naturhistorisches museum wien nhm

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Vienna, 7th November 2023

Press conference on the new exhibition “Arctic. The Changing Polar World”

Tuesday, 7 November 2023, 10.30 a.m.
Lecture hall and special exhibition rooms of the NHM Vienna

Austria has a long tradition of polar research. It was 151 years ago that the members of the “Austro-Hungarian North Pole Expedition” set out on the *Admiral Tegetthoff* with the aim of exploring the Arctic Ocean and finding the Northeast Passage. The ship soon got locked in pack ice, however. As it drifted with the ice, the polar explorers Carl Weyprecht and Julius Payer discovered a group of islands, which they named after the emperor: Franz-Josef-Land. A few zoological objects they brought back from this expedition are still preserved at the NHM Vienna today. Based on his experiences from the expedition, Carl Weyprecht developed key theories for modern Arctic research. His work also provided the basis for the “First International Polar Year” held in 1882-1883. Austria took part with its own research station on Jan Mayen Island.

Today, the Austrian Polar Research Institute (APRI) coordinates domestic research and international cooperation in the field of polar science. The first permanent Austrian polar research station was recently established in East Greenland In cooperation with the University of Graz. The APRI being a project partner of the NHM Vienna, its researchers have been closely involved in the exhibition, which gives them a platform to report on their main areas of research.

This exhibition highlights the unique nature of the Arctic, its fascination and fragility, as well as the rapid changes affecting the Arctic regions. Climate change with its clearly visible and measurable effects, as well as geopolitical shifts, have drawn global attention to the Arctic.

Exploring the many facets and roles of this unique ecosystem from different perspectives, the exhibition demonstrates that the Arctic plays a crucial global role and is now more closely linked to human existence than ever before.

Programme

Welcome and introduction:
Dr Katrin Vohland, Director General/CEO, NHM Vienna

Why is Austria conducting research in the Arctic?
Prof Dr Wolfgang Schöner,
Director of the Austrian Polar Research Institute (APRI), Department of Geography and Regional Sciences, University of Graz

Austria and historical Arctic research
DDr Martin Krenn
Curator of the exhibition and Head of Department of the Archive for the History of Science, NHM Vienna

The fascination of the Arctic Ocean
Dr Bettina Riedel

Curator of the exhibition and research associate of the fish collection, I. Department of Zoology, NHM Vienna

The making of an exhibition
Dr Andreas Hantschk
Curator of the exhibition and member of the Science Communication Department, NHM Vienna

Followed by a tour of the new exhibition in the two special exhibition rooms and 6 cabinets

Inclusion in the museum on the themes of the new special exhibition
Guided tours by people with and without disabilities for people with and without disabilities **Clara Porak**, Managing Director of *andererseits, Magazin für Behinderung und Gesellschaft* and **Agnes Mair**, member of the Science Communication Department, NHM Vienna

Press kit:

https://www.nhm-wien.ac.at/presse/pressemitteilungen2023/arktis

A brochure on the exhibition (EUR 6.90) and an exhibition poster (EUR 3) are available for sale at the museum shop.

The comprehensive accompanying programme, including lectures, guided tours and formats for families can be found in a flyer for the exhibition or on the NHM website at https://www.nhm-wien.ac.at/veranstaltungsprogramm

The WWF wants to stop the global destruction of nature and shape a future in which people and nature live in harmony. Polar bear; ©WWF; Richard Barret

"We were watching the ice die"
Markus Rex, polar researcher, Alfred Wegener Institute, 2020

ARCTIC. The making of an exhibition

By Andreas Hantschk

Anniversaries need to be celebrated: on 30 August 1873, the members of the "First Austro-Hungarian North Polar Expedition" sighted a strip of Arctic rocks and glaciers, and 150 years ago, on 1 November 1873, they first set foot on the newly discovered Arctic archipelago. When looked at in hindsight, stories freeze into solid notions. The expedition ship *Tegetthoff* was lost and the objective of the trip, navigating the Northeast Passage, was not fulfilled. Nonetheless, 150 years later, the expedition is considered a huge success. After all, it resulted in the discovery of Franz Josef Land (now part of Russia) and the crew miraculously survived. But where does the NHM Vienna come into play here?

