Integrated Arctic Observation System

Research and Innovation Action under EC Horizon2020
Grant Agreement no. 727890

Project coordinator:
Nansen Environmental and Remote Sensing Center, Norway

Deliverable D7.3

Dissemination Plan V1

Start date of project:	01 December 2016	Duration:	60 months
Due date of deliverable:	31 May 2017	Actual submission date:	02 June 2017
Lead beneficiary for preparing the deliverable:		NERSC	
Person-months used to produce deliverable:		0.5 pm	

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Version	DATE	CHANGE RECORDS	LEAD AUTHOR
1.0	17/05/2017	First version	S. S.
2.0	02/06/2017	Second version	S.S, N.D, K.L, H.S, TH

Approval X	Date: 02 June 2017	Sign. 

USED PERSON-MONTHS FOR THIS DELIVERABLE					
No	***Beneficiary***	***PM***	***No***	***Beneficiary***	***PM***
1	NERSC	***0.4***	**24**	Terradue	
2	UiB		**25**	GINR	
3	IMR		**26**	UNEXE	
4	MISU		**27**	NIVA	
5	AWI		**28**	CNRS	
6	IOPAN		**29**	U Helsinki	
7	DTU		**30**	GFZ	
8	AU		**31**	ARMINE	
9	GEUS		**32**	IGPAN	
10	FMI		**33**	U SLASKI	
11	UNIS		**34**	BSC	
12	NORDECO		**35**	DNV GL	
13	SMHI		**36**	RIHMI-WDC	
14	USFD		**37**	NIERSC	
15	NUIM		**38**	WHOI	
16	IFREMER		**39**	SIO	
17	MPG		**40**	UAF	
18	EUROGOOS		**41**	U Laval	
19	EUROCEAN	***0.1***	**42**	ONC	
20	UPM		**43**	NMEFC	
21	UB		**44**	RADI	
22	UHAM		**45**	KOPRI	
23	NORUT		**46**	NIPR	
			47	PRIC	

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

EXECUTIVE SUMMARY

The H2020 programme calls for a Plan for Dissemination and Exploitation of Results (PEDR) to be included in each and every project to facility the transfer of knowledge outputs directly to the market. The Dissemination Plan contributes to this strategy by defining projects, messages and target audiences for the project outcomes.
This document describes the events, workshops, working groups and materials that will be developed with key stakeholder groups and other actors and describes how engagement with different groups during the lifetime of the project will take place. A list of events where INTAROS has been presented in 2016/2017, and plans for further participation is presented in Appendix A. This list will be updated and disseminated on the project website during the project.

The PEDR is a mandatory deliverable in all Research and Innovation Actions projects in H2020. In INTAROS the PEDR is divided in two documents. One part is the Dissemination Plan, which will be followed by the Exploitation Plan due in month 12. The Dissemination Plan presents an overview of activities related to dissemination, exploitation and protection of project results.

Data Management is addressed in a separate document (deliverable D1.2, due in month 6).

The PEDR will be updated as part of the periodic reporting, by month 18, 36 and 60

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1. Introduction

The dissemination plan is implemented through WP 7 with the main objective to disseminate project results to raise awareness of Arctic challenges and to inform and engage key user and stakeholder communities to improve their understanding of the Arctic environmental state and processes. The further aim is to build capacity in using the new products and services originating from the INTAROS project. The dissemination activities will be carried out in all WPs, with a strong involvement towards stakeholders in WP 1, WP 4 and in WP 6.

D7.1 describes the public website http://intaros.eu, and D7.2 presents the graphical identity (logo), brochure, and other promotional material (press releases, posters). This first version of the dissemination plan (D7.3) contains the description and goals of activities, targeted audiences, methods, timing, and expected outcome. The implementation of the dissemination plan will rely on contribution from all participants of the consortium, and in particular the WP leaders and Theme leaders are responsible for providing results to be used in dissemination. A special responsibility is to promote the project among colleagues and students.

This first version of the dissemination plan will be updated at the end of year 3, containing the description and goals of activities, targeted audiences, methods, timing, and expected outcome. In the implementation of the dissemination of the INTAROS relies on contribution from all participant of the consortium, and in particular the WP leaders and Theme leaders are responsible for providing results to be used in dissemination. A special responsibility is to promote the project among colleagues and students.

Formalities related to regulations of dissemination activities in HORIZON 2020 are found in Appendix C, extracted from PEDR guidelines provided by the EU. The PEDR is a mandatory deliverable in all Research and Innovation Actions projects in H2020. In INTAROS the PEDR is divided in two documents. One part is the Dissemination Plan, which will be followed by the Exploitation Plan due in month 12. The Dissemination Plan presents an overview of activities related to dissemination, exploitation and protection of project results. Data Management is addressed in a separate document (D1.2, due in month 6). The PEDR will be updated as part of the periodic reporting, by month 18, 36 and 60. The links between the planning documents on dissemination, data management, exploitation and engagement strategy in the first 18 months of the project are shown in Fig 1.

