

Science & Education Report

Arctic Canada and Greenland Expedition – Circumnavigating Baffin Bay

MS Roald Amundsen

3 – 21 September 2026



Arts, Crafts & Creativity

During our voyage, we witnessed the dramatic landscapes of Nunavut, Canada, and West Greenland. Inspired by our surroundings, we created art including watercolours and beaded jewellery.





Science & Education Programme

Our onboard Naturalists guided you in using scientific tools to investigate the world around us. Through lectures, discovery sessions, expedition boat cruises, and visits ashore, we aimed to make every day a memorable learning experience.

Inuit Culture

Hearing, reading about, or watching documentaries on the Indigenous cultures of the Arctic is one thing. Visiting communities across northern Canada and Greenland, and hearing first-hand from our Cultural Ambassadors about their people, culture, language, traditions, and heritage, is something very different.

This is the most genuine way to learn about these cultures. Much of the wisdom and knowledge our ambassadors shared with us cannot be found in any book or documentary.



History

During our voyage through Baffin Bay aboard MS Roald Amundsen, we encountered both spectacular Arctic scenery and remarkable stories of exploration.

At Beechey Island, we visited the graves of three men from Sir John Franklin's 1845 expedition. It is one of the most enduring archaeological and historical sites in the Canadian Arctic and a powerful symbol of the region's exploration heritage.



History: RCMP of the Far North

During our voyage, we followed in the footsteps of one of the greatest explorers of the Arctic. Yet the Arctic is not only about famous names; it is also about ordinary men sent to the far north to serve their country, such as the officers of the Royal Canadian Mounted Police, whose outpost we visited at Dundas Harbour.

We saw how remote their service posts were and came to understand how much they relied on cooperation with the local population.



Archaeology

Stepping ashore in some of the most remote locations along our route, we were reminded that people lived in the far north for countless generations before European explorers arrived. These sites represent stories told and untold: from the faint outlines of tents that sheltered the earliest inhabitants of this land – remembered locally as the Sivullirmiut, 'the Ancient Ones', and dating back some 5,000 years – to the more visible remains of camps left by their distantly related descendants, the Thule Inuit, who spread across this land around 1,000 years ago.

Our Inuit Cultural Ambassadors helped us understand how their ancestors survived, and thrived, in a landscape that can seem barren to our eyes. Some of the feats of the past were celebrated in the drum songs performed for us during community visits.

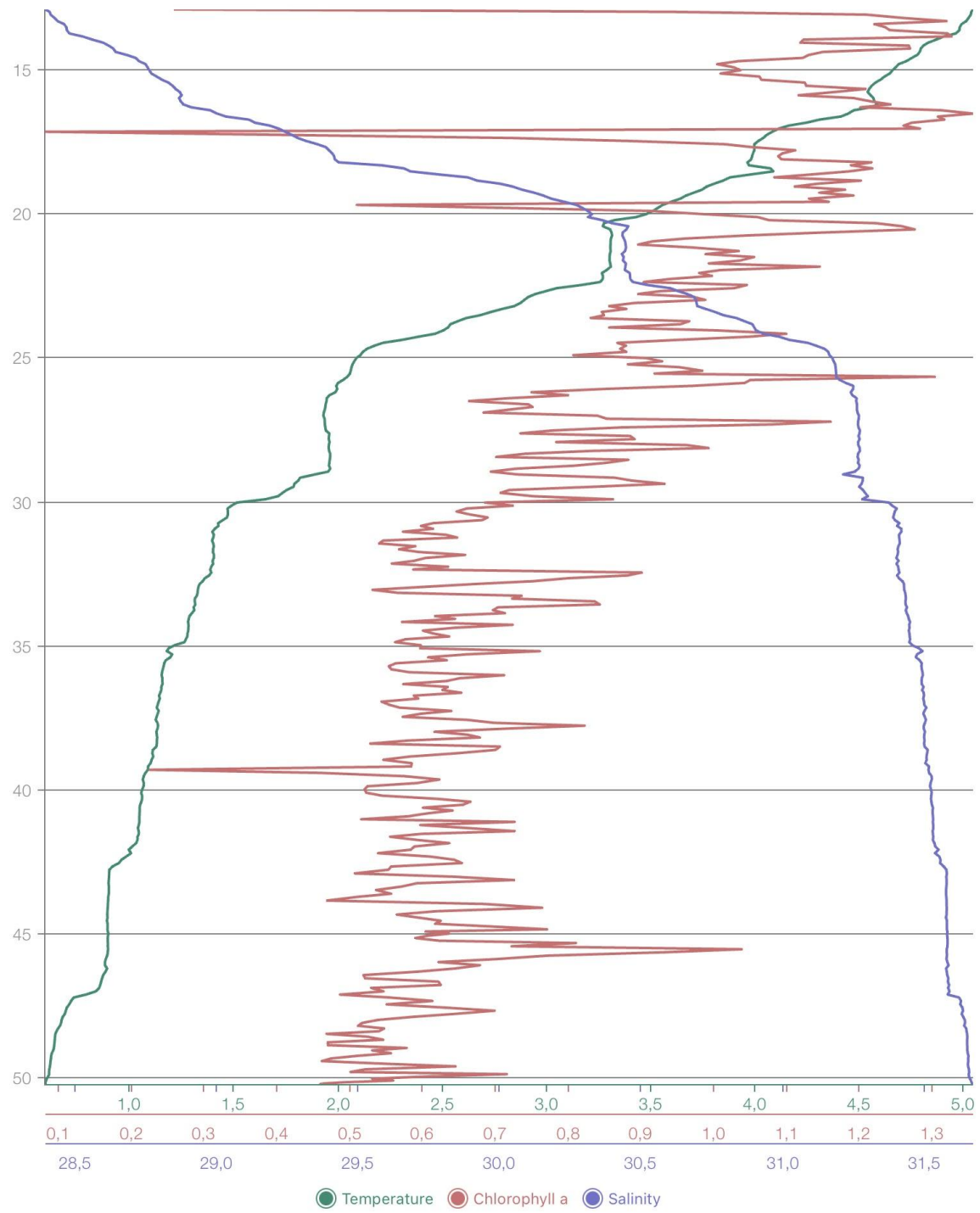




Science Boat

During our science boat outings, we used plankton sampling techniques focused on the different species of phytoplankton and zooplankton in the waters we sailed through. We also lowered a Secchi Disk from our science boats to measure water turbidity, which indicates how much plankton may be present. Sediment can also affect turbidity, so we used some slightly more advanced equipment as well.

We deployed a CTD as deep as possible to create a physical profile of the water column. It took continuous measurements of chlorophyll to estimate phytoplankton abundance, as well as temperature, salinity, and depth. We make this data available for researchers to request and analyse for numerous research projects.