During the expedition, the members risked their lives making scientific records and collecting objects and specimens. The storage facilities of the NHM Vienna hold evidence of their "bounty" in the form of 122 vials of specimens. Larger items such as rocks or bird skins had to be left behind, however. A richly detailed model of the expedition ship *Tegethoff* was used for the ORF documentary "Arktis Nordost", which was produced between 1992 and 1994. After filming, the model was donated to the NHM Vienna and can be seen in the exhibition alongside some original items from the expedition.

We are making an exhibition!
The decision to organise the Arctic exhibition was taken together with APRI, the Austrian Polar Research Institute. With the renowned climate researcher at Graz University, Wolfgang Schöner (Director of APRI) at its helm, a core team consisting of Christoph Posch (Graz University) and Christoph Ruhsam (APRI Media Officer) developed ideas, provided objects and expertise and contributed to the creation of scientific texts.

As fate would have it, a female polar bear died at Schönbrunn Zoo in October 2022. It was soon decided that the bear was to serve as an ambassador for her endangered conspecifics in the wild by spending her "second life" as a museum specimen. We have to thank the team at the Zoological Preparation Unit (Robert Illek, Iris Rubin, Melina Haring, Mirjana Pavlovic, Nathalie Wallner, Gal Shalev) for making sure the exhibition project would be on a solid footing right from the start. These colleagues never disappoint! If the NHM Vienna does not have a white whale (beluga) in storage, they will simply build a (splendid) model from scratch. The opening of cabinets 5 and 6 not only increased the exhibition floor space to around 700m2, but also provided a breathtaking line of sight through the fourth quadrant of the museum.

The Arctic, all of a sudden!
As with all major exhibition projects, the team involved in conceiving it were busy reflecting on the big theme for at least a year. The project's core team (Andreas Hantschk, Martin Krenn, Julia Landsiedl, Markus Laumann, Bettina Riedel) quickly devised a sound and harmonious work plan in terms of content, objects, texts and many other aspects. As befits the mission and holdings of a natural history museum, the exhibition focuses on the Arctic as a natural environment. The historical anniversary, represented with the help of loans from the Museum of Military History and the Austrian Academy of Sciences, was the initial seed, but not the main focus, of this exhibition. If one is dealing with the Arctic today one simply cannot ignore climate change. This is felt not only by exhibition organisers sensitised to the subject: in recent months and years, the Arctic has received increasing media attention. While at first it was "merely" images of hungry polar bears looting rubbish dumps in Arctic communities, the accelerating melting of the Arctic ice is now a recurring (seasonal) topic in the media.

Why so quickly?
These days, climate change, sustainability and CO2 neutrality are omnipresent buzzwords. But why is the Arctic warming up to four times faster than the rest of the world?

As snow and ice are retreating on land and in the sea, the reflectivity of the surface (albedo) is reduced, which results in heightened absorption of solar radiation. The thawing of permafrost releases more greenhouse gases (carbon dioxide and methane). Rising air temperatures cause more cloud formation and more rain on the snow and ice cover.

All these components of the climate (ice, sea, land, atmosphere) have a mutually reinforcing effect. “Arctic amplification” is becoming an alarming driver of climate change.

A new Arctic and Arctic cappuccino?

At some point, climate change will produce a new Arctic. But what will it look like? Will the predominant colours of the High North change from white to green and brown? Will new shipping routes that used to be impassable lead to a rush to the Arctic, turning it into a transport route and source of resources? And is it conceivable that previously unthinkable (military) conflicts will arise over the Arctic resources?

