Science Recap

MS FRAM

MS FRAM
31th August13th September
2025





Citizen Science

Nasa Cloud Observer

We collected together 5 observations during this voyage.

Inaturalist

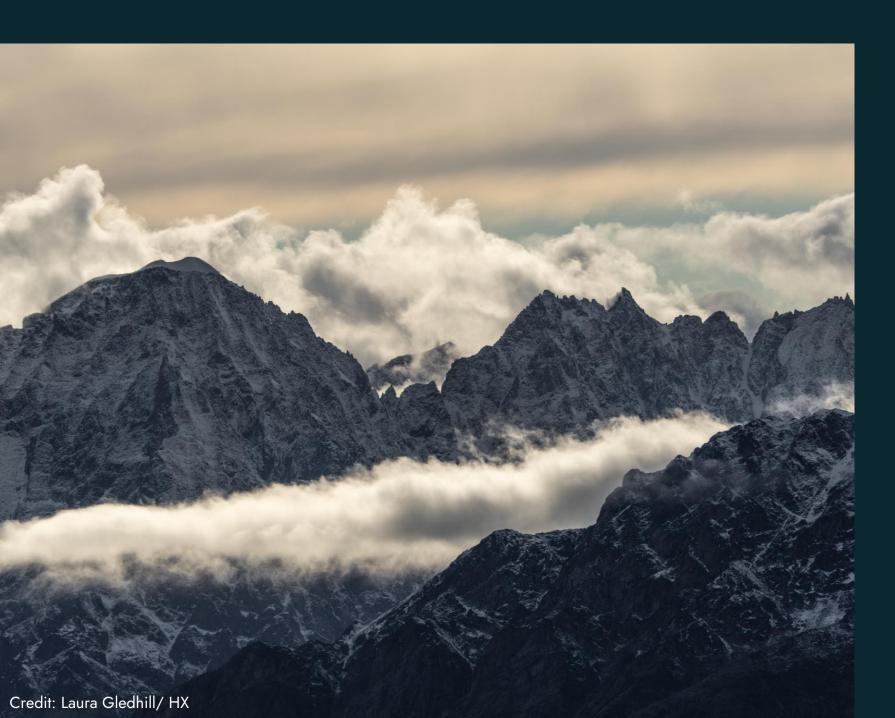
We submitted more than 120+ observations to Inaturalist during this voyage, thank you very much! You can view our observations by clicking here.

Ebird

We submitted 30 checklists to Ebird. You can view the <u>trip report for your voyage by clicking here.</u>

Planktonics Project — eDNA around Svalbard.

We collected water samples in three different locations during this voyage.



NASA Globe Cloud Observer

We collected 5 observations for NASA. Don't hesitate to continue looking at the sky back home, since every contribution helps scientists.

View our data on the global map

Observation	GLOBE	NOAA-20 Satellite
Universal Date/Time	2025-09-07 10:24:00	2025-09-07 10:36
Latitude	71.06	70.68 to 71.48
Longitude	-25.14	-25.36 to -24.56
Total Cloud Cover	Overcast (>90%)	Overcast 94.56%
High Clouds	Cirrostratus Cover: Few (<10%) Opacity: Translucent	
Mid Clouds	Altocumulus Altostratus Cover: Overcast (>90%) Opacity: Opaque	Cover: Broken 84.08% Altitude: 3.44 (km) Phase: Ice/Water Mix 255.98 (K) Opacity: Translucent
Low Clouds		Cover: Isolated 10.48% Altitude: 1.92 (km) Phase: Water 264.48 (K) Opacity: Translucent
GLOBE Cloud Photos and Corresponding NASA Satellite Images. Click image to view> Note: Photos submitted though GLOBE need approval before being displayed, this may take a few days.	North East South West Up	Worldview Worldview Tutorial

NASA Globe Cloud Observer

Some of these observations were matched to satellites. This table shows how our observation from the ground compared to the satellite's observation from above.

View our data on the global map

Observation	GLOBE	NOAA-20 Satellite
Universal Date/Time	2025-09-05 09:29:00	2025-09-05 09:34
Latitude	72.13	71.78 to 72.58
Longitude	-25.46	-25.74 to -24.94
Total Cloud Cover	Broken (50-90%)	Broken 72.27%
High Clouds	Cirrus Cirrocumulus Cirrostratus Cover: Broken (50-90%) Opacity: Transparent	Cover: Scattered 25.56% Altitude: 6.58 (km) Phase: Ice 237.84 (K) Opacity: Transparent
Mid Clouds	Altostratus Cover: Few (<10%) Opacity: Opaque	Cover: Scattered 46.71% Altitude: 3.57 (km) Phase: Ice/Water Mix 259.6 (K) Opacity: Translucent
Low Clouds		
GLOBE Cloud Photos and Corresponding NASA Satellite Images. Click image to view> Note: Photos submitted though GLOBE need approval before being displayed, this may take a few days.	North East South West Up Down	Worldview Worldview Tutorial

NASA Globe Cloud Observer

Some of these observations were matched to satellites. This table shows how our observation from the ground compared to the satellite's observation from above.

