Umiak Sailing and Mountaineering Expedition
East Greenland

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INTRODUCTION

This report gives an account of our expedition and details various other aspects including background of the team, some aspects of the planning and logistics, the equipment used, wildlife that was encountered and general notes about the terrain and travel.

It is hoped the report will be of use as a source of information for people planning similar expeditions or visits to the same area, as well as a document where those interested can discover more about our expedition.

BACKGROUND

Almost all of the team had previous Arctic or Antarctic experience, notably Mike, the expedition leader, who has a drive to continue explore the polar regions since his time in the British Antarctic Survey (BAS), some of which he spent alongside Rod.

In 2015 Mike led a similar expedition, also aboard Umiak, to Spitsbergen, with the primary objectives to mountaineer and ski tour attempting to access relatively unexplored areas and find unclimbed peaks and, to circumnavigate the main island, Svalbard, in a clockwise direction. Ian, Giles and Olly were also a part of this expedition and, for those new to the Arctic, a new passion was kindled.

Mike and Ian have also kayaked in the North-west of Greenland, accessing the area by plane and boat and, on another expedition to Svalbard in 1979, sledge hauled onto the ice cap where they made first assents of 13 peaks.

Greenland history is rich with adventure and exploration, including much by the British. Throughout our journey these histories entertained, informed and encouraged us.

OBJECTIVES

The primary objective of the expedition was to sail from Iceland, to Tasiilaq, onward to Ittoqquttormit and Scoresby Sound, then hopefully further north into Kong Oscar Fjord, and finally returning to Iceland.

Along the way we aimed to identify mountaineering objectives that would hopefully include first ascents.

Notes for the Royal Cruising Club (RCC) Pilotage Foundation - Arctic Pilot were to be gathered for inclusion in future editions.

We intended to gather any plastic found en-route and dispose of this in an appropriate manner.

READING THIS REPORT

The information contained herein is, to the best of the authors knowledge accurate. Reasonable effort has been made to cross reference GPS co-ordinates and elevations where appropriate and other matters of fact are believed to be correct at the time of writing.

Any reader should recognise that the Greenlandic environment is a constantly changing arena and any individual visiting should take care to exercise caution and proper judgement at all times in their travels.

In the map images the marked red lines indicate the approximate route taken during shoreside activities, and in some cases, where noted, passages at sea.

In the photographic images a solid red line indicates the route taken that can be seen directly in the image. Where a dashed red line is included this denotes a part of the route that is obscured by the foreground within the image.

Due to the scale of the maps and photos it is not possible to consider these route lines accurate and they should be accepted as a general indication of the route followed in each scenario.

If any clarification or additional detail is required, please contact: gileswaterhouse@gmail.com

TEAM MEMBERS

Figure 1 - The Team: (from left to right) Giles, Ash, Olly, Mike, Rod, Ian. (Photographer – Giles Waterhouse)

MIKE JAQUES

Figure 2 - Mike Jaques.
(Photographer – Giles Waterhouse)

After a spell in the Merchant Navy following a major interest in mountaineering Mike worked in Outdoor Education for 10 years which included a two-year spell in the Antarctic as a field guide. Subsequently he started a Exploration Logistics a company that provided safety support to organisations working in remote areas, retiring after the sale of the business in 2011.

An active mountaineer, sailor and skier Mike has completed several expeditions including sea kayaking in North-west Greenland, ski mountaineering in South-west Greenland and Antarctica, mountaineering in Svalbard and the Alps and an attempt to sail a 16ft boat through the North West Passage which regrettably was terminated halfway due to sponsorship issues.

Mike has also completed many offshore doublehanded sailing races including two AZABs, three Round Ireland and latterly several Three Peaks Yacht Races one of which accompanied by Giles they won the Tilman trophy. In 2015 he lead the aforementioned expedition to Spitsbergen with Ian, Giles and Olly. He currently lives in Cumbria.

IAN FAWCETT

Figure 3 - Ian Fawcett.
(Photographer – Ian Fawcett)

Ian is a retired Geography teacher who now spends his time climbing, skiing, ski touring and paragliding. He started mountaineering and rock climbing in the mid 1960s and over the years has climbed and explored in Greenland, Svalbard, Iceland, Antarctica and the Alps. In 1977 Ian began his polar exploration career in earnest with a kayaking expedition to North West Greenland.

In the early 1980s Ian co-owned a yacht with Mike. This was much smaller than Umiak but they did sail it to the Faroe Islands and a number of other locations.

Ian is also a Level 4 Ski Coach and Tutor for Snowsport England and Wales.

ROD DUNCAN

Figure 4 - Rod Duncan.
(Photographer - Rod Duncan)

Rod Duncan is a grizzled seventies Antarctic veteran, whose main interest there was running his dog team. He spent three years providing medical care in remote situations, including working as a flying doctor on the North Sea. After 25 years as a researcher and Consultant Neurologist in Glasgow, he moved with his family to New Zealand.

Since Antarctica, he has done some sailing, a lot of downhill skiing and a lot of cycling, variously in Europe, North America and New Zealand. He has bad knees, which nonetheless don't hold him back.

ASHLEY HARRIS

Figure 5 - Ash Harris.
(Photographer – Giles Waterhouse)

Ash works in the construction industry, but also enjoys finding the time to sail professionally and for fun, either as a coach, racing skipper or tea boy if required. He loves keeping fit in the great outdoors and spends as much time as possible in the elements, swimming, running, and most things in between.

Ash's serious mountaineering experience prior to the trip was zero, but experience gained whilst scrambling in various parts of the UK, and time spent at climbing walls provided a good base from which he could learn from the other very competent and experienced members of the team.

OLLY YOUNG

Figure 6 - Olly Young.
(Photographer – Ash Harris)

A professional yachtsman and race boat maintenance specialist. Olly only had a week off from a very intense year and a half competing in the Volvo Ocean Race (in which his team won) before setting off for Greenland.

Sailing experiences range from a crewed world record rounding of Britain and Ireland, a double handed rounding of Britain and Ireland, 2 crossings of the Atlantic, 2 crossings of the Pacific and numerous regattas around the World.

A passion for adventure and treading on ground rarely seen by other humans, he has now acquired fairly extensive experience in cruising in the high latitudes thanks to the generosity of Mike.

Relatively new to mountaineering after the trip to Spitsbergen, Olly has found a new passion which has seen him climb in Wales, Scotland and New Zealand and has unlocked a new drive to learn and experience as much as possible in this sport.

GILES WATERHOUSE

Figure 7 - Giles Waterhouse.
(Photographer – Ash Harris)

Giles has worked as a professional yachtsman, rigger and, surveyor, in the leisure marine industry for the last 15 years. He is a qualified Yachtmaster with extensive sailing experience in the northern hemisphere, including 9 weeks in the Arctic Circle during Umiak's previous expedition to Spitsbergen.

As an amateur climber Giles has climbed rock around the UK to a reasonable grade and is still working on mastering a graceful gritstone top out. As a mountaineer his experience includes Wales and Scotland in summer and winter, a small amount of time in the French alps and two trekking peaks in Nepal, completed alpine style. Preferring skiing to walking downhill, Giles has ski toured in Canada, Spitsbergen, Norway, across the Alps and in Scotland.

PLANNING AND LOGISTICS

The majority of the planning and logistics was carried out by Mike over a period of around three years, starting almost immediately after the previous expedition, with Umiak, to Spitsbergen.

The remainder of the team chipped in where possible with plenty of questions and helpful ideas, along with their own research which was pooled within the group. Over the last year before the trip, reasonably regular emails were exchanged as a forum for ideas and delegation of some tasks.

MAPS AND CHARTS

Overall the maps and charts available for south-east Greenland, while of good quality, are limited in their detail due to the lack of and difficulty in surveying. Some of the most recent survey data includes that by the early Danish, British and Norwegian explorers, including Gino Watkins, and Lauge Koch from the 1930's . As a result the geographical positions on the maps and charts can be up to 3000m adrift of the GPS position when using the WGS84 datum.

LAND

SAGAMAPS, available from Stanfords or www.sagamaps.dk provide the only detailed paper maps we could find of the areas we intended to travel. Two scales are used, 1:500,000 and 1:250,000 in the more popular areas. We found the SAGAMAPS to be most useful for the identification of general areas for more detailed exploration or navigation both afloat and ashore, however for the finer points of route planning or terrain estimation were more difficult, as an appreciation of the terrain on a local scale is sometimes difficult to perceive, with features up to 100m lost in the contour scale.

While planning in the UK, it was possible, and worthwhile, to virtually explore areas using Google Earth's 3D function while cross referencing this to the S.

NAUTICAL

Nautically we used both electronic and paper charts. Electronically, C-Map and Navionics were used and, in many cases, there were significant differences between them, neither being the most accurate. Another issue we found would be that the yacht's position would change on the visual display, dependent on the level of zoom being operated at.

The extent of surveying in many areas is quite limited, with large areas having no detail on depths at all. In general this was not a big issue as the underwater terrain is, to some degree, predictable and can be read from the surrounding land.

Both the paper and nautical charts lacked in some other details, sometimes omitting small islands or showing rocks and other features inaccurately. Clearly care should be taken when navigating this coastline and fog or darkness could create a very difficult situation for a mariner.

PILOTS AND OTHER INFO

For information related to our land operations we found several detailed expedition reports which were useful in terms of understanding terrain, suitable equipment and operational ideas.

The Admiralty Arctic Pilot and Royal Cruising Club (RCC) Pilotage Foundation - Arctic pilot were both useful. The RCC pilot has a friendlier presentation, however the most northerly anchorage is at Antarctics Havn, near the entrance to Kong Oscar, and there are large gaps between locations where detail is provided. Hopefully people will continue to contribute to this resource and expand its content.

The Danish Meteorological Institutes website http://www.dmi.dk has a huge amount of information including ice charts and tidal data for some specific locations. The schedule for updating of ice charts remains a mystery to us however we eventually speculated that they are released anew each time a significant change occurs.

Ice charts are also available from the Norwegian Meteorological Service however the resolution and detail along the Greenland coast was not sufficient to be particularly useful.

COMMUNICATIONS

Once away from Iceland our principal means of communication, and access to weather and ice data, was the yachts Iridium satellite communication system. For local communications we had other systems, including VHF radio, and in case of emergency the yachts EPIRB would provide a solid last resort.

IRIDIUM

Onboard the yacht we had a powerful Iridium system, the Iridium Pilot, with the means to download and upload data, which was especially useful for obtaining ice and weather data as well as maintaining emails and our blog.

Two additional handheld Iridium phones were carried aboard. Often one of these was taken ashore as an alternative means of communication to the VHF.

The system worked well in all places, although suffered slightly when in narrow, steep sided fjords.

GARMIN INREACH

We carried one inReach unit which was set to continually track the progress of the trip. It would have been preferable to have sent log points more frequently in order to better represent the track followed by the yacht and parties using the device ashore, however in some instances the need to preserve battery life would still prevail.

As a side note, the maps on the device corresponded well with the terrain and the GPS position.

The text messaging function, supported by Iridium, was useful for inexpensive communication between the yacht and shore parties but also back home as well.

There is an SOS function on the device, reporting to GEOS, through the Iridium system again, which provided a shore party with a direct means of communication to outside search and rescue if need be.

VHF

Handheld VHF units were carried ashore for direct and instant communication between parties and the yacht. These generally worked well although in some instances were blocked by the steep terrain as they can only transmit 'line of sight'.

BLOG

With all of the team contributing, we kept an online blog to keep those at home informed of our progress and adventures. This also gave a platform for sharing some photos.

http://blog.mailasail.com/umiak

LOCAL TELECOMMUNICATIONS

While in Tasiilaq, some members of the team purchased local SIM cards, giving access to slightly cheaper calls and 3G data.

PERMISSION AND INSURANCE

The Greenland Government requires expeditions and/ or yachts to have a permit when off the "beaten track" defined on their website www.naalakkersuisut.gl which also explains in detail the process.

This process requires plenty of time but is not onerous and you should allow 8 months. In addition to completing the application form with a detailed plan you require a Radio Licence and a Firearms Permit from other Greenland Government departments.

Additionally, Search and Rescue Insurance is required, which despite considerable research, we were only able to find one company who would sign to the Greenland Governments terms. This was www.forsikring.gl based in Greenland and very helpful but expensive as an indication our insurance was circa £4k.

Each individual will also require their medical insurance which can be difficult to obtain. The Club Alpine Francais may be a suitable source for this cover.

Whilst in Greenland we were required to report our position six hourly to the Joint Rescue Command Centre whenever sailing.

Some of the documents used during our application are included in the appendices.

THE YACHT

'Umiak' is a 50' Bermudian rigged sloop, sailing yacht, named after the Inuit word for a small boat. The yacht, known as a 'Bestewind 50', is designed by Dykstra and built in Makkum, Holland by K&M Yachts.

The yacht is of a fibreglass construction with a fin keel, drawing 2.5m, and a carbon mast with rod rigging, equipped with slab reefed mainsail, furling jib, staysail (hanked to removeable inner stay), a Code 0 reaching sail and asymmetric Gennaker for sailing off the wind.

The bow is reinforced externally with stainless steel plate, formed around the stem, running from the sheer to below the waterline. This aspect proved essential when manoeuvring in brash ice and enabled much freer navigation than could otherwise have been considered.

FUEL AND WATER

Approximately 600l of diesel fuel is carried in tanks and a further ~120l carried on deck in jerry cans, giving a range of approximately 700-750nm. Fuel was taken aboard in Reykjavik, Iceland; Tasiilaq, Angmassalik; Ittoqquormit, Scoresby Sund; and, fortunately also sourced, in Messers Vig, Kong Oscar fjord from the Danish military's Sirius Patrol.

In general fuel was reasonably priced in comparison to the UK however when sourced from the Sirius patrol can only be called eye-wateringly expensive.

Electrical charge for the yachts batteries was provided in several ways: alternator from the main engine; a hydro-generator (an impeller mounted to a second rudder on the back of the boat) and; solar, by way of 3 1.5m x .0.5m flexible panels. Overall, we kept up with power usage well however we needed to run the engine every day for a while when using the alternator to make/toast bread and charge more power-hungry devices.

Figure 8 - Gathering water.
(Photographer – Mike Jaques)

Water is carried aboard with around 600l in the boat's tanks and a further ~200l carried on deck in jerry cans. Fresh water was sourced in Tasiilaq from the Royal Arctic shipping operations, at a cost. In Ittoqquormit water could be obtained freely from a hose behind the 'Pilersuisoq' general store.

Most of our water through the trip was gathered from snow meltwater streams at the edge of fjords throughout the voyage. The incentive of a shower proved adequate motivation for the labour required in these operations.

In future expeditions we would probably carry more fuel and less spare water, if at a similar time of year, given the relative ease of obtaining each.

FOOD AND COOKING

The majority of the food carried was brought from the UK in tinned, dry or frozen form, aboard the yacht.

Figure 9 - Pasta night.
(Photographer – Ash Harris)

Some additional fresh goods were bought in Iceland, Tasiilaq and Ittoqquormit. Within Greenland we tried to be aware of the limited supplies delivered and so only buy limited amounts so as not to exhaust supplies for the locals.

Cooking was done primarily on the gas cooker. We carried several 10kg gas cannisters, these of a fibreglass type that doesn't rust, stored on deck or in the gas locker. Originally, we had budgeted for around 1kg/day for the team of 6. In the event we used around 0.5kg/day.

One reason for the reduced gas usage may have been the addition of an electronic bread-maker to the kit. This meant making bread daily was a clean, and mostly cooker free, exercise. This did of course require electrical power.

A few things we wished we'd brought more of were:

- Baking supplies i.e. more butter, scales and recipes.
- Eggs or powdered egg (for breakfasts and baking).

OTHER YACHT PREP

STOWAGE

The yacht is provided with plenty of stowage both down below, under seats and behind furniture, and, on deck by way of a large lazarette located under the cockpit. The jerry cans were lashed down to hard points on the deck, forward of the pilot house.

Watertight blue barrels, flare containers and dry bags were used to store as much equipment as possible and prevent it from getting too wet. On the whole, this worked well. The heavy-duty style of dry-bag seems better for this purpose, rather than lighter weight versions, better suited for when being carried.

Some food stores were vacuum packed, which saved space physically but also meant that less packaging was carried from the start, reducing the amount of garbage.

GARBAGE

Garbage was stored in two blue watertight barrels and emptied correctly when settlements were reached.

ICE POLES

Three stout bamboo poles, around 10' in length were lashed to the guardrails. These were most useful for pushing away bergy bits of ice and growlers when required. On at least one occasion it was possible to move Umiak around a reasonable sized berg bearing down on us.

ANCHORING AND MOORING

Once in Greenland we had little occasion to moor alongside although when we did so a fender board was useful. This also duel-purposed as a workbench, when lashed to the pulpit.

The yacht is equipped with a 40kg Delta anchor with 100m of chain. An additional 70m of chain, a 32kg Delta anchor and a smaller kedge anchor were also carried but not used.

In general, south of Scoresby Sund we ended up anchoring on a rocky sea bed which afforded poor holding. We often resorted to a 1:6 depth to chain ratio in these circumstances. Further north we started finding more amenable holding on muddy bottoms. Careful study of the maps will help identify these anchorages, often at the mouth of rivers leading into the fjords.

The Delta performed well, however it may be worth considering if another type would deal with a rocky floor better.

At times we reinforced the anchor with mooring lines ashore. Four 100m lines, two floating, two of a sinking type, were carried for this purpose. This added confidence to the security of the boat however, in anchorages featuring ice moving around on the tidal currents, the additional moorings often presented the side aspect of the yacht to the current and, in turn, any ice trying to pass by. A quieter time was had when the anchor could be trusted and the yacht sat tide rode.

Mooring ashore required some organisation. We would often survey the area from the dinghy, with a hand-held echo-sounder initially, and then set up the anchors ashore before manoeuvring the yacht into position and running out the lines.

A range of anchors for mooring ashore were carried including, metal spikes, pitons and rope slings. These we kept prepared, with a hefty hammer, in a drybag that could be carried easily. In one location, where moored ashore by 4 points, we discovered the rope slings to be lacking durability against the rough Greenland granite and wished we had brought some loops of chain or wire for looping over boulders instead.

When mooring to the shore, remember to consider the location of the anchors in relation to the tide!