One often hears the question as to whether there will still be polar bears 100 years from now? While the concerns are justified, we also know that living creatures are sometimes capable of astonishing reactions to change. Grizzly-polar bear hybrids have become increasingly common in recent years. These light brown bears (“cappuccino bears”) show characteristics of both species and are able to reproduce successfully. In this way they might establish a population that is better equipped to cope with climate change than polar bears. This is certainly an emotionally charged story that we intend to simply tell without giving a value judgment.

With the exhibition “Arctic. The Changing Polar World”, the NHM Vienna sets out to show the beauty, fragility and threats of the Arctic and its wildlife and fauna. The historical context points to the present and the future. Contributions on climate change are intended not only to inform, but also to inspire further thought and action. The NHM Vienna is aware of its socio-political responsibility, and the exhibition and its accompanying programmes intend to open the visitors’ hearts to the cold realm of the Arctic. We cannot be indifferent to the fate of the Arctic – because it is our fate as well!

What is the Arctic?

The is no clear-cut definition for the southern boundary of the Arctic. It is often considered to be the area north of the Arctic Circle (66˚33′55″ N), where the sun does not rise at the winter solstice and does not set at the summer solstice. Another common definition is the imaginary line of the 10 centigrade July isotherm: north of this line, the mean temperature in July is less than 10 degrees centigrade.

Other possible definitions see the Arctic extending to the northern tree line (in which case it includes the area where trees cannot grow) or to the marine convergence zone, where cold, low-salinity surface water from the Arctic Ocean meets warmer water with higher salt content from the Atlantic or Pacific.

Delineation from a social perspective is challenging and of limited usefulness. For sociological and statistical analyses, the Arctic Human Development Report (AHDR) defines the Arctic on the basis of political borders. Roughly 4 million people of various indigenous and non-indigenous ethnicities and cultures live in this area.

The name “Arctic” is derived from the Greek word *árktos*, meaning “bear”. In ancient times, sailors used the term to refer to the northern polar region under the constellation of Ursa Major (“Great Bear”). The Arctic comprises the Arctic Ocean and the surrounding land masses of Eurasia, North America and Greenland.

Why is it so cold in the Arctic?
Compared with other regions, temperatures in the Arctic are much lower. This is the result of a combination of sunlight, snow, ice, humidity and wind. In summer, temperatures average around 10˚ C, while they can be around -35° C in winter.

The Arctic climate is marked by a lower level of solar radiation owing to the low position of the sun in the sky (inclination of the Earth's axis), a higher level of reflection due to bright ice and snow surfaces and a lower proportion of water vapour, which is a natural greenhouse gas (lower evaporation due to the low temperatures and therefore lower absolute humidity).

The global atmospheric circulation systems also impair the advance of warm, humid air masses from the south into the Arctic.

Inclination of the earth's axis
The Earth has an axial tilt of approx. 23˚. In the polar regions, the sun's rays hit the Earth at a very shallow angle, which curbs the energy input by up to 50 %.

As a result of the tilt of the Earth's axis and the Earth's orbit around the sun, some areas do not get any sunlight for days or even months (polar night).

Reflectivity (albedo)
Different parts of the earth's surface reflect or absorbs solar radiation to varying degrees. Light-coloured surfaces such as snow and ice reflect 50 to 90 % of the sun's rays, forests and meadows 3 to 25 % and water only around 2 %. On account of its snow and ice cover, the Arctic has a high level of reflectivity and therefore takes up less heat.

Low humidity
Cold air contains smaller amounts of water vapour than warm air. When temperatures are low, less water evaporates than at high temperatures, which explains why the absolute moisture content of Arctic air is low compared to other regions of the world. Water vapour is a natural greenhouse gas and its warming effect is relatively low in the northern polar region.

The Earth’s circulation systems
The temperature differences on Earth (owing to different solar radiation, the distribution of land masses, the physical properties of the air and the impact of the Earth's rotation) result in the formation of different circulation cells in the atmosphere. The polar front is formed in areas where cold polar air meets warm air from the south. Circulation systems are thus separated and warm air is prevented from penetrating into the Arctic.

