THE NOW PROJECT

LIVING RESOURCES AND HUMAN SOCIETIES AROUND THE NORTH WATER IN THE THULE AREA, NW Greenland

A research project funded by the Velux Foundations and the Carlsberg Foundation

Annual Report 2014

Preface

This is the first annual report from the NOW project. This year, it covers only the six months that have passed since the project started by 1 July 2014. Obviously we had long since begun to prepare ourselves, not least through the drafting of the project proposal. In the report, we take the opportunity to present the project in an abridged and succinct form that may be of interest to the wider community, while also serving as a stepping stone for a presentation of our activities.

In 2014 the activities took off full force with a joint field season in July-August exposing the participants from the distinct disciplines to the methods and questions of the others. Through this exercise, the first interdisciplinary promises began to emerge. In the report we give a first indication of this, while also pointing to the more specific investigations of the disciplinary teams.

We are grateful to the *Velux Foundations* and the *Carlsberg Foundation* who decided to collaborate on a grant. It is the more appreciated because by their generosity of spirit these foundations made it possible not only to carry out a particular study, but also – in the long term – to demonstrate the force of interdisciplinary collaboration at solving genuine puzzles and pointing towards future solutions. This first half-year report gives a first glimpse of the practical work and the promises it embodies.

Kirsten Hastrup, PI
Bjarne Grønnow, co-PI
Anders Mosbech, co-PI
March 2015

Table of contents

Fieldwork, summer 2014. Minna Martek anchored outside of Savissivik. In the background, towards the south, Bushnan Island (Salleq).

1. Members of the research team

PI: *Kirsten Hastrup*, Professor of Anthropology, University of Copenhagen;

Co-PI: *Bjarne Grønnow*, Research Professor (archaeology), National Museum of Denmark;

Co-PI: *Anders Mosbech*, Research Director (biology), Department of Bioscience, University of Aarhus.

Researchers:

Janne Flora, Postdoc, Department of Anthropology, University of Copenhagen;

Astrid O. Andersen, Postdoc, Department of Anthropology, University of Copenhagen;

Martin Appelt, Senior Researcher, Archaeology, National Museum of Denmark;

Jens Fog Jensen, Senior Researcher, Archaeology, National Museum of Denmark;

Anne Birgitte Gotfredsen, Postdoc, Natural History Museum of Denmark, University of Copenhagen;

Erik Jeppesen, Professor, Department of Bioscience, Aarhus University;

Rune Dietz, Professor, Department of Bioscience, Aarhus University;

Mads Peter Heide-Jørgensen, Professor, Greenland Institute of Natural Resources;

Thomas A. Davidson, Department of Bioscience, Aarhus University;

Kasper Lambert Johansen, Department of Bioscience, Aarhus University;

Partners and associated members in the field season 2014:

Mikkel Myrup, Senior Researcher, National Museum of Greenland;

Mikkel Sørensen, Lecturer, Archaeological Section, Saxo-Institute, University of Copenhagen;

Henning Haack, Lecturer, Natural History Museum of Denmark, University of Copenhagen

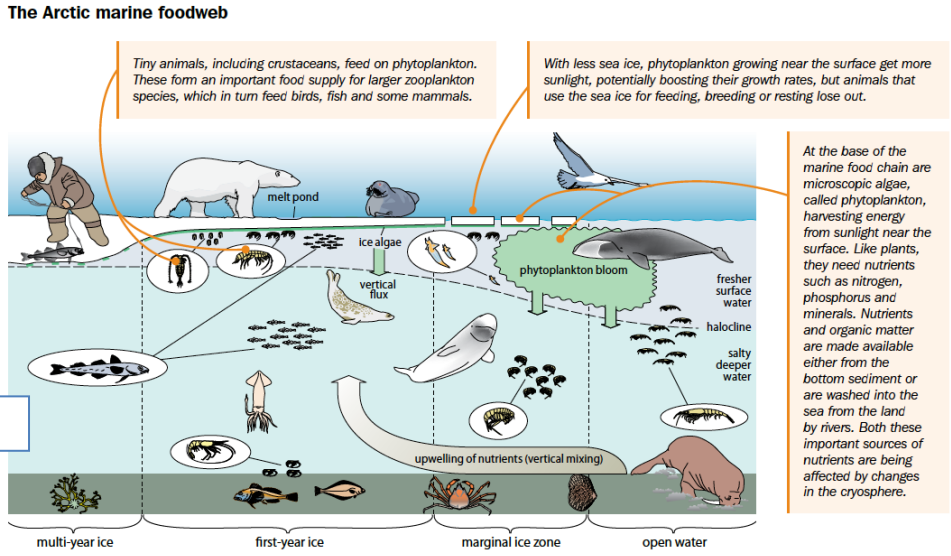
Ivan Gonzalez Bergonzoni, Postdoc, Department of Bioscience, Aarhus University;

Carsten Egevang, PhD and Photographer; Greenland Institute of Natural Resources.

2. Presentation of the NOW project

The project aims at uncovering the dynamic relations between the living resources and the hunting societies of the Thule area in a long-term perspective. To make this possible, the research integrates archaeological, biological, and anthropological perspectives. The regional focus is on the North Water (NOW) situated in northernmost Baffin Bay, being a so-called high Arctic oasis – a polynya – making life possible in an otherwise deep-frozen world.

The North Water polynya is created and maintained by a complex and delicate balance between meteorological and hydrographical conditions, which allows for a large production of phytoplankton at the basic level of the marine food chain. The production of primary biomass provides food and space for an abundance of living resources like seal, walrus, white whale, polar bear, and various sea bird species higher up the food chain.



'The sea ice community' (Source SWIPA/AMAP 2011)

Apart from vegetal and animal life, the North Water has also made human life in an otherwise quite barren High Arctic landscape possible. Throughout 4.500 years the polynya has attracted people, migrating from Arctic Canada into Thule, and the rich animal life continues to be fundamental to the maritime hunting societies, not least the Inughuit in the Thule area, or Avanersuaq. From the early 19th century onwards, European whalers, who named this polynya *The North Water*, delighted in its riches. Later, Knud Rasmussen's famous Thule trading station benefited from a variety of resources from the NOW.

While constituting an oasis of open water, NOW is circumscribed by the sea-ice during a substantial part of the year. Life by the polynya is premised as much by the presence of the ice and the ice edge, as by the open water. During the last decades the extent and volume of the sea ice in the Arctic Ocean have declined

drastically in a seemingly irreversible process. This has profound impacts on animal populations and on the communities facing severe instabilities in their resource base.

Thus, there is an urgent need to understand the dynamic relationships between the important marine game and bird populations and the human subsistence strategies in the polynya area. The project combines biological, archaeological, and anthropological perspectives on these issues in both a contemporary and a long-term perspective. Concomitantly, it contributes to fundamental research on the dynamics of High Arctic ecology and subsistence, and will eventually facilitate informed decision-making in times of drastic political, environmental, and social changes.

To fulfil the ambition, the project has particular emphasis on three key-topics, all of them addressed from an integrated interdisciplinary perspective.

Resource spaces. Under this heading, the project explores the resource spaces of selected marine mammals and birds – the living resources – and human hunting as a component of this ecosystem. The concept of 'resource spaces' describes the potential niches of animals and humans in the ecosystem, i.e. which resources are potentially within reach given behavioural and, concerning humans, technological and cultural constraints and potentials. High Arctic societies have applied different strategies to structure their hunting activities in space and time in order to create overlaps between the resource spaces of game and man, for instance 'hot spots' for walrus and narwhal hunting and bird catching.

