



**INTERNATIONAL ICE CHARTING WORKING GROUP (IICWG)**

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# Appendix K

## Task Team Reports and Plans

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### Task Team 1: ROSE-L

#### Task Team Leader:

- Wolfgang Dierking

#### Team Members:

- Dean Flett
- John Falkingham
- Nick Hughes
- Keld Qvistgaard
- Sean Helfrich
- Mike Hicks
- Lisa Lind
- Patrick Eriksson
- Jan Lieser
- Neal Young
- Alvaro Scardilli

#### Summary of Original Task:

This task aims at investigating the advantages of using combinations of C- and L-band images for operational ice charting in support of the advisory group for ESA's HPCM ROSE-L. For this purpose, ALOS-2 PALSAR-2 L-band images are used and compared to Sentinel-1 and Radarsat-2 C-band data acquired with the shortest possible time difference. Different ice centers receive the L-band images for a qualitative judgement.

#### Next Steps:

Ice charts shall be generated, first using only the C-band information as in the usual mapping process, and then complementing the analysis of ice conditions by adding the information from L-band. In addition, the detection of icebergs in combinations of C- and L-band data is assessed. If the time gap permits a direct combination of L- and C-band image layers, automated segmentation will be carried out. Deadlines: preliminary results delivered to ESA November 2019, final report for NH September 2020.

#### Status: complete / disband / continue / continue with following revisions:

To be continued according to plan (see "next steps"), but stronger focus on including SH team members and test sites. For the latter, the task team activities may be extended beyond September 2020.

#### What worked well with new structure?

It is a focused topic, team members feel more directly involved in the project compared to the old "committee" structure.



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**What needs to be improved to help the task team succeed?**

The team is satisfied with the recent situation.



### Task Team 2: Iceberg Model Modernization

#### Task Team Leader:

- Mike Hicks

#### Team Members:

- Wolfgang Dierking
- Dean Flett
- Nick Hughes
- Philippe Lamontagne
- Doug Leonard
- Keld Qvistgard
- Alvaro Scardilli
- Kristen Serumgard
- Hai Tran
- Neal Young

#### Summary of Original Task:

- Advance the implementation of iceberg drift and deterioration modeling by sharing an updated version of the NAIS iceberg model in a version control system.
- Evaluate model using global (vice North Atlantic only) environmental forces.
- Convert Fortran version of model code to Python for R&D purposes.

DESIRED OUTCOME: Each service as a new tool to consider for transition to operations.

#### Next Steps:

1. Download, compile and run NAIS 2.0 from Wiki Sharing site.
2. Each service summarizes environmental and other data inputs used to run model in each region.
3. Each service update individual branch on Wiki version control server.
4. Discuss and assess availability/access of validation data.
5. Run and validate NAIS 2.0 using GOFS 3.1 for North Atlantic and other interested regions.
6. All Ice Services run the NAIS 2.0 model using their regional inputs described in 2 above.
7. Discuss/develop/agree on criteria for comparison of results
8. Compare Fortran results from 4 & 5 with Python R&D version of code.
  - a. Include operational performance measurements to running different versions of code i.e., time to run with many icebergs

#### Status: complete / disband / continue / continue with following revisions:

- continue with revision to re-focus on model evaluations and comparisons in key NH and SH regions



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### **What worked well with new structure?**

- Task teams can focus on several related tasks working towards a common goal vice many disparate 'good ideas' i.e., Committee Action Items.

### **What needs to be improved to help the task team succeed?**

- Access to ground truth validation data in all evaluation regions
- More frequent, routine communication within team – continued periodic calls with Co-Chairs and other Task Team leads.



### Task Team 3: E-Navigation

#### Task Team Leader:

- Jürgen Holfort

#### Team Members:

- Mike Hicks - Michael.R.Hicks@uscg.mil
- Keld Qvistgaard - kqh@dmi.dk
- John Falkingham – john.falkingham@rogers.com
- Vasily Smolyanitsky - vms@aari.aq
- George Wachira - george.wachira@noaa.gov
- Jens Peter Weiss Hartmann - jepha@gst.dk
- Alvaro Scardilli - asscardilli@hidro.gov.ar

#### Summary of Original Task:

- This work is intended to promote and facilitate the presentation of ice chart information on the ECDIS on board of ships.
- A prerequisite is to keep the S411 format up to date, incorporating also new features.
- Assist the producers of ECDIS so they can easily incorporate the format into their systems.
- Continue making S411 ice charts readily available and develop the ability to produce charts in S411 format at every ice service issuing ice charts.
  - This may require that, for individual ice services, some changes in the production will be necessary due to the needed standardization (stricter metadata requirements and error checking, interplay with other S100 data).