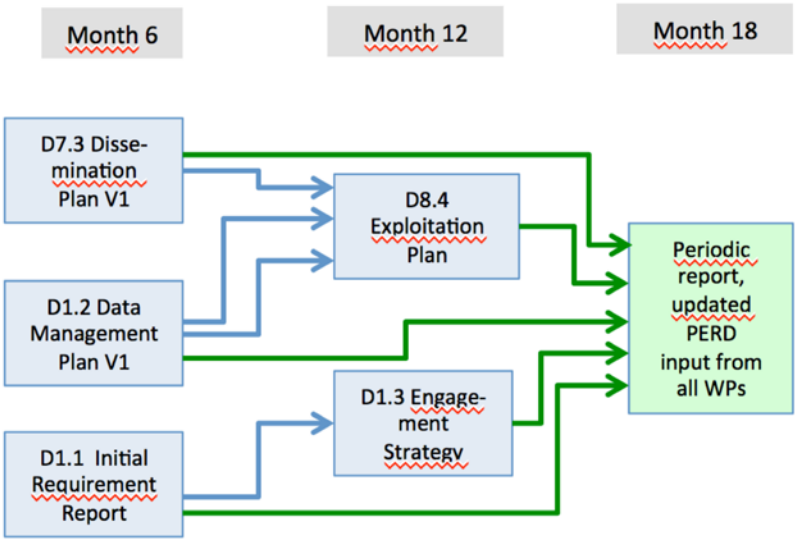

Figure 1. Links between documents in WP1, WP7 and WP8 in the first 18 months

2. Stakeholder involvement in INTAROS

It is very important goal in INTAROS to engage stakeholders in establishing a sustainable Arctic Observation System, which is useful for them. The role of stakeholders is a “red tread” through the whole project. WP 1 will engage stakeholders in defining the high level requirements for the integrated Arctic Observation System, and in the developing the roadmap for a sustainable system. In WP6 selected stakeholders are engaged in demonstrations of applications in targets domains, including local communities. The stakeholders are involved through workshops and meetings, as well as in the advisory panels.

Stakeholders are involved in three different ways: a) in the in the Scientific and technological Advisory Panel (STAP) b) Stakeholder and Innovation Advisory Panel (SIAP), and c) in the thematic stakeholder groups (addressed in WP 4, WP6). Selected stakeholders will also be members of the c) Pan-Arctic Observing Forum. The advisory panels are comprised of selected key international experts with relevant technical and scientific background. Members of the SIAP and STAP will be appointed and steered by the Executive Board. The details and terms of reference are provided in D8.3.

Scientific and technological Advisory Panel. This panel is established for ensuring scientific evaluation of the project and links to other programmes and for advising on the project’s scientific approach and orientation by liaison with the SC. The members of the STAP (scientific stakeholders) will cover the themes addressed in INTAROS: Atmosphere, Ocean, Sea Ice, Terrestrial, Glaciology, Natural hazards, Community based monitoring.

Stakeholder and Innovation Advisory panel (SIAP). This panel is established with representatives from **different** stakeholders, technologies, and scientists to create innovative synergies. The role of SIAP is to facilitate closer interaction between research and stakeholder communities related to the Arctic to support innovation processes with focus on the challenges in in-situ observations. Industry and research have great potential for joint innovation and technology development in the Arctic, and we will use INTAROS to be a catalyst of such processes.

The composition and potential candidates was discussed at the SC meeting 10 January 2017, where several names were proposed by the SC members. It is planned to appoint the 5 members at the next SC-meeting 07 June 2017.

Decision makers and policy makers are important for the long-term development and sustainability of the observing systems. Through workshops and meetings we will try to engage this important stakeholder group in the development of a roadmap for a sustainable Arctic Observation System. These activities will be coordinated and carried out in collaboration with other Arctic projects. INTAROS has established contact and collaboration with the EU-PolarNET, APPLICATE, BLUE ACTION and other EU projects, national and international agencies through a number of meetings and workshops (see Appendix A). This work will continue as part of the stakeholder involvement process.

Specific stakeholders in each of the thematic areas of INTAROS

These should be stakeholders or end users who have more specific interest and should be involved in planning and implementation of the case studies in WP6. The task leaders in WP6 have already started to identify persons who should be members. The members of the stakeholder group for each task should be persons who are genuinely interested and can give feedback the work of the tasks. It is planned to have dedicated workshops/meetings with thematic focus (e.g. marine, atmosphere, terrestrial, natural hazards, local communities, etc.) where the stakeholder in this group will be invited.

The following specific stakeholder groups are identified for the INTAROS themes:

Atmosphere: Climate modelling and monitoring, weather forecasting services, Year of Polar Prediction Programme under WMO (YOPP) and local communities

Ocean: Monitoring and forecasting services (CMEMS), climate modelling and monitoring, environmental monitoring, marine and maritime industries, safety of marine operations. DnV GL is a partner with the main role to develop marine safety.

