



International Ice Charting Working Group

<http://nsidc.org/noaa/iicwg/>

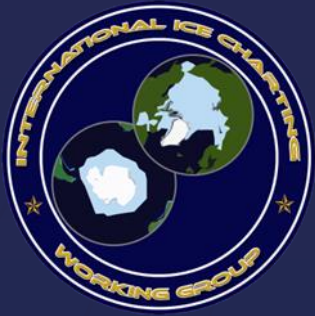
Marianne Thyrring

Danish Meteorological Institute, Director General

International Ice Charting Working Group, Co-chair

THE ARCTIC MARINE SHIPPING BEST PRACTICES INFORMATION FORUM

4th Forum Meeting 27-30 November 2020



Outline

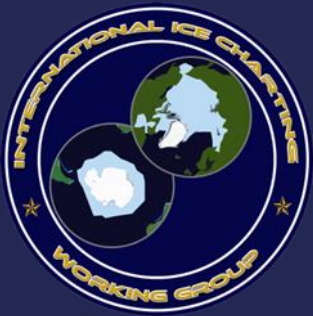
- What is the IICWG?
- IICWG support for Polar Code implementation
- New initiatives
- Polar View



International Ice Charting Working Group (IICWG)




- ❑ Ad-hoc self-funded group, founded 1999
- ❑ Charter signed by 14 national ice services:
 - Argentina, Canada, Chile, Denmark (Greenland), Finland, Germany, Iceland, Norway, Poland, Russia, Sweden, United States, British Antarctic Survey, and the International Ice Patrol
 - Active participation by Australia and South Africa
- ❑ Coordinates provision of sea ice and iceberg information by the national ice services
- ❑ Promotes standardization of ice information globally
- ❑ Forum to exchange information, scientific / technical advances, best practices
- ❑ Advisory body to WMO / IOC expert teams



Polar Code Support: *Ice Logistics Portal* (<http://www.bsis-ice.de/IcePortal/>)

- Convenient single point of access to current ice charts produced by all the national ice services
- Linked on ASBPIF Portal from Polar Code Chapter 9 – Safety of Navigation

Ice Logistics Portal 

World regions: [Southern](#) | [Northern 90W](#) | [Northern 90E](#) | [MetAreas](#) | [Position](#) [Home](#) | [Contact Us](#)

- ◆ **S411 ECDIS charts**
 - >> Actual S411 charts
- ◆ **Background Information**
 - >> Sea Ice Service of the World
 - >> Manual of Standard Procedures for Observing and Reporting Ice Conditions
 - >> SIGRID-3: A Vector Archive Format for Sea Ice Charts
 - >> Ice Chart Colour Code Standard
- ◆ **Links**
 - >> JCOMM-ETSI
 - >> GMDSS-MetArea

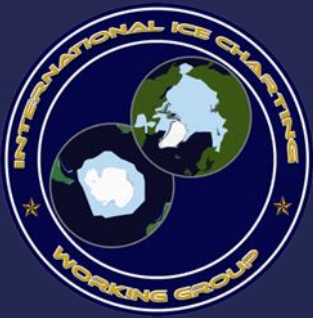
The Ice Logistics Portal was created as a joint initiative of the International Ice Charting Working Group, the JCOMM Expert Team on Sea Ice and Polar View for the International Polar Year. It is now maintained by the German Bundesamt für Seeschifffahrt und Hydrographie. It is intended to create a convenient point of access to operational sea ice information produced by the world's ice services. Access to products is provided via a series of predefined regions for both the Arctic and the Antarctic. Since the primary focus of the Ice Logistics Portal is on operational sea ice data (i.e. ice charts), only the most recent information is displayed for any given region.

Enter **High Connection Speed Site**
- For broadband connection

Enter **Low Connection Speed Site**
- Text only for dial-up connection

As a new feature it is now possible to choose charts according to a given geographic position. Up till now the position can be input only as full degrees .

AMSR-2 passive microwave sea ice data can be found at the [University Bremen](#). Synthetic aperture radar data can be found at [polarview](#).



Polar Code Support: *Enhanced Navigation*



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World regions: [Southern](#) | [Northern 90W](#) | [Northern 90E](#) | [MetAreas](#) | [Position](#)

S411 ice charts for ECDIS

The sea ice charts in S411 format are intended for the use in an ECDIS (or a simulator). If you are not sure, please contact your ECDIS Provider if your system is still not capable for this.

