



## 53<sup>TH</sup> NySMAC MEETING, 3-5 NOV 2020

**Time:** 3<sup>rd</sup>-5<sup>th</sup> November 2020  
**Chair:** Maarten Loonen, University of Groningen  
**Secretariat:** Christina A. Pedersen, Norwegian Polar Institute  
**Location:** Online meeting

### MEETING MINUTES

#### Item 1. Approval of agenda (Maarten Loonen, UG)

Approved

#### Item 2. Follow up on minutes from the 52<sup>nd</sup> NySMAC meeting (Maarten Loonen, UG)

The draft minutes from the 52<sup>nd</sup> NySMAC meeting were distributed shortly after the meeting for comments and input. The final minutes with comments and inputs incorporated were approved by the meeting.

Note added by the Secretariat: All previous NySMAC minutes are available in the [NySMAC web document archive](#). The new webpage for Ny-Ålesund is launched, and there is a dedicated archive for NySMAC. Here you will find all documents with a NySMAC tag. If you change the filter on this page, you'll enter the overall document archive for Ny-Ålesund Research Station, and you can find other Ny-Ålesund related documents as well. To be able to browse and download the NySMAC minutes you need to be logged in. This functionality will soon be ready.

#### Item 3. Corona and the current situation in Ny-Ålesund (Lars Ole Saugnes, Kings Bay and Helge T Markussen, NPI)

Lars Ole Saugnes is the new director for Kings Bay AS. He came from a Chief Officer position in mainland Norway. He has also been Head of Administration for Longyearbyen Local Council.

Covid-19 information:

There has not been any Covid-infection in Svalbard so far and necessary measures have been taken to keep it that way. Measures are and can be taken at three levels: the national ones, Svalbard specific and Ny-Ålesund specific. Kings Bay is part of the Svalbard Emergency Preparedness Council to ensure similar practices at Svalbard. Due to the need for increased cleaning, and other measures in Ny-Ålesund, Kings Bay has introduced an extra Covid-fee. Information about the current fees is provided on the Kings Bay webpage.

Seen from the research community on site there has been good cooperation and information flow. NPI has used the weekly meetings to inform the research community about the situation and measures. The permanent personnel in Ny-Ålesund have been available to support research institutions not able to travel to Ny-Ålesund with their long-term monitoring activities.

NySMAC comments:

- In a pan-Arctic setting, Ny-Ålesund has been one of the very few stations able to operate in the times of the Covid-pandemic. It was commented by NySMAC that it could be interesting to do a comparison on how well stations coped with Covid: *Covid impact on Arctic observing system*. This could be relevant for station networks like INTERACT or similar.
- NySMAC requested that the new webpage for Ny-Ålesund research station has current Covid-information. The Covid-info should include also information about how to handle the situation if there is a local outbreak.

- In some situation a support or invitation letter could ease the travel to Norway. NPI can be helpful in writing such a support letter or invitation in cases where this is needed. Contact Geir Gotaas at [geir.gotaas@npolar.no](mailto:geir.gotaas@npolar.no)

Note added by the Secretariat:

The new webpage has on the [front page current Covid-information for Ny-Ålesund](#).

SIOS is doing a mapping exercise on *How the pandemic influenced your Svalbard work this year?* [https://sios-svalbard.org/News\\_20201209](https://sios-svalbard.org/News_20201209)

#### **Item 4. NySMAC documents: NySMAC Terms of Reference and suggestion for a NySMAC strategy (Task group work presented by Roland Neuber, AWI)**

A task force to work on these NySMAC documents was appointed at the last NySMAC meeting, and consisted of Maarten Loonen (UG), Christina A. Pedersen (NPI), Angelo Viola (CNR), Harald Steen (NPI), and Roland Neuber (AWI).

The task force has had several meetings this fall and has posted progress information on NySMAC PID. The current suggestion by the task force for this meeting is a close to final version of the NySMAC Terms of Reference (ToR) and a document describing the idea for a NySMAC strategy. The NySMAC ToR document should be fixed and valid for a long period of time, while the NySMAC strategy is a document meant to be updated on a regular basis, e.g., every 5 years. Both documents were distributed with the meeting agenda.

At the last NySMAC meeting it was agreed that the ToR document should start with the [NySMAC Founding Articles](#). The task force group underlines that NySMAC has no power to change the mandate given to us by the directors in the Founding Article when founding NySMAC. Furthermore, what is written in ToR cannot conflict with the Founding Article. The task force suggests including all items (slightly adjusted and modernized) under *Purpose* and *Mandate* in the original Founding Article under the headline *NySMAC purpose* in the ToR. Some other small changes have been made to ToR compared to the version showed at the previous meeting.

