

A photograph of a polar bear and its cub walking across a vast, fragmented expanse of sea ice. The ice consists of numerous small, irregular floes of varying sizes, creating a textured, white and light blue surface. The polar bear is in the center-right of the frame, walking towards the left. Its cub is slightly behind and to the right of the adult bear, also walking in the same direction. The background shows more ice floes stretching towards a pale, overcast sky. A large, semi-transparent white letter 'X' is overlaid on the left side of the image, partially obscuring the ice and the text.

# **Science & Education Report**



# MS Spitsbergen

17 - 29.06.2025

Circumnavigating Spitsbergen — In the  
Realm of the Polar Bear







# Science & Education Program

Our Science and Education Team accompanied you during your expedition to the remote nature of the North East Atlantic.

We had the opportunity to explore Svalbard's natural snow-covered beauty, exceptional wildlife, and rich history. We enjoyed lectures and interactive activities onboard and explored our destinations from Land and the Sea.



# Lectures & Workshops

We had a wonderful time onboard with a diversity of lectures and workshops. Together we learned about the history, geology, plankton, mammals and birds of Svalbard. In total we had 7 lectures, 4 tiny talks, 7 workshops, and 3 art sessions!



# History

Over the course of this trip, we were able to view the domestic and industrial relics of those who were in Svalbard during the last 400 years. Vast piles of whale bones bore witness to the whaling and sealing history; huts showed us how these hunters and trappers lived. Rotting boats and rusting machinery provided evidence of the intensity and breadth of the economies which boomed then collapsed within this archipelago.





# Culture

Svalbard is a place without an endemic population for most of its history. It presents a fascinating case study of a place formed and shaped fairly recently by a multitude of diverse and different cultures. Settlements such as Ny-Alesund show us how people of varied backgrounds and cultures call this archipelago home, whilst united in a common pursuit of scientific research — for the greater good.





# Glaciology and ice - glaciers

Ice is frozen water — nothing else (not frozen CO<sub>2</sub> or any other gas). So the formula for ice is H<sub>2</sub>O, a very small molecule.

Our ice on Earth is hexagonal in its crystal symmetry, which is very spacious in its arrangement. In the universe there are many other ways to freeze water. BUT: Only our ice is so lightweight (=little dense) that it floats on water. Always, even the densest ice.

Glacier ice is made inland from compacted snowfall which becomes ice and then starts flowing shorewards. There it calves = icebergs. They float.

Glacier Ice at Monacobreen



# Glaciology and ice – sea ice

Sea ice is made from ocean water frozen over. In consequence it is very often less dense than glacier ice. Blue ice is thus much rarer in sea ice.