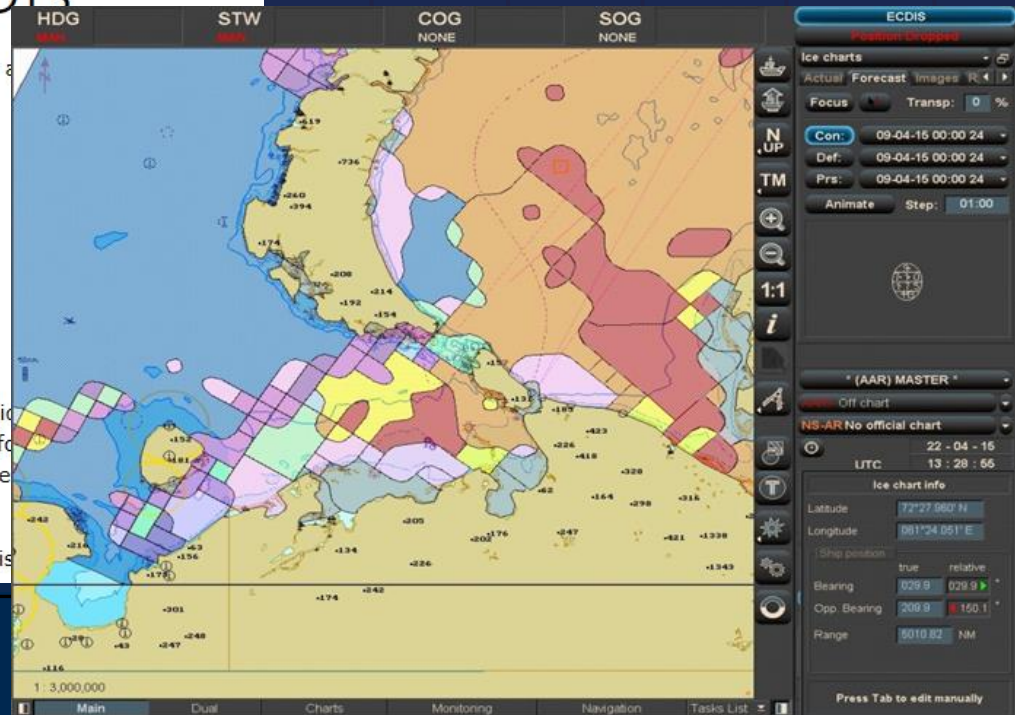
Available actual ice charts are:

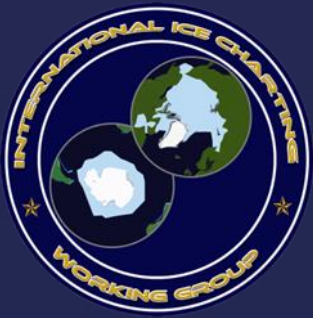
- [Canadian Eastern Arctic](#) from CIS =>Quicklooks (2020/10/12)
- [Canadian Western Arctic](#) from CIS =>Quicklooks (2020/10/12)
- [Hudson Bay](#) from CIS =>Quicklooks (2020/10/19)
- [Alaska Waters](#) from US_NWS =>Quicklooks (2020/10/21)
- [Arctic](#) from US NIC =>Quicklooks (2020/10/15)
- [Northern North-Atlantic](#) from Met.no =>Quicklooks (2020/10/21)

The previews are done with a simple python script and just should give an idea of the content. The used colors are not transparent (as they would be as overlay for other charts). Depending on the region, the charts are shown in polar stereographic or mercator projection.

Actual charts as well as previous version are also available over ftp at <ftp://ftp.bsh.de/outgoing/Eisbericht/S411/>. Some background information is available at http://www.bsh.de/EN/Navigation/Navigation_Services/Navigation_Services_node.html.

