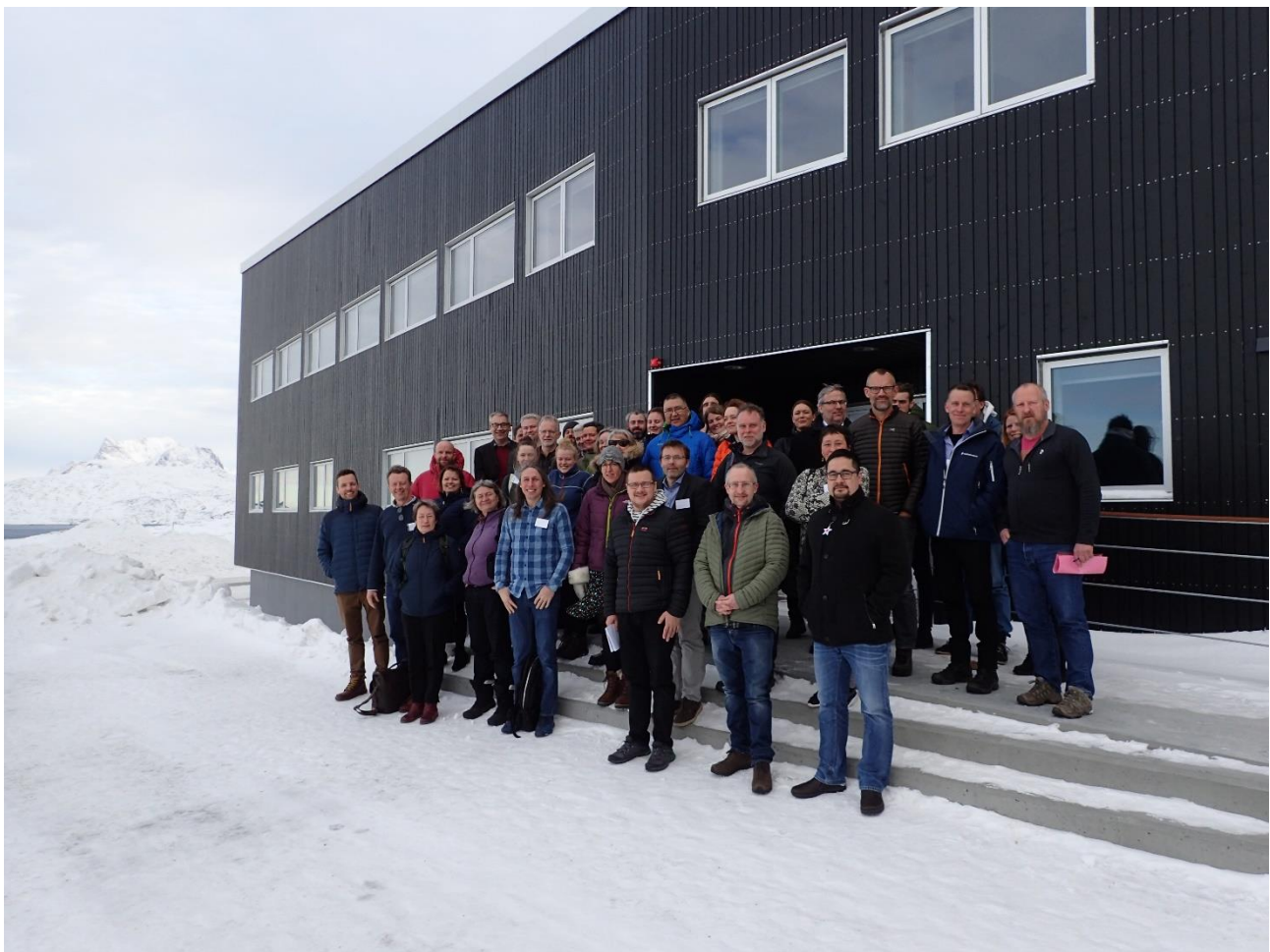




## Greenland Ecosystem Monitoring (GEM)

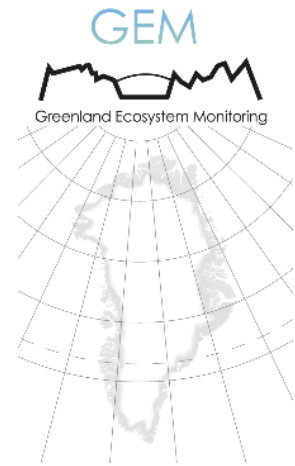
### Workshop report

# Synergies among long-term natural science monitoring initiatives in Greenland



Greenland Institute of Natural Resources  
Nuuk, Greenland, 28 Feb. – 1 March 2018

