

Research cooperation and partnership for enhancing safety and preparedness in the Arctic

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MARPART
INTERNATIONAL R&D PARTNERSHIP ON MARITIME
SAFETY AND SECURITY IN THE HIGH NORTH

1. Arctic SAR capabilities survey

- Results and recommendations
- Ideas for further research

2. MARPART project and research cooperation

- MARPART network
 - On-going projects, reports and contribution
- Engaging research and academia

3. Discussion and ideas



Rajavartiolaitos
Gränsbevakningsväsendet
The Finnish Border Guard



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Arctic Search and Rescue Capabilities Survey

Enhancing international cooperation
2017



This survey was developed under the Arctic Maritime Safety Cooperation (SARC) project launched by the Finnish Border Guard and the Ministry for Foreign Affairs of Finland.



The Arctic Search and Rescue Capabilities Survey is conducted in cooperation with the Arctic Coast Guard Forum.

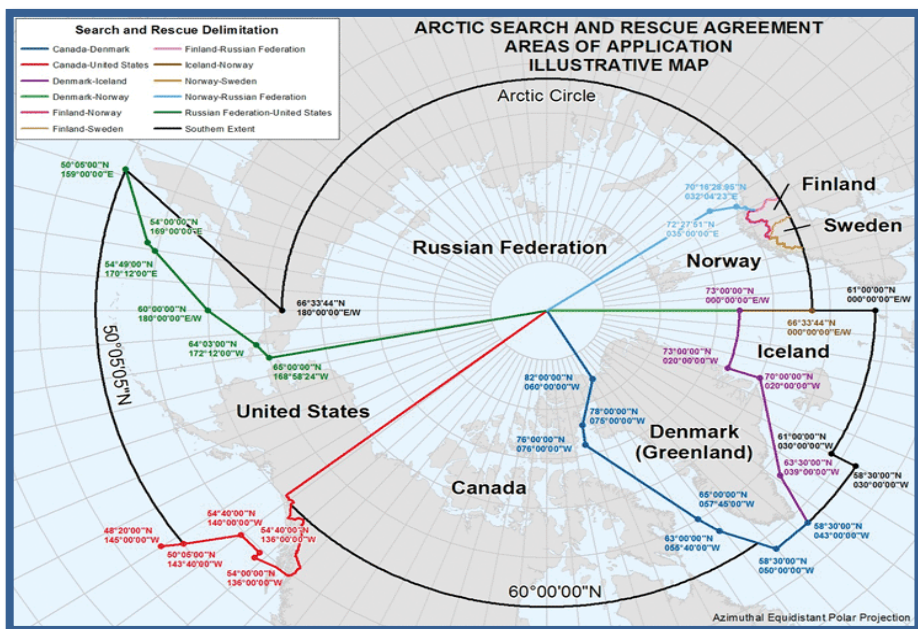


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Arctic SAR and identified challenges

- Further need for collective efforts in Arctic search and rescue and maritime safety
- Activity and risk vary according to different areas in the Arctic region
- Need to develop information sharing and situational awareness between coast guards, emergency authorities, and other stakeholders involved in SAR operation

■ Identified challenges:

- long distances
- challenging weather
- ice and cold conditions
- poor communications network
- lack of infrastructure
- scarce resources
- capacity to host patients
- shared situational awareness
- unsuitable rescue and survival equipment
- utilizing foreign units also challenging due to long distances