In one location, where we were in a particularly enclosed position, we encountered a series of surging waves that made the moored position quite uncomfortable, pushing the boat around, and requiring some management of the yacht under engine to ensure we kept a safe distance from the surrounding rocks. We surmise that a large glacier a short way-along the coast must have calved in a spectacular way, causing a series of waves that were amplified by the geography of our little zawn mooring.

ICE NAVIGATION

Much is already written on this topic however the following includes some of the ideas we found to hold true, and maybe some of our own findings.

Often, it seems, the transition from open water to an ice is very sudden with a clearly defined periphery. This gives a good opportunity to passage around the ice rather than travelling through it, which will, in many instances, prove the quickest way to reach one's destination.

When an ice zone must be transited, for necessity or curiosity, a keen look through binoculars will often reveal weaknesses, or leads, that may be exploited. Once in amongst the ice this becomes a constant activity as the perspective is constantly changing and new, better, leads will appear as quickly as previously seen ones will apparently close.

Figure 10 - Navigating through sea ice.
(Photographer – Giles Waterhouse)

In general, we found the Danish ice charts to be accurate in the areas encountered, although, often, an area described as, say, 2/10 may feel more intensive concentrated due to the presence of brash ice.

Brash ice can often be passed through easily however will require the boat speed to be reduced significantly. On Umiak, we found that the idle speed would give a boat speed of 3-4kn which felt too much in areas of more concentrated brash, meaning that when navigating these conditions we would have to manage the throttle constantly.

Concentrations of up to 3/10 ice seem to be manageable despite requiring lower speeds.

In ice choked zones, if looking for an anchorage, expect tidal eddy's such as bays or lagoons to be choked. More open anchorages seemed to fare better, with ice passing through rather than gathering.

Larger, land/glacier derived, bergs are much more manageable as they form clear targets. Care must be taken when travelling through areas of high concentration, to imagine the consequences should one roll or calve unexpectedly.

In many cases we found glacier derived bergs to feature protruding underwater ledges that needed a wide berth to avoid.

Figure 11 - Large glacier derived berg.
(Photographer – Giles Waterhouse)

New sea ice, while appearing thin and of little consequence, is generally thicker that it seems at first and should be treated with respect.

We also found that when a mild swell is running, shelter could be found from the sea state in the lee of an ice zone.

On several occasions we deployed the drone to scout an area seen to be icy. This was a good method of gaining a macro view of the ice situation for decision making, however, with limited battery life, was of limited use for ongoing navigational assistance.

When encountering an ice zone, a better view may be obtained from a higher vantage point i.e. standing on the boom or up the mast, however if this is required then it is likely better to retreat and try an alternative approach to the destination.

SHORESIDE OPERATIONS

SHORE BARREL

Whenever we had a team ashore for any significant period of time, regardless of conditions, we placed a shore barrel in a safe position, above the high tide mark. This barrel contained basic survival equipment to support the team ashore in the unlikely event that a pick-up was not possible due to either surf or ice. If the sea ice situation had been more critical then the importance of this would have been much greater.

The barrel contained:

- Tent
- Sleeping bags x 2
- Stove, pan and gas
- Freeze dried rations x 6
- Spare ammunition

We also used a large drybag that was left with the shore barrel to contain the welly boots, lifejackets and, other odd gear not needed ashore but essential for the transfer from the yacht.

BEAR PROTECTION

Similarly, at all times, when ashore, each party would carry one of the two rifles we had with us. After our experiences in Spitsbergen carrying ex 3rd Reich guns that were heavy and cumbersome, the decision to bring guns from the UK was more difficult logistically but the weight savings were welcomed by those carrying the weapons. The rifles were of a 30-06 calibre, with open sights, and could take 3 or 4 rounds in the magazine with a bolt action to chamber each round individually. Each rifle had its idiosyncrasies, however each had a method for making it safe, including use of a safety catch. During normal carry no round was in the chamber, for safety. Rifles were loaded and unloaded on the beach when accessing and egressing the shore so that no weapons were ever 'live' aboard the boat.

The rifles had dry bags which they were carried in whenever afloat although these were generally left with the shore barrel when shoreside.

While they fared reasonably well, we found that the gruelling terrain and constant moisture when ashore scratched the guns and started some surface rust. Ian kept an ongoing maintenance program to ensure the guns stayed in good order and would have worked if ever required.

It would be worthwhile considering some form of lightweight covering for the guns, that could be easily accessed, but would prevent the worst of the wear and tear but most importantly prevent snow/water getting down the barrel.

Figure 12 – Gun prep. (Photographer – Giles Waterhouse)

As well as the guns we carried a few 'flash-bangs', of the sort used in paintball games, with which we hoped to scare a bear away rather than having to use the rifle in any way. These were very light, being made of cardboard, but were a bit fiddly to use and needed to be kept in a waterproof bag.

Additionally, a red handheld flame flare was carried by some of the group. This may have been useful in case of a problem with the gun and a bear at close quarters.

In the dinghy we carried a canister of bear spray as this could have been a time when we would have been caught with the rifle un-loaded.

Luckily, we didn't encounter a bear whilst ashore, although we heard of contemporary stories from other people we met where countermeasures would have been comforting, if not necessary.

Of course, to carry a gun in Greenland, Iceland or any country requires the appropriate firearms licenses which should all be obtained in advance.

DINGHY

The dinghy was a star throughout the trip, constantly ferrying members of the team ashore for climbing missions, filling water barrels, pushing bergy bits away from the boat or recce missions around the fjords.

Figure 13 - The dinghy in action.
(Photographer – Giles Waterhouse)

The tender is a 'Rib Eye' made, aluminium hulled RIB at 3.1m. Powered by an 8HP Tohatsu 2-stroke engine this was a lightweight and effective combination.

A simple outboard repair kit, puncture repair kit and pump were carried in the tender at all times in a waterproof flare box.

Whenever in the tender, a VHF was carried for comms with the yacht and shore team. At all times we used a 'kill-cord' to shut down the engine if the helmsman fell out and lifejackets were worn by all occupants.

The yacht was rigged with davits astern which made stowing and launching the tender easy.

TERRAIN AND CONDITIONS

The sheer volume of mountainous terrain and the number of individual peaks, of all shapes and sizes, in the regions explored was overwhelming.

While spoilt for choice as to which peaks to climb we were often guided by the difficulties of access. Due to the various difficulties described below, we found it was easy to underestimate the time required for any undertaking.

The huge scale of the terrain when on the ground is disorienting, and estimating heights and distances was very difficult, often resulting in distances being much greater than expected.

Where the land is dry, i.e. there is no snow cover or glacier, scree slopes are often encountered making these ascents arduous and of dubious safety, with constant danger of a minor injury, made more severe by the seriousness of the location. This remoteness makes all of the mountaineering, and indeed travel by any means, quite serious.

In all area's moraine banks were encountered. These could take the form of soft mounds with small (smaller than a football) sized rocks scattered across them, to rock fields (football to beach-ball sized rocks), to boulder fields (anything from beach-ball to transit van sized boulders. Crossing these areas was difficult, time consuming and care needed to be taken.

Where soft, green land could be found, often along river banks or foreshores, the going would be easy, generally on moss covering dirt, however the likelihood of midges was greatly increased.

Where glaciers or snow could be travelled on we found the going easiest, particularly using snowshoes or skis.

Snow conditions at this time of year were of spring type and susceptible to exposure to the sun. Some slopes, receiving long periods of direct sunlight could turn isothermal and present possible avalanche risks. While it was less likely, some north facing slopes, during periods of fine weather, were found to get quite soft due to the long period of overnight sun reflecting directly off the faces.

A period of low cloud or fog could harden the snow surface considerably, or, some areas that see very limited periods of direct sunlight seemed to remain firm.

The rivers seemed to be the primary cause of aborted or changed plans. Where of any significant size, these proved very difficult to find suitable crossing points and the volume of water flowing down them could be significant. On several occasions we detoured uphill to find smaller tributaries to cross, adding distance and time to the journey.

While some of the glaciers we saw were treacherously crevassed, in the areas we selected for shoreside operations we found the glaciers to be generally quite benign with few crevasses, and those there were being easy to spot and navigate with the low levels of snow during this season.

Overall some excellent rock can be found although there will often be intrusions of a chossier quality. We certainly climbed in several areas of good quality rock and were tempted on several occasions to try some short rock routes from buttresses leading off the beaches.

As the areas we went are all thought to be previously unclimbed, we had, of course, to do a certain amount of gardening and management of looser rock in order to climb safely and find the best cracks to place protection.

Generally, we carried a limited rack, featuring mainly a few cams, nuts and slings. This we found adequate for the types of route we were attempting, at around the PD grade.

EQUIPMENT

SAFETY

When ashore each team would take suitable safety equipment. At a basic level this included first-aid kit, emergency bivi shelter and communications devices.

Depending on the objectives, a team would take, Crevasse rescue kit for each person to carry, Avalanche rescue kit (transceiver, shovel and probe per person), ropes and rock/snow protection as appropriate.

SKIING

Each of the members that could ski brought alpine touring equipment with tech style bindings and equipped with skins for uphill travel. With the sun affected snow, to have the skins hot waxed would prevent skins wetting out and carrying extra weight. Glopping didn't seem to be a problem as the temperatures were never low enough to cause re-freezing.

Everyone skiing had good touring boots. Those with the lightest versions found durability of the soles an issue when mountaineering over the rough rock to gain summits after a ski approach. Maybe take your older boots that are already a bit beaten up.

SNOWSHOES

Snowshoes proved a very efficient means of travel although probably not absolutely necessary most of the time. We used MSR 'Lightning Ascent' versions which worked well and could be fitted to any boot.

CRAMPONS

With the glacier travel and steeper snowy ground covered, crampons were a must carry on many trips and got their use. Full steel versions are probably the only thing that would stand up to the abuse of Greenland terrain, such as where small rock fields need to be crossed.

RUCKSACKS

Except when carrying camping gear, a 40l rucksack seemed to fit the bill for most of the team on most occasions. Some rucksacks seemed better suited to carrying the rifle well than others.

CLOTHING

In the spring/summer style conditions in this season we rarely wore waterproofs whilst ashore and softshell clothing seemed most appropriate. That said, we may have been lucky with the weather – we encountered no katabatic winds – and to have some form of hard-shell may well be worth carrying, particular when going further from the safety of the boat/camp.

WILDLIFE

BEARS

While we heard stories from other boat crews of having encountered bears whilst ashore – in the town of Tasiilaq and along the coast to the South, we did not encounter any bears ashore. Similarly, a Polish crew we spoke to reported having seen several bears during their excursion around Scoresby Sund, while we counted ourselves lucky to have encountered the one we did in Myddebugt, on the south side of Milne Land.

This particular bear, we learned from the Norwegian crews, had entered the water at the south-western part of the bay and then swum around two Norwegian yachts, anchored close to the east of the two island there, before swimming to the northern part of the bay where we found it swimming around the yacht just as we started cooking breakfast.

Having been startled the bear headed for shore with some haste, however once ashore seemed unworried and we were able to follow his progress along the shore line for some time.

MUSK OX

Further north, around Scoresby Sound, where they were introduced, and beyond, we found Musk Ox on the green low-lying land. These large cousins of goats are just as agile and seem to live in small groups.

Our best sightings were in Leicester Bugt, in Nordvestfjord, while ashore there; on the low lying north-east corner of Ella Island in Kong Oscar fjord and; around an old Fangsthus (hunters cabin) at the entrance to Dickson fjord.

Figure 14 - Musk Ox on the beach at Kap Hedlund.
(Photographer – Giles Waterhouse)

ARCTIC FOX

We were lucky enough to see one of these quiet little creatures, scouring the shore of Leicester Bugt, in his summer coat.

SEALS

In general seals were a relatively rare sighting although we did see individuals in most locations, away from the primary Inuit settlements.

Between the Kap Warming and Kap Boswell areas, as we sailed across the largest ice fronts, we found an enormous number of seals. The main types were Ringed Seal and Harp Seal, along with the much larger Hooded Seal.

Figure 15 - Seals chilling on the floes.
(Photographer – Giles Waterhouse)

BIRDS

We saw three main species of birds during the voyage and each seemed to have its preferred region, though may be seen elsewhere too.

South of Kangerdlussuaq the most commonly seen birds appeared to be Guillemots with their black and white coats and red legs and Black Guillemots.

All along the coastline we found Fulmars, often roosting in large groups on icebergs. The birds would swoop around the boat in a solitary inspection, often completing a full circle before flying off, skimming the wave tops.

Figure 16 - Arctic Skua.
(Photographer – Ian Fawcett)

Further north, around Scoresby Sund and Kong Oscar Fjord the Guillemots seemed to give way to Little Auks who seemed to prefer being further inland, yet near the water.

We saw one lone Arctic Skua and, approaching Iceland on the return voyage, a few gannets swooped over the boat, heading back to shore.

EXPEDITION DIARY

Maps detailing the routes taken throughout the majority of the voyage and in many of the shoreside activities are included in the appendices. These maps are taken from the Garmin inReach device, with the recorded tracks shown in blue.

TASILLAQ

12th – 14th July 2018

ANCHORAGE

N65° 61.57 W37° 62.79

Depth: ~12m

Here we anchored to the north of the Royal Arctic shipping dock, on a rock ledge. A small pontoon nearby provides easy access ashore. The general store, 'Pilersuisoq', can supply almost everything from food to guns to basic tools and is a short walk across the town.

The inlet harbour homes the fuel station, accessed from a poorly moored pontoon. The fuel station is an automatic system using a booth for pre-payment in the building ashore.

We were able to source water, to fill our jerry cans, from the Royal Arctic shipping office although this was expensive. It would probably be possible to moor alongside the wharf to fill directly to tanks, using the leaky fire hose that the Inuit workers can provide.

SHORESIDE

We ate ashore one night in the Angmassalik Hotel which provided a reasonable buffet dining menu and a bar, with views overlooking the town and fjord. The hotel is home to some Inuit artefacts including a traditional kayak and a display case of Tupilak, Inuit carvings of spirit figures with a cartoonish appearance, made from animal bones. Apparently other dining options are available and the Red Barn, if you can get a booking, is recommended.

SERMILIAQ

15th/16th July 2018

ANCHORAGE

N65° 53.9 W36° 21.9

Depth: 10m

Here we anchored on the east side of the town in a small bay with a rocky bottom. The holding was reasonable with plenty of chain out although we were a bit concerned when we returned from a walk ashore in the morning to a stiff easterly that could have pushed us on to the lee shore had the anchor not held.

We had reinforced our anchor with lines ashore to the north.

On a bearing 150° M from the anchored position at around 300m distance lies a small group of semi-submerged, uncharted, rocks.

This bay is home to some of the towns Huskies who, sadly, live around the towns expansive and poorly managed refuse disposal area. There is a small Pilersuisoq general store although this was closed on the Sunday that we were there.

There are some interesting small mountains, on the mainland and the islands, in this area and, in mid-July, there was spring snow lying to sea level. The western aspects seemed to hold the snow better.

STORO ISLAND

16th/17th July 2018

ANCHORAGE

N66° 10.37 W35° 31.96

Depth: ~13m

The lagoon, entered from the Southwest over a bar, was half filled with thin shore ice in the northern part. This may have prevented access to other suitable depth areas for anchoring.

We anchored on the bar in the entrance, approximately 200m from either shore.

A fine rock wall of solid appearance can be seen to the east of the entrance, on the South Eastern part of the island, and a good hike or scramble is probably to be had up the western arm.

We used the southern shore for a first practise flying the drone and, also for rifle practice with an iceberg as a target.

ILIVITIARIQ

17th/18th July 2018

ANCHORAGE

N66° 46.22 W33° 59.99

Depth: ~15m

After being barred from access to some of the east facing fjords along the coast to the south we anchored in Ilivitiarik, in a south facing fjord. After crossing at least one bar indicating an old terminal moraine, with a depth of around 40m, we found reasonably shallow water at the northern end of the inlet.

We accessed the low col to the north of the anchorage, by way of a staircase we cut into the 2.5m snow that reaches the shore above the beach.

There is some climbing and even some short run skiing potential in the area although from the low col at the north end of the bay we found the ground covered in scree and very loose.

We filled our water barrels from the snow melt waterfalls running out from under the snow on the western shore. We were particularly wary of the snow banks giving way on top of us and of potential rock fall from above so harvested early in the morning when the colder temperatures, hopefully, would minimise these risks.

KAP WARMING AREA

18th – 21st July 2018

Figure 17 - Kap Warming Area. (Photograph of SAGAMAPS)

ANCHORAGE

N67° 01.76 W33° 44.36

Depth: ~12m

Anchoring on rock again we found the best opportunities just south of a stony beach, under a steep, loose, cliff. Initially we led stern lines ashore but realised that with the amount of ice in the bay, moving around with the tide, our exposure was limited by allowing to boat to be rode to the tide, allowing bergy bits to pass by either side, rather than presenting the side aspect.

KAP WARMING ISLAND

19th July 2018

N67° 03.31 W33° 72.56

Height: ~550m

Mike Jaques, Rod Duncan, Ash Harris, Olly Young

After accessing the shore from the western tip, the team hiked across the low-lying western end of island, then scrambled up the ridge over large loose blocks. as the difficulty increased Rod and Ash waited whilst Olly and Mike climbed the final section which involved some pitched climbing

Whilst it would be a big undertaking over difficult terrain-the traverse of the island's ridge would provide a long and adventurous outing for those well prepared.

Figure 18 - Kap Warming. (Photographer – Giles Waterhouse)

KAP WARMING AREA SNOWSHOE

20th July 2018

N67° 07.52 W33° 83.28

Height: ~550m

Ash Harris, Olly Young, Giles Waterhouse

After landing ashore and climbing a steep slope from the beach the team crossed a moraine of blocky rocks, finding a bear poo deposit, before travelling, using snowshoes, along the glaciers left flank, below the extent of the rockfall from the loose cliffs above.

The glacier snout was calving as the team climbed with some large pieces falling into the sea.

The glacier, covered with a thin layer of spring snow, was crossed just below the point where the upper reaches come together. In the semi-dry conditions, the sometimes sizeable crevasses – particularly in the inside of the glaciers turns- were easily negotiated and the left hand branch (looking up glacier, was ascended to a small col next to an icefall.

