SAREX GREENLAND SEA 2013

Report on the participation of Icelandic response capacities: ICE-SAR, Coast Guard, Police, Civil protection, and Fire department. General impressions and observations

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Introduction

The exercise was held under the umbrella of the Arctic Council and has been carried out by Denmark in the past two years. The Joint Arctic Command has had the implementation of the exercises in its possession as the so called officer scheduling the exercise. Exercises of this size and in such a vast location are massive projects and include participation of many nations and a variety of government organizations and non-governmental organizations. Participation from Iceland was comprised of 120 persons in their respective units such as offshore patrol vessel, maritime surveillance air-craft, National Emergency Coordination Center, Joint Rescue Coordination Center, rescue teams, pararescue team, Keflavik Air Base, Air-Liaison Team, The Environment Agency of Iceland and more. As well several observers were deployed to the exercise.

The scenario of this full size exercise was that a cruise ship with 250 persons on board coming from Svalbard went missing off King Oskar's Fiord in North East Greenland which brought about a comprehensive search. Later the cruise ship was located inside the fiord where it ran aground and caught fire following a large-scale rescue and evacuation operation. The exercise started within the Icelandic Search and Rescue Region and ended by the evacuation of casualties to Iceland. As well Iceland was the main hub for rescue units and personnel and equipment.

Generally the goals and expectations to the exercise were met. Though some issues were identified that need follow up to be able to write them off as lessons learned.

Exercising in such vast locations presents some limitations mostly related to logistics but at the same time it gives a realistic picture of mass rescue capabilities in the region. At SAREX 2012 the exercise logistics were more or less run real time which affected that the in-land Incident Commander in form of the Greenlandic Police did not arrive to the Exercise Area of Operation. At SAREX 2013 the logistics in form of effort allocations were in some cases pre-located which gave more flexibility to bring in the assets in time to exercise together. The decision of pre-locating was the correct decision making the aim of the exercise to exercise the Arctic Nation's SAR organizations first priority. Though for the same reason reservations should be made to our abilities of deploying the efforts in an effective way and then in time - or expressed in another way whether our rescue capacities are sufficient to actually rescue those people.

It has become even clearer that no one country or organization can deal with this kind of incidents on their own and thus we need to work together to fulfil the mission. This interdependency makes the completion of the mission more difficult but also it makes it absolutely necessary to cooperate and exercise together.

The Icelandic rescue capacities welcome the exercises under the auspices of the Arctic Council and hopefully the Icelandic capacities will be able to participate as strong players in the future with respect to search, rescue, disaster relief and environmental response.

Planning

The Planning process of an exercise can be as important as the execution of the exercise itself. The main participating organizations Ice-SAR and the Civil Protection Department in Iceland had the will to participate in the planning conferences in Greenland but other projects came in the way for this.

Icelandic Coast Guard provided one main planner for the planning of the exercise who participated in three planning conferences and one scripting conference at the Joint Arctic Command's Head Quarters in Nuuk. The planning of the exercise was well arranged by the scheduling officer at Joint Arctic Command. The multi-lateral planning process is an important factor in the overarching goal of the exercise to develop and improve search and rescue plans.

Three planning meetings were held in Iceland to plan and coordinate participation with the participating organizations. The success of the exercise was depending on the ability of the participating agencies and organizations to work together. The Icelandic participation was comprised of at least 15 entities that needed to plan together as well as with entities from other countries. This planning was characterized by will and flexibility by all parties and succeeded in the far most cases. The planning and the execution of the exercise has showed that the multilateral collaboration is strong, keeping in mind that only by this we can generate the synergies needed for a mass rescue operation as the one exercised in Greenland to become a success.

Impressions and observations

National Commissioner of the Icelandic Police (NCIP) civil protection department

Participation:

NCIP participated in the SAREX Greenland Sea 2013 with one observer-trainer/liaison in the EXCON on board the Danish Coastguard ship Vædderen and an ad-hoc team in the National Emergency Coordination Center (NECC – Samhæfingarstöðin SST) in Iceland. NECC/SST is the equivalent to NOST in Denmark.

