

Finnish-Swedish Winter Navigation Research Board

Call for projects

1. Invitation

Finnish-Swedish cooperation within the Winter Navigation Research Board started in 1972 and it is funded by the maritime administrations of the two countries. The Research Board administers a joint winter navigation research program based on a bilateral agreement between the Finnish and Swedish Maritime Administrations. The joint program includes yearly research calls.

The present parties to the agreement – the Finnish Transport Safety Agency, the Finnish Transport Agency and the Swedish Maritime Administration in association with the Swedish Transport Agency – hereby invite research institutions, government agencies, organizations and companies to apply for funding of winter navigation research projects for the year 2019.

2. Purpose of the call

Sustainable, safe, efficient and environmentally friendly year-round navigation to and from Finnish and Swedish ports, as well as an efficient winter navigation system is important for our industry and the economic competitiveness of our countries.

The purpose of the winter navigation call is to develop and improve services and technologies that influence the winter navigation system in the northern Baltic Sea area through research, development, innovation and demonstration projects.

Research, innovation, demonstration and development should focus on the meteorological, oceanographic, technical or nautical conditions and aspects of navigation in ice. The Research Board administers a yearly call for projects focusing either on parts, or all, of the aforementioned aspects. Based on experience in winter navigation in our administrations the Research Board can define thematic priority areas which require specific attention for research or which are of particular interest for improving winter navigation and operations.

All of the results of the projects funded through the call will be made publicly available to enable renewal and development of the winter navigation system. The results of the research projects can also be used by the Administrations to improve the Finnish-Swedish ice class rules.

3. Background and rationale

The research program is based on the long-standing cooperation in winter navigation between Finland and Sweden. Our countries also share a common view on the importance of winter navigation and icebreaking activities. Because of the close cooperation, the icebreakers nowadays work together almost as a single fleet.

Another important outcome of the cooperation is the introduction of the joint Finnish-Swedish ice class rules for merchant ships and their further development. Continuous emphasis on research and development is necessary if Finland and Sweden wish to have an impact on the actual development in the field of common winter navigation system.

Projects financed in the winter navigation research program are often relatively small. This gives the Winter Navigation Research Board and administrations an opportunity to monitor the projects in more detail. The

winter navigation research program is unique and it influences international classification societies in their development of ice class rules for merchant ships.

4. General topics of the call

This call is aimed at projects that address one or more of the following areas:

- Meteorological research
 - research related to marine meteorology in winter conditions
 - research related to ice formation
 - climatologic research related to the aforementioned topics
 - development of forecasting and modelling
 - development of new tools for presentation of satellite images
- Oceanographic research
 - research related to ice conditions at sea or sea water temperature
 - sea currents, sea water level and sea waves in winter
 - climatologic research related to the aforementioned topics
 - development of forecasting and modelling
 - development of new tools for presentation of satellite images
- Technical research
 - structural design of hulls of ice-going ships
 - structural design of propulsion machinery of ice-going ships
 - development of minimum engine power regulations for merchant ships
 - winterization of merchant ships
- Nautical conditions
 - research on the effectiveness and costs of icebreaker assistance
 - research on winter traffic flows in the Baltic Sea area, including efficiency, safety, environmental impact and economics of winter navigation.

4.1 Specific thematic research topics for 2019

- Despite a trend of decreasing ice coverage in the Baltic Sea, the demand for assisting and towing of merchant vessels by icebreakers has not decreased. Ridged ice and rubble fields are more prevalent than before, necessitating the towing of many merchant vessels. For this reason, projects examining the towing arrangements of merchant vessels are especially encouraged to promote practical solutions that improve the safety and expediency of towing operations. The Research Board is looking for research that promotes operational and technical solutions to towing of merchant vessels by icebreakers.
- Stiffening competition and regulations for energy efficiency of ships (EEDI) result in new designs of ice-classed merchant vessels that have less ice-going capability in ice than previously. Furthermore, a significant share of the ships that operate to Finnish and Swedish ports, when restrictions for icebreaker assistance are in place, only sporadically operate in ice conditions, which means that many crews and officers taking part in winter navigation in the Baltic do not have sufficient experience in operating a ship in ice conditions. Combined with changing ice conditions, that seem to cause significant variability in the yearly ice extent and severity of ice conditions, these issues pose significant challenges to the Baltic winter navigation system. The Research Board invites research that provides insight into the efficiency, environmental impact and economics of winter navigation in the Bay of Bothnia. Of special interest is the effect of the number of icebreakers available for icebreaker assistance and the merchant vessels optimized for open-water operations on the efficiency of winter navigation. Although the winter navigation system should be the focus of research, effects of the efficiency of winter navigation in difficult ice conditions to the year-round supply chain of the industry should be investigated.

