



Joint Cruise Industry and Search- and Rescue Responders

Arctic SAR workshop and TTX 2016

Reykjavik, April 6 & 7, 2016





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Preface

This was the first large scale joint Arctic cruise operators and SAR responder's joint search and rescue (SAR) workshop and tabletop exercise (TTX) to be organized.

The event was initiated by Association of Arctic Cruise Operators (AECO), who organized it in cooperation with the Icelandic Coast Guard and the Norwegian cruise liner, Hurtigruten AS.

This joint workshop and TTX follows several larger Arctic joint SAR responder's TTX and LIVEX's that have been organized in recent years. This include the Arctic Zephyr and the larger live exercise SAREX Greenland Sea 2012 and 2013. Where some of these past events have had representation from the cruise industry, they have not included active cruise industry contributions.

Findings from previous exercises include that there is a need for more communication, exchange of information and joint exercises, not only between the Arctic SAR entities, but also between the SAR entities and industries where cruise tourism is representing a major and increasing industry in the Arctic.

Aim and Objectives

The aim of this workshop and TTX was to strengthen the cooperation and exchange of knowledge between the Arctic cruise industry and various Arctic SAR responders.

AECO would also like to encourage the institutionalization of industry/agency collaboration concerning information exchange and planning coordination.

The primary objectives of the workshop part were to exchange information regarding resources and capabilities and discuss potential cooperation and way ahead.

The TTX part aimed at enhancing awareness on mass rescue operations as regards passenger ship accidents in the Arctic and TTX Objectives included: exercising a marine incident scenario; identifying available resources and evaluating their usefulness; evaluating notification processes; coordinating activities and clarifying roles and

Participants



The 58 participants represented 35 different organizations. This includes 16 different cruise operators and vessel owners and eight Captains working as Masters on different cruise vessels.

SAR-responders from ten different entities in US, Canada, Greenland/Denmark, Iceland, Norway and Finland were represented. This also included several from the Arctic Coast Guard Forum (ACGF).

Observers included universities, researchers and local interests.



responsibilities. The scenario featured a cruise vessel carrying 300 persons, sustaining an engine room fire and grounding at remote Jan Mayen.

Practical

The event took place in Reykjavik, April 6 & 7, 2016, starting in the morning on April 6, ending late afternoon April 7. The timing was between the Antarctica and Arctic operational season, which is important for participation from relevant cruise operators.



In order to involve all relevant participants in the TTX, a table setup allowed for one representative from each relevant organization at the main table, while additional representatives from the same organization and observers, were seated behind the main table.



Coffee-breaks and lunch servings took place right outside the exercise room, allowing for efficient breaks and networking.



Social

The event included a social program in the evening of April 6th, which also served as a platform for networking.

A one-hour bus-ride from Reykjavik took participants to the Viking Museum, where dinner was served after a tour of the museum, before return to the hotel.



Costs and participation fee

Costs of for this event was covered by sponsorship from Faxaflóahafnir (Associated Icelandic Ports), AECO and the Icelandic Coast Guard. Cruise Iceland sponsored a reception. Participants were asked to pay a participant fee (NOK 1400) for the workshop, included two lunches and the social program with dinner.



Agenda

Ragnhildur Hjaltadóttir, permanent secretary of the Icelandic Ministry of Interior opened this Joint Arctic SAR workshop and TTX. The agenda thereafter included a presentation of national resources, capacities and capabilities, followed by a presentation of two SAR-relevant tools in maritime operations, the Danish ArcticWeb and the Finnish Vessel Triage. Capt. Etienne Garcia shared experiences from the recent incident with “Le Boreal” at the Falkland Islands. After the TTX, the event was concluded with summaries from selected participants and inputs from all.