NECC is the leading authority in handling mass casualty incidents in Iceland and also when coordinating multiple rescue efforts sent from Iceland to other areas and the effort has to be coordinated with foreign national authorities. NECC is also the leading authority in handling and



coordinating mass casualty incidents with Iceland in the role as host- or transit- nation.

NCIP civil protection department took part in the preplanning meetings held in Iceland.

Observations:

NCIP should participate with a representative in the initial planning, planning conferences and scripting conference along with representatives from the Icelandic Coast Guard and the Ice –SAR. The multi-lateral planning process is an important factor in the overarching goal of the exercise to develop and improve search and rescue efforts and plans for the region and it is there for important that all the main authorities and role players are participating in the planning process from the start.

A multilateral plan or an annex in the Danish national rescue plans for the region should be constructed, defining the lines and means of communication between the national coordination authorities participating in the search and rescue effort. This plan should define national points of contact (POC) and who is communicating with/and informing who – how, when and why. During the exercise the necessary bilateral communication and sharing of information between the Icelandic NECC and Danish/Greenland national emergency coordination. This meant that for example the Icelandic health sector, ambulance services, customs, local police and other could not be alerted and informed as needed about casualties arriving in Iceland.

To implement and exercise a plan for communication between national emergency coordination authorities, a table top/paper exercise could be held parallel with and in coherence with the live exercise or in a separate phase.

The transport of real-live role players to Iceland to try out the Icelandic response should not be prioritised and put effort on. The handling of mass casualties through airports and casualty assembly areas is exercised at regular intervals.

Due to other activities and the Regional command and coordination (KST- command station) in Keflavík airport was not participating in the exercise. During the planning of the exercise on behalf of Iceland it was decided to have an ad-hoc operation of the KST in Keflavik because of the expected amount of activities, because of other activities this could not be fulfilled on this exercise. In case of a real emergency similar to the one handled in the exercise it is very important to activate the Icelandic civil protection system, which the KST in Keflavík is part of, to take care of the host nation/transit nation support locally at Keflavík airport. The KST in Keflavík airport is led by the local police chief and the KST crew in Keflavík is composed of representatives from all the emergency response and logistic services actors in the area. In the future it would also be necessary to have national liaisons from the participating and affected nations using Keflavík airport as transit- and staging point. The regional command and coordination is in direct connection with NECC in Reykjavík.

According to the AJP-4.5 (NATO publication) a Point of entry (POE) and possibly a Reception and departure Center (RDC) in Iceland should be defined and the organisation laid out in a multilateral emergency response plan or an annex in the Danish/Greenland national emergency response plans for the region.

Other practices and guidelines in AJP-4.5 could also be implemented such as for example a standing Memorandum of understanding (MOU) between Icelandic, Danish and Greenlandic emergency authorities about emergency response in and around Greenland and Iceland.

The exercise control (EXCON) team on board the Danish Coast Guard ship Vædderen was composed of personnel from the Danish military, the Danish/Greenland police and representatives of other participating nations. The workload in the EXCON was mostly on the hands of those who had been part of the planning and preparation process, they did a very good job throughout the exercise. For the other representatives it seemed to be somewhat less to do and for future exercises it is important that the roles and tasks of each member should be defined on forehand to spread the workload and ensure common understanding within the team. The EXCON could have conducted a meeting well before the exercise to clarify roles and duties within the team as well as national roles and duties. It is important to have a national liaison for each participating nation in the EXCON. For NCIP the participation in EXCON on Sarex Greenland SEA 2013 was important and educational. It was very important for NCIP civil protection department to get a better overview of the extent and scope of the exercise, also to learn the possibilities and boundaries associated with the remoteness of the area. This will better enable NCIP civil protection department to facilitate cooperation and coordination within the Icelandic emergency response sector to enhance effective operational capabilities in the remote arctic and also to facilitate cooperation and coordination within the Icelandic emergency response sector to better be able to communicate with other foreign national emergency authorities.

