

RESCUE COUNCIL FOR SHIPPING AND AVIATION

**THE SEARCH AND RESCUE
SERVICE**

**IN
GREENLAND**

SAR - GREENLAND
(VOLUME I)

PREFACE

SAR GREENLAND is issued and published by the Shipping and Aviation Rescue Council for the Search and Rescue organization in Greenland.

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1. DEFINITIONS AND ABBRIVIATIONS

ACC	Area Control Centre
ACO	Aircraft Coordinator
AKO	Arctic Command
Alarm service	A service, which primary task is to inform the control centre or flight information centre regarding aircrafts that are in need of search and rescue service, as well as in extent needed to assist these aircraft
ALERFA	ALERT PHASE. A situation wherein apprehensive exists as to the safety of an aircraft or marine vessel
ARCC	Aeronautical Rescue Coordination Centre
ARSC	Aeronautical Rescue Sub-Centre
ATA	Actual Time of Arrival
ATC	Air Traffic Control
ATD	Actual Time of Departure
C	Coverage Factor
COSPAS-SARSAT	Satellite system for positioning of distress calls
CSP	Commence Search Point/Position
DATUM	A geographic point used as a reference in search planning
DMB	Datum Marker Buoy
DETRESFA	DISTRESS PHASE. A situation wherein there is reasonable certain that a vessel or other craft, including an aircraft or a person, is threatened by grave and imminent danger and requires immediate assistance
DR	Dead Reckoning
DR _e	Dead Reckoning error
DSC	Digital Selective Call
DSP	Drift Start Position
DTG	Date Time Group
EEZ	Exclusive Economic Zone
ELT	Emergency Locating Transmitter
EMERGENCY PHASE	A generic term meaning, as the case may be, uncertainty phase, alert phase, or distress phase
ETA	Estimated Time of Arrival
ETD	Estimated Time of Departure
EPIRB	Emergency Position Indicating Radio Beacon
F _f	Fatigue correction factor
F _w	Weather correction factor
FIR	Flight Information Region
FLIR	Forward Looking Infrared. An imaging system, mounted

	on surface vessels or aircraft, designed to detect thermal energy emitted by targets and convert into a visual display.
FST	Defense Command
GMDSS	A global communications service based upon automated systems, both satellite-based and terrestrial, to provide distress alerting and promulgation of maritime safety information for mariners.
IAMSAR	International Aeronautical and Maritime Search and Rescue Manual.
ICAO	International Civil Aviation Organization
IMO	International Maritime Organization
INCERFA	UNCERTAINTY PHASE. A situation wherein doubt exists as to the safety of an aircraft or a marine vessel, and of the persons onboard
INMARSAT	Satellite system for maritime, aeronautic and mobile communication, also the maritime emergency and security services and perceiving signals from certain emergency radio beacons
ITU	International Telecommunications Union
ISL	Incident manager
JOC	Joint Operations Centre
JRCC	Joint (aeronautical and maritime) Rescue Co-ordination Centre
LICO	Local Incident Coordinator. A person designated to coordinate the rescue operations within a specific area.
LKP	Last Known Position
LW	Leeway
MPA	Maritime Patrol Aircraft
MRCC	Maritime Rescue Coordination Centre
NOTAM	Notice to Airmen
NSIOC	National Situations- and Operations Center (Police)
OSC	On Scene Co-ordinator. A person designated to coordinate the search and rescue operations within a specific area.
OTC	Off-shore traffic controller coordination.
POD	Probability of Detection. The probability of a search object being detected, assuming it was in the areas that were searched.
POC	Probability of Containment. The probability of a search

POS	object is contained within the boundaries of an area. Probability Of Success. The probability of finding the search object with a particular search. Measure the search effectiveness.
RADIO MEDICAL	A manned 24 hours a day communication maritime medical service.
RCC	Rescue Coordination Centre. A unit which is responsible within its search and rescue region for the organization and the search and rescue service, and for the coordination of search and rescue operations within this region
RDV	Resulting Drift Vector
Rescue council for shipping and aviation	A permanent advisory agency to ministries and boards that contribute to the SAR service.
Rescue-Sub Centre	A unit which is established to assist a rescue service within a more closely defined part of its search and rescue region, and also subject to the relevant rescue centre
RPC	Chief of Police
S	Track Spacing. The distance between adjacent parallel search tracks.
SAR	Search and Rescue
SAR Convention	International Convention of April 27 th 1979 concerning maritime search and rescue
SAR-operation	The coordinating effort, commanded by Rescue Coordination Centre, to search and rescue people in distress
SFS	Danish Maritime Authority
SITREP	Situation Report
SMC	Search And Rescue Mission Coordinator
SRU	Search and Rescue Unit
SRR	Search and Rescue Region
SVK	Navy Command
TMA	Terminal Area.
TBST	Traffic-, Bygge- og Boligstyrelsen
TWC	Total Water Current
UNCERTAINTY PHASE	A situation wherein doubt exists as to the safety of an aircraft or marine vessel, and of the persons on board
W	Sweep Width
W_u	Sweep Width. Uncorrected
W_c	Sweep Width. Corrected
X_e	Initial position error (distress craft)

Y_e

SAR facility position error

2. ORGANISATION AND AREA OF RESPONSIBILITY

Chapter 2. Annexes:

1. Search and Rescue Areas - SAR Rescue Regions (SRR) and Organization of Sea Rescue, Air Rescue and Local Rescue Operations.
2. Executive Order on ship reporting systems in Greenland. GREENPOS and COASTAL CONTROL messages.
3. The maritime SAR visitation boundaries between the Police and JRCC Greenland defined as the in-fiord or the open water areas from Cape Farewel (southern tip of Greenland) along the west coast to 78 degrees north and on the east coast the in-fiord area between 62 and 72 degrees north.
4. Location of coastal radio stations, etc.
5. Location of the aviation radio stations, etc.

2.1. DEFINITIONS

Search and Rescue (SAR) means allocation of personnel and technical means or aids of all kind e.g.; aircraft, ships and communication, means to locate and rescue those in distress on land, at sea or in the air. Rescue of lifeless and / or dead persons in connection with the search for the living is covered by the SAR definition. Searching and salvage of driftwood, wrecks, etc. is not covered by the SAR.

2.2. INTERNATIONAL CONDITIONS

The search and rescue cooperation between the nations is regulated by international conventions and bilateral agreements. The co-operation and division of responsibilities between neighboring Arctic countries' SAR services are organized in accordance with the International Maritime Organization (IMO) and the International Civil Aviation Organization (ICAO) recommendations. IMO and ICAO are publishing the International Aeronautical and Maritime Search and Rescue (IAMSAR) Manual. SAR Greenland is built on the IAMSAR content.

IMO, ICAO and IAMSAR are described in more details in Chapter 3.

2.3. OVERALL RESPONSIBILITY

As a co-signatory of international conventions on shipping and aviation, the Kingdom of Denmark has committed itself to organizing a search and rescue service. The responsibility for the search and rescue service in Greenland is a state task, which is handled by The Ministry of Defense. As of 2014, the overall responsibility lies with the following authorities:

- The Ministry of Defense has the sea and air rescue SAR responsibility in Greenland, including:
 - The regulatory responsibility for sea rescue and for air rescue.
 - The cross-cutting coordination of sea and air rescue.
 - The coordinating management of air rescue operations.
 - The coordinating management of sea rescue operations.
 - Setting up the SAR helicopter contingency.

- The Ministry of Justice has the land and local rescue SAR responsibility in Greenland.

2. 4. OPERATIONAL DISTRIBUTION OF RESPONSIBILITY

- The management of the search and rescue service in Greenland is divided between the the Joint Arctic Command's Joint Rescue Coordination Center (JRCC) and the Greenland Police.
- The Joint Arctic Command is responsible for the management of JRCC Greenland and is thus responsible for the air and sea rescue service in Greenland. This means, that the search and rescue of those in distress from aircraft and from ships on or below sea level, regardless of whether the relief measures are carried out at sea, in the air or on land. The Joint Arctic Command's sea rescue responsibility covers all in-fiord and offshore sea rescue from Cape Farewell to 62°N on the east coast and from the southern headland at the entrance to Kong Oscars Fjord at 66°N on the east coast to Siorapaluk on the northwest coast and all other offshore sea rescue in the rest of Greenland. Furthermore, the liability covers all ships registered in the GREENPOS system, regardless of whether the ship is located in-fiord or offshore (outside the outer islands and rocks).
- The Greenland Police is responsible for the management of search and rescue operations on land and small-scale search and rescue operations in in-fiord areas from Siorapaluk to Cape Farewell on the west coast and in-fiord from 62°N to 66°N (the southern tip at the entrance to Kong Oscars Fjord).
- A prerequisite for an effective SAR management in Greenland is a close and effective cooperation between JRCC Greenland and the Greenland Police. It is important that the two authorities know their responsibilities and the visitation rules described in this publication. SAR GREENLAND is edited by the Joint Arctic Command and published by the Rescue Council. As an addition to SAR GREENLAND both authorities have detailed plans prepared for handling SAR operations.

2. 5. GEOGRAPHICAL RESPONSIBILITIES

In order to organize the search and rescue service on a global basis, geographically defined areas of responsibility are defined in the form of search and rescue regions (SRR). The delimitation of these regions has no connection with and should not prejudice any other delimitation between states.

The search and rescue region for the Greenlandic area for both the sea and air rescue service is specified in Annex 1 to Chap. 2. Regional borders serve primarily planning purposes and must never become an obstacle to the most appropriate deployment of relief measures in an emergency.

The international geographical search and rescue regions are based on conventions, agreements, plans, recommendations or practices.

The Greenlandic SAR service is established within Greenland's SRR but assistance can also be provided outside Greenland's SRR.

Cooperation, alerting or coordinating procedures for specific geographical areas can or may be established between both domestic and foreign rescue centers. Significant SAR agreements are contained in Appendix D to SAR Greenland, Vol. I.

2. 6. MAIN ORGANIZATIONAL COMPONENTS

Within SRR Greenland the following permanent components are listed:

- JRCC Greenland staffed by the Joint Arctic Command and Naviair in Nuuk.
- Greenland Police's Duty Center with subordinate police stations in the major towns. Local police stations can be appointed as sub-compared with patrol cars in Denmark. The duty center can dispose of staff for tasks and rescue services.
- Coastal and aviation radio stations as specified in SAR Greenland, Vol. I, Chapter 2.
- Search and Rescue Units (SRU) as specified in SAR Greenland, Vol. I, Appendix E to H.

Rescue Sub-Centers (RSCs) can be established as needed. Local authorities or institutions can be appointed, including traffic services for the military air stations and civilian airports as well as, coastal radio stations, police authorities and others. The Maritime Rescue Center can similarly be designated as the Rescue Sub-Center for the Air Rescue Service and vice versa. Available means of communication and knowledge of local conditions are especially crucial for the designation of Rescue Sub-Centers. If several units are deployed simultaneously in close cooperation in a search and rescue operation, the head of the responsible rescue center appoints an area manager (On Scene Coordinator, OSC) as needed to handle the necessary coordination on site. Until an On Scene coordinator is appointed, the first arriving unit acts as the On Scene Coordinator.

2. 7. COORDINATION OF A SAR OPERATION

It is absolutely crucial for the effective execution of a SAR operation that the management responsibility is clearly located. The two-part rescue service in Greenland necessitates that each individual SAR operation be assigned to one of the two categories: Sea / air rescue or local rescue. The organization is outlined in Annex 1 to Chap. 2.

The SAR responsible authorities in Greenland agree on the following outline of principles, where the conditions for placing the responsibility as SAR Mission Coordinator (SMC) and exchange of liaison officers are agreed. FIG. 7-1.

PROCEDURE FOR VISITATION OF AN SAR ALERT

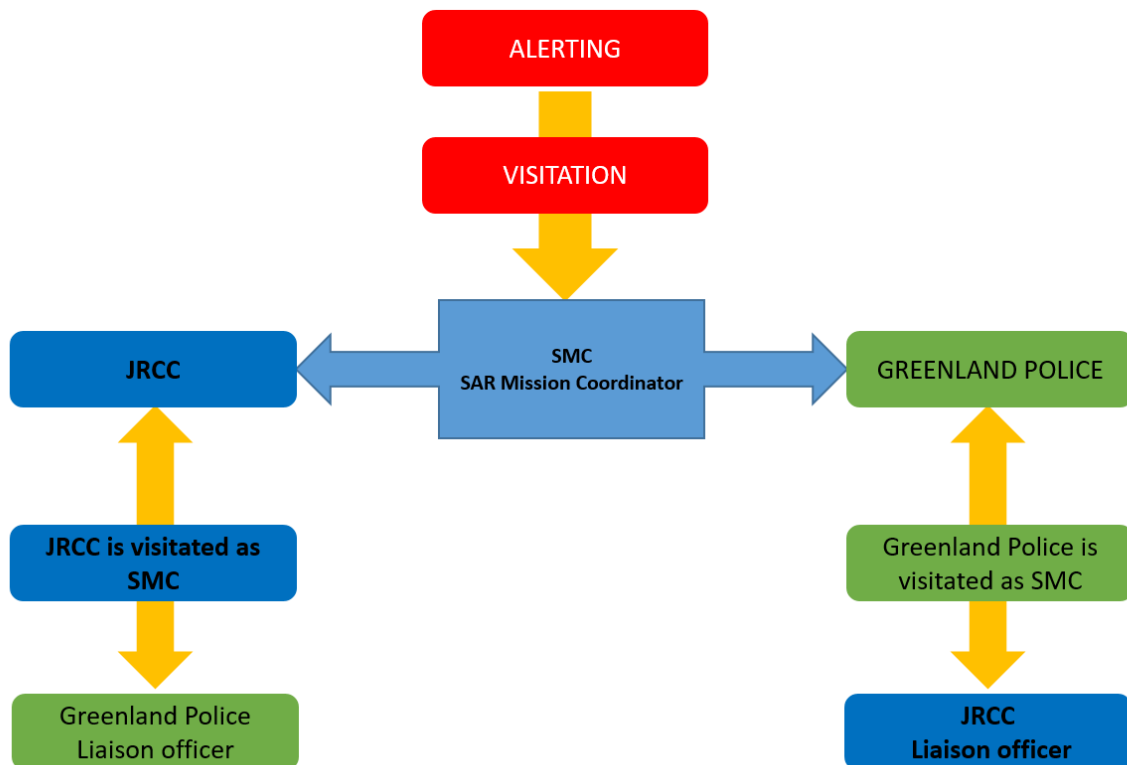


FIG. 7-1 Procedure for visitation of an SAR alert

When receiving an alarm call, the receiving SAR responsible authority contacts the other authority to determine who should be responsible for the duty as SMC (SAR visitation). Following the SAR visitation, JRCC Greenland creates a SAR event in the SAR log and the SAR event is assigned a SAR number. When a SAR event is assigned a SAR number, the SAR event is officially registered and initiated.