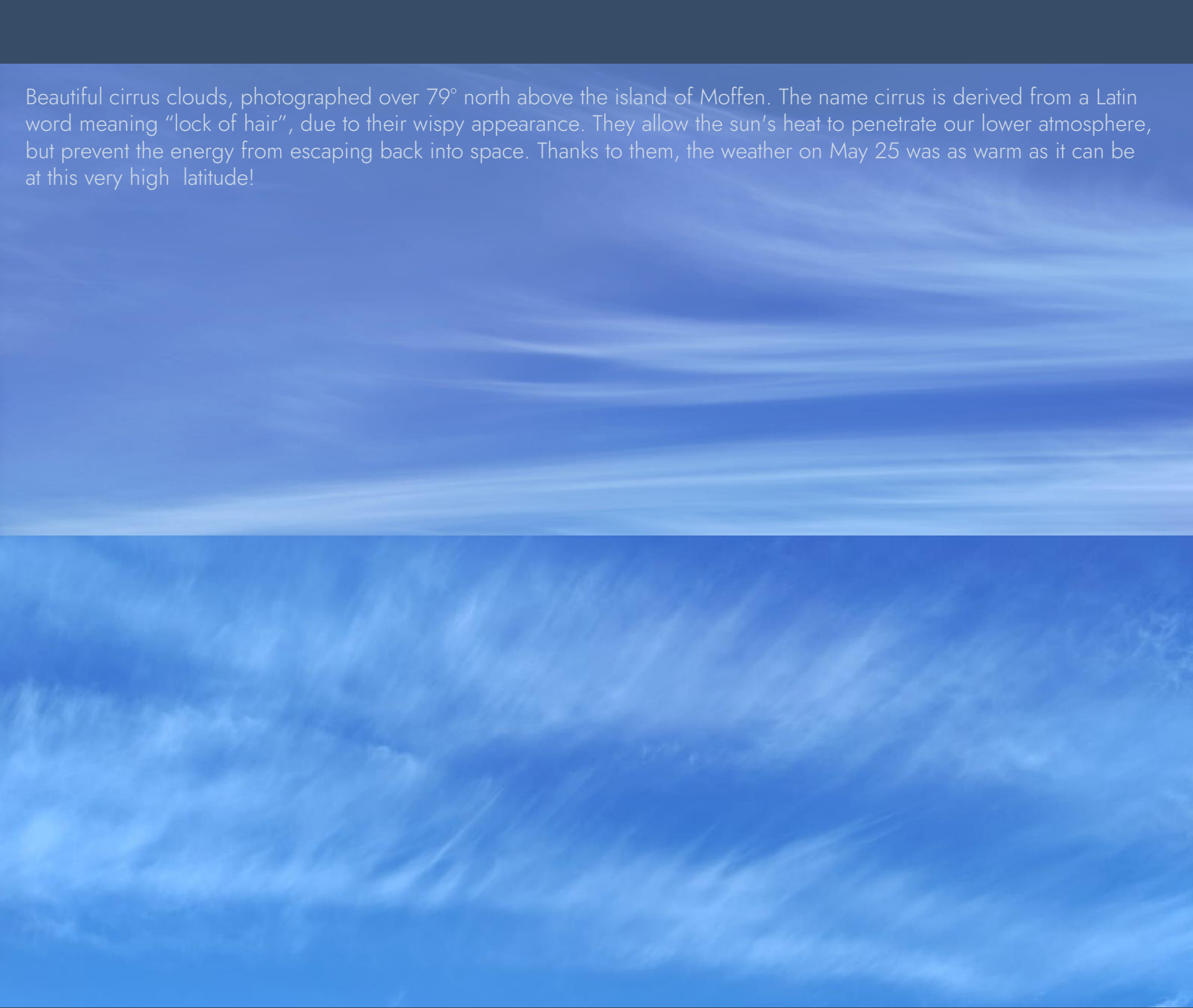
Although the water is salty, the ice is not: The salt components (Kations) are too big to fit into  $H_2O$ . So sea ice floats, too. What if ice did not float? Mankind would not be here (Earth completely frozen over from bottom to top).

In addition, the salt driven out of the young sea ice makes the water in front of the ice shelf heavy, so it sinks and drives the oceanic conveyor system.

Our Zodiac Cruise at 81 degrees North







Beautiful cirrus clouds, photographed over 79° north above the island of Moffen. The name cirrus is derived from a Latin word meaning “lock of hair”, due to their wispy appearance. They allow the sun’s heat to penetrate our lower atmosphere, but prevent the energy from escaping back into space. Thanks to them, the weather on May 25 was as warm as it can be at this very high latitude!

# NASA Globe Cloud Observer

Together with our Environmental Scientist Steffen you observed the clouds and submitted your observations to NASA GLOBE Observer on 3 occasions during the voyage. Many of you have downloaded the App at the first occasion and have provided **over individual Cloud Observations** during our journey.

These cloud observations can help NASA improve our understanding of Earth’s atmosphere and climate by providing valuable data for scientific research and climate modelling.

Especially the interface between cloud and ocean is still poorly known, so our data is very precious to NASA, as we are traveling in remote and climate-sensitive areas.

[View our data](#) on the global map



# iNaturalist

Throughout our expedition, we documented the flora and fauna of Svalbard and uploaded all our findings to the iNaturalist platform.

During our voyage, we submitted 56 observations of 29 different species. This effort contributes to the creation of a comprehensive understanding of the current distribution of species in the archipelago and can aid researchers in their ongoing studies and conservation efforts to protect these species.