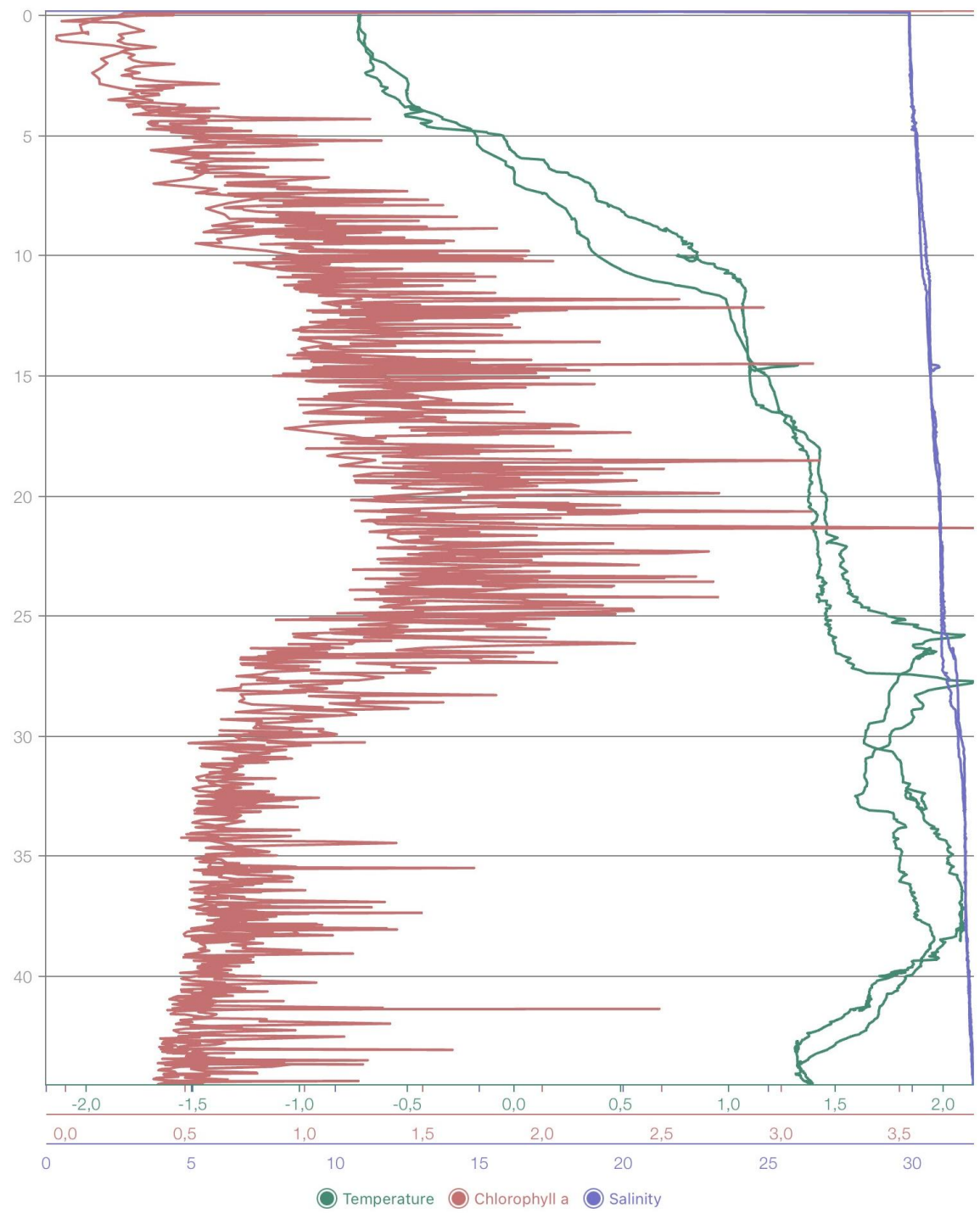
Science Boat: Feachem Bay CTD data

Our CTD casts gave us insight into how salinity, temperature, and chlorophyll changes with depth.

Temperature (green) shows a gently decreasing profile, with surface waters around 5 °C cooling to ~0.5°C by 50 m depth. This indicates a warm surface layer, what you would expect to find as warm water is less dense than cooler water. It drops off more steeply before 25 m.

Salinity (blue) begins at ~28.5 PSU at the surface and increases steadily to ~31.5 PSU at depth. This pattern reflects fresher surface input—likely from river discharge, rainfall, or coastal runoff—overlying denser, more saline marine water below. There is also a steeper increase in salinity in the first 25m. Showing a strong thermohalocline (density influenced by both salinity and temperature.

Chlorophyll a (red) ranges from ~0.5 to 1.3 µg/L-. The profile does not indicate a major bloom, but rather a moderately productive surface community typical of coastal waters receiving nutrient input from land and sufficient sunlight.

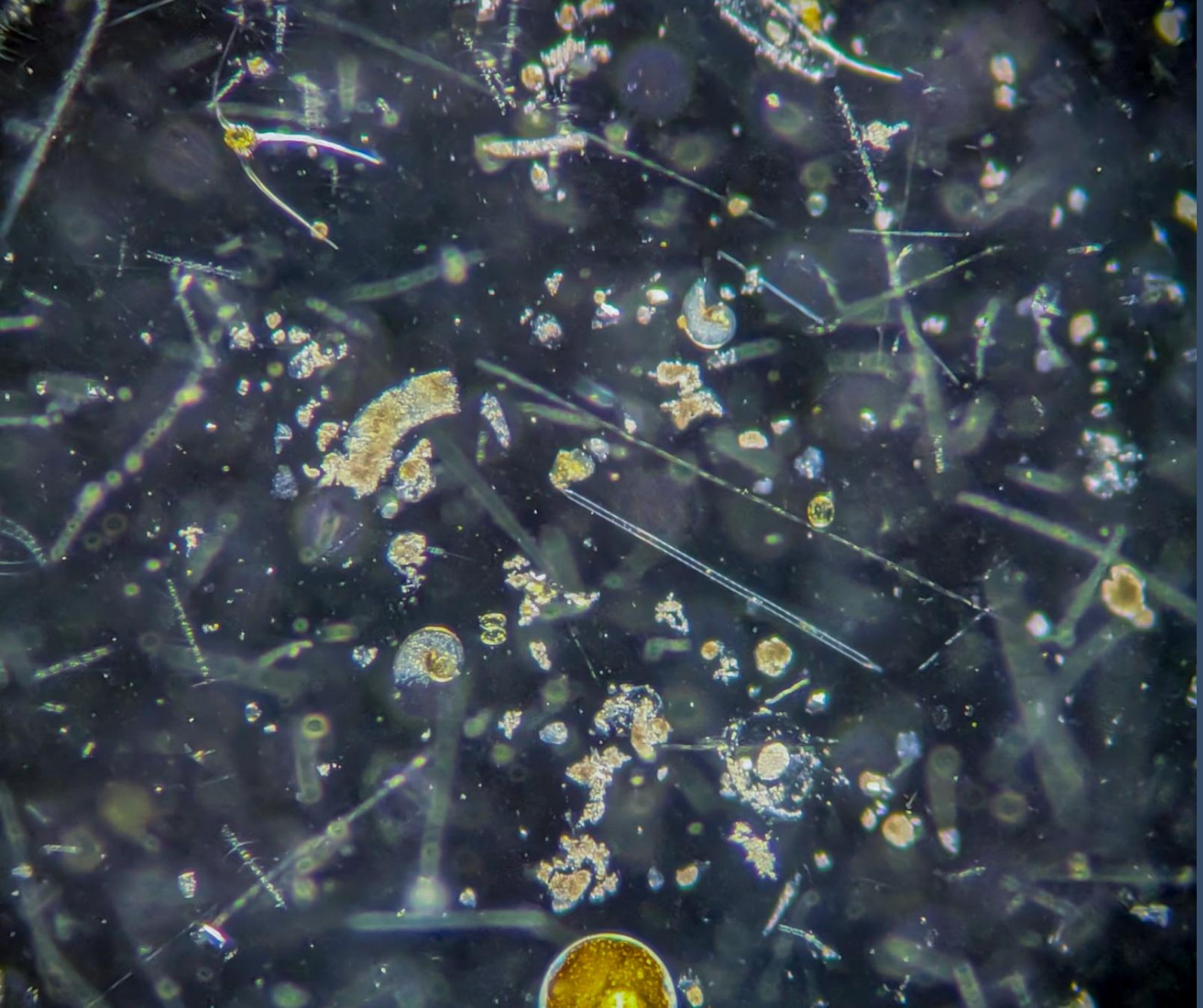


Science Boat: Sea Ice at 78° North CTD data

Temperature (green) shows an increasing profile with depth, with surface waters around -0.5°C warming to ~1.5-2.0°C after 25 m depth. This defies the normal physical profile, as the cooler water is at the surface. This is due to the lower salinity at the surface as well as the freezing cold ice floating at the surface. The warmer saltier current from the Atlantic therefore stays locked below the cold Arctic water here due to this halocline, salinity overpowers the effect of temperature on density.

Salinity (blue) begins at ~30 PSU at the surface and increases steadily to ~32 PSU at depth. This pattern reflects fresher surface input—likely from melting sea ice and glacial ice at this time late in summer, and from coastal runoff - overlying denser, more saline marine water below.

Chlorophyll a (red) shows a distinct increase towards 25 m depth, from ~0.5 to ~ 3.0µg/L at 25m. This subsurface chlorophyll maximum reveals where light and nutrients balance optimally. It then declines from here, likely due to decreased light availability,



Plankton samples

Plankton are ocean drifters transported by currents and tides; they lack the ability to move against these natural forces. Animals (zooplankton) and plant-like algae (phytoplankton) form the base of the marine food web and also support the health of our oceans and life on our planet.

The image on the left shows a plankton sample from our trip. Showing sea snail larvae, and various phytoplankton including including *Tripos longipes*, *Rhizolinia spp*, and *Coscinodiscus spp*.



Tripos longipes



Chaetoceros spp.



Pseudonitzschia spp



Coscinodiscus spp.

Phytoplankton

Phytoplankton underpin the marine food web. Like plants on land, they contain photosynthetic pigments (chlorophyll) that convert sunlight into energy and oxygen, and they also sequester carbon dioxide.