apr.06	
08:30	Registrations opens
09:00	Welcome and opening remarks Iceland's Ministry of Interior, Associated Icelandic Ports Icelandic Coast Guard AECO
09:30	Expedition cruise tourism in the Arctic Frigg Jørgensen, AECO
09:50	Conventional cruise tourism in the Arctic Kim Hall, CLIA
10:00	Finnish SAR capacities and capabilities
10:20	Norwegian SAR capacities and capabilities
10:40	Coffee break
11:10	Danish/Greenlandic SAR capacities and capabilities
11:30	Canadian SAR capacities and capabilities
11:50	US SAR capacities and capabilities
12:10	Icelandic SAR capacities and capabilities
12:30	Lunch
13:30	Arctic Council/EPPR - Arctic SAR and marine oil pollution prevention
13:50	ArcticWeb Mads Bentzen Billesø, Danish Maritime Authorities
14:10	Vessel Triage Jani Järäinen, Finnish Border Guard
14:30	Coffee
14:50	TTX Scenario presentation - start TTX
16:00	End official program day 1
Social	
16:00	Reception hosted by Iceland Travel
16:30	Reception ends
18:00	Bus transportation to Vikingheimar
19:00	Dinner at Vikingheimar
22:00	Return transport to Reykjavik - return approximately 22:45
apr.07	
09:00	Good morning
09:10	TTX
12:30	Lunch
14:00	TTX
15:00	Summary and way forward
16:00	End of workshop and TTX



Tabletop exercise

- A beneficial event to enhance mutual understanding between ship's personnel, shore-based company emergency response personnel and SAR service personnel (MSC/Circ.1079, 9.5).

The Icelandic Coast Guard and Hurtigruten wrote the scenario together inspired by real incidents and with an existent unnamed vessel as reference. Snorre Greil from the Icelandic Coast Guard moderated the TTX.

The course of events developed in steps allowing vessels of opportunity, local and international designated rescue facilities to arrive on scene and



contribute to the rescue. Having the target vessel – initially carrying 300 persons - first sustaining an engine room fire, then drifting, and finally grounding in danger of capsizing on the rocky coast of remote Jan Mayen, challenged the principle of the ship being the best lifeboat. When half of the persons on board abandoned the stricken vessel into a lifeboat prior to the vessel grounding, it was thought of little help, as the lifeboat later capsized in heavy seas while attempting a landing at Boat Bay, resulting in several persons getting lost in the sea and others inhaling seawater. The sum of the events triggered a mass rescue operation, which characterizes by the need for immediate response to large numbers of persons in distress such that the capabilities normally available to the SAR authorities are inadequate.



The TTX facilitated participants to share own experience and expert knowledge, real incidents were reviewed and lessons learnt from previous exercises were used as a point of departure for discussions. The TTX addressed key processes when responding to a large maritime incident such as continuous assessing of risk; notification of risk; coordination of the joint effort – on scene and ashore - to reduce gaps, overlaps and confusion, and as regards media and public relations.

In an effort to maximize effectiveness of established mechanisms, the TTX focused on SAR data providers and SAR co-operation plans as essentials for enabling a smooth and efficient co-operation between ship, SAR providers and operators and as such an essential part of the mass rescue



operation plan. The TTX touched on databases in capacity of supporting the development and sharing of SAR co-operation plans as well as ongoing work to improve this tool.

Participants also shared possibilities of contingency planning enhancements and means for mitigating risk as regards the operation of ships in areas remote from SAR facilities.

For more details regarding scripted course of events and background information refer to the TTX scenario document. For a list of identified challenges and lessons learnt refer to the chapter regarding this.

Lessons learnt

The listing of lessons learnt from this event are based on presentations, experiences shared, the TTX and discussions. It is not presented in order of priority. These issues were emphasized at this event, but other issues, not recorded here, may also be relevant.

Planning and preparing

- Ready available information about SAR resources, including enhanced resources of industry, and SAR contacts in the Arctic, was in some instances found to be inadequate.
- Capacities and capabilities are limited.
- Voyage risk assessments and operations must acknowledge the limitations.
- Operators should consider if measures can be taken to be more self-reliant.
- SAR responders need to be more observant to what the cruise industry can represent in regards to resources.

Training/drills/procedures

- During drills, exercise all involved with clear instructions of role, tasks and responsibilities.
- Crew manifest should include assigned roles in case of emergency.
- The company office team should be included in exercises.
- On an emergency plan, the Captain should not be assigned to particular tasks, enabling him/her to monitor the whole situation at all times.

Take into account

- In the Arctic, depending on position of the incident, it can take many hours, sometimes days, to get any kind of assistance in case of an emergency.
- Vessels of opportunity are likely to be the first on scene.
- Vessels of opportunity may in some cases be the only rescue facility on scene.