Sea ice: same as for atmosphere and ocean, plus sea ice navigation, oil and gas exploration, arctic tourism and local communities

Marine ecosystems: environmental monitoring, fisheries, aqua culture, marine pollution

Terrestrial themes: hydrological monitoring and modelling, greenhouse gas monitoring and modelling, snow monitoring for climate research and water resource management, Arctic industries, transportation and local communities

Glaciology: climate monitoring and modelling of glaciers, local communities

Natural hazards: earthquakes (EPOS), extreme weather and ice conditions and snow/ice avalanches (local communities, industries, tourism)

*Community-based monitoring***:** local communities in Greenland (Disko) and in Svalbard (Longyearbyen), and organisations representing local communities in large areas in Canada (ELOKA), Alaska/Yukon (YRITWC), Russia (CSIPN).

Planned and conducted workshops with Stakeholders.

The first stakeholder workshop was organized in Brussels on 5 May 2017 with relative high-level requirements across the various scientific disciplines and high-level stakeholder groups and organizations. The workshop was part of preparing the first requirement document (D1.1). About 25 key persons were invited to attend the workshop. The invited persons were selected based on their good knowledge of state-of-the art and as representatives for research projects and infrastructures, organizations, agencies and networks within the thematic areas of INTAROS. These persons will be included in the list of stakeholders for INTAROS. The invited participants are candidates for the Scientific and Technical Advisory Panel. Agenda for the workshop is attached in the Appendix B.

Tentative Month	Scope	Responsible	Relevant tasks/ deliverables
6	High level requirements	WP1	T1.0-2, T6.7, T7.2, MS1
6	Community based monitoring	WP4	T4.1
12	Community based monitoring	WP4	T4.1
18	Community based monitoring	WP4	T4.2
24	Community based monitoring	WP4	T4.4
30	High level requirements	WP1	T1.0-2, T6.7, T6.8, T7.2
36	Community based monitoring	WP4	T6.6, T7.7, D7.7
36	'Make Impact'	WP7	T7.6
48	'Make Impact'	WP7	T7.6
50	High level requirements	WP1	T1.0-2, T6.7, T7.2, D6.18
54	Community based monitoring	WP4	T7.7, D7.14
54	Applications for fishery and environment agencies	WP6	T6.8, D6.10
54	'Make Impact'	WP7	T7.6

Table 1. Planned workshops in INTAROS

3. Dissemination activities

This section provides description and over all goals of dissemination activities, targeted audiences, methods, timing, and expected outcome.

Dissemination goal.

The warming of the Arctic will improve access to the Arctic and its resources, offering new opportunities for communities and for economic development related to exploration of natural resources, transport, and other industries. This presents extraordinary requirements for planning and decision-making based on scientific and economic assessments and predictions. To meet these challenges we need improved dissemination of state of the art knowledge to enable better-informed decisions and better-documented processes within key sectors (e.g. local communities, shipping, tourism, fishing), to strengthen the societal and economic role of the Arctic region and support the EU strategy for the Arctic and related maritime and environmental policies. To this end, it is of paramount importance to provide understandable and targeted information to the different stakeholder groups.

Dissemination target groups.

The main target groups for INTAROS dissemination include: (1) science research groups, (2) public services, (3) national and international agencies and authorities, (4) commercial operators, (5) environmental organizations, (6) policy makers, (7) local and indigenous Arctic communities, (8) educational institutions, (9) other stakeholders such as investment and insurance companies and (10) general public. There are different ways of classifying stakeholder groups, depending on what products, services, high—level policy documents or other material the target groups will receive.

In the H2020 funded EU-Polarnet project, an inventory of polar stakeholders has been prepared[1], using the following classification of stakeholder groups, reflecting the view of the European Commission: (1) Research communities, (2) Parliamentary and policy bodies, (3) European public, (4) Local communities including indigenous communities, (5) Polar organisations, (5) NGOs, (6) International networks and agencies, (7) Media, and (8) Business and industry sectors.

INTAROS will have a broad dialogue with many stakeholder groups encompassing those mentioned above as the main target groups, and we therefore use a more general classification into four broad groups

Private sector: maritime industry, oil and gas companies, shipping, tourism, fisheries, mining, construction, transport and logistics providers, environment technology, risk assessment, and consultancy companies.

Public sector: Political bodies, regulatory and Implementing bodies, agencies and organizations responsible for the implementation of legislation, emergency services, environmental protection, monitoring and forecasting services and other public services

Science and education: natural science, engineering, economy, law, social science and other cross-disciplinary disciplines

Civil Society: indigenous and local communities, high school students, NGOs, media, general public

Representatives from these groups will be connected with the project through stakeholder workshops (WP1), community based observing programmes (WP4), application-specific workshops (WP6), and capacity building and dissemination/outreach (WP7).

[1] EU-PolarNet Deliverable 4.5: Connecting Science with Society (available at www.eu-polarnet.eu/)

Dissemination measures, targeted audiences, timing, and expected outcome

The following activities will be performed:

Web portal & social media

These will be used for

1) preparing tailored information for different stakeholder groups (policy makers, business sectors etc.),
2) providing information on current and future observing products and services;
3) demonstrate results of case studies for specific stakeholders (WP6);
4) announcing project news and events, products, and services.
5) supporting training activities
7) informing about the challenges of carrying out observations in the arctic

The public web portal link is www.intaros.eu. The page is designed to target the general public as well as scientists.