- Ice objects catalogue
- Ice chart encoding
- Portrayal





Polar Code Support: *POLARIS Risk Assessment*

- Information needed to calculate the Risk Index Outcome comes from ice charts
 - ice concentration and stage of development

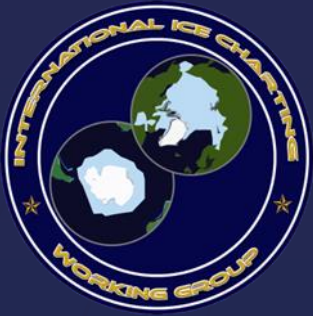
Increasing ice thickness (severity)

Increasing ice class

WINTER RISK VALUES (RVs)

POLAR SHIP CATEGORY	ICE CLASS	ICE FREE	NEW ICE	GREY ICE	GREY WHITE ICE	THIN FIRST YEAR 1ST STAGE	THIN FIRST YEAR 2ND STAGE	MEDIUM FIRST YEAR 1ST STAGE	MEDIUM FIRST YEAR 2ND STAGE	THICK FIRST YEAR	SECOND YEAR	LIGHT MULTI YEAR	HEAVY MULTI YEAR
		-	0-10 cm	10-15 cm	15-30 cm	30-50 cm	50-70 cm	70-95 cm	95-120 cm	120-200 cm	200-250 cm	250-300 cm	300+ cm
A	PC 1	3	3	3	3	2	2	2	2	2	2	1	1
	PC 2	3	3	3	3	2	2	2	2	2	1	1	0
	PC 3	3	3	3	3	2	2	2	2	2	1	0	-1
	PC 4	3	3	3	3	2	2	2	2	1	0	-1	-2
	PC 5	3	3	3	3	2	2	2	1	0	-1	-2	-2
B	PC 6	3	2	2	2	2	1	0	0	-1	-2	-3	-3
	PC 7	3	2	2	2	1	1	0	-1	-2	-3	-3	-3
C	IA Super	3	2	2	2	2	1	0	-1	-2	-3	-4	-4
	1A	3	2	2	2	1	0	-1	-2	-3	-4	-4	-4
	1B	3	2	2	1	0	-1	-2	-3	-3	-4	-5	-5
	1C	3	2	1	0	-1	-2	-2	-3	-4	-4	-5	-6
	NO ICE CLASS	3	1	0	-1	-2	-2	-3	-3	-4	-5	-6	-6

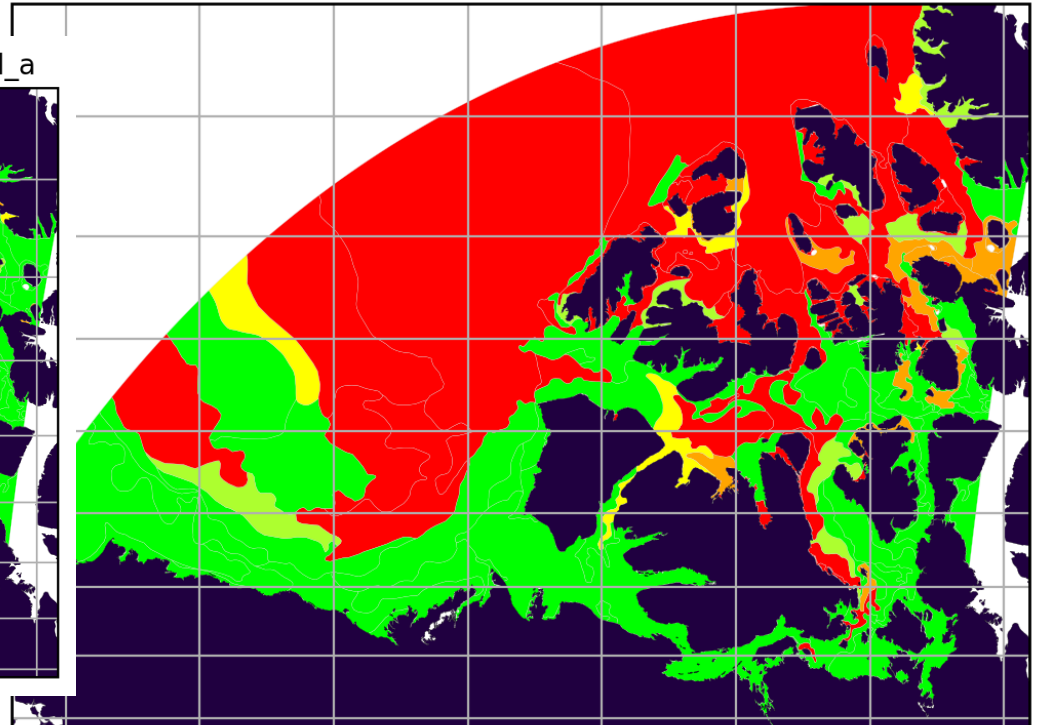
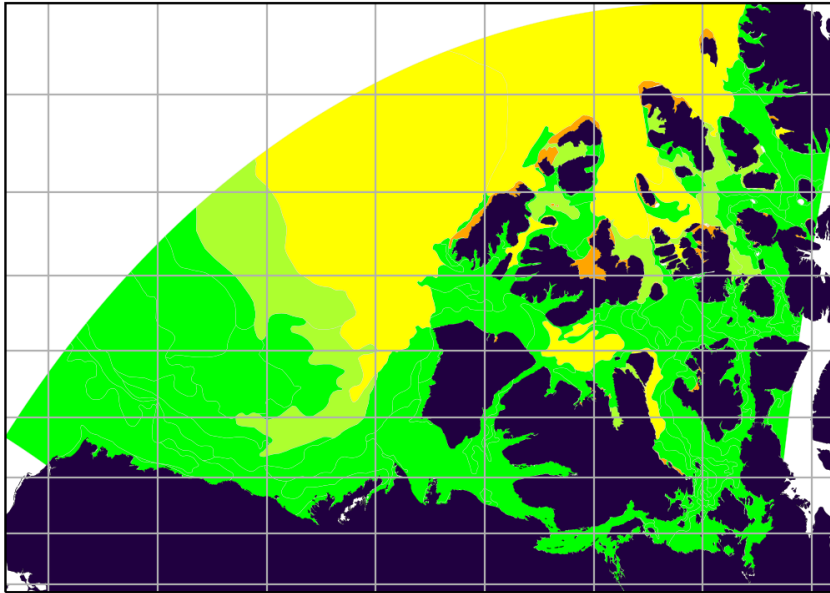
Increased Risk



