, International Polar Foundation

Nighat Amin : Vice President, International Affairs, International Polar Foundation

Thierry Touchais : Executive Director, International Polar Foundation - Polaris Centre

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IPF South Africa  
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## ON THE WEB:

[www.polarfoundation.org](http://www.polarfoundation.org)  
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