[www.g-e-m.dk](http://www.g-e-m.dk)



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## 1. Introduction

The Arctic with its cold climate adapted biodiversity and ecosystems is a barometer of global climate change. Arctic climatic changes are amplified and changes occur faster here than anywhere else on the planet. The effects of climate change is seen already now in ecosystems, living resources and likely influences global hydrological and climate systems. These changes have implications for the society at both local, national, regional and global scales.

Greenland offer unique opportunities for studying climate change and its impact on arctic ecosystems and society. A more than 2000 km long North-South gradient spanning from the extreme High-Arctic to Sub-Arctic, relatively narrow ecosystem gradients from the Greenland ice cap to the coast, and special features of global importance (e.g. sea ice and the ice cap - and its impact on sea level rise and global climate systems).

These options and the great implications over a range of societal scales means that there is a huge interest in studying and understanding these changes and the underlying causes in Greenland, from Greenlandic, Danish and international organisations and institutions. Several of these operate long-term monitoring programmes in Greenland and although there may be some overlap in institutions/personnel active in the different programmes/assessments, little formal cooperation exist.

This workshop was arranged by the GEM Secretariat with financial support from DANCEA.

## 2. Aim and outline of workshop

The GEM Strategy 2017-2021 expresses an aim to cooperate with other long-term monitoring initiatives in Greenland, to make maximum use of the data generated by GEM for e.g. improved process understanding, prediction/forecasting, upscaling/downscaling, applied science input, etc. The aim of the GEM Synergy workshop was therefore to:

- A. Provide an overview of existing long-term research and monitoring initiatives in Greenland related to climate and ecosystems, and;
- B. Explore possibilities for cooperation between these long-term monitoring initiatives in Greenland for e.g. addressing improved process understanding across domains, upscaling results to the Greenlandic scale, implementation of new technology or joint outreach products for educational purposes or the general public.

The Minister of Education, Culture, Research and Church, Doris Jakobsen Jensen, gave the opening speech of the workshop with a presentation on collaborative research and monitoring in Greenland and the contours of the proposed Research Hub in Greenland. The Workshop was then formally opened by the GEM Scientific Leader, Torben R. Christensen, who gave an introduction to the workshop and a general presentation of the GEM programme, that was followed by presentations of all five BasisProgrammes (Climate, Geo, Bio, Marine and Glacio) and the GEM remote sensing component. Hereafter, participating research institutions presented their existing and planned long-term monitoring initiatives in Greenland, including a) Overview of programmes and projects and their aim, geographical coverage, methodology and output, and b) areas of potential cooperation.

Following institutions presented their activities:

- Aarhus University – [www.au.dk](http://www.au.dk)
- ASIAQ – Greenland Survey – [www.ASIAQ.gl](http://www.ASIAQ.gl)
- DMI – Danish Meteorological Institute – [www.dmi.dk](http://www.dmi.dk)
- GEUS - Geological Surveys of Denmark and Greenland – [www.geus.dk](http://www.geus.dk)
- Greenland Institute of Natural Resources – [www.natur.gl](http://www.natur.gl)
- Technical University of Denmark – [www.dtu.dk](http://www.dtu.dk)
- University of Copenhagen – [www.ku.dk](http://www.ku.dk)

A long-term community-based monitoring initiative in West and Northwest Greenland, Pisuna – [www.pisuna.org](http://www.pisuna.org)), was presented by the Department of Fisheries and Hunting.

After each presentation, participating institutions and government departments/agencies were encouraged to comment on presentations and at a following ‘open floor’ session, authorities had a chance to express their view on the potential for using the monitoring data generated by the programmes/institutions in the administration.