Social media accounts have been created for Facebook, twitter, LinkedIN and Youtube:

https://www.facebook.com/intaros

Facebook posts will be aimed at a general audience, there will be at least two updates per week with news of project activities and results as well as key general issues regarding the Arctic from other projects and developments

https://twitter.com/intarosproject

Twitter posts will be aimed at decision makers scientists and other stakeholders, with at least two updates per month with news on major project activities, results and impacts. Relevant retweets of other policy-science interface issues will also be carried out.

https://www.instagram.com/intaros.project/

Instagram posts will be aimed at a general audience, there will be at least two updates per month with news and images of project activities and results as well as key general issues regarding the Arctic from other projects and developments.

https://www.youtube.com/channel/UCoegF3QSQe17mmGvj8oNs_g

Youtube videos will be aimed at a general audience. At least two videos will be developed during the project lifetime. Relevant videos from partners within the INTAROS consortium will also form part of the YouTube channel. We will also include other relevant materials in the channel´s playlists

LinkedIN posts will be aimed at scientists, with at least 12 per year with news on major project, results and impacts.

Target Groups: all
Expected outcome: Increased awareness in all stakeholder groups of the importance of establishing SAOS and the sustainable development of the Arctic.

Presentation of INTAROS at conferences, workshops and meetings

INTAROS is a project with high international profile and strong links to many projects, programmes and organisations dealing with Arctic issues. Presentation of INTAROS at various Arctic events has been a major activity in the first months of the project and will continue to be so throughout the project. A list of events where INTAROS has been presented and plans for further participation is presented in Appendix A. This list will be updated and disseminated on the project website during the project.

Target Groups: Private Sector, Public Sector, Scientific and Education
Expected outcome: To build up engagement and long-term collaboration in the Pan-Arctic region, as a pre-requisite for establishing the Pan-Arctic Observing Forum, which is one of the objectives of INTAROS.

Joint dissemination activities with the Commission and other EU-projects

INTAROS will run in parallel with several other Arctic projects, which plan dissemination activities towards the same stakeholder groups and at the same events. These projects are primarily EU-PolarNet, BLUE ACTION, APPLICATE and INTERACT, but also other research and infrastructure projects dealing with Arctic observations (e.g. YOPP, MOSAIC, SIOS KC). In many cases joint dissemination by several projects addressing the same stakeholders will be more efficient and have greater impact that if each project should do it separately. Planning of joint dissemination between these projects have started and will address selected high-level conferences such as Arctic Circle, Arctic Science Summit Week and GEO workshops.
Target Groups: Private Sector, Public Sector
Expected outcome: Improved collaboration and coordination of dissemination of EU projects towards stakeholders.

Web-based tools

Web-based visualization tools to present data products from the integrated data repositories and data products generated by the INTAROS processing services will be provided (WP5). Results from the application studies (WP6) will be presented in the INTAROS portal, provided the data are available through a standards compliant data repository. As part of WP6, an Arctic Risk Map web application will also be further developed and used to demonstrate project results towards stakeholders with an interest in risk analysis in the Arctic region.

Target Groups: Private Sector, Public Sector, Scientific and Education
Expected outcome: Stakeholders informed about new capabilities provided by iAOS. Increased interest in using new integrated data products to develop new services.

Science-Policy Briefing papers & documents

The key project results from WPs 2-6 will be compiled and presented to policy-makers for supporting the decision-making. Dissemination material for use towards decision makers and other stakeholders will be prepared in WP7. A Roadmap for a future integrated Arctic Observing System will be prepared in WP1 as a reference document to national and EU policy makers, aiming to place the iAOS (Integrated Arctic Observing System) on the ESFRI Roadmap.

Target Groups: Public Sector
Expected outcome: Increased awareness among policy-makers at the local, regional and EU level of the importance of sustained observation systems in Arctic regions for better informed decisions affecting economy, environment and society at large.

Strategic events

A number of strategic Briefing Events will be organised at events such as the “European Week of Regions and Cities” open days in Brussels and the annual European Maritime Day conference. INTAROS was already promoted at the EMD conference held in Poole, U.K. in May 2017. Presentations will be given at the Arctic Frontier policy sessions and for the Arctic Council secretariat and the working groups and indigenous peoples’ organizations. A side event is planned by INTAROS at OceanObs 2019, and during Arctic Science Summit Week 2018.
Target Groups: Private Sector, Public Sector, Civil society.

Expected outcome: Increase awareness among decision-makers within industry, authorities and local communities of the possibilities for sustainable development of industry and society through systematic monitoring in the Arctic environment and climate.

Thematic stakeholder events

The ambition of WP6 is to demonstrate application of iAOS by delivering a suite of products targeted at issues of societal importance for indigenous and local communities in the Arctic, for Europe and on global scale. These pilot applications will demonstrate services towards selected, but diverse groups of end-users.

Task 6.1: INTAROS partners (BSC, NERSC, SMHI) will promote INTAROS data in relevant climate modeling communities including the parallel H2020-BG-10-2016 projects APPLICATE and BLUE-ACTION and the on-going "Year of Polar Prediction" initiative, YOPP and assess the resulting impact on prediction skill. The Theme leader for climate modelling (Ralf Döscher) will coordinate the modelling activities in INTAROS and with the external projects. Collaboration will be supported by joint workshops and meetings.