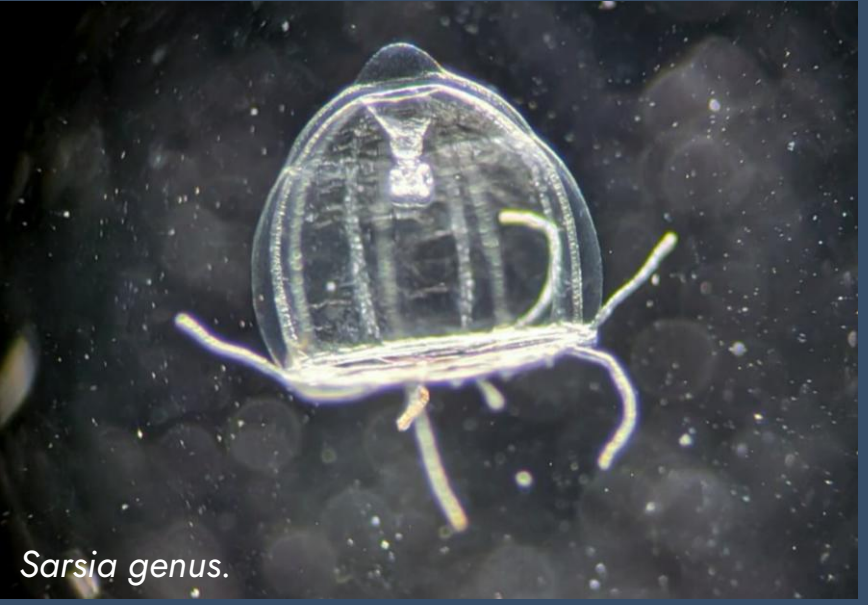
We collected phytoplankton samples at Qikiqtarjuaq, Feachem Bay, Dundas Harbour, Beechey Island, Croker Bay, 78° North, and Camp Mario.

Zooplankton

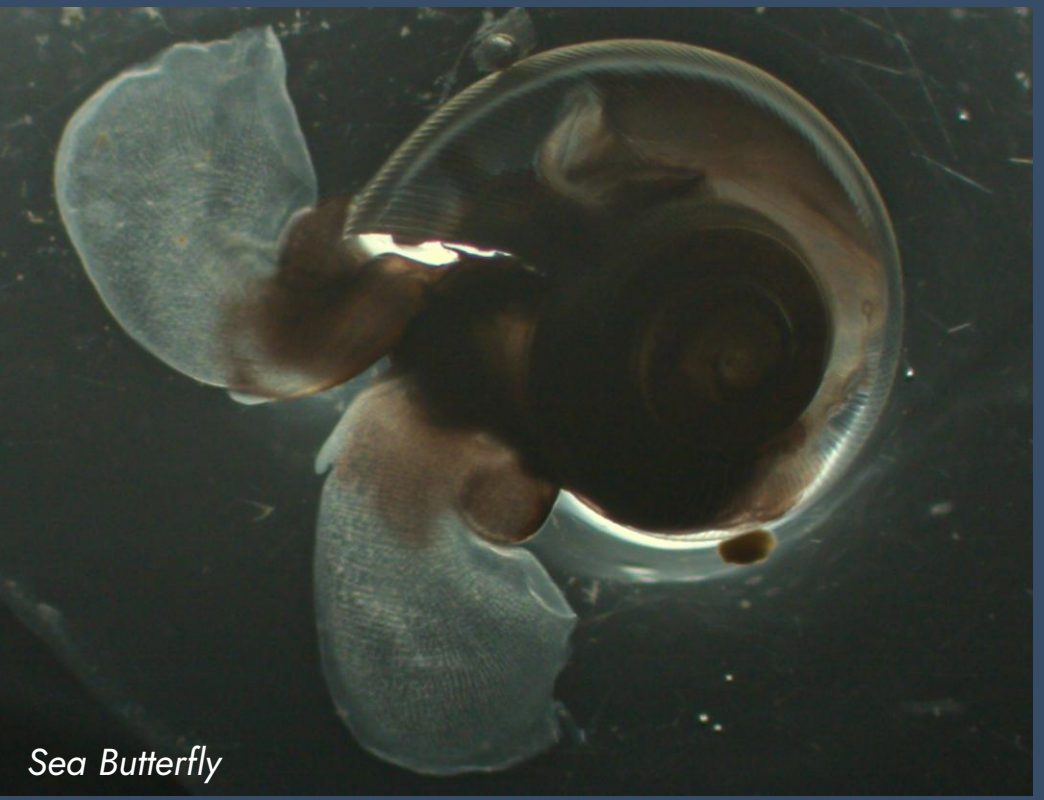
In addition to phytoplankton, we also collected zooplankton. Our samples included both categories of zooplankton.

'Holoplankton' remain planktonic for their whole life cycle and include copepods, amphipods, sea butterflies, Arctic krill, arrow worms, and sea angels. 'Meroplankton' are planktonic for only part of their life cycle and include crab and barnacle larvae.

We also added the photos taken with our microscopes to our iNaturalist project to help monitor biodiversity.



Sarsia genus.



Sea Butterfly



Copepod spp.

Zooplankton: Sea Angel

(Clione limacina)

Arguably our most beautiful wildlife sightings of the voyage were our sea angels, found close to Beechey Island, Nunavut, Canada, Uummanaq, and 78 degrees North.

Sea angels are small, transparent marine gastropods belonging to a group of swimming sea slugs known as pteropods. Found mostly in polar waters, sea angels have soft, gelatinous bodies and are named for their delicate, wing-like appendages called parapodia, which they flap gracefully to "fly" through the water.

Despite their angelic appearance, sea angels are predators—feeding primarily on sea butterflies Their anatomy includes a specialized feeding structure called a buccal cone, equipped with tiny hooks or radulae.



Citizen Science

Happywhale

Cetaceans – whales, dolphins, and porpoises – capture our imaginations and our hearts whenever we witness them. Doing something as simple as taking a photo of them can help scientists learn more about these animals. That is where Happywhale comes in: by using AI to match images of whales submitted by users, the platform tracks individuals as they migrate across the world and through their lives. When you submit a photo of a cetacean (or seal), you may be notified of any past and future matches of that individual.

So far we have **two individuals** submitted from the ship by the Expedition Team and guests during this voyage, **one male orca from our encounter in Nunavut, Canada, and one beluga from Dundas Harbour with scars on its body.** It is never too late to upload your ID-quality photos of any whales (and seals with spots) from this trip or any trips you may have photos from over your lifetime. Old photos are just as valuable, as they can tell us whether individuals known from recent encounters were alive before those reports.