The 1206m peak to the north could be climbed with a further effort including some relatively steep climbing on snow past some large crevasses.

KAP BOSWELL AREA

21st – 24th July 2018

Figure 19 - Kap Boswell Area. (Photograph of SAGAMAPS)

ANCHORAGE

N67° 54.12 W32° 06.83

Depth: ~10-15m

After trying inside the small southerly extending spit and finding it either very deep close to the shore or blocked by the large amounts of big bergs in the area, a recce mission in the dinghy found a deep zawn on the south-eastern corner of the (almost) island.

Here we dropped the anchor in around 20m, with ~70m of chain out, and moored with four points ashore, using large rope slings, pitons and a large chockstone. A large tabular block sits in the back of the zawn so caution should be taken not to moor too deeply into the inlet.

On the second day of anchoring a series of waves were amplified in size by the shape of the zawn causing an uncomfortable few minutes where care had to be taken for the yacht security. It is thought that perhaps one of the very large bergs in the bay split or a nearby glacier front calved, creating some waves which became disproportionately big as they were funnelled in to the rocky cove.

POLARIC PEAK

22nd July 2018

N67° 88.86 W32° 31.70

Height: Not recorded

Mike Jaques, Ian Fawcett, Rod Duncan, Giles Waterhouse

The team accessed the glacier on its left side, with easy ground gaining the left flank, then skied west to the shoulder of a rounded peak. A light-coloured rock intrusion we dubbed 'The Yellow Brick Road' was followed to the summit with views over the Polaric Gletscher and islands close offshore.

Figure 20 - Polaric Peak. (Photographer – Giles Waterhouse)

Descending the steeper gulley's from where the snow met the rock was fun on slushy spring snow. This led to the main glacier where the incline was just steep enough not to have to push on the way home, with a couple of sections steepening slightly to give more speed and let a few turns get carved.

Figure 21 - Hiking up 'Yellow Brick Road' rock intrusion to summit. (Photographer – Giles Waterhouse)

Figure 22 - Looking south across snout of Polaric Gletscher from summit. (Photographer – Giles Waterhouse)

BOSWELL PYRAMID

23rd July 2018

N67° 92.69 W32° 24.70

Height: 975m

Giles Waterhouse, Olly Young, Ash Harris

This peak may well be known as Boswell Bjerg although this is thought most likely to be the slightly higher peak to the north.

Ash and Olly completed the majority of this journey on snowshoes while Giles travelled on skis. After landing, the snowy cwm on the glaciers left flank was climbed past patches of moraine. A short section on crampons was required to climb out of lower cwm onto col. The team then skied/snowshoed up main face to the right shoulder where a horizontal band of scree extends across the face. Crampons were used along the narrow ridge of snow, with a loose rocky edge, overlooking a steep drop on north-east side of the ridge, to a rocky summit platform.

Figure 23 - Boswell Pyramid, seen from Polaric Peak. (Photographer – Giles Waterhouse)

The complete descent from the shoulder was skied, including the 40° section above and through the narrowing at rock band separating the upper mountain from the lower cwm.

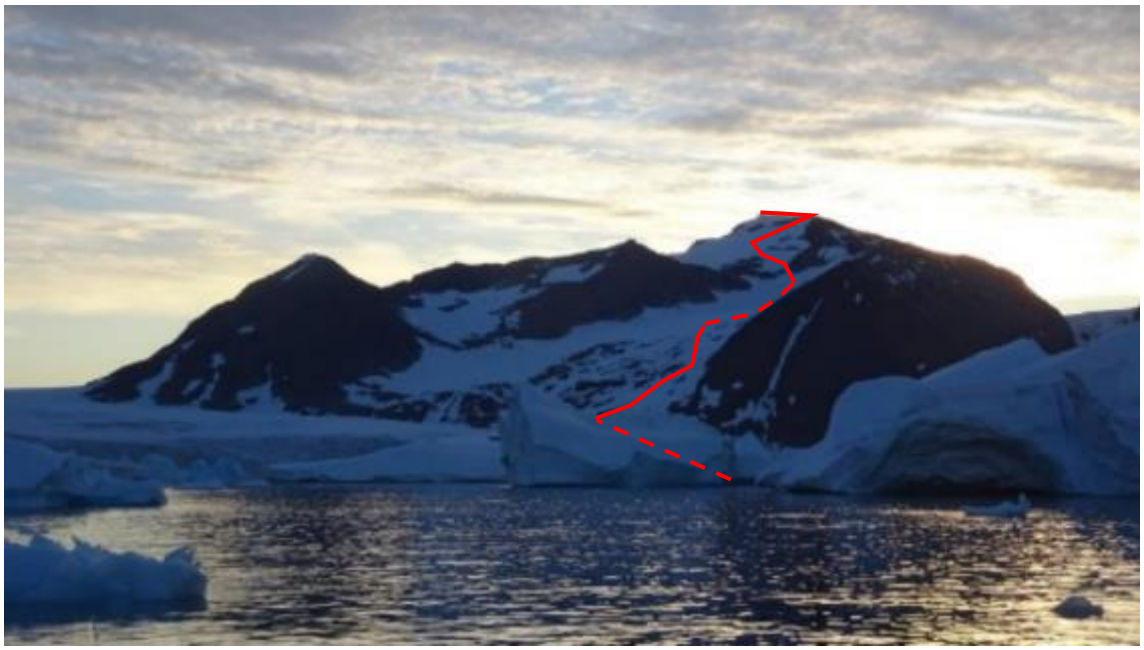

Figure 24 - Boswell Pyramid seen from Boswell Bugt. (Photographer – Giles Waterhouse)

Figure 25 - View from shoulder by horizontal rock band over Kap Boswell and across entrance to Kangerdlussuaq Fjord. (Photographer – Giles Waterhouse)

Figure 26 - Summit photo of Olly and Ash, Polaric Gletscher in the background. (Photographer – Giles Waterhouse)

ITTOQQUORMITT

26th/27th July & 1st/2nd August 2018

After a long downwind leg overnight along the coast, sailing with just the main up for much of the time we arrived in Ittoqquormitt in a dying breeze but with a leftover swell from the south. Two yachts – the one Polish and a wooden Norwegian boat called Fayance – were anchored in what would normally be the prime spot, immediately south of the town.

ANCHORAGES

Due to a southerly swell, we first anchored on the opposite shore, southeast of Ittoqquormit in a shallow bay known as Amdrup Havn.

N70° 28.42 W21° 56.36

Depth: ~11m

On our second visit we anchored in the area described in the RCC pilot, immediately south of the small dock below the centre of the town.

N70° 48.23 W21° 96.63

Depth: ~15m

To avoid the swell we anchored across the bay to the south-east, finding good holding for perhaps the first time during the trip.

Ittoqquormitt is smaller than Tasillaq however the Pilersuisoq store did provide reasonable supplies although a very limited amount of fresh food was available, so we were careful not to buy too much.

Water is available from a hose behind the store, although this is quite a long way to carry the water barrels. The community centre opposite the general store can provide self-service laundry services.

The fuel area is at the western edge of the town. We were able to anchor in a reasonable spot at N70 29.0 W21 58.6 (this position taken from the chart, rather than being a GPS position) which shortened the journey ashore in the tender to fill the fuel barrels. Care should be taken in this area for there are some submerged rocks, described in the pilot.

NORDVESTFJORD

27th - 29th July 2018

The next part of the trip took us past Milne Land and up into Nordvestfjord, past some enormous glacier derived icebergs, as we watched the midnight sun set briefly behind the Stauning Alps.

The land on the north side of Hall Bredning, as the main body of Scoresby Sound is known is much lower lying and greener than anything else we had encountered up to this stage.

As we progressed up Nordvestfjord, the sea temperature rose from the ~3°C encountered along the outercoat to ~7°C, and the snow level had receded right back to the limits of the remaining glaciers. Additionally, we noted a marked improvement in the weather with clear skies and warm, high pressure, conditions, rather than the fog and colder temperatures of the coast.

Along the Nordvestfjord we encountered a large amount of glacier derived ice, indicating that the Daugard Jensen Glacier at the north-western most extent is quite active. Some of these bergs were very large and prevented us from accessing the enclosed bay formed by the spectacular and high-quality rock sail of Ingmikortilaq.

ANCHORAGE

N71° 57.84 W27° 56.66

Depth: ~12m

With ice blocking our access to the northern most bay of the fjord, which some maps still mark as 'unexplored' we opted for Leicester Bugt. This south facing bay was surprisingly deep close to the shore, even in the northern end close to the river delta. Shallower water was found in the north-eastern corner, with good holding in a muddy bottom.

Figure 27 – Ingmikortilaq from the north-west. (Photographer – Giles Waterhouse)

EAST RENLAND TRAVERSE

29th July – 31st July 2018

N71° 47.61 W25° 86.27 to N71° 25.41 W25° 76.00

Height: Maximum 700m

Giles Waterhouse, Rod Duncan, Olly Young

As we neared the exit of the Nordvestfjord we made a landing for a party of three in a north facing cove at the north-eastern corner of Renland, at around 1600 in the afternoon. The objective was to traverse across this part of Renland, through a valley marked on the maps to the west of the Kloftbjerge massif.

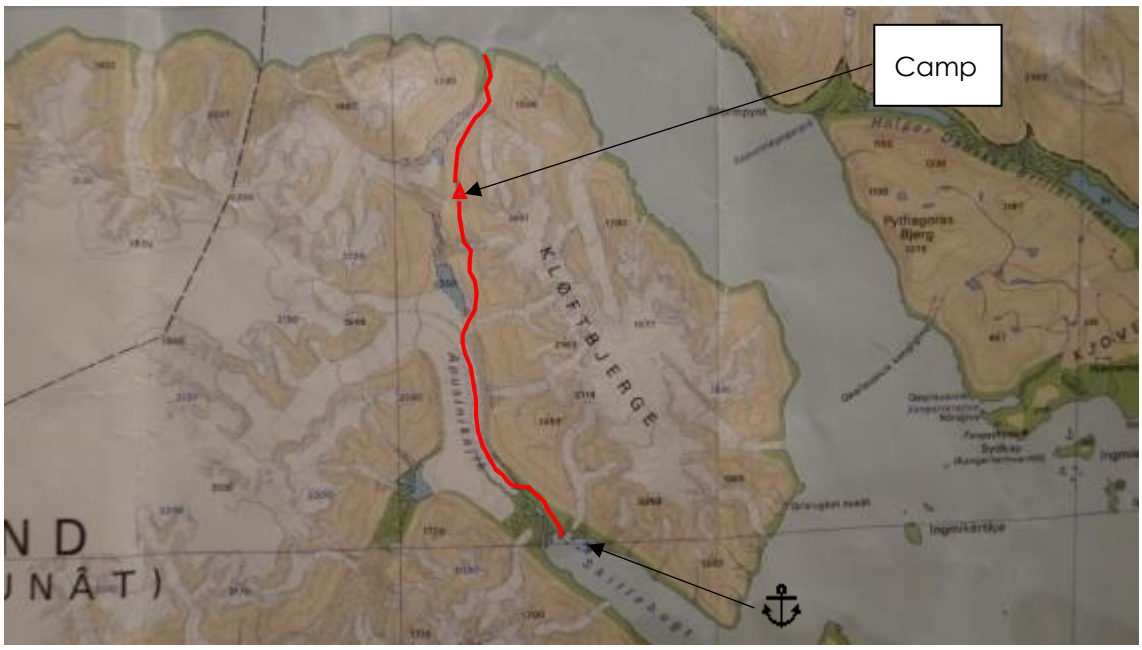

Figure 28 - Renland Traverse Area. (Photograph of SAGAMAPS)

Good early progress was made across green, moss covered ground, with smallish patches of rubble type scree, although the team were very glad of their mosquito nets. An attempt to cross to the west bank of the river was thwarted by the volume of water and resulted in pushing the team up the slopes on the east side of the valley to cross various tributaries of a smaller size, although these still required some nimble rock-hopping.

Gaining the higher ground brought the team above the snow line and ribbons of snow were followed along terraces at around ~600m elevation above the river on the east side of the valley. Overall, progress was slow, owing mainly to the difficulties of crossing the rubble like scree and patches of moraine, these bringing the average pace for movement in the intended direction to below 2km/h.

A camp was set up on the snowy terrace at around 0300 and a watch system of 2 hours keeping an eye out for bears, 4 hours in the tent resting, was started. Around 0600 the clouds came in thickly and it started raining, this limiting the visibility and making the bear watch all but pointless.

Use of the Garmin inReach's weather function assisted our decision to get moving again, after only a 7-hour pause, indicating that the weather would likely remain cloudy throughout the day, possibly clearing a little in the afternoon before becoming progressively worse again into the early hours of the following day.

Figure 29 - Olly and Rod crossing tributaries.
(Photographer – Giles Waterhouse)

Figure 30 - Easy going across the snowy terrace at midnight.
(Photographer – Giles Waterhouse)

The terrain as the team moved south became increasingly challenging with scree areas including rocks varying from tennis ball to transit van in size. These rubble/scree patches are a kind of moraine and tended to form in strips or banks that needed to be crossed before another short period of easier terrain could be accessed.

A crossing of a dry glacier validated the decision to bring crampons, although the spikes set in rubber that can be attached to boots would have been adequate and much easier to carry.

Finally, the southern banks of the glacial lake were reached, and the seemingly benign glacier appeared within reach. Crossing some softer type moraine, we realised we had a serious river crossing to make before a section of moraine covered glacier, with some deep, open, crevasses that must be crossed to reach the bare ice of the main glacier.

Figure 31 - Camping mid Renland.
(Photographer – Giles Waterhouse)

Olly managed to find a meandering route across the river hopping from rock to rock above the fast-flowing water. For safety we employed the rope as each person crossed with a secure belay to the shore.

Eventually the Apusinikajik glacier proper was reached and we hoped our pace would increase. Moving in crampons again, although once again spikes would probably have sufficed on the bare ice, and roped up, possibly unnecessarily, for additional safety as we crossed narrow crevasses and some larger water runnels, our pace did creep above the 2km/h mark along this stretch.

Finally reaching the end of the glacier we managed to cross the river over a snow bank straddling it to reach a sandy beach with rounded pebbles and stones arranged in long banks. Careful to beware of any soft sand, our feet welcomed this change of surface and the subsequent green mossy slopes that led us past the end of the river delta and beach to a protruding moraine. Ash had come to collect us in the dinghy and, in typical Greenland style, we had to cross this one last moraine before we could get to the boat after having been on the move for 26 hours out of the previous 34.

Here the rest of the team gracefully, given the time, prepared us food along with a refreshing beverage.

Spectacular scenery was seen throughout the crossing with the mountain ridges along the route and above the anchorage featuring series of pointed gendarmes. To the west of the lake where the Apusinikajik glacier was joined a proud rock buttress stood, appearing to be made of a sturdier rock than most of the surrounding terrain. There would certainly be some skiing and climbing potential in the area although with the difficulties of access during this dryer time of year it may be advisable to visit earlier.

SKILLEBUGT

30th- 31st July 2018

ANCHORAGE

N71° 15.0 W25° 42.3

Depth: ~10m

Having dropped the shore team off in North Renland the yacht crew made their way around to the pickup point in Skillebugt where a couple of anchoring spots were tested with the best being tucked in close to the southernmost moraine protruding from the east side of the fjord, with a muddy bottom. There seemed to be a circular current flowing around the fjord necessitating the fending off of the same berg twice over 24 hours of waiting for the shore party.

MYDDEBUGT ANCHORAGE

31st July - 1st August 2018

N70° 35.37 W25° 46.27

Depth: 20m

Arriving in the fog we detected the steeply shelving bottom using the keel. A sand bar extends from approximately the centre of the northern shore southwards around the west side of the bay, forming a barrier in front of the two small islands, that are not marked on any of the charts.

Suitable depths could probably be found in various points around the bay however, beware, the shore shelves steeply in places. The holding is good, on a muddy bottom, as the name would suggest.

It was here, the following morning that we found a bear swimming around the yacht.

Having followed the bear for a while, we visited two Norwegian boats anchored on the west side of the bay then headed for Ittoqquormit, via the front of the fast ice to the west, in hope of some wildlife.

Figure 32 - Bear sighting at Mudderbugt. (Photographer – Ian Fawcett)

KOLDING FJORD

3rd – 6th August 2018

Heading outside Scoresby Sund, from Ittoqquormit, the sea conditions were quite lumpy, and we were all please to get inside the shelter of the islands and ultimately in to Kolding Fjord, even if the surrounding mountains were shrouded in fog.

Later in the day, the fog cleared and a recce mission around the fjord could be completed on Umiak and ideas for shore activities formulated for the following day.

Figure 33 - Map of Kolding Fjord area. (Photograph of SAGAMAPS)

ANCHORAGE

Our initial anchorage here, as we arrived in the fog was immediately south of the Fangsthus in the low-lying col between Kap Hoegh and Sandbach Halvo.

N70° 43.52 W21° 35.75

Depth: 10m

When the team set out on the 'Don't forget your toothbrush' climb, the yacht was moved to the western end of the fjord.

N70° 72.52 W21° 79.57

Depth: ~10m

SANDBACH HALVO

4th August 2018

N70° 74.67 W21° 68.30

Height: 545m

Ian Fawcett and Rod Duncan

A snowshoe ascent was made up the cirque from sea level. A steep exit was effected by kicking steps with the snow shoes still on for about 30 metres. This brought us out a little high into an upper valley and so a short decent of a broken ridge took us onto broken ground and past a partially frozen lake. Steeper block fields led upwards and then along to rounded snowy summit. Good views down into the neighbouring fjord identified ice levels that might make anchoring there irksome.

Figure 34 - Sandback Halvo. (Photographer – Giles Waterhouse)

Figure 35 - Looking out to sea from the upper valley. Photographer – Ian Fawcett)

Figure 36 -Ian atop Sandbach Halvo, looking into Vejle Fjord. (Photographer – Rod Duncan)

HEYWOOD BJERGE - KNIFE RIDGE

4th August 2018

N70° 68.15 W21° 79.70

Height 605m

Mike Jaques and Ash Harris

Snowshoes were used to cross the north running glacier then access the western end of the ridge line. The early part of the ridge was scrambled, followed by a pitched traverse, before negotiating the narrow, rocky, ridge, tackled 'aux cheval' at times by Ash, earning the "knife ridge" name, to summit high point on ridge.