Task 6:2: This task will produce ecosystem model results targeting specific stakeholder groups through especially 6.8 (Fisheries and environment management), 6.6 and 6.7.

Task 6.3: Better ice-ocean state estimates, including long- and short-term statistics, and model predictions will provide background knowledge and constraints important for (1) design and development of new technologies and installations in the Arctic, (2) risk assessment (e.g. sea-ice information combined with weather and wave forecasts), (3) environmental monitoring and (4) weather and ice services. Through DNV GL we will target key stakeholders within Arctic shipping, insurance, and offshore industry in Task 6.7.

Task 6.4 aims to demonstrate how iAOS data can be exploited to better understand natural hazards in the Arctic and how these are affected by climatic changes. Hazard information will be targeted based on stakeholder needs through Tasks 6.6, 6.7 and 6.8.

Task 6.5 specifically targets the Earth System modelling community, ecosystem management and fisheries, with improved assessments of spatiotemporal patterns, e.g. in ocean acidity in the region. This will improve prediction of pelagic/benthic ecosystem response to changes in carbonate chemistry, thereby contributing towards assessing the sustainability of fisheries in Arctic waters.

Task 6.6 targets two focal communities of community-based observing in INTAROS, Longyearbyen, Svalbard and Disko Bay in Greenland with tailored workshops and meetings on topics of high priority to the local communities.

Task 6.7 aims to demonstrate the value and benefits of an upgraded Arctic Observing System in support of Blue Growth in the Arctic to foster business development, increase safety and protect the environment. Three stakeholder workshops are planned in collaboration with WP1,see table 1..

Task 6.8 will demonstrate the use of iAOS products based on both in situ (incl. CBM) and space-based systems for managers, in particular those responsible for the management of the environment and living marine resources. The demonstrations will be given in the form of software available through the INTAROS Portal (WP5), reports and direct interaction at workshops and one-to-one meetings.

Target groups: Private Sector, Public Sector, Civil society, Science, Education.
Expected outcome: A scientific basis for better- informed decisions and better-documented processes for managers and policy-makers on local, regional and pan-arctic scales (including but not limited to ICES, NAFO, NAMMCO, IWC and CITES).

Community-based observing workshops

People living in the Arctic depend on the region for their livelihoods. The better the information and the knowledge they have, the more ready they will be for the challenges being brought about by the changes in their environment. INTAROS will implement two dedicated workshops to support the resilience of these communities Their organisation will be a collaborative effort between ELOKA and Yukon River Inter Tribal Watershed Council (North America), and NORDECO, NERSC and the Centre for Support of Indigenous Peoples of the North (Europe).

Target Groups: Civil society
Expected outcome: Increased exchange of experience and capacity building in community-based observing in the Arctic. Increased professional and cross-disciplinary skills and competences of young people to help ensure the sustainability of community-based observing into the future.

Capacity building and training

A key objective of INTAROS is to develop the professional skills of younger scientists in improving their knowledge on the uniqueness of the Arctic and in working with observational data collected during the project. A number of targeted activities are taking place including:

- **Summer Schools:** In 2020 a summer school will be developed and organised by the project at the University Centre of Svalbard (Norway) in collaboration with NERSC and FMI. The theme will cover observing systems, with a special focus on existing and emerging technologies and solutions for Arctic waters, atmosphere and land, including space-based, *in-situ* and community-based observations.
- The **teaching materials** developed will be compiled into an educational package openly available to schools and universities, interested in observation-based research in the Arctic, e.g. the annual Hyytiälä (Finland) Winter/Summer schools/courses organized by U-Helsinki and the courses organized by the University of the Arctic.
- **Scientific Exchanges:** Short-term scientific exchange and training of 2-6 weeks for PhD students and early-stage researchers will be organized by the project. Project partners will provide details of laboratory projects, or ship-based activities where they can offer training and these will be announced widely.
- **Programme on Arctic Affairs**: INTAROS will also contribute to the specialization program on Arctic Affairs, established as collaboration between Aarhus University, Greenland Institute of Natural Resources (GINR), University of Manitoba and University of Greenland.

Target Groups: Scientific and Education
Expected outcome: Enlarged skill set in multiple scientific and technological disciplines among PhD students and young scientists studying and working across the Arctic.

Publication and academic conference plan

A number of scientific publications will be made on different aspects of the results of the project. The specific topics and journals targeted will be driven by the scientists themselves and the quality of the science. Nonetheless, one special issue in a high-profile journal will be initiated and populated jointly with international partners with a focus on interdisciplinary research (e.g. the ARCTIC Journal).

In addition, in order to reach a wider audience, relevant material will be published in popular science publications e.g. iLEAPS (Integrated Land Ecosystem Atmosphere Process Study) Highlights PDF series, the IGBP Global Change Magazine, the Future Earth Newsletter, and the Future Earth blog, and Arctic Council news.