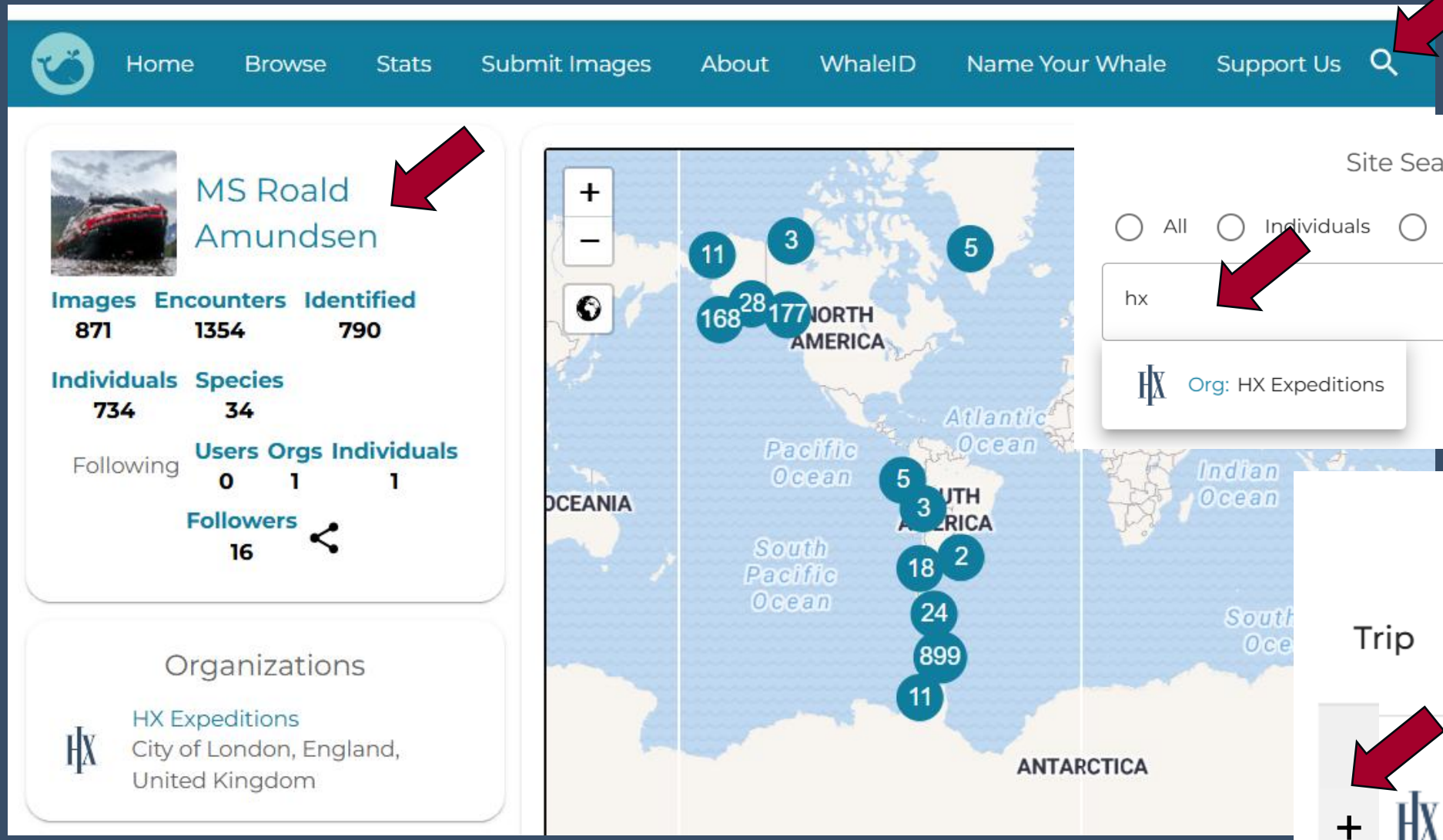


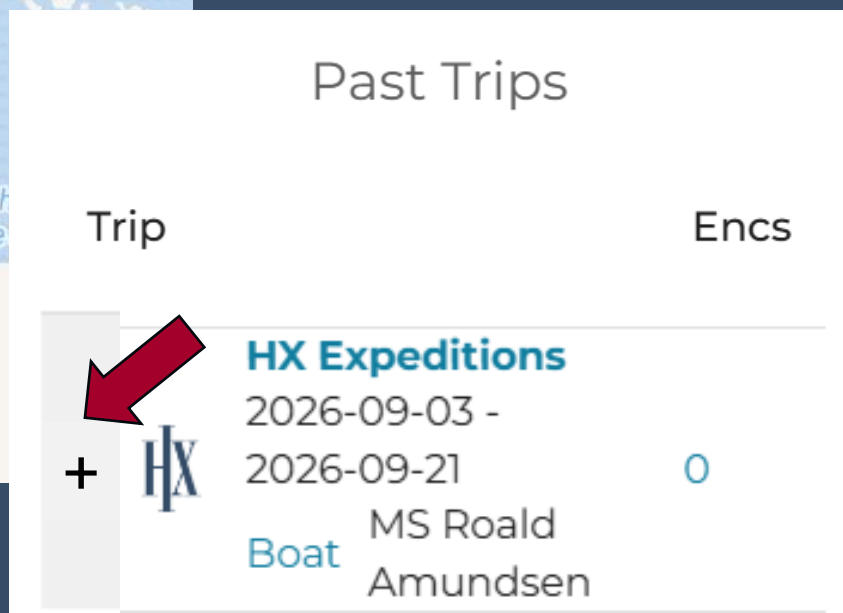




View the MS Roald Amundsen's submissions to Happywhale during our voyage!
To receive updates on if/when these individuals are seen again (don't worry there's no spam emails) then create a login, and add yourself to this voyage by clicking the '+' sign next to this trip's dates on MS Roald Amundsen's page here

How to add yourself to a voyage:





Citizen Science
ORCA

Whilst on your journey circumnavigating Baffin Bay you were joined by ORCA Ocean Conservationist Daniela, who was collecting data during wildlife watches on whales, dolphins and porpoises. ORCA is a Cetacean Conservation charity, dedicated to the long-term protection of whales, dolphins and porpoises. The data Daniela collected was sent back to ORCA and made available for many organisations in cetacean conservation. Visit orca.org.uk for more information.

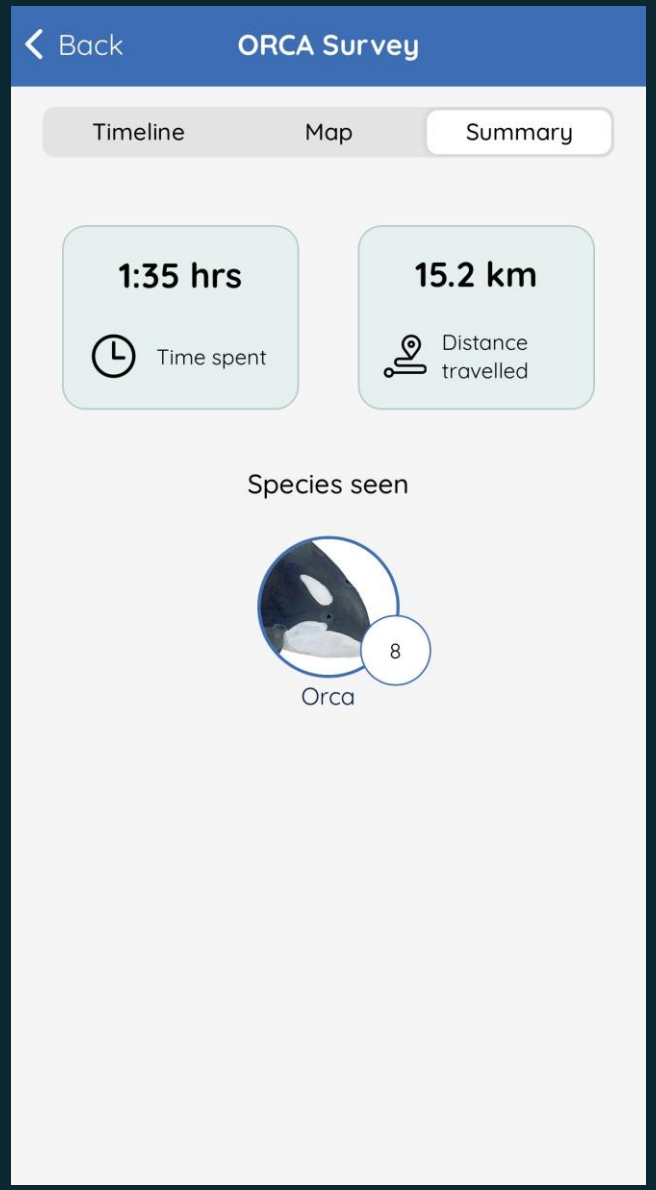


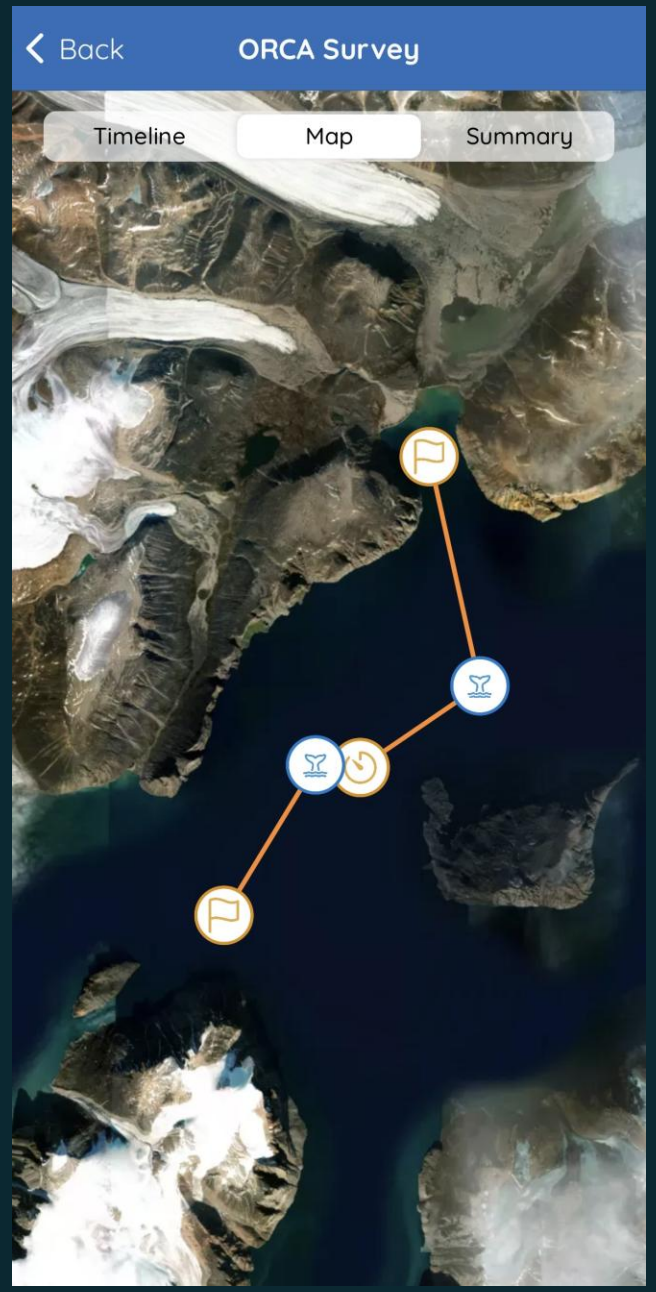


OceanWatchers Survey Effort

A huge thank you to everyone that came out and joined the naturalists for the wildlife watches during all weather. There might not have always been sightings, but it was great getting to know you all out on deck!