The task force also proposes that NySMAC develops a NySMAC strategy, for instance along the lines described in the draft developed by the task force, and with the following key elements: i) NySMAC as an advisory body, ii) co-ordination in Ny-Ålesund, iii) co-operation among members and researchers, iv) open access to results and data, v) safety, vi) environment, vii) promote Ny-Ålesund.

Comments by NySMAC to the ToR

- CNR: Voting for chair does not necessarily need consensus.
- UiT: Should one of the purposes be to develop the strategy plan. Could be an added purpose point.
- CNR: Purpose item nr 4, 7, 8 are quite similar.
- CNR will have internal meeting tomorrow and will provide additional comments after that.
- CAA would also like to provide more comments on ToR.
- AWI: NPI is part of NySMAC and at the same time one of NySMAC purpose is to give advice to NPI. NySMAC is also asked to give advice to NPI, should it also be stated that NPI should reach out to NySMAC for advice.
- NPI: The research strategy clearly points to that NPI should consult NySMAC. NPI is tasked with implementing the strategy, and NPI would not do their job if they did not involve NySMAC.

NySMAC conclusion:

NySMAC sets a deadline for comments to ToR to 15. Nov. 2020. Comments should be posted on NySMAC PID. The task force will consider the suggestions carefully and present a revised version of the ToR on NySMAC PID. The institutions are then given time (~2 weeks) to react. If no additional feedback is provided, the ToR document is final.

Comments by NySMAC to the strategy document and Charter

- NPI: Some members struggle with the word Charter, as there are several definitions out there. Much of the content in the Charter is now implemented and available elsewhere.

- BAS: Nick Cox, who set up the first charter gives his definition: The Charter tells what NySMAC has agreed upon in the past. It should be a current document, which are easy at hand whenever the overview is needed. Before the Charter, NySMAC had no overview on what we have agreed upon in the past.
- The Charter document looks to the past, while a strategy plan will look ahead. Where should NySMAC spend their resources?
- UiT: Suggestions for themes to add to the strategy document: i) science – major items we would like to address, ii) innovation, iii) partnerships: where should be build stronger bridges.
- SU: Suggestion to structure the strategy document in two parts. One, more strategic with a plan/vision for 5 years. Second one more of a living section similar to a "charter" where content will change based on what is agreed within NySMAC.

NySMAC conclusion:

- The task force group is still in action and will continue its work after the input given. They will continue to inform the rest of NySMAC through the PID forum when progress is made.
- Nick Cox (BAS) and Rolf Gradinger (UiT) also joins the task force.

**Item 5. Ny-Ålesund GIS system (Christina A. Pedersen and Vera Sklet, NPI)**

Christina updated about the new features of the GIS system. The Kings Bay area-plan is added as a background layer and can be added to the map view.

Vera gave a demo on how to use the search and filtering functions.

Comments by NySMAC:

- Members congratulate NPI with having the system in place.
- The manual should be easier to find on the webpage.
- CNR: Found some errors in the positioning of some of their objects, and they will update this with correct position.
- Kings Bay still hopes to get a marking system for installations in the field in place. Kings Bay has a differential GPS available which provides very accurate positions, and which can be borrowed by scientists.

NySMAC conclusion:

- All NySMAC members are encouraged to add more objects (instruments, installations, field sites) including the metadata, as well as information about historical instruments/field sites.

Note added by the Secretariat: The manual is updated according to the comments, and is available under Infrastructure/Tools on the new webpage: <https://nyalesundresearch.no/infrastructures/tools/>

**Item 6. Report from the Radio Silence Working Group (RSWG) Piotr Kupiszewski, NMA**

Update on new developments by Piotr

- In autumn 2021 NKOM plans to install and start operating a permanent Radio Frequency Interference (RFI) monitoring system in Ny-Ålesund. This will come in addition to the monitoring with the directional antenna which they have done in the past and which is planned for every second year.
- To raise awareness about radio frequency and use of it in Ny-Ålesund, NKOM in collaboration with NMA will also set up a Wifi/Bluetooth detector at the Kings Bay Service Building. This will allow visitors to check that all Wifi and Bluetooth devices they bring to Ny-Ålesund are turned off or set to flight-mode. The detector will not save data – just give an instant signal. Currently they look for a student that can install such a system. This has already been discussed in the RSWG, and the representatives there agree that such a detector would be good for raising awareness in Ny-Ålesund.

Note added by the Secretariat: NKOM report on frequency measurements in Svalbard to the Governor of Svalbard from fall 2019 was posted on NySMAC PID February 2020 under the Topic General/NKOM frequency measurements in Ny-Ålesund fall 2019.