Why is Austria conducting research in the Arctic?

By Wolfgang Schöner

It was almost exactly 150 years ago, during the famous expedition to Franz Josef Land he went on together with Julius Payer, that Carl Weyprecht understood that polar research would require international cooperation, and he developed the idea of an international polar year.

He realised that simultaneous, coordinated measurements and investigations by several countries would add up to a much greater total value than the sum of the individual contributions. This still holds true today, as it is the only way to understand the complex processes – such as the melting and calving of the Greenland ice sheet – or to make robust predictions about the decrease in sea ice by 2100. Therefore, to meet the exigencies of its international role and responsibility, Austria is held to contribute to Arctic research. However, this also lies in Austria's own interest: our weather patterns are directly determined by the temperature contrast between the Arctic and the moderate latitudes. A rise in sea levels also has indirect consequences for us, as it can trigger migration movements, for instance. And finally, the Arctic is also a natural paradise, and we should be keen to ensure its conservation with the support of research.

Since the era of Carl Weyprecht and Julius Payer, Arctic research has undergone significant change. International organisations such as the International Arctic Science Committee (IASC) coordinate research at an international level. And today, research is not only international, but also inter- and transdisciplinary. Furthermore, the Arctic is not only seen as a natural sphere exposed to extreme conditions: we also consider the role of humans and, in particular, the indigenous population to be an important aspect of research. Alongside the natural sciences, the social sciences have become a strong component of Arctic research. The local population is becoming increasingly involved in research activities which, as in the case of Canada, would often not be possible at all without the consent of the local population.

Austrian Arctic research has evolved particularly significantly since the third International Polar Year 2007/08. Since its foundation, the Austrian Polar Research Institute (APRI), a consortium that pools polar research by Austrian research institutions, cooperates with international organisations such as the IASC. Today, APRI involves 18 research groups with around 70 researchers and ensures national and international representation. As part of the Austrian research infrastructure, the Sermilik research station was recently opened in Greenland. This shows that Austrian polar research is well equipped to make an international contribution.

About APRI https://www.polarresearch.at/?lang=de
Researchers as cornerstones of the Arctic exhibition

In the special exhibition "Arctic. The Changing Polar World", experts are invited to explain the focus areas of their research in the Arctic:

Martin Schwentner: the diversity of life on the seabed
Little research has been conducted on life on the Arctic seabed to date, and a large number of species are probably still undiscovered.

https://youtu.be/1YD0oKDGvAs

Jakob Abermann: **The world of snow and ice. Exploring the cryosphere in the Arctic**
Jakob Abermann is fascinated by all forms of snow and ice in the Earth's climate system. He is investigating the changes in the Arctic water cycle resulting from the greatest social challenge of the 21st century – climate change.
https://youtu.be/54s2AVcE8OY

Günter Köck: HIGH-ARCTIC. Fish from sensitive ecosystems as bio-indicators of global climate change
The researcher has been studying the effects of climate change on Arctic char in lakes in the Canadian Arctic since 1997.

https://youtu.be/29lfW5SqtzY

Klemens Weisleitner: The ecology of glaciers
Polar conditions not only mean leaving one's comfort zone – they also test the limits of scientific equipment. On the other hand, it is precisely in the most adverse conditions that one finds the most valuable experiences that furnish new insights.

https://youtu.be/t0OBGAXCDYE

Gina Moseley: Exploring caves in the "eternal ice"
Mosely has been investigating remote caves in North and North-East Greenland since 2015 in order to better understand how the Arctic climate has changed over the last 500,000 years.

https://youtu.be/jxjZT67Bf7Q

Helena Bergstedt: Satellites discover permafrost areas
The Arctic is exposed to pronounced and rapid change. As the Earth's climate is getting warmer, the Arctic sees melting ice shields, rising sea levels and changes in the animal and plant world.

https://youtu.be/yBRFI9tySHw

Brian Adams: I AM INUIT

Photo series on display in the cabinets

Brian Adams (* 1959) is an editorial and commercial photographer based in Anchorage, Alaska, who specialises in environment-related portraits.