Ice-SAR base element

Participation:

Ice-SAR participated with 10 persons in base element in Mestersvig. They were transported with C-130 from USAF to Mestersvig. In Mestersvig the base element put up a base camp and hospital tents and cooperated with other emergency response units and the police.

Observations:

At the beginning of the exercise the Ice-SAR did not have a connection with any of the exercise staff and it was not clear who the official representative from the EXCON at Mestersvig was.



Danish police personnel was transported to this remote area of operation without their equipment, the planned transport for their equipment was delayed due to bad flying conditions. It is not good practice to transport personnel and equipment separately in to remote areas, this can cause complications for other rescue personnel, halter rescue operations and be a burden on local population and other assets in the affected area.

Cooperation between Ice-SAR and other emergency response units and the police was good and effective in Mestersvig.

Mirroring casualties from Ella Island to Mestersvig was not properly implemented or is not a suitable way of conducting the exercise. A real life transport of casualties from Ella Island to Mestersvig would have been more realistic and considerably more important than training the movement of casualties from Mestersvig to Iceland.

Observer/trainers were not in specially marked clothing or wests. This caused a little bit of confusion some times. In the future this could be avoided with handing out specially marked wests or arm tags for the Observer/trainers.

Cooperation and flow of information between Ice-SAR and the Icelandic liaison person in the EXCON was good.

Too much uncertainty occurred during the evacuation and departure of personnel and equipment from Mestersvig after the end of the exercise, better information from a person responsible for logistics on site would have been preferred. The personnel from volunteer organisations were the first on scene and the last to depart from the area. Volunteer rescue teams will at all times try to be as flexible as possible but good to have in mind is that they have jobs at home to take care of and that they are spending their free-time taking part in exercises.

Ice-SAR communications element

Participation:

Ice-SAR participated with 5 persons in communications element and 1 person as team leader for the whole Ice-SAR participation in Greenland. The communications element operated in Ella Island and

in Mestersvig in cooperation with the KST's (Kommand station). The Ice-SAR team leader operated in the KST in Mestersvig as liaison for the Ice-SAR personnel, he also assisted the police with different tasks in the KST.

Observations:

The setup of TETRA system and other radio links failed during the exercise. The use of HF and VHF worked well. To use IRIDIUM satellite phone is not a good



alternative between KST's in operations. The best practice would be to use the communication systems known to function in the area.

The KST in Ella Island could have integrated the Ice-SAR communications element more into their operation or placed a liaison from the police in the communications element or vice versa.

Ice-SAR acting role players in Mestersvig

Participation:

Ice-SAR participated with 25 persons as role players to act as casualties in Mestersvig during phase 2 of the exercise. They were transported from Iceland to Mestersvig in a C-130 the day before phase 2 started and they were transported acting as casualties with C-130 to Reykjavík on the evening of day1 of phase 2.

Observations:

It was difficult to get information about departure and return times of air transport which caused problems for people in the group organizing leave from their regular jobs; Ice-SAR is manned by volunteers.

Descriptions of casualty injuries could have been published much sooner, maybe in a common database.

There should be a designated care taker/safety officer for the role players; his task would be to ensure the safety of the role players and to be a liaison person between the observer/trainers and the personnel operating in the exercise. The care taker/safety officer could be the one who is responsible for makeup and preparing the role players.

The role players were not transported along with their personal equipment and gear. When transporting personnel to a remote area they should always be transported with their equipment.

The role players could have been briefed sooner and more thorough about their role play, they were given their identities with short notice before the exercise began. One idea is to make the list of the names of the role players to be the passenger list.

Full consent has to be between the role players and the personnel operating in the exercise about use of needles. In some cases the role players got needles put in to them even though they had been informed on forehand that they would not be stabbed with needles.

