



INTERNATIONAL ICE CHARTING WORKING GROUP (IICWG)

Task Team 2

ICEBERG MODEL MODERNIZATION

Most Recent Update: 25 September 2020

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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 has a new tool *to consider* for transition to operations.

Status: Complete

Mike had reported on the results of this Task Team at IICWG-XXI. In summary, the objectives of the task were:

- Advance the implementation of iceberg drift and deterioration modeling by sharing an updated version of the NAIS iceberg model in a version control system.
 - COMPLETE – Wiki site established to share and version control model code; model implemented at the Canadian Ice Service, U.S. Naval Research Lab, and Argentine Naval Hydrographic Service
- Evaluate model using global (vice North Atlantic only) environmental forces.



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- COMPLETE – Comparisons of model output using Canadian Meteorological Centre, U.S. Global Ocean Forecast System, and Copernicus and HYCOM inputs
- Convert Fortran version of model code to Python for R&D purposes.
 - COMPLETE – Model code converted to Python by Philippe Lamontagne at the National Research Council of Canada

Next Steps (if any):

The team proposed three areas where follow-on work is needed:

1. Document lessons learned through case studies, both in the North and South Atlantic. I presented a few areas where the model just didn't work well with actual iceberg drift, and Gaston did as well. And so I think there are areas that we can coalesce and select a few key case studies. In so doing, I think we will be able to identify areas where the environmental drivers perhaps were not as accurate as they should be. The purpose of it would be to communicate to modelers and others what our problems are and what our gaps are. We also had talked about incorporating model evaluation metrics. Proposed as new Task Team 13 – Iceberg Modelling Case Studies.
2. Continue to evaluate the Python version of the North American Ice Service iceberg model.
 - Agreed to continue as internal work – not a task team
3. Apply model output to enhance existing products or to develop new ones.
 - Addressed in new task teams 14 and 15

Estimated Percent Complete: 100%

Interaction with Other Task Teams:

- No direct interaction but the results from the Mariner Survey indicated that ~42% of respondents operating in open waters desire greater than 24-48 hours (up to one week) forecasts.

What is worked well?

- Task teams can focus on several related tasks working towards a common goal vice many disparate 'good ideas'

Are there barriers hindering progress?

- Access to ground truth validation data in all evaluation regions