Figure 37 - Heywood Bjerge Knife Ridge (Photographer – Giles Waterhouse)

Figure 38 - Ash climbing along the Knife Ridge. (Photographer – Mike Jaques)

'DON'T FORGET YOUR TOOTHBRUSH'

4th - 5th August 2018

N70° 72.05 W21° 93.08

Height: 970m

Giles Waterhouse and Olly Young

The approach was made on snowshoes, starting at around 2200 in the evening to try to take advantage of colder temperatures and thus hopefully firmer snow in the gully. This worked to some extent although, with a north facing aspect the morning sun soon warmed the face and the snow softened considerably, although not dangerously.

Figure 39 - 'Don't forget your toothbrush'. (Photographer – Giles Waterhouse)

Snowshoes and poles were left on the lower glacier in the hope that a full traverse would be possible via an easier descent route on the west side of the mountain. For this reason also, the gun was carried throughout the climb, by Olly, which must have made some of the harder climbing very awkward indeed.

Figure 40 - 'Don't forget your toothbrush' climbing route. (Photographer – Giles Waterhouse)

Once up the easy snow apron and across the bergschrund the team climbed in pitches, often above a reasonably intimidating exposure although the ground was not above Grade II winter or Severe rock climbing.

Varying rock quality was encountered with some belays being considered solid while some, particularly where intrusions of shattered rock were encountered, offered limited security.

Figure 41 - Olly climbing along the summit ridge. (Photographer – Giles Waterhouse)

A mistake from looking at different versions of the recce photos meant that the intended right leaning diagonal snow gully that the team intended to follow, to the groove below the right shoulder, was passed.

This led the team up a thinner, steeper groove to the left shoulder which was followed to the summit over easy ground with long, run-out pitches.

The traverse to the main summit offered some of the most interesting climbing of the outing with a short steep section of approximately severe standard above quite wild views downward. A slanting ledge finished the journey to the summit.

The northwest shoulder was downclimbed over loose rocks until the terrain steepened and a series of abseils led to a snowy plateau above the side glacier. Turning east to reach the side glacier some rocky moraine and short cliffs were descended before a final jump across the bergschrund to boot back across the glacier and reclaim the snowshoes.

The good folks on the rest of the team had hiked out hours earlier to drop a food and tinned beverage cache part way along the route back to the boat, which was an exceptionally welcome present after 20hours of eating only cereal bars.

Arrival back at the yacht, at a somewhat more sensible time than after the Renland Traverse was appreciated by all.

TVOERSUND

6th – 9th August 2018

An attempt to reach a lagoon style anchorage, on the northern shore of Neild Bugt, was thwarted by a band of 2/10 ice, reported on the ice charts yet hoped to be passed regardless. The ice was navigable, at slow speed across Neild Bugt right to the entrance of the lagoon where it was found to be choked with brash ice and some larger bergy bits, preventing entrance.

Retreat brought Umiak, via Campbell Sund to a shallow bay on the west side of Tvoersund, facing the island of Trekanten.

Figure 42 - Tvoersund Area. (Photograph of SAGAMAPS)

ANCHORAGE

N71° 15.62 W21° 47.81

Depth: ~8m

The holding here was reasonable on a bottom of mixed mud and rock. Despite the large swathe of ice outside of Trekanten island only limited amounts found its way through the sound.

A swell was encountered, during drop-offs for shoreside activities, on the south coast of Trekanten although this was minimal in the anchorage and did not trouble us.

TVOERSUND MAINLAND (IF CARLSBERG DID MOUNTAINS)

7th August 2018

First summit	N71° 24.92	W21° 79.16	Height: 775m
Second Summit	N71° 25.06	W21° 78.47	Height: 720m

Mike Jaques, Ash Harris, Giles Waterhouse

The snowy apron of avalanche run-out at 35° steepened to 40° higher up. The team pitched a short section over icy ground to gain the col up the right branch (looking) of the Y shaped gully. The scramble to the summit south of the col was fun over large blocks to reach views west over Inderford. Traversing across to the summit north of the col featured an alpine feel ridge of snow mixed with rocky patches. The route to the summit was taken direct with moves at a Severe standard to finish the final few metres.

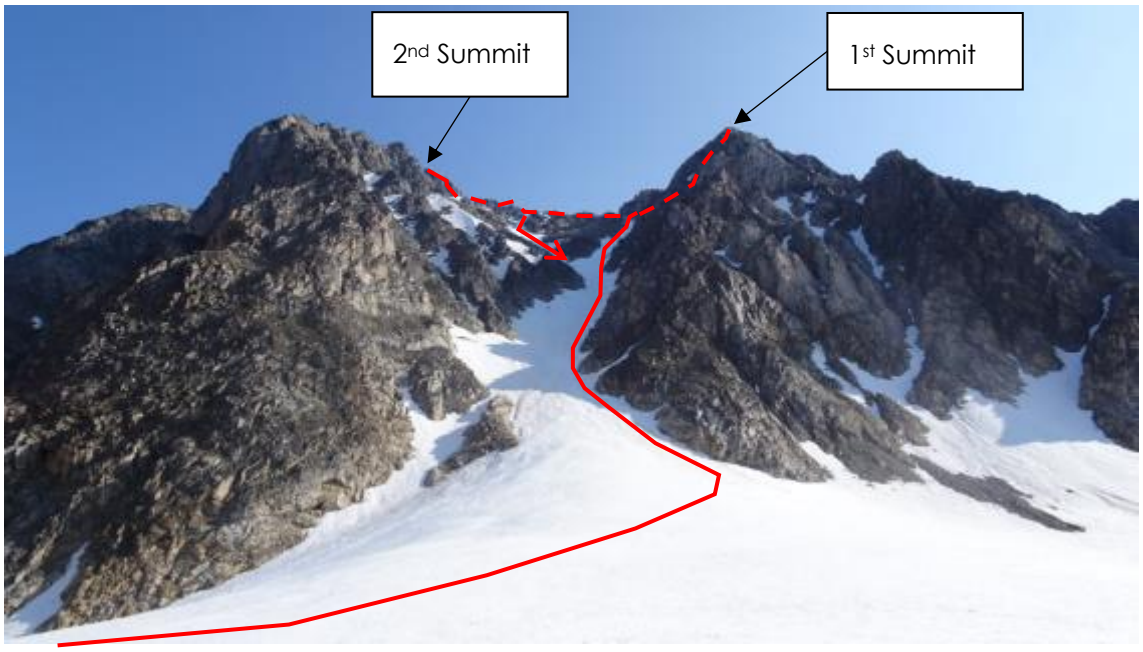

Figure 43 - Tvoersund Grade II gulley and twin summits. (Photographer – Giles Waterhouse)

The right branch (looking) of the Y gully was descended, initially roped, facing in, on the steepest section then later plunge stepping.

On following day, the majority of the gulley's right branch was skied, from just below the icy top section.

TREKANTEN CENTRAL

8th August 2018

N71° 27.57 W21° 71.02

Height: 690m

Ash Harris, Olly Young

The landing ashore on Trekanten was made more interesting from a swell pushing the dinghy onto the shore.

The team headed up to the right from the beach across scree slopes to gain a series of grooves with some snow patches.

Figure 45 - Ash stood atop second summit in Tvoersund area with Trekanten island behind. (Photographer – Giles Waterhouse)

Figure 44 - Ash high above the fjord, climbing on the main ridge. (Photographer – Olly Young)

Higher up, moving together, the groove was escaped to the ridge on the left and after a short descent into a notch, the main ridge was gained. The team headed left to the highpoint of this section of the ridge before reversing the route.

The dinghy pick-up was even more difficult than the access as the swell had increased during the day. Boarding required a jump, one at a time, from a small cliff.

Figure 46 - Looking across the fjord from the summit of Trekanten central toward the anchorage. (Photographer – Olly Young)

Tvoersund Col

8th August 2018

N71° 24.06 W21° 83.86

Height: Not recorded

Ian Fawcett, Rod Duncan, Giles Waterhouse

Mellow and pleasant ski touring from the boat to the col at the head of the glacier. A second lap to the col was made while Giles hiked and skied the gulley climbed the previous day and Rod returned to repeat the ski of earlier in the day, while Ian took photos and manned the gun in case of bears

Figure 47 - View from col back down glacier towards anchorage. (Photographer – Giles Waterhouse)

Figure 48 - Ian cutting turns down from the col. (Photographer – Giles Waterhouse)

KONG OSCAR FJORD

9th – 13th August 2018

Made passage from Tvoersund, again with the intention of reaching the lagoon style anchorage in Neild .Bugt this still appeared choked with ice, however it was possible to continue past Kap Hewitt and then Kap Wardlow and onwards into Kong Oscar Fjord.

ANTARCTIC HAVN

9th – 10th August 2018

Arrived late in the day having negotiated significant sea ice across the mouth of Carlsberg Fjord and the fog and sea ice in the entrance to Kong Oscar Fjord.

ANCHORAGE

N72° 00.11 W23° 06.18

Depth: ~6m

Found good holding on the east side of the bay.

MESSRS VIG

10th – 11th August 2018

En-route here we were amazed by how quickly the ice from the previous evening had cleared from the fjord entrance.

As we approached the area we identified the Malik Arctica, a supply ship, and the Sirius Patrol craft in Nyhavn, the next bay North from Messrs Vig where there is a Danish military presence, on the AIS system (AIS is a VHF facilitated identification system for yachts) and so decided to visit.

As luck would have it the Sirius Patrol, a detachment of the Danish military were able to sell us some aviation fuel, that was adequate for the yachts diesel engine, albeit at an inflated price. This enabled us to have the confidence to go further into Kong Oscar Fjord and visit the famed Ella Island, site of a Greenlandic 'Sledge Patrol' base from World War II, without having to rely more on the wind.

ANCHORAGE

N72° 15.79 W23° 54.35

Depth: ~10m

Holding was good here with a soft bottom as the beach would indicate.

ELLA ISLAND

Departing Messers Vig and heading north-west we had spectacular views of some gnarly looking, though potentially accessible, Syltoppen range of mountains.

Further along the fjord, we encountered young sea ice at the mouth of Segelsallskapet Fjord. The Sirius Patrol, whom we had befriended the previous day radioed advice to follow the larger naval research vessel the HDMS Lauge Koch on a more northerly course through better leads.

We transited anti-clockwise around Ella Island, seeing Must Ox on the low-lying north-eastern corner before finally arriving at 'Ella Base' where the WWII building still stands, surrounded by more modern facilities, and overlooked by the mighty Bastionen mountain, forming the western ramparts of the island.

ANCHORAGE

N72° 87.89 W25° 10.78

Depth: ~5m

Better holding was found further east withinin the bay directly in front of the Sirius Base. Beware submerged rocks on the west side and to the west of the land when heading south out of the bay.

Figure 49 - The imposing 'Bastionen' reflected in calm water as it towers over the Sirius Base on Ella.
(Photographer - Giles Waterhouse)

KAP HEDLUND

At Kap Hedlund, retired members of the Sirius Patrol have restored a hunting cabin to close to its original condition. Visitors books from the late 1970's can be read and the place is, in general, a historical experience.

We encountered a small group of Musk Ox on the beach here.

Figure 50 - The inside of the Fangsthus at Kap Hedlund.
(Photographer - Giles Waterhouse)

ANCHORAGE

N72° 71.98 W26° 16.95

Depth: ~ Unrecorded

The holding seemed reasonable although in dead calm weather and only a short shore visit planned we did not thoroughly test the situation.

DICKSON FJORD

The far reaches of Dickson Fjord were the westernmost point reached in the area, where we reached a view of Hasingers Gletscher at N72° 82.10 W27° 22.87.

The HDMS Lauge Koch was also working down this Ford and we left her to continue to the head while we turned eastwards to head back to Liverpool Land, going south-about round Ella Island and exiting Kong Oscar fjord overnight with stunning pink arctic light highlighting very thin sea ice floes.

Figure 51 - The remarkable mixed landscape of glacier and rock at the head of Dickson Fjord.
(Photographer - Ian Fawcett)

MARIAGER FJORD

13th – 17th August 2018

The anchorage we selected is at the head of the fjord close to a river delta, supplied by two main rivers featuring impressive waterfalls.

The north side of the fjord is relatively inaccessible, and the rock generally looks loose.

Glacial cwms on south side, near the mouth of fjord, are accessible with short steep sections then provide multiple opportunities.

Access ashore, at the western end of the fjord, via the beach gives opens terrain on all sides, although beware of the difficulty/impossibility of crossing the larger rivers.

The larger glacier that reaches the fjord at the southernmost point on the south side is still advancing, making access difficult though with some landing potential on the true left side.

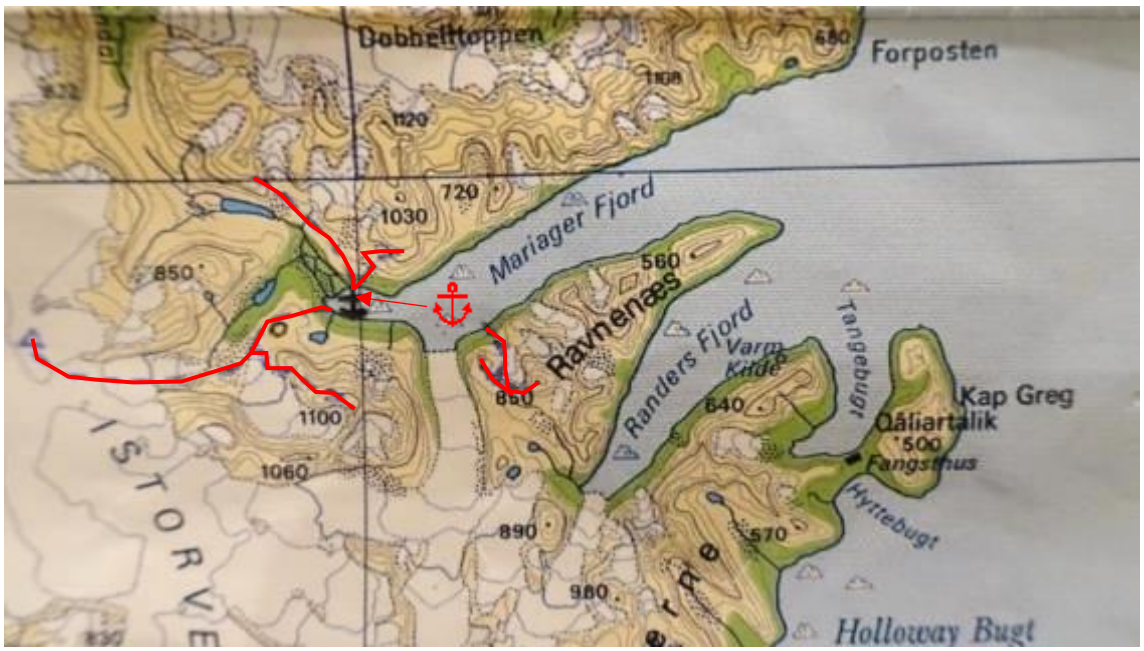

Figure 52 - Mariager Fjord Area. (Photograph of SAGAMAPS)

ANCHORAGE

Anchored in front of river delta with numerous places of suitable depth.

N70° 58.49 W21° 59.98

Depth: 8 – 15m

Anchoring is possible in several spots at the head of the fjord, in less than 10m of water, with a muddy bottom.

Water was gathered from a stream on the south side, near the beach.

NORTH OF WATERFALL

14th August 2018

N70° 99.88 W22° 04.37

Height: Unrecorded

Olly Young and Ash Harris

After being prevented from accessing the 850m peak due west of the head of the fjord by an impassable river the team restarted from the beach and gained the sub summit of the peak to the north of the larger lake situated NW of the fjord head by hiking and scrambling.

Figure 53 - Looking upriver towards the summit.
(Photographer – Olly Young)

Figure 54 - Looking west from anchorage in Mariager Fjord.
(Photographer – Giles Waterhouse)

MARIAGER NORTH SIDE BUTTRESS

14th August 2018

N70° 98.34 W21° 98.44

Height: 410m

Mike Jaques and Ian Fawcett

The broad, rounded, but steep buttress on the north side of the beach was ascended, involving some pitched climbing, and the ridge continued to an independent summit overlooking the fjord.

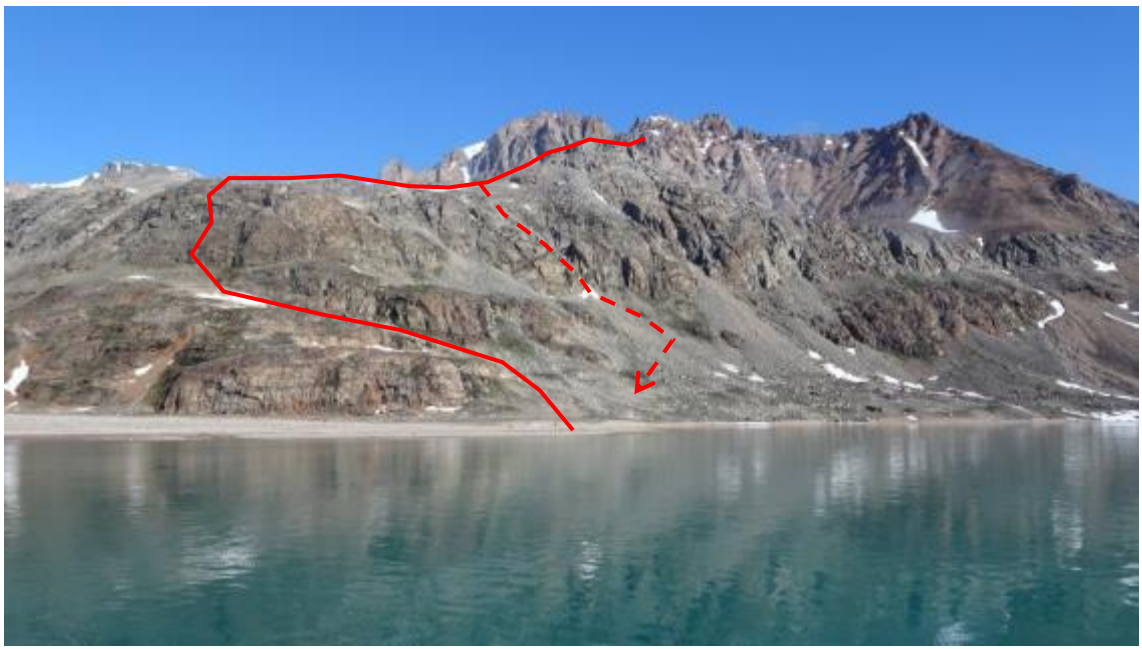

Figure 55 - Buttress on north side at head of Mariager Fjord, leading to independent summit.
(Photographer – Giles Waterhouse)

The decent taken from this peak passed a number of locations with the potential for single and multi pitch rock climbing on good rock.