## Item 7. Updates from the four Ny-Ålesund flagship programmes

### *Update from the Atmosphere Flagship by Radovan Krejci, SU*

- The previous Atmosphere flagship SSG project for 2018-2020 ended in June 2020 and has been reported on.
- New SSG project for 2020-21 with funding to keep the flagship activity. Not focus on the working groups, but on 8 themes.
- No flagship activities for 2020 due to Corona but will look into how the flagship can establish online meeting places for the prioritized themes in 2021.
- Flagship conference in The Republic of Korea is still planned as a physical meeting for Sept 2021. This will be combined with KOPRI Arctic symposium.
- SIOS funding for summer school for analysis of long-term data will have to be moved to summer 2022.
- Want to establish Gruevbadet Scientific Consortium to make the facility available and open for all. Connected to the snow super site and Zeppelin Observatory.
- Work on integration of data between Ny-Ålesund and MOSAIC
- Collaboration with SIOS and contribution to SIOS-core data
- More than 40 peer-reviewed scientific publications with Ny-Ålesund atmosphere data as main component.

### *Update by the Terrestrial Flagship by Angela Augusti, CNR*

- Activities during spring/summer in Ny-Ålesund
  - Few scientists had the possibility to come to Ny-Ålesund in spring and summer
  - The plan to organise a terrestrial seminar/poster session in Ny-Ålesund was hence not possible.
- With the funding from SSG, a review paper on terrestrial and fresh water research in Ny-Ålesund is very close to submission to Polar Research.
- Discussion about a new project for next SSG call in 2021. Will consider the scientific gaps that came up in the review paper discussion
- Contributed to the joint flagship seminar on nutrient cycles

### *Update by the Kongsfjorden System Flagship by Clara Hoppe, AWI*

- The flagship has defined the work packages (WP), but the WPs haven't really started working. Some are strong historic groups, which need to open up more – some haven't really gained momentum yet. Too early to evaluate how they function.
- The Covid-situation has demonstrated that it is possible to have useful online meetings, and this possibility will be explored further by having smaller WP meetings online.
- SSG current grant is ongoing, and the flagship will try to get it prolonged out 2021.
- Spring meeting, planned for May 2020 in Tromsø, was moved to online meeting in October 2020.
- The flagship got a new chair: Clara Hoppe from AWI and will get a new co-chair: Allison Baily from NPI from January 2021.
- High priority from the flagship to have the Old Pier functioning as a marine infrastructure again
- Will attend the SIOS marine infrastructure and core data meeting
- Priority on data and –data sharing: how to harmonize use and sharing of data focusing on mooring and profiles.
- EU project FACE-IT with lead Kai Bischof, UB. The flagship is strongly involved and excited about the project. Kongsfjorden is one of the key locations in the project.
- Important with synergies between the flagships. Joined the joint flagship work on nutrient cycles

### *Update from the Glaciology Flagship by Jack Kohler, NPI*

Jack was not present. NySMAC asks that the update from the flagship is made available on the NySMAC PID Forum.

Follow up: NySMAC members and hosts in Ny-Ålesund should encourage all visiting scientists to connect with the flagships

### **Item 8 Infrastructure gaps and future developments (Geir Gotaas, NPI)**

Appendix: document on the infrastructure development outlines the proposed timeline and process

Geir summarized the main points in the document:

- The research strategy points to the flagship programmes as arenas for discussion of research priorities and research infrastructure development.
- The question of research infrastructure development was brought up most recently with the decision by Kings Bay to close access to the Old Pier for safety reasons.
- The Kongsfjorden flagship prepared a memo pointing to the importance of the Old Pier as a shared marine infrastructure.
- NPI and KB would like to initiate the process with the aim of identifying and prioritising research infrastructure needs based on the present and planned research and monitoring activities.
- Two-step process where first all flagships should prepare a list with priorities, then NySMAC will have to make the overall priority among all disciplines and all institutions.
- We would like the flagships to have these discussions until next meeting, and at the next meeting we would like to have a combined list of priorities. The NySMAC members will then be asked to align the combined list with their institutional priorities.
- The end product will be a strategic document on infrastructure development. Based on this list, the infrastructure in Ny-Ålesund will be developed (whenever funding and resources allows) according to those priorities.