View our data submitted on our [iNaturalist project](#)





# Plankton — Drifters of the Ocean

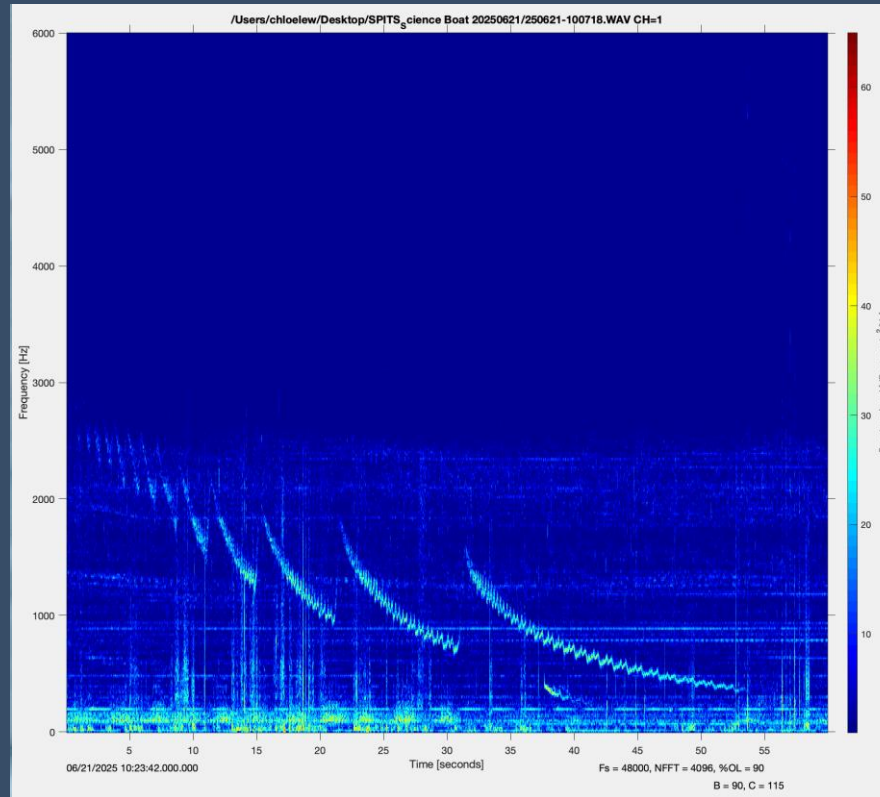




# Hydrophone

During our science boats in Torrelneset and Isflakbukta, we deployed the hydrophone and heard some spooky things! The trills of Bearded Seals echoed through the water from up to 25km away!

If you'd like to listen to our recordings, please take a picture of the QR code to access our SoundCloud account. You can see a visual profile of the Trill — look at it while you listen and see if you can match them up!





# Wildlife List

# Birds

We observed 26 different species of birds during our voyage







Black Guillemot – Gryllteiste – Guillemot à miroir

Timo Heinz / HX



Northern Fulmar – Eissturmvogel – Fulmar boréal

Julia Finger / HX



Arctic Tern – Küstenseeschwalbe – Sterne Arctique



Brünnich's Guillemot - Dickschnabellumme - Guillemot de Brünnich

Julia Finger / HX





Glaucous Gull — Eismöwe - Goéland Bourgmaster



Arctic Skua (Parasitic Jaeger) — Schmarotzerraubmöwe — Labbe parasite



Snow Bunting — Schneeammer — Bruant des neiges



Brent Goose — Ringelgans — Bernache cravant



# Wildlife List – Seabirds

SCIENTIFIC NAME	ENGLISH	DEUTSCH	FRANÇAIS
<i>Fulmarus glacialis</i>	Northern Fulmar	Eissturmvogel	Fulmar boréal
<i>Stercorarius skua</i>	Great Skua	Große Raubmöwe	Grand Labbe
<i>Stercorarius parasiticus</i>	Arctic Skua (Parasitic Jaeger)	Schmarotzerraubmöwe	Labbe parasite
<i>Stercorarius longicaudus</i>	Long-tailed Skua (Long-tailed Jaeger)	Falkenraubmöwe	Labbe à longue queue
<i>Rissa tridactyla</i>	Black-legged Kittiwake	Dreizehenmöwe	Mouette tridactyle
<i>Larus hyperboreus</i>	Glaucous Gull	Eismöwe	Goéland Bourgmestre
<i>Xema sabini</i>	Sabine's Gull	Schwalbenmöwe	Mouette de Sabine
<i>Pagophila eburnea</i>	Ivory Gull	Elfenbeinmöwe	Mouette blanche
<i>Sterna paradisaea</i>	Arctic Tern	Küstenseeschwalbe	Sterne Arctique
<i>Alle alle</i>	Little Auk	Krabbentaucher	Mergule nain
<i>Fratercula arctica</i>	Atlantic Puffin	Papageitaucher	Macareux moine
<i>Cephus grille</i>	Black Guillemot	Gryllteiste	Guillemot à miroir
<i>Uria lomvia</i>	Brünnich's Guillemot (Thick-billed Murre)	Dickschnabellumme	Guillemot de Brünnich