Every data point collected and kilometer covered counts if we want to better understand population dynamics.





Screenshots from the data collection

Trip Survey Totals

Humpback whale 4



Orca..... 8



Northern Bottlenose Whale..... 4



Long-finned pilot whale..... 35



Surveyed over 28+ hours and 505 km

ORCA Looking out for Whales and Dolphins



Citizen Science

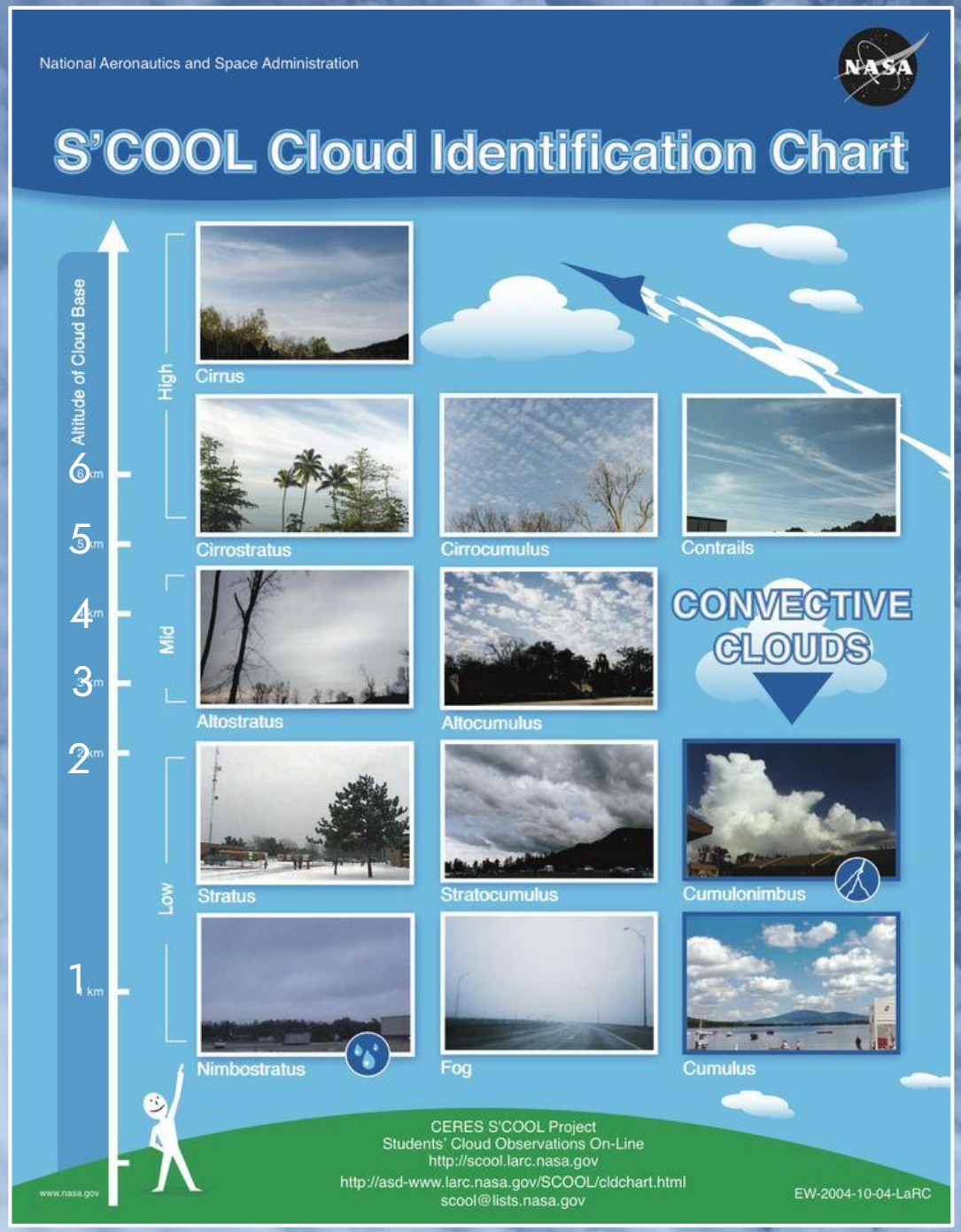
NASA Cloud Observer

Clouds aren't just shapes in the sky; they are important components of Earth's heat budget and balance. Information about when, where, and what types of clouds are forming helps scientists understand more about Earth's climate and climate change. Through NASA's GLOBE Cloud Observer program, we help contribute such data.

Our citizen scientists **submitted 10 observations over 10 sessions** to the global database run by NASA. So far, two of these observations have been matched to data from weather satellites. Any observations from below contribute to the growing baseline data for these remote regions, even without matching satellite observations from above.

If you would like to continue cloud observations at home, you can download the app 'GLOBE Observer.'

View our data on the global map



Citizen Science

NASA Cloud Observer

High Clouds *(Base above 6,000 meters):*

Cirrus: Thin, wispy clouds composed of ice crystals. They often appear as delicate streaks or feathery wisps high in the sky.

Cirrostratus: Thin, sheet clouds that cover large portions of the sky. They can create a halo around the sun or moon.

Cirrocumulus: Small, fluffy clouds, resembling fish scales or ripples.

Medium Clouds *(Base between 2,000 and 6,000 meters):*

Altocumulus: Puffy, grayish-white clouds with rounded edges. They often form parallel rows or patches.

Altostratus: Thick, grayish clouds that partially obscure the sun or moon. They lack the distinct features of cirrostratus.

Low Clouds *(Base below 2,000 meters):*

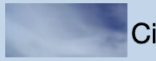
Stratus: Uniform, gray clouds that cover the sky like a blanket. They can bring drizzle or light rain.

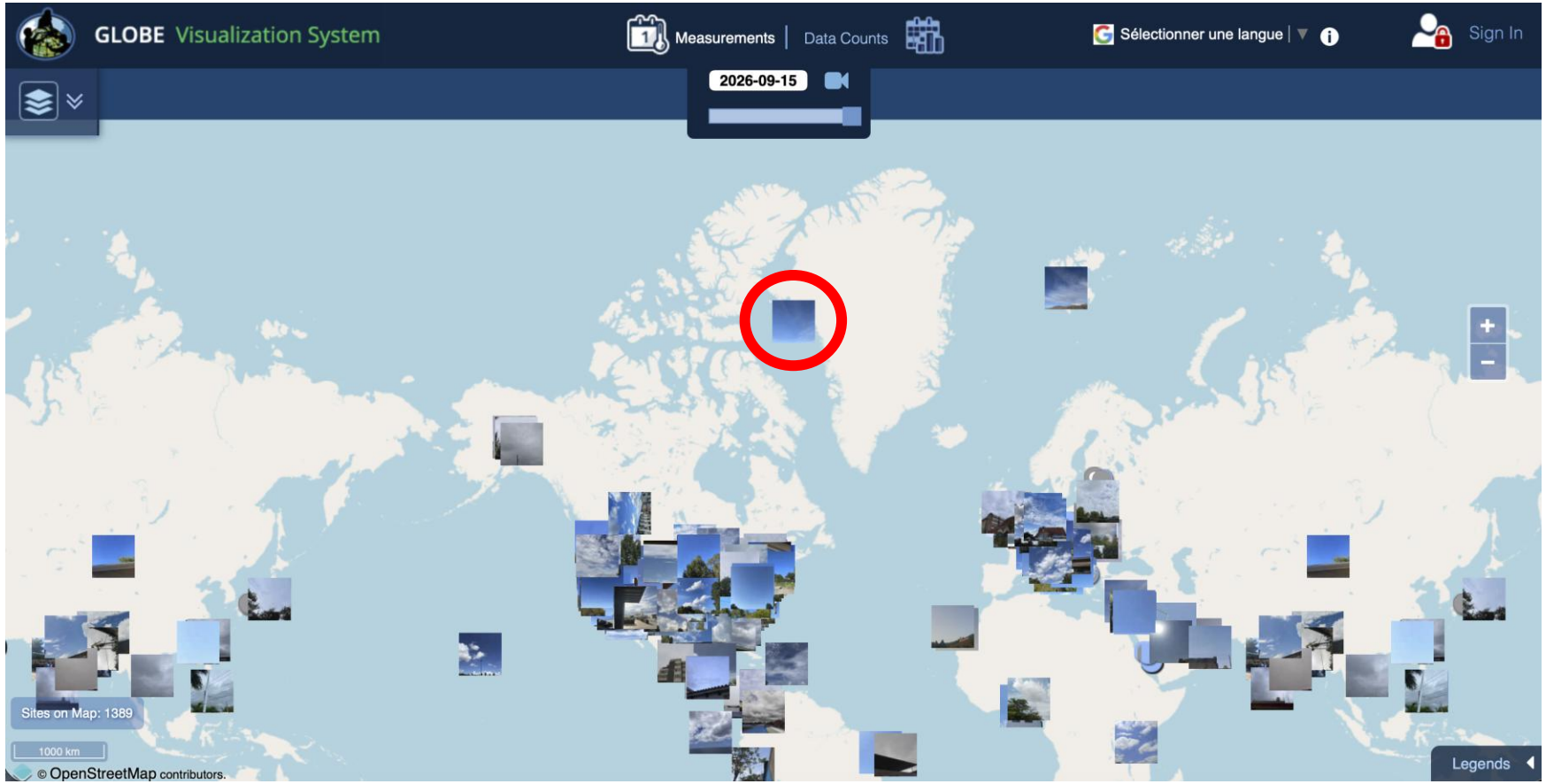
Stratocumulus: Low, lumpy clouds with defined edges. They often appear in rows or patches.