A SAR incident may change SMCs during the SAR operation if it is more effective that the other SAR responsible authority takes over. It is at all times the assigned SMC that decides on the designation of the OSC to handle the necessary coordination on site and on the deployment of further Search and Rescue Units. The designated SMC shall at all times make decisions in close cooperation with the other SAR responsible authority.

If a SAR incident is of such an extent that it is necessary to call a backup duty officer at the JRCC and / or reinforce the staffing of the Police, liaison officers will be exchanged between the SAR responsible authorities.

Once a SAR incident has been completed, time spent by the participating units is included in the final SAR report.

2. 8. RESPONSIBILITY / DUTIES OF RESCUE CENTERS IN GENERAL

The head of a rescue center in charge of SAR operations (SMC) is responsible for collecting and assessing emergency information regarding vessels, aircraft, other vessels, expeditions, individuals etc., including:

- The exact time of notification or alert, either local time or UTC, which must be specified.

- Name (or equivalent) of the missing vessel, registration number, type, identity marks, size, color and special characteristics, normal speed, affiliation, domicile.
- Number of persons on-board, name, gender, age, language.
- Equipment, including clothing, hunting and fishing gear, sleeping bags, tents and the like.
- Radio systems and automatic emergency transmitters, frequencies, call signs, mobile phone no. GPS equipment etc.
- Rescue and signaling equipment such as rafts, dinghies, distress rockets, smoke signals, dyes.
- Stocks of fuel and provisions.
- Departure time and place.
- Expected time of arrival and place, planned route or if unknown, usual route, fishing place etc.
- Last contact with the vessel, place and time.
- Weather and ice conditions since last contact.

Based on the information obtained, it is the responsibility of the SMC:

- To evaluate the need to start a SAR operation.
- To evaluate the need for deployment of rescue units.
- To inform other rescue centers in or outside Greenland and, if necessary, request support from these.
- Chartering civilian units for deployment in the search area.
- To inform and ask the public for information and assistance, e.g. via Greenland Radio (KNR).
- To broadcast PAN message.
- To arrange the broadcast of the Mayday Relay.
- To determine the search area and direct units to the area and coordinate their efforts.
- If necessary - designate an information center and provide it with the necessary information and directives.
- Keep a graphic situation overview (plot) and journal of the effort, incoming messages, issued orders, etc.
- To decide on the termination of the search and rescue operation.
- To notify - via police or shipping company - relatives about the search and rescue operation and the result thereof.
- To inform the press - after relatives have been notified.
- To inform hospitals if rescued persons are injured.
- To certify bills from civilians who have been chartered to participate in the SAR operation.

Rescue centers assisting the responsible, coordinating rescue center:

- Inform the operations manager (SMC) about available search and rescue units (SRUs).
- Direct SRUs to the area on request.
- Instruct SRUs to act either by direct order of the SMC (or a rescue center or area manager appointed by him / her) or by order of their own authorities,

depending on the agreement reached between the rescue centers in the specific situation.

- Assists on request to provide additional information and additional rescue units.

Definition of anxiety and preventive SAR:

The Greenland Police define a situation of anxiety as a situation of concern for the well-being of one or more persons. If a situation gets worse and the Police or the JRCC allocate SAR resources to deal with the situation the anxiety situation changes to a SAR operation.

Elaborative:

The typical situation is a "missing person". It is often seen that a relative contacts the Police or the JRCC reporting that he/she is worried about one or more persons on a hike or in smaller boats/dinghies who have either not returned home at the agreed time or who have not made an information call back explaining the situation. In these situations the weather situation, information about the people's age, physique and experience as well as the equipment brought with them (fuel, emergency equipment, food and clothing) can lead to a presumption that the people are not in an emergency situation but simply have changed plans without contacting their relatives. Such a presumption can be substantiated if the persons in the past have failed to inform their relatives of changed plans.

Another situation is the cases where it is reported that a person has not been seen for a period of time and where it has not been possible to get in touch with the person at the same time. There is no information on whether the person has left home or the missing person has been involved in an accident or criminal act.

In the situations mentioned and according to the actual situation, the police often will wait a period of time before initiating a SAR operation. During the waiting period the Police are in contact with the relatives to ensure that an appropriate SAR operation is initiated.

If the police do not have information about the missing within the stipulated time, a new assessment of the case will be made. This assessment may lead to an additional pending period or an initialization of a SAR operation (or an investigation of a suspected accident or crime).

Actions, such as deployment of ships, aircraft, search teams or broadcast of a PAN PAN messages will change the "anxiety" situation to a SAR operation.

Preventive SAR is a situation where people are not in distress but the Police and/or the Arctic Command deems it appropriate to deploy rescue units to a given area ready to handle if a situation develops into an emergency.

2. 9. SPECIAL DUTIES AND RIGHTS

2. 9.1. JRCC GREENLAND

JRCC Greenland is responsible for the ship's reporting system called GREENPOS. All ships in transit to and from Greenland have to send a sailing plan and their positions to

JRCC Greenland in accordance with the Danish Maritime Authority's Executive Order no. 170 of 17 March 2003 (Ship's reporting systems in the waters off Greenland § 2 – GREENPOS).

As SAR Mission Coordinator, JRCC Greenland, and sub-rescue coordination centres or area managers appointed by JRCC Greenland are permitted to task the Police's vessels directly.

2. 9.2. THE POLICE IN GREENLAND

As SAR Mission Coordinator, the Greenland Police's duty officer is permitted to contact all SAR units tasking them directly. The duty officers in both authorities can request equipment, crew and aircraft assistance.

2. 9.3. FLIGHT INFORMATION CENTER GREENLAND (NAVIAR)

Commander Joint Arctic Command is responsible for all JRCC SAR operations. As a part of JRCC Greenland, Naviar's Flight Information Center located in Nuuk (FIC Greenland) is responsible for handling air SAR operations within Search and Rescue Region (SRR) Greenland as SAR Mission Coordinator (SMC). Internally in JRCC Greenland, all SAR operations are coordinated between FIC Greenland and Arctic Command. Arctic Command supports FIC Greenland during Air SAR operations and vice versa regarding maritime SAR operations. As SMC, FIC Greenland is allowed to task all SAR units participating in a given SAR operation.

Tasking units during SAR operations, FIC Greenland must inform the Arctic Command's duty officer as soon as possible thereafter. JRCC Greenland can charter aircrafts from Air Greenland by direct contact to Air Greenland in Nuuk.

JRCC Greenland can request deployment of police officers to SAR operations by contacting the Greenland Police's duty officer in Nuuk. JRCC Greenland can request air support from adjacent SAR regions.

This also applies when the police are responsible for the conduct of a SAR operation.

2. 9.4 RESCUE SUB CENTER

Rescue sub-centers carry out the rescue center's responsible tasks to the extent determined by the SMC.

2. 9.5. AREA COORDINATOR (ON SCENE COORDINATOR)

At sea, the appointed OSC normally will be the best-equipped ship in terms of command, control and communication systems located in the specific search and rescue area. The OSC has the task of keeping the SMC informed of all matters of interest on-scene e.g.; wind, weather, ice, which areas have been searched, the results of the search, the units' endurance, seaworthiness, equipment and possible damages.

In addition, the SMC may order the OSC:

- To coordinate the search by assigning search units to individual search areas, specifying the search method etc.
- To coordinate rescue efforts if survivors, rafts, wrecks etc.

2. 9.6. AASIAAT RADIO

Aasiaat Radio has the following responsibilities:

- Receive and respond emergency calls.
- Disseminating information between persons in distress, rescue authorities and deployed rescue units.
- Rebroadcast received emergency signals to ships in the vicinity of the distressed ship.
- Forward emergency messages to JRCC Greenland and the police.
- Try to obtain the necessary and desirable information for the rescue centers in accordance with para 9.1.

Aasiaat Radio is also responsible for the coastal traffic system called “KYSTKONTROL”. The responsibility includes receiving position and arrival reports from ships sailing between Greenlandic ports and reporting the Police if a position or an arrival report is more than an hour delayed. The “KYSTKONTROL” system is described in details in SAR Greenland, Vol. I, Annex 2 to Chapter 2.

2. 10. THE RESCUE COUNCIL

The Shipping and Aviation Rescue Council was established by the Minister of Defense 25 May 1960. Involved ministries were; Ministry of Defense, Ministry of Justice, Ministry of Greenland, Ministry of Trade, Crafts, Industry and Maritime Affairs, Ministry of Public Works and Directorate-General for Post- and the Telegraph Service).

The Rescue Council is responsible for considering, advising and recommending necessary steps to improve search and rescue in both Denmark and Greenland.

The Rescue Council consists of 13 members appointed by, respectively;

- Ministry of Defense (7 members, including chairman and secretary),
- Ministry of Justice (1 member),
- Ministry of Business and Growth (1 member),
- Ministry of the Environment and Food (1 member),
- Ministry of Transport and Housing (1 member),
- Ministry of Health and the Elderly (1 member),
- Ministry of Climate, Energy and Supply (1 member).

The composition and tasks of the Rescue Council are regulated by the Ministry of Defense’s Circular on the Maritime and Aviation Rescue Council.

2. 11. THE SAR OPERATIONAL CONTACT GROUP ARCTIC (GREENLAND)

The SAR Operational Contact Group Arctic (OKA) is established by and referring to, the Rescue Council.

In general, OKA is responsible for analyzing SAR events in Greenland and to identify trends in order to learn from SAR incidents and to improve future SAR operations. OKA is also responsible for implementing tasks and recommendations from the .

The permanent members of OKA are the following bodies:

- Arctic Command (Chairman)
- National Danish Police (National Operational Staff)
- Greenland's Police
- NAVIAIR
- Air Greenland
- Aasiaat Radio
- Greenland's Health Service

The following are invited as observers:

- The Danish Navy's 1. Squadron
- The Danish Maritime Authority
- Greenland's Airport Service (Mittarfeqarfiit)
- Operational Contact Group Denmark (OKD)
- Head of Greenland's Health Service

The Rescue Council conducts bi-annual meetings in the spring and in the autumn. OKA and OKD are conducting similar meetings ahead of the Rescue Council meetings. Both groups submit statistics, proposals and recommendations to the Rescue Council.

The chairman of the OKA is a permanent member of the Rescue Council's meetings.

2. 12. OPERATING CONDITIONS

2. 12.1. MANAGEMENT

The operational management of SAR operations is exercised by JRCC Greenland or the Greenland Police. Both authorities are authorized to deploy and manage allocated resources in SAR operations. The management includes the decision to initiate and terminate SAR operations, the duty to organize and direct SAR units and the right to delegate parts of the management of a SAR operation to a rescue sub-center or competent local management (area / local manager).

2. 12.2. RESCUE CENTERS

JRCC Greenland is authorized to deploy the civilian and military resources that are part of the SAR organization in search and rescue operations. JRCC Greenland or the Greenland Police coordinate search and rescue within Greenland's area of responsibility and are responsible for being able to immediately put the rescue service into operation in the most efficient and appropriate way.

Simple and unambiguous principles for handling the operational management are a prerequisite for an effective SAR service.

2. 12.3. ON SCENE COORDINATOR (OSC)

It is often advisable to establish a local management at the scene or in the area where a SAR operation takes place. The function is called On Scene Coordinator (OSC), and the purpose is to coordinate the effort on site. OSC is appointed according to the following guidelines:

- An OSC is a physical and named person on land, on a ship or in an aircraft.

- All SAR participants are to be informed of the appointed OSC and the persons contact information.
- If the captain on a ship/aircraft in distress cannot – or does not – want to take the OSC role the captain on the vessel (ship or aircraft) that first arrives at the accident site or area must assume the function of OSC.
- If the appointed captain is not willing or capable of taking the OSC role, JRCC Greenland or the Greenland Police decide whether the OSC function should be imposed on another suitable captain/vessel.
- JRCC Greenland or the Greenland Police may decide to handle the OSC function themselves.

The management of coastal SAR operations will often be led by the Greenland Police Duty Center in Nuuk in cooperation with the local police stations and local SAR resources.

2. 12.4. AIR CRAFT COORDINATOR (ACO)

In the case of a SAR operation involving several rescue aircraft, JRCC Greenland or the OSC should designate a suitable unit to handle the function as Aircraft Coordinator (ACO). The purpose of the ACO function is to lead and coordinate inserted aircraft in the SAR operation. JRCC Greenland (NAVIAR) can decide to handle the ACO function itself.

2. 12.5. EFFORT AND DELEGATION

All organizations or individuals are empowered to use all necessary means to save persons in distress. Situations and actions must as soon as possible be reported to the responsible SAR authority in Greenland.

Without taking serious risks to own unit (ship or aircraft), all masters (ships or aircraft) are obliged to assist anyone in distress and to comply with any request for assistance to such persons.

Each element of the rescue service is obliged to show independent initiative and to act immediately in a way that provides the best opportunity for a successful implementation of a rescue operation. If a SAR unit has been allocated without first informing JRCC Greenland, notification must take place as soon as possible thereafter.

Delegation of parts of the operational management of a rescue operation is determined in each individual case based on an overall assessment of the situation (the visitation phase). The following general principles are fundamental to the responsibility decision process:

- Decision of initiation and termination of SAR operations are made by JRCC Greenland in cooperation with the Greenland Police and vice versa.
- Local maritime (in-fiord) SAR operations which do not involve naval and flying units or foreign resources are led by the Greenland Police.
- During air rescue operations, the operational management will remain at JRCC Greenland (NAVIAR).

