# AGENDA

"New technologies, big data, and the future of ice charting and forecasting"

Institute for Marine and Antarctic Studies (IMAS), University of Tasmania (UTAS)
Waterfront Building, 20 Castray Esplanade, Battery Point, Hobart

## MONDAY, SEPTEMBER 25

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
<th>Speakers/Representatives</th>
</tr>
</thead>
<tbody>
<tr>
<td>08:30 – 09:00</td>
<td>Registration</td>
<td></td>
</tr>
<tr>
<td>09:00 – 09:45</td>
<td>Official Meeting Opening</td>
<td>Marianne Thyrring (DMI) / Diane Campbell (ECCC)</td>
</tr>
<tr>
<td>09:00 – 09:10</td>
<td>Co-Chairs’ Welcome &amp; Opening Remarks</td>
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<tr>
<td>09:10 – 09:30</td>
<td>Welcome from the Antarctic Climate and Environment Cooperative Research Centre (ACE CRC)</td>
<td>Anthony Worby (CSIRO) / Prof. Richard Coleman, Director, Institute of Marine and Antarctic Studies (IMAS)</td>
</tr>
<tr>
<td>09:30 – 09:45</td>
<td>Participant Introductions</td>
<td>All - Roundtable</td>
</tr>
<tr>
<td>09:45 – 09:45</td>
<td>Adoption of Agenda</td>
<td>Co-Chairs</td>
</tr>
<tr>
<td>09:45 – 10:30</td>
<td>Committee Reports</td>
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<tr>
<td>09:45 – 10:00</td>
<td>Applied Science and Research Standing Committee</td>
<td>Wolfgang Dierking (AWI) / Phillip Reid (BOM) / Dean Flett (CIS)</td>
</tr>
<tr>
<td>10:00 – 10:15</td>
<td>Data, Information and Customer Support Standing Committee</td>
<td>Antti Kangas (FMI) / Chris Readinger (NIC) / Alvaro Scardilli (SHNA)</td>
</tr>
<tr>
<td>10:15 – 10:30</td>
<td>Iceberg Sub-Committee</td>
<td>Mike Hicks (IIP) / Keld Qvistgaard (DMI)</td>
</tr>
<tr>
<td>10:30 – 10:45</td>
<td>Health Break</td>
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<tr>
<td>10:45 – 10:50</td>
<td>Report of the Secretariat</td>
<td>John Falkingham (Secretariat)</td>
</tr>
<tr>
<td>10:50 – 11:00</td>
<td>Reports from Other Ice Working Groups</td>
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<td></td>
<td>Written reports/presentations to be circulated before the meeting. Presenters will be asked to highlight top issues verbally to save time.</td>
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<td></td>
<td>European Ice Services</td>
<td>Antti Kangas (FMI)</td>
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<td></td>
<td>North American Ice Service</td>
<td>David Jackson (CIS)</td>
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<td></td>
<td>IAPB / IPAB</td>
<td>Emily Motz / Kevin Berberich (NIC)</td>
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<td>Expert Team on Sea Ice</td>
<td>Jürgen Holfort (BSH)</td>
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<td>Global Cryosphere Watch (GCW) CryoNet</td>
<td>Penny Wagner (NIS)</td>
</tr>
<tr>
<td>11:00 – 11:45</td>
<td>Review of Plenary Action Items</td>
<td>Co-Chairs</td>
</tr>
<tr>
<td>11:45 – 12:00</td>
<td>Introduction of Proposed Press Release</td>
<td>John Falkingham (IICWG) / Shanna Pitter (NOAA)</td>
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</tbody>
</table>
### AGENDA

“New technologies, big data, and the future of ice charting and forecasting”

<table>
<thead>
<tr>
<th>12:00 – 13:00</th>
<th>Lunch</th>
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**AGENDA**