Dedicated EGU and/or AGU sessions will be organized during the project to present its outcome to the academic community. A side-event will be organized at OceanObs 2019, and during the annual Arctic Science Summit Weeks.

There will be a contribution to the white papers prepared for the Arctic Observing Summit 2018.

Target Groups: Scientific and Education, Civil society
Expected outcome: Advanced state-of-the-art of Arctic observing systems.

Arctic Literacy

INTAROS has planned a number of targeted initiatives to improve knowledge of the Arctic among young people and society in general. These include:

Teaching Packs: Contribution to the development and delivery of modules within climate change teaching packs for high school students and teachers in Greenland

In addition two packages of educational materials for teachers and students of lower and upper secondary schools will be prepared to enhance literacy of Arctic Observations among teachers and students.

Teachers will be prepared for using packages during at least 3 workshops conducted within cooperation with other European projects e.g. Scientix (community for science education in Europe), ERIS (project from ERASMUS+) and EDU-ARCTIC (a H2020 project).

Classroom workshops: INTAROS is making connections with the 'Arctic in a Classroom (ARCUS)' programme coordinated by the Arctic Research Consortium of the United States. Participation in the "Make an Impact" workshop to explore opportunities for discussing best practice and sharing teaching materials and approaches is also planned.
Exhibitions: The project is bringing the uniqueness of the Arctic to citizens across Europe by preparing informational and exhibition material, including photos and videos from field work in the Arctic, for use in Science Centres across Europe (e.g. Arktikum Science Centre in Finland or VilVite in Norway).

Target Groups: Civil society
Expected outcome: Sparked interest for Arctic climate and environmental change and their impact on society, primarily among students of lower and upper secondary schools and teachers.

Engagement strategy document

The dissemination of INTAROS through the results, tools, and knowledge from the project aims to target a range of stakeholders within service industries, businesses, science, students and the general public. The dissemination shall contribute to the development of relevant national, European, and Pan-Arctic policies. The dissemination will also share knowledge about the Arctic with academia and with the general public at large. The dissemination and exploitation activities are closely linked with communication and stakeholder engagement, which will be further described in the Engagement Strategy, to be prepared by month 12 of the project (November 2017). A part of that strategy is to establish a Pan-Arctic Observing Forum that will include scientists, funding bodies, policy makers, technology experts, and other relevant stakeholders. The Engagement Strategy will identify user and stakeholder groups to be targeted as well as develop new ideas for usage of data aimed at the target groups.

Target Groups: *All*
Expected outcome: The Engagement Strategy will be part of the activities towards the establishment of the Pan-Arctic Observing Forum, by month 24 (November 2018).

INTAROS Legacy – after the end of the project

A Roadmap for the further development of iAOS will be prepared in close collaboration with SAON, GEOCRI and research infrastructure projects (RIs) such as ENVRIplus, and with other actors working with observing systems in the Arctic. The Roadmap will be presented as a reference document to national and EU policy makers aiming to place the iAOS on the ESFRI Roadmap.

Dissemination measures in the closing phase of the project: The final report of the project will include a plan for the use and dissemination of foreground, to demonstrate the added value and positive impact of the project on the European Union. A final publishable summary of the results will be made available to the Commission for dissemination in the public domain. This will include information on results, and their wider societal implications. The text will be drafted in a way to be understandable for a lay audience. A final project booklet collecting all project publications will be produced at the end of the project. The booklet will be made available for download on the website.

Dissemination measures after the closure of the project: After the official end of the project, the foreground of the project will be available as a web-based archive for all interested actors. The domain name of the project website will be assigned to the Arctic Portal (the main portal for the Arctic Council and many arctic projects). The website archives all documentation related to the project, including publications, and will be accessible for 5 years after the end of the project.

Target Groups: *All*
Expected outcome: Roadmap forms a sound basis for policy and decision makers in the planning and funding of a future sustained Arctic observing system.

4. Appendices

Appendix A: list of events where INTAROS has been presented in the first year

2016:

5-7 Sept: YOPP planning meeting, ECMWF Reading UK (S. Sandven, Y. Gao)
5-7 Sept: The 5th Nordic ENVRI workshop on Arctic RI collaboration, Longyearbyen (H. Sagen)
14 Sept: Polar Day in Bergen (Hanne Sagen)
07 Oct.: Polar Circle, Iceland: Session: Operational Marine Service in the Arctic (A. B. Möller, S. Sandven)
17 Oct: Visit to ONR in Washington (H. Sagen, S. Sandven)
18 Oct: MEOPAR expert meeting in Ottawa (S. Sandven)
08 Nov: Presentation at Research Council of Norway, Oslo (H. Sagen, S. Sandven)
08 Nov: GEO Plenary, St. Petersburg, side meeting of GEOCRI (L. H. Pettersson)
08-09 Nov: Polar Connections Interoperability Workshop at ESRIN (T. Hamre - participant)
10-11 Nov: YOPP data meeting, Oslo (T. Hamre)
12 Nov: COP22, Marakesch, Arctic Day organized by Nordic Council of Ministers (H. Sagen)
16-17 Nov: ENVRI-Copernicus meeting in Prague (H. Sagen)
17 Nov: Norwegian Scientific Academy for Polar Research, Bergen (S. Sandven)
12-16 Dec: Poster presentation at AGU, San Fransisco (S. Sandven, H. Sagen)