Critical transitions. With its periodically rich and highly concentrated resources, the polynya was an important place at the ancient human gateway to Greenland. Archaeological research has documented that NOW has attracted people over a period of 4.500 years, but in a very uneven process, relative to the available resources and to the climatic conditions. In historical times, too, subsistence in Avanersuaq has undergone profound changes as a result of natural climate variation, population cycles, and impacts – for example from commercial hunting, trade, and pollution caused by global industrial development. The project addresses such *critical transitions* in the human exploitation of living resources in the NOW with a view to identifying both the driving forces and the responses to critical changes.

Seasonal rhythms. The Arctic is strongly marked by seasonal variation, such as the dramatic shift between summer light and winter darkness. Light and darkness have a deep impact upon biological production, animal breeding and migratory patterns, and by implication also upon human life. The vast changes in annual temperature and in relative ice-cover are integrated elements in a deep-seated sense of seasonality in Inughuit social life, as is the seasonal availability of the various kinds of game, whether

terrestrial, limnic or marine. Presently, the seasonal cycle around the NOW is drastically changing as far as the ice is concerned. From the hunters' point of view the game seems to be increasingly 'confused', as the elements of the seasonal cycle are disjointed. The project poses the question of when the arrhythmic seasonality becomes critical for the sustainability of the resource spaces.

Piecing together data, workspaces, and insights. The creation of an integrated database will form a central instrument in facilitating interdisciplinary research in the NOW Project. Data collected in the field and in the archives are very heterogeneous: animal tracks, archaeological sites, lake cores, interviews of hunters, fossil bone assemblages, etc. However, all data derive from somewhere in the landscape and through a spatial interface, relations between data of very different types and different disciplinary origins can be investigated within a common frame of reference. Using ArcGIS Explorer as a platform – a piece of GIS software resembling Google Earth - we have this year initiated the process of building such a spatial project database. Throughout the duration of the project, it will serve as a "resource space" for integrated analyses, and it has the potential to be developed into an alternative means of communicating the results of the project to the general public – as stories embedded in the landscape.

3. Research design

To make the interdisciplinary ambition operational, the NOW Project is structured as an integrated study. Thus, in all of the original work packages, there is a strong incentive to exchange knowledge and analytical perspectives. This was an invaluable guide in our first field season and in the subsequent analysis.

The work-packages are:

Key Living Resources in the NOW: The Dynamics of a High Arctic Ecosystem

Human Settlement and Living Resources: Long Term Relations

Living in an Oasis: Drivers of Change

Walrus and Sea Birds: Human Impacts

Key Living Resources in the North Water: The Dynamics of the Ecosystem

In order to understand the present distribution and population size of selected species and the relations to local social life, this work package focuses on the spatio-temporal distribution and habitat preferences of the animals coupled to the ice conditions and other relevant physical and biological components in the ecosystem.

Biologists Anders Mosbech and Kasper L. Johansen identifying little auk colonies with a hunter from Savissivik on the mountain slope, 2014.

The actual tasks will include field studies of key-species, including satellite tracking of common eider and walrus, to fill in knowledge gaps; integration of local knowledge of the resources through interviews and participatory approaches; GIS database compilation and analysis of tracking data on key living resources combined with environmental variables, and modelling of the spatiotemporal distribution and habitat requirements of the different species and the potential hunting areas.

Human Settlement and Living Resources: Long Term Relations

This work package focuses on entanglement of the living resources and human history in the polynya area. The aim is to throw light on the long-term dynamics of the ecosystem in relation to changing subsistence and settlement patterns of the various hunting societies through the last 4.500 years.

Archaeologist Mikkel Sørensen registering a recent cache on Salve Ø

This actual tasks will include compilation of archival data on pre-historic and historic sites in the NOW area in the integrated GIS-database of the project; archaeological surveys and test of new site registration methods in selected areas including targeted excavations at sites with stratified layers and faunal materials; zoo-archaeological analyses of animal bones from archaeological sites and natural deposits at bird cliffs; extraction of sediment cores and biochemical analyses of peat and lake deposits both within and outside the catchment of prominent seabird colonies.

Abandoned settlement in Parker Snow Bay (Ivssuvissoq), 2014.

Living in an oasis: Drivers of change.

The cultural history of the NOW is dynamic and dramatic. Through time, this High Arctic gateway to Thule has experienced several human immigrations, periods of settlement by different societies, cultural encounters, and complete abandonment. The objective is to identify *the drivers of change* in the ecosystem and in human subsistence in the Thule area.

The actual tasks will include a description of ‘tipping points’ in the polynya ecosystem and in human subsistence-settlement patterns; investigations of pollution of mercury and exposure in ecosystems, and humans exploiting products from living resources; investigations of natural and cultural drivers of change and their interrelations.

Walrus and sea birds: Human impacts

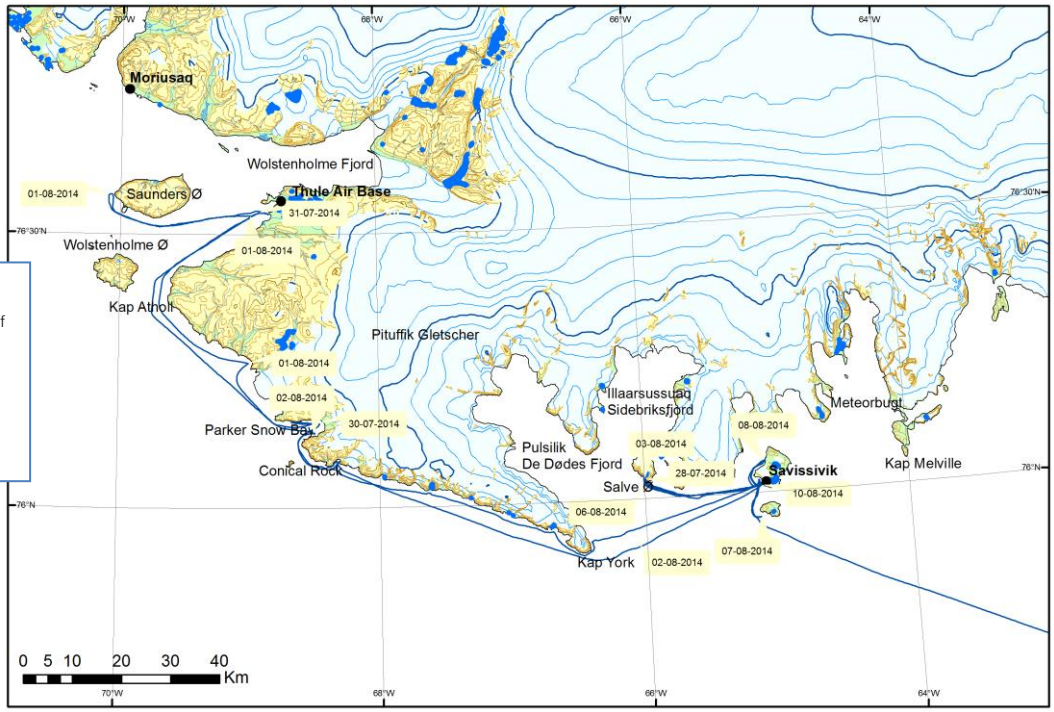
This work package highlights the walrus and the sea birds as key resources. They are selected for a targeted study due to their special position in the ecosystem and due to their importance in the local subsistence economy and their cultural significance.

Walrus with satellite transmitter in place, Etah 2013.