*“New technologies, big data, and the future of ice charting and forecasting”*

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Location</th>
<th>Chair(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MONDAY, SEPTEMBER 25 continued</strong></td>
<td><strong>13:00 – 14:30</strong> 1st Committee Working Sessions</td>
<td>All Plenary Sessions Today are in Aurora Lecture Theatre</td>
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<tr>
<td></td>
<td>• Applied Science and Research (ASRSC) - Aurora Lecture Theatre</td>
<td>ASRSC Co-Chairs</td>
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<td></td>
<td>• Data, Information and Customer Support (DICSSC) - Flex Space</td>
<td>DICSSC Co-Chairs</td>
<td></td>
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<tr>
<td></td>
<td><strong>14:30 – 14:45</strong> Poster Introductions</td>
<td></td>
<td>Fengming Hui (BNU), Pip Bricher (SOOS), Petra Heil (UTAS)</td>
</tr>
<tr>
<td><strong>14:45 – 15:30</strong></td>
<td><strong>Health Break &amp; Poster Session</strong></td>
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<tr>
<td>14:45 – 15:30</td>
<td>Poster Introductions</td>
<td></td>
<td>Fengming Hui (BNU), Pip Bricher (SOOS), Petra Heil (UTAS)</td>
</tr>
<tr>
<td><strong>15:00 – 17:00</strong></td>
<td><strong>1st Plenary Session: Observing Ice in the Southern Ocean</strong></td>
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<tr>
<td>15:00 – 16:00</td>
<td>• Polar View in the Antarctic / ESA Sentinel Data in the Southern Ocean</td>
<td>Andreas Czifreszky (BAS/Polar View)</td>
<td></td>
</tr>
<tr>
<td>16:00 – 16:20</td>
<td>• Using MODIS Data to Map Fast Ice Around Antarctica</td>
<td>Alex Fraser (UTAS)</td>
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<tr>
<td>16:20 – 16:40</td>
<td>• Ship Support from GARS O’Higgins Satellite Station</td>
<td>Erhard Diedrich (DLR)</td>
<td></td>
</tr>
<tr>
<td>16:40 – 17:00</td>
<td>• NASA-ISRO SAR (NISAR) Satellite Update</td>
<td>Sean Helfrich (NESDIS)</td>
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<tr>
<td><strong>17:00</strong></td>
<td><strong>End of Day</strong></td>
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<tr>
<td><strong>18:00 – 19:00</strong></td>
<td><strong>Icebreaker Reception</strong></td>
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<td>Hosted by Her Excellency Professor The Honourable Kate Warner AM, Governor of Tasmania</td>
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<td><strong>Government House Tasmania</strong></td>
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<td>7 Lower Domain Road, Hobart</td>
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<td>7 Lower Domain Road, Hobart</td>
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</table>
AGENDA

“New technologies, big data, and the future of ice charting and forecasting”
# AGENDA

“New technologies, big data, and the future of ice charting and forecasting”

## TUESDAY SEPTEMBER 26

All Plenary Sessions Today are in Flex Space

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
</tr>
</thead>
<tbody>
<tr>
<td>08:00 – 08:30</td>
<td>Registration</td>
</tr>
<tr>
<td>08:30 – 12:00</td>
<td><strong>Science Workshop</strong></td>
</tr>
<tr>
<td>08:30 – 08:35</td>
<td>• Welcome from the Co-Chairs of the Applied Science and Research Standing Committee (ASRSC) Wolfgang Dierking (AWI) Phillip Reid (BOM)</td>
</tr>
<tr>
<td>08:35 – 10:00</td>
<td><strong>Session 1: Perspectives of Future SAR Missions</strong></td>
</tr>
<tr>
<td>08:35 – 08:55</td>
<td>• Comparison of Compact Polarimetric (RISAT-1) and Fully polarimetric (RADARSAT-2) SAR Acquisitions for Sea Ice Characterization Suman Singha (DLR)</td>
</tr>
<tr>
<td>08:55 – 09:15</td>
<td>• Assessment of Simulated RADARSAT Constellation Mission (RCM) Compact Polariometry (CP) Data for Operational Sea Ice Charting Adrienne Tivy (CIS)</td>
</tr>
<tr>
<td>09:15 – 09:35</td>
<td>• Using Interferometric SAR (INSAR) over Sea Ice Wolfgang Dierking (AWI)</td>
</tr>
<tr>
<td>09:35 – 09:50</td>
<td><strong>Poster Introductions</strong></td>
</tr>
<tr>
<td>09:50 – 10:00</td>
<td><strong>Health Break &amp; Poster Session</strong></td>
</tr>
<tr>
<td>10:30 – 12:00</td>
<td><strong>Session 2: Monitoring and Modeling Antarctic Sea Ice</strong></td>
</tr>
<tr>
<td>10:30 – 10:50</td>
<td>• Overview of Antarctic Sea Ice Processes and Change Rob Massom (AAD)</td>
</tr>
<tr>
<td>10:50 – 11:10</td>
<td>• Long Term Trends in Antarctic Sea Ice Extent and Ocean Surface Temperature Phil Reid (BOM)</td>
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<tr>
<td>11:10 – 11:30</td>
<td>• Modelling Sea Ice Extent Trends Around Antarctica Kazuya Kusahara (ACE CRC)</td>
</tr>
<tr>
<td>11:30 – 11:50</td>
<td>• Times of Change: Update on Antarctic Fast Ice and Pack Ice Petra Heil (UTAS)</td>
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<tr>
<td>11:50 – 12:00</td>
<td>• Workshop Summary and Wrap-up ASRSC Co-Chairs</td>
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**End of Science Workshop**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
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<tbody>
<tr>
<td>12:00 – 12:15</td>
<td><strong>Plenary Presentation</strong></td>
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<tr>
<td>12:00 – 12:15</td>
<td>• Arctic Polar Regional Climate Centre Network Helge Tangen (NMI)</td>
</tr>
<tr>
<td>12:15 – 13:15</td>
<td>Lunch</td>
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</table>
## AGENDA

“New technologies, big data, and the future of ice charting and forecasting”

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Speaker/Institution</th>
</tr>
</thead>
<tbody>
<tr>
<td>13:15 – 14:15</td>
<td>2nd Plenary Session: Antarctic Shipping Challenges</td>
<td>Neal Young (ACE CRC)</td>
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<td></td>
<td>• Case studies of Antarctic marine incidents</td>
<td></td>
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<tr>
<td>14:15 – 17:30</td>
<td>Table Top Exercise: Emergency Incident Response – Antarctic SAR</td>
<td>Robb Clifton / Martin Boyle (AAD)</td>
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<td></td>
<td>The objective of this exercise is to prepare the ice services for a large-scale response effort in ice-infested waters. The scenario will involve search and rescue response to a vessel within the Australian jurisdiction of the Southern Ocean.</td>
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<tr>
<td>17:30</td>
<td>Health Break &amp; Poster Session</td>
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<tr>
<td>18:00 – 19:00</td>
<td>Meeting of Ice Service Heads with Polar View – re: Polar Code Decision Support System</td>
<td>Flex Space</td>
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AGENDA

“New technologies, big data, and the future of ice charting and forecasting”

WEDNESDAY SEPTEMBER 27
All Plenary Sessions Today are in Flex Space

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
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<tbody>
<tr>
<td>08:00 – 08:30</td>
<td>Welcome Coffee &amp; Poster Session</td>
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<tr>
<td>08:30 – 08:55</td>
<td>Operations Workshop</td>
</tr>
</tbody>
</table>
| 08:30 – 08:35 | Welcome from the Co-Chairs of the Data, Information and Customer Support Standing Committee (DICSSC)  
                      Antti Kangas (FMI) 
                      Chris Readinger (NIC) |
| 08:35 – 08:50 | Ice Analyst / Forecaster Competencies                                  
                      Penny Wagner (NIS) |
| 08:50 – 10:00 | Session 1: Short Term Ice Forecasting                                   |
| 08:50 – 09:05 | NIC Current Practices for Short-term Ice Forecasting                    
                      Caryn Panowicz (NIC) |
| 09:05 – 09:20 | CIS Current Practices and Future Directions for Short-term Ice Forecasting  
                      Scott Graham (CIS) |
| 09:20 – 09:35 | NIS Perspective on Using Models and Data                                
                      Nick Hughes (NIS) |
| 09:35 – 10:00 | Open Discussion on Short Term Ice Forecasting                           |
| 10:00 – 10:15 | Poster Introductions                                                    |
| 10:15 – 11:00 | Health Break & Poster Session                                           |
| 11:00 – 12:15 | Session 1: Handling Huge Data Volumes in Operational Ice Services       |
| 11:00 – 11:15 | Polar TEP                                                               
                      Andreas Cziferszky (BAS/Polar View) |
| 11:15 – 11:30 | European Ice Services Handling of Copernicus Data for Ice Charting    
                      Keld Qvistgaard (DMI) |
| 11:30 – 11:45 | Handling of Satellite Data for Ice Charting at the National Ice Center 
                      George Wachira (NIC) |
| 11:45 – 12:15 | Open Discussion on “Big Data” in the Ice Services                      |

End of Operations Workshop

<table>
<thead>
<tr>
<th>Time</th>
<th>Lunch</th>
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<tbody>
<tr>
<td>12:15 – 13:15</td>
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### WEDNESDAY SEPTEMBER 27 continued

**Technical Tours**

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
<th>Speaker(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>13:15 – 14:45</td>
<td>RV AURORA AUSTRALIS</td>
<td>John East (P&amp;O Maritime)</td>
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<td></td>
<td>Institute of Marine and Antarctic Studies</td>
<td>Wenneke ten Hout (ACE CRC)</td>
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</table>

**Plenary Presentation**

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
<th>Speaker(s)</th>
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<tbody>
<tr>
<td>14:45 – 15:15</td>
<td>AURORA AUSTRALIS Replacement</td>
<td>Rob Bryson (AAD)</td>
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**Health Break & Poster Session**

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<thead>
<tr>
<th>Time</th>
<th>Activity</th>
<th>Speaker(s)</th>
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</thead>
<tbody>
<tr>
<td>15:15 – 16:00</td>
<td>Polar Tourism: The Upsurge of an Evolving Industry</td>
<td>Lisa Kelly (IAATO)</td>
</tr>
<tr>
<td>16:00 – 16:20</td>
<td>Trends in Polar Tourism and Impacts for the Ice Services Based on Interactions in the Arctic and Antarctic</td>
<td>Keld Qvistgaard (DMI) and Penny Wagner (NIS)</td>
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<tr>
<td>16:40 – 17:00</td>
<td>Open panel discussion</td>
<td>Lisa Kelley, Keld Qvistgaard, and Penny Wagner</td>
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**End of Day**

- 17:00: **End of Day**
- 19:00: **Boat Cruise and Dinner at Peppermint Bay**
  - Hosted by ACE CRC and the Antarctic Gateway Partnership
## AGENDA

“New technologies, big data, and the future of ice charting and forecasting”

### THURSDAY SEPTEMBER 28

**Morning Plenary Sessions Today are in Aurora Lecture Theatre**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Co-Chairs</th>
</tr>
</thead>
<tbody>
<tr>
<td>08:00 – 08:30</td>
<td>Welcome Coffee &amp; Poster Session</td>
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<tr>
<td>08:30 – 09:00</td>
<td><strong>Future Vision of the IICWG</strong></td>
<td>Jürgen Holfort (BSH)</td>
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<td></td>
<td>• Report from the PAME Arctic Shipping Best Practices Forum</td>
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<td>• Report from the Vision Task Group and Discussion</td>
<td>David Jackson (CIS)</td>
</tr>
<tr>
<td>09:00 – 10:00</td>
<td><strong>4th Plenary Session:</strong> Polar Code, POLARIS and Ice Navigator Training</td>
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<td></td>
<td>09:00 – 09:20 • The Nautical Institute Ice Navigator Training and Certification Scheme - Setting the Global Standard</td>
<td>Capt. David Snider (NI)</td>
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<td>09:20 – 09:40 • POLARIS for Antarctic Waters</td>
<td>Dave Jackson / Neal Young</td>
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<td></td>
<td>09:40 – 10:00 • VHF Digital Exchange System (VDES)</td>
<td>Jillian Carson-Jackson (NI)</td>
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<tr>
<td>10:00 – 10:30</td>
<td>Health Break and Poster Session</td>
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<td></td>
<td>10:00 – 10:30 In parallel with poster session</td>
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<td></td>
<td>• Iceberg Subcommittee - Aurora Lecture Theatre</td>
<td>Iceberg Sub-Committee Co-Chairs</td>
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<tr>
<td>10:30 – 12:00</td>
<td><strong>2nd Committee Working Sessions</strong></td>
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<td></td>
<td>• Applied Science and Research - Flex Space</td>
<td>ASRSC Co-Chairs</td>
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<tr>
<td></td>
<td>• Data, Information and Customer Support - Boardroom</td>
<td>DICSSC Co-Chairs</td>
</tr>
<tr>
<td>12:00 – 13:00</td>
<td><strong>Lunch</strong></td>
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<td></td>
<td><strong>Afternoon Plenary Sessions Today are in Flex Space</strong></td>
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<tr>
<td>13:00 – 14:00</td>
<td>Joint Committee Working Session - Flex Space</td>
<td></td>
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<tr>
<td>14:00 – 15:30</td>
<td><strong>Discussion Session:</strong> Ice Information Service Delivery for Antarctic Waters</td>
<td>Scott Carpentier (BOM)</td>
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<td></td>
<td>14:00 – 14:15 • Brief to the plenary</td>
<td>Scott Carpentier</td>
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<tr>
<td></td>
<td>14:15 – 14:45 • Participants sign up to one of several breakout groups to explore different service delivery mechanisms. Each group will develop a short presentation to the plenary outlining their discussions.</td>
<td>Breakout rooms available:</td>
</tr>
<tr>
<td></td>
<td>14:45 – 15:30 • Presentation by each group to the plenary</td>
<td>• Flex space</td>
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<td>• Boardroom</td>
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<td>• Edgeworth David room</td>
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<td>• Hubert Wilkins room</td>
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<tr>
<td>15:30 – 15:45</td>
<td><strong>Health Break</strong></td>
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<thead>
<tr>
<th>Time</th>
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<tbody>
<tr>
<td>15:45 – 17:30</td>
<td>Tour of Australian Antarctic Division</td>
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<tr>
<td>17:30</td>
<td>End of Day</td>
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</tbody>
</table>
**FRIDAY SEPTEMBER 29**

All Plenary Sessions Today are in Flex Space

<table>
<thead>
<tr>
<th>Time</th>
<th>Session Description</th>
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<tbody>
<tr>
<td>08:00 – 08:30</td>
<td>Welcome Coffee &amp; Poster Session</td>
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<tr>
<td>08:30 – 10:00</td>
<td><strong>5th Plenary Session:</strong> New Ice Observation Technologies</td>
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<tr>
<td>08:30 – 08:50</td>
<td>Remotely Piloted Aircraft (RPA) for Ship-based Ice Observation</td>
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<tr>
<td>08:50 – 09:10</td>
<td>Sea Ice Thickness Mapping from Above and Below</td>
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<tr>
<td>09:10 – 09:30</td>
<td>Collaborative UAS projects between ECCC and NOAA</td>
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<tr>
<td>09:30 – 09:50</td>
<td>Where are Autonomous Underwater Systems Going?</td>
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<td>09:50 – 10:10</td>
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<tr>
<td>10:10 – 10:40</td>
<td>Health Break and Poster Session</td>
</tr>
<tr>
<td>10:40 – 12:00</td>
<td>Open Meeting Summary and Close</td>
</tr>
<tr>
<td>10:40 – 10:50</td>
<td>Approval of Press Release</td>
</tr>
<tr>
<td>10:50 – 11:20</td>
<td>Summary of Proposed Actions</td>
</tr>
<tr>
<td>11:20 – 11:40</td>
<td>Comments on the meeting, Suggestions for future meetings</td>
</tr>
<tr>
<td>11:40 – 11:45</td>
<td>IICWG XIX Announcement</td>
</tr>
<tr>
<td>11:45 – 12:00</td>
<td>Final Words &amp; Acknowledgments</td>
</tr>
<tr>
<td>12:00 – 13:00</td>
<td>Lunch</td>
</tr>
<tr>
<td>12:30 – 14:00</td>
<td><strong>3rd Committee Working Sessions</strong></td>
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<tr>
<td></td>
<td>Applied Science and Research – <em>Theodore Flynn meeting room</em></td>
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<td>Data, Information and Customer Support - <em>Flex Space</em></td>
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<td>Iceberg Sub-Committee – <em>Van Diemen meeting room</em></td>
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</table>

**END OF OPEN MEETING**
FRIDAY SEPTEMBER 29 continued
All Plenary Sessions Today are in Flex Space

<table>
<thead>
<tr>
<th>Time</th>
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<tbody>
<tr>
<td>14:00 – 14:15</td>
<td><strong>Opening Remarks</strong></td>
<td></td>
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<tr>
<td></td>
<td>• Review / Adoption of Agenda</td>
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<td>14:15 – 15:00</td>
<td><strong>Committee Briefs</strong></td>
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<td>• Applied Science and Research Standing Committee</td>
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<td>• Data, Information and Customer Support Standing Committee</td>
<td>DICSSC Co-Chairs</td>
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<td>14:45 – 15:00</td>
<td>• Iceberg Sub-Committee</td>
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<td>15:00 – 15:15</td>
<td><strong>Health Break</strong></td>
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<td>15:15 – 16:30</td>
<td><strong>Discussion on Business Arising</strong></td>
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<td>• Future Vision of the IICWG</td>
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<td>• Ice Navigator Training</td>
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<td>• Arctic Council</td>
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<td>• Outreach to Emergency Response Organizations</td>
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<td>16:30 – 17:00</td>
<td><strong>Review of Action Items</strong></td>
<td>John Falkingham (IICWG) / Shanna Pitter (NOAA)</td>
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<td>17:00 – 17:15</td>
<td><strong>Next Meeting</strong></td>
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<td>• Recommendations for themes or special sessions at the next meeting</td>
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<td>• Nominations for IICWG-XIX Organizing Committee</td>
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<td>17:15 – 17:30</td>
<td><strong>Close of Business Meeting</strong></td>
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<td>• Final words and charge from Co-Chairs</td>
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END OF IICWG-XVIII
AGENDA

“New technologies, big data, and the future of ice charting and forecasting”

Posters

1. Fengming Hui, Tiancheng Zhao, Xingqing Li, Xiao Cheng (Beijing Normal University); Mohammed Shokr (Environment and Climate Change Canada), Petra Heil (University of Tasmania); Satellite-Based Sea Ice Navigation for Prydz Bay, East Antarctica

2. Erhard Diedrich, Max Schwinger, H. Asamer (DLR – German Aerospace Center); Possible Use Cases of Big Data Methodology in Ice Charting and Ice Services

3. F. Massonnet (UCL, Belgium/BSC, Spain), P. Reid (BoM, Australia), J.L. Lieser (ACE CRC, Australia), C. Bitz (UW, USA), J. Fyfe (ECCC, Canada), W. Hobbs (UTas, Australia), K. Kusahara (ACE CRC, Australia); SIPN-South — Coordinating Seasonal Predictions of Sea Ice in the Southern Ocean for 2017-2019

4. Pip Bricher (University of Tasmania), Steve Diggs (Scripps Institute of Oceanography), Jo Beja (British Oceanography Data Centre); Florence Fetterer (National Snow and Ice Data Center); Data Sharing Tools for the Southern Ocean Observing System

5. Leif Eriksson, Lars Jonasson, Wengang Mao ((Chalmers University of Technology); Joakim Möller (Molflow, Sweden), Sverre Dokken (O.M. Ofshore Monitoring, Cyprus), Kris Lemmens (Offshore Navigation Ltd., Anguilla); Earth Observations for Maritime Navigation

6. Petra Heil, University of Tasmania (UTAS); AADC ASPeCt Data Acquisition Software Demo
AGENDA
“New technologies, big data, and the future of ice charting and forecasting”

ACRONYMS

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<tr>
<th>AAD</th>
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