View our data on the global map





125
Overview OBSERVATIONS

SPECIES SPECIES

29 IDENTIFIERS

7 OBSERVERS 5 Stats

Recent Observations •









On our voyage we submitted 125 observations covering a wide range of 54 living species, from plants to animals passing to planktonic creatures.

Thank you very much for your contribution, and feel free to contribute to our project for this voyage when you are back home reviewing your photos.

Click here to visit the iNaturalist Project for this voyage.

125
Overview OBSERVATIONS

54 SPECIES 29 IDENTIFIERS

OBSERVERS





Arctic Bell-Heather Cassiope tetragona



Arctic Willow Salix arctica



Muskox Ovibos moschatus



Dwarf Birch Betula nana



Alpine Bearberry

Arctous alpina



Arctic Fox Vulpes lagopus



White-beaked Dolphin Lagenorhynchus albirostris



Alpine Sorrel Oxyria digyna



Purple Saxifrage Saxifraga oppositifolia



Northern Fulmar Fulmarus glacialis

iNaturalist

The most abundant species registered were the Arctic Bell-Heather and Arctic Willow, followed by Musk Ox and Arctic Fox. Thank you so much for your passion, dedication and interest in our project!

You can still upload your photos to our project once back home.

Click here to visit the iNaturalist Project for this voyage.



iNaturalist

The map of all our trip sightings looks amazing. Thank you for collaborating with the project! Don't forget you can continue submitting photos at home.

<u>Click here to visit the iNaturalist</u> <u>Project for this voyage.</u>







eBird

On our voyage we conducted 30 surveys, observed 33 bird species and counted more than 1730 individuals. The most abundant species were the Pink-footed Goose, followed by the Northern Fulmar and the Kittiwake. These data are crucial to document the abundance and distribution of emblematic polar and cosmopolitan species around Svalbard, both terrestrial and marine species.

Thank you very much for joining Andres during our wildlife watch and help us contributing to the greatest birding project at a worldwide scale!

Click here to view the trip Report for this voyage.

Credit: Yuri Choufour/ HX





∢ Previous

2025-08-31 MS Fram HX Svalbard, Greenland and **Iceland**

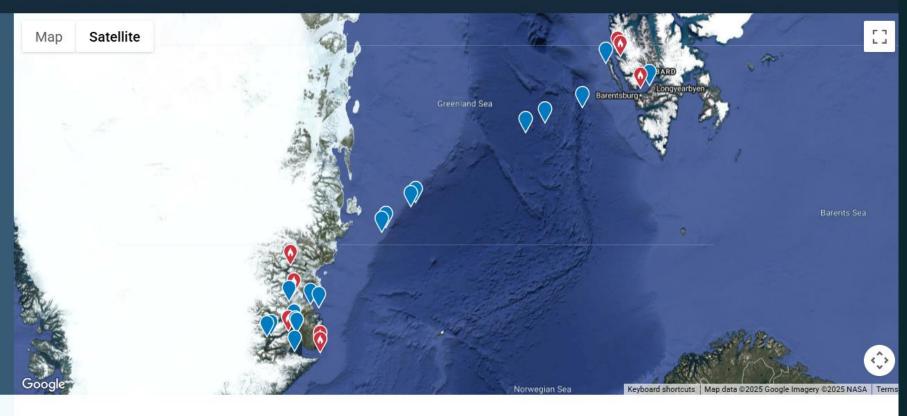
31 Aug - 13 Sep 2025 (14 days) Link-only