These presentations and discussions lead to a draft list of potential synergies (26!) that were condensed and described in more detail on the last day of the workshop resulting in a final list of 14 synergies, including information on Title, Aim, Required data, Output, Responsible institution/person and contributing institutions/persons.

### 3. General discussion and expectations

Participants expressed a significant value and general interest to continue sharing information on existing and planned monitoring initiatives. Authorities were interested in receiving information about results relevant for their administration, while science institution on the other hand found it

difficult to know what information the authorities needed. Continued exchange of information was therefore seen as a benefit to all parties.

Authorities also commented that the awareness about existing climate and ecosystem monitoring in Greenland was generally low and that increased focus on outreach and educational materials targeting the general public, schools, high schools, universities and government administrations was highly encouraged. Authorities in Greenland and Denmark should be involved and their platforms used where relevant.

Among the participating science institutions concern was raised over a general lack of sharing of information about the programmes and activities taking place in Greenland. Existing platforms (e.g. Isaaffik) and continued dialogue between institutions was seen as a key element to maximize use of data and prevent overlapping activities.

#### The onward process with implementing identified synergies

The synergies identified at the workshop are described in section 4 of this report. It should be stressed that the description of the synergies may change when the participating parties start exploring the potential for cooperation in more detail. The aim, output, lead and participating institutions, etc. may thus change when the idea for cooperation is developed further.

It should also be noted that participation in the workshop was voluntary and financed by the participating institutions themselves, and the initiation and implementation of identified synergies is also voluntary. Some of the synergies may be straightforward to implement, while others may be more complex, require additional funding or not lead to further cooperation. The timeframe for implementing the identified synergies therefore also depends on the type of synergy and the resources available for implementing it.

#### 4. Results – identified synergies (blue colour indicates GEM relevance – green colour indicates no GEM involvement)

Lead institutions/persons are expected to initiate contact between parties listed under each initiative, not necessarily leading the potential project. E-mail addresses of people are found in Appendix B for people participating in workshop and under each initiative for people who did not attend the workshop. The GEM Secretariat will follow up on progress during 2018.

##### Knowledge exchange, science and authorities/local communities

#	Title	Description			Lead institution/person initiating contact		Participating institutions/ name of person
		Aim:	Required knowledge/data	Outputs	Institution name	Person name	
1	Linking science and local communities/authorities to exchange knowledge and explore synergies.	Ensure that the research and monitoring is presented at local community meetings and with possibility for communication between scientists and local stakeholders (Authorities, general public).	1 Knowledge of science activities and results in Greenland. 2 Knowledge of local management concerns, projects, reporting needs, etc.	1 Annual local stakeholder (general public) meetings in Qeqertarsuaq, Nuuk and possibly Ittoqqortoormiit. 2 Bi-annual meeting between scientists and Authorities, GEM and possibly other science institutions/programmes (possibly with associated themes, e.g. Remote sensing products of relevance to authorities - see other synergy).	GEM Secretariat	Elmer Topp-Jørgensen	<b>Institution representatives</b> GEM Coordination Group  <b>Authorities</b> PAN <sup>1</sup> : Karen Motzfeldt APN <sup>2</sup> : Nette Levermann
1a	Theme for general information exchange between Science and authorities: Identifying remote sensing products relevant for authorities.	Ensure that Greenland authorities are aware of the planned initiatives on remote sensing and can give input to possible products that might help them in the management of natural resources and biodiversity.	1 Existing and planned remote sensing products. 2 Knowledge of local management needs.	1 Meeting in Nuuk between remote sensing product producers and authorities, where remote sensing product information is shared and discussed for possible application in local management. 2 Possible existing/improved/new remote sensing made available for authorities in Greenland and the GRAIN project (land mammals) 3 ASIAQ will take lead on small workshop in May on remote sensing initiatives and Greenland.	ASIAQ/GEM Remote Sensing	Jordi Cristóbal Rosselló	<b>Institution representatives</b> GINR: Katrine Raundrup, Karl Brix Zinglarsen Other  <u>GEM Remote Sensing</u> GEUS: Michele Citterio KU: Andreas Westergaard-Nielsen  <b>Authorities</b> PAN: Martin Schiøtz  <b>Others</b> Greenland Perspectives/GRAIN: Allan Peter Olsen