SAR training in the Arctic

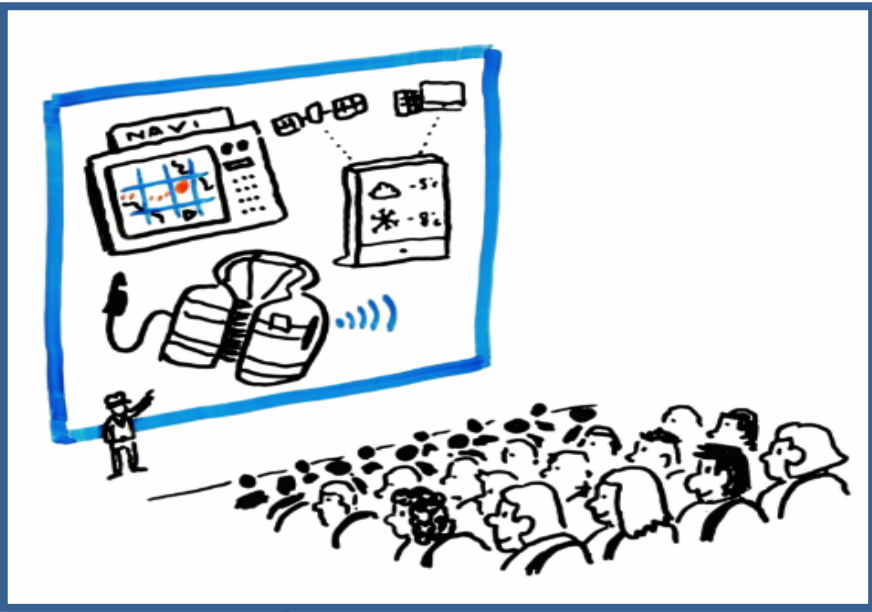
There is no comprehensive education plan specifically intended for Arctic SAR.

- A workshop or a planning conference for the authorities responsible for SAR training and education to discuss challenges and possibilities of joint training

- Systematic sharing of exercise reports and lessons learned in a standardized format
- Close cooperation with other stakeholders such as authorities, shipping companies, universities and training centres, and voluntary organizations

Interest in joint courses specific to Arctic SAR:

- Ship and ice operations
- Ice navigation
- Ice rescue
- OSC
- ACO
- SMC
- SRU
- Operational environment and resources in the Arctic
- Annual Arctic SAR training week involving junior officers and leaders with first hand experience



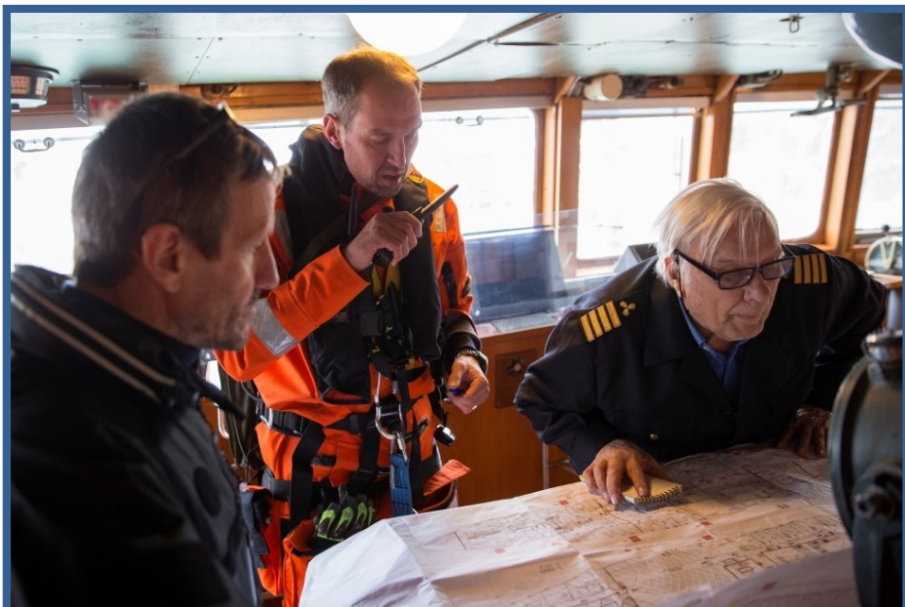
Calling for new innovations

Why?

- Some challenges could be addressed by developing and deploying new technology and innovations
- In order to develop the most practical systems and products possible for SAR and safety purposes in the Arctic

How?