2. 13. COMMUNICATION

2. 13.1. IN GENERAL

The communication in during a SAR operation is primarily based on:

- Coastal radio communication led by Aasiaat Radio.

- Military communication led by JRCC Greenland.
- Aviation communication led by Naviair (as a part of JRCC Greenland).
- Military and civilian telephone and satellite connections.

2. 13.2. ORGANIZATION

2. 13.2.1. COASTAL RADIO SERVICES / COMMCEN GREENLAND

Aasiaat Radio is in charge of the coastal radio service in Greenland. Aasiaat Radio's location, radio frequencies and VHF coverage are stated in Annex 4 to Chapter 2.

Joint Arctic Command's Communication Centre (COMMCEN) Greenland communicates with the defense units in Greenland.

The coastal radio station in Aasiaat and COMMCEN Greenland is manned 24/7/365.

Aasiaat Radio intercepts the international DSC emergency frequencies 2187.5 as well as the VHF CH channel 16.

Aasiaat Radio and COMMCEN Greenland are interconnected by an emergency log called ODISS. ODISS is used for emergency and safety messages and log entries.

2. 13.2.2. AVIATION RADIO SERVICE

Domestic air traffic in Greenland is led and handled by Naviair's Flight Information Centre (FIC) Greenland. FIC Greenland is a part of JRCC Greenland and is responsible for the aviation radio (air / ground network) and the Aviation Safety Service. Locations and frequencies are listed in Annex 5 to Chap. 2. FIC Greenland is manned 24/7/365.

The airports in Greenland and FIC Greenland communicate internally via an AFTN circuit, fax and telephones. Opening hours for Greenlandic airports are stated in AIP Greenland, published by AIM NAVIAIR.

The emergency frequency 121.5 MHz is guarded by the tower in the airport in Kangerlussuaq. Outside the opening hours the frequency is guarded by FIC Greenland. Furthermore, the tower in Thule Air Base is guarding the frequency.

AIRPORT	AFIS- /TOWER	APPROACH
Nuuk, Narsarsuaq, Ilulissat	119,1 MHz	
Maniitsoq, Aasiaat	118,5 MHz	
Qaarsut	119,5 MHz	
Kangerlussuaq	126,2 MHz	118,3 MHz
Kulusuk, Nerlerit Inaat, Sisimiut, Upernavik, Qaanaaq and manned helistops	118,1 MHz	

2. 13.3. PROCEDURES

During SAR operations in Greenland, the normal communications organization is kept in force.

The JRCC/SRC will communicate with military OSC/SRUs via Joint Arctic Command's normal means of communication, frequencies and/or satellite and mobile phones.

Civilian SRUs are usually contacted via civil maritime VHF and/or satellite and mobile phones.

Additionally, the OSC shall communicate with surface and aircraft SAR units using the allocated SAR frequencies during the SAR operation.

OSC can and is allowed to designate units to listen to different emergency frequencies.

2. 13.3.1. CALL SIGNS

Ships and aircraft unfamiliar with each other's CALL SIGNS (C/S) shall use the following C/S for naval ships and SAR helicopters:

- SHIPS: RESCUE NAVY
- AIRCRAFT: RESCUE AIR¹

Once the connection is established:

- SHIP: International C/S or SHIP NAME
- AIRCRAFT: Detailed (Canadian, Danish) RESCUE "XXX".

2. 13.3.2. MARITIME SAR FREQUENCIES

The following is an overview of some of the frequencies used in the rescue service.

MARITIM VHF Ch. 16	Emergency end call frequency
MARITIM VHF Ch. 6	Scene of search
VHF DSC Ch. 70	DSC Emergency end call frequency
123,1 MHz (VHF)	NATO/International combined scene of search
2182 kHz (MF)	Emergency end call frequency
2187,5 kHz (DSC MF)	Emergency end call frequency

FIG. 2-2 Maritime SAR-frequencies

2. 13.3.3. FLIGHT FREQUENCIES USED IN THE RESCUE SERVICE

5680 kHz (HF)	Int. Scene of search prim. day
3023 kHz (HF)	Int. Scene of search prim.night
121,5 MHz (VHF)	Int. Aeronautical emergency
123,1 MHz (VHF)	NATO/ICAO On Scene Coord.
243,0 MHz (UHF)	UHF homer

FIG. 2-3 Air SAR-frequencies

¹ Air Greenland's SAR helicopter in Kangerlussuaq always has the call sign: RESCUE AIR ONE and the SAR helicopter in Qaqortoq always has the call sign: RESCUE AIR TWO.

2. 14. RESOURCES

2. 14.1. IN GENERAL

The following resources are part of the SAR organization and in case of SAR operations can be allocated by the SAR responsible authority in Greenland:

2. 14.2. STATE

The Armed Forces contributes with:

- Air Force aircraft. (See SAR Greenland, Vol. I, Appendix G)
- Navy ships. (See SAR Greenland, Vol. I, Appendix E)
- Land Special Forces
- The police contribute with:
 - Police regions and local police stations with personnel and equipment (Police vessels, snowmobiles, chartered vessels, see SAR Greenland, Vol. I, Appendix F)
- Aasiaat Radio. (See SAR Greenland, Vol. I, Appendix O)

2. 14.3. PRIVATE

- Air Greenland. (See SAR Greenland, Vol. I, Appendix H)

2. 14.4. CIVIL

- Chartered vessels
- Civilian ships
- Civilian aircraft/helicopters

2. 15. INTERNATIONAL RESOURCES

- Ships
- Aircrafts
- Helicopters

(See SAR Greenland, Vol. I, Appendix L)

2. 15.1. COOPERATION BETWEEN RESCUE CENTERS

Search and rescue operations sometimes necessitate cooperation between JRCC Greenland and the corresponding rescue centers in neighboring Arctic countries.

The cooperation includes both managing and providing assistance in terms of SAR resources. Although the countries' SAR organizations are structured differently, the cooperation is carried out regardless of geographical responsibilities and according to the following main principles:

- When a rescue center receives an alert the rescue center exercises operational management unless otherwise agreed.
- Upon request, other rescue centers contribute with SAR resources to the rescue center that has the operational management of a SAR operation.

The main principle of the cooperation is that the rescue center best positioned in terms of command, control and communication combined with the best resources is the best rescue center to solve the task as the operational manager. Other rescue centers contribute with resources as needed.

In the framework of the Arctic Coast Guard Forum, "Voluntary Guidelines" have been prepared for the Arctic nations' SAR cooperation. The Voluntary Guidelines are a

musketeer oath to help each other during major SAR incidents. Voluntary Guidelines can be found in Appendix D.

Rescue centers that cooperate regular with JRCC Greenland include:

- JRCC Denmark
- JRCC Halifax, Canada
- RCC Edmonton, Canada
- JRCC Trenton, Canada
- JRCC Iceland, Iceland
- JRCC Bodø, Norway
- JRCC Stavanger, Norway
- MRCC Torshavn, Faroe Islands
- JRCC Norfolk, USA
- JRCC Boston, USA
- MRCC GRIS NEZ, France
- MRCC Murmansk, Russia

2. 15.2. RESOURCES AVAILABLE

The resources of the mentioned rescue centers are listed in international SAR plans. See also Appendix L to SAR Greenland, Vol. I.

2. 16. SATELLITE SYSTEMS

2. 16.1. COSPAS-SARSAT

Denmark/Greenland participates in a SAR system called COSPAS-SARSAT. The purpose of COSPAS-SARSAT is to determine the position of emergency signals transmitted on the 406 MHz band. The system is designed to capture signals from an activated emergency beacon/transmitter. The signal is send to the geographically responsible JRCC, which will initiate a SAR operation. The signal can lead to an air, sea or land SAR operation. COSPAS-SARSAT simply distributes a position of a potential person, aircraft or vessel to the nearest responsible JRCC.

Emergency signals that can be connected to the Greenlandic area or Danish registered emergency radio transmitters are transmitted to JRCC Greenland. Accordingly, JRCC Greenland will act on the information and initiate the necessary actions. .

JRCC Greenland is Greenland's COSPAS-SARSAT Point of Contact. the Danish Transport, Building and Housing Agency is responsible for updating registers is placed at with regard to aircraft, while the Danish Maritime Authority is responsible for Danish registered ships. JRCC is not responsible for registering or deregistering users/holders of emergency equipment.

2. 16.2. INMARSAT

Ships that can communicate via the international maritime satellite system INMARSAT can send emergency messages to and communicate with land via the geostationary satellites of the INMARSAT system.

Emergency messages are received by ground stations and are automatically transmitted to a rescue center attached to that ground station. The rescue center then

forwards the emergency message to the relevant rescue center. JRCC Greenland is Greenland's national SPOC in connection with the INMARSAT system.

2. 17. SAR AGREEMENTS AND PLANS

2. 17.1. SAR AGREEMENTS

The international organization of the search and rescue service is structured in accordance with the IAMSAR recommendations. Additionally, nations have bilateral agreements of organizing the practical cooperation between their nations. SAR agreements are contained in Appendix D to SAR Greenland, Vol. I.

2. 17.2. SAR PLANS

JRCC Greenland prepares SAR plan for Greenland's area of responsibility. This is available as Appendix B to SAR Greenland, Vol. I.

2. 18. EMERGENCY PREPAREDNESS IN GREENLAND

2. 18.1. ORGANIZATION OF THE CRISIS MANAGEMENT SYSTEM IN GREENLAND

The Greenlandic crisis management system works on four levels:

- Naalakkersuisut (Government of Greenland)
- The Emergency Commission (BRK)
- Greenland's Emergency Response Staff (GBS)
- Greenland Police and Arctic Command incl. Joint Rescue Coordination Center

2. 18.1.1. NAALAKKERSUISUT

In case of a major incident or crisis in Greenland, the Naalakkersuisut will be kept informed by the Emergency Commission (BRK). Naalakkersuisut will discuss any issues of a strategic and political nature.

2. 18.1.2. THE EMERGENCY COMMISSION

BRK's responsibility for strategic, overall and forward-looking crisis management is described in the Contingency Plan for Greenland.

BRK is the organizational focal point for strategic crisis management. The Commission is a forum for discussions between Greenlandic and Danish authorities and the organizations involved in a crisis scenario. As such, BRK has no independent decision-making powers. The goal of activating and operating BRK is to ensure that the members of the commission have a forum in which they can meet and handle the strategic, overall and forward-looking coordination in connection with an extraordinary event in Greenland.

2. 18.1.3. GREENLAND EMERGENCY STAFF

The Greenland Emergency Staff (GBS) is led by the Greenland Police. The purpose of the GBS is to coordinate major incidents and disaster operations at the operational level between Greenlandic authorities. It is also important that the GBS provides updated situational pictures to the BRK in order to make it possible for the BRK to discuss and decide on an updated basis.

Additionally, GBS has the task of coordinating the use of the total SAR resources in Greenland in order to achieve the best possible utilization of these.

GBS lead and supports the operational efforts in an operations area. GBS acts as a leader between the Police's Command Post (KST) and the BRK.

The permanent members of GBS are the Police, the Joint Arctic Command, the Danish Health and Medicines Authority and the Municipal Emergency Services, as well as any ad-hoc members. The activation of GBS can occur at three different stages depending on the extent of the incident.

2. 18.1.4. JOINT RESCUE COORDINATION CENTER GREENLAND

In general, the Joint Rescue Coordination Center (JRCC) Greenland is the SAR Mission Coordinator (SMC) and thus responsible for coordinating search and rescue work in connection with major maritime and aircraft accidents/disasters in Greenland.

When JRCC Greenland is the SMC, it is JRCC's responsibility to appoint an On Scene Coordinator (OSC) as the responsible SMC.

2. 18.1.5. GREENLAND POLICE

In general, the Greenland Police is SMC for search and rescue operations on land as well as in smaller local maritime in-fiord search and rescue operations.

When the Greenland Police is SMC, it is the responsibility of the Greenland Police to appoint an On Scene Coordinator (OSC) as the responsible OSC.

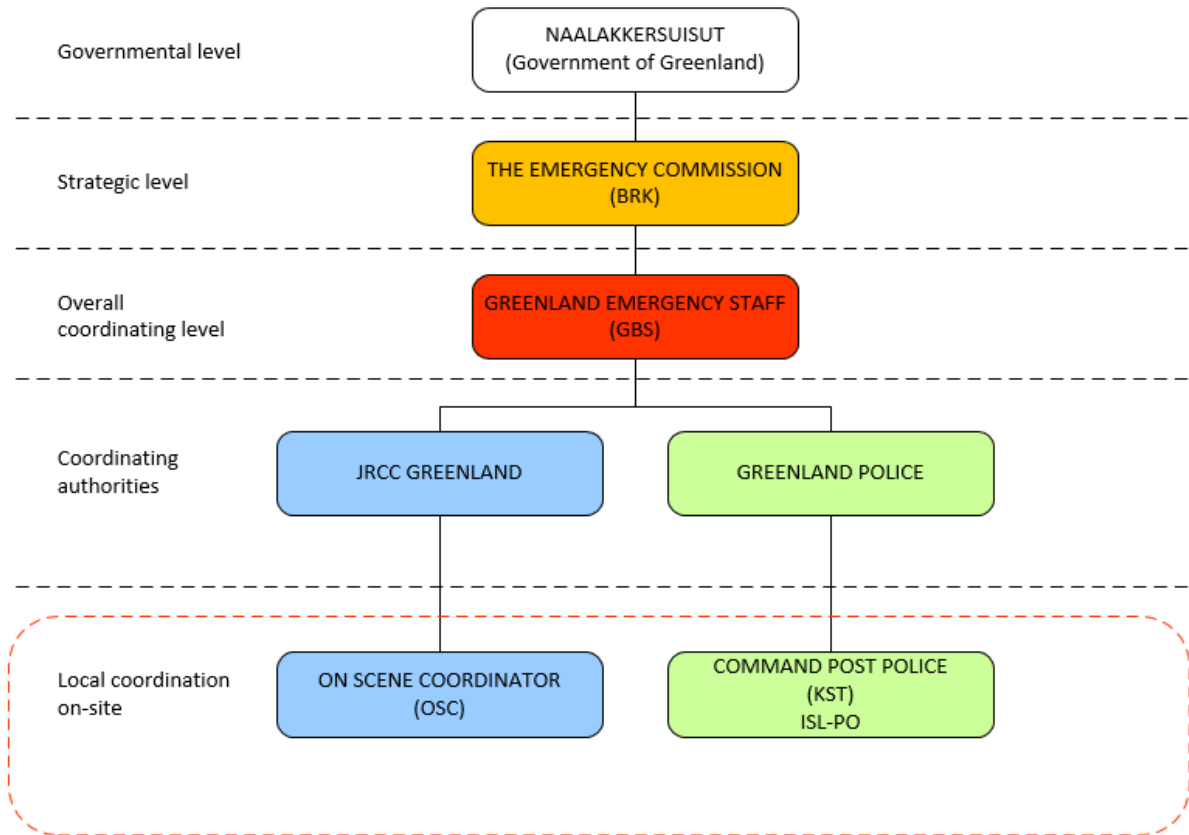
2. 18.1.6. COMMAND POST POLICE

In general, the Police establish their KST if more personnel is needed to solve a task. The KST consists of an operation manager-police and an operation manager-rescue preparedness and contingency. Other relevant managers can be called for on an ad hoc basis. The operations manager-police has the coordinating management role in the defined operations area. The operations manager-rescue preparedness and contingency is responsible for the technical management at the scene of the accident.