Greenland | Svalbard | Subregions

Science Coordinator MS FRAM, Andrés de Miguel, HX Science&Education







Narrative

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

Add narrative

DATA FOR: Group (all people) -

@ 33

Species Observed

■ 30

Checklists

10

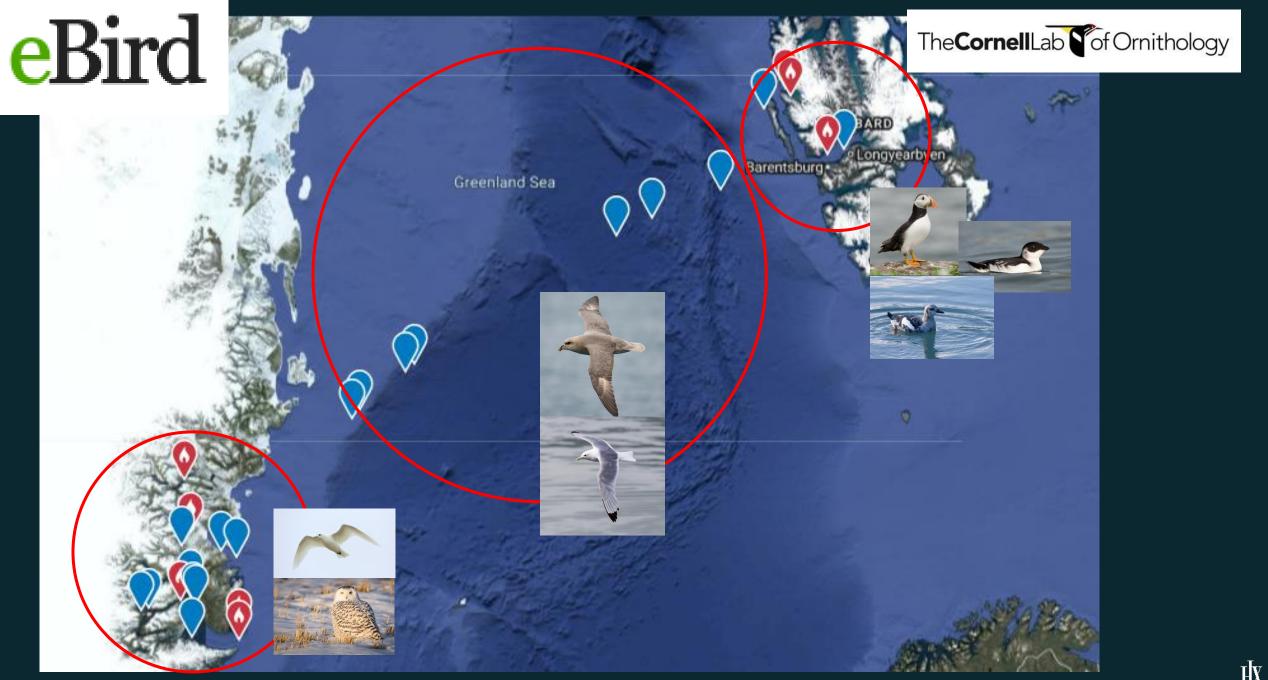
Species with Photos



Spe	ecies Observed	Show all details
757	Pink-footed Goose Anser brachyrhynchus	→ 👖 2
5	Barnacle Goose Branta leucopsis	→ m 1 1
56	Common Eider Somateria mollissima	→ 🛍 4
62	Long-tailed Duck Clangula hyemalis	→ 👖 2
3	Red-breasted Merganser Mergus serrator	→ m 1 1
1	Rock Ptarmigan Lagopus muta	→ m 1 1
5	Common Ringed Plover Charadrius hiaticula	→ 👖 2
1	Grey Phalarope Phalaropus fulicarius	→ m 1 1
2	Red Knot Calidris canutus	→ m 1 1
2	Ruff Calidris pugnax	> 24 10 🗐 1
3	Sanderling Calidris alba	→ m 1 1
12	Purple Sandpiper Calidris maritima	→ 👖 3
13	Arctic Skua Stercorarius parasiticus	→ 👖 6
8	Pomarine Skua Stercorarius pomarinus	≥ 7 1 2
1	Great Skua Stercorarius skua	›esl∰l

99	Atlantic Puffin Fratercula arctica	▶⊠1 1 6
4	Black Guillemot Cepphus grylle	→ 1 2
41	Little Auk Alle alle	→ 221 1 1 5
154	Black-legged Kittiwake Rissa tridactyla	→ 🗷 2 👖 17
2	Ivory Gull Pagophila eburnea	→ m 11
1	Great Black-backed Gull Larus marinus	▶ 2 3 1 1
22	Glaucous Gull Larus hyperboreus	→ m 11
69	Arctic Tern Sterna paradisaea	▶ 23 1 1 1 9
6	Red-throated Diver Gavia stellata	→ 🛍 3
10	Great Northern Diver Gavia immer	→ 前 4
340	Northern Fulmar Fulmarus glacialis	→ 23 4 11 14
1	Sooty Shearwater Ardenna grisea	→ 23 3 1 1
2	Snowy Owl Bubo scandiacus	→ m 1
1	Peregrine Falcon Falco peregrinus	→ m 1
36	Common Raven Corvus corax	▶ ⋒ 4
4	Northern Wheatear Oenanthe oenanthe	→ m 3
2	Redpoll Acanthis flammea	→ m 1
8	Snow Bunting Plectrophenax nivalis	→ 1 2







Rare species







Sooty Shearwater (Ardenna grisea)
Few records in Greenland!





Ruff (Calidris pugnax)
First eBird record in Greenland!



HappyWhale

During our voyage exploring Svalbard and East Greenland, we saw harbour, harp and ringed seals; minke whales, belugas and white — beaked dolphins.

Although we did not manage to take any individually identifiable photos of marine mammals on this voyage, you can do so for any older photos you may have from years gone by, this can give scientists a better idea of how long the individuals sighted more recently have been alive for!

Click here to visit MS Fram profile on HappyWhale.