Distress signal and general alarm

- Never deny a serious situation.
- Timely activation of SAR facilities allows for better preparation and will often be key to success in rescue operations, as stated in IAMSAR.
- As regards timely alerting, the three emergency phases used by RCCs may be useful to keep in mind. The phases are:
 - Uncertainty phase – is a situation that may need monitoring or investigation.
 - Alert phase – no immediate danger is present but assistance may be needed.
 - Distress phase – immediate assistance is required.
- Sound general alarm at an early stage.



Communication between vessels and the RCC

- Ensure that lines to RCC are kept open.
- Send CLEAR messages.
- Ensure that you are on the same time (GMT).
- Ensure that all parties use the same measuring system (nm).
- RCC should direct all communication with a vessel in distress through one single point of contact.

Communication onboard

- Understand that the many, continuous alarms on the bridge can be noisy and stressing, and may influence on the ability to communicate.
- Understand that communication with e.g. firefighters in firefighting equipment is difficult while they exercise their duty.

Information to passengers

- Give passengers correct information and tell the truth - but:
 - Do not unnecessarily communicate concerns that will cause unnecessary anxiety.
- Face passengers in person (Captain) with information as soon as possible.
- Be prepared for different languages. Use translators for announcements. Keep translator on or by the bridge, if necessary.

Evacuation/abandon ship

- Evacuate in daylight, if at all possible.
- Muster-stations should allow passengers to look out, and get fresh air, which helps avoid sickness.
 - An inside muster-stations may cause sickness earlier since passengers are dressed to be outside, wearing life-vests indoor can constitute a risk, keeping passengers inside will not allow them to get fresh air and may cause passengers to be scared as they cannot see what is going on outside - especially if the vessel is rolling.
 - Sight of rescuers/assistance (airplanes, helicopters, other vessels, etc.) has a calming effect on people.
- Use simple systems for counting of passengers (e.g. clickers). Be prepared for difficulties in keeping control of passengers by name.
- Evacuation should preferably and when situation allows be subject to coordination between the captain of the vessel in distress and the On Scene Coordinator/SAR Mission Coordinator.
- Uncoordinated evacuation may disturb plans for evacuation and control of the situation.
- Evacuation using vessels of opportunity can be challenging in harsh weather conditions.
- Use of tender vessels is difficult in harsh conditions.

RCC coordination

- Vessels of opportunity may be the best option for responding to a mayday, and will often be on scene before the RCC can manage to organize alternative efforts by designated rescue facilities.
- EU and NATO have mechanisms and resources for joint efforts in the event of larger accidents.
- Vessels of opportunity and local communities constitute resources that can be implemented in a response.

Care for people

- Sick and anxious people may become very tired. They may not ask for water or food. Look after passengers even if they are not demanding.



Home office

- Set up a conference call enabling everyone in the response team to call in.
- All unnecessary disturbance of call to a vessel in distress should be avoided.

Media

- Coordinated media handling – RCC and operator – is of utmost importance
- RCC needs a liaison person from the vessel operator or shipping company.
- The media plans in place are often insufficient.
- Shutting down communication for passengers may backfire.
- Bandwidth on board of vessel can be allocated for special purposes.

Cruise vessels as part of Arctic SAR readiness

- Cruise vessels may have equipment, competence and capacities (helicopter-decks, divers, doctors, beds, food, medicine, communication, oil spill response equipment, zodiacs, zodiac drivers, ROVs, local knowledge, etc, etc) that can be used during the SAR operations.
- Cruise vessels and their resources should be taken into consideration when planning and conducting SAR operations.
- RCCs may use industry databases to access information about cruise vessels in the Arctic.
- The cruise industry needs to share information and plans with RCCs.

Other take-aways

Many expressed which great value it was in gathering SAR responders and cruise industry in the same room. The SAR Community expressed that they were put a little more at ease, understanding that the industry has a very high attention to risks, and also are equipped and educated to help each other and themselves in case of an emergency. The industry expressed that they had gained a better understanding of the total SAR capacity and capability picture in the north. There was a general very high satisfaction related to the established contacts on organizational and personal levels.

It was however emphasized, that this event must just be considered a beginning. There is a great need to repeat and further develop such events, and follow up on findings and challenges.

Evaluation

Participants were asked to rate value of agenda items and organization of the event, on a scale from 1 to 7, where **1 is very high value** and 7 is very low value.