2. 18.1.7. COORDINATING AUTHORITY

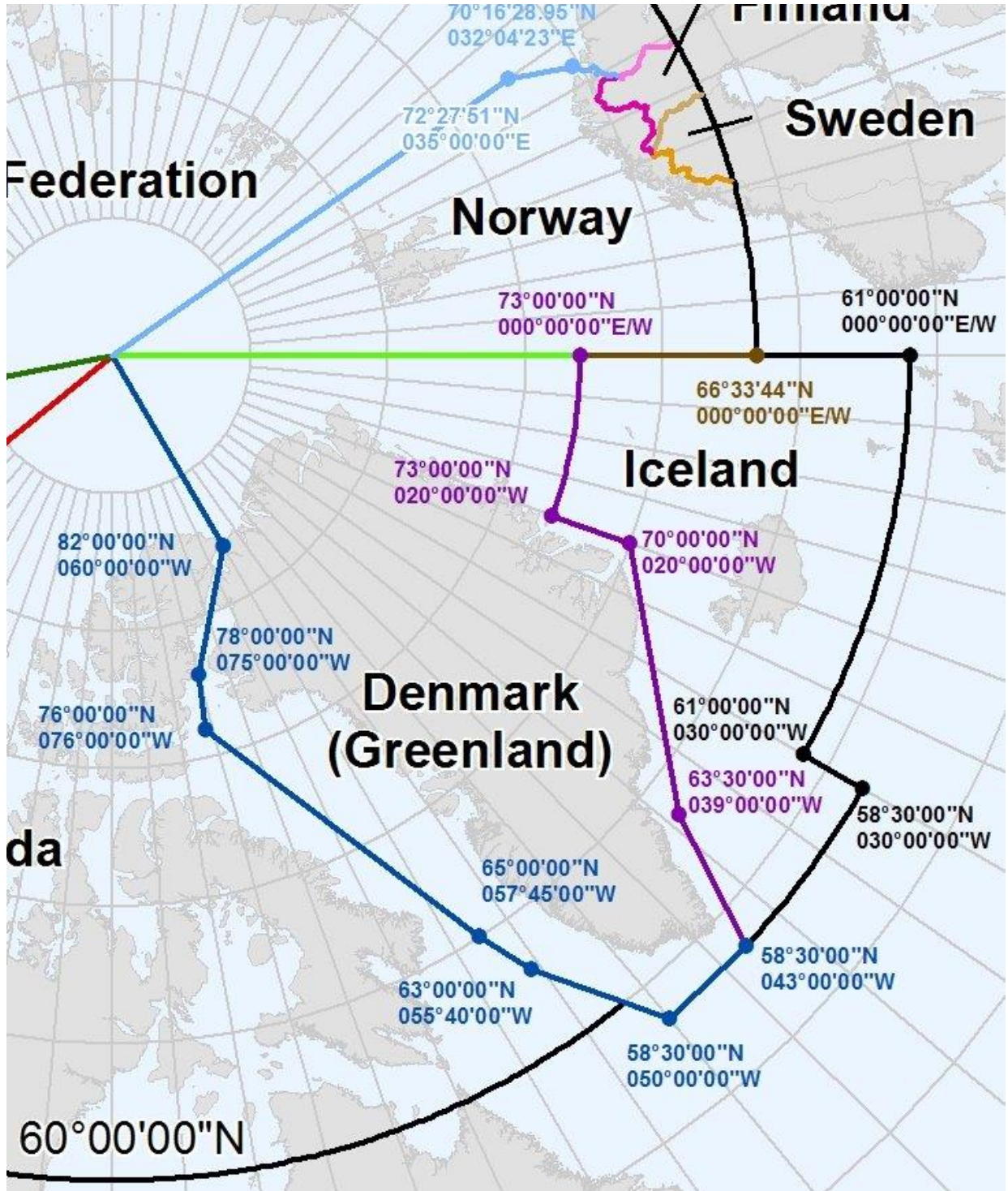
In crises, accidents, disasters and in the event of an imminent danger the responsibility as the coordinating authority will be handled by either the Greenland Police or the Joint Arctic Command.

CRISIS MANNAGEMENT IN GREENLAND

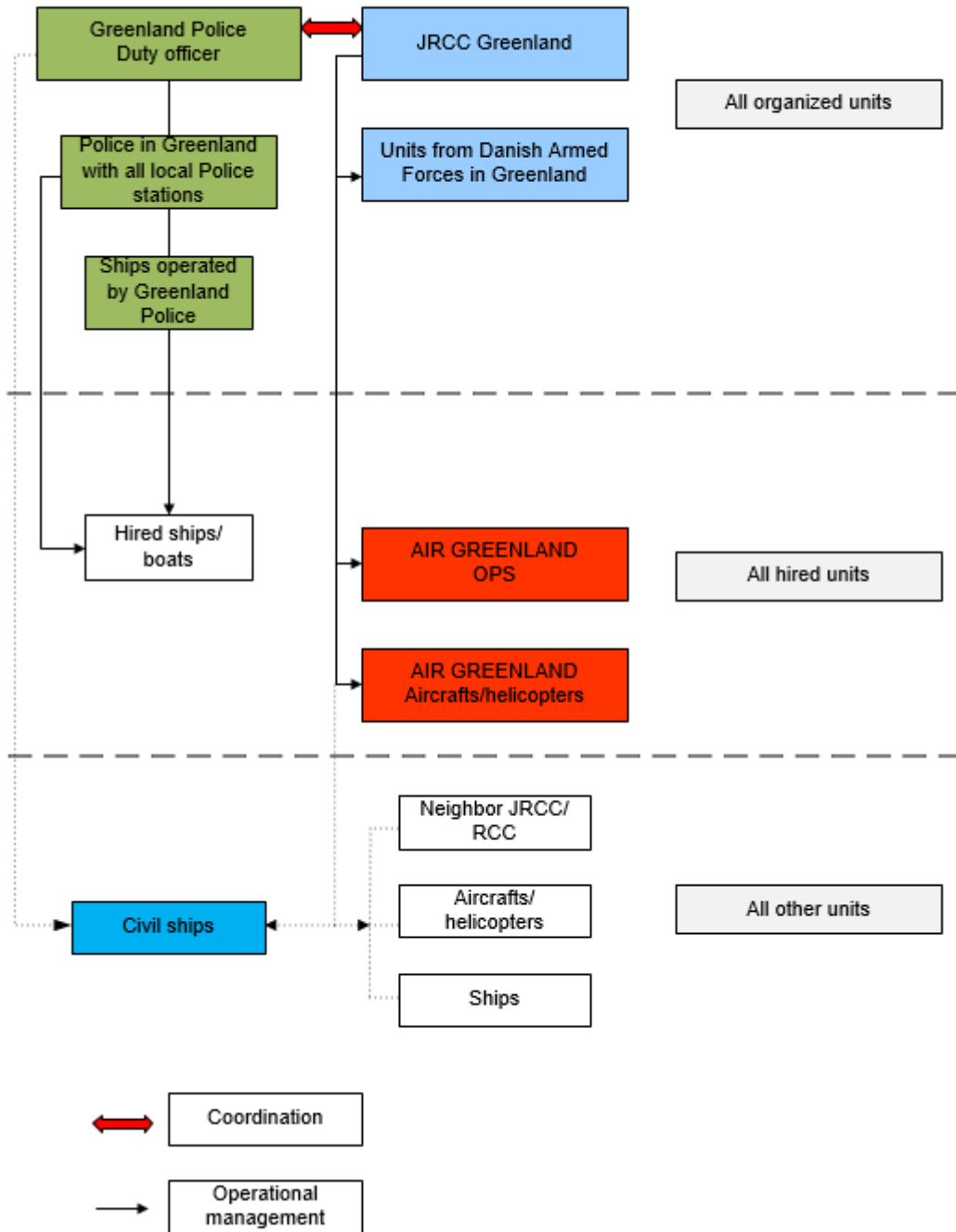


Annex 1 to chapter 2

GREENLAND SEARCH AND RESCUE REGION



SAR-ORGANISATION IN GREENLAND



Annex 2 to chapter 2

**Order on ship reporting systems in the waters off Greenland
(reporting service in Greenland)**

In pursuance of section 1(2), section 6 and section 32 of the act on safety at sea (*lov om sikkerhed til søs*) as this order has been put in force for Greenland by decree no. 607 of 25 June 2001, the following provisions are laid down:

Section 1. For the safety of navigation in the waters off Greenland, two ship reporting systems have been established with the purpose of monitoring ships' navigation in these waters and, if necessary, to cause search and rescue operations to be launched.

Subsection 2. Two systems have been established: One - called GREENPOS - for ships engaged on voyages to and from Greenland waters, and one - called KYSTKONTROL (coastal control) - for ships engaged in coastal trade between Greenland ports and places of call.

Subsection 3. GREENPOS and KYSTKONTROL reports shall be free of charge for the ships.

Ships engaged on voyages to and from Greenland waters.

Section 2. All ships engaged on voyages to or from Greenland waters within the continental shelf or the exclusive economic zone of Greenland shall submit GREENPOS reports to the Island Command Greenland in accordance with the provisions of annex 1.

Subsection 2. If the report of a ship is not submitted and it is not possible to establish contact with the ship, the Island Command Greenland shall be obliged to launch a search of the ship in accordance with the provisions applicable to the search and rescue service.

Ships engaged in coastal trade between Greenland ports and places of call

Section 3. All ships of or above 20 GT and fishing vessels engaged on voyages between Greenland ports and places of call shall submit KYSTKONTROL reports to the ship control station at the place of destination in accordance with the provisions of annex 2.

Subsection 2. Ships engaged in Atlantic trade may, during voyages between Greenland places, remain in the GREENPOS system following agreement with the Island Command Greenland.

Subsection 3. The coastal radio stations shall function as ship control stations under KYSTKONTROL.

Subsection 4. The ship control station for the area in which the intended place of destination is located

shall be obliged to control whether the ship submits reports as prescribed.

Subsection 5. If a report is not submitted and it is not possible to establish contact with the ship, the

police at the place of destination shall be informed. Subsequently, the police shall be obliged to launch a search locally in accordance with the provisions applicable to the search and rescue service.

Section 4. Ships that are not obliged to submit reports will, if they submit a GREENPOS or a KYSTKONTROL report, be covered by the relevant ship reporting system.

Penalty and entry into force, etc.

Subsection 5. Contraventions of section 2(1) or section 3(1) shall entail measures under the penal code for Greenland.

Subsection 2. If a criminal case is decided outside Greenland or if it concerns a person or company domiciled or established outside Greenland, the contravener may be liable to punishment by fine or imprisonment rather than measures being taken.

Section 6. This order shall enter into force on 26 March 2003.

Subsection 2. Order no. 797 of 24 August 2000 on ship reporting systems in the waters off Greenland shall be repealed.

Danish Maritime Authority, 17 March 2003
Ib Matthiesen / Michael Bager

Annex 2 to chapter 2, sub-annex 1

Greenland position reporting system (GREENPOS)

Provisions on the making of reports

1. Reports shall be submitted by ships engaged on voyages to or from Greenland waters and within the continental shelf or the exclusive economic zone of Greenland. Reports shall be submitted four times during every 24 hours between 0000-0030, 0600-0630, 1200-1230 and 1800-1830 UTC.
2. Reports shall be sent directly to Arctic Command or via a coastal radio station. Arctic Command can be contacted by phone: +299 364023, e-mail: FKO-KTP-A-COMMCEN@mil.dk or via fax: +299 364099
All reports shall be started by the word GREENPOS plus a 2-letter abbreviation for identifying the report.
Telegrams starting thus shall be dispatched free of charge as having the priority URGENT.
Reports shall be made in accordance with the table below. Non-mandatory items shall be included as required.