Some improvements have to be made in how the medical personnel take vital signs of the casualties/role players for exercise. Good exercise practice is to take the vital signs real life on the role player and then the role player informs the medic what the vital signs are for exercise. The same

can be practised when body temperature is measured.

The role players were very cold during the exercise.

For more realistic exercise it should be considered to increase the number of casualties in the future.

Generally the role players were very impressed with the degree of professionalism of the medical teams both in the hospital and on board the aircraft.



Ice-SAR para rescue element

Participation:

Ice-SAR para-rescue participated with eight persons who jumped from the Icelandic Coast guard surveillance aircraft on to Ella Island. The unit was prepared to operate as self-sustainable medical assistance unit working on the casualty assembly area at Ella Island. Total weight of the unit was little over 1000 kilos.

The jumping conditions were good and the total time to deliver the whole unit on the ground took 40 minutes from the moment first jumpers jumped out of the aircraft. The team leader reported their arrival to command post on Ella Island (KST). Due to a delay of the transport from Iceland the

unit arrived at the end of the first day of the second phase of the exercise and did not do anything more than settle in for the night

On the second day the unit worked in close cooperation with the Danish medical team and Canadian pararescue unit on the casualty assembly area and they also sent two persons along with the Canadian para-rescue



team on board the "cruise ship" to assist in the rescue effort on-board.

The unit was accommodated and transported with ICGV Týr to Mestersvig from Ella Island.

Observations:

The second phase of the exercise was run in two short periods with only 20 persons acting as casualties – to get a better impression of the capacity of the units participating and the capacity needed to handle a big incident with several hundreds of casualties it would be important to increase the number of persons acting as casualties on the exercise an also to run phase two continuously for a longer period.

Important setups like casualty assembly area, overnight casualties care, feeding and sheltering of casualties were not tried out.

The Icelandic para-rescue unit has to further develop their equipment setup for insertion and operation in rescue operations like the one Ella Island.

The Icelandic para-rescue unit looks forward to be invited to future exercises.

Keflavik Police district

Participation:

Keflavik Police district participated with one police officer as liaison officer and observer in KST in Mestersvig. Keflavik Police district had plans to operate their KST in Keflavik airport; due to other activities it was not possible.

During the exercise the Icelandic police officer in Mestersvig assisted the Greenlandic police with their tasks in KST Mestersvig.

Observations:

The KST in Mestersvig was generally well organized and the division of tasks worked well but the process of planning ahead could have been better.

The speed in the exercise process was a bit fast, specially the transfer of casualties from the airstrip through the casualty assembly area and the primary assessment of casualties. This caused difficulties for the police in gathering basic information about the casualties. One police officer was given the task to gather casualty information, and for the next time it should be considered to have two or more police officers in this task.

The Police was operating with one casualty registry and the Danish casualty assessment team was operating with a different casualty registry. This double registry should be unnecessary. Double registry calls for more personnel and effort and is likely to cause confusion in the flow of information between KST's and between different rescue elements. One unified casualty registry/tracing system should be implemented and it should be on the hands of one authority, for example the police.

The tag or information sheet following each patient should be better visible and accessible.

Communication between KST in Ella Island and KST in Mestersvig was not working in the beginning. With assistance from the Ice-SAR communications element the KST's were able to stay in contact through HF radio.

The Icelandic participants in the KST sometimes had difficulties following the internal communication in the KST due to language barriers. In international operational environment a common language should be established, for example English. The KST commander should hold status meetings at pre planned times or when there is a decisive change in the overall situation.

Icelandic coast guard

Participation:

The Icelandic Coast Guard participated in the exercise with:

- Host Nation Support at Keflavik Air-base with:
 - Lodging facilities for air-crews.
 - Facilities for Air-Liaison Team and Liaison Officer Aerial Means.
 - Parking slots for Air-Crafts.
 - Hangar and storage space for rescue equipment.
- Maritime Surveillance Air-Craft, DASH 8 Q300 used for Search and deployment of Para-Rescue Team.
- Coast Guard Vessel with smoke-divers and rescue team, professional Fire-Fighters and Medical Technicians and one observer/trainer.
- Rescue Coordination Center (JRCC Iceland).