Participants have rated the overall value of this workshop very high (1,62). The same applies to most themes covered under the agenda (average 1,88), as well as venue (1,62) and social program (1,79). The organizer especially notes the very high score on the presentation of the lessons learnt from a recent incident (1,27). The results are attached in appendix 1.

Recommendations

With such a unison agreement on the value of joint efforts as the Arctic Joint SAR workshop and TTX 2016, we strongly recommend that anyone involved in similar activities, or in position to initiate such activities, takes the need for increased industry – SAR entity cooperation and coordination, into account.



Findings at this workshop supports the recommendations from the Arctic Zephyr exercise to the Arctic Council, EPPR Working group, in particular:

Recommendations: Consistent with the recent decision of Arctic Council Ministers to add SAR to the EPPR mandate, including the establishment of a sub-working group to deal with relevant topics and other international fora, recommend the EPPR continue to develop SAR as an area of focus to enhance and strengthen the Arctic SAR Agreement, international SAR cooperation and SAR coordination.

- Additionally, three SAR related gaps, which were identified and agreed upon at AZ16, are brought to the attention of the EPPR as follows:
 1. An Arctic SAR interoperable data sharing format supporting national comprehensive awareness pictures should be developed.
 2. SAR-specific communications protocols across domains, consistent with established international agreements / forums should be established.
 3. An international infrastructure and SAR resource capability database designed to facilitate SAR information exchange and international SAR coordination should be developed.

Recommendation: Encourage the institutionalization of industry / agency collaboration through Arctic SAR-related events and exercises, similar to AZ16, that advocate for information exchange and planning coordination between industry and Arctic SAR entities.

Finding platforms to share information, enhance contact and dialogue between industry and SAR Entities – and practice together, have been emphasized by this event as well.

Follow-up

For the organizers the evaluation, together with other feed-backs and the lessons learnt, confirm the interest, need and value of such joint cruise industry – SAR entities events. The Association of Arctic Expedition Cruise Operators (AECO) and the Icelandic Coast Guard have therefore agreed to extend the cooperation with the intention of organizing the **Second Joint Arctic SAR workshop and TTX**, tentatively in week 14 (first week of April), 2017. Frequency of potentially future events after that will be subject to consideration.

There is some risk connected to fragmented responsibilities connected to Arctic SAR related issues, and that the number of events organized by different entities can put strains on stakeholders, forcing them to prioritize participation.

It is therefore recommended that organizers consider if different efforts, projects and events can be connected, and new cooperation established.

Resources

- SAR Contacts <http://sarcontact.info/>
- Arctic expedition cruise vessels database <https://stat.aeco.no/> (AECO)
- Expedition cruise vessel tracking <http://tracking.redportglobal.com/Track> (AECO)
- ArcticWeb <https://arcticweb.e-navigation.net/>
- Vessel Triage <http://www.raja.fi/vesseltriage>
- IMO GISIS <https://gis.imo.org/Public/Default.aspx>



- US AMVER <http://www.amver.com/>

Contact

AECO's Executive Director, Frigg Jørgensen, frigg@aeco.no, Tel: +47 79 02 63 50/+47 913 90 554.

Icelandic Coast Guard Deputy Chief of Operations, Auðunn Friðrik Kristinsson - Audunn.Kristinsson@lhg.is, Tel: +354-545-2010 / +354-840-2131

Organizers

AECO - www.aeco.no

Association of Arctic Expedition Cruise Operators is an international organisation for expedition cruise operators and associates in the Arctic, dedicated to manage environmentally-friendly, safe and considerate cruise tourism.

The more than 50 international operators and 30-35 expedition cruise vessels that are organized by AECO represent the great majority of these operations in the Arctic.

Icelandic Coast Guard - <http://www.lhg.is/english>

The Icelandic Coast Guard is a civilian law enforcement agency that is responsible for search and rescue, maritime safety and security surveillance, and law enforcement in the seas surrounding Iceland.

The Icelandic Coast Guard operates Joint Rescue Coordination Centre Iceland and is responsible for coordinating maritime and aeronautical search and rescue within the Icelandic region.

Hurtigruten - www.hurtigruten.com

Hurtigruten operates a fleet of vessels on the legendary original Norwegian coastal route dating back to 1893, with 11 vessels in year-round service daily crossing the Arctic Circle. In addition, Hurtigruten currently offers seasonal expeditionary sailings in the High Arctic around Spitsbergen, Iceland and Greenland, and, starting with the 2017 season, in Canadian Arctic waters.