Hailing from north-west Alaska, Adams is a member of the Inupiaq people on his father's side. He explores the culture of his ancestors in interviews and photo reports. For his project "I AM INUIT" alone, he visited more than 270 people in 20 Inuit communities.

His work as a visual storyteller provides insights into the lives of remote Inuit communities, covering a wide range from the traditions that are still alive today to current issues such as indigenous self-government or the impact of climate change on the Inuit.

In some of the communities he visited he had family connections, for the others he first contacted the Inuit Circumpolar Council, an NGO championing the rights of the Inuit in the USA, Canada, Greenland and Russia. In the respective communities, the Council asked whether Adams was allowed to include

them in the project. As the portraits were intended to be as natural as possible, Adams did not stage them, but took his photographs wherever he met the people. Before or after taking the photos, he would talk to them in order to learn their story. Adams used an analogue medium-format camera, which works reliably even at low temperatures.

With his images, Adam tries to counteract stereotypes. He portrays a man with his guitar, but also a woman drying seal meat. He wants to show that Inuit traditions are still alive, but that the culture is not stagnant and always subject to changes.

Adams draws attention to important issues such as indigenous sovereignty and climate change and its impact on indigenous communities.

Adam's work has been published in national and international publications, and his documentation of Alaskan indigenous villages has been on show in the United States and Europe. His first book of photographs, *I AM ALASKAN*, was published by University Of Alaska Press in October 2013. His most recent book, *I AM INUIT*, was published by Benteli in December 2017. In 2018, he received a grant from the Native Arts and Cultures Foundation and the Rasmuson Foundation in order to continue documenting Inuit life in Alaska and the circumpolar region.

https://brianadams.photoshelter.com/index

Inclusion at the Museum

The Arctic and *andererseits*

People with and without disabilities offer tours to people with and without disabilities through the exhibition "Arctic - The Changing Polar World".

In cooperation with ***andererseits***, the online magazine for disability and society

The Natural History Museum (NHM) Vienna is an institution that welcomes everyone. We want to provide a safe environment that encourages all people to enjoy our museum, exhibitions and educational programmes as places of learning about nature, research, bio- and earth sciences, evolution and the cultural and biological development of humankind.

We are convinced that the engagement of our visitors, staff and scientists is indispensable for a museum and science venue. We therefore make a deliberate effort to include all people, especially (but not exclusively) those who have been historically underrepresented and discriminated against, in our activities at the NHM Vienna.

It is our mission to create a museum that is accessible to all. On the one hand, we are working on removing physical barriers in the entrance and exhibition area, for instance – the Austrian Federal Ministry for Arts, Culture, Civil Service and Sport (BMKOES) recently promised a generous grant for the years 2025 to 2027 to make the entrance area of the listed building barrier-free. After offering educational formats for the blind and people with visual and hearing impairments, we are now, for the first time, proposing an inclusive educational programme for people with and without disabilities in the context of the exhibition "Arctic. The Changing Polar World". We want all people to feel comfortable and welcome in the museum and to be heard!

The Science Communication and Press and Public Relations departments of the NHM Vienna have invited *andererseits*, the online magazine for disability and society, to collaborate on the Arctic exhibition. *andererseits* is a magazine created by journalists with and without disabilities. The entire team works on an equal footing, critically and for fair pay. Together with the NHM Vienna's education team, they will guide visitors through the exhibition on four days.

This collaboration is important to *andererseits* and the NHM Vienna. Whereas 15 to 20% of people living in Austria have a disability, there are only a handful of journalists with disabilities. *andererseits*

believes in diversity in journalism and is offering a structure in which people with and without disabilities can work together. The pilot project involves four days, but the Museum is planning to expand the programme if it is met with sufficient interest.