Nimbostratus: Thick, dark gray clouds associated with steady rain or snow.

If you'd like to explore more examples, you can check out NASA's On-Line Cloud Chart View our data on the global map

Satellite match— Devon Island, September 9th 2026

Observation	Your GLOBE Ground View	NOAA-20 View
Universal Date/Time	2026-09-15 12:35:00	2026-09-15 12:32:00
Latitude	76.01	75.63 to 76.43
Longitude	-65.12	-65.54 to -64.74
Total Cloud Cover	Isolated (10-25%)	Isolated (17.07%)
High Clouds	 Cirrostratus Cover: Few (<10%) Opacity: Transparent	Cover: Few (0.05%) Altitude: 7.04 (km) Phase: Ice 232.37 (K) Opacity: Transparent
Mid Clouds	 Altostratus Cover: Few (<10%) Opacity: Translucent	Cover: Few (5.51%) Altitude: 3.73 (km) Phase: Ice/Water Mix 252.49 (K) Opacity: Opaque
Low Clouds		Cover: Isolated 11.51% Altitude: 0.94 (km) Phase: Ice/Water Mix 265.76 (K) Opacity: Opaque


GLOBE Visualization System
Measurements
Data Counts
Sélectionner une langue
Sign In
2026-09-15
Sites on Map: 1389
1000 km
© OpenStreetMap contributors.
Legends


Join the
PACE Clouds
Challenge
15 September – 15 October 2026



Geological Highlight: The Oldest Rocks on Earth...

Arctic Canada and West Greenland tell two very different chapters of Earth's geological story: Canada is dominated by younger sedimentary successions, while Greenland exposes some of the oldest surviving pieces of Earth's crust.

Across the Canadian Arctic, vast layers of metasedimentary and fossilised rocks recording ancient seas, rivers and changing environments, later folded, faulted and sculpted by tectonic forces and ice.

Across western Greenland, we encounter an extraordinary ancient world of Archean metamorphic gneisses and greenstone belts, including some rocks more than 3.5 billion years old, alongside basaltic volcanic rocks that preserve fragments of Earth's earliest crustal history.

Deep history written not in pages, but in stone.

Citizen Science
iNaturalist

During our voyage we had the chance to explore many different ecosystems: from the deserted high arctic, to the colourful tundra of Greenland; from waters covered by sea ice to deep fjords filled with icebergs. In these habitats we observed a big variety of flowers, marine invertebrates, mammals and birds.

In total we recorded:

- **208** Species
- **1512** Observations

… and counting; as you upload more photos from home our datatset grows!
Through iNaturalist, these observations can now be used as data in global scientific research.

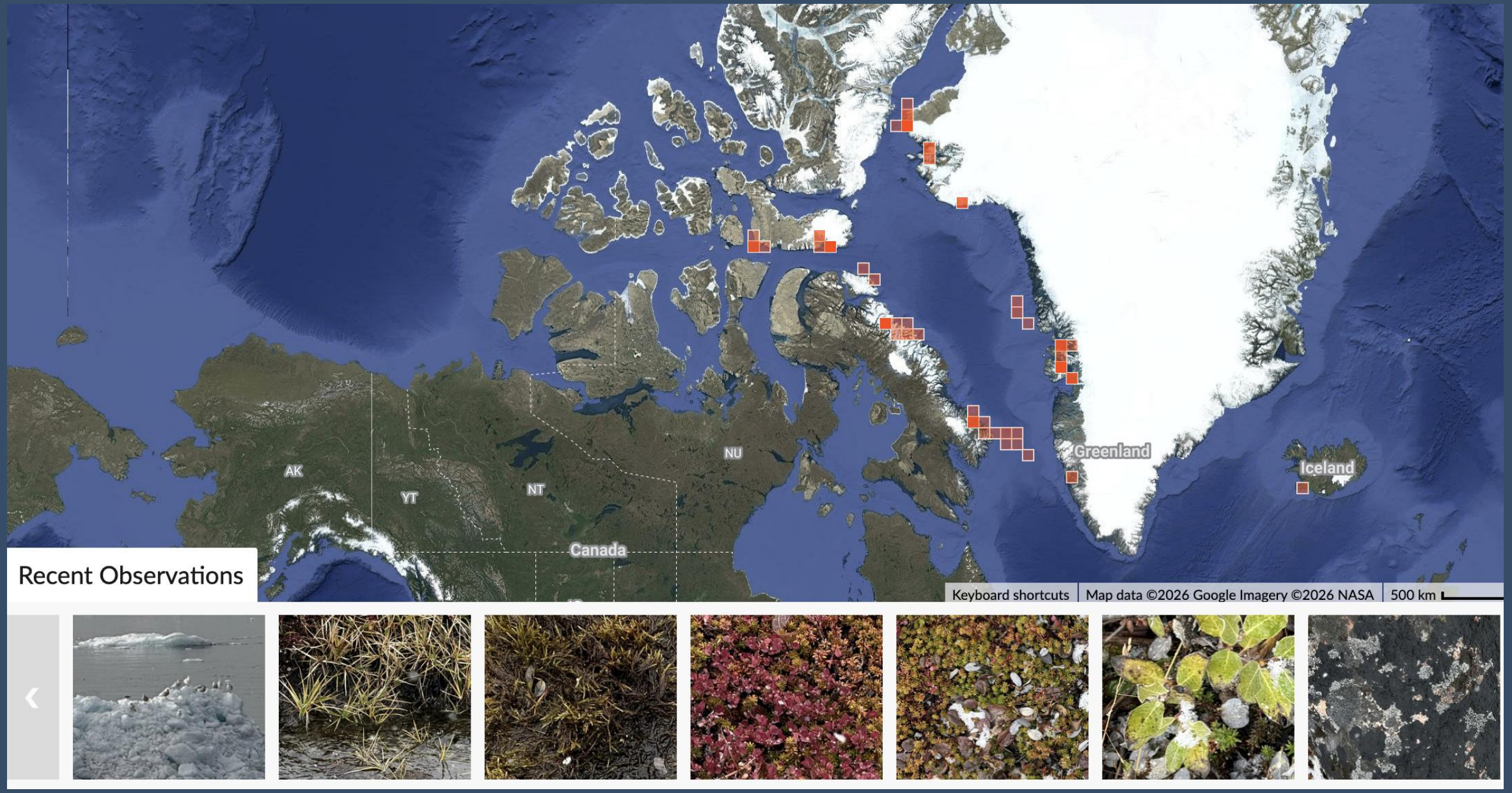
Thank you for joining the project and contributing to this amazing citizen cience platform.

View our data submitted on our iNaturalist project here:

Link: 2026 September 3 - September 21: MS Roald Amundsen:Curcumnavigating Baffin Bay



Where Have We Observed?



What Have We Observed?