<sup>1</sup> PAN: Ministry of Environment and Nature, Greenland

<sup>2</sup> APN: Ministry of Fisheries and Hunting, Greenland

## Knowledge exchange, logistics and optimization of resources

#	Title	Description			Lead institution/person initiating contact		Participating institutions/ name of person
		Aim:	Required knowledge/data	Outputs	Institution name	Person name	
2	Logistics - sharing of resources	Use free space/time on planned ship (GINR) and plane (DTU) surveys to potentially gather additional parameters of relevance to GEM.	Identify mechanism to share information.	Agreed plan for contact or information sharing (e.g. Isaaffik or more direct communication between relevant institutions/programmes).	GEM Secretariat	Elmer Topp-Jørgensen	<b>Institution representatives</b> GEM Coordination Group GINR: Helle Siegstad DTU: Rene Forsberg <a href="mailto:rf@space.dtu.dk">rf@space.dtu.dk</a>  <b>Authorities</b> PAN: Finn Nielsen <a href="mailto:filn@nanog.gl">filn@nanog.gl</a>

## Outreach

#	Title	Description			Lead institution/person initiating contact		Participating institutions/ name of person
		Aim:	Required knowledge/data	Outputs	Institution name	Person name	
3	Joint outreach initiatives between programmes and institutions	Produce outreach materials targeting specific stakeholder groups. 1 Annual Report Card targeting scientists, authorities and members of the general public with a keen interest in climate and ecosystem science (GEM welcomes joint report cards between institutions and programmes in the GEM annual report card publication). Possible translation of GEM report card. 2 Produce materials dedicated for authorities with focus on implications for management (GEM and other programmes/institutions) 3 Develop public outreach initiatives between GEM and other institutions/programmes	1 Data from GEM and other programmes/institutions. 2 Outreach channels and mechanisms in Greenland.	Various outreach products: 1 GEM and possible other joint Annual Report Cards in greenlandic version with focus on relevance/importance for the greenlandic society. 2 A management publication/synthesis. 3 Isaaffik, news paper articles, podcast/radio/TV, Facebook.	GEM Secretariat	Elmer Topp-Jørgensen	<b>Institution representatives</b> GEM Coordination group ASIAQ: Martin Olsen  <b>Authorities to involve</b> Science coordination unit, Government of Greenland

## Education

#	Title	Description			Lead institution/person initiating contact		Participating institutions/ name of person
		Aim:	Required knowledge/data	Outputs	Institution name	Person name	
4	Education (schools, high schools, universities).	<p>1) Development of joint educational materials. Involve "fagkonsulenter" and other educational knowledge holders.</p> <p>2) Explore possible linkages between existing arctic education programmes in Greenland.</p> <p>3) Explore potential synergies between existing online platforms (e.g. Polar Portal, GEM educational materials, etc.).</p>	<p>Knowledge of:</p> <p>1 Existing educational materials on Greenland/arctic matters.</p> <p>2 Existing educational programmes in Greenland/arctic matters.</p> <p>3 Curriculum in Schools in Greenland and Denmark.</p>	<p>1 New (and potentially joint) educational materials targeting the three stakeholder groups.</p> <p>2 Established links between existing educational programmes.</p>	GEM Secretariat	Elmer Topp-Jørgensen	<p><b>Institution representatives</b> GEM Coordination Group ASIAQ: Kerstin Rasmussen</p> <p><b>Authorities to involve</b> Department of Education, Government of Greenland</p> <p>Ministry of Higher Education and Science, Government of Denmark</p>