The actual tasks will include hunter based satellite tracking of walruses, hunter based biopsy collection of walruses for genetic recognition and population estimation, and tracking of hunters on walrus hunting trips; monitoring and analysing the potential impact of human disturbance and hunting in Murre colonies with contrasting population trends; archaeological, zoo-archaeological, and anthropological analyses of the cultural and social importance of walrus and sea birds through time.

4. Field activities 2014

The project started officially on July 1st. Planning had started earlier, since it was decided to embark on fieldwork already during the summer of 2014, this particular season making joint, interdisciplinary activities feasible. The decision to make a truly integrated fieldwork materialized in our chartering a vessel that could serve as a floating field station and facilitate the interdisciplinary conversation from the outset. On a more practical note, having one's own ship also allowed the team to go ashore where normally it would have been impossible due to the lack of any form of public transport.



Route map of Minna Martek's movement in the region, with some of the landings indicated. Some of the minor movements, for sheltered anchor places for instance are not marked

The ship, Minna Martek, proved invaluable on both accounts. With room for twelve people in addition to the crew, it became both a home and a workspace for a month. We went on board in Nuuk and Sissimiut respectively, and sailed north through the Disko Bay and the Vaigat, and past Svartenhuk before crossing the legendary Melville Bay. At first we had calm seas and sunshine, whales and seals playing around us, but after a few days the fog took over and the icebergs began to make their presence conspicuous. Thus, we had to give up our first proposed landing at Cape Seddon (Tugtuligssuaq, 'Big Reindeer-Land'), because we could not get close enough to the coast due to pack ice. At Cape Seddon there are remnants of earlier settlements that were excavated in 1979 during the Knud Rasmussen memorial expedition, in which Bjarne Grønnow had participated. The last known settlement was from c. 1900 to the late 1920s.

We preceded to the settlement of Savissivik, which was to more or less remain our base throughout the season, with excursions along the coast and up to Pituffik a couple of times.

Here we shall highlight three places, where the interdisciplinary gains were immediately accessible. More specific details about the actual investigations will follow below.

Savissivik

The settlement of Savissivik naturally attracted the attention of all participants. It is the only living settlement left in the southern part of the Thule region, and home to some 45 people. Numbers are difficult in the region, due to temporary out-migrations, and movements either to Qaanaaq, where there is a proper school until the 10th grade, a health station with a couple of skilled nurses, and an old people's home, or to more southerly destinations. No doubt, the population is declining, which is related also to the noticeable changes in climate and sea-ice conditions that increasingly cut the settlement off from other parts of the region and from their usual hunting grounds. They used to be major polar bear hunters in the northern part of the Melville Bay, but are increasingly left with access mainly to seals and birds, now the stable diet. Little auks are plenty on the mountain slopes behind the village from late May to early August and almost everyone will be able to catch a substantial dinner for the family.

At closer inspection, Savissivik – whose name derives from Savik, meaning iron or knife – has made a major move from being a central site in the Thule region to become a decidedly fringe community. From around 900 and for the next 1000 years, meteorite iron was local resource that embedded this particular place in a large trading network between North Greenland and northern America. The meteorites were 'discovered' in late nineteenth century by Robert Peary, when he visited the region, and brought the largest specimens back to the Museum of Natural History in New York. Knud Rasmussen later brought another one back to Denmark. The local iron resources thus disappeared; while other kinds of iron could now be bartered from explorers or whalers.

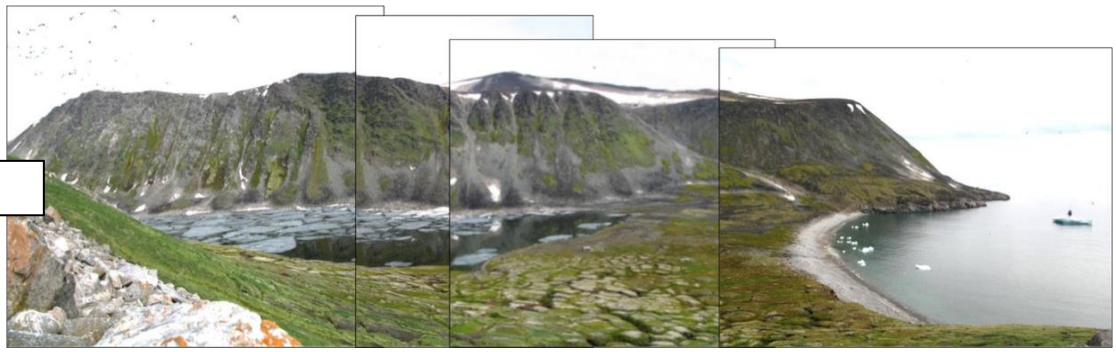
Past and present, ice and climate, living resources and people are all of them part of the current picture of life in Savissivik, which therefore makes a promising starting point for integrated analysis.

Salve Ø (Qeqertaq)

The island has a rich depository of both prehistoric and historical settlements, an abundance of little auks on the mountain slopes, deep layers of moss and turf, and it still serves as both a hunting place for people from Savissivik and as a sledge route towards the North, when the ice westwards towards Cape York has become impassable – which it is for a protracted season these years. It also serves as a repository for meat and fermented birds stored in caches for future consumption.

In other words, through the combined investigations of archaeologists, biologists and anthropologists, it is possible to throw light on a, sometimes dramatic, prehistoric and historical development, including the transition from pre-colonial to colonial times. The archaeological survey showed houses and caches from several periods, prehistoric and historical, human graves, and a rich depository of animal bones, allowing the zoo-archaeologist to identify the preferred species of game through time.

The last inhabitants left the island in the 1950s and were known to the hunters who accompanied the team at one of the visits. Here all of the three disciplines meet in a joint effort at analysing the complex process of development through changings climates and emerging colonial relations.



Salve Ø, panorama towards southeast.

Søkongedalen (Qoororssuaq)

This was major valley, raising steeply from the beach and heavily marked by the presence of muskox, grazing off the rather lush grass covering much of the bottom. In the process they had moulded the landscape by their heavy steps on the fragile turf. The massive presence if the little auks on the slopes had fertilized the soil for millennia, and had allowed also for foxes to thrive.

In turn, this had made the valley an important site for people, who could survive at least on a small scale during summer. We found several house ruins at the top indicating summer habitation, and a couple of winter houses as well. All of them were small and clearly not family houses, but individual abodes.

Form historical sources and from living memories, we know that such places were used especially for elderly people, who were possibly too frail to make long hunting expeditions with their extended family, but who could survive on their own in the period where birds were abundant.

Qoororssuaq (Søkongedalen) (Lb 22)

5. Preliminary observations

The localities mentioned above, and others with them, yielded a lot of new material for analysis and compilation. To be specific we have organized this according to the three disciplines, seen as providing distinct perspectives on the composite reality of life around the North Water. In the subsequent section we shall present some of the interdisciplinary gains, stimulating joint analysis and publication.