#### Next Steps:

- Develop rules for generalization of ice chart information portrayal when up-scaling from high resolution to regional scale
  - Intention is to present ice charts on the scale of IHO navigation charts
- Consider 3 regions to explore – iceberg charts around Cape Farewell, Baltic Sea, West Antarctic Peninsula
- Consider the operational implications of producing scalable ice charts (can ice services produce sufficiently high resolution charts in all areas)

#### Status: complete / disband / continue / continue with following revisions:

- Continue with revisions to Re-focus on developing rules and capabilities to produce scalable ice charts

#### What worked well with new structure?



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**What needs to be improved to help the task team succeed?**



### Task Team 4: Uncertainty

#### Task Team Leader:

- Sean Helfrich

#### Team Members:

- Sean Helfrich
- Penelope Wagner
- Nick Hughes
- Angela Chang
- Evan Neuwirth
- Sofia Montalvo
- Florence Fetterer
- Anni Montonen
- Marcus Huntemann
- Bryan Brasher
- Alison Agather

#### Summary of Original Task:

- Develop mechanisms to quantify the uncertainty in ice charts and convey that information to users
- Provide path for utility of ice charts into ice model assimilation
- Communicate confidence metrics for navigators regarding unknowns about ice charting data.

#### Next Steps (if any):

- Sent up telecom schedule for next year.
- Work with user need groups to understand uncertainty characterization.
- Examine current chart translations to netCDF4 and provide a proposed standards for netCDF4 for ice charts. Translate uncertainty into NetCDF4.
- Complete and examine ice chart inter-comparison studies for ice concentrations (NOAA, NIS, CIS, etc) and provide summary of uncertainty based on these studies.
- Explore options for ice chart quality assessment metric and standards.

#### Status:

- continue with following revisions:
  - address the different needs of Navigators and modelers;
  - plan to fracture the uncertainty team tasks into 3 different task teams (Navigator Focus, NetCDF, Modeler Focus) after next year's annual meeting.

#### What worked well with new structure?

- The ability to have a dedicated group to an achievement with overlapping motivations.



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- Allows more communication
- Fosters participation
- Allows room for tasks to be flexible to respond to needs
- Good guidance from IICWG

### **What needs to be improved to help the task team succeed?**

- More coordination of activities
- Expand participation across Centers
- Improve communication
- How to ensure participation from people that expressed the importance of uncertainty during the meeting, but didn't attend the Task Team Meeting.



### **Task Team 5: Ice Analyst / Forecaster Competencies**

#### **Task Team Leader:**

- Catalin Tita / Scott Weese

#### **Team Members:**

- Penny Wagner (Norway): penelopew@met.no
- Jürgen Holfort (Germany): juergen.holfort@bsh.de
- Lisa Lind (Sweden): lisa.lind@smhi.se
- Jan Lieser (Australia): jan.lieser@utas.edu.au
- Ekaterina Afanasieva (Russia): afanasieva@aari.ru
- Antti Kangas (Finland): antti.kangas@fmi.fi
- Angela Ottoson (USA): angela.ottoson@noaa.gov

#### **Summary of Original Task:**

- A set of competencies that would be embraced by all Ice services and promote a standardized approach to Ice forecaster/Ice analyst training internationally.

#### **Next Steps:**

- ETSI to seek approval of the competencies at WMO Congress 2020

#### **Status: complete / disband / continue / continue with following revisions:**

- Task is complete

#### **What worked well with new structure?**

- Team members were motivated and supported by their management to work on the task.

#### **What needs to be improved to help the task team succeed?**



### **Task Team 6: Regional Climate Centre Contributions**

#### **Task Team Leaders:**

- Adrienne Tivy (Scott Weese) – Arctic / Jan Lieser - Antarctic

#### **Team Members:**

- Shanna Combley – U.S. NOAA
- Gilles Langis – Canada
- Keld Qvistgaard, Denmark
- Nick Hughes, Norway
- Antti Kangas, Finland
- IICWG expert from Sweden
- IICWG expert from Iceland
- Vasily Smolyanitsky Russian Federation
- Rick Thoman, NOAA/IARC
- Jan Lieser – BoM – Australia
- Marc de Vos – South Africa
- Alvaro Scardilli – Argentina
- USNIC rep for southern oceans

#### **Summary of Original Task:**

- Collaboration and review of the sea ice seasonal outlooks up to three times per year (two main releases in the May and October timeframes with an update mid-winter (February).
  - Contribute impact statements where relevant
  - Contribute to the consensus statement
- Contribute to the evolution of the sea ice component of the Arctic RCC
  - Share best practices on heuristic and statistical methods to generate client focused seasonal forecasts
  - Share best practices on subjective and objective validation of seasonal outlooks.
  - Share client needs for seasonal forecast products
- Ensure coordination with SIPN and SIPN-South on seasonal outlooks
- Encourage attendance of task team members in RCC Climate Forums

#### **Next Steps:**

- Introduce southern ocean expertise

#### **Status: complete / disband / continue / continue with following revisions:**

- Task to continue with a revision to add Southern Ice Service expertise in anticipation of Antarctic RCC



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### **What worked well with new structure?**

- Very collegial group with interest in contributing on their area of responsibilities.

### **What needs to be improved to help the task team succeed?**

- Ensure contributions of all ice services involved in seasonal outlooks to ensure a full seasonal picture for the RCC products.



### **Task Team 7: Arctic Council Interaction**

#### **Task Team Leaders:**

- Marianne Thyrring

#### **Team Members:**

- Katherine Wilson (ECCC),
- Antti Kangas (FMI),
- Jurgen Holfort (BSH), and
- Shanna Combley (NOAA)

#### **Summary of Original Task:**

- Try to follow the development during the Finnish Presidency of the Arctic Council in order to maintain the Finnish priority “meteorology” into the future deliberation of the Arctic Council. The Presidency will turn to Iceland in Spring 2019.

#### **Next Steps:**

- Task team disbanded.
- Co-chairs to assume the task of interactions with the Arctic Council as part of their duties to advocate the interests of IICWG broadly.
- Situate IICWG as the authoritative, collaborative source for sea-ice and iceberg information in the circumpolar Arctic

#### **Status: complete / disband / continue / continue with following revisions:**

- Task team is disbanded

#### **What worked well with new structure?**

- Quarterly follow-up from Secretariat helped to prompt reporting and sometimes action.

#### **What needs to be improved to help the task team succeed?**

- N/A



## **Task Team 8: Mariner Training Needs**

### **Task Team Leaders:**

- Keld Qvistgaard

### **Team Members:**

- Kristen Serumgard, IIP
- Kangas Antti, FMI
- John Falkingham, IICWG
- Duke Snider, Nautical Institute
- Jarmo Teranen, SAMK
- Bjørn Kay, Marstal Maritime Academy
- Vladimir Kuznin, Makarov Maritime Academy
- Igor Slodeev, Makarov Maritime Academy

### **Summary of Original Task:**

- Training needs parked
- User survey conducted
- Results reported at IICWG-XX

### **Next Steps:**

- Training needs parked
- User survey conducted
- Results reported at IICWG-XX

### **Status: complete / disband / continue / continue with following revisions:**

- Close Task Team 8
- Split into two new re-focused tasks

### **What worked well with new structure?**

- Team engagement, very helpful !
- Clear task to be solved

### **What needs to be improved to help the task team succeed?**

- Language barriers (spanish, Russian)



## **Task Team 9: To Be Defined**

A new task is to be defined by Søren Olufson, Caryn Panowicz and Nick Hughes to address ideas coming out of the discussion at IICWG-XX. Several discussions are related including:

- Service gaps identified in the user survey
- Interactions among the science community, ice services and mariners in the development of new products
- Addressing the value chain from observations to end user product

A pilot project incorporating these ideas to develop a new ice information product was discussed at IICWG-XX but there was insufficient information available to formulate a task description at the meeting.

Søren, Caryn and Nick agreed to work together to define a task by the end of October 2019.

Most Recent Update: 5 December 2019

**Task Team Leader:** TBD

**Team Members:**

- 

**Summary of Original Task:**

- 

**Status:**

**Next Steps (if any):**

- 

**Estimated Percent Complete:** 0%

**Interaction with Other Task Teams:**

- 

**What is working well?**

- 

**Are there barriers hindering progress?**

-



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### **Task Team 10: Data Assimilation and Modelling Group Interaction**

#### **Task Team Leaders:**

- Lars-Anders Breivik – [l.a.breivik@met.no](mailto:l.a.breivik@met.no)
- Dean Flett – [dean.flett@canada.ca](mailto:dean.flett@canada.ca)

#### **Team Members:**

#### **Summary of Original Task:**

- Reconnect the Data Assimilation and Modeling Group with the IICWG to help in bringing scientific developments into operations.
- The DA group was originally created by the IICWG but in recent years has become divorced from the operational ice services.
- IICWG would like to help frame the agendas for the DA Groups workshops to realize greater benefit to the operational ice services.

#### **Next Steps:**

**Status: complete / disband / continue / continue with following revisions:**

**What worked well with new structure?**

**What needs to be improved to help the task team succeed?**



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### Task Team 11: Ice Analyst Workshop (IAW) 2020

#### Task Team Leaders:

- Patrick Eriksson (FMI)

#### Team Members:

- Caryn Panowich (USNIC)
- Véronique Pinard (CIS)

#### Summary of Original Task:

- ETSI noted in its 2019 meeting that there is a need to organize a new Ice Analyst Workshop. This should be jointly organized by IICWG, WMO/ETSI and IOC. The workshop should be organized during 2020. Remote access should be provided for the workshop.

#### Next Steps:

- Have an ice service to volunteer hosting the workshop
- Set dates for the workshop, preferably during 2020
- Assign an organizing committee to organize all

#### Status: complete / disband / continue / continue with following revisions:

- Initiate

#### What worked well with new structure?

#### What needs to be improved to help the task team succeed?