Polar Code Support: *POLARIS Risk Assessment*

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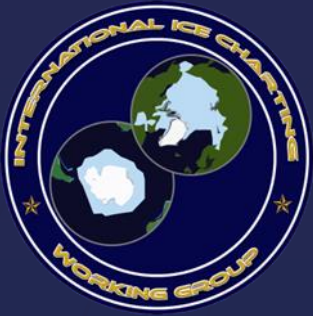
Light green: easy ice conditions ($\text{RIO} > 10$)

Yellow: normal ice operation ($5 > \text{RIO} > 0$)

Red: special consideration (normally No-Go) ($\text{RIO} < -10$)

Green: light ice conditions ($10 > \text{RIO} > 5$)

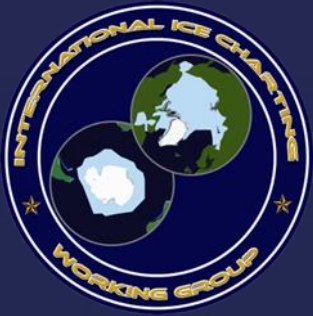
Orange: elevated risk ($0 > \text{RIO} > -10$)



2020-21 IICWG Workplan

selected projects

- Task Team 1 - Multi-Spectral SAR
- Task Team 3 - e-Navigation
- Task Team 8 - Maritime Training Centre Engagement
- Task Team 12 - Ice Chart Uncertainty 2nd Edition
- Task Team 13 - Iceberg Model Case Studies
- Task Team 14 - Iceberg Hazard Product
- Task Team 15 - Sea Ice Hazard Product



Engaging Mariner Training Centres

- Surveyed ice navigators and maritime training centres in 2019-2020
 - What ice information do mariners really need?
 - How can ice services help training centers deliver the best Polar Code training?

