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Stimulating the development of downstream GMES services

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SIDARUS CONSORTIUM

Participant no.	Participant organisation name	Short name	Country
1 (Coordinator)	Nansen Environmental and Remote Sensing Center	NERSC	NO
2	Alfred-Wegener-Institut für Polar-und Meeresforschung	AWI	DE
3	Collecte Localisation Satellites SA	CLS	FR
4	University of Bremen, Institute of Environmental Physics	UB	DE
5	The Chancellor, Masters and Scholars of the University of Cambridge	UCAM	UK
6	Norwegian Meteorological Institute, Norwegian Ice Service	Met.no	NO
7	Scientific foundation Nansen International Environmental and Remote Sensing Centre	NIERSC	RU
8	B.I. Stepanov Institute of Physics of the National Academy of Sciences of Belarus	IPNASB	BR

SUMMARY

This report summaries the activities of the SIDARUS project towards user interaction for promoting the products to be developed. It is agreed among the project partners that it would be difficult to have users attend dedicated SIDARUS workshops because the users of these products are widely spread and most of them have no time to attend a workshop. Instead, the partners agreed to contact users at conferences, workshops and user meetings. Several opportunities have been used to talk directly to the users about their requirements for sea ice and iceberg information. A SIDARUS brochure has been produced for this purpose. In addition to this, communication with users will be established via the project website where users can post comments to the work performed in the project.

During the Arctic Shipping Summit conferences held in Helsinki in April a workshop on sea ice was arranged and SIDARUS project was presented by H. Tengen from met.no. The SIDARUS brochure was distributed to all participants. Several participants had questions and feedback on SIDARUS, and the general opinion was positive. In addition, the partners have had direct contact with oil companies (Total), Arctic and Antarctic Research Institute and A. N. Severtsov Institute of Ecology and Evolution (Russia), and Greenland Institute of Natural Resources. SIDARUS has also been presented to the ICEMAR project, which aims to deliver specialized sea ice products to users on ships.

Interaction with users of SIDARUS products will continue using upcoming conferences and workshops related to activities in Arctic and Antarctic. This is an efficient method to promote SIDARUS and recruit users who are interested in the SIDARUS products.

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1 Introduction

The overall objective of SIDARUS is to develop and implement a set of sea ice downstream services that will extend the present GMES services with new satellite-derived sea ice products. The user workshop is planed to be a forum to inform potential users of the products developed and to offer an opportunity for the users to get product training. In addition feedback from the users will be derived and used in the implementation of the SIDARUS services.

At the SIDARUS kick-off meeting in Bergen the 11th of February, the possibility to organise a user workshop was discussed. It was agreed that it would be difficult to have users attending such workshop because they are widely spread and most of them have no time to attend a workshop. Instead, the partners will promote SIDARUS in presentations at conferences, workshops and user meetings. These opportunities will be used to talk directly to the users about their requirements for sea ice and iceberg information. A SIDARUS brochure has been produced for this purpose and is used to promote the project. An example of the brochure can be found in Figure 1: SIDARUS brochure in the appendix.

The main method of communication with users will be to establish a user forum on the project website where users can post comments to the work to be done in the project.

2 Arctic Shipping Summit, Helsinki, April 2011

Informa UK is arranging a yearly Arctic Shipping Summit in April. The last 4 years Helsinki, Finland has been the venue. This 3-days conference has participants from Europe and Asia mainly, but also attracts some participants from North America (There is an Arctic Shipping North America Conference every year in the fall). Ship owners, mariners, ship building companies, ice breaking managers, classification companies, insurance companies, maritime academies and other relevant institutions were represented, approximately 150 delegates in total.

Helge Tangen, Regional Director of Norwegian Meteorological Institute was invited to the Arctic Shipping Summit 2011 to hold a workshop. He is also responsible for the national ice service in Norway, a board member of the European Ice Services (EIS) and node manager for European Arctic in the Polar View project. The topic for the workshop was “Ice charting/Model forecasting”. All in all there were 4 parallel workshops, and Ice Charting/Model Forecasting was attended by 26 interested persons, from all the different participant groups mentioned above.

During the 75 minutes workshop, SIDARUS was mentioned specific, and the SIDARUS brochure was distributed to all. (The brochure was also available in the plenary hall of the conference) Several participants had questions and feedback on SIDARUS, and the general opinion was positive.

