



CAPARDUS - Capacity-building in Arctic standardization development

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| DISSEMINATION LEVEL | | |
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| PU | Public, fully open | |
| CO | Confidential, restricted under conditions set out in Model Grant Agreement | X |
| CI | Classified, information as referred to in Commission Decision 2001/844/EC | |

EXECUTIVE SUMMARY

The main exploitable results from INTAROS will be

- (1) A comprehensive framework for developing Arctic standards with focus on observing systems and data systems related to natural resource management, safety of operations, tourism, community planning and decision making.
- (2) Outcome of the capacity-building events: dialogue meetings, research schools and workshops in the four case studies in Greenland, Svalbard, Alaska and Yakutia. The case studies involve mapping of standardization development, spanning from tradition/culture to guidelines, practices, conventions, policies and legislation. The case studies include participation from researchers, local community members, commercial operators and governance bodies.
- (3) Requirements and design study for an Arctic Common Practice System prototype to be documented in a Roadmap.
- (4) Synthesis, requirements and recommendations related to development of best practices and Arctic standards within the focus areas of the project, networking and communication between different regions, and basis for sustainable development in the Arctic.

The first version of the report “Review of existing standards and frameworks relevant to the Arctic” was prepared and have been disseminated through online workshops and dialogue meetings during the first 18 month period. The exploitation of the results towards the stakeholder groups will continue in the next period through participation in strategic Arctic events, including scientific-technical conferences and workshops, dissemination via web portal & social media, and policy briefing documents.

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1. Introduction

CAPARDUS is a Coordination and Support Action that will focus on work connected to capacity-building in Arctic standardization in the context of the standardization continuum. The action will include establishment of a framework for standardisation, awareness-raising and communication, policy dialogues, learning exercises and studies, activities of strategic planning, networking and coordination between programmes in the participating countries.

Since the project has been delayed by the COVID-19 pandemic, the communication activities have been limited to give presentation of the project at conferences, workshops and dialogue meetings. The research schools and workshops planned to be held in Greenland, Svalbard and Alaska could not be organized due to travel and meeting restrictions. Instead the partners have been very active to organize and participate in online meetings with organisations, projects and various stakeholders who are working with the same topics as CAPARDUS and to publish articles in referee journals.

The main dissemination of project results will be done through publication of scientific articles and presentations at conferences, workshops, meetings with stakeholders. The results will also be presented at the project website and other material in electronic and hardcopy format. All the partners will be involved in the dissemination activities, including their own students, staff and employees. The target groups for the dissemination will be the other EU Polar Cluster projects, the Arctic council's working groups; regional and European organisations working in the Arctic, policy makers; and representatives for Indigenous people in the circumpolar region.

2. Conducted and planned activities

2.1 Definition of exploitable results

The main results from the project will consist of

- 1) A comprehensive framework for developing Arctic standards with focus on observing systems and data systems related to natural resource management, safety of operations, tourism, community planning and decision making. The framework is built on the concept of standardization continuum, which spans from tradition/culture to guidelines, practices, conventions, policies and legislation.
- 2) Reports from case studies providing information about guidelines, practices and standards in different Arctic communities. The case studies involve dialogue meetings, seminars,

workshops, interviews and surveys among local community members and scientist in four different regions (Greenland, Svalbard, Alaska and Svalbard). The case studies will document how scientific results, including community-based monitoring and citizen science play a role in each of the local communities. The outcome of the case studies will be used to establish guidelines for development of practices and standards related to the topics of the project.

- 3) The requirements for an Arctic Practice System (APS) will be explored among the local communities as well as for other actors in the Arctic. The APS is envisaged to be a repository where documents, data and other digital objects (pictures, video, audio recordings) can be stored and made accessible among and between local communities. The APS will build on technologies developed under the Ocean Best Practice System, where text mining and semantic tagging are important elements. The result will be a design document for an APS which is beneficial for different user groups and will follow the CARE principles for Indigenous data governance. The APS will be a method for networking and communication between different regions in the Arctic as method to document practices and standards.
- 4) The final outcome of the project will be a synthesis document with requirements and recommendations related to development of best practices and standards within the focus areas of the project. The synthesis will discuss how an APS can be a useful tool for networking and communication between different communities and regions within and outside the Arctic. Furthermore, the role of Community-Based monitoring will be assessed as a method to advance sustainable development in the Arctic.

2.2 Dissemination activities

The dissemination work aims to present project results to a range of stakeholders living in the Arctic and other actors with interest or obligations related to science, services, businesses in the Arctic. The dissemination shall also contribute to the development of relevant national, European, and Pan-Arctic policies, which implies that results shall be disseminated to Arctic Council and its working groups, permanent members and observers.

The following activities will be performed:

(A) Web portal & social media will be used for 1) preparing tailored information for different stakeholder groups (policy makers, business stakeholders; etc.), 2) providing information on the development of the comprehensive framework and the Arctic Best Practice system; 3) disseminate results of case studies for other stakeholders than those who are directly involved in the case studies; 4) announce and promote project events and other news.