# Shorebirds

SCIENTIFIC NAME	ENGLISH	DEUTSCH	FRANÇAIS
<i>Anser brachyrhynchus</i>	<b>Pink-footed Goose</b>	Kurzschnabelgans	Oie à bec court
<i>Branta leucopsis</i>	<b>Barnacle Goose</b>	Weißwangengans	Bernache nonnette
<i>Branta bernicla</i>	<b>Brent Goose</b>	Ringelgans	Bernache cravant
<i>Somateria mollissima</i>	<b>Common Eider</b>	Eiderente	Eider à duvet
<i>Somateria spectabilis</i>	<b>King Eider</b>	Prachteiderente	Eider à tête grise
<i>Clangula hyemalis</i>	<b>Long-tailed Duck</b>	Eisente	Harelde kakawi
<i>Gavia stellata</i>	<b>Red-throated Diver (Red-throated Loon)</b>	Sterntaucher	Plongeon catmarin
<i>Charadrius hiaticula</i>	<b>Common Ringed Plover</b>	Sandregenpfeifer	Pluvier grand-gravelot
<i>Calidris maritima</i>	<b>Purple Sandpiper</b>	Meerstrandläufer	Bécasseau violet
<i>Phalaropus fulicarius</i>	<b>Red Phalarope (Grey Phalarope)</b>	Thorshühnchen	Phalarope à bec large
<i>Calidris alba</i>	<b>Sanderling</b>	Sanderling	Bécasseau sanderling



# Land birds

SCIENTIFIC NAME	ENGLISH	DEUTSCH	FRANÇAIS
<i>Plectrophenax nivalis</i>	<b>Snow Bunting</b>	Schneeammer	Bruant des neiges
<i>Lagopus muta</i>	<b>Rock Ptarmigan</b>	Alpenschneehuhn	Lagopède alpin





# eBird

During our wildlife watches, landings and small-boat cruising, our ornithologist conducted detailed bird surveys, recording observations for the citizen science platform eBird. We recorded 22 different species of birds in 18 checklists.

This initiative helps contribute valuable data to global bird conservation efforts, enhancing our understanding of bird populations and their habitats.

View our data on our [e-Bird trip report](#)



# Wildlife List

# Marine Mammals

We observed 7 different species  
of marine mammals during our  
voyage





# Wildlife List – Marine Mammals

SCIENTIFIC NAME	ENGLISH	DEUTSCH	FRANÇAIS
<i>Balaenoptera acutorostrata</i>	Common minke whale	Zwergwal	Rorqual à museau pointu
<i>Erignathus barbatus</i>	Bearded seal	Bartrobbe	Phoque barbu
<i>Delphinapterus leucas</i>	Beluga Whale	Weißwal	Béluga
<i>Phoca vitulina</i>	Harbour Seal	Seehund	Phoque commun
<i>Odobenus rosmarus</i>	Walrus	Walross	Morse
<i>Pusa hispida</i>	Ringed Seal	Ringelrobbe	Phoque annelé
<i>Ursus maritimus</i>	Polar bear	Eisbär	Ours polaire



# Species Spotlight

At the historic whaling site of Smeerenburg, at first it seemed as if the local walrus were not at home. However a splash and a dark shape told us otherwise. Then before our eyes, five walrus foraged along the shoreline, snoozing on sandbanks for a few minutes between snacks. Then, as we were heading back to the ship, these charismatic emblems of the high arctic began to haul out on shore. To ensure peace and quiet for this splendid animals, we closed our operation and headed back to the ship. From the decks of Spitsbergen we were able to watch through our binoculars and see them settle down for a snooze. However as an extra treat, we also enjoyed a more intimate look through the ship's GSS high magnification camera!

Photo Timo Heinz





# Wildlife List Land Mammals

We observed 2 different  
species of marine mammals  
during our voyage





# Wildlife List – Land mammals



SCIENTIFIC NAME	ENGLISH	DEUTSCH	FRANÇAIS
<i>Rangifer tarandus platyrhynchus</i>	Svalbard Reindeer	Rentier	Renne du Spitzberg
<i>Vulpes lagopus</i>	Arctic Fox	Polarfuchs	Renard Arctique



# THX



Thank you for  
joining us!