It seems efficient to promote SIDARUS in places like this conference. A lot of interested delegates are gathered and are happy to get information on projects like SIDARUS.

3 Other meetings with users

NERSC has had meetings with Total, an oil company which is interested to develop improved ice-ocean services in the Barents Sea and Kara Sea. Total is one of three partner in Shtokman Development AG. NERSC has also been in contac t with ExxobMobile regarding developmenf of ice forecasting.

NIERSC has been in dialogue with Arctic and Antarctic Research Insitute in Russia, the main insitution responsible for ice monitoring and forecasting in the Russian Arctic.

CLS has been in contact with A. N. Severtsov Institute of Ecology and Evolution (Russia) and Greenland Institute of Natural Resources regarding the ice information to be combined with marine mammal tracking data.

NERSC and met.no have discussed what seaice products ICEMAR project shall provide for ship-based users. SIDARUS and ICEMAR will cooperate in this work, where SIDARUS will focus on developing the products while ICEMR will focus on the technical solutions for dissemination of sea ice and other related information to ships operating in ice covered seas.

4 Upcoming events

Georg Heygster from the University of Bremen, Institute of Environmental Physics (UB) will present SIDARUS during his contribution to the 21st International Conference on Port and Ocean Engineering under Arctic Conditions (POAC 2011) conference in Montreal in July 2011.

NERSC will present SIDARUS at a meeting with Total in Paris on 29 August 2011.

NIERSC will present SIDARUS at a conference on Arctic Oil and Gas in St.Petersburg in September 2011.

NERSC will present SIDARUS at the EuroGOOS conference in Poland in October 2011.

NERSC, UB, met.no and UCAM will present climate-related products from SIDARUS for the ESA CCI programme

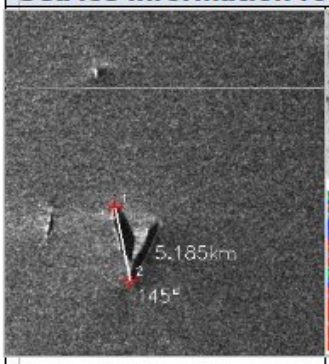
APPENDIX

Figure 1: SIDARUS brochure

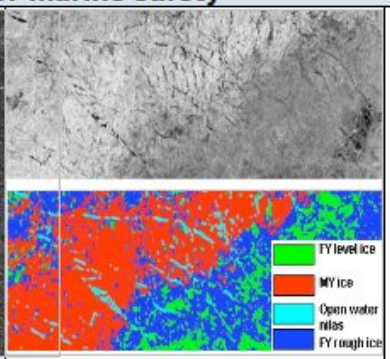
Sea Ice Downstream Services for Arctic and Antarctic Users and Stakeholders

Collaborative project under FP7-SPACE 2011-2013

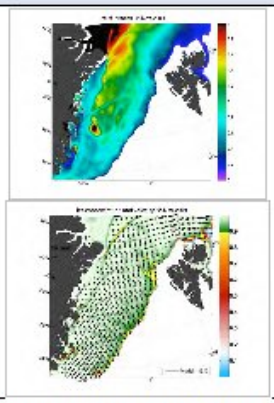
Sea ice information for marine safety



Iceberg detection using SAR images in the Antarctica (CLS)

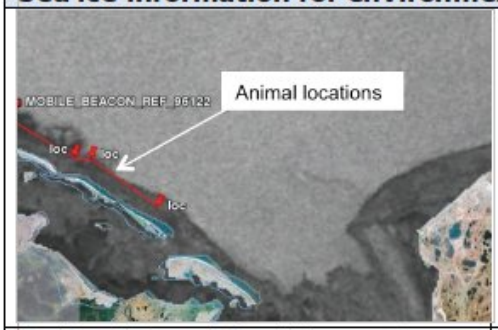


Sea ice classification from SAR, showing multiyear, firstyear level, firstyear rough, and open water/nilas (NIERSC)



Ice forecasts of the ice edge location, sea ice concentrations ice velocity and ice thickness using the 4 km HYCOM model (NERSC)