(B) Science-Policy Briefing Papers and contribution to Polar Cluster policy events

The key results from WP1-WP7 will be compiled and presented to policy-makers on international and national level. On EU level the results will be disseminated in collaboration with EU-Polarnet and the other projects under the Polar Cluster. Strategic events for science-policy briefings are the Arctic Science Summit Week, the Arctic Circle and Arctic Frontier sessions (Table 2.1). Dissemination will also target the Arctic Council secretariat, the working groups and Indigenous peoples' organisations. Dissemination material for use towards decision makers and other stakeholders will be prepared in WP8.

(C) Scientific-technical conferences and workshops.

The project plans to be present at a number of events, see Table 2.1

The framework for Arctic standards, capacity-building in standardization development and requirements for an Arctic Practice System will be developed in collaboration with other projects,

programmes and organisations described below. These are the main target groups for the dissemination activities:

- European bodies and programmes, such as Copernicus services, DGs in the European Commission and European Environment Agency. The dissemination will be done in collaboration with the EU Polar Cluster where several other EU-funded Arctic projects have outreach activities.
- National policy bodies and agencies, municipalities, regulatory bodies, emergency services, environmental protection, Indigenous organisations will be addressed through policy briefs and participation in conferences such as Arctic Circle and Arctic Frontier
- Broader scientific international community: natural science, engineering, social science. Dissemination will be done through scientific publications, popular science articles and news information at the project web-site and presentations at conferences.
- The Arctic Data Committee, which is established by the International Arctic Science Committee (IASC) and the Sustaining Arctic Observing Networks program (SAON) The purpose of ADC is to promote and facilitate international collaboration towards the goal of free, ethically open, sustained and timely access to Arctic data through useful, usable, and interoperable systems.
- Indigenous communities and other local communities in Greenland, Alaska, Svalbard and Russia
- Economic actors in the Arctic include maritime industry, oil and gas companies, shipping, tourism, fisheries, mining, construction, transport and logistics providers, environment technology, risk assessment, and consultancy companies. A selection of these actors will be informed about the project in the capacity-building during the research schools and workshops as well as in dialogue meetings.
- The Arctic Economic Council (AEC) is an independent organization that facilitates Arctic business-to-business activities and responsible economic development through the sharing of best practices, technological solutions, standards, and other information. The AEC has established working groups working with Maritime Transportation, Responsible Resource Development, Connectivity, Investments & Infrastructure, and Energy. The CAPARDUS partners will inform the secretariat of AEC about the project and plan to attend meetings organized by the AEC working groups (<https://arcticeconomiccouncil.com/about-us/>)

The dissemination will share knowledge about the Arctic standards with academia and with the public at large will include scientists, funding bodies, policy makers, technology experts, and stakeholders. Table 2.1 below shows the main workshops and conferences where CAPARDUS results were presented in the first 18-month period and planned presentation in the next period. In addition to these events, there will be dialogue meetings and direct contact with stakeholders, as described in WP2 - WP5. The planned workshops and research schools in the first 18 month period was cancelled due to COVID-19 and are therefore postponed to 2022 and 2023.

Table 2.1. Presentation of CAPARDUS at conferences and workshops.

| Time | Name of event | Stakeholder involvements |
|------------------------|--|---|
| 18-19 Nov 2019 | Polar Data Forum in Helsinki | Oral presentation of CAPARDUS in plenary session |
| 31 Mar – 02 April 2020 | Arctic Observing Summit – online event | Three presentations of CAPARDUS topics were given by Olivia Lee (UAF/IARC); M. K. Poulsen and F. Danielsen (NORDECO) |
| 4 – 9 May 2020 | EGU - online event | Three presentations on CAPARDUS topics: by Shuhei Takahashi, Hokkaido University; Hajo Eicken, UAF; and F. Danielsen, NORDECO |