Hurtigruten's substantial polar presence also includes Antarctica, operating two vessels for expeditionary cruises during the 2016/2017 season.



Appendix 1: Evaluation

The below is the result of the evaluation conducted by 34 participants at the end of the event. Participants were asked to rate value of agenda items and organization of the event, on a scale from 1 to 7, where **1 is very high value** and 7 is very low value.

Please rate the value of the national presentations of capacities and capabilities	2,03
Please rate the value of industry presentations (AECO and CLIA)	1,94
Please rate the value of the presentation of tools (ArcticWeb – Vessel Triage)	2,03
Please rate the value of the “lessons learnt” presentation (Capt. Etienne Garcia)	1,27
Please rate the value of the TTX (tabletop exercise)	1,79
Please rate the value of references to regulations and tools (IMO regulations and circulars – SAR contact lists, etc)	2,15
Please rate the value of briefing on the SAREX by Greenland in 2013 and 2014	2,25
Please rate the value of the briefing on capacities and capabilities in Jan Mayen	2,03

Please rate your satisfaction with the venue for the workshop and TTX	1,62
Please rate your satisfaction with the conference hotel (if relevant)	2,87
Please rate your satisfaction with the social program/dinner	1,79

Please rate your overall value of this workshop and TTX	1,62
Please rate the likelihood of your participation in a similar Arctic Joint SAR workshop and TTX	1,69

Every year	50 %
Every other year	50 %



Appendix 2 – Press release

Arctic Cruise Industry and Rescuers Participate In Joint Search and Rescue Exercise

“An expeditionary cruise vessel with 300 persons on board has sustained an engine room fire close to the coast of remote Jan Mayen in the Arctic Ocean.”

For immediate release, April 17, 2016: Drifting towards the shore, the ship hits a rock and begins taking on water, then settles on the seabed and is in danger of capsizing. A lifeboat with 150 persons overturns while attempting a landing on the beach, resulting in five people getting lost in the sea and another five lying lifeless on the beach.

Fortunately, this was just a theoretical scenario or tabletop exercise (TTX) that the 56 participants faced during the Arctic Search and Rescue (SAR) Workshop that took place in Reykjavik, Iceland April 6-7. However, in case a similar scenario would play out in the real world, the joint response exercise could add to the effectiveness and outcome of the rescue operation.

The exercise was aimed at strengthening the cooperation and exchange of knowledge between the Arctic cruise industry and SAR service providers, and focused on mass rescue operations relative to potential passenger ship accidents in Arctic waters.

Ragnhildur Hjaltadóttir, permanent secretary of the Icelandic Ministry of Interior, opened the workshop and tabletop exercise organised by the Association of Arctic Expedition Cruise Operators (AECO), Icelandic Coast Guard and Hurtigruten.

Takeaways from the event included a better common understanding of capacities, capabilities and limitations of both industry and SAR responder resources and a better perception of the obligation and common interest of timely communications regarding risk. The benefits of closer contact, ongoing dialogue and joint exercises such as this one involving SAR entities and cruise operators in the Arctic were also emphasized.

The TTX addressed several critical processes faced by participants when responding to a large maritime incident in the Arctic, and lessons learned from daily experience were shared. Key subjects included SAR cooperation plans, databases, roles and responsibilities, lessons learned from exercises as well as real incidents, and public relations and emergency management on-shore. During the theoretical exercise, which required an international response, the participants coordinated their efforts to mount an effective joint rescue. The



participants contributed with vessels of opportunity; local and international air resources; and other maritime and land-based facilities in the joint mass rescue operation. Nevertheless, the incident proved challenging due to the distance of the hypothetical accident from nearest rescue assets, the scripted bad weather onsite and a continually worsening course of events.

The participants representing SAR responders and cruise operators in the Arctic included the Canadian Coast Guard; the Canadian Air Force; the Finnish Border Guard; the Norwegian Coast Guard; the US Coast Guard; the Icelandic Police; the Arctic Command of the Danish Defence and ICE-SAR; as well as a number of AECO members and Arctic cruise operators; other industry organizations and research institutions. The Arctic Coast Guard Forum, which organized a back-to-back meeting with the event, was also represented.

Participants expressed great satisfaction with the outcome and value of this first-ever, joint cruise industry and SAR-entities, tabletop exercise, with nearly everyone agreeing that future exercises should be developed and scheduled.