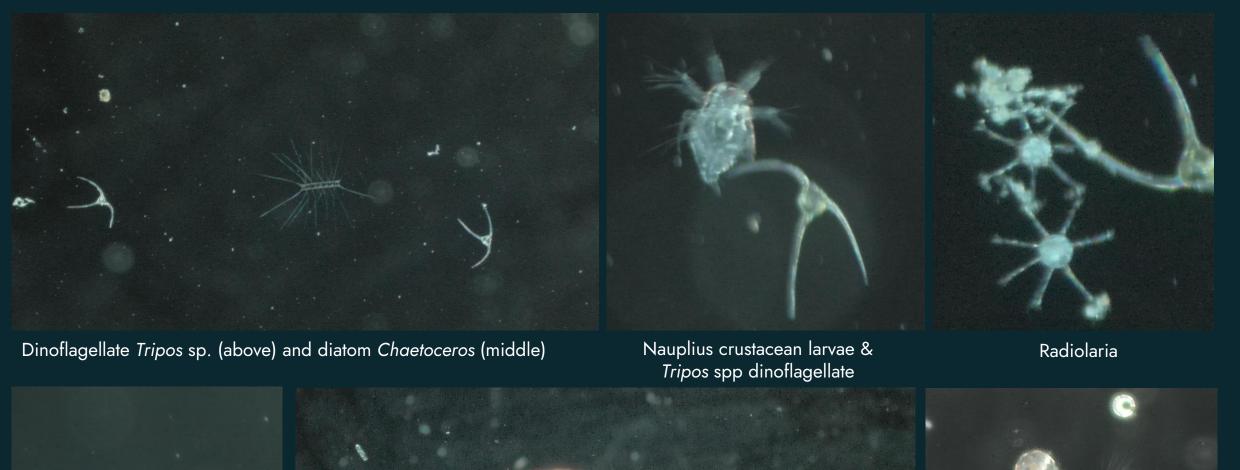


Science Boat

On our voyage we conducted 8 Science Boats during which we realized Secchi disc measurements & CTD profiles to characterize the water column parameters, and collected plankton & Niskin bottle samples for eDNA. We also helped our guest scientist using our drone for his project.

Once back on-board, we used the microscopes in the science centre to identify plankton caught during the science boats. We observed a great variety of zooplankton organisms, with mysids being the most abundant, but also some radiolaria and other nauplius larvae. Dinoflagellates from *Tripos* spp and some diatoms were also caught, but their abundance was much lower. Please see the following slide for more pictures of plankton caught during our voyage.

Click here to visit the Secchi Disc Project and view the Secchi data.









Underwater drone

During our voyage, we launched our Blueye drone five times into the water to explore the hidden underwater world of East Greenland. We found diverse habitats, from sandy bottoms to soft sediment and steep bedrock. Here, in Bear Islands, our guest scientist Geir registered for the first time the presence of tube worms of the genus Sabella, in very shallow waters dominated by silk fine sediment. These organisms are generally found worldwide at greater depth where they feed on marine snow.



Planktonics Project — eDNA around Svalbard

This project aims to describe the diversity of jellies organisms present in waters around the archipelago of Svalbard using the eDNA technics. This consists of filtering water, extract and amplify the DNA preserved on the filters targeting specific groups of species. During our Science boat, we managed to collect three times along the Greenland coast this project. Filters were kept frozen in our facilities until they will be picked up by the scientists to be analysed in the laboratory. This project has been founded in part by the HX Foundation.



Geology reports

Geology is often referred to as the key to looking into the past, and with Svalbard and East Greenland we are transported into deep time.

The landing sites we visited on our voyage helped us to detail a world unrecognizable 3 billion years ago.

The formations and patterns we witnessed told us about continents smashing and colliding, the Earth becoming fully enveloped in ice and snow from the poles to the equator and the birth of a young Atlantic Ocean.

Thanks for the time travel, Ash - Geologist









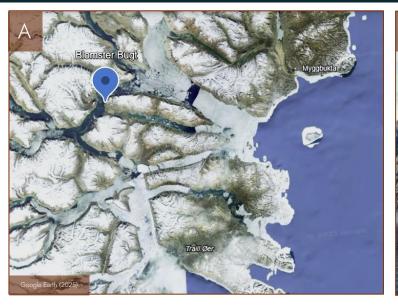
- (A) Toposvalbard topographic maps (2025
- (B) Geoscience Atlas of Svalbard, Mineral and Geological (2015)
- (C) Walking from the dock in Ny Alesund to the main settlement passing Zepplin Mountain in the background.
- (D) Scheteligfjellet mountain behind the sled dog park.
- (E) A fine bit of coal from the coal seams of Ny Alesund.

Ny Ålesund (New Alesund), Kongsfjorden, West Coast Svalbard: 78.9236° N, 11.9231° E

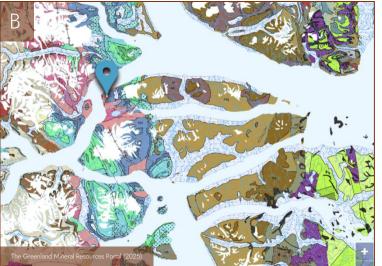
Ny Ålesund lies on the southern shore of Kongsfjorden at the western edge of Spitsbergen. The bedrock consists of Caledonian metamorphic rocks — schists, quartzites, and gneisses formed during the Caledonian Orogeny (~430-390 Ma) - overlain by Devonian to Carboniferous (419–299 Ma) sedimentary sequences. These younger deposits include red sandstones, conglomerates, and locally rich coal seams, recording post-orogenic continental basins and swampy lowland environments. Intrusions of Early Cretaceous (~125 Ma) dolerite dikes, part of the High Arctic magmatism, cut through these older rocks. The region was later uplifted and faulted during Cenozoic rifting (~60-20 Ma) linked to the opening of the North Atlantic, creating tilted sedimentary blocks and prominent fault zones. Modern glacial activity continues to shape the landscape, with active glaciers, moraines, and permafrost surrounding

the settlement, making Ny-Ålesund an important site for understanding Arctic geology and environmental change.