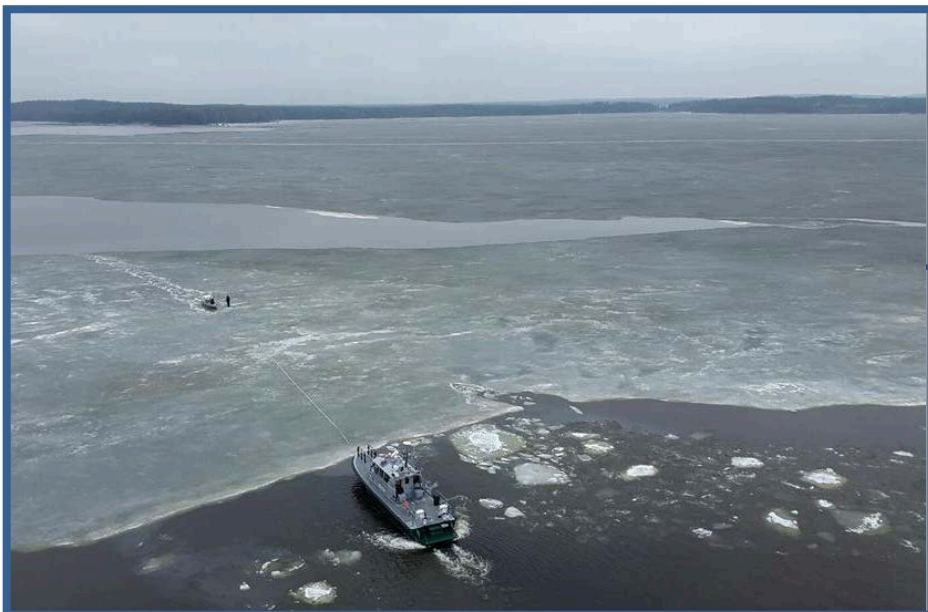
- New innovations could be tested and evaluated during exercises
- In cooperation with SAR authorities and stakeholders, academia, private operators, and companies
- Mapping existing projects and engaging in development
- Establishing a working group under the ACGF or other SAR cooperation project that examines new technological innovations related to the Arctic operational environment



Calling for new innovations

Communications technology

- Satellite AIS
 - Satellite broadband
 - Satellite communications equipment and solutions (also for aviation)
 - Long range communication equipment not necessarily reliant on satellite connections
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- Radio towers and radars
 - Ice and weather tracking and forecasting, as well as means of sharing data
 - Monitoring equipment including Unmanned Aeronautical Vehicles (UAV) for monitoring and search activities during SAR operations
 - A shared exercise calendar and a database for distributing exercise reports
 - Database for SAR resources and RCC information.
 - New solutions for patient triage and telemedical services



Calling for new innovations

Rescue and survival equipment

- Rescue boats and hovercrafts that operate on ice
 - Personal survival equipment and survival suits
 - Survival packages
 - easy to use and assemble
- De-icing equipment and technology
 - Oil spill response facilities and equipment both off- and on-shore and for icy seas
 - Refueling assets at sea
 - Evacuation tents/centers



Recommendations

- Keeping each other informed on the new developments of relevant projects, infrastructure and equipment.
- Platform for sharing SAR related data such as information on all Arctic RCCs and organizations responsible for and involved in SAR, resource asset data, weather and ice data, AIS data etc.
- Database for sharing exercise reports, calendar, and other relevant information.
- **Encouraging systematic sharing of lessons learned.**
- Developing an annual joint course or workshop.
- Establishing a working group on technological developments related to the Arctic operating environment.
- Testing new technology in exercises, such as situational awareness and SAR management tools.



Recommendations

- **Encouraging cooperation between SAR agencies, coast guards, academia and the industry.**
 - Liaising with the Arctic Council, EPPR and the AEC.
 - Including embassies in exercises or contingency planning, in order to develop common procedures for coordinating foreign patients.
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- **Liaising with local medical authorities, voluntary organizations and other local stakeholders and recognizing their key roles.**
 - Encouraging information sharing between private operators and SAR authorities, such as sailing plans, emergency plans, SAR cooperation plans and vessel/flight information etc.
 - **Encouraging interest in safety issues, also among the non-Arctic countries.**



Further research

- Opportunities for joint courses online
 - facilitate acquisition of key information and understanding of other countries' SAR operations
- Evaluation, feedback and development of exercises
 - developing and deploying a common process
- Technological development and deployment possibilities
 - communications and connectivity
 - situational awareness
 - rescue and survival equipment
 - training and education

“Encouraging cooperation between SAR agencies, coast guards, academia and the industry?”