Figure 56 - Mike climbing the north side buttress.
(Photographer – Ian Fawcett)

MARIAGER TRIPLE CROWN

15th August 2018

First Summit	N70° 95.72	W21° 87.38	Height: Unrecorded
Second Summit	N70° 95.58	W21° 89.47	Height: Unrecorded
Third Summit	N70° 96.11	W21° 91.17	Height: Unrecorded

Olly Young and Ash Harris

A busy day out took the team up a steep slope from the shore into the snowy cwm. A steep couloir to a breche on the right-hand ridge accessed easier terrain around the back of the most prominent peak.

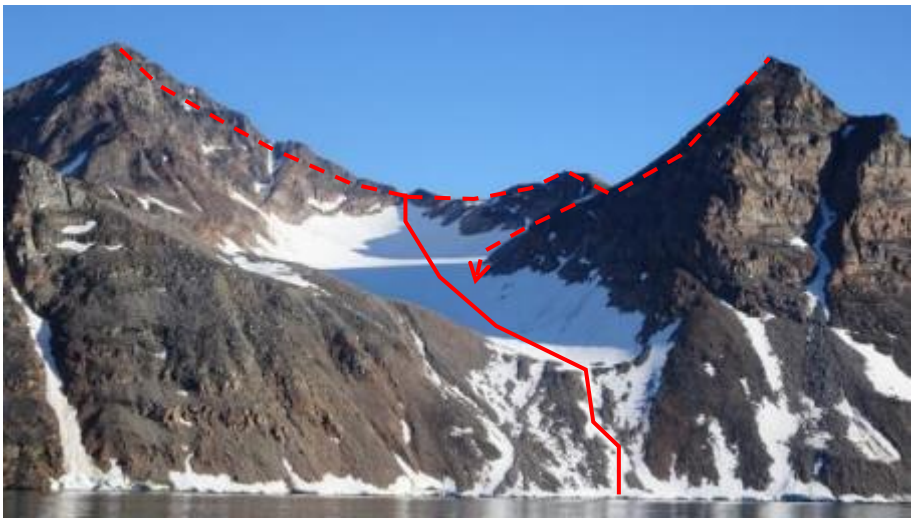

Figure 57 - Mariager Triple Crown cwm. (Photographer – Giles Waterhouse)

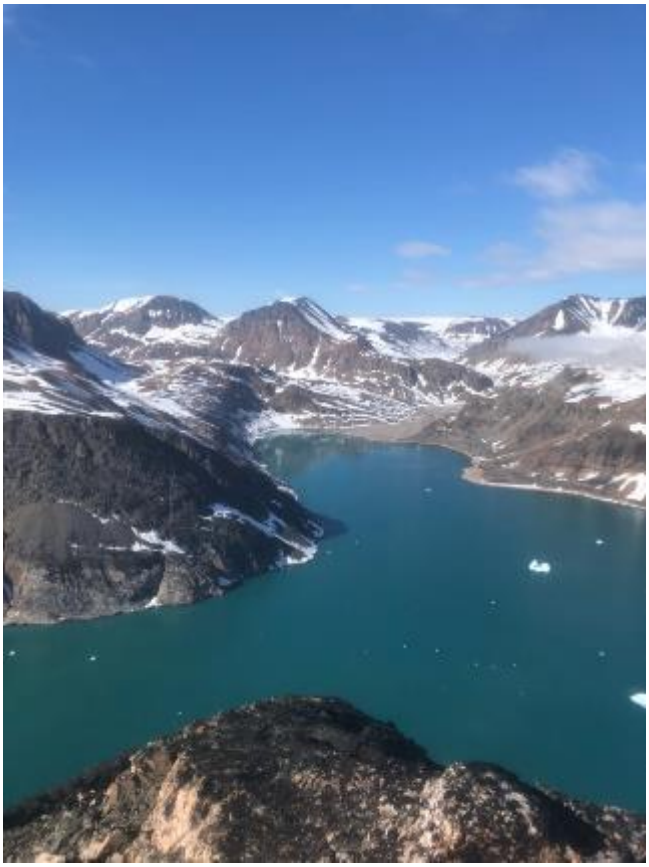

Figure 58 - Looking south-west towards the end of the fjord and the anchorage. (Photographer – Olly Young)

Reversing these steps in descent, the team continued along the ridge to gain both the smaller top part way along as well as the larger, more prominent peak overlooking the fjord.

Figure 59 - Looking south-west across the inaccesible glacier. (Photographer – Olly Young)

MARIAGER SOUTH

15th August 2018

N70° 94.94 W21° 99.57

Height: 1126m

Giles Waterhouse and Rod Duncan

In poor visibility the team skied to 550m on firm snow, with ski crampons required on a steeper section rising above the river. Skis were (perhaps regrettably) left behind to climb a steep scree shoulder, then crampons used to cross the snowy plateau and traverse the length of the, exposed feeling, summit ridge to a summit of loose blocks.

Figure 60 - Mariager South, viewed from west. (Photographer – Giles Waterhouse)

A second, relatively inaccessible summit at the same height is situated across a dangerously unstable and narrow ridge that extends further along.

Figure 61 - Rod striding towards the ridge across the shoulders plateau.
(Photographer – Giles Waterhouse)

The team descended by foot to the skis then had great conditions skiing softened, though sun-cupped, snow all the way to the river running east to the beach. A mossy terrace runs parallel to the river giving access back to the shore.

PARACETAMOL PEAK

16th August 2018

N70° 96.82 W22° 17.44

Height: 795m

Mike Jaques and Giles Waterhouse

The snow slopes beside the river leading south-west were followed before crossing a tributary at the head of the lake. A steep slope of moraine was crossed on large rocky blocks to access the east running glacier coming from the Istorvet ice-cap. The glacier was relatively benign with few crevasses and was followed all the way to the ice-cap where we turned north behind a wind scoured face of dry glacier to reach a snow summit with 360° views.

Figure 62 - Paracetamol Peak Route. (Photographer – Giles Waterhouse)

With some careful route selection it was possible to ski nearly all the way down, with only two short sections of skinning required.

Figure 63 - Mike skiing off the top of Istorvet ice-cap with views over Hurry Fjord.
(Photographer - Giles Waterhouse)

SUMMARY

Overall we all felt the trip was a success in all respects, having completed the planned objectives, navigating some wild and remote sections of coastline and all of the team making probable first ascents in these same relatively unexplored areas.

- Navigated as far as hoped and planned, completing 1550nm in waters with very limited existing charting.
- Climbed 16, probably, previously unclimbed peaks.
    - It may be the case that, due to the nature of adventurous expeditioning that these routes may never be repeated as others seek their own new routes and experiences. Hopefully our experiences, and this report will provide some additional information to make it easier for others to enjoy similar adventures.
- Reconnoitred a significant part of the East Greenland coast for future mountaineering inspiration. Some of the groups thoughts on future expeditions to the area are as follows:
    - Primary zones of potential: Milne Land, Liverpool Land (for easiest access by yacht), Kong Oscar Fjord (Adventures by dog sledge), Syltoppen range on south side of Kong Oscar Fjord.
    - Careful timing required re ice access and best snow conditions for travel depending on planned objectives.
- All the team came home safe and with lots of good photos.

APPENDICES

Maps

The following maps are screenshots from the Garmin inReach devices supporting 'Earthmate app' carried throughout the trip, with the recorded tracks shown by the blue line, with yellow dots at the logging intervals.

In some areas data is missing where the device was not set to log from the very start of the journey.

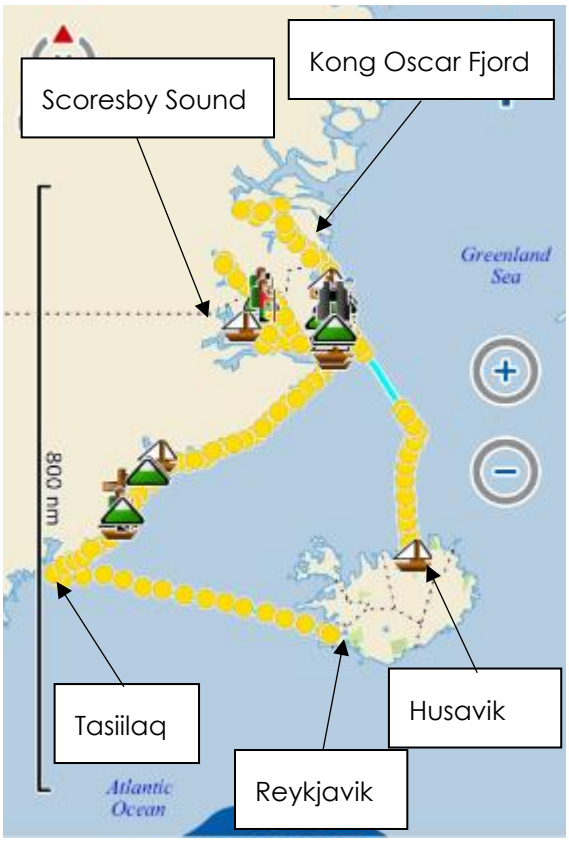

Figure 64 - Complete route.

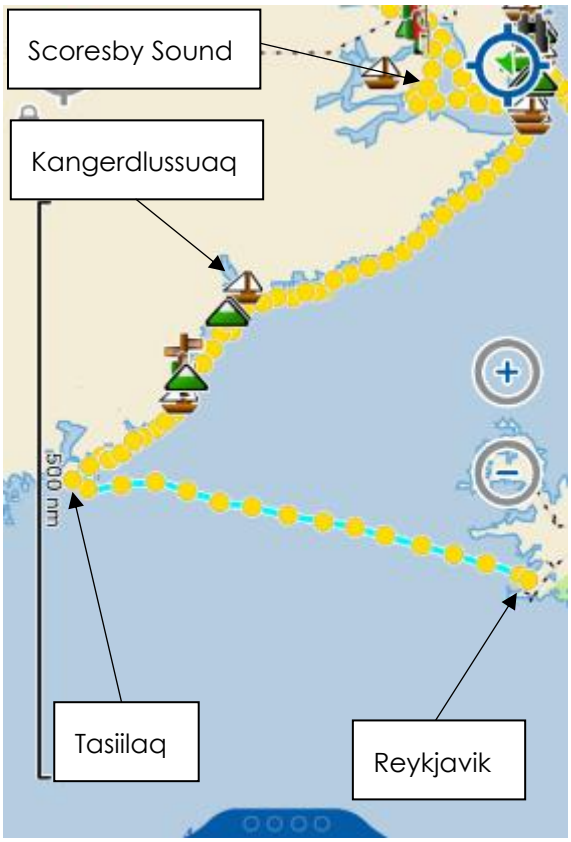

Figure 65 - Reykjavik to Tasiilaq to Scoresby.

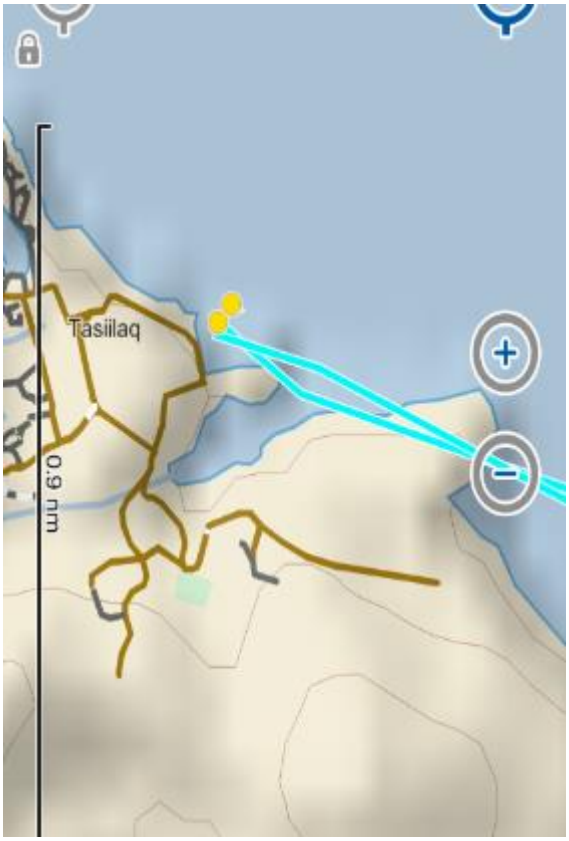

Figure 66 - Anchorage in Tasiilaq.

Figure 67 - Anchorage in Sermiliaq.

Figure 68 - Tasiilaq to Sermiliaq.

Figure 69 - Sermiliaq to Storo Island.

Figure 70 - Anchorage in Storo Island.

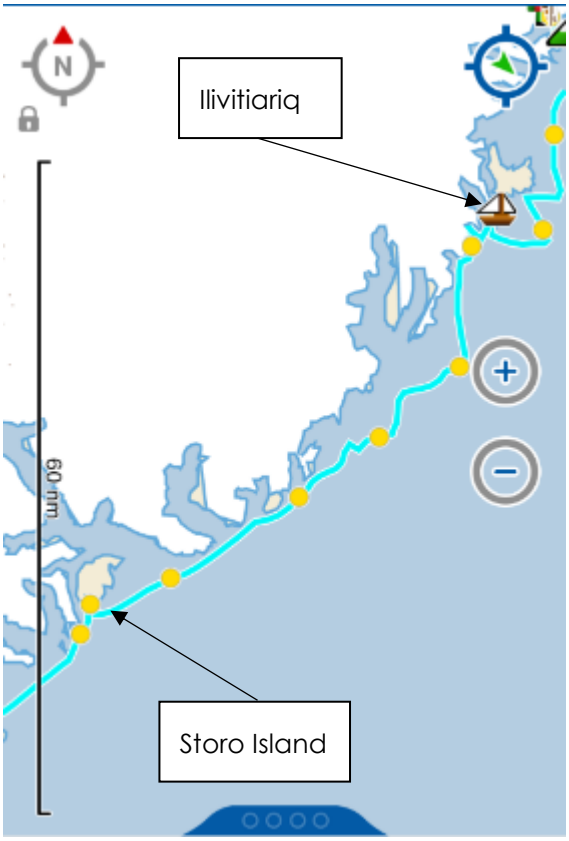

Figure 71 - Sermiliaq to Ilivitiariq.

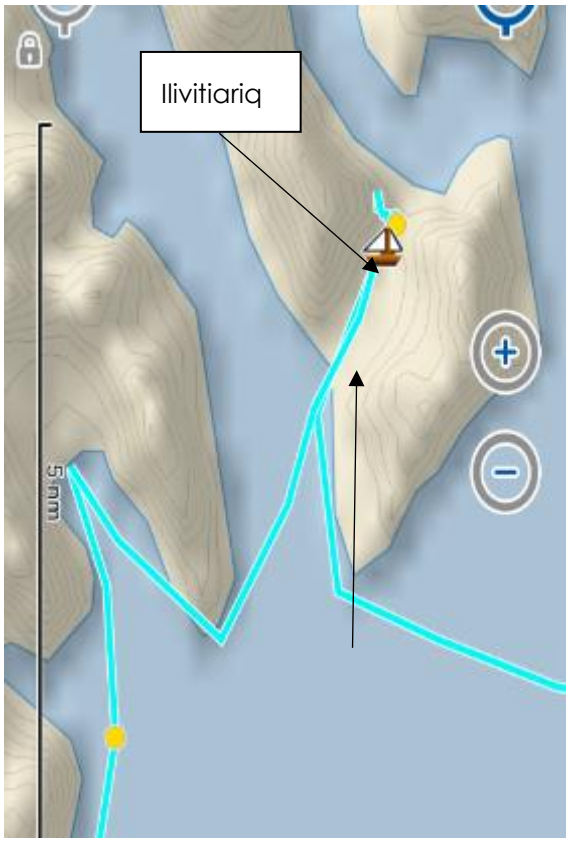

Figure 72 - Anchorage in Ilivitiariq.

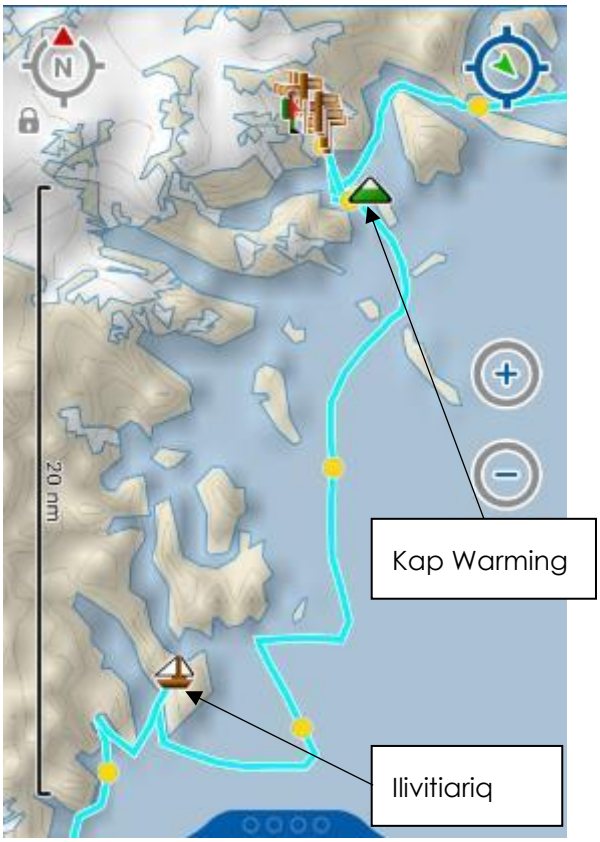

Figure 73 - Ilivitiariq to Kap Warming Island.