- (A) Google Earth (2025), showing location of Blomster Bugt on Ymer Island.
- (B) The Greenland Mineral Resource Portal (2015), indicating the coloured geological sections of the Eleonore Bay Supergroup
- (C) Kong Oscar Fjords cliff faces of Eleonore Bay Supergroup.
- D) Sedimentary section of the Upper Lyell Group, sub section of EBS.
- (E) A fine specimen rock of the cyclicity of the passive margin sedimentary depositio

Blomster Bugt (Flower Bay), Kong Oscar Fjord, Greenland: 72.4500°N, 24.0833°W.

The geology of Blomster Bugt preserves a long record from the Neoproterozoic (~1,000-541 Ma) into the Caledonian (~490–390 Ma). The Eleonore Bay Supergroup (~950–635 Ma) the Lower Lyell Land Group is composed mainly of sandstones and mudstones, deposited in broad marine basins along an ancient continental margin. Above this, the Upper Lyell Land Group also contains sandstones and mudstones, representing continued sedimentation. Overlying these successions, the Upper Ymer Ø Group (~635–541 Ma) includes dolomites, mudstones, and sandstones that record shallow marine carbonate platforms with locally mixed facies. Intruding through these Neoproterozoic strata are Caledonian-age ultramafic dykes and sills (~430-390 Ma), marking tectonic and magmatic activity during the Caledonian

mountain-building event.

Together, these rocks document
the transition from long-lived
Proterozoic passive margin
sedimentation to Paleozoic
orogenesis (mountain building).









- (A) Google Earth (2025), showing location of Gully Glacier and Alpefjord
- (B) The Greenland Mineral Resource Portal (2015), indicating the coloured geological sections of the Hagar Bjerg
- (C) Gully Glacier with Stauning Alps in the background. Sediments and rock debris litter the supra-glacial platform.
- D) Mountain sides of granites and older metasediments
- (E) Dropstone floating of ice rafted debris from the calving of Gully

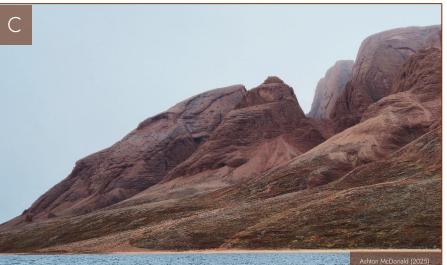
Gully Glacier, Alpefjord, Kong Oscar Fjord, Greenland: 72°07'N, 25°27'W.

The Gully Glacier and neighbouring Sefström Glacier flow from the Stauning Alps into Alpefjord as marineterminating tidewater glaciers. Their combined snouts calve icebergs that release coarse debris as dropstones into finer fjord sediments, creating a dynamic glacimarine environment of erosion and deposition. The surrounding mountains form part of the Caledonian orogen. Here, the Niggli Spids and Hagar Bjerg thrust sheets consist of granites with screens of older metasediments. These rocks record two distinct stages of emplacement, one with protoliths as old as ~930 Ma and another linked to Caledonian tectonism around ~430—390 Ma. Together they preserve the history of continental collision between Laurentia and Baltica. A narrow ridge between Gully and Sefström Glaciers divides their flow before both fronts

enter Alpefjord. Though not consistently named in published sources, this ridge plays a key role in controlling ice movement and directing sediment transport from land to fjord.











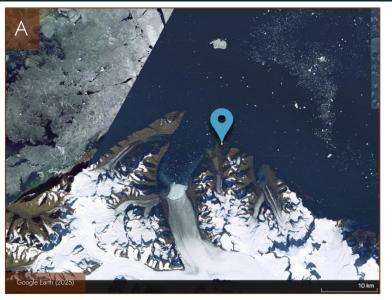
- (A) Google Earth (2025), showing location of Rødepynt, Rødefjord, Scoresby Sund.
- (B) The Greenland Mineral Resource Portal (2015), indicating the coloured geological sections of the Permian conglomerates
- C) The striking red Permian cliffs, with their erosional shapes and chimney stacks created later in the Paleozoic
- (D) The red beach landing site converse with the blue waters of the bay.
- (E) Alpine Bearberry vegetation favours the cliffs sides with dense matting

Rødepynt (Red Point), Rødefjord, Scoresby Sund, Greenland: 70.8550°N, 27.8867°W.

The coastal headland of Rødepynt sits within one of East Greenland's striking Permian sedimentary basins. Here, the Røde Ø Conglomerate (Mid–Late Permian, ~270–260 Ma) forms steep, high-angled valley walls built of coarse, red-weathering sedimentary rocks.