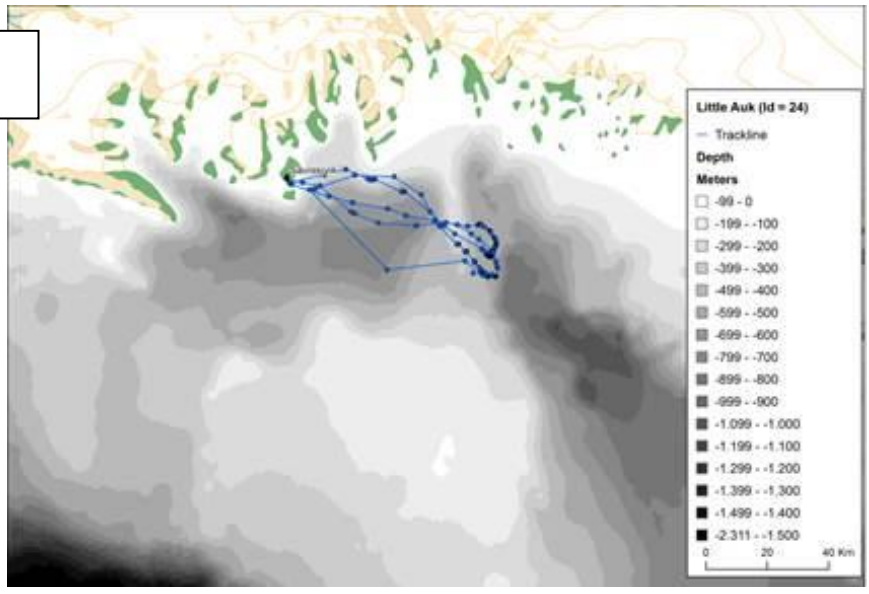
A. Biological activities and finds:

Tracking measures

We established a study site in the little auk colony close to Savissivik to study the foraging behaviour. Fifteen little auks were caught in noose carpets and equipped with tiny 4.5 g GPS dataloggers. Data from the GPS logger were automatically downloaded to a VHF-radio station each time the little auks returned from a foraging trip.

Checking the VHFradiostation for new tracking

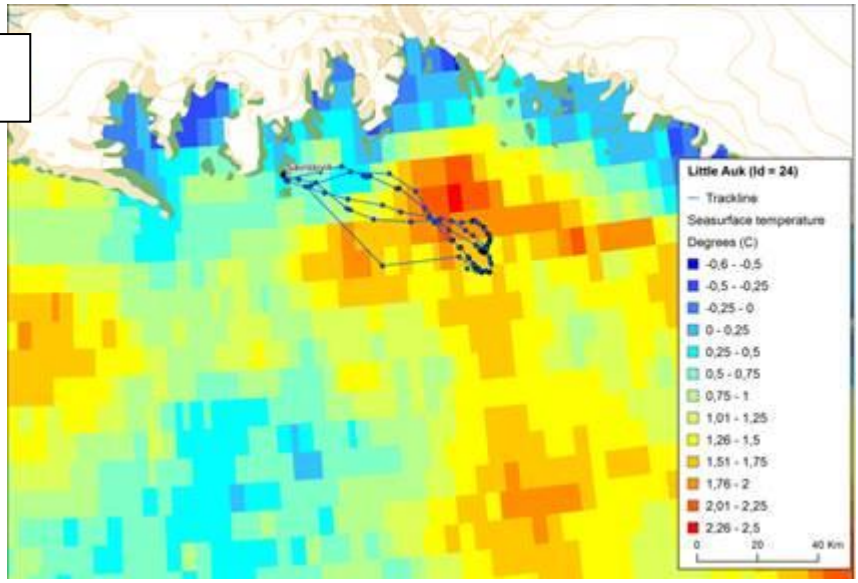
Tracklines for one little auk from July 27 to July 31on a map with bathymetri.



We tracked 13 little auks on foraging trips. The second figure is but one example where we tracked a little auk for three days while it made three foraging trips to an area about 75 km south east of the colony. Each blue dot represents a GPS location. The birds spend most time (and foraged) to the east, where the blue dots on the track lines are closest. Little auks can dive down to about 50 meters depth and it appears that it was foraging above the rather steep slopes of the sea floor where there is an upwelling of relative warm water.

Little auks bring lipid-rich copepods from the sea in their gular pouch to feed their chick. We gently sampled the content of the gular pouch from little auks caught in noose carpets. We are analysing the detailed content of the food samples using the seabird as an oceanic plankton sampler indirectly reflecting the available plankton populations.

The same tracklines on a map with sea surface temperature (satellite data).



We are also trying to estimate the large amount of nutrients the little auk population move from the sea to the land, with an enormous impact on the terrestrial environment.

On Salve Ø hunters helped sampling of whole birds for detailed analysis of biomarkers and contaminants.

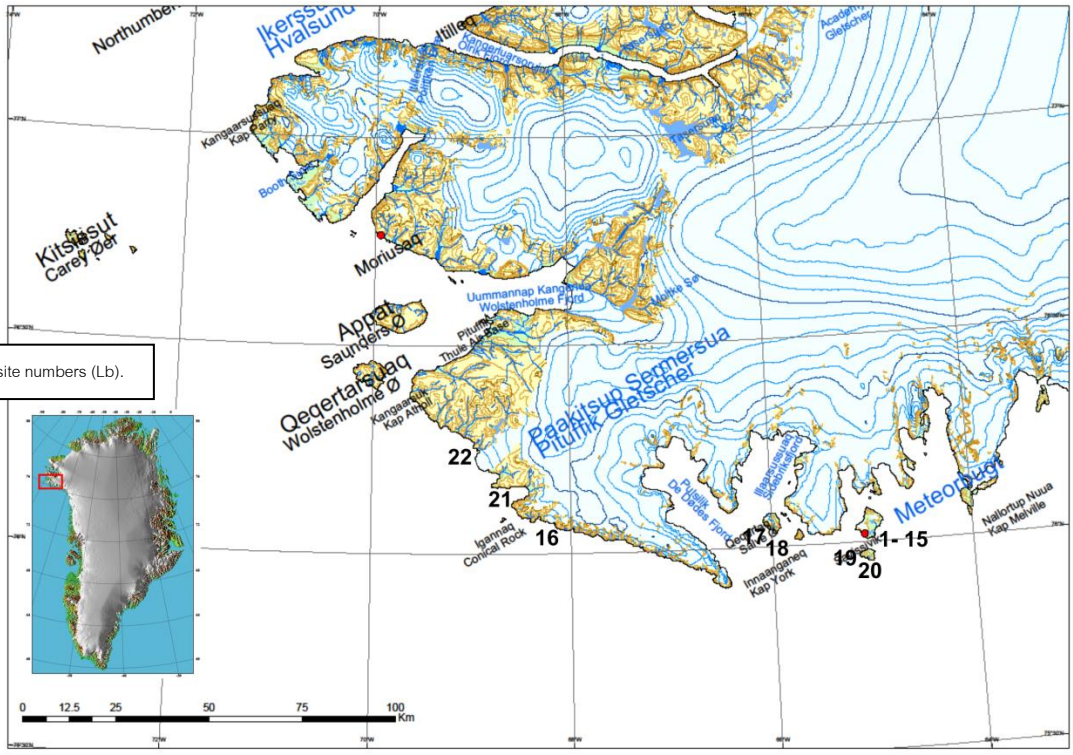
Sediment coring: elucidating the history of bird populations in during changes in climate.

The guano from the immense little auk colonies has significant effects on the landscape and we hope to learn about the history of the colonies by analysing changes in the sedimentation over the last *circa* 10,000 years from lakes in the drainage areas. Sediment cores were successfully collected from two lakes. The first, a sea bird impacted lake on Salve Ø (NOW5) and the second from a non- sea-bird effected area on Savissivik Ø (NOW10). Photographs of the sectioned cores can be seen below and show a dramatic difference between the lakes. The sediments from NOW 5 are dark in colour indicating highly organic sediments and the sediments of NOW10 are paler suggesting low organic input. The bottom section of both cores is interesting and different from the rest of the sequence – suggesting there have been sharp changes in both ecosystems in the past. Work is on-going on the cores; the first step is to date the sediment and then other analysis (e.g. C&N stable isotopes) to track long term changes in bird populations. Next year more cores will be taken from peat deposits and lakes.