## Scaling/prediction/mapping of change

#	Title	Description			Lead institution/person initiating contact		Participating institutions/ name of person
		Aim:	Required knowledge/data	Outputs	Institution name	Person name	
5	Effect of snow on ice for primary production (limnic & marine).	Determine the impact of snow cover on ice and under ice primary production. Snow on ice influence the amount of light penetrating the sea ice significantly, and thus affecting the timing of primary production. Changes in snow extent, thickness and time of melt thus result in mismatch of hatching and food availability.	1 Sea ice product (DMI) - Landsat (including snow on ice product). 2 Primary production under ice.	Estimates of snow cover extent and influence on primary production in a changing climate.	GEUS/GEM GlacioBasis	Michele Citterio	<b>Institution representatives</b> GEM Coordination Group
6	Landscape classification.	Develop and identify landscape and vegetation types/classes and produce habitat maps to detect changes over time.	1 Consolidate vegetation, terrain and other data (using a variety of sources, e.g. satellite, vegetation assessments, ground truthing, citizen science, etc.). 2 Greenlandic nomenclature for habitat and landscape types.	Regular (5 years?) landscape, habitat and biodiversity maps showing changes over time.	AU/GEM BioBasis	Niels Martin Schmidt	<b>Institution representatives</b> ASIAQ: Mikkel Høegh Boiesen ( <a href="mailto:mhb@ASIAQ.gl">mhb@ASIAQ.gl</a> ) GINR: Katrine Raundrup, Karl Brix Zinglersen  <u>GEM Remote Sensing</u> GEUS: Michele Citterio KU: Andreas Westergaard-Nielsen  <b>Authorities to involve</b> Sprogsekretariatet, Government of Greenland
7	Downscaled climate products	Downscaled climate scenarios to specific areas for improved local predictions/forecasts, using DMI predictive modelling and GEM data for ground truthing/verification.	1 DMI predictive model products . 2 GEM data.	1 Downscaling model 2 Report/paper on local predictions of change of ecosystem functioning .	AU/GEM	Torben R. Christensen	<b>Institution representatives</b> GEM Coordination group ASIAQ: Jordi Cristóbal Rosselló

8	Gradient study linking Disko and Nuuk MarineBasis programmes and the off shore sea. Continental Shelf Study, West Greenland.	Describe the marine ecosystem structure, function and productivity along a gradient linking MarineBasis sites (Nuuk and Disko) with off shore sea area.	GEM MarineBasis data and new data collected during GINR fish surveys (using GEM protocols).	1 Off-shore data sets comparable to MarineBasis data. 2 Report/paper on linkages between coastal and off shore areas.	GINR/GEM MarineBasis	Thomas Juul-Pedersen	<b>Institution representatives</b> GEM Coordination Group
9	Upscaling and downscaling of terrestrial surface energy fluxes.	1 To spatially downscale remote sensing products and re-analyse climate data to improve surface energy balance in Arctic coastal areas (also including NDVI, LST, LAI, etc.). 2 To temporally upscale surface energy balance remote sensing products from instantaneous (at satellite pass) to daily timesteps.	Remote sensing products, GeoBasis data, GlacioBasis Data.	1 dataset including medium resolution NDVI, land surface temperature, etc. 2 Report/paper on surface energy balance in arctic coastal areas. 3 report/Paper on upscaled energy balance products.	ASIAQ/GEM remote Sensing	Jordi Cristóbal Rosselló	<b>Institution representatives</b> GEM Coordination Group