Comments by NySMAC:

- This was discussed in length in the Kongsfjorden flagship. They are more concerned about the status of the current infrastructure (the Old Pier, the Marinelab rooms, winch on Teisten) than the development of new infrastructure.
- The only discussion within the Terrestrial Flagship so far was about the Terrestrial lab. The lab rooms are ready, but the furniture is not in place. The next step will be to identify what kind of basic equipment the lab needs and how to get funds for this.
- Kings Bay informs that they have a new crane on Teisten. They also agree it is important to give priority to ensuring that the infrastructure they already have is working properly.
- CNR raises the point that there are infrastructures available to researchers in Ny-Ålesund not managed by Kings Bay. e.g. the calibration lab in Vaskeri lab. Kings Bay owns the building and rents it to CNR, but CNR offers the calibration service.
- AWI points to that the Old Pier was used by both marine, oceanography, and atmosphere. Need to act quickly to have a replacement for the Old Pier in order to secure the integrity of long time series.
- Kings Bay believes the pier will fall down this winter. Repairing the Old Pier will cost more than building a new structure, so getting a new marine infrastructure is the most sensible option. The big concern from Kings Bay now is lack of funding.
- The flagships are asked in the process to give input by March 2021. For many of them, the Old Pier is a priority. If the Old Pier is on the top of the list for all, this is where to focus. How can we speed up the process even more if this is the case?
- Realistically there is probably no funding available to solve this now, and it may be difficult to find a short term solution.
- AWI: Framing the Old Pier as a new infrastructure is not accurate. It is rather a maintenance question, and it should not be discussed together with new investment.
- Geir Gotaas recognises that the wording in the documents was perhaps not clear enough, and stresses that maintenance is just as important as new developments.
- NySMAC encourages Kings Bay to initiate planning for a replacement for the Old Pier. Kings Bay notes the clearly expressed wish for a replacement for the Old Pier and will initiate planning based on specific and concrete input from the flagships.

NySMAC conclusion and follow up:

- Radovan Krejci, the chair of the Atmosphere Flagship, will take initiative to establish the Gruvebadet Consortium and make a draft for a strategy plan for that.
- The Kongsfjorden flagship is asked to update the note about the Old Pier/marine infrastructure to include as many details as possible, and to include the views from the other three flagships.
- NySMAC asks KB (and NPI) to start with the planning for an infrastructure which replaces the functions of the Old Pier. How can this be done, what are the costs, what are alternative sources for the costs?

**Item 9. Ny-Ålesund Research Station – local updates (Helge T. Markussen and Vera Sklet, NPI)**

- Very special season this year due to travel restrictions. Very few visits to the station
- Light pollution has been addressed with Kings Bay. There is a need to develop a light concept to reduce light pollution. Some easy to do measures have been implemented.
- Working with Kings Bay to update procedures for snow removal.
- Review of the use of NySMAC PID. Remember to update and close posts in PID.
- Feedback form: status and follow up. Encourage all to use the feedback form.
- Corona travel restrictions will most likely last also next year, at least next spring and summer. How to mitigate consequences for research activities? There is permanent personnel available in Ny-Ålesund that can help with routine activities (focus on upholding long term monitoring activities). Contact Vera at [research.nya@npolar.no](mailto:research.nya@npolar.no) if you need any support.
- Melting of local glaciers with potential consequences for safe travel and research activities this winter.

**Item 10. Info from Kings Bay AS (Lars Ole Saugnes, Morten Johansen, Svein Harald Sønderland, KB)**

- Engineer hired for Kings Bay labs, start from 14. December.
- Kings Bay has the new radio system in operation. They encourage institutions to buy a radio in the same system. Visiting scientists can rent radios.
- The repair at Himadri is finished.
- Hope to furnish Veksthuset lab before next summer field season when travel restrictions most likely are eased.
- All Kings Bay microscopes have been serviced.
- New crane and new plankton net onboard Teisten.

**Item 11. New webpages for Ny-Ålesund Research Station (Geir Gotaas, NPI)**

An early version of the new web site for Ny-Ålesund research station was distributed. Geir showed the main content on the webpage: researchers guide, the NySMAC content, infrastructure; functionality with news and events (both with tags); the overall menu. The researchers guide has four parts, and at the bottom of the page it has several shortcuts to important themes. The NySMAC part has its unique identity.

Comments by NySMAC:

- The Charter vs Researchers Guide. The Charter is a guide to NySMAC with inter-research rules and regulations, while the researchers guide is a guide to researchers. One example is the theme safety where the text in the researchers' guide is very different from that in the Charter.
- The flagship webpages are also NySMAC product.
- Important to find information about all actors and institutions.
- How to keep the webpage info updated?

Note added by the Secretariat: The webpage is launched under: <https://nyalesundresearch.no/>. There is a new page under About describing all key institutions in Ny-Ålesund.

**Item 12. Report from SIOS (Inger Jennings, SIOS)**

- SIOS data management system
  - ~1600 datasets.