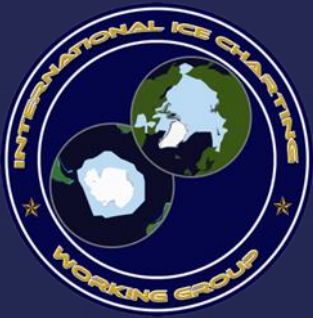


MARINER NEEDS

1. **Ice Charts in Shape files**
2. **Simplified ice products**
3. **Ice forecast products**
4. **Ice statistics**
5. **Risk-based products**

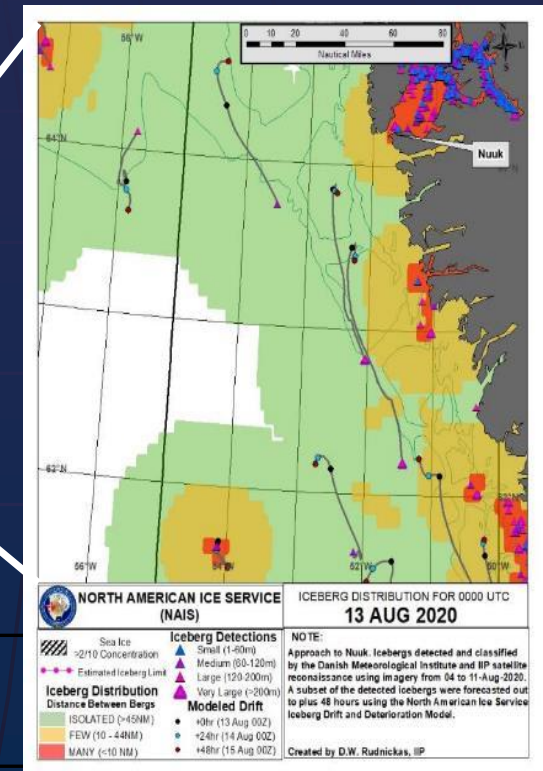
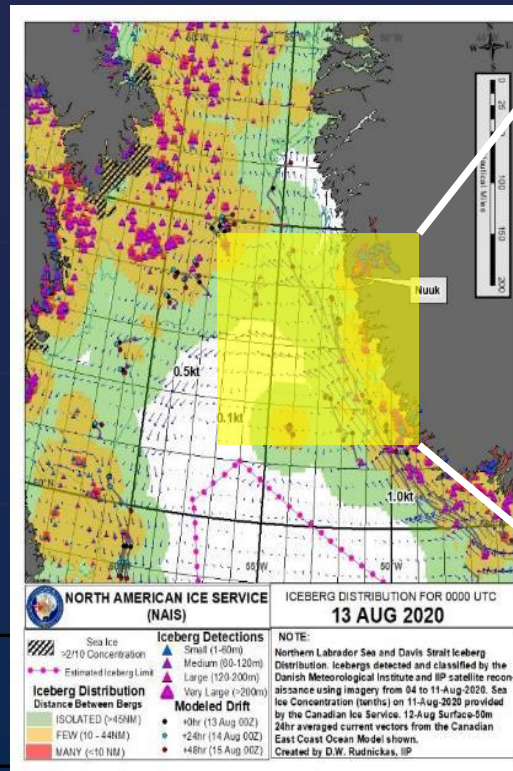
TRAINING NEEDS

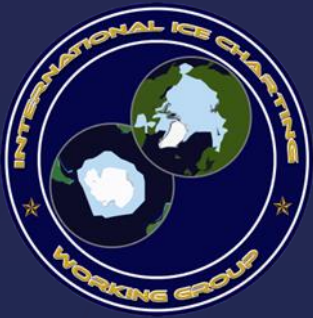
1. **Handbooks**
 1. ice observation technology
 2. satellite image analysis
 3. **Handbook** describing ice analysis
2. **Descriptions of ice products & services**
3. **Formal documents updated frequently**



Iceberg Hazard Product

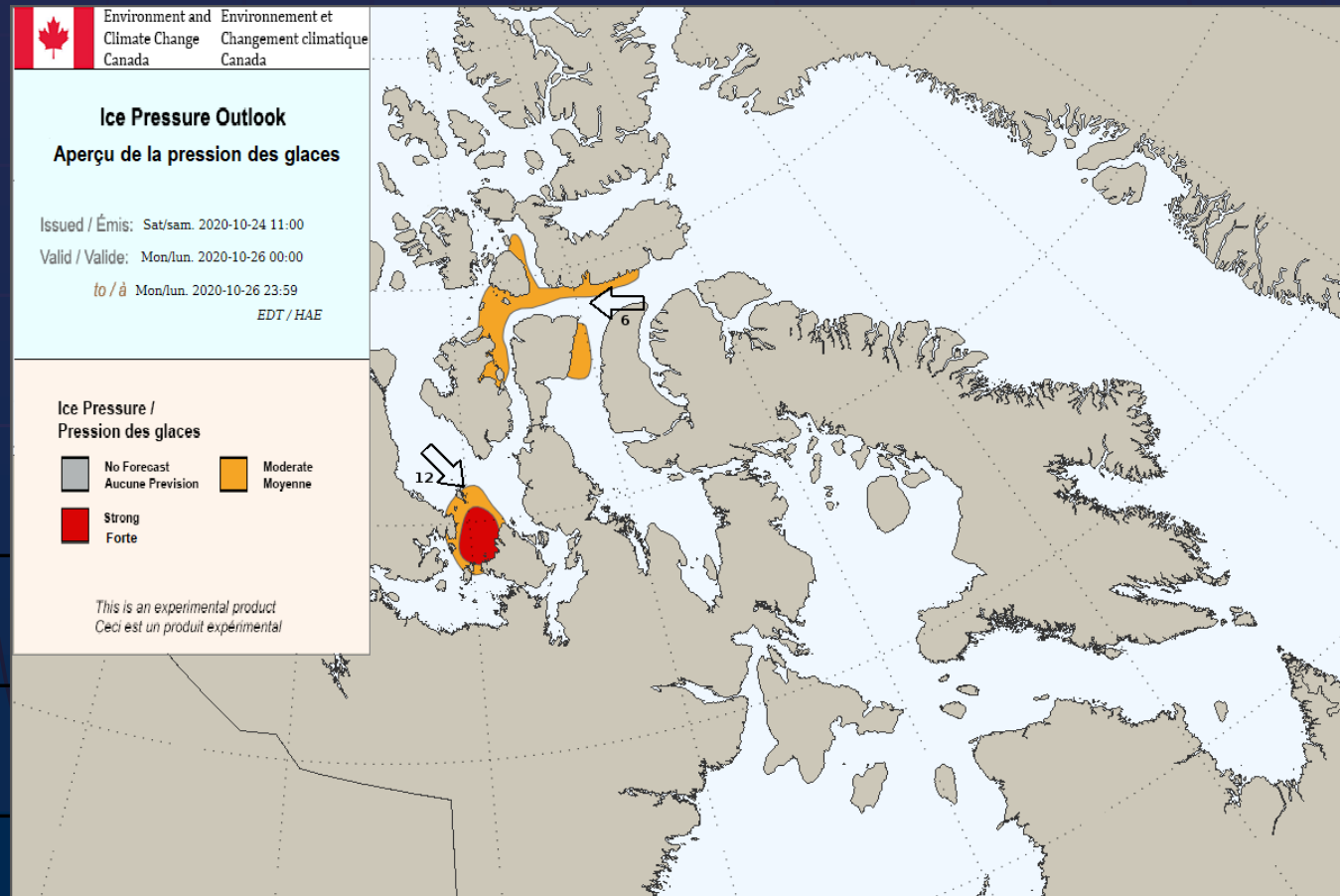
- Develop prototype iceberg density map into an operational product
- Make available in real-time to a select group of users through a Polar View test site
- Get feedback in real-time to exercise the whole value-chain
- Make adjustments as necessary





Sea Ice Hazard Product

- Develop a sea ice hazard prototype product in consultation with mariners
- Incorporate sea ice model output to forecast the development of the hazard
- Likely candidate is ice pressure
- Validation and verification by real users





Polar View

<https://www.polarview.aq/arctic>



Polar View

[Click for more information](#)

Available datasets

SAR imagery

- Sentinel-1 [Select image](#)
- Radarsat 2 [Select image](#)

Showing data for the last 72 hours (default)

Sea ice concentration

- AMSR2 Sea ice edge (15%) 2020-11-11
- AMSR2 Sea ice map 2020-11-11

Ice charts

- Ice chart (NIC, MIZ) 2020-11-11
- Ice chart (NIC, Con) 2020-11-05
- Ice chart (NIC, SoD) 2020-11-05

IMO Polar Code Polaris

Summer ice Winter ice

IB 2020-11-05

Sentinel 3 Mosaics

MODIS Mosaics

- MODIS Mosaic (yesterday) 2020-11-11

S1 Future Acquisitions

- S1 Foresight unknown

Showing data for the next 48 hours (default)

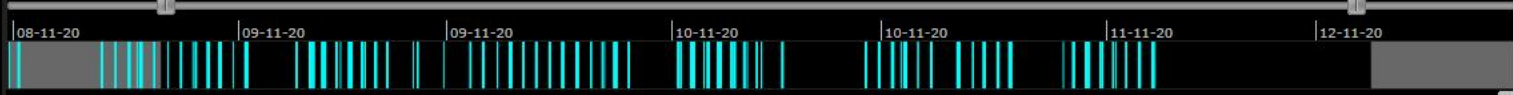
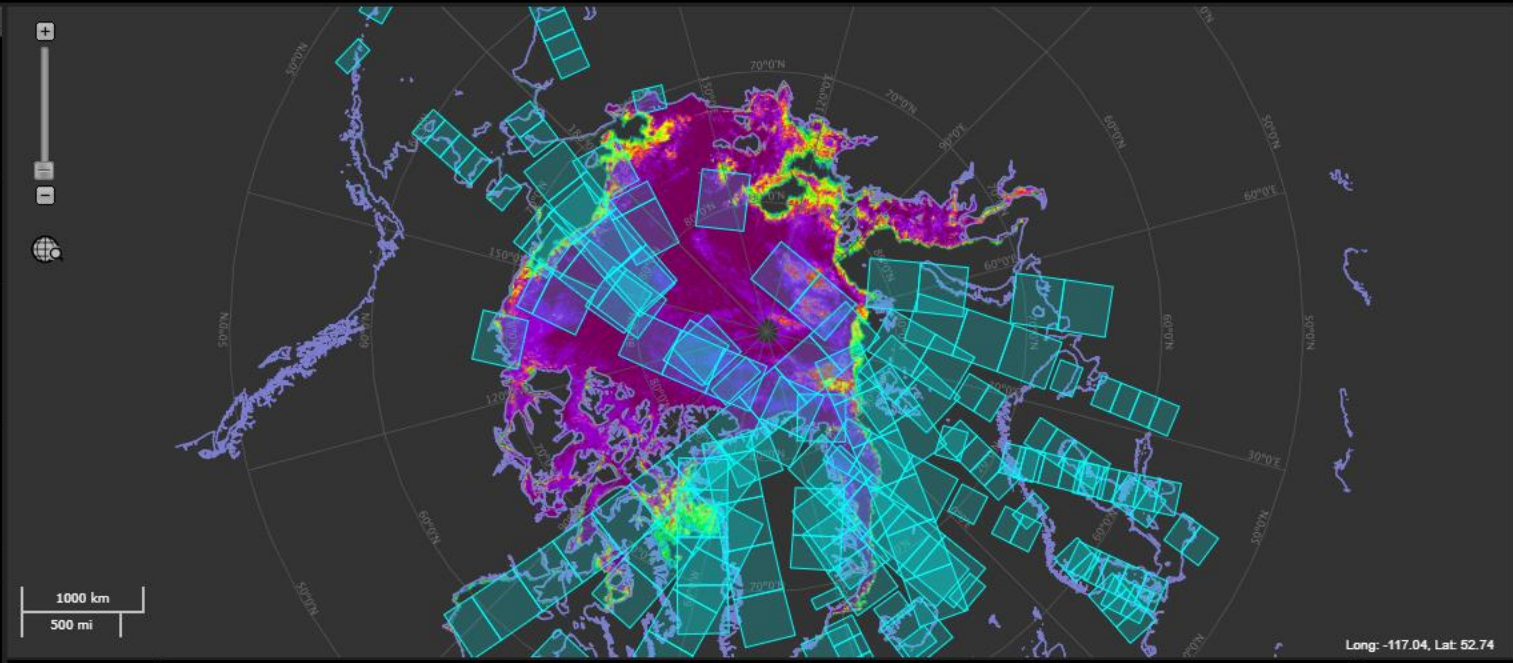


Image preview

Image preview thumbnails:

- SAR imagery
- Sea ice concentration
- Ice charts
- IMO Polar Code Polaris
- Sentinel 3 Mosaics
- MODIS Mosaics
- S1 Future Acquisitions



Thank you

On behalf of the world's ice services



Norway
South Africa
Finland
Sweden
Canada
IIP
Russia
Argentina
Germany
BAS
Australia
China