## Improved ecosystem process understanding

#	Title	Description			Lead institution/person initiating contact		Participating institutions/ name of person
		Aim:	Required knowledge/data	Outputs	Institution name	Person name	
10	Tracking microbiological effect on snow albedo.	Investigate temporal impact of algae occurrence on snowmelt and glacier mass balance, in comparison with other factors influences glacier mass balance.	1 Timing and extent of algae blooms in glacier ice/snow. 2 Magnitude of albedo decrease with different algae concentrations/ abundances.	Report/paper on the relative impact of algae on glacier mass balance in Greenland.	GEUS/GEM GlacioBasis	Michele Citterio	<b>Institution representatives</b> GEM Coordination Group ASIAQ: Kirsty Langley  <u>GEM remote Sensing</u> ASIAQ: Jordi Cristóbal Rosselló KU: Andreas Westergaard-Nielsen
11	Impact of glacier processes on marine productivity under different climate change scenarios.	Investigate impact of glacier processes on marine productivity at present and predicted under different climate change scenarios, including: 1 Impact of glacier run-off. 2 Impact of GLOF events. 3 Impact of melting icebergs.	1 Glacier run-off and sediment content data. 2 GLOF run-off and sediment content data. 3 Spatial distribution and concentration of sediment depositing in fjord and coastal areas. 4 Produced mass of icebergs and melt-rates. 5 Effect of meltwater (Glacier, GLOF, icebergs) and sediment transport on physical environment and ecosystem processes.	Report/paper on the effect of different freshwater sources and sediment transport mechanisms on physical environment and ecosystem processes.	DTU/GEM MarineBasis	Torkel Gissel Nielsen	<b>Institution representatives</b> GEM GlacioBasis: Michele Citterio ASIAQ: Dorthe Petersen
12	Make use of existing winter observations on sea ice in Qaanaaq for use in gradient studies.	1 Making existing datasets available for analysis in combination with data generated by GEM.	Knowledge of: 1 DMI datasets. 2 SEIA datasets. 3 GEM datasets.	Harmonised data set available for analysis (e.g. gradient studies in combination with existing GEM sites.	DMI	Steffen M. Olsen	<b>Institution representatives</b> GEM Database: Jonas Koefoed Rømer/AU ASIAQ: Jordi Cristóbal Rosselló

## 5. Synergies beyond GEM

### Portal for georeferenced metadata on research infrastructure and projects

#	Title	Description			Lead institution/person initiating contact		Participating institutions/ name of person
		Aim:	Required knowledge/data	Outputs	Institution name	Person name	
A	Metadata portal of research and monitoring activities in Greenland.	To collect, store and make-available: 1 Information on research and monitoring activities in Greenland 2 Existing and new science infrastructures, platforms and stations. 3 On-line application/registration system for research/ survey/ monitoring activities in Greenland.	Location of science projects and infrastructure, e.g. gain through various application systems in the Government of Greenland (e.g. Expedition application for remote areas in Greenland, applications for biological resources permits, area allotment for scientific infrastructure, permits for handling/sampling species(rock, soil, water, etc.).	A common and public available entry-point for research/ survey/ monitoring activities and metadata on these projects in Greenland (e.g. NunaGIS and Isaaffik) on: 1 Science projects in Greenland 2 Science infrastructure in Greenland	ASIAQ	Martin Olsen	<p><b>Institution representatives</b> GINR: Ida Jacobsen, Katrine Raundrup</p> <p><b>Authorities</b> Forskningskoordinations-enheden, Government of Greenland: Sten Lund PAN: Finn L. Nielsen (<a href="mailto:filn@nanog.gl">filn@nanog.gl</a>), Per Roe</p> <p><b>Others to involve (if relevant)</b> Greenland Research Council</p>

### Portal for hydrological and meteorological data not included in DMI/GEM repositories

#	Title	Description			Lead institution/person initiating contact		Participating institutions/ name of person
		Aim:	Required knowledge/data	Outputs	Institution name	Person name	
B	Hydrological and meteorological data from research and monitoring activities in Greenland made public available (from activities beyond DMI and GEM).	1 To standardize and store different types of meteorological and hydrological data currently acquired by sensors in Greenland that do not belong to current networks (DMI, GEM, etc.) in order to make them available for the general public and for	1 Knowledge of initiatives collecting hydrological and meteorological data in Greenland (not related to DMI and GEM).	A publicly available database providing hydrological and meteorological data through a standardized	ASIAQ	Martin Olsen	<p><b>Institution representatives</b> GEM Coordination Group</p> <p><b>Authorities</b> PAN: Nathia Hass Brandtberg</p>

	scientific purposes through a common database. By storing the data in a common database, data will be easier to “locate” and use in relation to other more long term monitoring data for the best of the scientific community and the greenlandic society.	2 Knowledge of database management and GIS/Web-presentation of data	and searchable repository.			
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## Combating zoonotic diseases in Greenland