- Developing different tools: metadata, dataset validation, etc.
- Working with machine interfaces: Hope to have a Ny-Ålesund collection ready within this year. What types of searches are useful?
- SIOS core data
  - First list is identified.
  - Mapping is underway: which datasets exists for the identified core parameters and where can they be found.
  - Core data workshop 5-6 Nov 2020.
- ENVRI-FAIR: improving FAIRness of data. UNIS is a partner.
- SESS report online launch during Polar Night Week (PNW). The report is progressing well: 11 chapters, 111 authors. The report for 2021 will only contain updates to previous chapters. Next opportunity for new chapter will be for the 2022 report.
- Access program: 11 of 14 projects for 2020 postponed due to Covid.
- Observation facilities: most INFRA-NOR instruments are included, will include relevant data from the Ny-Ålesund GIS database.
- Announcement opportunity: Dornier flights on Svalbard: New call December 2020. Image acquisition period April-Sept 2021. SIOS will share flight track for already collected data with the research community.
- SIOS special issue on earth observation, remote sensing and geoinformation. Request papers from the research community to this special issue.
- SIOS secondments call open. Provides office, accommodation, food and travel. SIOS still accepts applications.
- SIOS applications to RCN Infrastructure call. They plan two to the Nov 18 deadline:
  - Infra-ESS: Norwegian SIOS partners are developing an integrated SIOS proposal for new and upgraded research infrastructure.
  - SIOS-KC: operational phase 2.
- PNW 11-15 Jan. 2021 online.
- Marine infrastructure workshop 19 Nov 2020
- Situation report Covid-19:
  - SIOS funding in 2020 was transferred to 2021
  - Workshops and training courses moved online
  - SIOS webinar series –an anchor point in a drifting world! [https://sios-svalbard.org/News\\_20200324b](https://sios-svalbard.org/News_20200324b)
  - Patch up gaps in field data with remote sensing [https://sios-svalbard.org/News\\_20200324a](https://sios-svalbard.org/News_20200324a)
  - Request help using the Logistics Sharing Notice Board! <https://sios-svalbard.org/logistic-notice-board>
- e-learning course. Code of conduct for Svalbard research (collaboration with SSF, The Governor of Svalbard, and SIOS partners). Will be compulsory to attend when established for SIOS funded projects.

#### NySMAC comments

- Only three NySMAC members which are not SIOS members. SIOS wished them welcome at any time.
- Can information about flight tracks for Dornier data be shared as GIS information, and be included on the Svalbardkartet?

#### Item 13. Report from SSF (Karoline Bælum, SSF)

- Numbers from RiS clearly shows that the research activity (field work locations, projects with fieldwork and new projects) went down in 2020.
- SSF put out one time call for funding for field work in Svalbard. They received 20 applications and could fully or partially fund 17 of these.
- Arctic Field Grant: 1/3 of the 2020 projects cancelled or moved to next year. Remaining 2/3 completed. New call with deadline 18 Nov 2020 for field work in 2021. Those that applied for AFG grant this year also have the possibility to ask for additional funds to attend the Svalbard Science Conference (SSC) in Nov 2021.

- Svalbard Strategic Grant (SSG) – seed money for cooperation projects and workshops. 3.5 mill NOK available. Call deadline 17 March 2021. Call 6 weeks prior to deadline.
- SSF will visit the research stations, will come to Ny-Ålesund with Ciber (RiS developers) in Nov 2020, and again spring 2021.
- Planning of the next SSC – 2-3 Nov 2021 at Scandic Fornebu. The first meeting in the scientific committee was held in October. Harald Steen, NPI, is leading the committee. Overall conference theme: Added value through collaboration. SSF request input for keynote talks.
- SSF will also announce support for workshops back-to-back with SSC2021.
- Managements plans: New environmental regulations for all of Svalbard will go on hearing before Christmas 2020.

**Item 14. Report from RCN (Kirsten B. Mathisen, RCN)**

- Evaluation of Norwegian polar research and follow up – advisory committee
  - Evaluation in 2017: High quality, but can still be better, funding is fragmented, need for improved cooperation and coordination.
  - Follow up advisory committee, led by NILU director. Give advice to the RCN and the ministries. Suggests measures at several levels. Open Norwegian hearing closed 30 Oct 2020. Report to be submitted to RCN Dec 2020
- National calls with relevance to polar research:
  - Requires Norwegian project leaders but can include foreign project partners.
  - Climate and polar research call - deadline 10 Jan 2021
  - Land based food, the environment and bioresources call – deadline 17 Feb 2021
  - Under discussion: Bipolar Norwegian-Chinese call. If this will be realized it will include polar research.

**Item 15. The development of the new RiS portal (Karoline Bælum, SSF)**

- Project with the new RiS portal started summer 2020, and the new RiS will be released some time in spring 2021.
- Have had two online workshops, the second on the booking module where also NySMAC was invited. SSF and Ciber will visit Ny-Ålesund end of Nov 2020.
- Ongoing work: Programming: maps, search page; User stories: project registration, application and reporting to the Governor, Booking.

Comments by NySMAC:

- Important that the links to Kings Bays booking systems are good.
- Would like a system that has two-ways communication with RiS. For example such that the answer from the Governor is also available through RiS.