Conglomerates (rocks made up of rounded pebbles and cobbles cemented together) accumulated in continental basins along the margin of Greenland, recording episodes of erosion and redeposition during the later stages of the Paleozoic. The landscape is marked by dramatic red stone chimney-like stacks that rise from the shoreline, shaped by differential erosion (when softer layers erode faster than harder ones). At the base of the cliffs, weathered material produces a distinctive red beach, a feature that gives the fjord its name. These rocky surfaces also support hardy Arctic vegetation such as bracken, willow, and dwarf birch, which take advantage of thin soils that collect

in cracks and weathered pockets of the conglomerate. Together, these elements highlight the combination of Permian basin sedimentation and modern erosional processes that create the vivid scenery of Rødefjord.







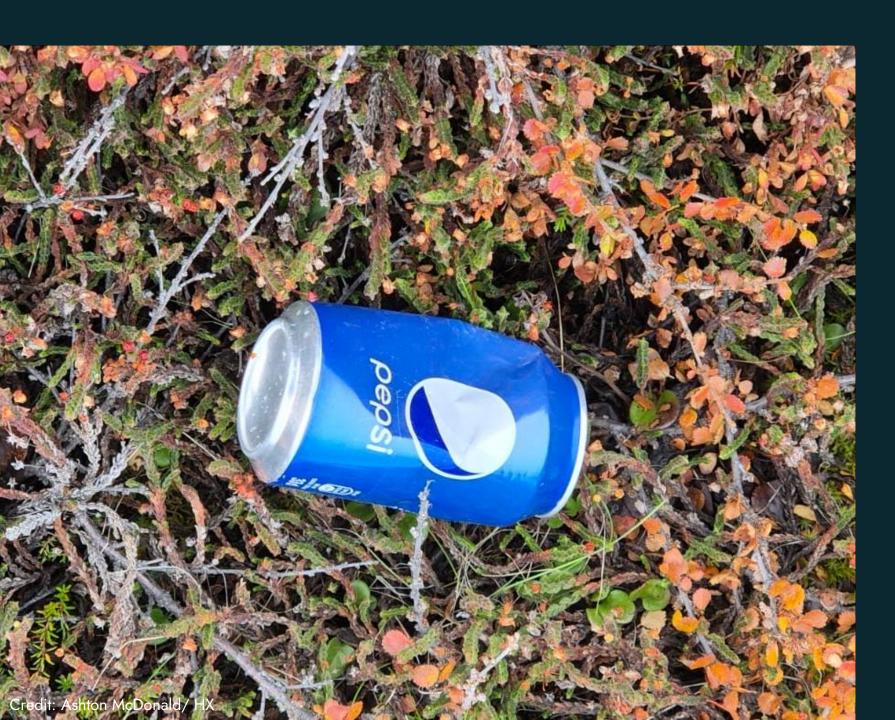


- (A) Google Earth (2025), showing location of Viking Bugt in Scoresby Sund.
- B) The Greenland Mineral Resource Portal (2015), indicating the geological columnar basalt cliffs
- (C) Hexagonal basalt columns. Showing planar lines of weakness and erosion.
- (D) The columns in situ rising to 1.5km cliffs, showing definition stages of faster or quicker cooling due to contact with atmosphere or water.
- (E) Diagram of the colling and contraction that is centralised and therefore naturally forms hexagons.

Viking Bugt, (Viking Bay), Scoresby Sund, Greenland: 70.35557°N, 24.98815°W

At Viking Bugt along the coast of Scoresby Sund, striking columnar basalt cliffs (basalt that cooled into hexagonal columns) rise directly from fjord. These rocks belong to the Palaeogene North Atlantic Igneous Province (~62– 54 million years ago) and are part of the Lower Plateau Lava Series of East Greenland, made up of aphyric quartz tholeiites (fine-grained volcanic basalt with little or no visible crystals). These lavas were erupted during the early stages of rifting that led to the opening of the North Atlantic Ocean. The lava flows form extensive sheets, up to ~1.5 km thick in places, resting on older Mesozoic sediments (~252-66 Ma). They are part of a multiepisode volcanic sequence that includes the Magga Dan, Milne Land, and Geikie Plateau formations. The columnar structure (regular, vertical cracks that divide the rock into polygonal shapes) formed as the basalt cooled and contracted. Vegetation is sparse on the cliffs, but cracks, talus slopes, and ledges support hardy Arctic plants such as mosses, willow, and dwarf

as mosses, willow, and dwarf birch. The hardness and durability of the basalt create steep cliffs And dramatic coastal scenery, with dark rock faces standing in sharp contrast to the blue-green fjord waters.



Beach clean-up

MS Fram is on a mission to collect ocean waste in the isolated locations we visit.

We collected 23.10kg of ocean waste during our voyage, for example at Antarctic Havn and Sydkap.

Trash 'O' Meter Update

MS Fram is on a mission to collect ocean waste in the isolated locations we visit.

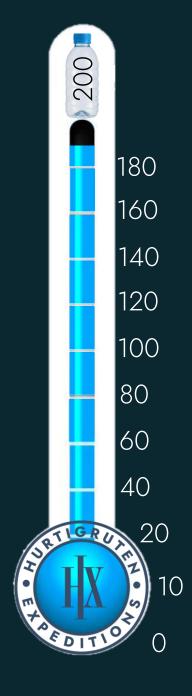


Statistics so far:

So far we have collected a whopping: Weight: 166.40 KG

On our voyage we collected a total: Weight: 23.10 KG

Combined weight of waste removed during our voyage:



Trash 'O' Meter Update

MS Fram is on a mission to collect ocean waste in the isolated locations we visit.