2017:

11-12 Jan: INTAROS KO-meeting with partners and invited guests
18-20 Jan: Blue Action KO-meeting (S. Sandven)
19-20 Jan: EPOS-Norway Annual Workshop in Bergen; Invited presentation of INTAROS. (H. Sagen)
25 Jan.: Meeting with Fukusawa at Arctic Frontier,director of ArcS (S. Sandven)
26-28 Jan: Presentation of INTAROS at SC International Quite Ocean Experiment (SCOR sub Committee), London (H. Sagen).
08-09 Feb: APPLICATE KO-meeting (S. Sandven)
01-06 Mar: Meetings with Chinese partners in Beijing and Shanghai (S. Sandven and Y. Gao))
29-30 Mar: Arctic meeting in Brussel, invited by EC (S. Sandven, H. Sagen, M. Sejr)
03 April: EU-Polarnet GA meeting in Prague (S. Sandven, H. Sagen)
04-07 Apr Arctic Science Summit Week (ASSW) in Prague, poster , (S. Sandven, H. Sagen, T. Hamre + several other INTAROS members)
07 April SAON Board meeting (S. Sandven, H. Sagen, T. Hamre)
19-21 April Ocean Outlook 2017, Bergen. Invited talk. (H. Sagen)
20 April: Conference call about INTAROS with SAON CON. (Sandven, Sagen)
24-27 Apr International Conference on Arctic Science: Bringing Knowledge to Action Reston, Virginia, poster and oral presentation (A. Ahlström)
23-28Apr EGU session "Cross Disciplinary Observations for an Integrated Understanding of the Arctic System" poster presentation by A. B. Möller
05 May INTAROS Stakholder workshop, Brussels, organised by INTAROS members
8-12 May Arctic Interchange, Week of the Arctic, Fairbanks, including workshop on community based observing organized by INTAROS (Finn, Hajo, Lisbeth)
8-10 May OceaNoise 2017. Invited presentation about data management of acoustic data in INTAROS. (T. Hamre). H. Sagen co-chairing session on Polar Noise.

Planned presentations after 01 June 2017

11-15 June: ESSAS Open Science Meeting on Subarctic and Arctic Science (http://www.imr.no/essas/en). Presentation by Geir Ottersen

11–16 June: POAC 2017 in Busan, South Korea, presentation by S. Sandven

19-21 June: 11th GEO European Projects Workshop, Helsinki, Session on Arctic Observing System, organised by S. Sandven

30Jul-04 Aug: IAG-IASPE: Joint Scientific Assembly of the Int Ass. Of Geodesy and Int Ass. Of Seismology and Physics of…. Presentation of INTAROS by Peter Voss

30Aug-01Sept FMI Arctic Science Networking Workshop, Helsinki, presentation by S. Sandven

11–14 Sept: 5th iLEAPS Science Conference, Oxford, UK. Understanding the impact of land-atmosphere changes, presentation by Donatella Zone

3 – 5 Oct EUROGOOS conference in Bergen (with Arctic topics), presentation of INTAROS (TBD)

13-15 Oct: Arctic Circle in Reykjavik. A joint plenary session with other EU projects

29Nov-01Dec. Sustainable Ocean Summit 2017, Halifax, presentation is planned

11 – 15 Dec Arctic Change 2017, Quebec City, a major Canadian conference, presentation is planned

Appendix B. Agenda for the first Stakeholder workshop on 5 May 2017

INTAROS	**Workshop: Building long term observing systems in the Arctic – requirements and challenges**

05 MAY 2017
0900-1700

The workshop is hosted by EuroGOOS (European Global Ocean Observing System) in their premises in Brussels. Address: Avenue Louise 231, 1050 Brussels, Belgium. Website: www.eurogoos.eu.

Agenda

08.30-09.00	Arrival + coffee	Presenters
09.00	Welcome	Erik Buch, EuroGOOS
09.10	INTAROS overview and objective of the workshop	Stein Sandven, NERSC/INTAROS
09.30	Sustainable Arctic Observation Network: a key network established by Arctic Council and IASC (15 min presentation + 5 m questions)	Christine Daae Olseng, chair of SAON
09.50	Arctic Monitoring and Assessment Programme, what have we learned from 20 years of monitoring ? (15 min presentation + 5 m questions)	Lars-Otto Reiersen, AMAP
10.10	Copernicus in-situ data requirements for the Arctic (15 min presentation + 5 m questions)	Henrik Steen Andersen, EEA
10.30 – 11.00	Coffee break	
11.00	Stakeholder interaction in the EU-Polarnet project (15 min presentation + 5 m questions)	Nicole Biebow, Eu PolarNet/AWI
11.20	Data bases and interoperability: what are the barriers and challenges ? (15 min presentation + 5 m questions)	Øystein Godøy, SIOS/Met.no
11.40	Requirements from local communities (15 min presentation + 5 m questions)	Lisbeth Iversen, INTAROS/NERSC
12.00-13.00	Lunch	
13.00	Requirements from atmospheric themes (2x10 min presentation + discussion)	Thomas Jung, YOPP/AWI Cathrine Lund Myhre, ACTRIS/NILU
14.00	Requirements from ocean themes (incl. marine ecosystem and sea ice (2x10 min presentation + discussion)	Antonio Reppucci, Mercator/CMEMS Inigo Martinez / ICES
15.00-15.30	Coffee	
15.30	Requirements from terrestrial themes (incl. snow and glaciers (2x10 min presentation + discussion)	Michael Zemp, WGMS Elmer Topp Jørgensen, INTERACT
16.30	Requirements from the Commission, including benefit analysis of an Arctic observing system	Atillio Gambardella, EC
16.45	Wrap-up of the workshop and contribution to the INTAROS requirement document	E. Buch
17.00	Closure	