**Item 16. Annual Report Ny-Ålesund Research Station (Geir Gotaas, NPI)**

Draft will be posted on NySMAC PID forum. NPI will use the forum to also receive input and feedback from NySMAC partners to the draft.

**Item 17. Management of chemicals and gases - Common system for Ny-Ålesund research station (Helge T. Markusen, NPI and more)**

Agree on new and common procedures for ordering of, use of, safety and disposal of chemicals:

- Common procedures for booking and ordering through RiS. Need inventory about what types can be ordered.
- Safety information for handling: institutions should evaluate their routines and procedures for storing and using chemicals and gases in Ny-Ålesund.
- Protocols for research activities with chemicals and/or gases must include risk and hazards.



- Clean up and disposal: institutions and Kings Bay should review their stock of chemicals. Chemicals not in use should be disposed through Kings Bay.
- Recommendations: continue to work within the Ny-Ålesund community in order to develop common procedures for everyone. Draft paper has been developed by the local working group. Promote local cooperation and exchange of best practice.

#### Comment by NySMAC

- NILU: Good with focus on this. First slide also mentioned gases. In principle, gases could be considered the same way. If institutions want to order gases through Kings Bay this can be done. Exceptions are calibration gases and similar.
- UG: This work should in addition to include gases, also include stable isotopes.
- UiT: Important work. Serious issue if you lose control over use and storage of chemicals, and there is a fire or other emergency situation. Good documentation is essential. Kings Bay also needs documentation on use for example in common labs. Some chemicals are so strong that they will limit other use until a quarantine time period. UiT has extensive experience with risk assessment related to all chemical work and will be happy to share this knowledge.
- AWI described the incident which initiated this work and their extra focus about handling and using chemicals in Ny-Ålesund following it. AWI recommends all their projects from now on to order chemicals from Kings Bay through RiS.
- UG informs that there are mercury thermometers in buildings in Ny-Ålesund. These should be removed/delivered to Kings Bay.
- UG: A protocol for using chemicals in the field should be developed. Information about use in the field can be included in the GiS system.
- KB: This item is high on Kings Bay's agenda. Kings Bay has focused on cleaning up in the past.
  - All disposals can be done through Kings Bay. But it has a cost.
  - Kings Bay has a user agreement for the Marine lab that all users must sign. This agreement also includes information about use of chemicals.
  - The new permanent position in the Marine lab will put Kings Bay in a position where they have resources to follow up this work in a better way than they had in the past.
  - Kings Bay is using a registration program for chemicals (EcoOnline) and advises others to consider using it too.
- AWI/Kongsfjorden flagship: It is difficult for researchers to sign the Kings Bay user agreement when they come to Ny-Ålesund. The agreement needs to be distributed to users beforehand, and it should also be included on the new webpage.

#### NySMAC conclusion and follow up:

- NySMAC asks the local working group to continue the work also in dialog with Kings Bay
- NySMAC asks for a dedicated page on this theme on the new webpage.

#### **Item 18. Ny-Ålesund Research Strategy (2019) (Maarten Loonen, UG)**

The strategy sets some limits on the scope of research, education and outreach in Ny-Ålesund. Should NySMAC register and evaluate these?

No comments by NySMAC.

#### **Item 19. Information from NySMAC member institutions**

NySMAC member reports can be found online.

Follow-up points from the discussions are listed below:

- UiT's new ionosonde sounding and test period has been communicated on NySMAC PID. UiT's NySMAC representative will set a deadline for comments. If no no new comments, it is ok to start the continuous measurements.
- NILU request that NPI and KB look into the air freight situation in Longyearbyen. If luggage or cargo is left and not included on a flight, it is not necessarily prioritized on the next plane. The cargo

system/prioritizing system is not clear, and better procedures and better info on webpage is required. This is an ongoing problem: Kings Bay should sit down with Lufttransport and discuss cargo handling in and out of Longyearbyen airport. Ground handling in Longyearbyen also seems to be a problem. International tracking systems say that your parcel has arrived at its destination when it has arrived in Longyearbyen. If the packages could be tracked all the way to Ny-Ålesund this would be of enormous help.

- There is a new government regulation for boat driving in Svalbard. NPI is looking into this. When NPI has an answer from the authorities on how this should be implemented and understood we will inform the rest of NySMAC about this.

#### **Item 20. Environmental impact from rocket campaign (JC Gallet, et al.)**

JG Gallet presented the results and task force group reflection based on the analysis on behalf of the group consisting of NPI, CNR, NILU, NTNU, SU.