Designator	Mandatory for type of report	Information	Text
	All	Code word	"GREENPOS"
	All	Type of report: Sailing plan Position report Final report Deviation report	One of the following 2-letter designations: "SP" (Sailing Plan) "PR" (Position Report) "FR" (Final Report) "DR" (Deviation Report)
A.	All	Ship	Name and call sign (e.g. AGNETHE NIELSEN/OULH)
B.	All	Date time group Corresponding to position in item C or D, given in UTC (Coordinated Uni- versal Time)	A 6-digit group, followed by a Z. The 2 first digits give the date in the month concerned, the next 2 digits give the hour, and the last 2 digits give the minutes. Z indicates that the time is given in UTC (e.g. 041330Z)
C.	C. or D. for all	Position given in latitude/longitude	A 4-digit group for latitudes and minutes followed by N and a 5-digit group for longitudes and minutes followed by W. (e.g. 5710N 04112W)
D.	C. or D. for all	Position at geographical place name	Place name or true course (3 digits) and distance in nautical miles (the word "distance" shall be given) from an unambiguously known place name (e.g. 165 distance 53 Cape Farewell)
E.	SP, PR	True course	3-digit group (e.g. 083)
F.	SP, PR	Speed in knots	2-digit group (e.g. 14)
I.	SP	Place of destination and ETA (UTC)	Name of place of destination followed by the expected time of arrival, expressed as under designator B (e.g. Nanortalik 181400Z)
L.	SP	Planned voyage	Short description of the planned voyage according to the master's discretion (e.g. from current position large circle to 100 nm S of Cape Farewell, hence along the ice edge to QAQORTOQ)
Q.		Defects and faults in the ship	Defects and faults that are of importance to the ship's safety (e.g. radar and VHF damaged)
S.	All	Weather and ice con- ditions	Short information about the weather conditions and the development in the ice situation since the last report (e.g. SW 5, ice edge observed from 6120N03905W)
X.	SP	The total number of per- sons on board. Other relevant inform- ation	The number of persons on board shall be given (e.g. POB 16). Any information of interest to the safety of the ship or other ships (e.g. Slows down because of the weather due to heavy icing)

5. *Sailing Plan (SP)* shall be submitted as the first report:

- a. When entering the reporting area.
- b. When departing from a Greenland port for the last time.
- c. When a ship not obliged to submit reports wants to be covered by the GREENPOS system.

For example:

GLK GRØNNEDAL

GREENPOS - SP

A. NONAME/NKFG

B. 071310Z

C. 5720N04510W

E. 330

F. 15

I. QAQORTOQ 080200Z

L. IN OPEN WATERS DIRECTLY

S. OVERCAST - SOUTHWEST 5 - NO ICE.

X. POB 16.

6. *Position Report (PR)* shall be submitted four times during 24 hours:

At 0000-0030, 0600-0630, 1200-1230 and 1800-1830 hours UTC.

For example:

GLK GRØNNEDAL

GREENPOS - PR

A. NONAME/NKFG

B. 122310Z

C. 6024N05005W

E. 125

F. 10

S. VISIBILITY GOOD - NORTHWEST 5 - FIELD ICE 1/10.

7. *Final report (FR)* shall be submitted:

a. When leaving the reporting area.

b. When arriving at the Greenland place of destination.

c. When a ship not obliged to submit reports wants to leave the reporting system.

For example:

GLK GRØNNEDAL

GREENPOS - FR

A. NONAME/NKFG

B. 131700Z

C. 5705N03840W

S. EAST 6 - NO ICE.

8. *Deviation Report (DR)* shall be submitted:

When the ship's position will not be changed considerably compared to the position where the ship is

expected to be located on the basis of previously submitted reports.

For example:

GLK GRØNNEDAL

GREENPOS - DR

A. NONAME/NKFG

B. 130800Z

C. 6005N04952W

L. TOWARDS ARSUKFJORD INSTEAD OF NUUK DUE TO ENGINE DEFECT.

Annex 2 to chapter 2, sub-annex 2

Greenland position reporting system (KYSTKONTROL)

Provisions on the making of reports

1. Reports shall be submitted by ships engaged on voyages between Greenland ports or places of call.
Reports shall be submitted to a coastal radio station located in the area where the planned destination of the ship is situated (Aasiaat radio, Qaqortoq radio or Ammassalik radio), cf. appendix A. It is possible to contact the coastal radio stations via all modern means of communication, including Inmarsat-C, telefax and e-mail. The coastal radio station shall be responsible for monitoring the ship's voyage from the time of receiving the sailing plan (SP) to the time of receiving the final report (FR).
2. Reports shall be sent to Aasiaat radio Aasiaat radio can be contacted via INMARSAT-C, fax and e-mail: oyr@telepost.gl and regular radio.
3. All reports shall be started by the word KYSTKONTROL plus a 2-letter abbreviation for identification of the report. Telegrams started thus shall be dispatched free of charge as having the priority URGENT.
4. Reports shall be made in accordance with the table below. Non-mandatory items shall be included as required.

Designator	Mandatory for type of report	Information	Text
	All	Code word	“KYSTKONTROL”
	All	Type of report: Sailing plan Position report Final report Deviation report	One of the following 2-letter designations: “SP” (Sailing Plan) “PR” (Position Report) “DR” (Deviation Report) “FR” (Final Report)
A.	All	Ship	Name and call sign (e.g. AGNETHE NIELSEN/OULH)
B.	All	Date time group Corresponding to position in item C or D, given in UTC (Coordinated Universal Time)	A 6-digit group, followed by a Z. The 2 first digits give the date in the month concerned, the next 2 digits give the hour, and the last 2 digits give the minutes. Z indicates that the time is given in UTC (e.g. 041330Z)
C.	C. or D. for all	Position given in latitude/longitude	A 4-digit group for latitudes and minutes followed by N and a 5-digit group for longitudes and minutes followed by W. (e.g. 5710N 04112W)
D.	C. or D. for all	Position at geographical place name	Place name or true course (3 digits) and distance in nautical miles (the word “distance” shall be given) from an unambiguously known place name (e.g. 165 distance 53 Cape Farewell)
E.	SP, PR	True course	3-digit group (e.g. 083)
F.	SP, PR	Speed in knots	2-digit group (e.g. 14)
I.	SP	Place of destination and ETA (UTC)	Name of place of destination followed by the expected time of arrival, expressed as under designator B (e.g. Nanortalik 181400Z)
L.	SP	Planned voyage	Short description of the planned voyage according to the master’s discretion (e.g. from current position large circle to 100 nm S of Cape Farewell, hence along the ice edge to QAQORTOQ)
Q.		Defects and faults in the ship	Defects and faults that are of importance to the ship’s safety (e.g. radar and VHF damaged)
X.	SP	The total number of persons on board. Other relevant information	The number of persons on board shall be given (e.g. POB 16). Any information of interest to the safety of the ship or other ships (e.g. Slows down because of the weather due to heavy icing)

5. *Sailing Plan (SP)* shall be submitted as the first report upon departure:

For example:

Coastal radio station QAQORTOQ

KYSTKONTROL - SP

A. NONAME/NKFG

B. 071310

D. NARSSAQ

I. QAQORTOQ 080200

L. IN OPEN WATERS DIRECTLY

X. POB 16.

6. *Position Report (PR)*. If a voyage is longer than 24 hours and the ship is fitted with a radio, a position report shall be submitted at least every 24 hours. The report shall be addressed to the same coastal radio station as that to which the sailing plan was submitted.

For example:

Coastal radio station QAQORTOQ

KYSTKONTROL - PR

A. NONAME/NKFG

B 122310

- D. AT ARSUK
- E. 310
- F. 8

7. Deviation Report (DR). To be submitted in case of changes to the information given in the sailing plan and if the time of arrival given is exceeded by more than one hour. The report shall be addressed to the same coastal radio station as that to which the sailing plan was submitted. A deviation report shall also be submitted if the previously submitted time of arrival is exceeded by more than one hour.

For example:

Coastal radio station QAQORTOQ

KYSTKONTROL - DR

A. NONAME/NKFG

B. 130800

D. ARRIVED AT IVITTUT AT 1500 HOURS

L. AWAITS WEATHER IMPROVEMENT BEFORE PROCEEDING TO PAAMIUT. NEW SAILING PLAN WILL BE SUBMITTED

8. Final report (FR). To be submitted immediately after arrival. To be addressed to the same coastal radio station as that of the sailing plan.

For example:

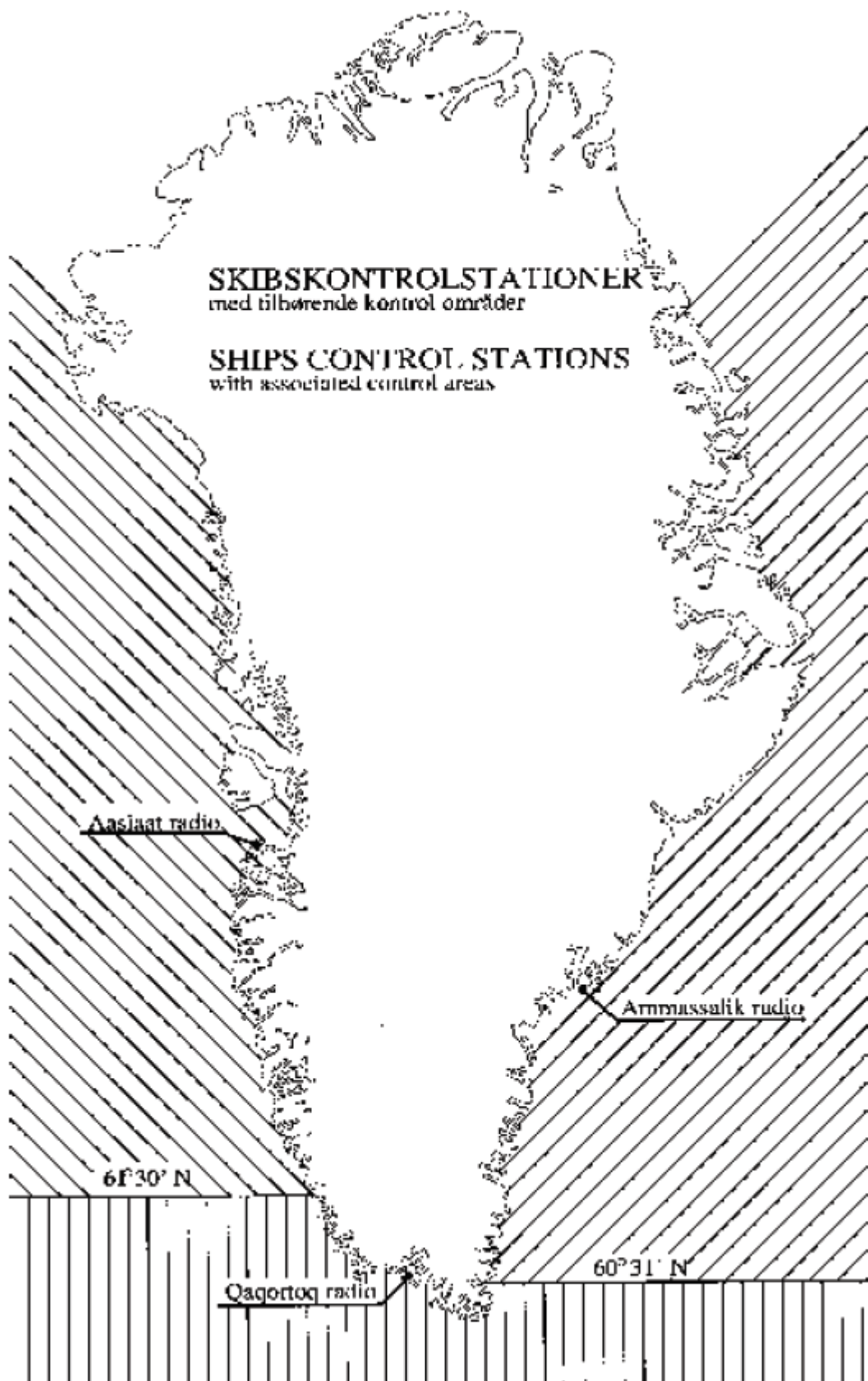
Coastal radio station QAQORTOQ

KYSTKONTROL - FR

A. NONAME/NKFG

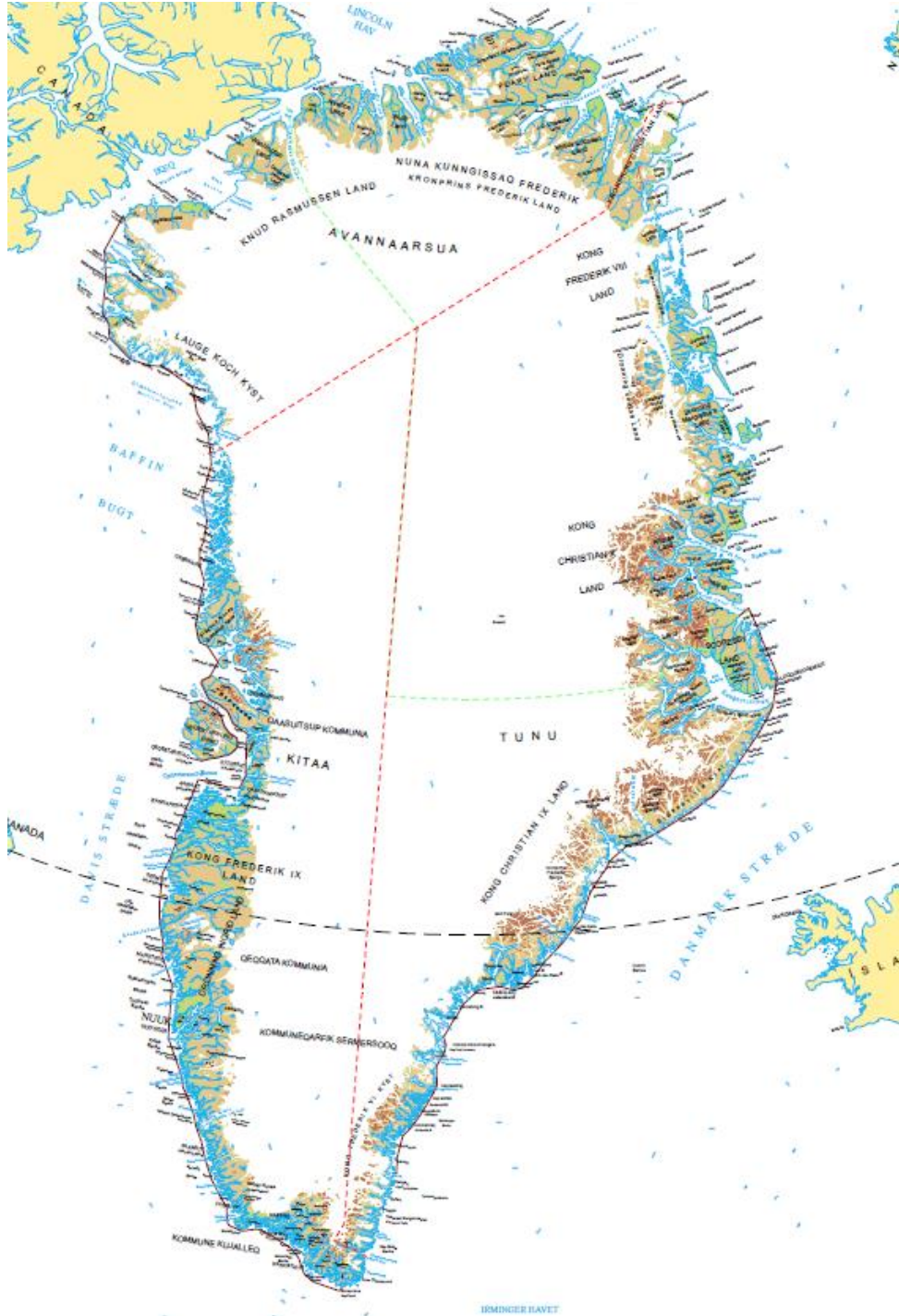
B. 131700

D. ARRIVED AT PAMIUT



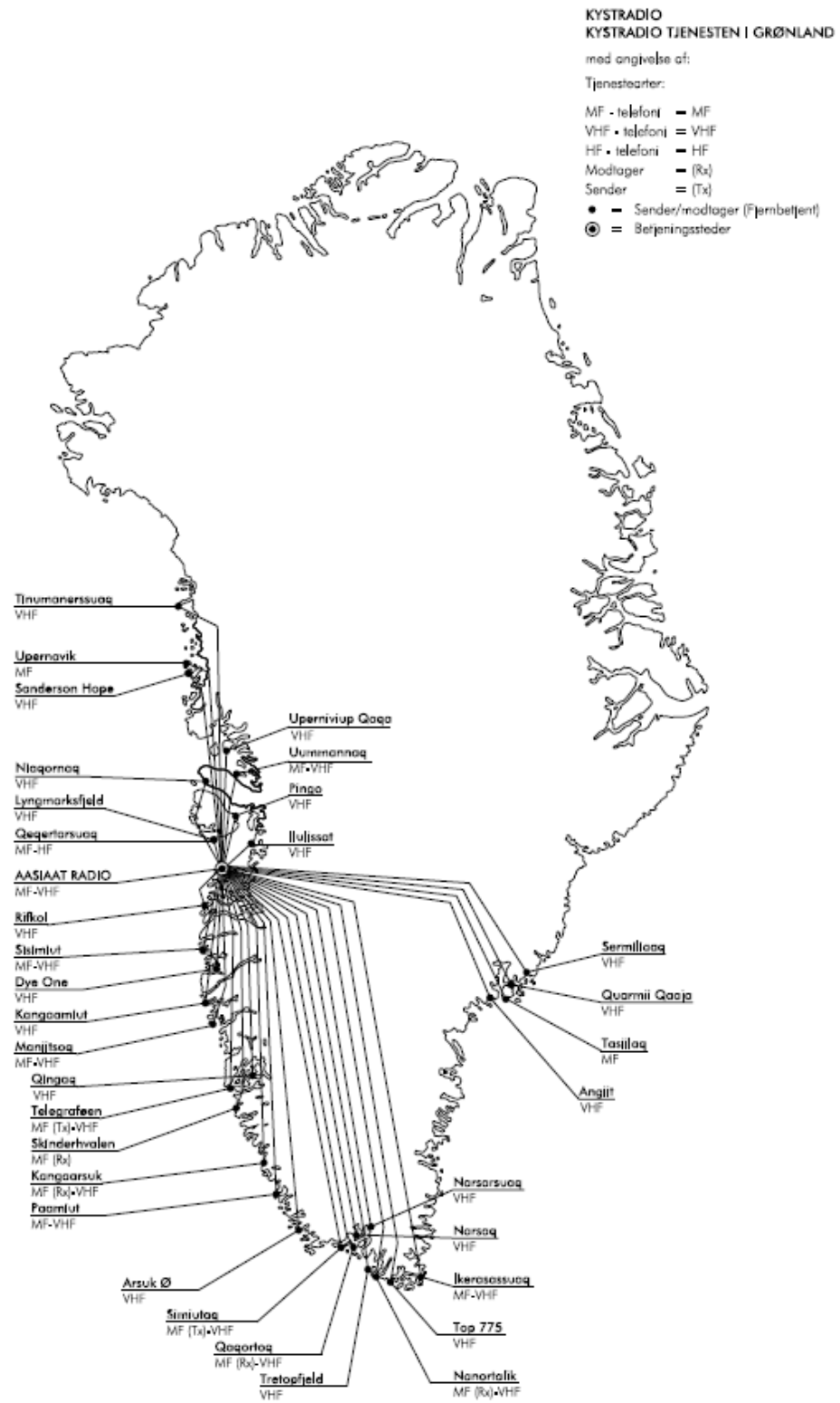
Annex 3 to chapter 2

GREENLAND SEARCH AND RESCUE BORDERLINES (POLICE/JRCC GREENLAND)



Annex 4 to chapter 2

LOCATION OF COASTAL RADIO STATIONS IN GREENLAND



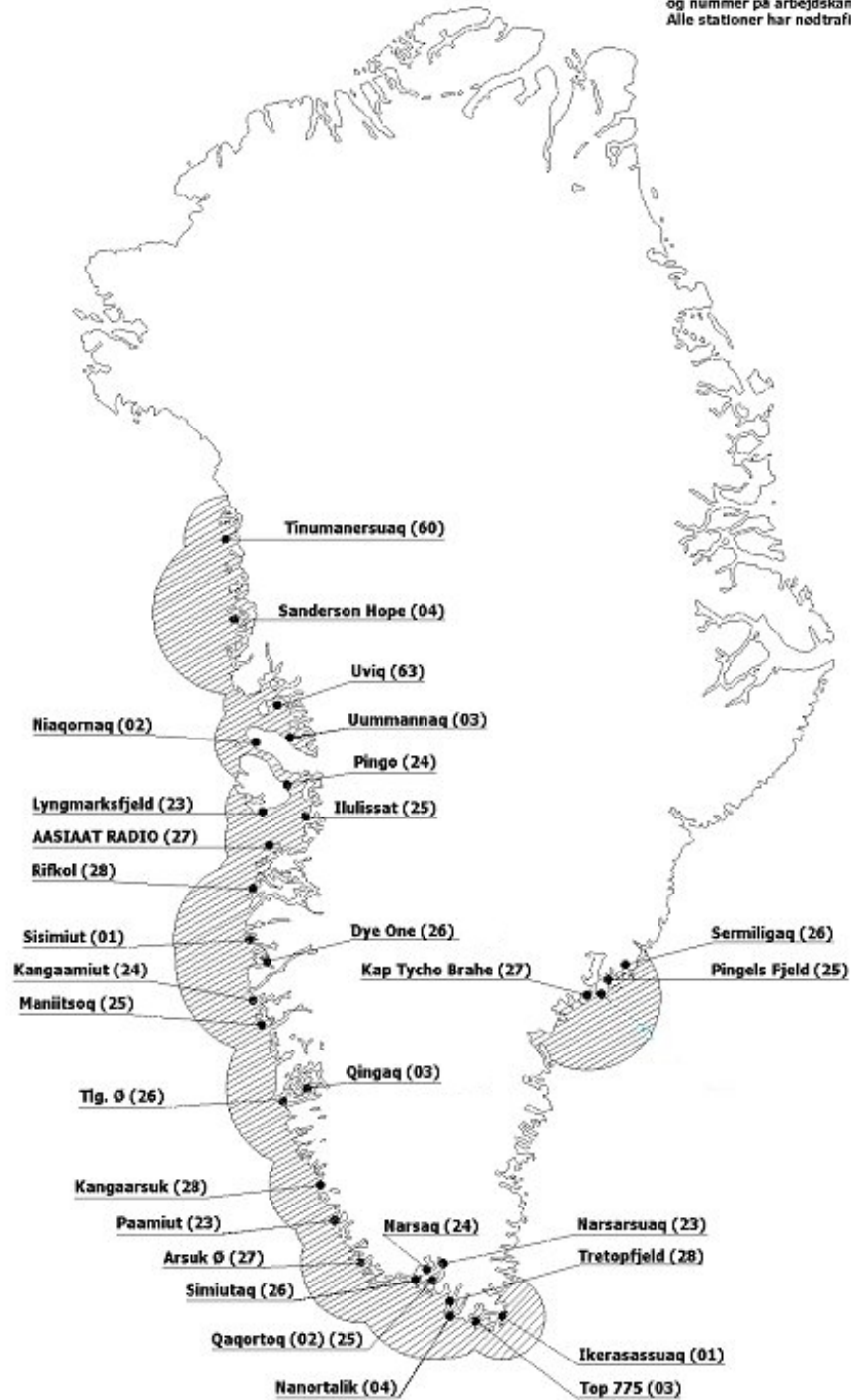
Annex 4 to chapter 2

THE VHF COAST RADIO STATIONS IN GREENLAND

KYSTRADIO
KYSTRADIOTJENESTENS VHF STATIONER
I GRØNLAND

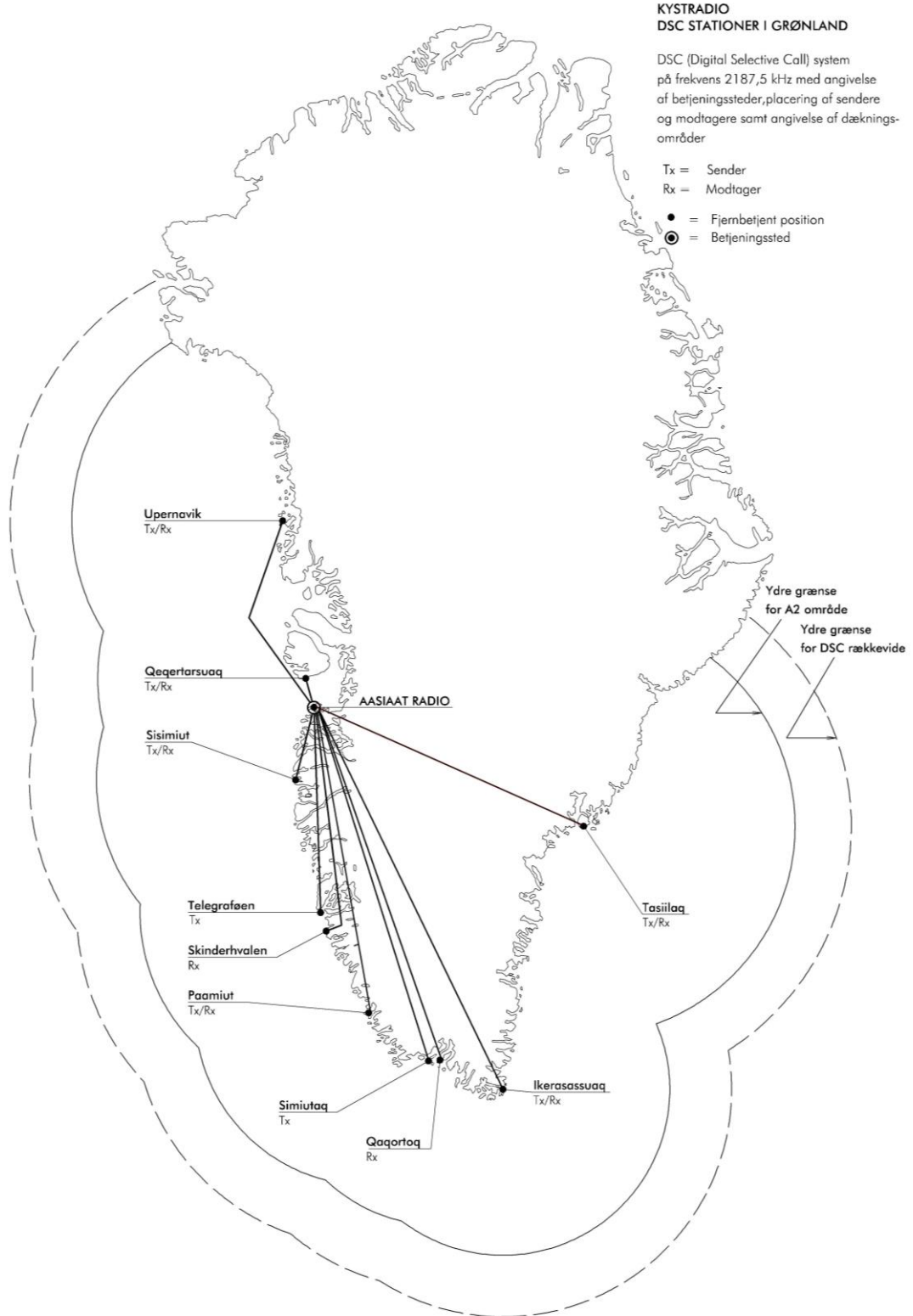
med angivelse af:

Omtrentlige dækningsområder,
VHF stationernes geografiske stednavn
og nummer på arbejdskanal i parentes.
Alle stationer har nødtrafikkanalen (16).