For more information about the workshop, see www.intaros.eu

Workshop objectives

The objective of the workshop is to review and update the requirements for observational data in the Arctic within the thematic areas described above. Furthermore, the workshop will elaborate on ways ahead to develop and operate long-term observing systems. Satellite earth observation data, especially through meteorological missions and the new Copernicus programme, has secured long-term funding and is therefore relative sustainable. However, most of the in situ data collected in the Arctic are funded by research projects with duration of a few years and are therefore not necessarily sustainable. The workshop is the first in a series of events under INTAROS to develop a Roadmap for building and maintaining sustainable Arctic observing systems.

The workshop will had ca. 25 participants representing organisations, agencies, programmes and observing systems which are operating today and are expected to be drivers for sustainable observing systems in the future.

Key challenges that INTAROS will address was discussed at the workshop

(1) Coordination and collaboration between data providers and stakeholders in the pan-Arctic region in order to better use existing systems and resources
(2) Improvement of the observing platforms and sensors, filling of gaps in the observing network and facilitate for year-round operation
(3) Data sampling, transmission, calibration, processing, archiving and retrieval of required variables and building distributed and connected databases
(4) How to develop sustainability of the observing systems

The observation system includes the following thematic areas: 1) Atmosphere, 2) Ocean and seafloor, 3) Sea ice, 4) Marine Ecosystem, 5) Terrestrial data, 6) Glaciology, 7) Natural hazards, and 8) Community-based monitoring.

Appendix C. Formal requirements for dissemination within H2020 projects.

The Plan for Exploitation and Dissemination of Results plan is mandatory. The grant agreement requires the submission to the Commission of a plan for the use and dissemination of *foreground*, which must contain information about the expected use of the project results sufficiently detailed to permit the *Commission* to carry out any related audit. Any technical audit which may be initiated at any time and up to five years after the project can assess also the participants' plan for the use and dissemination of foreground.

Foreground: results generated in a project by individual beneficiaries or jointly by the consortium, including intellectual property rights related to exploitation of the results. Foreground can be tangible (analyzed data, software, instruments, etc.) or intangible (knowledge, scientific conclusions). Results generated outside or before the project are not included. Valuable foreground should be protected, especially if it is capable of industrial or commercial application. A decision *not* to protect foreground should preferably be made in consultation with the other participants, which may wish to take ownership. If valuable foreground is left unprotected, the Commission may take ownership. Rules for dissemination and exploitation are defined in the Grant Agreement and in the Consortium Agreement.

Background: This means data, models, software, know-how or information, whatever its form or nature (tangible or intangible), including rights such as intellectual property rights, that is (a) held by the beneficiaries before they acceded to the Grant Agreement, and (b) needed to implement the action or exploit the results. The beneficiaries have identified their Background, including conditions and limitations to use their Background, in Attachment 1 of the Consortium Agreement.

Dissemination of foreground: Each beneficiary shall ensure that the foreground it owns is disseminated as swiftly as possible. However, dissemination (including publications or on web-pages) should be delayed until a decision about its possible protection has been made (through IPR or trade secrets). The other participants may object to the dissemination activity if their legitimate interests in relation to their foreground or background could suffer disproportionately great harm. The rules for dissemination of own and joint results are defined in article 8.4 of the Consortium Agreement.

Any dissemination activity shall be reported in the PEDR, including sufficient details/references to enable the *Commission* to trace the activity. Rights and obligations regarding results are defined in the Grant Agreement section 3 and 4.

Access right: Access rights means **licences and user rights** to foreground or background owned by another participant in the project. The Grant Agreement's provisions relating to access rights to foreground and background constitute "minimal" provisions that, unless otherwise indicated, cannot be set aside or restricted. It should be noted that under the grant agreement **access to another participant's foreground or background** is **only** to be granted if the requesting participant ***needs*** that access in order to carry out the project or to use its own foreground.

Participants can freely define in any manner (for example in a positive or negative way) what is needed for the project (i.e. background available for access by each other). Access rights may be requested by any participant if it needs them for carrying out its own work under the project, until the end of the project.

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INTAROS

This report is made under the project
Integrated Arctic Observation System (INTAROS)
funded by the European Commission Horizon 2020 program
Grant Agreement no. 727890.

Project partners: