



**19<sup>th</sup> MEETING OF THE INTERNATIONAL ICE CHARTING WORKING GROUP**  
September 24-28, 2018 – Helsinki, Finland



**AGENDA**

*“Ice Information for Navigating the Sub-Polar Seas”*

<b>MONDAY, SEPTEMBER 24</b>		
Plenary Sessions will be held in “Brainstorm”		
<b>08:30 – 09:00</b>	<b>Registration</b>	
<b>09:00 – 09:45</b>	<b>Official Meeting Opening</b>	
09:00 – 09:10	<ul style="list-style-type: none"> <li>Welcome &amp; Opening Remarks</li> </ul>	Co-Chairs Marianne Thyrring (DMI) Tom Cuff (NOAA)
09:10 – 09:30	<ul style="list-style-type: none"> <li>Welcome from the Finnish Meteorological Institute</li> </ul>	Juhani Damski, Director-General, FMI
09:30 – 09:35	<ul style="list-style-type: none"> <li>Meeting Logistics</li> </ul>	Antti Kangas (FMI)
09:35 – 09:45	<ul style="list-style-type: none"> <li>Participant Introductions</li> </ul>	All - Roundtable
09:45 – 09:45	<ul style="list-style-type: none"> <li>Adoption of Agenda</li> </ul>	Co-Chairs
<b>09:45 – 10:30</b>	<b>Committee Reports</b>	
09:45 – 10:00	<ul style="list-style-type: none"> <li>Applied Science and Research Standing Committee</li> </ul>	Wolfgang Dierking (AWI) Dean Flett (CIS) Phillip Reid (BOM)
10:00 – 10:15	<ul style="list-style-type: none"> <li>Data, Information and Customer Support Standing Committee</li> </ul>	Alvaro Scardilli (SHNA) Penny Wagner (NIS) Chris Readinger (NIC)
10:15 – 10:30	<ul style="list-style-type: none"> <li>Iceberg Standing Committee</li> </ul>	Mike Hicks (IIP) Keld Qvistgaard (DMI)
<b>10:30 – 10:45</b>	<b>Health Break</b>	
<b>10:45 – 10:50</b>	<b>Report of the Secretariat</b>	John Falkingham (Secretariat)
<b>10:50 – 11:00</b>	<b>Reports from Other Ice Working Groups</b> Written reports/presentations to be circulated before the meeting. Presenters will be asked to highlight top issues verbally to save time.	
	<ul style="list-style-type: none"> <li>Baltic Sea Ice Meeting</li> </ul>	Jürgen Holfort (BSH)
	<ul style="list-style-type: none"> <li>European Ice Services</li> </ul>	Nick Hughes (NIS)
	<ul style="list-style-type: none"> <li>North American Ice Service</li> </ul>	Kristen Serumgard (IIP)
	<ul style="list-style-type: none"> <li>IAPB / IPAB</li> </ul>	John Woods (NIC)
	<ul style="list-style-type: none"> <li>Expert Team on Sea Ice</li> </ul>	Vasily Smolyanitsky (AARI)
<b>11:00 – 11:15</b>	<b>Arctic Regional Climate Centre – PARCOF-1 Report</b>	John Parker (ECCC)
<b>11:15 – 11:45</b>	<b>Review of Plenary Action Items</b>	Co-Chairs
<b>11:45 – 12:00</b>	<b>Introduction of Proposed Press Release</b>	John Falkingham / Shanna Pitter (Secretariat)
<b>12:00 – 13:00</b>	<b>Lunch</b>	



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<b>13:00 – 13:15</b> <b>webcast</b>	<b>Introduction to Plenaries 1 – 2 – 3</b>	Keld Qvistgaard (DMI)
13:05 – 13:15	<ul style="list-style-type: none"> <li>“Big Data, Artificial Intelligence”: What Do We Mean?</li> </ul>	Richard Hall (Equinor)
<b>13:15 – 14:30</b> <b>webcast</b>	<b>1<sup>st</sup> Plenary Session: Identifying the Problem -</b> <b>“So Much Data – So Little Information? The Ice Navigation Dilemma”</b>	Keld Qvistgaard (DMI) / Penny Wagner (NIS) / Richard Hall (Equinor)
13:15 – 13:35	<ul style="list-style-type: none"> <li>Data Availability Evolution</li> </ul>	Richard Hall (Equinor)
13:35 – 14:30	<ul style="list-style-type: none"> <li>Interactive Discussion with all Participants</li> </ul>	Penny Wagner (NIS)
<b>14:30 - 14:45</b>	<b>Poster Introductions</b> (2 x 5 minutes each)	<ul style="list-style-type: none"> <li>Gabrielle McGrath (RPS)</li> <li>Marko Mäkynen (FMI)</li> <li>Hugo Isaksen (KSAT)</li> </ul>
<b>14:45 – 15:30</b>	<b>Health Break &amp; Poster Session</b>	
<b>15:30 – 16:15</b>	<b>1<sup>st</sup> Committee Working Sessions – Part 1</b>	
	<ul style="list-style-type: none"> <li>Applied Science and Research (ASRSC) <ul style="list-style-type: none"> <li>Room Aura</li> </ul> </li> </ul>	Wolfgang Dierking (AWI) Dean Flett (CIS)
	<ul style="list-style-type: none"> <li>Data, Information and Customer Support (DICSSC) <ul style="list-style-type: none"> <li>Room Aqua+Terra</li> </ul> </li> </ul>	Penny Wagner (NIS) Chris Readinger (NIC)
<b>16:15 – 17:00</b>	<b>1<sup>st</sup> Committee Working Sessions – Part 2</b>	
	<ul style="list-style-type: none"> <li>Iceberg Committee <ul style="list-style-type: none"> <li>Room Aqua+Terra</li> </ul> </li> </ul>	Mike Hicks (IIP) Keld Qvistgaard (DMI)
	<ul style="list-style-type: none"> <li>Joint ASRSC + DICSSC <ul style="list-style-type: none"> <li>Room Aura</li> </ul> </li> </ul>	Committee Co-Chairs
<b>17:00</b>	<b>End of Day 1</b>	
<b>17:00 – 19:00</b>	<b>Icebreaker Reception</b> In front of Brainstorm Theatre	Hosted by Finnish Meteorological Institute



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*“Ice Information for Navigating the Sub-Polar Seas”*