Appendix 3 – Participants

Joint Arctic SAR TTX - PARTICIPANTS			
AECO-members			
1	One Ocean Expeditions	Aaron Lawton	VP Marine Operations
2	CMI	Scott Will	VP Marine and Port Operations
3		Chris Dlugokecki	Vice President Quality and DPA
4	Hurtigruten	Johnny Lorentsen	Senior Operational Consultant
5		Capt. Rune Andreassen	
6	Albatros Travel	Michael Hjort	Production small ship adventures
7	Poseidon Expeditions	Anja Erdmann	Expedition Operating Manager
8	Salen Ship Management	Capt. Niklas Peterstram	Captain
9	Oceanwide Expeditions	Mark van der Hulst	Managing director
10	Grand Espaces	Christian Kempf	Owner and expedition leader
11		Christin Genniard	Expedition leader
12		Xavier Allard	Expedition leader
13		Elisabeth Rossone	DPA
14	Aurora Expeditions	Henrik Lovendahl	Expedition leader
15	Abercrombie & Kent	Capt. Etienne Garcia	Captain
16	Lindblad Expeditions	Dwayne Stevens	Marine Operation Manager
17		Capt. Leif Skog	Vice president of marine operations
18	Silversea Cruises	Capt. Margrith Ettlin	Captain
19	Tallship Company	Capt. Maarten van der Duijn Schouten	Captain
20	G-Adventures	David Ainsworth	Vessel Operations Manager

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21	V-Ships	Capt. Mirko Rossi	Marine manager and DPA
22	Seabourn (Holland America Group)	Capt. Prash Karnik	Director Marine Operations
23	PolarQuest	Mia Lundqvist	Operations/staffing
24	AECO	Frigg Jørgensen	Executive director
25	AECO	Ilja Leo Lang	Office manager
Industry observers			
26	CLIA	Kim Hall	Operational and security director
27	IAATO	Tudor Morgan	Environmental and operation manager
Arctic SAR responders			
28	Arctic Command of the Danish Defence	Johnny Toft	Head of Joint Operations Center
29		Claus Elberth	Executive Officer of operations
30	Canadian Coast Guard (JRCC Halifax)	David Tinley	Director of Preparedness and Response
31		Donald (Donnie) Billard	Maritime SAR Coordinator at JRCC Halifax
32	Canadian Air Force (JOC)	Gillian Parker	Search and Rescue Operations
33	Finnish Border Guard	Jani Järäinen	LCDR/ International Affairs Unit
34		Marko Tuominen	Capt.
35	JRCC North-Norway	Ørjan Delbekk	Inspector POU
36		Finn Tore Sortland	JRCC Controller
37	Norwegian Coast Guard	Yngve Kristiansen	Commander Senior Grade/ Staff officer
38		Charles Blålid	Commander / COMNORCG Staff, OPS section
39		Endre Barane	Commander / CO NOCGV Svalbard
40	US Coast Guard	CDR Russel Zuckermann	US Secretariat Team
41		CAPT Geoff Gagnier	US Secretariat Team
42		CDR Darren Melanson	Combined Operations Team
43	Icelandic Police, Civil Protection Dep.	Ágúst Gunnar Gylfason	
44		Friðjón Viðar Pálmason	
45	Icelandic Coast Guard	Asgrimur L. Asgrimsson	Chief of Operations
46		Audunn Kristinsson	Deputy Chief of Operations

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47		Svanhildur Sverrisdottir	HR and PR officer
48		Snorre Greil	Project Officer
49		Henning Adalmondsson	Navigation officer Flight Department/rescue man
Presentations			
-	Vessel Triage	Presentation by Finnish Border Guard repr.	
50	ArcticWeb	Mads Bentzen Billesø	Danish Maritime Authorities
Observers			
51	Rasmus Dahlberg	PhD-fellow, MA	Unviersity of Copenhagen - Center for disaster
52	Karin Wigger	MARPART	University of Bodø - MARPART project
53	Knut Espen Solberg	PhD-student	University of Stavanger - SARex organiser
54	Ove Njå	Professor	University of Stavanger
55	Guðbrandur Örn Arnarson	Project manager SAR	ICE-SAR
56	Sigurður R. Viðarsson	Project manager Maritime SAR	ICE-SAR