ICG provided one main planner for the planning of the exercise who participated in three planning conferences and one scripting conference at the Joint Arctic Command's Head Quarters in Nuuk.

Observations:

Host Nation Support

Iceland played the vital role of hosting the Search and Rescue units before and during the exercise including air-crafts, air crews and other personnel, vessels, air-liaison-team and equipment for rescue teams.

The vessels were provisioning and changing crews in the deep sea ports of Reykjavik and Helguvik, Helguvik being a port administered by the Icelandic Coast Guard. The air-crafts, air-crews and airliaison team were hosted and facilitated at the former Naval Air Station Keflavik. The facilities in Keflavik now assigned to the Coast Guard include 19 hangars, runways, fuel depot, warehouses available to store rescue equipment, lodging facilities for several hundreds of people and last but not least the Command and Reporting Centre.

The exercise certainly confirmed the validity of Iceland and Keflavik as a hub for this kind of operation in the region. Secure storage was provided for vital Rescue Equipment from Danish Air Transport Wing, the US, Canadian and Danish Air-Crafts were parked in a secure area close to hangar and lodging facilities. Just to mention an obvious advantage of this is the possibility of parking the evacuating Air-Crafts inside a hangar sheltered from weather and with space for casualty care and field hospital.

The facilities have not been placed in this position by coincidence and are in a central position with regards to Search and Rescue Operations in the region. It would be obvious to make use of the resources in a broader perspective and in cooperation with neighboring countries. The location has reliable infrastructure with respect to transportation, communications systems, casualty care and disaster relief as well as a broad Search and Rescue organization with strong connections to both non-governmental rescue- and military organizations. With other words: The obvious junction point for the region.

The exercise proved to demand considerable resources. To avoid unforeseen expenses in this respect, exercises of this size need to be planned for well ahead of time in order to be able to include them in the budget.

Air Liaison Team Keflavik

The deployment of an Air-Liaison Team on the air-base proved an absolute necessity. The Air-Liaison Team was comprised of an Air-Planner from Danish Air-Force with two assistants and a Liaison Officer Aerial Means (LOAM) from Iceland. The team assisted and provided the air-crews with SAR Briefings and Flight Planning Information. The team monitored the mission flights and worked out flight plans as well as being the Point of Contact maintaining the communication to Search and Rescue Mission Coordinator, JRCC Iceland, Icelandic National Emergency Coordination Center, Air Traffic Control, Air-Base POC's, Rescue Teams and Search and Rescue Units stationed on base.

Beside this the team also facilitated to the solving of ad-hoc problems as when the Icelandic LOAM took action on locating an air-craft spare part that was stuck inside a bigger freight transportation company in Iceland. The re-establishment of the spare-part was the final solution to retrieve about 50 training audiences from the area of operation.

Though SAR Mission Coordinator, Incident Commander and Unified Commands are the main Search, Rescue and Evacuation planners, the Air-Liaison Team ensures the concerted action from the main junction point of the Rescue Assets.

The set-up worked well and showed that the work of the Air-Liaison Team is irreplaceable by other units and in this sense it is clear that there has to be allocated resources for this purpose in the future.

Also very important to keep in mind improving and developing Emergency Plans is that the function of an Air-Liaison team consists even if a similar mass rescue operation with the wreckage of a cruise ship would play out in the proximate waters around Iceland. The primary reason for this would be the necessity of liaising between evacuation air-crafts, National Rescue- and casualty centers.

The use of liaison persons is also described in the International Aeronautical and Maritime Search and Rescue Manual as well as in Incident Command Systems and is a well proved tool to secure good cooperation and feed-back. Optimal would be to have defined and well trained liaison persons from the Icelandic Coast Guard assigned to hosted vessels and Air-Liaison Team. Also one person should be assigned to the National Emergency Coordination Center (SST).