- Environmental concerns and tightening regulations for energy efficiency of ships make marine fuels other than fuel oil increasingly interesting. Lowering the emissions of shipping by using cleaner fuels could help maintain sufficient power level for ice-classed vessels while fulfilling future EEDI criteria. However, the widespread adoption of alternative marine fuels, such as LNG, methanol or hydrogen require significant changes in the whole traffic system. The Research Board invites research investigating systemic challenges in the adoption of alternative marine fuels in the Baltic and especially considering winter navigation. Topics of special interest are especially availability of alternative fuels, logistics and bunkering as well as technical and ship design aspects that arise due to the use of alternative fuels.

5. Requirements for the project

The planned project shall be in line with at least one of the priority areas mentioned above. The project may start in late 2018 or in early 2019, and may last for 6 to 24 months.

A final report shall be presented to the Winter Navigation Research Board in English. A short Work Plan describing the sequence of work and containing an updated research plan is required before invoicing the first part of the project budget. If the project continues for more than 12 months, intermediate reporting is required.

The final reports will be published in the Winter Navigation Research Reports series (ISSN 2342-4303) under CC BY (4.0) license. Content other than original research shall be referenced with proper sources. Figures, tables and formulae shall be labeled and referenced in the text. As well as the results, also methods and used data shall be described in the final report.

6. Evaluation process and criteria

The proposals will be evaluated by the members of the Winter Navigation Research Board, and the Board will make the formal decision about financing.

The following criteria, weighted as indicated, will determine the decision of financing:

- Relevance (35%):
 - Is the project in line with the aim of the call?
 - To what extent does the project contribute to a sustainable winter navigation transport system?
 - What defined winter navigation problem should the project solve?
- Quality (15%):
 - How will the project contribute to the technical and scientific development?
 - Does the project contribute to moving the research front and knowledge forward?
 - Is the project considered to be of high scientific quality?
 - Does the project include a new idea or innovation?
- Viability (15%):
 - Are there risks involved in accomplishing the project?
 - Are the goals of the project concrete, well-defined and reasonably ambitious?
 - Is the draft work plan concrete and is the schedule realistic?
 - Do the actors have the right skills, competences and proper resources to complete the project?
 - Is the budget reasonable in relation to the intended efforts and objectives?
- Impact (35%):

- Is there an identified need for project results, such as a clear knowledge gap or market potential?
- To what extent can the project be of use, for example through building knowledge, publications, new types of goods, services or processes, or for commercialization?
- What ambitions does the project have for spreading the results? Is there a plan for how the results should be utilized and disseminated?
- Are the end-users of the project results represented in or participate in the project?

7. Budget

The budget for the research projects will be settled on a yearly basis. The annual budget was €200 000 in 2018. If approved projects last for more than one year, this will result in a partially limited budget for the coming year. Co-financing both from research institutions, industry and other funding organizations is always welcomed.

The Winter Navigation Board applies the European Union levels, rules and conditions set up for public funding of research and innovation (2015:208) including support to SME:s and GBER exempt.

8. Time schedule

Call text available:	29 June 2018
Deadline for applications:	14 September 2018
Announcement of the financing decision:	20 October 2018
Earliest project start:	20 November 2018

9. How to apply

Proposals should be sent by email to the contact persons of the secretariat given below.

The application form for research projects shall be used.

The deadline for applications is 14 September 2018. The Winter Navigation Research Board will not consider applications received after the deadline.

10. Content of the application

Please use the application form provided with this call for projects. General information shall contain the items mentioned below. A maximum of one page can be used.

- Project title
- Acronym
- Project summary – maximum 100 words
- Start and end dates
- Funding
- Project manager
- Project organization

The following parts shall be described in the project outline. A maximum of 5 pages can be used.

- **Relevance:** Description of problems the project will address and how it contributes to improvements in winter navigation.

- **Quality:** A short description of the research aims within this area, and the projects relation of the “state of the art” in research and technology.
- **Viability:** Strategy and methodology. Expertise in research group.
- **Impact:** A plan for how the result will be used and the impact results will have on winter navigation
- **Dissemination:** How will project results be disseminated and made available?
- Brief **project plan** with defined milestones and deliverables.
- **Relation to other projects:** How the project relates to other ongoing or planned projects
- **Budget and resources.**

11. Contact persons

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