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| 8 Sept. 2020 | European Citizen Science Conference in Italy | E-poster presentation by M. K. Poulsen, NORDECO |
| 28 Oct. 2020 | European Polar Science Week | F. Danielsen organised a session with title 'Grand Challenges in Science' with four presentations and a plenum discussion, 90 min., in collaboration with P. Pulsifer. |
| 18 Nov. 2020 | Nordregio Forum | L. Iversen presented at session "Effective local measures for inclusive towns" (https://nordregioevents.org/programme/) |
| February 2021 | International workshop | NORDECO organized an international workshop on good practice for international environmental management bodies on natural resource management decision-making on the basis of resource users' knowledge and observations. The focus was on the North Atlantic Marine Mammal Commission (NAMMCO) and the Convention on International Trade in Endangered Species (CITES), Co-funded by Nordic Council of Ministers' Arctic Cooperation Programme. |
| 24 March 2021 | Workshop | Joint workshop organized by CAPARDUS and CULTCOAST projects related to cultural heritage research in the Arctic. |
| 25-26 March 2021 | Arctic Science Summit Week | Four sessions and presentations related to CAPARDUS |
| 27-30 April 2021 | EGU | Two presentations at EGU Sessions (ESSI3.3 and ITS2.4) |
| 20 Sept 2021 | Ocean Best Practice Workshop 20-24 Sept | CAPARDUS session "Towards an Arctic Practices System", 90 minutes, |
| 21 October | Meeting with Polar Cluster projects | Coffee chat to present CBM and CS activities in 8 Polar Cluster projects |
| 4 Nov 2021 | Side-meeting at Svalbard Science Conference | CAPARDUS was presented as one of the projects related to the Svalbard Social Science Initiative. |
| 9 Nov 2021 | Book launch event | A side event at the Greenland Science Week to launch the book "Community-Based Monitoring in the Arctic" |
| 12 Nov 2021 | Workshop in Nuuk | A CAPARDUS side event at the Greenland Science Week was organized by University of Copenhagen, NINA and University of Greenland. Title: "The use of future analysis and Bayesian Belief Network models in Greenland" |
| Plans 2022 | | |
| 13-14 January | Project meeting in Bergen | Discuss the progress of the project with plan for extension |
| 27 March | Side meeting at ASSW in Tromsø | A CAPARDUS side meeting will be organized where external partners and organisations are invited. |
| June 2022 | Research school in Svalbard | The CAPARDUS research school which has been postponed is planned to be organized in Longyearbyen in June. |
| August 2022 | Hokkaido University, Arctic Research Centre | Presentation of CAPARDUS at Hokkaido University Arctic Summer School |
| October 2022 | Arctic Circle | Planned CAPARDUS session |

The project is planned to be extended to November 2023. The main events for dissemination in Europe will be Arctic Frontier (January), Arctic Science Summit Week (February), Arctic Circle (October) and Svalbard Science Conference (November).

2.3 Main results for exploitation

A comprehensive framework for Arctic standards

Standards are the common language among stakeholders when dealing with technology and the transition of technology into commercial products and services. Equipment manufacturers, data producers, citizens and governments all benefit from the creation of open standards. As data becomes the world's most valuable resource, it becomes ever more important that the digital ecosystem for data be designed and managed in a way that ensures sufficient public access, transparency, accountability and quality assurance [UN Science Policy Forum, 2018]. This is particularly important also in the Arctic, where the amount of data increases dramatically, and the human activities will be more significant in the coming years. Standards will thus play an important role here as well as in other parts of the world. A comprehensive framework for Arctic standards will be a useful for all stakeholders who are involved in development of “recommended practices”, “guidelines”, “regulations”, etc. in their respective fields.

Documentation of knowledge and know-how from local communities and operators in the Arctic
CAPARDUS will work with local communities and other operators to document knowledge and know-how so this knowledge can be shared between the communities and be maintained in written and searchable form over longer time periods. This will support long term knowledge of local and regional conditions in a community of high turnover in various positions, like in Longyearbyen, Svalbard. The large changes in the Arctic due to climate change are resulting in the need to adapt local knowledge to new conditions: Local communities, including Indigenous knowledge holders, and other actors increasingly depend on easy access to new information and new technology to complement their own knowledge for adapting to the climate change.

Arctic Practice System

The requirements for an Arctic Practice System (APS) will be explored for different local communities and other user groups. Based in these requirements an APS will be co-designed as a method to document local and traditional knowledge in different Arctic communities and make this knowledge available as a digital service to all categories of operators in the Arctic. During the project the concept for a fit for purpose Arctic Practices System will be developed and documented in a roadmap. The exploitation of this roadmap will be done through the dissemination events (Table 2.1) and other Arctic fora.

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Project partners:

| No | Acronym | Participant Legal Name | Country |
|----|-----------------|--|---------|
| 1 | NERSC | STIFTELSEN NANSEN SENTER FOR MILJO OG FJERNMALING | NO |
| 2 | NORDECO | NORDISK FOND FOR MILJØ OG UDVIKLING | DK |
| 3 | Ilisimatusarfik | Ilisimatusarfik, Grønlands Universitet, University of Greenland | GL |
| 4 | AWI | Alfred-Wegener-Institut Helmholtz-Zentrum für Polar- und Meeresforschung | DE |
| 5 | IEEE | IEEE France Section | FR |
| 6 | NINA | STIFTELSEN NORSK INSTITUTT FOR NATURFORSKNING NINA | NO |
| 7 | UCPH | KOBENHAVNS UNIVERSITET | DK |
| 8 | NIERSC | Scientific foundation Nansen International Environmental and Remote Sensing Centre | RU |
| 9 | ARC-HU | Arctic Research Centre, Hokkaido University | JP |