Annex 4 to chapter 2

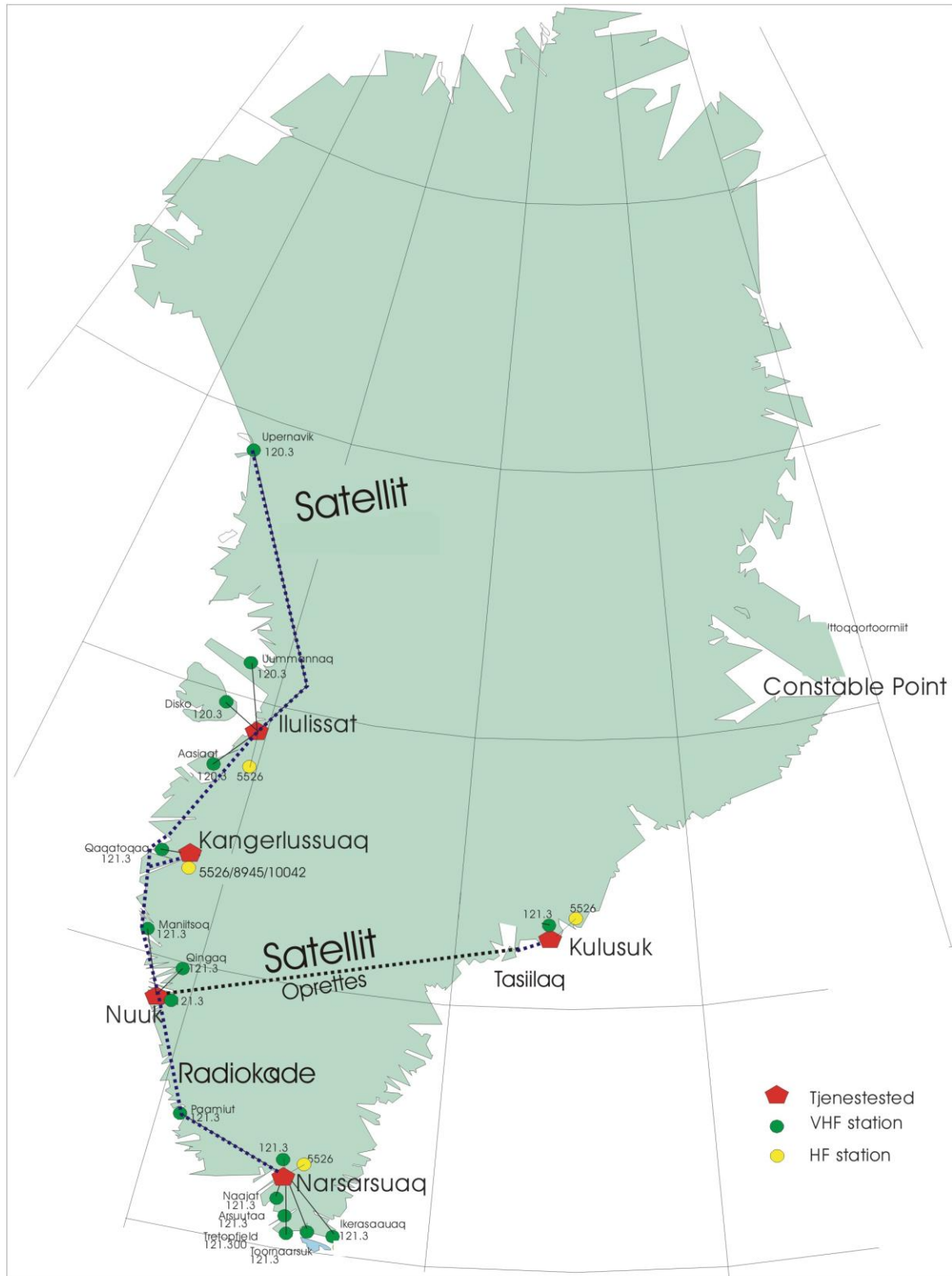
DSC COASTAL RADIO STATIONS IN GREENLAND



Annex 5 to chapter 2

LOCATION OF AVIATION RADIO STATIONS IN GREENLAND

The following frequencies are operated by FIC Sønderstrøm 24 hours a day.



3. PLANNING OF SEARCH AND RESCUE OPERATIONS

3.1 INTERNATIONAL

3.1.1. MARITIME SEARCH AND RESCUE

The international Convention of Maritime Search and Rescue (SAR convention) became effective on June 22nd 1985. The essential purpose of the convention is to facilitate the cooperation between the sea rescue services of each country and between the participants of search and rescue operations by establishing the legal and technical background of an international search and rescue plan.

SAR convention determines by participating nations the following,

- must coordinate their search and rescue organizations,
- if necessary be able to coordinate their search and rescue operation with neighboring countries,
- must enter agreement with the neighboring countries about determining the conditions for rescue units to access into or above the territorial waters or space of the specific country. And also,
- must enter into search and rescue agreement with the neighboring countries with regards to coordination of materials, implementation of joint procedures and regular testing the interstate communication channels etc.

3.1.2 AIR RESCUE SERVICE

Annex 12 of the United Nations' Convention on International Civil Aviation Organization (ICAO Convention) determines the international standards and guidelines of the flight rescue service with the purpose of easing international cooperation. Annex 12 (last edition) implemented by ICAO Council July 2004 is valid for the ICAO member states by the establishment, maintenance and running of aviation orientated search and rescue service and besides the territories of the member states covers the parts of international waters or areas over which no sovereignty is recognized.

Annex 12 determines that member states,

- must provide assistance to aircrafts in distress and to survivors of air crashes without regard to the nationality of such aircrafts or the survivors
- must sketch the search and rescue regions for which they provide search and rescue services to ensure that no overlapping occurs
- must establish a search and rescue coordination centre in their respective search and rescue regions
- must coordinate the organization of their search and rescue services
- should – under the observance of existing laws and regulations of the land – allow rescue units from other states immediate access to its territorial waters or airspace when the purpose alone is to determine the location of a crash site and save potential survivors
- should as quickly as possible list the possible conditions of which the intended operation are to be performed under
- should enter into agreement with neighboring states in which the conditions of the access of rescue units to states' territories are determined and to ensure that such agreements by means of the last numbers of formalities help promote the access for rescue units

3.1.3 MANUAL FOR AERONAUTICAL AND MARITIME SEARCH AND RESCUE SERVICES – IAMSAR

The United Nations international Maritime Organization (IMO) and International Aviation Organization (ICAO) have published the International Aeronautical and Maritime Search and Rescue (IAMSAR) Manual Vol. I, II and III which specifies and clarifies the international regulations and recommendations regarding the organization and procedures for aeronautical and maritime search and rescue services which is the content of the ICAO Conventions' Annex 12, the IMO International Convention on Maritime Search and Rescue as well as the ITU Radio Regulations.

IAMSAR manuals contents:

- Vol. I: The SAR Organization and the SAR Management.
- Vol. II: The SAR Mission Coordination, and
- Vol. III: The Mobile facilities.

IAMSAR Vol. I and Vol. II are used by JRCC Greenland as guideline to organize and perform the search and rescue operations.

IAMSAR Vol. III is used as a guideline for aircraft, ships and/or persons who are in a distress situation and need assistance from an aircraft, ships and/or persons. Vol. III also describe if an aircraft, ships and/or persons want to participate in a search and rescue operation.

IAMSAR Vol. I, Vol. II and Vol. III is updated every 3rd year

3.2 NATIONAL

The planning and execution of any SAR operation is based on the listed documents in Appendix E.

JRCC Greenland draws up the necessary requirements for executing SAR operations within the area of responsibility. +The requirements must contain guidelines for coordination and cooperation between the resources in the SAR organization.

The Greenland Police decides to which extent local planning is necessary as the Police's contribution to JRCC Greenland.

Outlined demarcations laid out for the areas of responsibility are primarily for planning purposes and should never become an obstacle to the appropriate deployment of SAR resources in an emergency situation.

It is a paramount for an effective SAR operation and execution that the SMC responsibility is clearly defined between the Greenland Police and JRCC Greenland and that all involved participants are well- informed about the responsibility.

4. ALERTING AND INITIATION OF SEARCH AND RESCUE OPERATIONS

Appendix: Draft to JRCC RCC instruction

4.1 ALERTING

Notification to JRCC Greenland or the police of a situation that requires or could cause the activation of a SAR operation must occur as soon as possible and is usually undertaken by:

- Aasiaat Radio concerning critical situations involving ships and vessels equipped with maritime communication devices
- Air Coordination Centre concerning critical situations involving civilian and military aircraft
- Other authorities that receive the notification of critical situations at sea or air

See FIG. 4 - 1 Schematic overview of coordination.

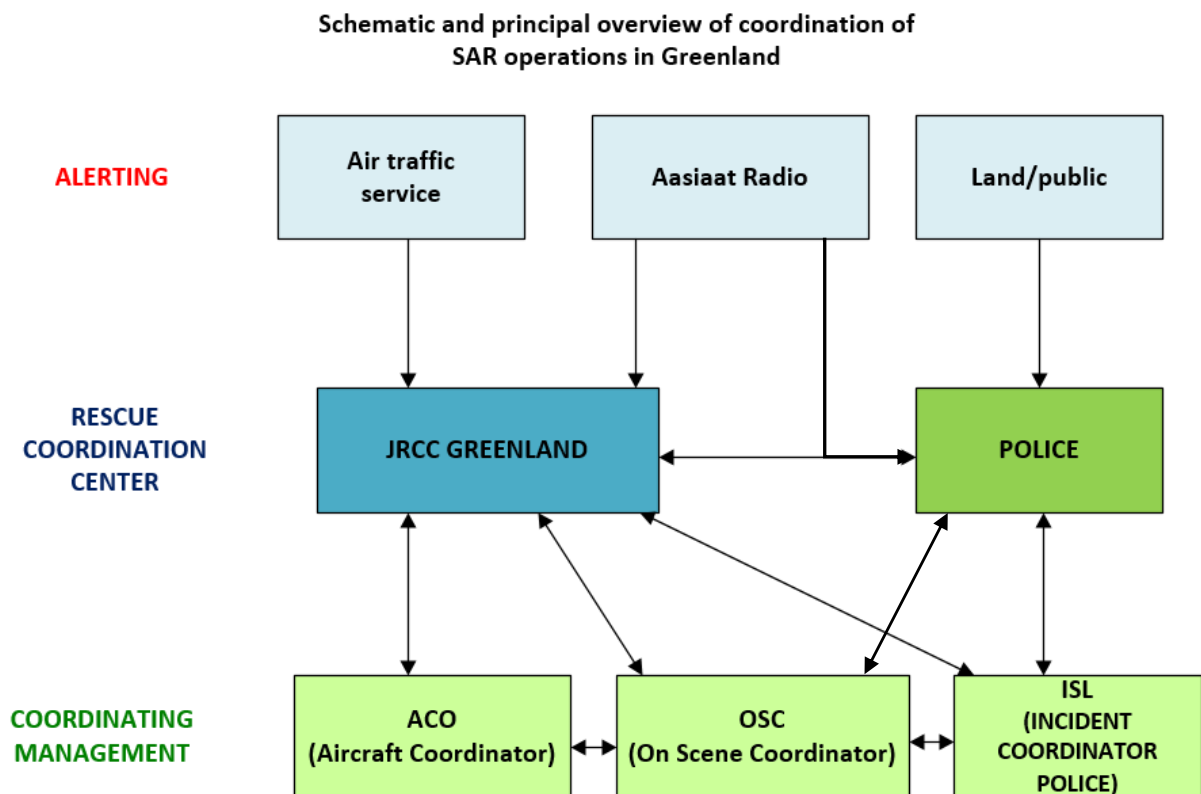


FIG. 4-1 Schematic overview of coordination

Whenever JRCC Greenland receives any notification from another source than the above mentioned, the JRCC will assess the situation and apply the most appropriate course of action in the specific critical situation.

4.2 AIR RESCUE

Procedures to initiate a search and rescue operation of a presumable aircraft crash are stated in the cooperation agreement and instruction between NAVIAIR and the Joint Arctic Command.

4.3 SEA RESCUE

Procedures to initiate a search and rescue operation of a presumed accident at sea are stated in the phases listed below. When assessing a situation at sea it is important to know not necessarily to go through all phases if - for example a rescue authority without any doubt knows that an emergency situation is going on, the DISTRESS PHASE can be effected immediately. It is important that the SAR Mission Coordinator (SMC) and the supporting rescue centers (police stations etc.) are preparing checklists to ensure that:

- Least possible time is lost,
- Necessary information is recorded and written down in the SAR Log
- Orders to Search And Rescue Units (SRUs) are issued (See SAR Greenland, Vol. I chapter 2 for information about obtaining and exchanging information and SMC duties and responsibilities.

4.4 MEDICAL ASSISTANCE AND MEDICAL EVACUATION

The International SAR convention (2006) also includes and describes the Rescue Services responsibility and medical advises, primarily medical assistance and medical evacuation (MEDEVAC). A Rescue Service's responsibility stops when a sick or wounded person or persons are handed over to the health care authorities in the nearest harbor, airport or another safe place where the health care system are able to take over. In Greenland JRCC Greenland is responsible for the maritime MEDEVAC.

4.5 PHASE OF EMERGENCY

The emergency phase spans from a state of uncertainty to a state of certainty. Internationally the expressions for readiness or critical phases "Phase of Emergency" is assessed using the listed phases:

- UNCERTAINTY PHASE (INCERFA)
- ALERT PHASE (ALERFA)
- DISTRESS PHASE (DETRESFA)

4.5.1 UNCERTAINTY PHASE (Code word INCERFA)

Uncertainty phase exists when there is knowledge of a situation that need to be monitored, to have more information gathered, but need no require or allocated resources. When there is doubt about the safety of an aircraft, ship or other craft/persons onboard, or it is overdue, the situation should be investigated and information gathered. A communication search may or should begin during this phase. An uncertainty phase is declared when there is doubt regarding the safety of an aircraft, ship, or other craft/persons on board.

UNCERTANTY PHASE DECLARES WHEN	ACTION:
Arrival/daily report from ship signed up in the Costal Report Control System 1 hour overdue	<p>Aasiaat Coastal Radio: If the report is not received on time Aasiaat Radio as the Coastal Control attempts to get in contact with the ship. Aasiaat Radio also gets in contact with other ships for possible contact with the overdue ship. If no result is achieved within 1 hour the police must be informed.</p> <p>Police: Investigates the arrival harbor. Interrogate witnesses etc.. Make internal decisions about starting up a search operation.</p>
0-30 min. delay of positions or arrival reports in the GREENPOS-system	<p>JRCC Greenland: In corporation with the Costal Radio station, attempts to get in contact with the overdue GREENPOS ship. If an arrival report is missing, JRCC will request local police and harbor authorities to investigate the harbor. JRCC will contact the ship's company, ships and aircraft in the area of the missing ship's most likely position. Relevant SAR vessels (both air and sea) will be contacted.</p>
Information to police (or other rescue services) that a ship is overdue or observations indicating that a ship needs assistance without being in distress.	<p>The Police (or other rescue services): Attempts to get an overall overview of the situation by inquiring relatives, the shipping company, the harbor authority etc..</p>

4.5.2 ALERT PHASE (Code word ALERFA)

Gathering and validation of the information of the missing vessel intensified. The Search and Rescue vessels prepared to be allocated.