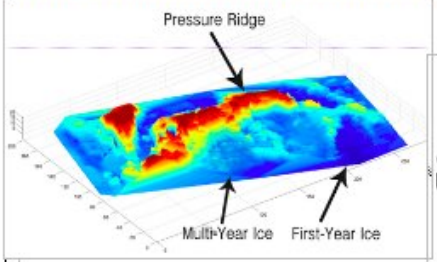
Sea ice information for environmental monitoring



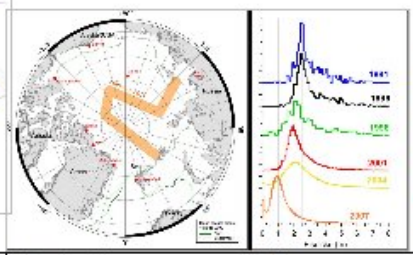
Tracking of beluga whales with Argos system combined with sea ice data in Okhotsk Sea, 15 November 2009 (CLS)

Trajectories of three polar bears with Argos tags in the Barents Sea in October – November 2010 (IPEE)

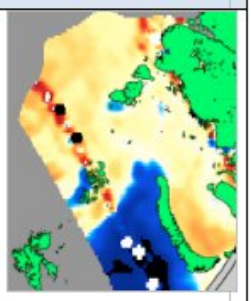
Sea ice information for climate research



Sea ice thickness and ridges from multibeam sonar operated from Autonomous Underwater Vehicles (UCAM)



Pan-Arctic measurements of ice thickness (AWI)



SMOS h-polarisation brightness temperature (UB)

The overall objective of SIDARUS is to develop and implement a set of sea ice downstream services in the area of climate research, marine safety and environmental monitoring. SIDARUS will extend the present GMES services (Global Monitoring for Environmental and Security) with new satellite-derived sea ice products, ice forecasting from regional models, and validation of sea ice products using non-satellite data. The products are generated for different spatial scales which range from covering the entire Arctic and Antarctic regions to the local surrounding of offshore structures.

Benefits of Our Services

The demand from many user groups for improved sea ice information in the Arctic and Antarctic is growing as a result of climate change and its influence on the polar environment and on socio-economic conditions for marine operations. The presently observed reduction of the Arctic sea ice extent, in particular during the summer months, and an increasing demand for natural resources are key mechanisms driving human activities in these areas. In the Antarctic, ice discharge from several ice shelves which is regarded a significant indicator of climate change, needs to be monitored because the larger number of icebergs represents a serious thread on marine operations in the Southern Ocean. The SIDARUS project will address the needs of users and stakeholders in the area of marine safety, environmental monitoring and climate research.

Services

- **High-resolution sea ice and iceberg mapping by SAR**
  - Improvement of SAR-based sea ice classification methods to map details of the ice cover (leads, polynyas, ice types, deformed ice) as well as iceberg detection methods
- **Sea ice albedo from optical sensors**
  - Development of improved parameterization of sea ice albedo based on optical satellite data, required as input for sea ice and climate modelling
- **Sea ice thickness from satellite radar altimeter and passive microwave data**
  - Development and validation of ice thickness retrievals from satellite radar altimeter (CryoSat) and passive microwave data (SMOS), analysis of ice thickness data from field surveys for validation of satellite retrievals.
- **ARGOS tracking of marine mammals combined with sea ice maps**
  - Provision of integrated maps of marine mammal tracks from ARGOSS data together with sea ice maps from satellite data
- **Ice forecasting based on numerical models and satellite data.**
  - Improvement of regional sea ice forecasts for the Barents Sea area from downscaling of MyOcean services; provisions of iceberg forecasts in Antarctic waters by combining SAR detection and numerical ocean forecasting from MyOcean.
- **Provide access to relevant sea ice products from other GMES services.**

Consortium

- STIFTELSEN NANSEN SENTER FOR FJERNMAALING (NERSC) Norway
- ALFRED-WEGENER-INSTITUT FUER POLAR- UND MEERESFORSCHUNG (AWI) Germany
- COLLECTE LOCALISATION SATELLITES SA (CLS) France
- UNIVERSITAET BREMEN (UB) Germany
- THE CHANCELLOR, MASTERS AND SCHOLARS OF THE UNIVERSITY OF CAMBRIDGE (UCAM) United Kingdom
- METEOROLOGISK INSTITUTT (met.no) Norway
- Scientific foundation Nansen International Environmental and Remote Sensing Centre (NIERSC) Russian Federation
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END OF DOCUMENT