B. Archaeological activities and finds

Summary:

Due to rough weather conditions and huge swells during most of the field season it was not possible to land by means of a rubber boat at many of the sites, which we had selected during the planning of our surveys. It was not possible either to establish a regular excavation base camp on land due to these troublesome conditions. Nevertheless, the archaeological surveys that we after all managed to carry out on 22 sites in six main areas yielded fine results and new, important discoveries, which provide a solid basis for the interdisciplinary studies of the NOW Project.



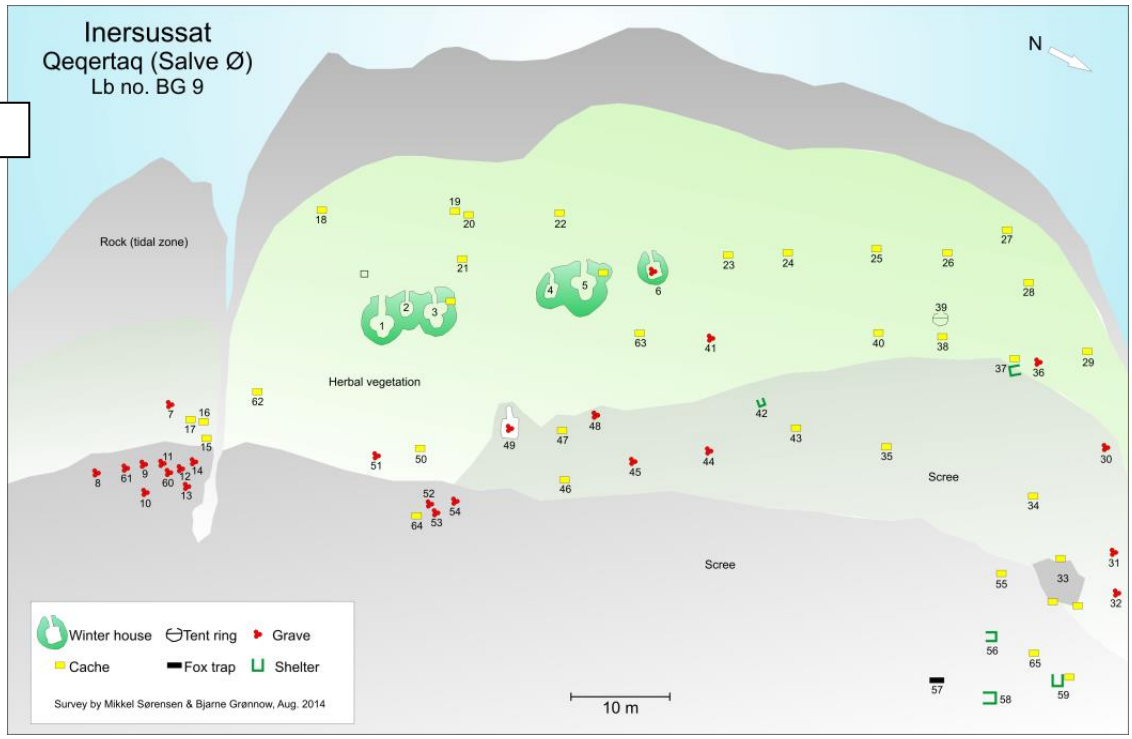
Map of the study area with preliminary site numbers (Lb).

Two main surveys were carried out at the Savissivik Island (Meteorite Ø) and served as a training ground for reading the multi-layered historical landscapes through the eyes of archaeologists. During the surveys 15 sites were recorded and probably covering a time-span from the earliest Inuit (i.e. 13th Century AD, so-called Thule Culture) presence in the Melville Bay until a few years ago. Eight of the sites are spring-summer settlement sites of variable size and duration, and include a wide variety of stone built-structures (tentrings, caches, hunting related structures etc.) as well as outside activity areas (e.g. look-outs, cooking areas, areas with remains of tool production and maintenance, skin-scarping sites, children's playgrounds etc.), and middens proper. Other sites include hunting related stone-built feature such as hunting blinds, primarily for catching little auks.

Lb 10. Meat cache for small seal.

Lb 1. Recent tent platform at the Little Auk colony, Savissivik.

The two surveyed sites on Qeqertaq (Salve Ø), Lb 17 and Lb 18, must be highlighted. These sites hold a great potential for interdisciplinary studies of relations between living resources, in particular the little auks, and people, and together the sites illustrate how the small Inuhuit societies were vulnerable to resource fluctuations and deceases. The sites hold evidence of dramatic events at the transition from 'pre-history' to colonial times:

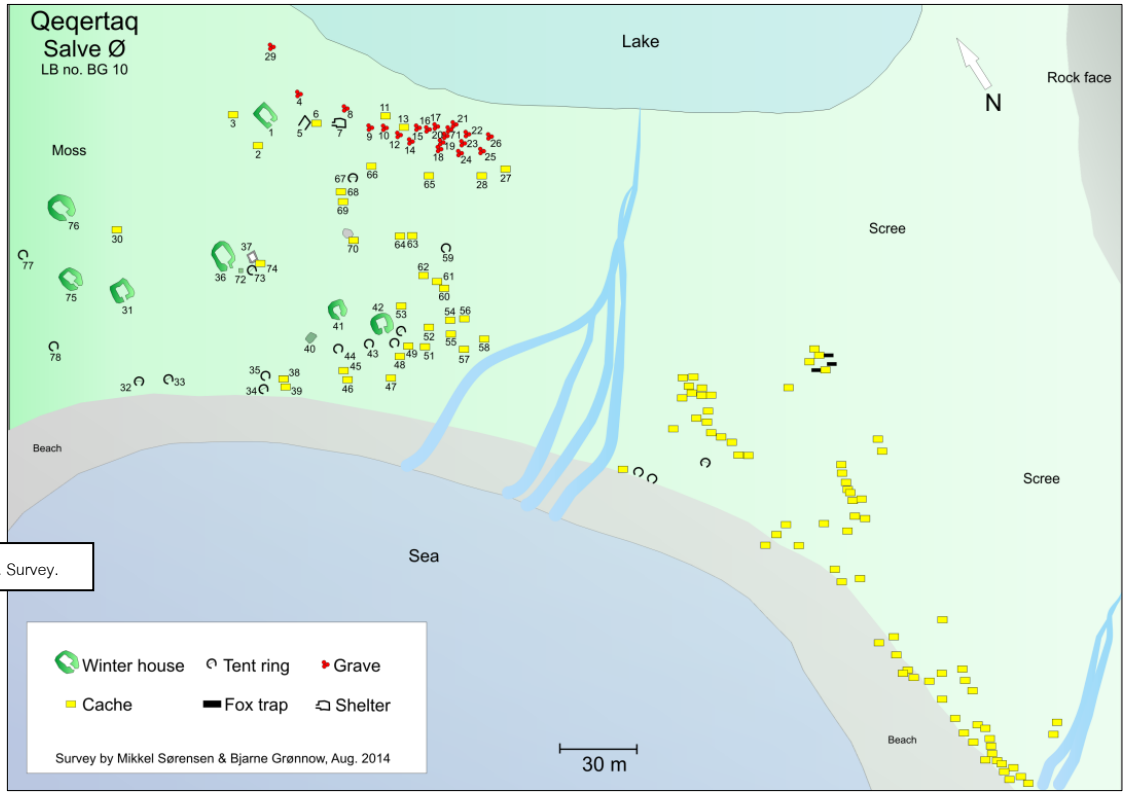


Lb 17. Inersussat. Survey.