#	Title	Description			Lead institution/person initiating contact		Participating institutions/ name of person
		Aim:	Required knowledge/data	Outputs	Institution name	Person name	
C	Zoonotic diseases	Assess and combat rabies and Chronic Wasting Disease in Greenland. Explore potential relevance for AMAP human health assessment group.	Prevalence of rabies and CWD in fox and reindeer populations in Greenland.	1 Strategy for combating rabies and CWD in Greenland 1 Possible contribution to AMAP Human Health Assessment Group	VFMG, Government of Greenland	Egill Steingrimsson	<b>Institution representatives</b> GINR: Katrine Raundrup AU: Niels Martin Schmidt  <b>Authorities</b> Miljøstyrelsen, Government of Denmark: Mikala Klint  <b>Others</b> Sana: Gert Mulvad ( <a href="mailto:gm@peqgik.gl">gm@peqgik.gl</a> )

GEM

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## Appendix A: Agenda

### Day 1 (participation: all)

08.30 Welcome and introduction to the workshop (Malene Simon/ Torben R. Christensen/Elmer Topp-Jørgensen)

08.35 Round of introduction

08.50 Opening Speech Ministry of education, Culture, Research and Church – presentation of science policy initiatives and the contours of the Greenlandic Research Hub

09.05 About GEM and the programme and purpose of the workshop (Torben R. Christensen/Elmer Topp-Jørgensen)

09:20 Experiences with stakeholder involvement in projects and monitoring programmes in Greenland – examples INAMON and AACA (Malene Simon)

09.30 Presentation of GEM Basis-Programmes

- GEM Climate Basis (Jakob Abermann/Jordi C. Rossello)
- GEM GeoBasis (Magnus Lund/Thomas Friborg)

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10.00 Coffee

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10.30 Presentation of GEM Basis-Programmes (continued)

- GEM BioBasis (Niels Martin Schmidt)
- GEM MarineBasis (Thomas Juul-Pedersen/Torkel Gissel Nielsen)
- GEM GlacioBasis (Michele Citterio/Jakob Abermann)
- GEM Remote Sensing initiative (Michele Citterio/Jakob Abermann/ Jordi C. Rossello)

11:30 Institutions with long-term commitments in Greenland

- Aarhus University (AU) (Mikkel P. Tamstorf)
- ASIAQ – Greenland Survey (ASIAQ) (Dorthe Petersen)
- Danish Meteorological Institute (DMI)(Steffen M. Olsen)

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12.30 Lunch

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13:30 Institutions with long-term commitments in Greenland (continued)

- Geological Survey of Denmark and Greenland (GEUS)(Signe Bech Andersen)
- Technical University of Denmark (DTU)(Torkel Gissel Nielsen)
- University of Copenhagen (KU)(Thomas Friborg)
- Greenland Institute of Natural Resources (GINR)(Malene Simon)
- Pisuna (DFF) (Nette Leverman)

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15.00 Coffee

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GEM

Greenland Ecosystem Monitoring



15.30 Open floor. Authorities to comment on today's presentations and where they see potential for using the monitoring data generated by the programmes/institutions (Comments in plenum, no PPT presentations)

16:15 Identification of areas of potential cooperation (plenum) with identification of title and lead persons to develop ideas further in break out groups and present these in plenum on day 2 (Torben R. Christensen/Elmer Topp-Jørgensen).

16.30 End of day 1

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18.30 Dinner

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**Day 2 (participation: monitoring initiatives, authorities voluntary)**

09.00 Break out groups for discussing and further develop ideas for cooperation between existing long-term monitoring initiatives (Torben R. Christensen/Elmer Topp-Jørgensen)

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10.30 Coffee

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11.00 Plenum presentation and discussion of finalized ideas (presented by initiative lead persons), including:

- Title of initiative
- Aim and outputs
- Lead person/institution
- Participating persons/institutions (and their contributions to the work)
- Description of the initiative (science, technology or outreach)
- Plan for first contact to initiate cooperation (date and responsible person for initiating e-mail correspondence, skype meeting, physical meeting, etc.)