<b>TUESDAY SEPTEMBER 25</b>		
Plenary Sessions will be held in “Brainstorm”		
<b>08:00 – 08:30</b>	<b>Registration</b>	
<b>08:30 – 12:15</b> <b>webcast</b>	<b>Operations Workshop</b>	
	<ul style="list-style-type: none"> <li>Welcome from the Co-Chairs of the Data, Information and Customer Support Standing Committee (DICSSC)</li> </ul>	Alvaro Scardilli (SHNA) Penny Wagner (NIS) Chris Readinger (NIC)
<b>08:35 – 09:45</b>	<b>Session 1: Ice Information for Navigating the Sub-Polar Seas</b>	<b>Chris Readinger (NIC)</b>
08:35 – 08:45	<ul style="list-style-type: none"> <li>Ice Navigation and Shipping Tracks in the Baltic Sea – A Review</li> </ul>	Klaus Strübing (BSH Ret)
08:45 – 09:00	<ul style="list-style-type: none"> <li>Ice on the US East Coast</li> </ul>	Chris Readinger (NIC)
09:00 – 09:15	<ul style="list-style-type: none"> <li>IIP/NAIS Iceberg Limit Product</li> </ul>	Mike Hicks (IIP)
09:15 – 09:30	<ul style="list-style-type: none"> <li>Due South</li> </ul>	Jan Lieser (UTAS)
09:30 – 09:45	<ul style="list-style-type: none"> <li>Discussion with all participants</li> </ul>	Penny Wagner (NIS)
<b>09:45 – 10:00</b>	<b>Poster Introductions (3 x 5 minutes each)</b>	<ul style="list-style-type: none"> <li>Oleg Folomeev (AARI)</li> <li>Louise Ireland (BAS)</li> </ul>
<b>10:00 – 10:45</b>	<b>Health Break &amp; Poster Session</b>	
<b>10:45 – 12:15</b>	<b>Session 2: Ice information Products for a New Breed of Ice Navigators Armed with New Technology</b>	<b>Penny Wagner (NIS)</b>
10:45 – 11:05	<ul style="list-style-type: none"> <li>The Foundation of At-Sea Operations: What Mariners Need</li> </ul>	Capt. David (Duke) Snider (Nautical Institute)
11:05 – 11:25	<ul style="list-style-type: none"> <li>Ice Information Production: Ice Analyst Roles Past and Present</li> </ul>	Catalin Tita (CIS)
11:25 – 12:15	<ul style="list-style-type: none"> <li>Panel Discussion on how Ice Services are evolving in response to user demands and new technologies</li> </ul>	John Parker (CIS) Marianne Thyrring (DMI) Kevin Berberich (NIC) Antti Kangas (FMI) Nick Hughes (NIS) Lisa Lind (SMHI)
<b>12:15 – 13:15</b>	<b>Lunch</b>	
<b>13:15 – 16:30</b> <b>webcast</b>	<b>2nd Plenary Session: Solutions - “Big Data, Artificial Intelligence, and the Role of the Ice Analyst”</b>	Keld Qvistgaard (DMI) / Penny Wagner (NIS) / Richard Hall (Equinor)
13:15 – 13:30	<ul style="list-style-type: none"> <li>Capabilities of Artificial Intelligence in Ice Charting</li> </ul>	Matilde Brandt Kreiner (DMI)
13:30 – 13:45	<ul style="list-style-type: none"> <li>NOAA STAR Research on AI in Ice Charting</li> </ul>	Sean Helfrich (NOAA)
13:45 – 14:00	<ul style="list-style-type: none"> <li>Where can machine learning take us? IIP's work with the NASA Jet Propulsion Laboratory</li> </ul>	Mike Hicks (IIP)
14:00 – 14:15	<ul style="list-style-type: none"> <li>Cloud-based handling and operational use of big data – opportunity, risk, necessity</li> </ul>	Andreas Czifersky (BAS)
14:15 – 15:15	<ul style="list-style-type: none"> <li>Breakout groups discuss “Big Data, Artificial Intelligence, and the Role of the Ice Analyst” (ref: Background Paper)</li> </ul>	Rooms Aura, Aqua, Terra, Mare, Cafeteria
<b>15:15 – 16:00</b>	<b>Health Break &amp; Poster Session</b>	



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16:00 – 16:30	Breakout groups report to plenary	
16:30 – 16:45	Summary Discussion	
<b>16:45</b>	<b>END OF DAY 2</b>	
<b>17:00 - 17:30</b>	<p style="text-align: center;"><b><i>Ad-hoc Southern Ocean Gathering</i></b></p> <ul style="list-style-type: none"><li>• Open invitation to anyone interested in Southern Ocean issues<ul style="list-style-type: none"><li>○ Room Aqua</li></ul></li></ul>	Jan Lieser (UTAS)



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<b>WEDNESDAY SEPTEMBER 26</b>		
Plenary Sessions will be held in “Brainstorm”		
<b>08:00 – 08:30</b>	<b>Welcome Coffee &amp; Poster Session</b>	
<b>08:30 – 12:00</b> <b>webcast</b>	<b>Science Workshop</b>	
	<ul style="list-style-type: none"> <li>Welcome from the Co-Chairs of the Applied Science and Research Standing Committee (ASRSC)</li> </ul>	Wolfgang Dierking (AWI) Dean Flett (CIS) Phillip Reid (BOM)
<b>08:35 – 09:45</b>	<b>Session 1:</b>	
08:35 – 09:05	<ul style="list-style-type: none"> <li>Ice Monitoring : Melting Stage</li> </ul>	John Yackel (UCalgary)
09:05 – 09:35	<ul style="list-style-type: none"> <li>Altimetry for Sea Ice</li> </ul>	Amandine Guillot (CNES)
<b>09:35 – 09:50</b>	<b>Poster Introductions</b> <b>(3 x 5 minutes each)</b>	<ul style="list-style-type: none"> <li>John Yackel (UCalgary)</li> <li>Suman Singha (DLR)</li> <li>Lasse Rabenstein (Drift&amp;Noise)</li> </ul>
<b>09:50 – 10:45</b>	<b>Health Break &amp; Poster Session</b>	
<b>10:45 – 11:50</b>	<b>Session 2:</b>	
10:45 – 11:05	<ul style="list-style-type: none"> <li>Earth Observation Data for Maritime Navigation</li> </ul>	Leif Eriksson (Chalmers Univ)
11:05 – 11:25	<ul style="list-style-type: none"> <li>Sea Ice Drift</li> </ul>	Anton Korosov (NERSC)
11:25 – 11:45	<ul style="list-style-type: none"> <li>Leveraging Historical, Current and Forecast Information to Support Safe Navigation in Ice-Infested Waters</li> </ul>	Philippe Lamontagne (NRCC)
11:45 – 11:50	<ul style="list-style-type: none"> <li>Workshop Summary and Wrap-up</li> </ul>	ASRSC Co-Chairs
<b>11:50 - 12:00</b>	<b>Group Photo</b>	
<b>12:00 – 13:00</b>	<b>Lunch</b>	
<b>13:00 – 15:00</b> <b>webcast</b>	<b>3rd Plenary Session:</b> <b>“Transitioning to Future Satellite/Sensor Conceptions”</b>	<b>Mike Hicks (IIP) / Patrick Eriksson (FMI)</b>
13:00 – 13:20	<ul style="list-style-type: none"> <li>Use of Satellite Information to Optimize Drone Coverage, Navigation and Data Collection</li> </ul>	Rune Storbvold (NORUT)
13:20 – 13:40	<ul style="list-style-type: none"> <li>Equinor’s Ice Surveillance Common Operating Picture for Newfoundland</li> </ul>	Richard Hall (Equinor)
13:40 – 14:00	<ul style="list-style-type: none"> <li>ICEYE Satellite Constellation for Ice Monitoring</li> </ul>	Pekka Laurila (IceEye Ltd.)
14:00 – 14:20	<ul style="list-style-type: none"> <li>ESA – The Future Sentinels</li> </ul>	Ola Gråbak (ESA)
14:20 – 15:00	<ul style="list-style-type: none"> <li>Panel Discussion – How do we get from “here” to “there”: science and technology developments needed</li> </ul> Moderator: Mike Hicks	Ruth Lane (NIC) Kristen Serumgard (IIP) Ola Gråbak (ESA) Suman Singha (DLR) Wolfgang Dierking (AWI)
<b>15:00 – 15:15</b>	<b>Health Break</b>	
<b>15:15 – 17:30</b>	<b>Technical Tour to the Arctech Shipyard</b>	Bus provided by FMI
<b>END OF DAY 3</b>		
<b>19:00</b>	<b>Meeting Dinner</b> <b>Hosted by the Finnish Meteorological Institute</b>	<b>Restaurant Meripaviljonki</b> Säästöpankinranta 3



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<b>THURSDAY SEPTEMBER 27</b>		
Plenary Sessions will be held in “Brainstorm”		
<b>08:00 – 08:30</b>	<b>Welcome Coffee &amp; Poster Session</b>	
<b>08:30 – 08:50</b>	<b>Special Presentation</b>	
	<ul style="list-style-type: none"> <li>Multi-Frequency SAR Classification of Sea Ice</li> </ul>	Wolfgang Dierking (AWI)
<b>08:50 – 10:30</b>	<b>Committee Discussion Session</b>	
	<ul style="list-style-type: none"> <li>All Committee Meeting               <ul style="list-style-type: none"> <li>Room Brainstorm</li> </ul> </li> </ul>	Committee Co-Chairs
<b>10:30 – 11:00</b>	<b>Health Break and Poster Session</b>	
<b>11:00 – 12:30</b> <b>webcast</b>	<b>4<sup>th</sup> Plenary Session: Presentations and Panel Discussion</b> <i>“Maritime Training Centres as Users of Ice Information”</i>	<b>Keld Qvistgaard (DMI) /</b> <b>David Jackson (CIS)</b>
11:00 – 11:20	<ul style="list-style-type: none"> <li>Makarov Training Centre</li> </ul>	Igor Zlodeev
11:20 – 11:40	<ul style="list-style-type: none"> <li>Marstal Maritime Education Centre</li> </ul>	Bjørn Kay
11:40 – 12:00	<ul style="list-style-type: none"> <li>Satakunta University of Applied Sciences</li> </ul>	Jarmo Teränen
12:00 – 12:30	<ul style="list-style-type: none"> <li>Panel Discussion: How can Ice Services work with the Training Centres to produce better ice mariners?</li> </ul>	Moderator: Keld Qvistgaard
<b>12:30 – 13:30</b>	<b>Lunch</b>	
<b>13:30 – 15:15</b> <b>webcast</b>	<b>5<sup>th</sup> Plenary Session: Feedback</b> <i>“Perspectives from Baltic/Arctic Ice Information Users”</i>	<b>Antti Kangas (FMI)</b>
13:30 – 13:45	<ul style="list-style-type: none"> <li>Finnish-Swedish Winter Navigation Information System</li> </ul>	Tuomas Taivi (Finnish Transport Agency)
13:45 – 14:00	<ul style="list-style-type: none"> <li>National Geographic Explorer 2018 Arctic Connectivity Trial - A Case Study</li> </ul>	Teemu Vanninen (KNL Networks)
14:00 – 14:15	<ul style="list-style-type: none"> <li>Travel Time Estimations in Icy Waters</li> </ul>	Lauri Seitsonen (VTT)
14:15 – 14:30	<ul style="list-style-type: none"> <li>CMEMS Arctic Service Portfolio</li> </ul>	Antonio Reppucci (CMEMS)
14:30 – 14:45	<ul style="list-style-type: none"> <li>FMI-SMHI Common Ice Chart Production</li> </ul>	Lisa Lind (SMHI)
14:45 – 15:15	<ul style="list-style-type: none"> <li>Questions, Discussion and Feedback</li> </ul>	Moderator: Antti Kangas
<b>15:15 – 15:45</b>	<b>Health Break &amp; Poster Session</b>	
<b>15:45 – 17:00</b>	<b>Joint Committee Working Sessions</b>	
	<ul style="list-style-type: none"> <li>Ad-hoc Committee on the Strategic Vision</li> </ul>	Brainstorm
		Aqua
<b>17:00</b>	<b>End of Day 4</b>	



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<b>FRIDAY SEPTEMBER 28</b>		
Plenary Sessions will be held in “Brainstorm”		
<b>08:00 – 08:30</b>	<b>Welcome Coffee &amp; Poster Session FMI Weather Service Tour</b>	
<b>08:30 – 10:00</b>	<b>Joint Committee Working Sessions Brainstorm</b>	<b>Co-Chairs</b>
<b>10:00 – 10:30</b>	<b>Health Break and Poster Session</b>	
<b>10:30 – 12:00</b> <b>webcast</b>	<b>6<sup>th</sup> Plenary Session: “New Concepts for Ice Chart Portrayal and Visualization”</b>	<b>Jürgen Holfort (BSH)</b>
10:30 – 10:45	• High Resolution Ice Charts – Fiction or Challenge?	Klaus Strübing (BSH Ret)
10:45 – 11:00	• Evolution of Vector Ice Charts	Jurgen Holfort (BSH)
11:00 – 11:15	• Ice Charts in the ECDIS World	Christina Ulrich (7Cs)
11:15 – 11:30	• User Needs of Global Ice Navigators in a Digitized World	Lasse Rabenstein (Drift & Noise Polar Services GmbH)
11:30 – 12:00	• Discussion: The future of ice charts	Moderator: Jürgen Holfort
<b>12:00 – 13:00</b>	<b>Open Meeting Summary and Close</b>	<b>Co-Chairs</b>
12:00 – 12:10	• Approval of Press Release	John Falkingham (IICWG) / Shanna Pitter (NOAA)
12:10 – 12:30	• Summary of Proposed Actions	John Falkingham (IICWG) / Shanna Pitter (NOAA)
12:30 – 12:45	• Comments on the meeting • Suggestions for future meetings	All
12:45 – 12:50	• IICWG XX Announcement	Marianne Thyrring (DMI)
12:50 – 13:00	• Final Words & Acknowledgments	Co-Chairs
<b>END OF OPEN MEETING</b>		
<b>13:00 – 13:45</b>	<b>Lunch</b>	



## AGENDA

*“Ice Information for Navigating the Sub-Polar Seas”*

<b>FRIDAY SEPTEMBER 28</b>		
<b>IICWG BUSINESS MEETING</b>		
To be held in room “Brainstorm”		
<b>13:45 – 14:00</b>	<b>Opening Remarks</b>	<b>Co-Chairs</b>
	<ul style="list-style-type: none"> <li>Review / Adoption of Agenda</li> </ul>	
<b>14:00 – 14:45</b>	<b>Discussion on Business Arising</b>	Co-Chairs
	<ul style="list-style-type: none"> <li>IICWG Vision and Structure</li> </ul>	
<b>14:45 – 15:15</b>	<b>Review of Task Teams and Actions</b>	John Falkingham / Shanna Pitter-Combley
<b>15:15 – 15:30</b>	<b>Health Break</b>	
<b>15:30 – 15:45</b>	<b>Discussion on Business Arising (cont)</b>	
	<ul style="list-style-type: none"> <li>Recommendation for Passive Microwave Radiometer Mission</li> </ul>	John Falkingham
	<ul style="list-style-type: none"> <li>Engaging with Arctic Council Senior Arctic Officials on the Meteorological Cooperation Theme</li> </ul>	Shanna Pitter-Combley / Marianne Thyrring
	<ul style="list-style-type: none"> <li>Interaction with the Arctic Shipping Best Practices Information Forum Web Portal</li> </ul>	Marianne Thyrring / Jürgen Holfort
<b>15:45 – 16:00</b>	<b>Planning for IICWG-XX</b>	Co-Chairs
	<ul style="list-style-type: none"> <li>Nominations for IICWG-XX Organizing Committee</li> </ul>	
<b>16:45 – 17:00</b>	<b>Close of Business Meeting</b>	Co-Chairs
	<ul style="list-style-type: none"> <li>Final words and charge from Co-Chairs</li> </ul>	
<b>END OF IICWG-XIX</b>		

<b>SATURDAY SEPTEMBER 29</b>	
<b>09:30 – 14:00</b>	<p><b>Post-Meeting Excursion to Suomenlinna World Heritage Site</b> <a href="https://www.suomenlinna.fi/en">https://www.suomenlinna.fi/en</a></p> <ul style="list-style-type: none"> <li>Take the ferry to Suomenlinna from market square at 9:40. The tour will start at 10:00 from the ferry pier at Suomenlinna.</li> </ul>



## AGENDA

### *“Ice Information for Navigating the Sub-Polar Seas”*

#### **Posters**

1. Suman Singha (DLR): *Potential of Compact Polarimetry for Operational Sea Ice Monitoring over Arctic and Antarctic Regions*
2. Louise Ireland (BAS), Andrew Fleming, Andreas Czifersky, David Herbert: *Demo – POLARIS Calculations Based on NIC Ice Charts*
3. Eero Rinne, Heidi Sallila, Markku Similä, Antti Kangas (FMI), Amandine Guillot (CNES); *Radar Altimetry to Support Ice Navigation*
4. Alexandru Gegiuc (FMI): *Eye Tracking in Ice Charting (ETIC)*
5. Lasse Rabenstein (Drift & Noise Polar Service): *PRedictive Ice IMAgEs (PRIIMA) – An ESA Kickstart Project*
6. Gabrielle McGrath (RPS Ocean Science): *Data Integration to Support Decision-Making for Mission Critical Operations*
7. Marko Mäkynen, Juha Karvonen, Mwaba Hiltunen, Bin Cheng, Patrick Eriksson, Antti Kangas, Eero Rinne (FMI): *Coastal Downstream Service for the Baltic Sea Landfast Ice Extent and Thickness*
8. Mallik Mahmud, John Yackel: *Incidence Angle Dependency of C- and L-Band SAR Backscatter*
9. Oleg Folomeev, Makarov E., Frolov S., Lyamzin M., Godvod A., Afanasyeva E., Ivaniv V. (AARI): *Planning of Transit Passage for the LNG/Cs “Vladimir Rusanov” and “Eduard Tolle” and Optimization of the LNG/C “Christophe de Margerie” Route*
10. Hugo Isaksen (KSAT); *Near Real-Time Multi-Mission SAR*



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#### ACRONYMS

AAD	Australian Antarctic Division	IABP	International Arctic Buoy Program
AARI	Arctic and Antarctic Research Institute	IIP	International Ice Patrol
ACECRC	Antarctic Climate and Ecosystems Cooperative Research Centre	IMetO	Icelandic Meteorological Office
ASF	Alaska Satellite Facility	IMO	International Maritime Organization
ASRSC	Applied Science and Research Standing Committee	IPAB	International Programme for Antarctic Buoys
AWI	Alfred Wegener Institute for Polar and Marine Research	ITOPF	International Tanker Owners Pollution Federation Ltd.
BAS	British Antarctic Survey	JPL	Jet Propulsion Laboratory
BSIM	Baltic Sea Ice Meeting	KSAT	Kongsberg Satellite Services
BSH	Bundesamt für Seeschifffahrt und Hydrographie	met.no	Norwegian Meteorological Institute
BOM	Australian Bureau of Meteorology	MSC	Meteorological Service of Canada
CCG	Canadian Coast Guard	NAIS	North American Ice Service
CDPF	Canadian Data Processing Facility	NERSC	Nansen Environmental and Remote Sensing Center
CIS	Canadian Ice Service	NIC	National Ice Center
CLS	Collecte localisation satellites	NIS	Norwegian Ice Service
CMEMS	Copernicus – Marine Environment Monitoring Service	NMI	Norwegian Meteorological Institute
CNES	Centre national d'études spatiales, France	NOAA	National Oceanic and Atmospheric Administration
COMNAP	Council of Managers of National Antarctic Programs	NRCC	National Research Council Canada
CPOM	Centre for Polar Observation and Modelling	NRL	Naval Research Laboratory
CSA	Canadian Space Agency	NSIDC	National Snow and Ice Data Center
DICSSC	Data, Information and Customer Support Standing Committee	NSOC	NOAA Satellite Operations Center
DLR	Deutsches Zentrum für Luft- und Raumfahrt (German Aerospace Center)	NWS	National Weather Service
DMI	Danish Meteorological Institute	OSRL	Oil Spill Response Ltd.
ECCC	Environment and Climate Change Canada	SMHI	Swedish Meteorological and Hydrological Institute
EC-PHORS	WMO Executive Council Panel of Experts on Polar and High Altitude Observations, Research and Services	SHNA	Servicio de Hidrografía Naval de Argentina
EIS	European Ice Services	SPRI	Scott Polar Research Institute
EMSA	European Maritime Safety Agency	UCL	University College London
ESA	European Space Agency	UAF	University of Alaska Fairbanks
ETSI	Expert Team on Sea Ice	UTAS	University of Tasmania
FMI	Finnish Meteorological Institute	WMO	World Meteorological Organization
IAATO	International Association of Antarctic Tour Operators		