Judging from the architecture of the turf houses and artefacts the easternmost site, **Inersussat (Lb 17)** is a Late Thule Culture site containing all the 'classic' elements of such a winter site (clover leaf shaped turf

houses; meat caches, graves). However, a couple of graves covered by boards of industrial origin show that the site was abandoned in the 19th or early 20th century. Moreover, a couple of winter houses were re-used as graves, which indicate that the site was left during a period of 'bad times'. In fact, historical sources tell us that the site was abandoned during a famine around 1900. The following occupation was relocated from the promontory to an area close to the huge little auk colony at the island.

A small settlement was established on the raised beaches separating the lake from the inner bay - **Lb 18**. Several turf house ruins and dozens of meat caches form the remains of an occupation from colonial times known from historic records to have existed at least from the 1920s to 1950s. A veritable 'church yard' containing 20 quite uniform square graves, including 8 child graves of different sizes, is situated on the highest boulder beach. Thus, the population was probably exposed an epidemic disease. This could have been the 'Spanish influenza', which reached the Thule area in 1920/21.



Lb 18. Qeqertaq (Salve Ø). Survey.

Zoo-archaeology on Qeqertaq/Salve Ø

The zoo-archaeological field work was done as an integral part of the archaeological surveys. Stone built structures were recorded, drawn and photographed and their GPS positions noted. On August 4th the Thule site **Lb. 17 (Inersussat)** was surveyed and on August 5th the historical site tentatively recorded as **Lb. 18** abandoned in the 1950s was surveyed.

At Inersussat Lb. 17 the zoo-archaeological investigations focused primarily on recording animal bones found in or associated to stone built meat caches, fox traps and midden deposits in front of Thule culture turf

houses. This procedure was followed to get a general as well as more specific impression on the living resources and their use on the site. Further, in order to evaluate the preservation of organic material and thus potential for future excavations test excavations were carried out.

Test pit in midden deposits of turf house A1 at Inersussat, Salve Island. Beneath the turf layer a number of well preserved animal bones and tools were recovered.

A test pit of ¼ m^2 excavated two metres south of the entrance of turf house A1 showed excellent preservation conditions of wood and bone material. From the test pit tools made of ivory and bone, cartridge cases and a number of animal bones were retrieved comprising mostly ringed seal, but also bearded seal, walrus, polar fox, dog and bird remains from eider and little auk.

Left and right scapula and parts of two thigh bones from caribou (*Rangifer tarandus*). The bones representing meat bearing parts of the animal were left by the inhabitants inside meat cache A 19.

Generally recording faunal remains found on the soil or vegetation surface may have many drawbacks and biases due to lack of a good time resolution and risk of contamination by modern day activities. However, the site of Inersussat yielded some very interesting and promising information based on animal bones found inside the stone build structures i.e., they were found *in situ*. Some animal bones were found beneath stones that were part of the meat cache constructions and presumably lost during opening of the cache when the Thule people were emptying it. Henceforth, specifically animal bones found in a safe context was recorded or collected for further research.

Based on the preliminary faunal remains survey on Inersussat ringed seal seemed to be the cornerstone of the economy but with an important supply of walrus and white whale or narwhal. Polar bear and caribou hunting as well as fox trapping and wildfowling certainly also played a role. The animals found on the site reflect a year round use of the living resources. Still, some species were hunted during particular seasons and difficult to get to during other seasons. Game animals such as little auk and caribou were hunted during the warm season and stored for the winter time as provision. The large number of caches as well as their contents stress that the procuring of provision for storage was of utmost importance for the Thule people at the site.

In combination with historical and ethnographical information these *in situ* observations of faunal remains at Inersussat can potentially contribute to our understanding of how life was like for the inhabitants of the site in the 19th Century prior to abandoning the site.

The important historical site **Lb. 18** is situated close to the beach on the southern side of Salve Island and was surveyed in a more general manner with respect to faunal remains. A high number of ringed seal bones, walrus, narwhal and white whale and some polar bear remains were recorded scattered over the vegetation. Also a considerable number of dog bones and crania were seen. The site clearly had a more recent use than the former (Inerssussat) with many small and large meat caches still exhibiting blackish consolidated blubber and fat from the sea mammals. A few large meat caches still contained whole skeletons of seals.

A small meat cache, A 53, at the historical site Lb. 18 with consolidated blackish blubber of sea mammals still seen at the bottom of the cache.

During a visit at Appat Kangilliit (Lb. 16) the following features were recorded:

Four turf- and stone built winter houses, both cloverleaf-shaped and rectangular; 12 tent rings; one tent house-like structure (Dorset?); more than three shelters; more than 92 caches; three Christian graves, and a number of other structures. Judging by the architecture of the various dwelling structures activities at the site may well cover a time-span from the 15th century AD well in to historic times, as well as possible Dorset activities

The brief visit to Qoororssuaq (Søkongedalen) (Lb 22) confirmed that this well-defined valley with its huge colony of little auk forms a perfect basis for studies of people's exploitation of birds and all the game that this particular ecology supports: foxes, hares, caribou, and musk ox. Probably hundreds of caches and dozens of hunting structures, shelters and even small winter houses are found in the valley. The site was surveyed by K. L. Johansen 2012.

A few hours were spent at the Issuissooq (Parker Snow Bay) site (Lb. 21), which provides us a chance to get first-hand impression of a locality that not only houses a great number of prehistoric and historic dwelling structures, hunting structures, and caches (surveyed and mapped by Appelt et al. in 1998), but also stands out in the written sources.

Finally, two sites located on Salleq (Bushnan Ø), Lb. 19 and Lb. 20, must be mentioned.

Lb. 20 is located on a high lying plateau (c. 50 m.a.s.l.) this site includes at least three square tent rings, of which at least one includes a midpassage structure. Below one of the flag stones of the midpassage a small flake of microcrystalline quartz was found – further evidence of the Late Dorset origin of this site. The site further includes two caches in direct association with the mentioned square tent rings. This is the hitherto southernmost Late Dorset site in Greenland. The site was due to bad weather only sporadically surveyed, and thus it must be further documented in the future.

Lb 20. Late Dorset square tent ring on Salleq (Bushnan Ø).

The Alakariapaluk site (**Lb 19**) contains remains of both cold and warm season activities during the time span from the earliest Inuit settling of the area until the recent past. The following features were observed: More than 20 tent rings; more than 20 shelters; more than 30 caches; a few play houses; a few graves; a few fox traps; several shelter walls (outlooks), some of them 4 – 6 meters long and 0.5 m high situated on boulder beach terraces above the settlement.

C. Anthropological activities and finds

The members of the anthropological contingent of the NOW project have separate yet interlinked objects of research. The primary anthropological objectives of the field season 2014 were to engage in interdisciplinary conversations and learn to move through the landscapes of the High Arctic with the lenses and tools of other scientists, and to establish contacts and carry out preliminary studies about human life and relations to living resources among inhabitants of the small settlement of Savissivik.

Engaging with the inhabitants of Savissivik

Repeated returns to Savissivik allowed us to establish relations with some of the families who live there. In particular we gained a glimpse into how the changes in the climate not only affects a 'lifestyle' in real-time, but actually also a decreasing population's struggle for social and economic survival in a drastically changing world. Wage income is necessary for the survival and it stands to reason that some in the younger generation have never been taught to hunt, but instead seek education and employment, which in turn supports the hunters in the family financially. We got a first glimpse into the sharing patterns for which arctic populations are famous, and it very quickly became evident that sharing in Savissivik extended beyond meat, and into quite formal relations shaped by hunters who share hunting equipment.