Overview | 1,492 OBSERVATIONS | 208 SPECIES | 88 IDENTIFIERS | 26 OBSERVERS | Stats



Arctic Willow
Salix arctica



Arctic Bell-Heather
Cassiope tetragona



Glaucous Gull
Larus hyperboreus



Prickly Saxifrage
Saxifraga tricuspidata



Bog Bilberry
Vaccinium uliginosum



Elegant Sunburst Lichen
Rusavskia elegans



Arctic Hare
Lepus arcticus



Arctic Poppy
Oreomecon radicata



Northern Fulmar
Fulmarus glacialis



Purple Saxifrage
Saxifraga oppositifolia

Polar Bear (Ursus maritimus)

Most suggested ID





Northern Collared Lemming (*Dicrostonyx groenlandicus*)







Citizen Science

eBird

At sea and on land, our onboard ornithologist and enthusiastic birders were surveying the avifauna we encountered along our route. The diversity of habitats we traveled through provided us with an equally diverse array of birds, from the auklets in the Bering Strait to the Snow Buntings in Greenland. The Northern Fulmars, Kittiwakes and Glaucous Gulls were around for most days on the voyage.

Including onboard Wildlife Watches and eBird sessions on deck, we recorded **31 bird species** across **21 eBird checklists.** Through the eBird platform, the data we collected is available for scientists around the world to help understand patterns of bird distribution, migration, and habitat use.

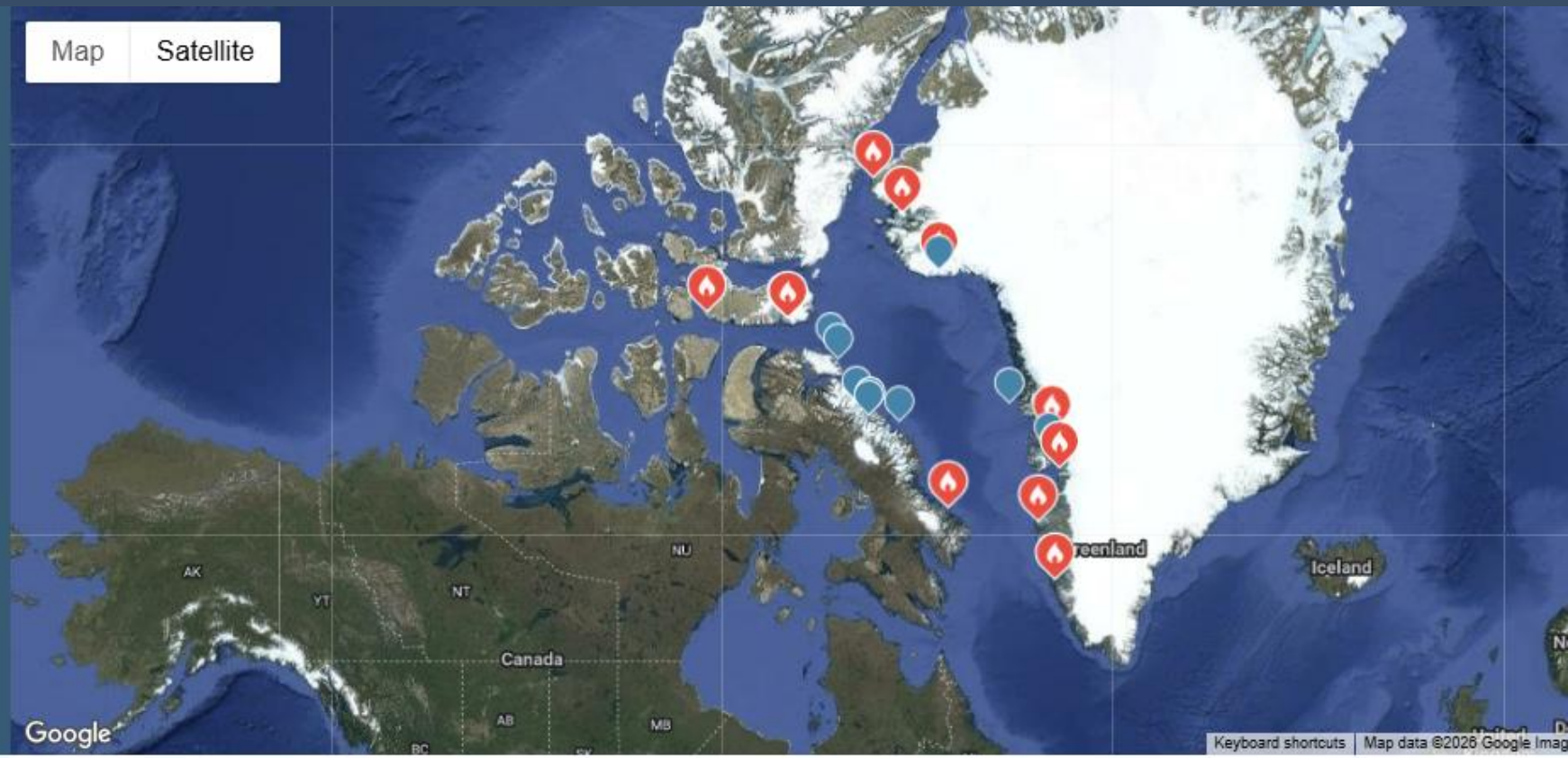
2026 September 3 - 21: MS Roald Amundsen: Arctic Canada and Greenland Expedition - Circumnavigating Baffin Bay

3 – 21 Sep 2026 (19 days) Public

Canada | Greenland Subregions

M/S Roald Amundsen Science Center, Marcus Bergström

Share Edit



Narrative

Owners and editors of a Trip Report may write a narrative.

Add narrative

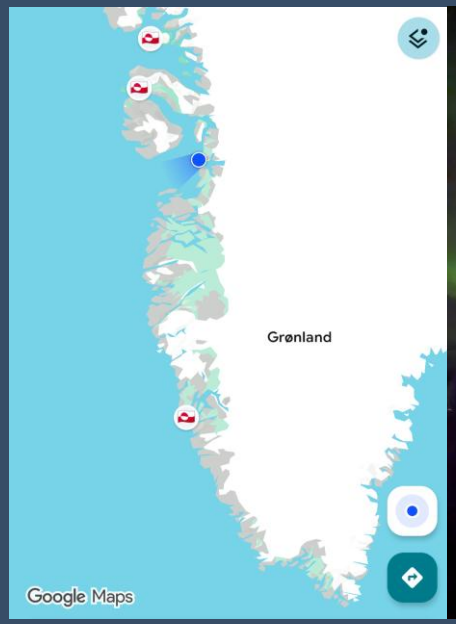
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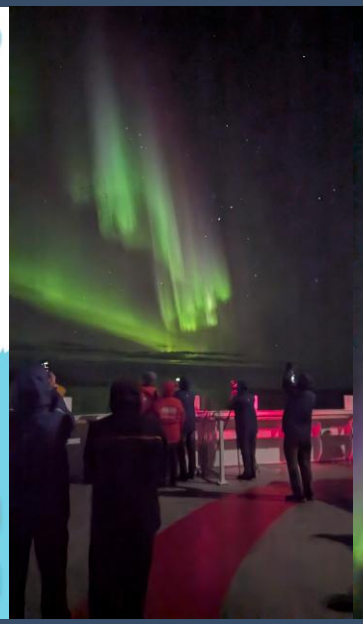
31 Species Observed

21 Checklists

14 Species with Photos









Citizen Science

Aurorasaurus

Four auroral events were reported on **September 4th, 17th, 18th, and 19th** along the west coast of Greenland. These observations showcased a wide range of auroral features, including high-altitude red emissions from oxygen, mid-altitude green emissions from oxygen and nitrogen, and low-altitude pink emissions from molecular nitrogen. Both discrete auroral arcs and diffuse glow aurora were observed, ranging from quiet displays to more active auroral activity. A particularly striking feature throughout the observations was the abundance of visible vertical structure within the aurora.

AURORASAURUS
Reporting Auroras From the Ground Up

Visit Aurorasaurus to add your sightings



NASA's International Observe the Moon Night

On **19th September**, guests participated in **NASA's Observe the Moon Night**, led by guest scientist Becca. This annual event brings people around the world together to celebrate and observe Earth's Moon.

Unfortunately, while we were in Ilulissat, the Moon did not rise above the horizon due to our high-latitude location and the geometry of the Moon's orbit relative to the Earth's tilt!

Despite not being able to make direct observations, we still enjoyed learning about the Moon and celebrating lunar science, and proudly shared a photo of our participation with NASA.