Statistics so far:

So far we have collected a whopping: Weight: 166.40 KG

On our voyage we collected a total: Weight: 23.10 KG

Combined weight of waste removed during our voyage:

189.50 KG

Thank you for helping clean up the Arctic.

GUEST SCIENTIST

Geir Johnsen

Marine Biology Professor NTNU Norge



Using ROV for habitat mapping

ROV mapping of kelp forest habitats in the Arctic - NE Greenland, Sep 2025

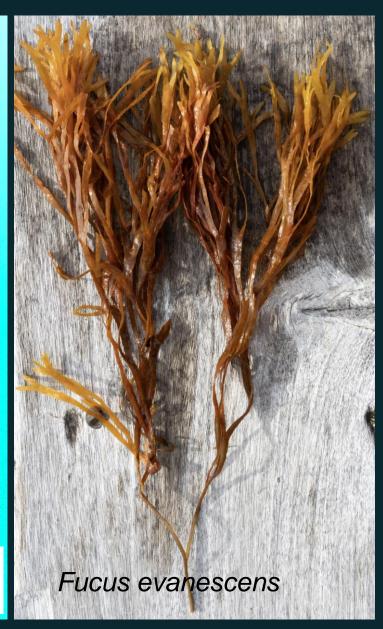
Geir Johnsen, Prof marine biology, NTNU, Norway Helene Dubrasquet, HX, Science coordinator MS Fram



Cooperation between HX and NTNU













Cetaceans																		
Scientific Name		Deutsch	Norsk	Chinese	31.08	01.09	02.09	03.09	04.09	05.09	06.09	07.09	08.09	09.09	10.09	11.09	12.09	13.09
Balaena mysticetus	Bowhead whale, Greenland whale	Grönlandwal	Grønlandshval	弓头鲸/格陵兰鲸														
Balaenoptera acutorostrata	Common minke whale	Zwergwal	Vågehval	小须鲸		x	X											
Balaenoptera borealis	Sei whale	Seiwal	Seihval	北须鲸/塞鲸														
Balaenoptera musculus	Blue whale	Blauwal	Blåhval	蓝鲸														
Balaenoptera physalus	Fin whale	Finnwal	Finhval	长须鲸/鳍鲸														
Megaptera novaeangliae	-	Buckelwal	Knølhval	座头鲸														
Delphinapterus Ieucas	Beluga, white whale	Beluga, Weißwal	Hvithval	白鲸		x												
Monodon monoceros		Narwal	Narhval	独角鲸														
Physeter macrocephalus	Sperm whale, cachalot	Pottwal	Spermhval	抹香鲸														
Hyperoodon ampullatus	Northern bottlenose whale	Nördlicher Entenwal	Nordnebbhval / Andehval	北瓶鼻鯨														
Mesoplodon bidens		Sowerby- Zweizahnwal	Nordspisshval / Sowersbyspisshval	索氏中喙鲸/双齿喙鲸														
Delphinus delphis	Common dolphin, saddleback dolphin	Gemeiner Delfin	Gulflankedelfin	普通海豚/长吻真海豚														
	whale	Grindwal	Grindhval / Langsveivet grindhval	长肢领航鲸														
Lagenorhynchus acutus	sided dolphin	Atlantischer Weißseitendelfin	Kvitskjeving	大西洋白腰斑纹海豚														
Lagenorhynchus albirostris	White-beaked dolphin knier whale,	Weißschnauzendelf in	Kvitnos	白喙海豚	X	х	х										x	
Orcinus orca	orca	Schwertwal, Orca	Spekkhogger	虎鲸														
Tursiops truncatus	Common bottlenose dolphin	Großer Tümmler	Tumler	宽吻海豚														
Phocoena phocoena	Harbour porpoise	Schweinswal	Nise	港湾鼠海豚														
	Unidetified whale	Nicht identifizierter Wal	Uidentifisert Hval	未识别鲸类													x	
		Nicht identifizierter Delfin	Uidentifisert Delfin	未识别海豚														
Pinnipeds																		
Scientific Name	English	Deutsch	Norsk	Chinese	31.08	01.09	02.09	03.09	04.09	05.09	06.09	07.09	08.09	09.09	10.09	11.09	12.09	13.09
Odobenus rosmarus	Walrus	Walross	Hvalross	海象														
Halichoerus grypus	Gray seal	Kegelrobbe	Havert / Gråsel / Havkobbe	灰海豹														
Phoca vitulina	common seal		Steinkobbe	港海豹		х												
, ,			Klappmyss	冠海豹														
•		Bartrobbe	Storkobbe	萬海豹														
Pagophilus aroenlandicus	Harp/Greenland seal	Sattelrobbe	Grønlandssel	竖琴海豹/格陵兰海豹									х					
		Ringelrobbe	Ringsel	环斑海豹										X				
	-	•	Isbjørn	北极熊														
		-	***															