Icelandic Coast Guard Vessel TYR - Observations

Everybody on board agreed that the exercise had been very realistic and a success in every way.

Cooperation between Fire Fighters/medics and crew was very beneficial for all parties and by working together the standard of the rescue team that was sent on board the target ship was heightened.

The Crew was praised from other units for the way of issuing search areas during the role as OSC.

Also the response by the rescue boat of TYR when "passengers" jumped over board from the "burning ship" is worth mentioning. The light boat had been prepared with smoke diving equipment

when the passengers jumped overboard, nevertheless it only took 7 minutes to lighten the boat and pick up the 5 passengers from the water.

Communication between smoke divers was hampered inside of the target vessel and solutions should be looked for to solve the problem. Ideas came up to bring a mobile repeater.

When sending smoke divers between ships it should not be recommended for them to be wearing Fire Fighting Suits. The reason for doing this during the exercise was the calm weather but everybody agreed that this is not the standard practice. Wet Fire Suits would burn the skin during firefighting and if the fire fighter should fall over board the suit and equipment would compromise his safety.

The Crew of TYR questioned the search coordination on the second day due to many changes of search area. In fact the vessel was several times diverted to another area before even reaching the CSP.

The exercise planning as a whole and specifically on board the target vessel should be praised for being realistic and thorough.



The crew of ICGV TYR should have all the reason to be proud of the contribution delivered and the efforts presented at the exercise.

The Exercise was very useful and the crew gained a lot from the exercise itself, the planning of the exercise and the preparation of the vessel and crew prior to the exercise.

The experience gained being assigned OSC during the search was invaluable.

Maritime Surveillance Air-Craft, DASH 8 Q300

The Icelandic MSA participated on the second day of the exercise in a search in open waters for the missing vessel and life rafts and on the third day its role was to transport and deploy the Icelandic Para-Rescue Unit to the incident location on Ella Island inside of King Oskar's Fiord.

The Icelandic MSA is a specialized surveillance air-craft equipped with Side Looking Airborne Radar, military standard maritime search radar and infrared/day light camera for stabilized day and night imagery. The equipment makes it possible to find very little targets in rough seas solely by use of the surveillance equipment.

As well the air-craft is equipped with powerful communications systems as UHF, VHF, HF radios and 3G/Inmarsat internet.

The air-craft can deploy life rafts and parachute jumpers from a large cargo door.

Following the exercise the use of the air-craft during search was discussed in order to optimize best practice. The issues discussed included feedback on search briefings with regard to search effort calculations of issued search area and other technical search parameters. Also the pre-flight assessment of whether to bring look-outs in search flights was discussed; the problem addresses look-outs versus more endurance.

The Para-Rescue Team was deployed without any difficulties and all 8 parachute jumpers and their equipment landed safely in the target position. The concept of para-rescue teams is a fast and easy way to deploy first responders and medical technicians to a desolated area without infrastructure.



Joint Rescue Coordination Center Iceland (JRCC)

The JRCC is responsible for the so called Icelandic Search and Rescue Region (ISRR) which is a vast area around Iceland of 1.9 mil sq. km. The ISRR stretches to the 73° latitude north and close to the East Coast of Greenland far beyond the borders of the Greenlandic exclusive economic zone. This actually placed the missing cruise ship in the exercise within the area of responsibility of JRCC Iceland regarding coordination of Search and Rescue Efforts.

Though the cruise ship was reported missing inside of the ISRR the coordination was assigned to MRCC Greenland as the ship had been reporting to the mandatory ship reporting system GREENPOS and as the first two assets on scene was a Danish Surveillance air-craft and a Danish Arctic patrol ship.

The JRCC is the first asset in Iceland to know about the Incident and has the important role to task the rescue assets. The JRCC is as well the point of contact with regard to environmental issues at sea and maintains the contact to the Environment Agency of Iceland in this regard. Also the JRCC is entitled to activate the National Emergency Coordination Center(NECC) in case of maritime incidents where the center can be of use. When it comes to mass rescue operations involving also land efforts the Civil Protection Department of the National Commissioner of the Icelandic Police will be leading operations in NECC.