National Aeronautics and Space Administration

CERTIFICATE OF PARTICIPATION

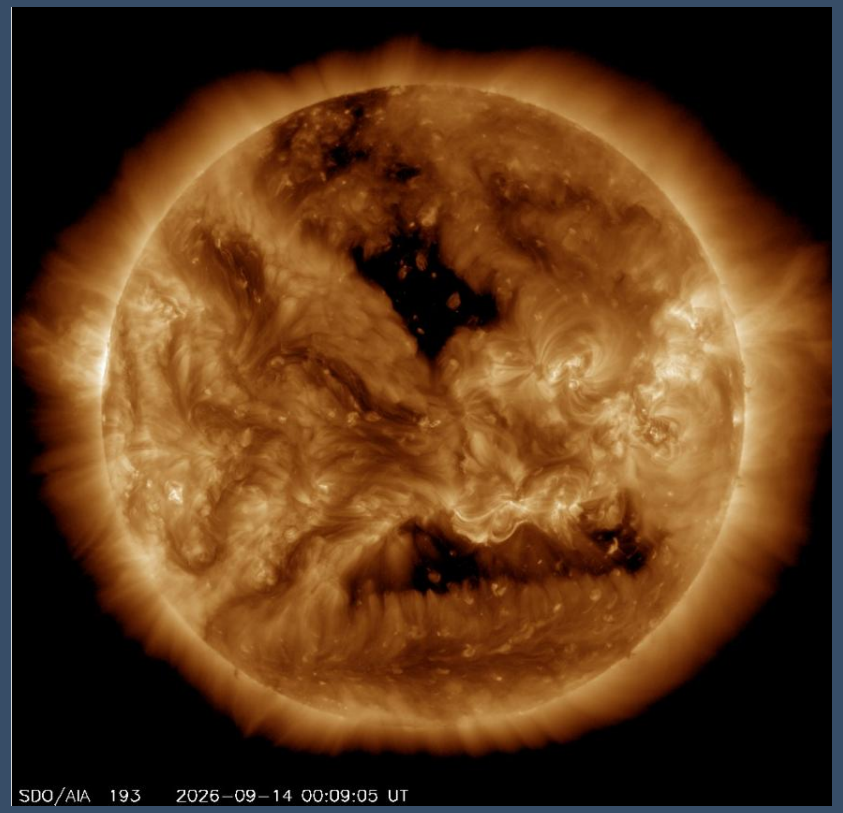
THE INTERNATIONAL OBSERVE THE MOON NIGHT COORDINATING COMMITTEE

is proud to present this certificate of participation to

OBSERVE the MOON

International Observe the Moon *Night* 2026

go.nasa.gov/ObserveTheMoon



MULTISLIT SOLAR EXPLORER

MUSE

MULTISLIT SOLAR EXPLORER

NASA LMSAL SAO UCB GSFC UiO MSU ASI DLR NOSA CSIRO



Guest Scientist: Dr Rebecca Robinson

Solar science, space weather predictions, and Arctic exploration ❄️🌼💚

SETI INSTITUTE

Visit Aurorasaurus to add your sightings



WAVE
Science Recap
Circumnavigating
Baffin Bay 2026

What Marine mammals have we seen....
After 152 days of dedicated survey effort...

Species Count = 23

Pinniped = 6

Ursidae = 1

Cetacean = 16



What Marine mammals have we seen....?
After 216 hours of dedicated survey effort...
And a further 44 hours of opportunistic effort...

Cetacean Species = 6 species

2 Mysticetes

- Fin (2 individuals)
- Humpback (3 individuals)

5 Odontocetes

- Beluga (1 encounter)
- Long finned pilot whale (5 encounters)
- Killer whales (2 encounters)
- Northern beaked whales(1 encounter)
- Sperm whale (2 encounters)







https://doi.org/10.1139/cjz-2019-0207

AND... just in case you missed having a chat with us about WAVE – Whales & Arctic Vessel



Funders: Royal Society of Edinburgh, FCDO, UKRI Arctic Office, EU Horizon Programme, Heriot-Watt University and HX Expeditions and the HX Foundation

WAVE project – Whales & Arctic Vessel

Aims

- Establish an understanding of presence of Arctic cetacean populations in collaboration with expedition operators
- Understand the exposure of Arctic whales to vessels
- Inform decision-making relating to the conservation of Arctic Cetaceans and their Habitats

Keep up to date with the project and stay involved: www.wave-arcticwhales.com

PLEASE SEND US MARINE MAMMAL PHOTOS

l.mcwhinnie@hw.ac.uk

Wildlife List – Birds



Wildlife List – Birds

SCIENTIFIC NAME	ENGLISH	DEUTSCH	NORSK
Anser caerulescens	**Snow Goose**	Schneegans	Oie des neiges
Branta canadensis	**Canada Goose**	Kanadagans	Bernache du Canada
Somateria spectabilis	**King Eider**	Prachteiderente	Eider à tête grise
Stercorarius longicaudus	**Long-tailed Jaeger**	Falkenraubmöwe	Labbe à longue queue
Cepphus grylle	**Black Guillemot**	Grylllteiste	Guillemot à miroir
Alca torda	**Razorbill**	Tordalk	Petit Pingouin
Alle alle	**Little auk (dovekie)**	Krabbentaucher	Mergule nain
Uria lomvia	**Brunichs Guillemot / Thick-billed Murre**	Dickschnabellumme	Guillemot de Brünnich
Rissa tridactyla	**Black-legged Kittiwake**	Dreizehenmöwe	Mouette tridactyle
Xema sabini	**Sabine's Gull**	Schwalbenmöwe	Mouette de Sabine
Pagophila eburnea	**Ivory Gull**	Elfenbeinmöwe	Mouette blanche
Larus marinus	**Great Black-backed Gull**	Mantelmöwe	Goéland marin
Larus hyperboreus	**Glaucous Gull**	Eismöwe	Goéland bourgmestre
Larus fuscus	**Lesser Black-backed Gull**	Heringsmöwe	Goéland brun
Larus glaucoides	**Iceland Gull**	Polarmöwe	Goéland arctique
Fulmarus glacialis	**Northern Fulmar**	Eissturmvogel	Fulmar boréal
Ardenna grisea	**Sooty Shearwater**	Dunkler Sturmtaucher	Puffin fuligineux
Haliaeetus albicilla	**White-tailed Eagle**	Seeadler	Pygargue à queue blanche

Wildlife List – Birds

SCIENTIFIC NAME	ENGLISH	DEUTSCH	NORSK
Falco peregrinus	**Peregrine Falcon**	Wanderfalke	Faucon pèlerin
Corvus corax	**Common Raven**	Kolkrabe	Grand Corbeau
Anthus rubescens	**American Pipit**	Pazifikpieper	Pipit d'Amérique
Acanthis flammea	**Common Redpoll**	Birkenzeisig	Sizerin flammé
Calcarius lapponicus	**Lapland Longspur**	Spornammer	Plectrophane lapon
Plectrophenax nivalis	**Snow Bunting**	Schneeammer	Plectrophane des neiges
Anser brachyrhynchus	**Pink-footed goose**	Kurzschnabelgans	Oie à bec court
Lagopus muta	**Rock ptarmigan**	Alpenschneehuhn	Lagopède alpin
Phalacrocorax carbo	**Great cormorant**	Kormoran (Art)	Grand Cormoran

Wildlife List – Marine Mammals



Wildlife List – Marine Mammals

SCIENTIFIC NAME	ENGLISH	DEUTSCH	FRANÇAIS	NORSK
Balaenoptera physalus	**Fin whale**	Finnwal	Rorqual commun	Finhval
Megaptera novaeangliae	**Humpback whale**	Buckelwal	Baleine à bosse	Knølhval
Orcinus orca	**Killer whale, Orca**	Schwertwal, Orca	Orque	Spekkhogger
Globicephala melas	**Long-finned pilot whale**	Grindwal	Globicéphale noir	Grindhval / Langsveivet grindhval
Delphinapterus leucas	**Beluga, white whale**	Beluga, Weißwal	Bélouga	Hvithval
Physeter macrocephalus	**Sperm whale**	Pottwal	Cachalot	Spermhval
Hyperoodon ampullatus	**Northern bottlenose whale**	Nördlicher Entenwal	Hyperoodon boréal	Nebbhval
Odobenus rosmarus	**Walrus**	Walross	Morse	Hvalross
Erignathus barbatus	**Bearded seal**	Bartrobbe	Phoque barbu	Storkobbe
Pusa hispida	**Ringed seal**	Ringelrobbe	Phoque annelé	Ringsel
Pagophilus groenlandicus	**Harp seal**	Sattelrobbe	Phoque du Groenland	Grønlandssel
Ursus maritimus	**Polar bear**	Eisbär	Ours blanc	Isbjørn

Wildlife List – Land Mammals



Wildlife List – Land Mammals

SCIENTIFIC NAME	ENGLISH	DEUTSCH	FRANÇAIS	NORSK
Lepus arcticus	**Arctic hare**	Polarhase	Lièvre arctique	Polarhare
Vulpes lagopus	**Arctic fox**	Polarfuchs	Le renard arctique	Arktisk rev
Ovibos moschatus	**Musk ox**	Moschusochse	Bœuf musqué	Moskusfe
Dicrostonyx groenlandicus	**Northern collared lemming**	Nördlicher Halsbandlemming	Lemming à collerette	Lemen


Thanks for your participation!