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12.30 Lunch

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13.30 Presentation of finalized ideas, plan ahead and workshop wrap-up (End of workshop)

14.00 Possibility for informal discussions of projects ideas

15.00 The End

## Appendix B: List of participants



### Deltagerliste - Workshop

#### 'Synergies in long-term natural science monitoring in Greenland'

28 februar – 1 marts 2018, Nuuk, Grønland

#### Science institutions (35)

Navn	Institution/program	e-mail
Allan Peter Olsen	Greenland perspectives	<a href="mailto:aols@uni.gl">aols@uni.gl</a>
Anders Læsøe	ASIAQ - Greenland Survey	<a href="mailto:anl@ASIAQ.gl">anl@ASIAQ.gl</a>
Anja Retzel	GEM-MarinBasis/GINR	<a href="mailto:anre@natur.gl">anre@natur.gl</a>
AnnDorte Burmeister	GINR/GEM-MarinBasis	<a href="mailto:anndorte@natur.gl">anndorte@natur.gl</a>
Dorthe Petersen	ASIAQ - Greenland Survey	<a href="mailto:dop@ASIAQ.gl">dop@ASIAQ.gl</a>
Elmer Topp-Jørgensen	GEM - Secretariat/AU	<a href="mailto:jetj@bios.au.dk">jetj@bios.au.dk</a>
Fernando Ugarte	GINR	<a href="mailto:feug@natur.gl">feug@natur.gl</a>
Helle Siegstad	GINR	<a href="mailto:helle@natur.gl">helle@natur.gl</a>
Helle Torp Christensen	GINR	<a href="mailto:htch@natur.gl">htch@natur.gl</a>
Ida Dyrholm Jacobsen	GINR/GEM-BioBasis	<a href="mailto:idja@natur.gl">idja@natur.gl</a>
Jakob Abermann	GEM - Climate Basis/Aisaq	<a href="mailto:jab@ASIAQ.gl">jab@ASIAQ.gl</a>
John Mortensen	GEM-MarinBasis/GINR	<a href="mailto:jomo@natur.gl">jomo@natur.gl</a>
Jonas Koefoed Rømer	GEM - Secretariat/AU	<a href="mailto:jkr@bios.au.dk">jkr@bios.au.dk</a>
Jordi Cristobal Rossello	GEM - Climate Basis/Aisaq	<a href="mailto:jcr@ASIAQ.gl">jcr@ASIAQ.gl</a>
Josephine Nymand	GEM – BioBasis/GINR	<a href="mailto:jony@natur.gl">jony@natur.gl</a>
Jukka Wagnholt	GINR	<a href="mailto:juwa@natur.gl">juwa@natur.gl</a>
Karl Brix Zinglensen	GINR	<a href="mailto:kazi@natur.gl">kazi@natur.gl</a>
Katrine Raundrup	GEM - BioBasis/GINR	<a href="mailto:kara@natur.gl">kara@natur.gl</a>
Kerstin Rasmussen	GEM - GeoBasis/ASIAQ	<a href="mailto:ker@ASIAQ.gl">ker@ASIAQ.gl</a>
Kirsty Langley	ASIAQ - Greenland Survey	<a href="mailto:kal@ASIAQ.gl">kal@ASIAQ.gl</a>
Kisser Thorsøe	GEUS	<a href="mailto:kit@geus.dk">kit@geus.dk</a>
Lene Kielsen Holm	GINR	<a href="mailto:leho@natur.gl">leho@natur.gl</a>
Maia Olsen	GEM - BioBasis/GINR	<a href="mailto:maol@natur.gl">maol@natur.gl</a>
Malene Simon	GINR	<a href="mailto:masi@natur.gl">masi@natur.gl</a>



Martin Olsen	ASIAQ - Greenland Survey	<a href="mailto:mno@ASIAQ.gl">mno@ASIAQ.gl</a>
Michele Citterio	GEM - GlacioBasis/GEUS	<a href="mailto:mcit@geus.dk">mcit@geus.dk</a>
Mikkel Tamstorf	Aarhus University	<a href="mailto:mpt@bios.au.dk">mpt@bios.au.dk</a>
Niels Martin Schmidt	GEM - BioBasis/AU	<a href="mailto:nms@bios.au.dk">nms@bios.au.dk</a>
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