Wednesday, 24 January, 5.00 pm

Wednesday, 14 February, 5.00 pm

Wednesday, 13 March, 5.00 pm

Wednesday, 17 April, 5.00 pm

NHM Topic

People with and without disabilities offer tours to people with and without disabilities through the exhibition "Arctic - The Changing Polar World".
Museum admission | + guided tour ticket € 5.-

Maximum number of participants: 20 people, registration at anmeldung@nhm-wien.ac.at is required.
Meeting point in the entrance hall

Press photos

Cabinet 1: Taxidermied female polar bear from Schönbrunn Zoo
© NHM Vienna, A. Schumacher

Cabinet 2: Brian Adams: I AM INUIT (photo series)
© NHM Vienna, A. Schumacher

Cabinet 6: Brian Adams: I AM INUIT (photo series)
© NHM Vienna, A. Schumacher

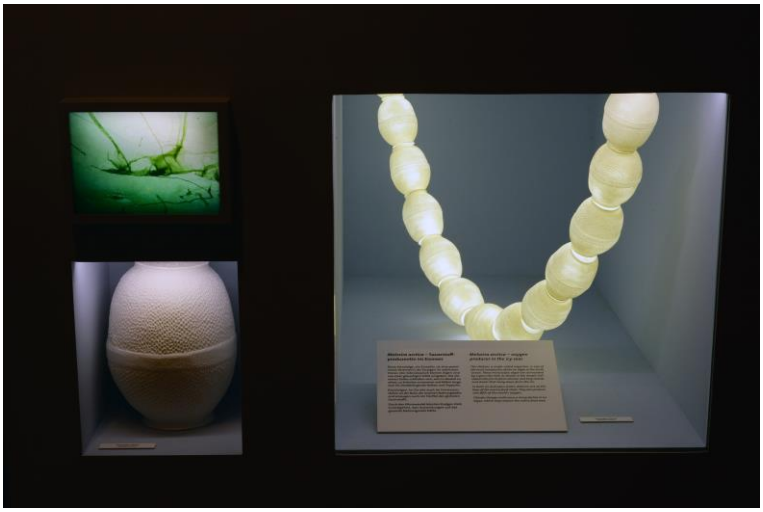
Cabinet 3: Arctic video installations
© NHM Vienna, A. Schumacher

Hall 1: The Arctic Ocean
© NHM Vienna, A. Schumacher

Hall 1: Wildlife in the Arctic Ocean
© NHM Vienna, A. Schumacher

Hall 1: Birdlife of the Arctic Ocean
© NHM Vienna, A. Schumacher

Hall 1: Wildlife in the Arctic Ocean
© NHM Vienna, A. Schumacher



Hall 1: Diatoms as the basis of the food web in the Arctic Ocean, 3D printed models (natural size: 50 micrometres
© NHM Vienna, A. Schumacher

Hall 1: Research on the Greenland Ice Sheet
© NHM Vienna, A. Schumacher

Hall 1: Arctic researchers take the floor: Martin Schwentner, Gina Moseley, Klemens Weisleitner, Jakob Abermann
© NHM Vienna, A. Schumacher

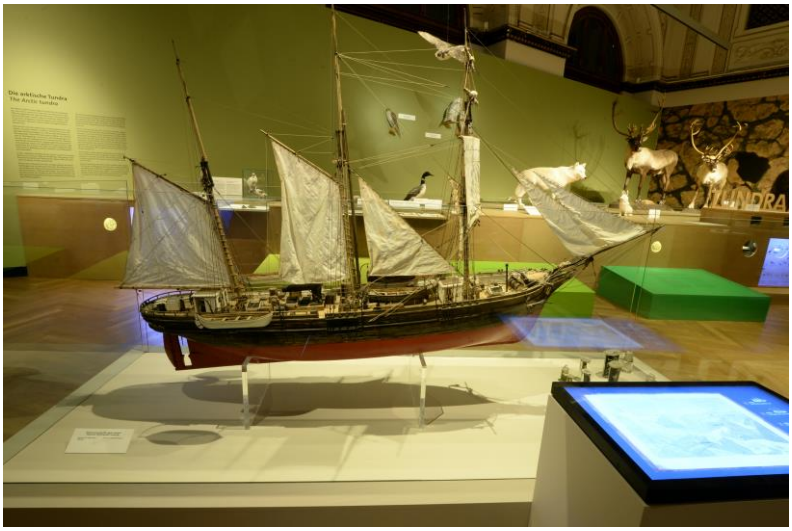
Hall 1: The Arctic Ocean
© NHM Vienna, A. Schumacher