Anthropologists and hunters mapping hunting sites for different species on board the floating field station.

Mapping hunting grounds and sledge routes together with hunters

We engaged some of the older people in conversation about their own histories as well as the histories of some of the many human settlements in the surrounding landscape, and we found that movement, for hunting, travel, as well as (forced and voluntary) relocation was part of most peoples' own histories. By way of understanding how changes in the ice and landscape are affecting human livelihoods in the NOW area, we used printed maps of the Thule region as a focal point for many conversations which revealed very recent and drastic changes in the ice edge as well as travel routes over the past years. Some of the hunters

marked the changes in routes and ice edge, while others pointed to the movements of animals, as well as the arrival of new species such as the halibut.

Visiting (now) abandoned settlements known from local family histories

The fact that the expedition ship was available made visits to abandoned settlements possible. Along with our colleagues from the other disciplines, we stopped over at islands and entered into valleys that went from the coast and well up into the high hinterlands. In such instances we could see the traces not only of prehistoric settlements but also houses that had been in use until mid-twentieth century or even longer, and where we knew from living family histories, who had actually lived there and when. That also went for graves and for 'old people's homes' in the higher parts of some of the valleys where the little auks flocked. This tallied with a living memory of how the elderly were often left alone to fend for themselves during summer, when the rest of the family was on strenuous search for bigger game.

Participating in the catching of little auks

We followed our biologist colleagues to several cliffs inhabited by colonies of little auks. Through the visits to the bird cliffs and observing the catch of birds for scientific purposes, our attention was directed to the technologies and skills applied when catching birds; it became pertinent to compare the technologies and ways of knowing little auk relations among the biologists with those among inhabitants of Savissivik. However, the two sets of technologies and skills cannot be held completely separate since biologists rely on hunters to catch birds efficiently. When catching little auks for scientific purposes, skills, technologies and economies become entangled. We soon realized that the birds are of utmost importance to the inhabitants of Savissivik, although of a different kind of importance than they are for biologists. This will be pursued further in the coming year.

Documenting the making of a net

We had the opportunity to observe and document audio-visually the crafting of an *ipoq*, the net used by Inughuit to catch little auks. The net, which is now housed in the National Museum, gave the anthropologists opportunity firstly to establish relations with an elderly couple in Savissivik, and to engage them in conversations about changes in seasons, animal movements, sea ice as well as the developments and changes in the technology of hunting equipment. We also investigated the birds' contribution to household economics. Where the *ipoq* is largely unchanged from centuries ago, an epidemic in the 80s killed the dogs and introduced snowmobiles to the village, adding to the financial strain of many families. Today costly equipment such as glass-fibre boats and outboard motors are shared among households, in essence making not just the resources that people hunt increasingly difficult to harvest, but also difficult to reach.

Studying interdisciplinary engagements

Due to the specific qualities of the ethnographic method: paying attention to practices, interactions and complex relations, our research focuses both on matters of everyday life among humans inhabiting the NOW area, and on methodological encounters across disciplines among scientists participating in the NOW-project.

One aspect of the anthropological study is hence to systematically register and reflect upon *how knowledge is exchanged and formed across disciplinary boundaries*, and *how an integrated study is done in practice*. The joint field season/expedition in the summer 2014 was well designed for engaging with this question.

Finding nodal points of attention

- Economies in town, settlement and household
- Qualitative and quantitative tracking of hunting and travel routes
- Scientist-hunter encounters, knowledge in collaboration and/friction
- Taste / foods / place / sharing / human relations
- Shifting technologies and infrastructures
- Conceptualizing living resources
- Family histories and migrations within and without the region

6. Interdisciplinary promises

Evidently, it is a bit early to present actual interdisciplinary results. It is possible, however, to indicate some of interests shared by all, and which gave a sense of promise. There is a balance to be maintained between one common project, and several distinct objects of research; below we have attempted to make that balance transpire by indicating areas of shared interest within the project that makes it possible to apply and eventually integrate the different objects of knowledge.

Understanding the birds

While evidently, the biologists 'knew' the little auks and the thick-billed murres that were in particular focus among the living resources during the summer of 2014 better than other members of the group, the knowledge was quickly shared, developed and recycled into new perspectives when meeting with other disciplinary questions and concerns. The birds were still very much part of local food practices, and for thousands of years they had contributed to the making of a particular landscape that eventually allowed humans to settle.

Reading the landscape

Both people and animals leave their mark upon a landscape. Wherever we went ashore, we were met with such marks, that we gradually learnt to discern across the disciplinary boundaries. Cliffs marked by guano from little auks or murre, alerted us to look closer for human habitation, the presence of fox, and of other animals. The traces left were remnants of turf and stone houses, fox traps and animal bones. However barren the landscape may seem, it is a cultural landscape, formed in close dialogue between long-term climatic fluctuations, animal presence, and human hunting practices.

Acknowledging the hunters

The landscape had become 'cultured', in the more narrow sense of the term, through human and social practices. While the hunters had left their mark over thousands of years, the many newer traces, living memories, and present practices provided a rich depository of untapped knowledge. Families in Savissivik were well versed in local histories, old settlements, the place of meteorites, the way of the winds and – of course – of the animals. The present inhabitants of the region must be acknowledged for their subtle understanding of a highly volatile and extremely demanding landscape, an also – significantly in the present context – for sharing their extensive knowledge with us.

7. Workshops, presentations, Publications, and Dissemination

Workshops

- The First Joint Group NOW-workshop, June 11th 2014
- The Second Joint Group NOW-workshop, November 13th – 14th 2014

Presentations:

- Oral presentation of the field work of NOW in the lecture series 'Vin & Videnskab'. The National Museum of Natural History. Aug. 27th, 2014. Bjarne Grønnow.
- Interdisciplinarity in practice. Oral presentation in 'The young Academy', The Royal Society of Science and Letters. Oct. 1st, 2014. Bjarne Grønnow.
- Presentation of Fieldwork practice during 2014. University of Copenhagen, Department of Anthropology. Oct., Astrid Andersen & Janne Flora.

Dissemination

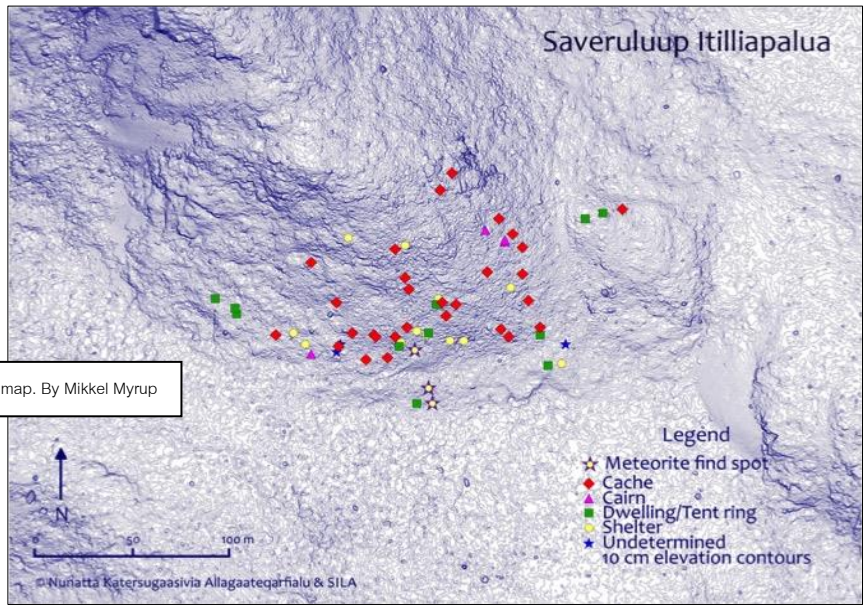
- Hastrup, Kirsten 2014: Nordvandet. Levende ressourcer og samfundsliv I Thule-regionen, Nordvestgrønland. Villum Fonden & Velux Fonden Årsskrift 2014: 90-95.
- Sørensen, Mikkel & Grønnow, Bjarne 2014: På sporet af de første grønlændere i Melville Bugt – en beretning om en arkæologisk opdagelse under NOW-projektets feltarbejde, sommeren 2014. Tidsskriftet Grønland, Vol. 4, 2014: 228 – 241.
- 'Et lille stykke agat blev det endelig bevis.'. (A tiny flake of agate became the final proof'). Article in the newspaper Politiken. Nov. 2nd, 2014.
- Oqaluttuarisaanerup allaaserineqarnera allanngortinneqassaaq ('Historien skal skrives om'). Article in the newpaper Atuagagdliutit, Nov. 5th, 2014.
- The Research Design of the NOW Project. – Interview with Bjarne Grønnow published in the Annual Report of the Young Academy, 2014: p. 42 – 45.