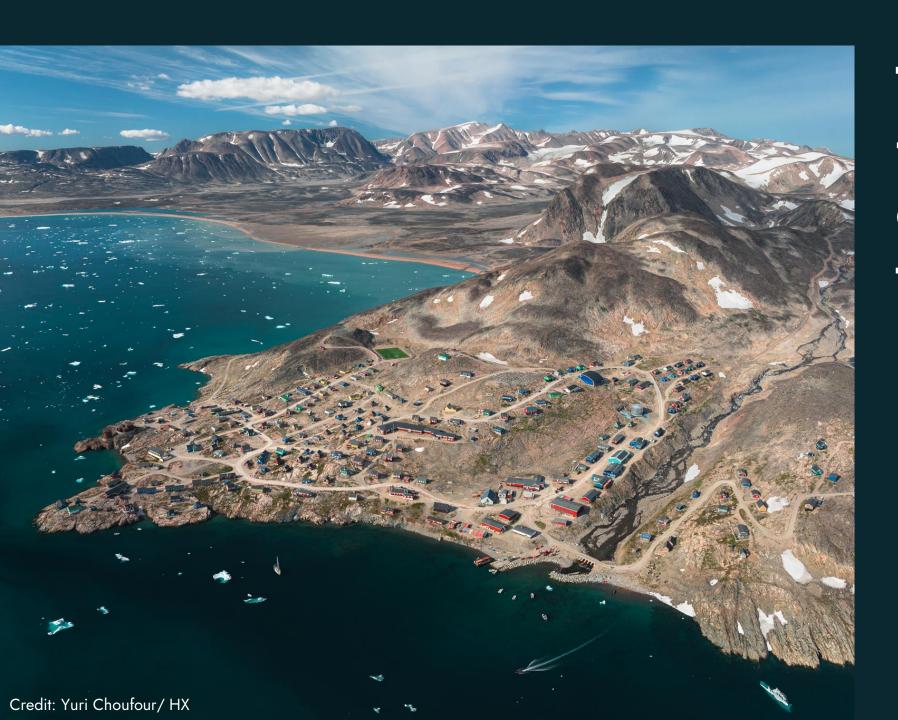
Land Mammals																		
Scientific Name	English	Deutsch	Norsk	Chinese	31.08	01.09	02.09	03.09	04.09	05.09	06.09	07.09	08.09	09.09	10.09	11.09	12.09	13.09
Rangifer tarandus	Reindeer	Rentier	Reinsdyr	驯鹿		х												
Alopex lagopus	Arctic Fox	Polarfuchs	Fjellrev	北極狐	Х	Х				Х								
Ovibos moschatus	Musk Ox	Moschusochse	Moskus	麝牛				Х		Х		X	X					
Lepus arcticus	Arctic Hare	Polarhase	Polarhare	北极兔						Х		X						
								·							·			
								·					·		·			

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Т

Wildlife List - Birds

MS FRAM	MS FRAM Wildlife List Svalbard - East Greenland																	
Birds																		
Scientific name	English	Deutsch	Norsk	中文	31.08	01.09	02.09	03.09	04.09	05.09	06.09	07.09	08.09	09.09	10.09	11.1	1 12.09	13.1
Cepphus grylle	Black Guillemot	Gryllteiste	Teist	白翅斑海鸽			х					х			х			7
Fratercula arctica	Atlantic Puffin	Papageitaucher	Lunde	北极海鹦	X	х	х											
Falco rusticolus	Gyrfalcon	Gerfalke	Jaktfalk	矛隼														
Corvus corax	Northern Raven	Kolkrabe	Ravn	渡鸦					х			х			Х	X		
Oenanthe oenanthe	Northern Wheatear	Steinschmätzer	Steinskvett	穗䳭						X					<u> </u>			
Motacilla alba	White Wagtail	Bachstelze	Linerle	白鹡鸰											<u> </u>			
Anthus pratensis	Meadow Pipit	Wiesenpieper	Heipiplerke	草地鹨														
Acanthis flammea	Common Redpoll	Birkenzeisig	Gråsisik	白腰朱顶雀	4										<u> </u>			
Plectrophenax nivalis	Snow Bunting	Schneeammer	Snøspurv	雪鹀										Х	X	х		
Puffinus puffinus	Manx Shearwater	Atlantiksturmtaucher	Havlire	大西洋鸌											<u> </u>			
Fulmarus glacialis	Northern Fulmar	Eissturmvogel	Havhest	暴雪鸌	X	X	X	х			X				\[\big \]	х	х	
Ardenna gravis	Great Shearwater	Großer Sturmtaucher	Storlire	大鹱											<u>'</u>			
Ardenna grisea	Sooty Shearwater	Dunkelsturmtaucher	Grålire	灰鸌											<u> </u>	X	х	
Morus bassunus	Northern Gannet	Basstölpel	Havsule	北鲣鸟											· [X	
	Snowy Owl											X						
4									_									$\overline{}$



Thank you all for your contribution to science!