Hall 2: The wildlife of the Arctic tundra
© NHM Vienna, A. Schumacher

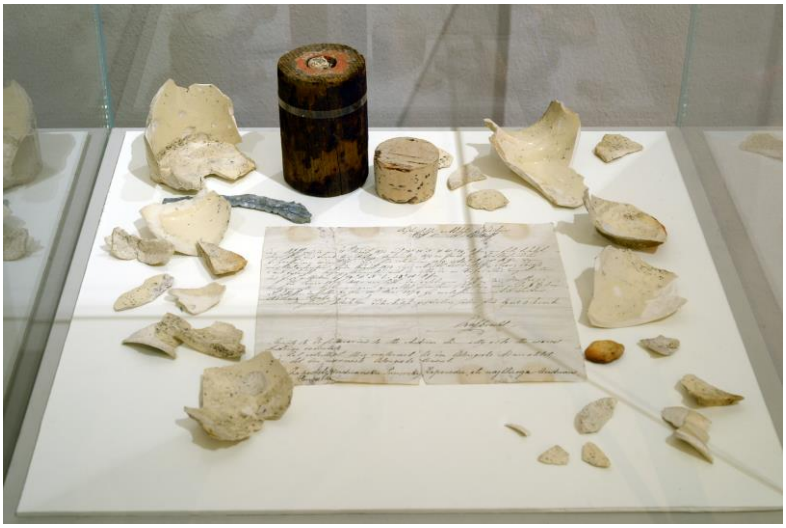
Hall 2: History of the Austro-Hungarian North Pole Expedition (1872-1874)
© NHM Vienna, A. Schumacher

Hall 2: Original drill core from the Arctic permafrost
© NHM Vienna, A. Schumacher

Hall 2: Arctic wildlife: red-throated pipit, Arctic hare, Arctic wolf
© NHM Vienna, A. Schumacher



Hall 2: Model of the polar expedition ship *Admiral Tegetthoff*
© NHM Vienna, A. Schumacher



Hall 2: Original note by Carl Weyprecht, written in 1874, discovered on Franz-Josef-Land in 1978. Today in the archives of the Austrian Academy of Sciences
© NHM Vienna, A. Schumacher

Hall 2: Original specimens collected by the Austro-Hungarian North Pole Expedition (1872-1874)
© NHM Vienna, A. Schumacher

Cabinet 4: What is the Arctic? Hands-on object to illustrate the notions of polar night and polar day
© NHM Vienna, A. Schumacher

Cabinet 4: What is the Arctic?
© NHM Vienna, A. Schumacher

Cabinet 5: Interactive station: The museum of cold words
© NHM Vienna, A. Schumacher

Cabinet 5: The Arctic in the Museum – the Arctic to take home
© NHM Vienna, A. Schumacher

Cabinet 1: Taxidermied female polar bear from Schönbrunn Zoo
© NHM Vienna, A. Schumacher

Enquiries:
Mag. Irina Kubadinow
Leitung Presseabteilung, Pressesprecherin
Tel.: + 43 (1) 521 77 – 410

Mag. Nikolett Kertész-Schenk, Bakk. BA
Presseabteilung, Pressereferentin
Tel.: + 43 (1) 521 77 – 626

Gloria Feiler
Presseabteilung, Assistentin
Tel.: + 43 (1) 521 77 – 626

Naturhistorisches Museum Wien
Burgring 7
1010 Wien

www.nhm-wien.ac.at