8. Associated activities

The Cultural History of the Cape York Meteorites-project

For more than a millennium the fragments of the Cape York meteorite played a crucial role in lives of people in Avanersuaq. The hitherto found fragments all in all weigh 58 tons, and consist of more than 90% iron. While they all originate from of an explosion that most likely took place in the atmosphere above Avanersuaq 10.000 years ago they were only discovered and mined from the middle of the 8th Century. The cold-hammered iron blades were used for both hunting weapons and household tools, and were traded across large parts of Arctic Canada, as it was the only source of iron of in these parts of the Arctic, until European iron became available during the 17th Century (Appelt et al. 2015).

In Avanersuaq the meteorites were the sole source of iron until the arrival of European and American explorers and whalers in the early 19th Century. The meteoric fragments were for the first time seen by outsiders in 1893 when the famous American explorer Robert E. Peary was guided to the localities where they could be found (Peary 1897). During the following two years crews headed by Peary retrieved three of the meteoric fragments (known as "Woman", "Dog", and "Ahignito") under great difficulties and brought them New York, where they played a crucial role in ensuring the continued support for Peary's quest for becoming the first man the North Pole. The fourth (known as "Savik") and a fifth large fragment of the Cape York meteorite (known as "Agpalilik") were brought to the Geological Museum in Copenhagen in 1925 and 1965 by crews headed by Knud Rasmussen and Vagn F. Buchwald respectively (Buchwald 1992).



The drone generated 10-centimetre equidistance map. By Mikkel Myrup

The activities of both Peary and Buchwald are well documented but little is known about the retrieval of the Savik fragment and none of the sites have previously been visited by archaeologists. In connection to the NOW-project a crew consisting of Mikkel Myrup (Greenland National Museum & Archives), Henning Haack

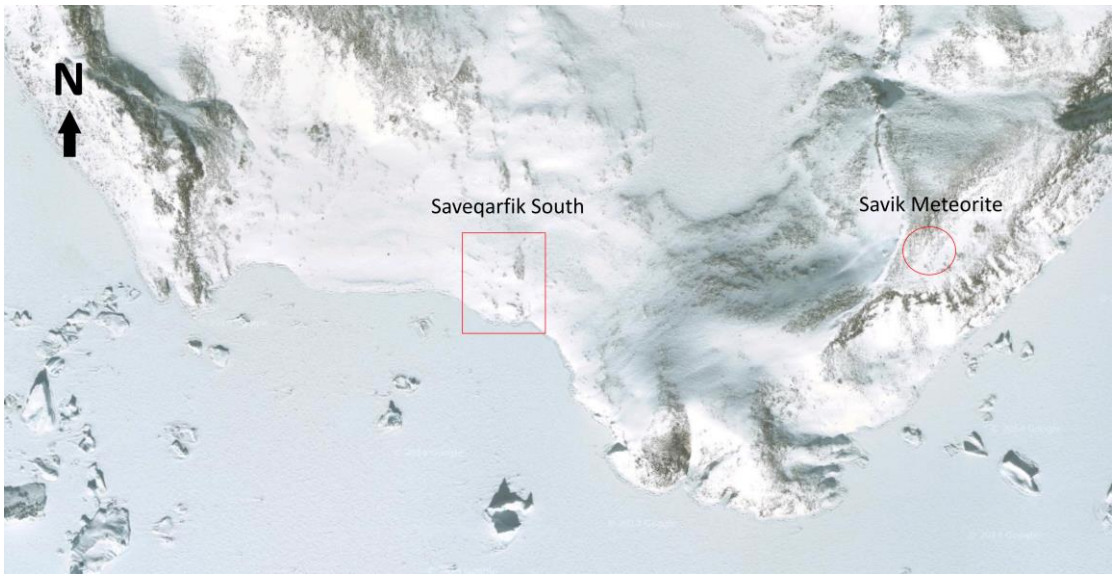
(Natural History Museum of Denmark), Jens Fog Jensen and Martin Appelt (both The National Museum of Denmark) documented the meteorite localities. Each human made structures at Woman/Dog site (Saveruluup Itilliapalua) was documented in photographs and some in drawing, and the over-all site was documented in a drone-generated three dimensional 10-centimetre equidistance-map. At the Savik (Saveqarfik) and Aghinito (north-eastern Savissivik Island) sites difficult weather conditions prevented anything but the most cursory photographic documentation. Previous field work by Henning Haack had indicated that additional large fragments of the meteorite perhaps could be located on the southern and north-eastern Savissivik Island. In order to determine if the anomalies represented buried meteorites, GeoRadar surveys were carried out at both localities. Unfortunately, none of the two anomalies appear to be caused by meteorites.

A hitherto unpublished photograph from the retrieval of Savik in 1922. © Aktisk Institut

In the wake of the field-campaign additional photographic material was found from the retrieval of Savik in 1922-1923 in the hitherto unpublished records of the Arctic Institute by chief-archivist Lisbeth Valgreen. The more than 100 photographs were scanned by Martin Appelt and thus are available for the present project. In addition Savik has been brought to the National Museum of Denmark where it will be 3D-documented in order to document the prehistoric extraction techniques.

Saveqarfik Syd

The site is located in the eastern part of a cove situated on the southern tip of the Saveqarfik Peninsula. On a Sketch by Lauge Koch the cove is named ‘Kayak Support Cove’. In the western part the shore is made up by boulder beaches, from the sea we recognized manmade structures along the boulder beach, but time did not allow for registration. Towards east the shore is rocky with small points and cliffs and a waterfall draining the lake in the hinterland. Five to ten metres above sea-level and situated on the most prominent of the cliffs overlooking the cove there is a site with three tent rings, six shelters, six caches, and a well-built kayak support.



All the structures are built of large up to several times head sized round and angular boulders and all are heavily overgrown by lichen with moss and some grass in the interior. Curiously reindeer lichen dominates in the interior of the tent rings and most densely settled areas, whereas black lichen dominate the surrounding rocky terrain. The location of this site adjacent to the hill where Savik meteorite site on the top makes it highly likely that the locality has been left by Inuit visiting for the acquisition of meteorite iron or alternatively by some of the parties visiting the place during 1922 - 1923?

WWW.NOW.KU.DK