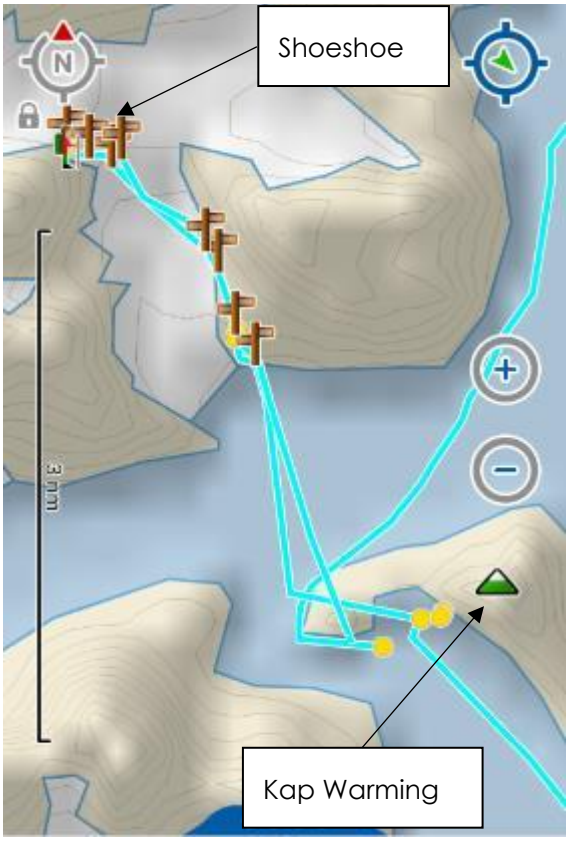

Figure 74 - Kap Warming Island area shoreside activity.

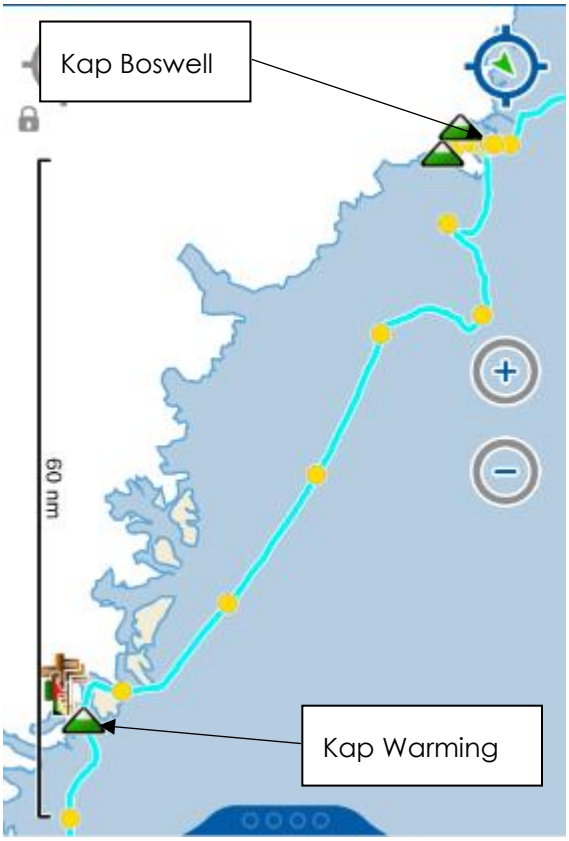

Figure 75 - Kap Warming Island to Kap Boswell.

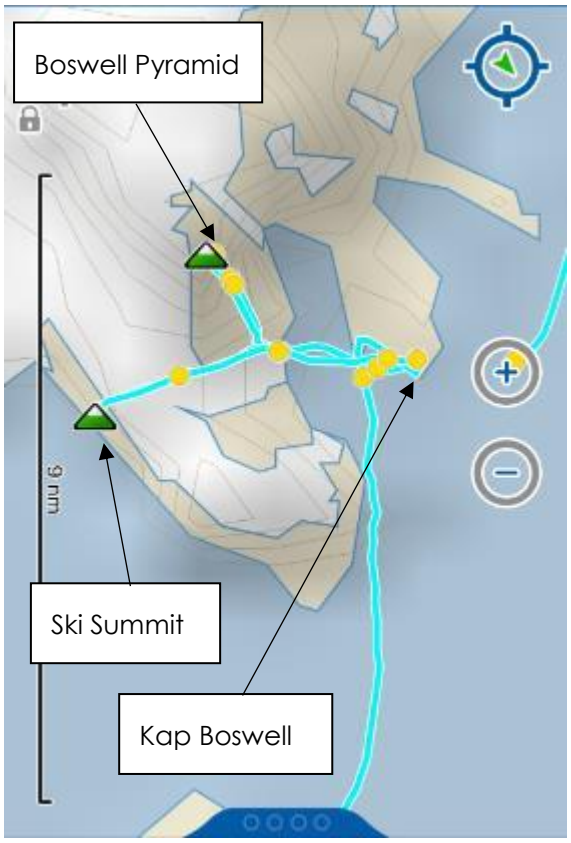

Figure 76 - Kap Boswell area shoreside activity.

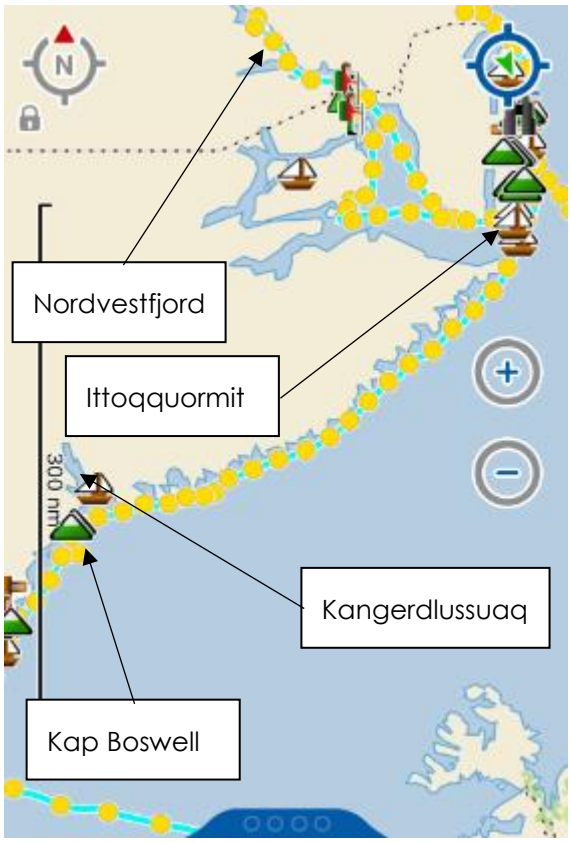

Figure 77 - Kap Boswell to Ittoqquormit and Scoresby Sound.

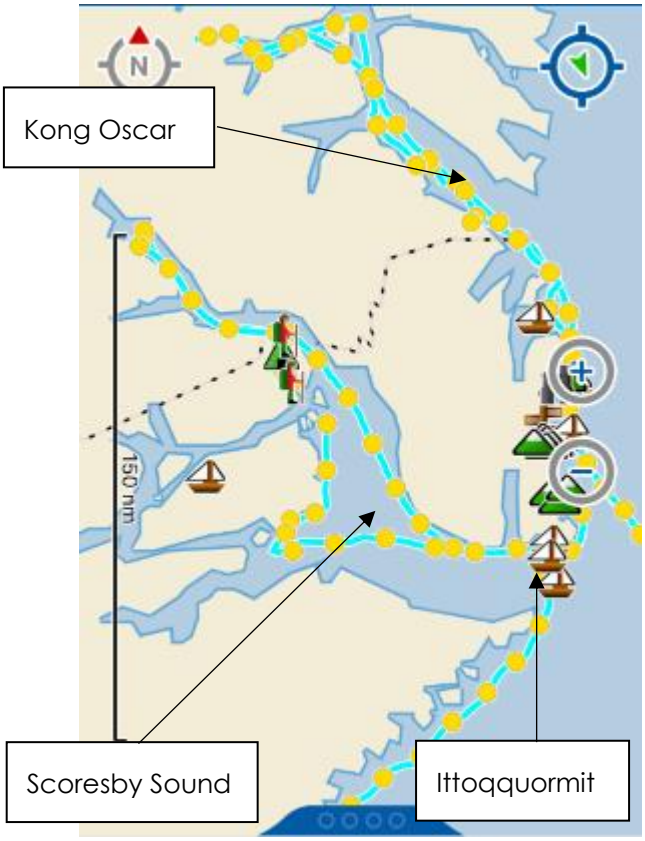

Figure 78 - Scoresby Sound and Kong Oscar overview.

Figure 79 - Ittoqquormit anchorage.

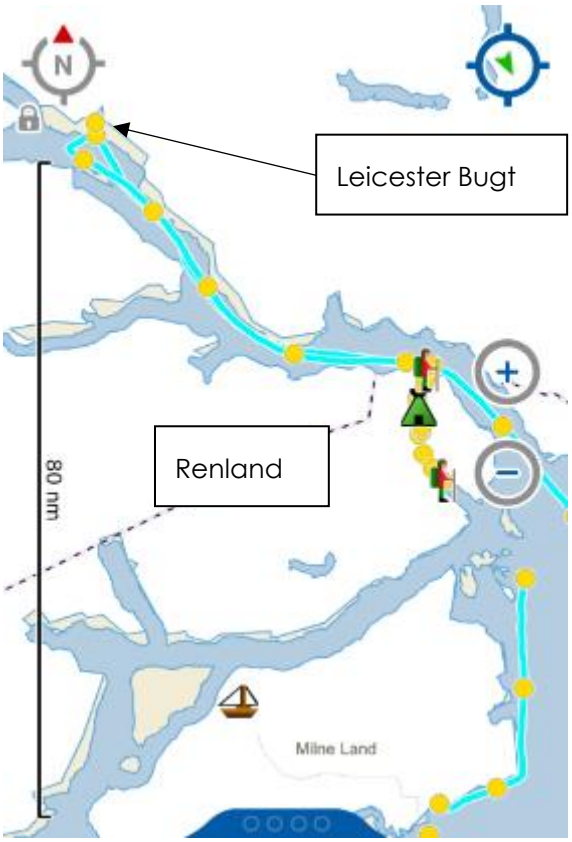

Figure 80 - Nordvestfjord.

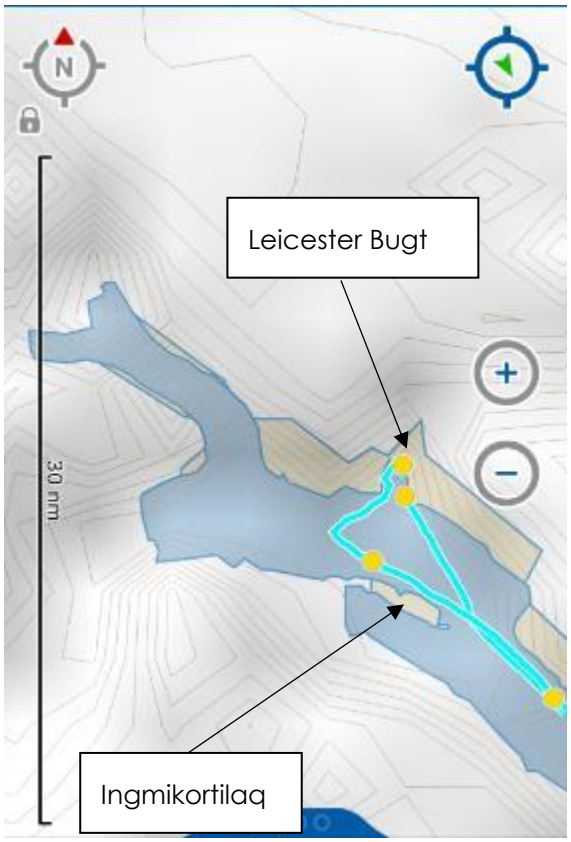

Figure 81 - North-western reaches of Nordvestfjord.

Figure 82 - Leicester Bugt anchorage, Nordvestfjord.

Figure 83 - Renland Traverse shoreside activity.

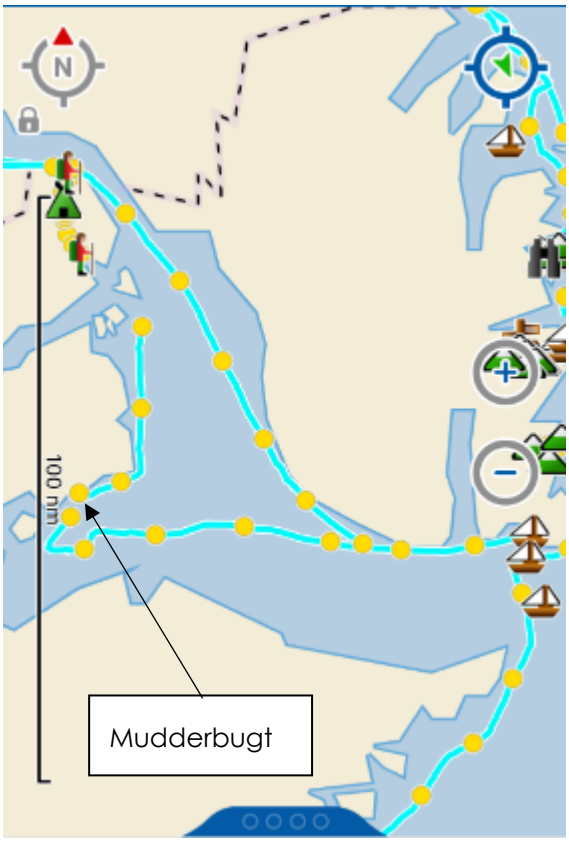

Figure 84 - Skillebugt to Mudderbugt to Ittoqquormit .

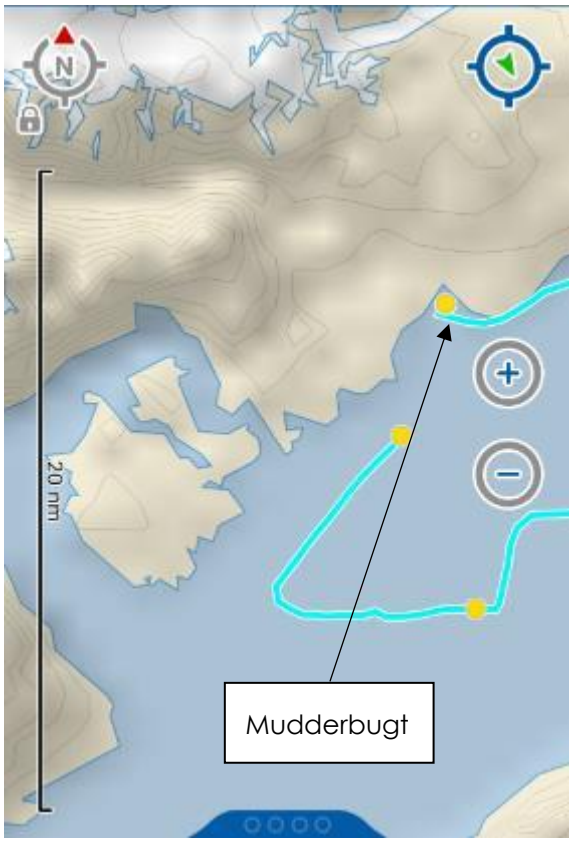

Figure 85 - Mudderbugt and passage along edge of fast ice.

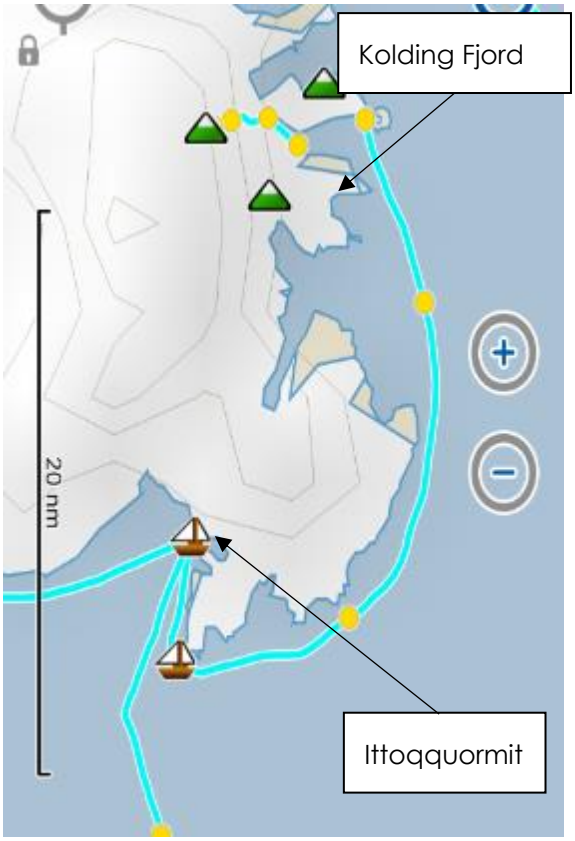

Figure 86 - Ittoqquormit to Kolding Fjord.

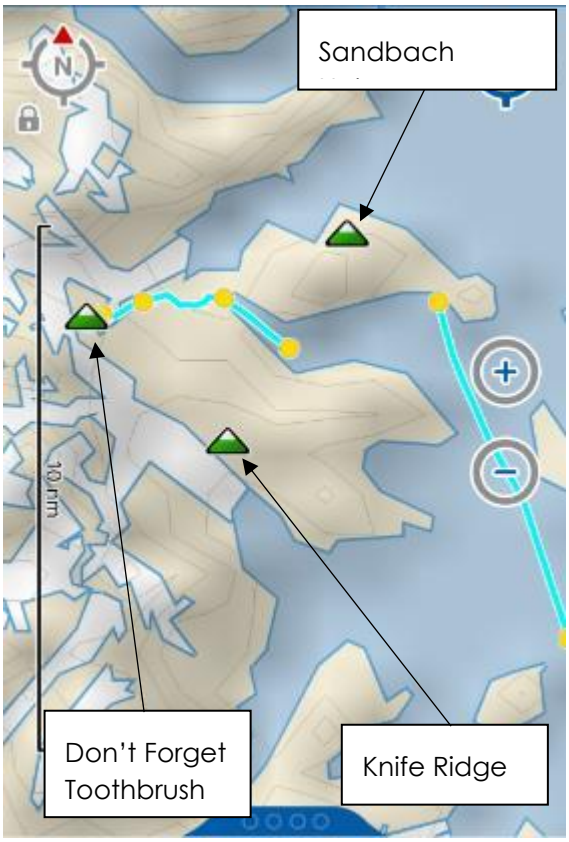

Figure 87 - Kolding Fjord shoreside activity.