It was of the opinion of the duty officers that the training value was at stake as no additional resources in form of extra personnel was called in for the exercise. The daily work has to be prioritized leaving too little time left to attend to the exercise.

MRCC Greenland made available a common log that was set up in the JRCC. The log made it quite easy to keep up with the status of the situation but again extra personnel to set-up the system and read the manual would have been preferred.

Also was debriefed on the situation reports sent from the search and rescue mission coordinator MRCC Greenland on how to optimize the readability by avoiding repetitions, how to designate search areas and how to avoid misunderstandings.

Reykjavík fire department

Participation:

Reykjavík fire department participated with one advisor for the fire fighters on board the Icelandic coast guard ship Týr. During the first phase of the exercise the fire fighters on board Týr went through training, preplanning and equipment checks. In the second phase of the exercise the advisor followed the fire fighting team from Týr to the "cruise ship" to advice and observe.

Observations:

On the first day of phase 2 it was very crowded with people on rather small area on board the "cruise ship", many of those were VIP's. This caused a bit of unnecessary disturbance.

Fire fighters had problems with communications to their leaders if they were further down in the ship than deck 2.

Fire fighters from ICGV Týr were criticized for not taking care of casualties lying outside on the deck

of the "cruise ship" during day two of the exercise. The fire fighters received information about 220 people stuck in the smoke filled ship and they were the first unit to arrive on board. According to common prioritizing in mass casualty situation the fire fighters decided to rescue those who were still stuck inside the ship because other rescue teams would soon arrive to take care of those



casualties who were outside, each and every one of them conscious and speaking.

Conclusions and recommendations

The outcome and gain of the exercise as a whole is absolutely invaluable. Both planning, execution and evaluation of the exercise have added value to the general emergency awareness for the area as well as trained multiple organisations across borders and in a vast area solving a complicated mass rescue operation. Generally the goals and expectations to the exercise were met but still it is important to follow up on the issues that have been pointed out from the participants.

The overall question of whether the rescue capacity and not to forget environmental response capacity is adequate for the region cannot be concluded from this exercise, but the exercise though has given some indications and food for thought. With regard to response time and effectiveness weather and distance are key factors. Generally to reduce response time it is essential to have units at sea and air-craft and helicopters mission capable and stand-by. It is also clear that it would be necessary to make use of civil or private assets as for example chartered air-crafts.

The exercise was executed on the geographical northern limit for use of internet through satellites. As the use of internet was fundamental for the exercise, exercises of incidents at higher latitudes should also be considered in the future. A recommendation could be to exercise with AWACS aircrafts and exercise by the only mean of HF-communication. Iceland exercises regularly with AWACS air-crafts but the exercises could possibly be wider oriented with regard to civilian search and rescue. Also with regard to communication inside the fiord where the topography of high mountains hampers communication the means of communication should thoroughly be thought through.

A mass rescue operation is an operation that involves the need for immediate assistance to large numbers of persons in distress such that capabilities normally available to search and rescue authorities are inadequate. This means that many organisations and agencies have to cooperate over boundaries as between land, sea and air but also between countries. This cooperation was in most cases outstanding but in few cases poor or missing. In this respect essential information did not reach the Icelandic National Emergency Coordination Centre and the lines of communication in this respect must be look into.

With regard to the cooperation mentioning the Incident Command System (ICS) is inevitable. Though different between countries the ICS system follows some general rules in order to secure a

functional cooperation between rescue teams both directly managed by the system but also teams and entities cooperating with the system. The Incident Commander in land was the Greenlandic Police as the responsible party for search and rescue in land. The impression by the Icelandic rescue teams was that the ICS structure needed to be strengthened. The ICS system is regularly exercised in Iceland especially with regard to the handling of mass casualties through airports and casualty assembly areas.