MARPART network and research cooperation

R&D project lead by Nord University in Bodø and funded by the Norwegian Ministry of Foreign Affairs and Nordland regional government



- Focus on enhancing management of joint maritime emergency operations and cooperation
- Special focus on barriers and solutions for cross-border partnerships
- Concentrating on large scale combined emergency response that may include SAR, fire fighting, oil spill recovery or violent action at sea
- Incident command systems and managerial roles at different levels
- Competence needs/gaps of key personnel

MARPART network and research cooperation

- Nord University (Norway)
- UNIS - University Center in Svalbard (Norway)
- UiT - The University of the Arctic (Norway)
- Norwegian Police University College (Norway)
- NBSK - The Norwegian Fire Protection Institute (Norway)
- The Norwegian Defence University College IFS (Norway)
- The Royal Norwegian Naval Academy (Norway)
- FFI - Norwegian Defense Research Establishment, (Norway)
- MSTU - Murmansk State Technical University (Russia)
- NARFU - The Northern (Arctic) Federal University (Russia)
- Admiral Makarov Maritime University, (Russia)
- The University of Greenland (Greenland)
- The University of Iceland (Iceland)
- WMU - World Maritime University (Sweden)
- Danish/Greenlandic National Police (Denmark)
- The University of Copenhagen (Denmark)
- Memorial University (Canada)
- US Coast Guard Academy (US)
- University of Alaska (US)
- (Admiral N. Kuznetsov Naval College, Russia)

MARPART network and research cooperation



University of the Arctic (UArctic) umbrella:

- establishment of **Arctic thematic network: Arctic Safety and Security network** at the UArctic Congress, Autumn 2016
- Permanent network for 19 universities and research institutes in the Arctic countries
- Platform for cooperation on education, research and dissemination of knowledge
- Observation status in relevant Arctic Council working groups
- Two sub-groups: Tourism Safety and Emergency Preparedness

Other relevant research projects:

MAREC

ARCSAR

SARiNOR

Reports and contribution

MARPART 1

WP 1. Future maritime activity level and risk patterns in the High North

WP 2. Institutional framework, governance, resources and institutional strategies

WP 3. Organizations and operational management structures



MARPART 2

WP 1. High-risk incidents and emergency management competence

WP 2. Educational programs in academic and training institutions in the High North

WP 3. Development of concepts for developing, testing and documenting different training concepts

WP 4. Testing of training programs in simulator/laboratories and through exercises

Report 5 – Preparedness agencies' organizational design and operational management patterns

Sectors: SAR, Oil spill response, firefighting, and violent action at sea

- Organizational structures in Norway, Iceland, Russia and Denmark (Greenland)
- Operational hierarchy including management roles and responsibilities
- External relations
- Plans and standard operating procedures



- Understanding challenges with multisectoral and multinational joint operations
- Recommendations for further cooperation between agencies and countries

Engaging research and academia

Simulators

- Utilizing simulators with cross-border training and education
- Linking simulators with other institutions across borders
- Integrating emergency management tools from preparedness agencies
- Joint training programs with students and professionals

Exercise evaluation

- Developing evaluation concepts and tools
- Compiling analysis from various fields, experts and industries
- Databases for structured analysis and lessons learned
- Scientific results, i.e. SARex Spitzbergen

Concepts for contingency and preparedness plans

- UArctic and AC EPPR cooperation
- Utilize exercise evaluation and incident reports for analysis
- Dissemination of knowledge and best practices
 - Wide audience also within non-Arctic countries

Discussion and ideas

How to encourage cooperation between SAR agencies, academia and the industry across borders in the Arctic?

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