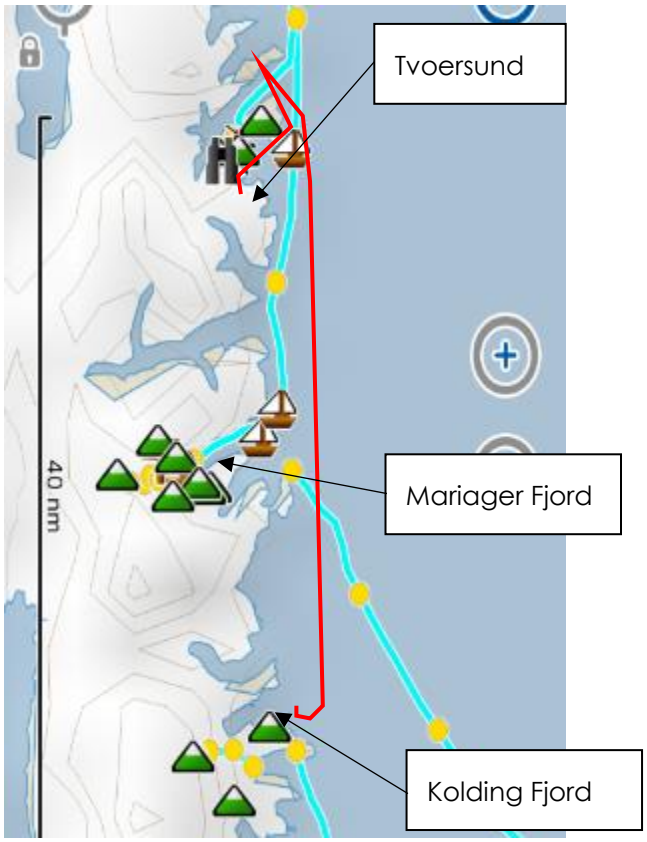

Figure 88 - Kolding Fjord to Mariager Fjord (in red) and other Liverpool Land travels.

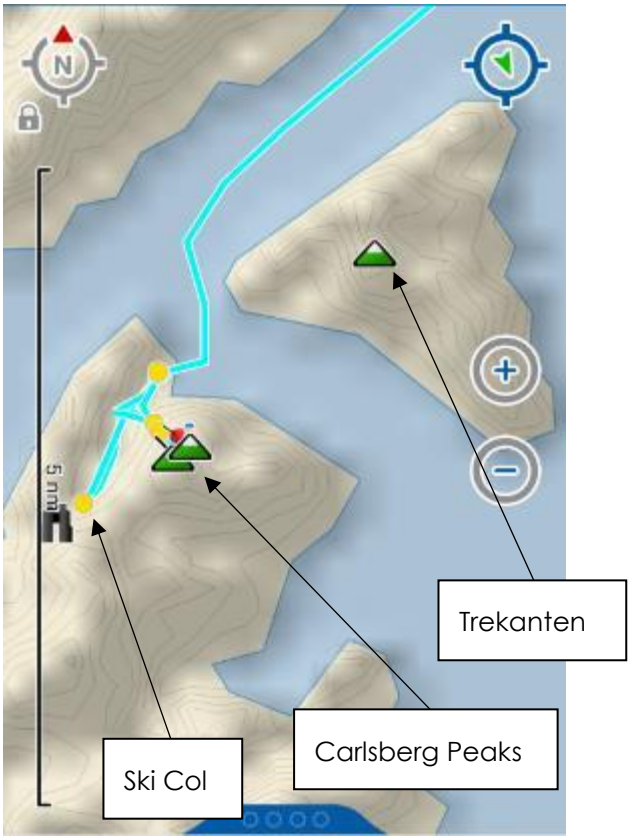

Figure 89 - Tvoersund area shoreside activities.

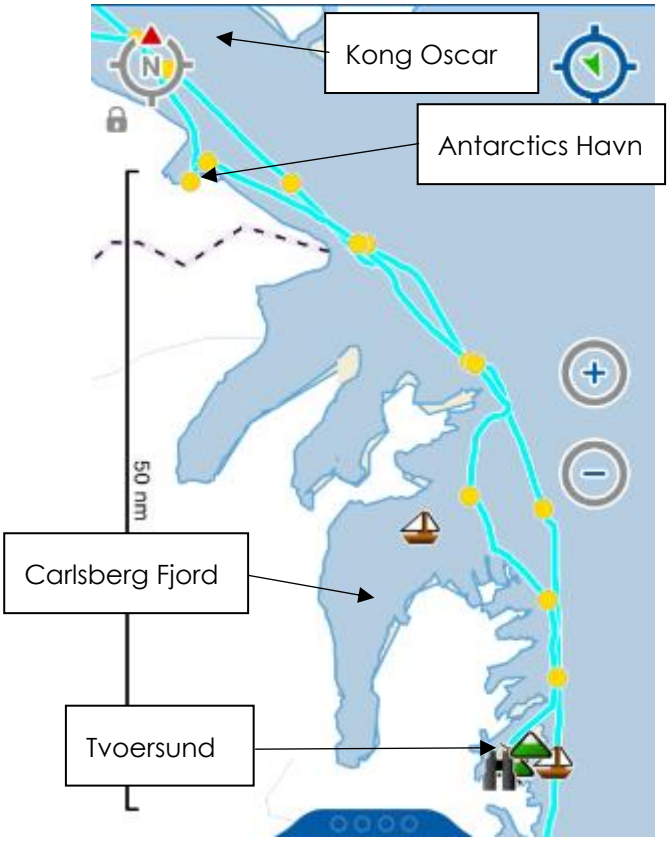

Figure 90 - Tvoersund to Antarctics Bugt.

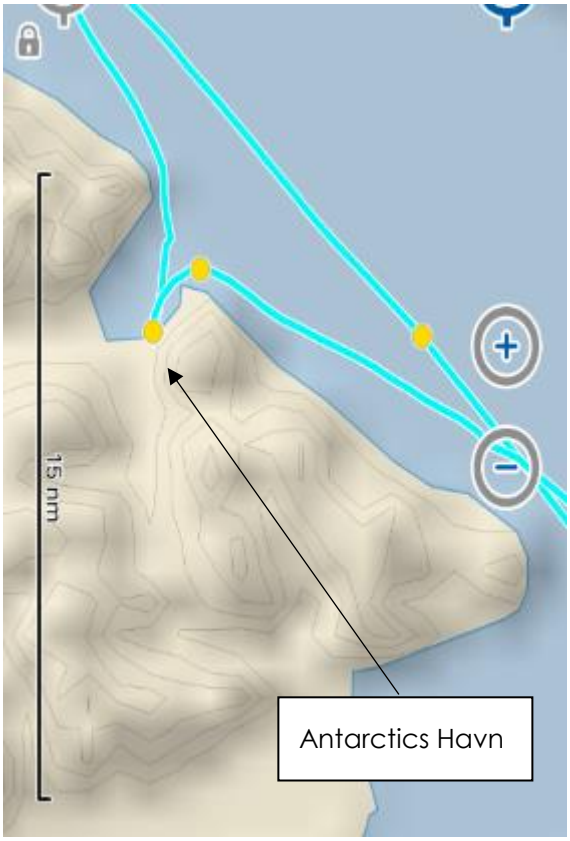

Figure 91 - Antarctics Bugt anchorage.

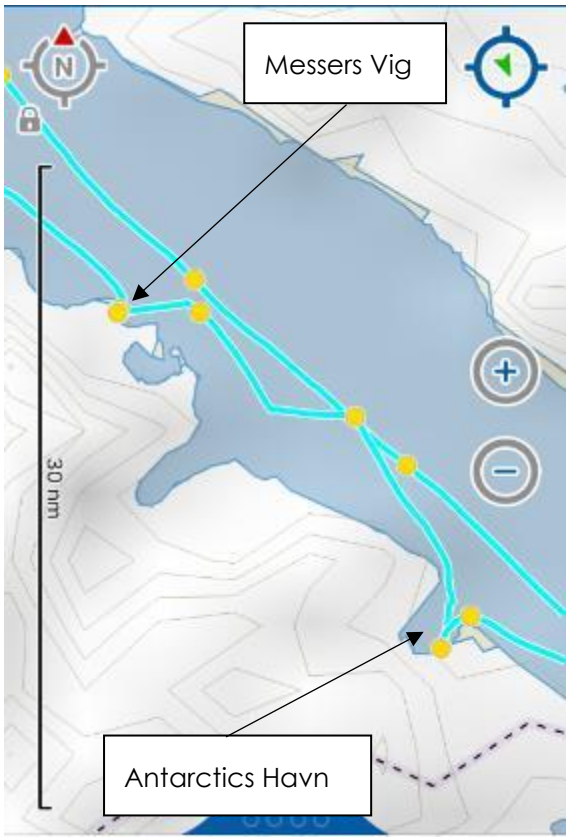

Figure 92 - Antarctics Bugt to Messers Vig.

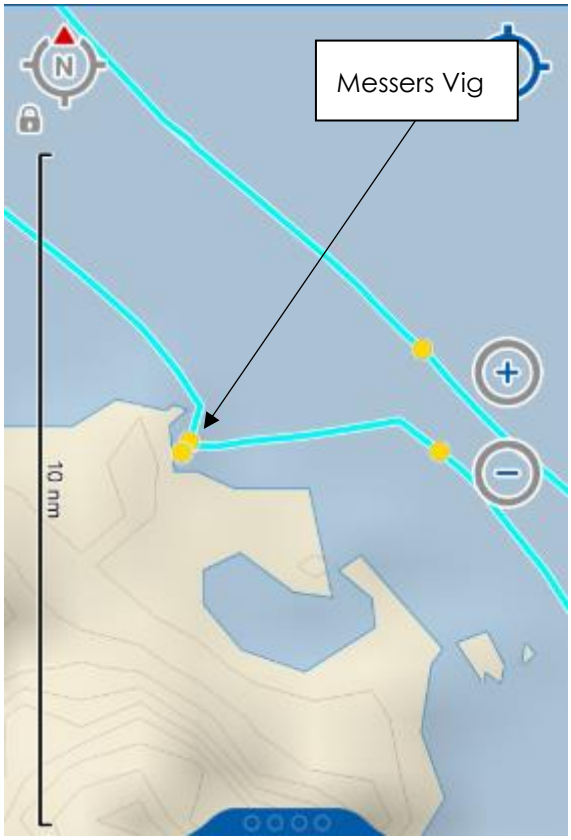

Figure 93 - Messrs Vig - Sirius Patrol Base.

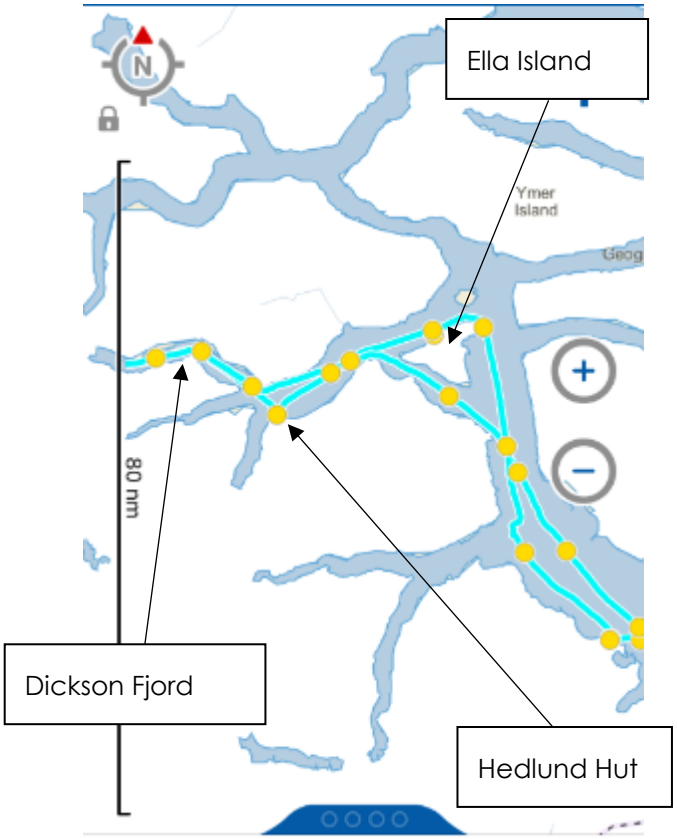

Figure 94 - Messers Vig to Ella Island to Dickson Fjord and return passage.

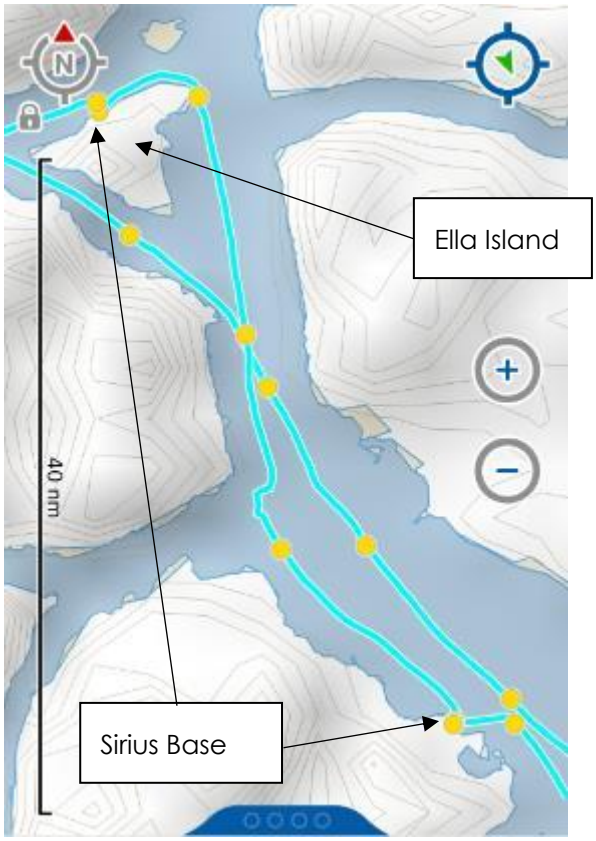

Figure 95 - Messers Vig to Ella Island and return rout out of Kong Oscar Fjord.

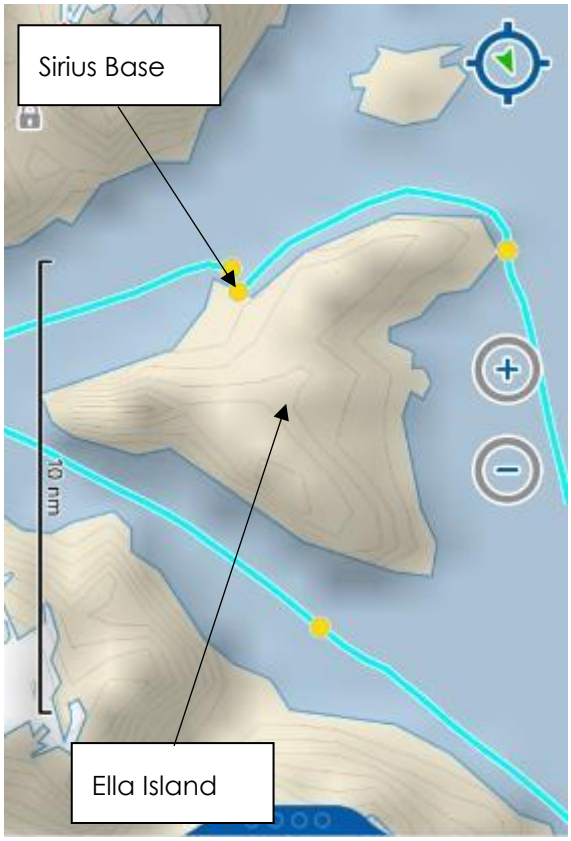

Figure 96 - Ella Island.

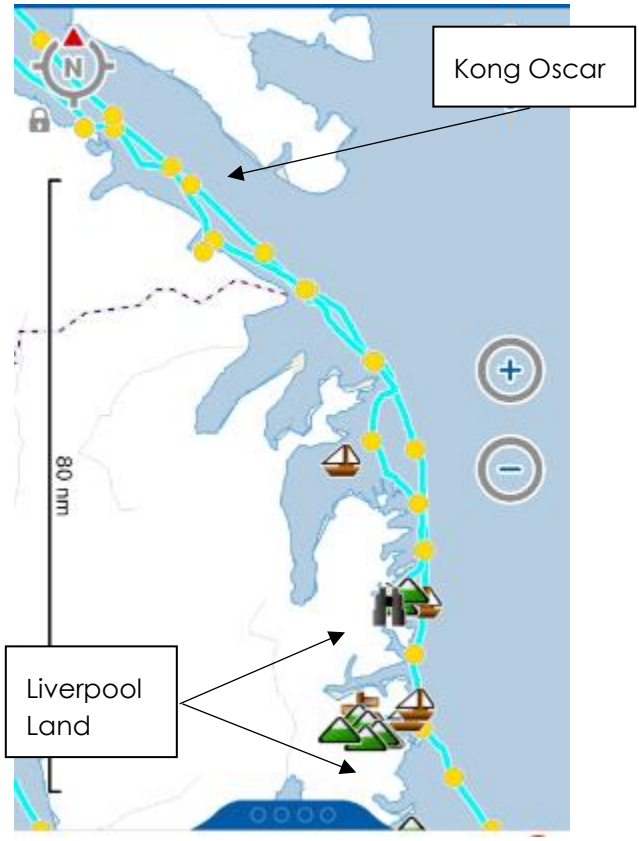

Figure 97 - North Liverpool Land and Kong Oscar Fjord, showing north and south-bound passages.