- Background info on sampling strategy.
  - Six snow sampling sites
  - Met data: little snow so difficult to access sites, no precipitation during launch so snow at surface should in principle represent deposition, but at same time lots of wind which led to redistribution and snow which blew away.
- Preliminary conclusion ground samples
  - After the first launch we could see some elevated values of trace elements (Al and Fe) in the snow sample from the site close to the launching ramp (site 3), while after the second launch a peak in only Fe occurred at site 2. We were not able to visit all sites at all times due to little snow.
  - Blowing snow likely affected the measured deposition load.
  - Wind-direction (both at ground and at 472 m/Zeppelin Observatory) were towards the fjord (pushing plume from the monitoring areas)
  - Since we do not have information regarding the actual exhaust content, it is difficult to set up a good sampling and analysis regime. Having a tracer would help us to better measure the real impact from the exhaust/fuel composition.
- Preliminary conclusions glacier samples:
  - Bulk snow samples were also collected at some of the near-by glaciers. From these samples one can say something about mass increase for some trace elements compared to the annual load.
  - Can see increase in both Al and Fe for Austre Brøggerbreen and Midte Lovenbreen.
  - The total contributions in terms of mass percentage from the rocket launch are 12-27 % for Fe and 14-25 % for Al compared to the annual load on the two glaciers (corresponding values from the rocket launch in 2019 were 6-11% for Fe and 15-20% for Al).
- Sampling of overbank sediments in booster impact areas
  - Debris (pieces of the booster) were found on the ground. Samples were taken around the debris. Indications of elevated values of Cadmium and PCD. Relative high values compared to background samples.
  - Over time these can affect the background level of soil

Suggested recommendations regarding rocket launches from Ny-Ålesund (NPI, NILU, NTNU, SU, UG)

1. To us, Ny-Ålesund is not an ideal site for rocket launches. The Ny-Ålesund research community works intensively to decrease negative environmental impact of Ny-Ålesund activities to keep it as a reference site to study long term changes in the Arctic environment. Activities like rocket launches have unfortunately undoubtedly a potential to jeopardize this effort
2. For planned, but not yet approved future activities involving rocket launches we propose
  - a. comprehensive environmental assessment plan including complete analysis of rocket exhaust (certified by independent laboratory)
  - b. early discussion on special conditions and needs to avoid unnecessary risk on ongoing activities
3. To be able to conduct targeted analysis to assess possible contamination of sampling sites we need complete chemical composition of rocket fuel, if complete analysis of rocket exhaust is not available

4. We propose to resume the discussion under which conditions rocket launches can take place in Ny-Ålesund. All relevant parties in Ny-Ålesund should be given the opportunity to provide input to this discussion.
5. A detailed description of the conditions under which rocket launches can take place should be integral part of any future plans for additional rocket launches beyond those already approved
6. Monitoring possible impact of rocket launches on environment and research activities of other groups active at Ny-Ålesund requires significant allocation of resources and manpower. For future rocket campaigns these costs should be covered entirely by the operator or project owner.

#### Comments by NySMAC

- AS: Andøya Space (AS) acknowledge the importance of this work and the impact of their activity. AS also recognises the need to visit during summer to clean up better.
- AS: AS operates two launch pads in Ny-Ålesund. They plan for further investments in Ny-Ålesund, so it is extremely important for them to have predictability and work together with the NySMAC community. They will work with NySMAC about the EIA when they launch rockets from Ny-Ålesund.
- AS: Timing: The science decides the time of year the operation should be done. For most this is in wintertime. Except in 2022 when the launch should take place after 1 April.
- CNR: All activities have impact. Crucial to work together to find a good compromise: timing, snow cover, etc.
- NPI (Gallet): The results from this year were similar to last year – they show increased level of some trace elements on the glaciers, but the results for the snow sampling were inconclusive. To have exact results one need detailed isotope analysis, and detailed information about the chemical components (trace elements) in the exhaust- preferably a stable component that we can track. The isotope analysis requires lots of snow and support on workload and costs.
- AS regarding emitting chemicals: For some of the rocket models the emitting components are public information, but for some the info cannot be shared.
- UiT: Are the levels that have been measured so large they can influence the soil microbes? We do not know if this can bioaccumulate over time. What is NySMAC's role in trying to resolve this situation? Would it make sense to put out artificial sampling platforms to collect after launch to check for deposition?
- NPI (Gallet): For snow we have the background values and we have an idea about the effect and can correct the long-term data for possible trends. But there are other small components that we do not know anything about, e.g. PCB, and this can in even small amounts have a large impact over time.
- CNR: is it sufficient to know the elements in the fuel and not the percentage? The future rocket project should include sufficient resources to support a more comprehensive assessment of the impact. Should also evaluate if a reduced launching frequency would reduce the negative impact since the the pollution might dilute.
- SU: The burden should not lie with NySMAC to evaluate the impact. Rather, this should be the responsibility of the institution whose activities adversely impacts projects run by other institutions. When the rocket launch was established it was not clear for everybody that this would be a permanent facility.
- NPI: To launch rockets AS require a permission from The Governor. NySMAC could perhaps communicate our concerns to The Governor, and perhaps suggest that there are set conditions about environmental impact assessment work connected to future launches, and that the responsibilities and costs related to this should lie solely on the project/operator. As a comparison, when NMA built the new observatory at Brandal they had to monitor and evaluate the effect on the birds in the area where they constructed the new road. They hired NINA to do this annual work. Such an approach would set requirements on the project from the beginning and not come in at a later stage when budgets are set.
- AWI: We must not forget about the relevance of rocket launches for the upper atmosphere scientists. Ny-Ålesund is the best place to do this research, and that needs to be acknowledged too. And we must find a good way to work together.