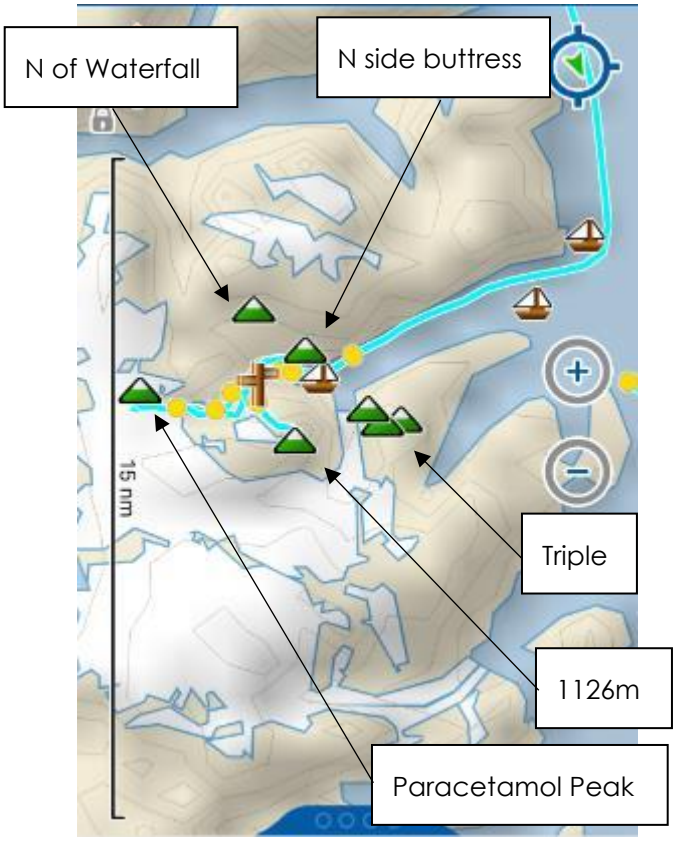

Figure 98 - Mariager Fjord shoreside activity.

Figure 99 - Return passage to Husavik, Iceland.

Figure 100 - Husavik, Iceland.

Government of Greenland
Ministry of Housing, Nature and Environment
Section of Nature, Climate and Energy

Application form for Travel in Remote Areas of Greenland

Executive Order no. 138 of 10 February 2010 on Access to and Conditions for Travelling in Certain Parts of Greenland

Send the completed form to

Ministry of Housing, Nature and Environment Imaneq 1A Postboks 909 3900 Nuuk Greenland	Phone Fax E-mail	+299 34 67 32 +299 32 52 86 expeditions@nanoq.gl	Reserved for the Ministry of Housing, Nature and Environment

Please read the cover letter before you fill in the application form.

Following documents must be submitted (appl. forms can be found at www.naalakkersuisut.gl/expeditions):

- Expedition application form (this very same document)
- Participants Info Sheet
- Documentation of previous expedition experiences for all participants
- Detailed map over the expedition route
- Copy of receipt of payment of application fee
- Insurance statement
- Radio license permit
- Firearm permit (required for expeditions in the National Park, otherwise when applicable)

The application form must be filled out electronically but signed by hand

General Information about the Expedition

Information on the expedition			
Title of project/ expedition	Umiak Sailing Expedition to East Greenland		
Date of arrival in Greenland	13th July 2018	Date of departure from GL	17th August 2018
Place of arrival to Greenland	Tasiilaq	Place of departure from GL	Iliogqortoormiut
General area of activities	Coastal between Tasiilaq and Iliogqortoormiut		
Will the expedition need access to the North- East Greenland National Park	[X] Yes	[ ] No	
Purpose of the expedition	Sailing the coast with low grade mountaineering excursions		
Keywords to the project	Sailing, Mountaineering		

Type of expedition

[X] Private, Sport, Work [ ] Cruise ship [ ] Research [ ] § 14 institution

Vessel name (only for cruise ships):

Have you applied for a permit before? [X] No [ ] Yes If yes, state permit number

Information on expedition leader	
Name	Michael Robert Jaques
Address	[redacted]
Date of birth	
Phone	
E-mail	

Information on emergency contact person/s	
Name/s	[redacted]
Address and country	
Phone/s	
E-mail/s	

Expedition Safety Plan:

Describe briefly the expedition communications and emergency contingency plan.

The yacht "Umiak" will carry all safety equipment including two liferafts, exposure suits, man overboard apparatus and an EPIRB. We will have two satellite phones and one satellite data system as well as VHF. The crew will have adequate supplies and equipment should they need to abandon the yacht. Whilst ashore parties will carry PLB, VHF and a satellite phone.

Responsible institution (research expeditions only)

Reference person			
Name of institution			
Address and country			
Phone		Fax	
E-mail			

Description of the expedition /project (max. 100 words)

To sail from the UK to Greenland via Iceland making landfall, ice permitting at Tasiilaq and then sail north to Illoqqortoormiit and possibly into Kong Oscar Fjord and Kejser Franz Josephs Fjord if conditions allow. We would also make short low grade mountaineering trips ashore as appropriate. We will then return to Iceland from Illoqqortoormiit

Extreme sports (check appropriate)

In case you are planning any of the below activities, check appropriate and submit an overview over all expedition participants previous experience with this kind of activity

[ ] Icecap crossing	[ ] Kite skiing	[ ] Heli-skiing	[ ] Paragliding
[X] Mountaineering/climbing	[ ] Kayaking	[ ] Scuba diving	[ ] Other

If other, please specify

Logistics

Information on participants (Report any change before departure for Greenland)

Number of participants (including expedition leader) 6

Fill in the required information below starting with the expedition leader. For expeditions with more than 5 participants download the Participants Info Sheet www.naalakkersuisut.gl/expeditions

Name	Date of Birth	Address	Contact (tel. nr. and e-mail)	Nationality	Medical Condition, Handicap, Allergies or Medication Requirement

Expedition – Start - End

Expedition Start	Date	13 July 2107	Locality	Tasiilaq
Expedition End	Date	17 August 2107	Locality	Illoqqortoormiit

Activity area (The more detailed the information and map provided the better!)
Describe the expedition's itinerary by listing start/end point of expedition, travel route, camp/landing sites and/or general activity areas, including names and coordinates of the single locations.

Attached

Enclose a map – preferably in scale 1: 250.000 – with relevant information on base camp locations, route and where the expedition plans to go ashore.

Transportation

Means of transportation to and from the activity area	Sailing yacht
Means of transportation in the activity area	Foot

Access to the below locations will be required (check appropriate)

☐ Station Nord* ☐ Daneborg* ☐ Mestersvig* ☐ Ella Ø*
*Permission required from MRCC, e-mail: ako@mil.dk
☐ Thule Air Base | Only research projects can be permitted. Permit required from Ministry of Foreign Affairs, www.um.dk.

Airdrops

Do you plan airdrops? [X] No ☐ Yes

State locality/ localities

Equipment

Radio equipment

Please note that all expeditions are required to bring a PLB, Maritime VHF and Satellite telephone.
In case the expedition will split up in several groups, all sub-groups will need to be equipped with PLB, VHF and Satellite phone

Number of PLBs:	1	PLB ID Code/s:	1D0E65B992FFBFF
Number of VHF radios:	4		
Number of Satellite phones:	3	Phone number/s:	To be confirmed

If other, please specify Yacht EPIRB - 1D0C6488DAFFBFF

Please include a radio permit to your application. Download the radio permit application form from www.naalakkersuisut.gl/expeditions and send to the Radio Administration Radioforvaltningen@nanoq.gl

Firearm

Please note that expeditions in the National Park are required to bring a firearm with minimum calibre 30.06

Will you bring a firearm? ☐ No [X] Yes

If yes, please include a firearm permit to your application. You can download the firearm application form from www.naalakkersuisut.gl/expeditions, permit must be obtained from the Chief Constable of Greenland politi@politi.gl

Government of Greenland
Ministry of Housing, Nature and Environment
Section of Nature, Climate and Energy

Description of emergency, safety and general equipment to be used
Yacht with safety equipment to ISAF category 1; Mountaineering and shore survival equipment; rifles; EPIRB; PLB; satellite phones; flares

Additional permits (research, long term storage (> 2 months))

Activities which require specific permit (check appropriate)

- ☐ Studies on wildlife (mammals, birds, fish)
  Find application form at www.naalakkersuisut.gl/expeditions Send your application to: apnn@nanoq.gl
- ☐ Studies on plants, fungi, lichens, invertebrates, etc.
  Find application form at www.naalakkersuisut.gl/expeditions and send your application to ipan@nanoq.gl
- ☐ Collection or acquisition of biological material (genetic resources)
  Find application form at www.naalakkersuisut.gl/expeditions and send your application to jslin@nanoq.gl
- ☐ Collection of minerals and export permit for rock samples (only required if sample exceeds 2 Kg)
  Find application form at www.naalakkersuisut.gl/expeditions, send your application to bmp@nanoq.gl
- ☐ Collection of meteorites or fossils and/or archaeological studies, hereunder collections and excavations.
  Find application form at www.naalakkersuisut.gl/expeditions, send your application to nka@natmus.gl
- ☐ Setting up ground based instruments (e.g. camera, antenna etc.) or camps for more than 2 months
  Find application form at www.naalakkersuisut.gl/expeditions and send your application to pn@nanoq.gl
- ☐ Other, please specify _____

By my signature below I confirm that all participants in the expedition will be made aware of the contents of the KNNO Expedition Permit, issued by the Greenlandic Ministry of Housing, Nature and Environment. The information submitted in this application form will be treated as strictly confidential.

Name of applicant _____

Date _____ Place _____ Signature of applicant _____

Umiak Sailing Expedition to East Greenland 2018

The primary objective of the Expedition is to sail from Tasiilaq to Ittoggortoomiit undertaking mountaineering routes. Then, if time permits it is proposed to sail North into Kong Oscar Fjord and Kejser Franz Joseph's Fjord.

It is hoped to visit sites from the BAARE, as appropriate whilst on route. Pilotage notes will also be made for the RCCF Pilot.

The mountaineering objectives are not set and will be identified as the Expedition progresses. They will not be of a high level nature but may include camps or bivouacs en route.

The proposed route is as follows but will be subject to amendment from both ice and weather conditions. Arrival in Greenland waters will be circa 13th July and departure will be circa 17th August.

1. Sail from Iceland to Tasiilaq
2. Sail from Tasiilaq to Kangerdlugssusaq
3. Mountaineering - Kangerdlugssuaq
4. Sail from Kangerdlugssuaq to Ittoqqortoormiit
5. Sail into Scoresby Sound; anchorages including Hecla Havn and Jyttes Havn
6. Sail back to Ittoqqortoormiit
7. Mountaineering – Liverpool Land
8. Sail from Ittoqqortoormiit to Kong Oscar Fjord and Franz Joseph's Fjord
9. Mountaineering Andrees Land
10. Sail back to Ittoqqortoormiit
11. Sail from Ittoqqortoormiit to Iceland

20/11/17

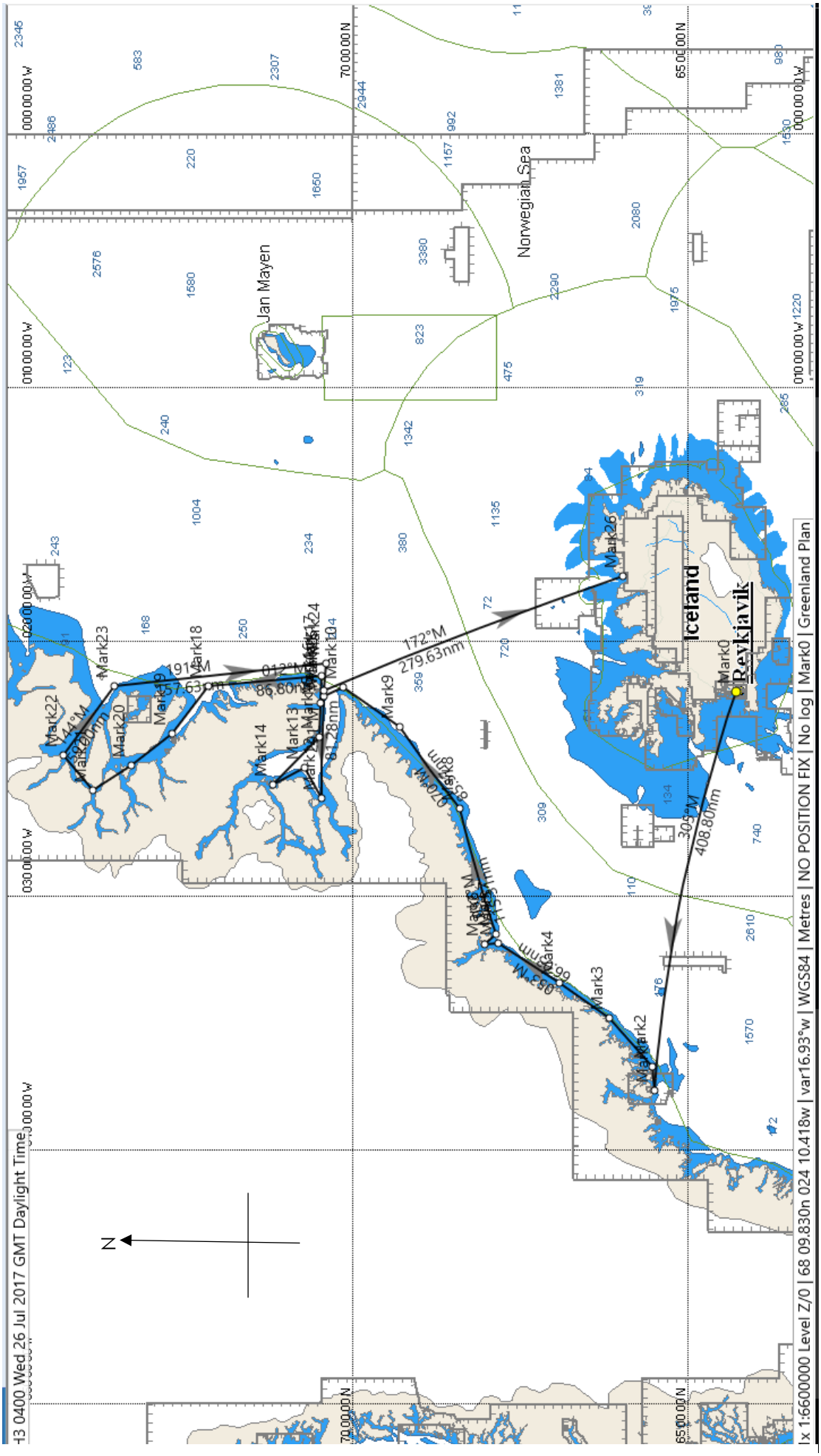

Figure 25 - Overview map of trip with proposed route shown by black line, with bearings and distances in 'nm'.

Peaks Climbed

	Peak Name	General Area	Date	Latitude	Longitude	Measured Height	Method	Suggested Grade	Team
1	Kap Warming island	Kap Warming	19/07/2018	N67 03 31	W33 72 56	~550m	Mountaineering	PD+	Mike, Olly, Ash, Rod
2	Polaric Point	West Kap Boswell	22/07/2018	N67 88 86	W32 31 70		Mountaineering (Ski)	F	Mike, Rod, Ian, Giles
3	Boswell Pyramid	Kap Boswell	23/07/2018	N67 92 69	W32 24 70	975m	Mountaineering (Ski/Snowshoe)	F	Olly, Ash, Giles
4	Sandbach Halvo	Kolding Fjord	04/08/2018	N70 74 67	W21 68 30	545m	Mountaineering (Snowshoe)	F	Ian, Rod
5	Heywood Bjerge Knife Ridge	Kolding Fjord	04/08/2018	N70 68 15	W21 79 70	605m	Snowshoe/ Mountaineering	PD	Mike, Ash
6	Don't Forget Your Toothbrush	Kolding Fjord	4/8/2019 - 5/8/2018	N70 72 05	W21 93 08	970m	Mountaineering	AD	Olly, Giles
7	Tvoersund Mainland 1	Tvoersund	07/08/2018	N71 24 92	W21 79 16	775m	Mountaineering	AD-	Mike, Ash, Giles
8	Tvoersund Mainland 2	Tvoersund	07/08/2018	N71 25 06	W21 78 47	720m	Mountaineering	AD-	Mike, Ash, Giles
9	Trekanten Island	Tvoersund	08/08/2018	N71 27 57	W21 71 02	690m	Mountaineering	PD	Olly, Ash
10	Mariager North Of Waterfall	Mariager Fjord	14/08/2018	N70 99 88	W22 04 37		Mountaineering	PD-	Olly, Ash
11	Mariager North Side Buttress	Mariager Fjord	14/08/2018	N70.98 34	W21 98 44	410m	Mountaineering	PD+	Mike, Ian
12	Mariager Triple 1	Mariager Fjord	15/08/2018	N70 95 72	W21 87 38		Mountaineering	PD	Olly, Ash
13	Mariager Triple 2	Mariager Fjord	15/08/2018	N70 95 58	W 21 89 47		Mountaineering	PD	Olly, Ash
14	Mariager Triple 3	Mariager Fjord	15/08/2018	N70 96 11	W21 9117		Mountaineering	PD	Olly, Ash
15	Mariager 1126m	Mariager Fjord	15/08/2018	N70 94 94	W21 99 57	1126m	Mountaineering (Ski)	PD	Rod, Giles
16	Mariager Ice Cap Summit	Mariager Fjord	16/08/2018	N70 96 82	W22 17 44	795m	Mountaineering (Ski)	F	Mike, Giles
Other notable events									
1	Kap Warming Snowshoe	Kap Warming	20/07/2018	N67 07 52	W33 83 28		Snowshoe	F	Olly, Ash, Giles
2	Renland Crossing	East Renland	29/7/2018 - 31/7/2018	N71 47 61 to N71 25 41	W25 86 27 to W25 76 00	Max 700m	Hiking/Scrambling	F	Rod, Olly, Giles
3	Tvoersund Col	Liverpool Land	08/08/2018				Ski	F	Ian, Rod, Giles
4	Tvoersund Gully Ski	Liverpool Land	08/08/2018	N71 25 07	W21 79 12	~600m	Ski	F	Giles

Positions based on recorded GPS position and as such, in most cases, differ from the summit position shown on maps. In Each case, where recorded as a summit, the highest point of the feature was reached. Where GPS was not taken on the ascent, the best reckoning of the GPS position was taken, with reference to the map, using the Garmin inReach mapping.

All peaks reached are believed to have been first ascents as we have not found any specific information on these areas in any other literature or reports.