#### NySMAC Conclusion:

- NySMAC cannot be responsible for doing the environmental impact assessment of the rocket launch. A more comprehensive solution must be set up for the future.
- NySMAC agrees we need to do our utmost to minimize the effect of our activities. We are f.ex. far from knowing the effect of a rocket launch on the biota – and we need more research on this.
- A comprehensive project addressing this issue requires detailed tracer information.
- AS would welcome a detailed description from NySMAC of what information is requested. AS representative would also like to have a point of contact.
- NPI will convey NySMAC concerns to the Governor or Svalbard
- NySMAC agree to have a recommendation as outlined in the presentation. NySMAC will use the PID forum to adjust the wording
- NySMAC chair will continue the discussion with AS representative. Which of AS future activities have the Governor's approval and which are just long-term plans from NASA/AS?

### Item 21. Election of vice chair (Maarten Loonen, UG)

Honglei Li (CAA) ends her first term next meeting.

NySMAC conclusion: \_\_\_\_\_

- Honglei Li (CAA) is re-elected for a second term.

### Item 22. Upcoming meetings (Maarten Loonen, UG)

- ASSW Lisbon, 20-26 March 2021 (Business part is 20-22 March 2021).
  - Tentative dates for next meeting online is 22-24 March 2021 morning sessions
- NySMAC fall meeting, Svalbard Science Conference, Oslo, November 2021
  - RCN would like to host the NySMAC meeting in Oslo in conjunction with the SSC
- ASSW Tromsø, 26 March-1 April 2022
  - NPI will like to invite NySMAC to the 56<sup>th</sup> NySMAC meeting in Tromsø in March 2022.

### Item 23. Any other business

-No issues

### Appendix: Participant list

	Name	Email	Person Role
<b>Member institutions</b>			
University of Groningen (UoG), The Netherlands	Maarten Loonen, chair	m.j.j.e.loonen@rug.nl	Chair and NySMAC representative
Alfred Wegener Institute (AWI), Germany	Roland Neuber	neuber@awi-potsdam.de	NySMAC representative
Alfred Wegener Institute (AWI), Germany	Marion Maturilli	marion.maturilli@awi.de	AWI's new NySMAC representative from 1.1.21
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Alfred Wegener Institute (AWI), Germany	Gregory Tran	gregory.tran@awi.de	Observer (next AWIPEV Base leader)
Alfred Wegener Institute (AWI), Germany	Bettina Haupt	bettina.haupt@awi.de	Observer (acting AWIPEV Base leader)
Alfred Wegener Institute (AWI), Germany	Clara Hoppe	Clara.Hoppe@awi.de	Guest (Chair Kongsfjorden System Flagship programme)

Andøya Space Center (ASC), Norway	Benny Lysfjord	benny@andoyaspace.no	NySMAC representative
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Norwegian Institute for Air Research (NILU), Norway	Kjersti Tørnkvist	kjk@nilu.no	NySMAC representative
Norwegian Institute for Air Research (NILU), Norway	Ove Hermansen	Ove.Hermansen@nilu.no	Observer (NILU researcher and coordinator NILU activities at Zeppelin Observatory)
Norwegian Mapping Authority (NMA), Norway	Piotr Kupiszewski	Piotr.Kupiszewski@kartverket.no	NySMAC representative
Norwegian Mapping Authority (NMA), Norway	Hans Christian Munthe-Kaas		Observer (NMA Director Global Geodesi)
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Norwegian Polar Institute (NPI), Norway	Vera Sklet	vera.sklet@npolar.no	Observer (NPI research coordinator NyÅ)

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The University Centre in Svalbard (UNIS), Norway	-	-	-
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Svalbard Integrated Arctic Earth Observing System (SIOS)	Inger Jennings	logistics@sios-svalbard.org	Observer (SIOS logistical- and access officer)
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ALO	Tonje Helen Karlsen	tonje@aloutenlike.no	Guest (designer ALO)