ALERT PHASE DECLARES WHEN	ACTION: EXTENDED INQUIRING, PREPARE SEARCH OPERATION
<ul style="list-style-type: none"> • Contact to a missing GREENPOS ship is not established within 30 min. • Contact to a missing Coastal Reporting ship is not established shortly after 1 hour overdue. • Contact to missing or overdue local, or more persons, is not established or he/she is not returned at the agreed time. 	<p>The responsible rescue authority alert and prepare relevant SAR vessels (both air and sea). The responsible rescue authority issues a PAN CALL to be broadcasted by Aasiaat Radio to inform ships about the situation and the assumed incident area. The responsible rescue authority issues search information to be posted on the rescue authority's internet-site and to be broadcasted through Greenland's Radio.</p>

4.5.3 DISTRESS PHASE (Code word DETRESFA)

The distress phase (SAR operation) is initiated when an aircraft, a ship, or other craft or persons on board a craft is in danger (for liv og f rlighed – der m  findes en standard UK formulering...) and require immediate assistance.

DISTRESS PHASE DECLARES WHEN	ACTION: SEARCH AND RESCUE OPERERATON IMPLEMENTED
<ul style="list-style-type: none"> • The contact to a missing ship (Greenpos / KTR)/ craft / persons is not possible • Received information about a ship is in distress • Emergency signal is observed or received 	<p>SMC:</p> <ul style="list-style-type: none"> - Initiatinga SAR operation with all relevant available SAR ressources. - Inform relevant rescue authorities - If necessary arrange the described action in uncertainty phase - If necessary declare - through Flight Information Centre (FIC) Greenland – a prohibited² area for civil aviation.

4.6 TERMINATION OF A SAR OPERATION

Only JRCC Greenland can terminate a SAR operation conducted by JRCC Greenland. Only the Greenland Police can terminate a SAR operation conducted by the Greenland Police.

² Flight Information Centre (FIC), JRCC GREENLAND and the Police can declare areas prohibited.

4.6.1 SEARCH OPERATIONS

JRCC Greenland or Greenland Police must continue searching until it is assessed that it is no longer possible to find and rescue survivors.

Factors and considerations include:

- the possibility of finding any survivors in the search area
- the possibility of having the missing object localized
- the possibility of finding the missing person alive
- weather conditions

JRCC Greenland and the Greenland Police are continuously collecting search operation factors from all participating commanders and SAR units to validate the SAR operation.

4.6.2 RESCUE OPERATIONS

JRCC Greenland and the Greenland Police can terminate or temporarily change the SAR efforts based on assessments, advices and recommendations from the OSC or other participating SAR units.

All involved must be informed of any changes to the SAR operation.

If JRCC Greenland or the Greenland Police evaluate that a rescue operation with certainty is completed, the OSC is to inform all units about the decision. Immediately after termination of the SAR operation, JRCC Greenland is also obliged to inform all participating units.

The responsible SMC is informing authorities, companies and the press about the result of the SAR operation. Prior to revealing the result to the press JRCC Greenland and the Police agrees on the press releases.

The Greenland Police informs relatives of the final result of the SAR operation. It is important that the relatives to dead or possible dead persons are informed before the press and the public.

If the SAR operation turns out to be a Mass Rescue Operation (MRO) it is normal to appoint a press officer responsible for handling the press.

Decision of appointing a press officer is taken based on an overall assessment between the Police and JRCC Greenland.

It is important to task the OSC to organize and report:

- name, call sign and destination for ships and/or aircraft with survivors, injured or dead persons onboard
- the physical condition and need for medical treatment
- the condition of the ship in distress including obstacles to shipping or aviation

Appendix 1 to Chapter 4.



ARCTIC COMMAND

NAVIAR

DRAFT

Joint Rescue Coordination Centre

Greenland

Cooperation instructions

Valid from xxxxxxx 2019
Version 09APR19

1. GENEREL

Greenland has established a search and rescue service named the Search and Rescue Service. The Search and Rescue Service organization, responsibilities and tasks are described in the SAR Greenland Vol. I Manual.

SAR Greenland is authorized for use in Search and Rescue Region Greenland (SRR Greenland).

Denmark has ratified the International Convention on Maritime Search and Rescue. The ratification obliges Denmark to organize search and rescue services in Greenland.

The Danish Ministry of Defense has since the 1st of January 2014 had the main SAR responsibility, including:

- rule-issuing responsibility for sea- and aviation rescue
- coordinating sea- and aviation rescue operations
- coordinating management of sea rescue operations
- coordinating management of aviation rescue operations
- establishing SAR helicopter readiness

Joint Rescue Coordination Centre (JRCC) Greenland³ is responsible for the air and sea SAR execution in Greenland.

Naviair's Aviation Rescue Coordination Centre and the Joint Arctic Command's (JACOs) Maritime Rescue Coordination Centre were co-located the 1st of October 2014 and at the same date constituted as a Joint Rescue Coordination Centre (JRCC) in Nuuk, Greenland.

The Purpose and the tasks of JRCC Greenland are included in SAR GREENLAND Vol. I. Naviair and JACO has published the JRCC Greenland Cooperation Instruction which includes the description of the practical SAR cooperation between Naviair and JACO.

1.1 MAIN COOPERATION

Commander JACO and Director Naviair aim to have an overall annual coordination meeting.

The Coordination Group includes JACO's Vice Commander, Naviair's Director North Atlantic Operations and JACO's Division Heads, Chief JRCC and Naviair's Leader of the Flight Information Centre. The Coordination Group meets twice a year or when necessary. The agenda for the meeting includes operational and administrative issues. Depending the agenda, the Police can be invited.

1.2 SAR RESPONSIBILITY IN GREENLAND

JRCC has the management responsibility for the search and rescue services within the SRR GREENLAND.

³ The Ministry of Justice has the land and local rescue SAR responsibility in Greenland. The practical execution of the Ministry of Justice's land and local rescue responsibility is carried out by the duty officer Greenland Police in Nuuk.

On land and in-fiord along the western coastline from Cape Farewell to latitude 78° N and in-fiord along the eastern coastline from latitude 72° N to 76° N the Greenland Police has the SAR responsibility.

In the air and at sea, ships outside the in-fiord areas, ships included in the GREENPOS system and aircraft in distress are included in the JRCC Greenland responsibility⁴.

1.3 DEFINITION

The definition of search and rescue (SAR) is to rescue persons (dead or alive) using all possible personal and technical support including aircraft, ships and communication equipment to localize and save persons in distress on land, at sea and from aircraft. Search and salvage of wreck and alike is not including SAR.

1.4 RESCUE COUNCIL FOR SHIPPING AND AVIATION AND THE OPERATIONAL CONTACT GROUP ARCTIC (OKA)

The Rescue Council for Shipping and Aviation is an inter-ministerial council publishing SAR Denmark and SAR Greenland. The Rescue Council for Shipping and Aviation decides goals and requirements for the search and rescue services in Denmark and Greenland. The presidency (chairman) is a person from the the Danish Ministry of Defense.

The Rescue Council for Shipping and Aviation schedules two annual meetings where the two the Operational Contact Groups (Denmark and Greenland) report status on SAR events and developments actions.

The main goal for the OKA is to strengthen the operational and coordinating work in the search and rescue service in Greenland. The main task for the OKA is to:

- Evaluate the search and rescue services operational work by using the available SAR resources
- Evaluate and extract experiences from SAR operations and monitor completed SAR cases from the Accident Investigation Board Denmark.
- Propose recommendations to the Rescue Council for Shipping and Aviation to improve coordination and implementations of search and rescue operations.

Supplementary tasks:

- Coordinate activity of educations and exercises,
- Monitor and report the effort of the search and rescue services to the council for shipping and aviation.

OKA includes members from JACO, Naviair, Greenland Police, Aasiaat Radio, Air Greenland, Health Care Greenland, National Police and The Royal Danish Navy 1st squadron. Depending on the agenda further relevant lecturer or representatives from different authorities or organizations can be invited. JACO has the chairmanship of the OKA and the chairmanship is a permanent member of the Council for Shipping and Aviation.

⁴ In addition to JRCC Greenland and the Greenland Police, Aasiaat Radio and Air Greenland are included in the overall SAR service. Aasiaat Radio is responsible for communications to civilian shipping during SAR operations. Aasiaat Radio forwards SAR communication to JRCC Greenland and the Greenland Police.

1.5 SAR READINESS IN GREENLAND

The Joint Arctic Command handles the 24-hour JRCC Greenland staff according to the SAR Convention (1979), International Aeronautical and Maritime Search and Rescue Manual (IAMSAR) and SAR Greenland.

JRCC Greenland has the opportunities to assign military resources (ships, aircraft etc.) to participate in search and rescue operations within the SRR Greenland. Also, JRCC Greenland can insert and pay for SAR resources and afterwards get the expenses covered⁵. On request, JRCC Greenland can assign own allocated resources (ships, aircraft etc.) to assist search and rescue operations outside SRR Greenland which is covered of the international agreements including the Arctic Council and UN SAR Convention stated by the Danish Government. If a situation inside SRR Greenland requires further resources, JRCC Greenland can request resources from the Arctic nations to participate and support in a search and rescue operation in the SRR Greenland referring to the Arctic Council's SAR-agreement.

JRCC Greenland (JACO) must be able to receive access, examine and initiate a search and rescue operation within a reaction time less than 6 minutes⁶.

JACO is obliged to have an operational readiness ready for inserting allocated SAR resources. The operational readiness is stated by JACO.

The Danish Ministry of Defense allocates resources to subordinate authorities according to the annual program. Normally, JACO has the following ships available:

One offshore patrol frigate with helicopter (365 days of readiness)

Three offshore patrol vessels (882 days of readiness)

All units at 1-hour readiness alert

One surveillance aircraft to patrol 11 days 11 month a year with an average 4 hours' operational flight per day (11 x 11 x 4 = 484 hours per year). The calculation includes approximately 104-hours surveillance flight around the Faeroe Islands and approximately 380-hours surveillance flight around Greenland (95 days of readiness).

Allocated aircraft has a 12-hours readiness – The flight commander can always decide to deviate from the 12-hours readiness.

The Sirius Sledge Patrol has six sledge teams ready for insertion in the National Park area. The Sirius Sledge Patrol is ready to solve tasks all the time.

Naviair operates the Flight Information Centre (FIC) Greenland. FIC operates and handle air traffic in the Greenland area up to 19500 feet (Flight Level 195 - or FL 195) (app 6,5 km). Some FIC personnel are educated SAR Mission Coordinators and ready to take care of air rescue services as an integrated part of JRCC Greenland.

⁵ Cf. The Finance Act (no. 6 ad 08.71.01: section 2.) the Minister may pay participating ships for any operating loss).

⁶ The response time is defined as the time from the time of visitation (the recognition of a SAR) and the determination of the responsibility until the first "emergency unit" is alerted.

Air rescue operations are handled according to ICAO Annex 12 and SAR Greenland. JRCC Greenland has the main responsibility for every aircraft in distress within SRR Greenland except:

- Aircraft in distress or crashed within Mittarfeqarfiit's area of responsibility (20 nautical miles radius area around a Greenlandic airport).
- Aircraft not handed over to Mittarfeqarfiit from Naviair continues to be a Naviair responsibility.

JRCC Greenland (Naviair) must immediately be able to receive and handle emergency signals from an aircraft.

JRCC Greenland supports in-fiord local maritime and SAR accidents on land with airborne capacities. Naviair supports whenever necessary.

Greenland Police operates a manned 24-hours daily police duty officer function in Nuuk including the SAR responsibility on land and in general the in-fiord local maritime SAR incidents. Local search and rescue operations are also handled according to the SAR-convention (1979), the IAMSAR Manuals and SAR Greenland.

When an incident is categorized as a SAR incident during the visitation process between JRCC Greenland and the Greenland Police, it is also decided who should be the SAR Mission Coordinator (SMC). If the SMC role is decided to be a Greenland Police responsibility the duty police officer in Nuuk will be the SMC. A local police station can be appointed as a sub-rescue center under the Greenland Police in Nuuk and the local police station can be appointed as the On-Scene-Coordinator (OSC). The overall SAR responsibility cannot be delegated to a local police station and will always stay in Nuuk. If SAR responsibilities are delegated to another police station or unit all other responsible SAR authorities and participating SAR units must be informed.

To manage SAR operations the Greenland Police have four vessels which are strategic located around the coastline of Greenland. In the summer time one of these vessels is deployed to the east coast of Greenland primarily in the area of Tasiilaq.

The Greenland Police can hire local vessels to participate in the SAR operation. This option is valid if no other permanent SAR resources are available.

The police cutters' state of alert is 15 minutes if the crew is onboard and 1 hour if the vessels in port.

Air Greenland has two helicopters on alert. One Eurocopter 225 located in Kangerlussuaq 365 days a year and one Bell-212 located in Qaqortoq from Monday to Saturday (both days inclusive) the time period from 0800 – 1600.

Both Air Greenland SAR helicopters are on a 1-hour notice to move.

The Danish Defense operates the manned 24-hours Aasiaat Radio with special educated personnel. The Aasiaat Radio personnel communicate with the ships inside Greenland's Exclusive Economic Zone. When Aasiaat Radio receives an emergency

call from a ship in distress, Aasiaat Radio informs the rescue authorities the Greenland Police and JRCC Greenland.

Danish ministries are responsible for the public supply service for the maritime radio emergency service. The Ministry of Defense has the operational responsibility.

1.6 READINESS LEVELS

JRCC Greenland have three levels of readiness:

- Normal
- Reinforced
- Crisis

Normal readiness is the normal daily work according to applicable directives.

Reinforced readiness additional staff is called upon to assist solving a special SAR operation. Furthermore, the Greenland Police and JRCC Greenland will exchange liaison officers. JRCC Greenland will create a manned workstation for the police liaison officer. If the Greenland Police have the coordinating SAR responsibility, there will be created a workstation for a JRCC officer at the police command station⁷.

Crisis readiness means that the JRCC will be reinforced from Denmark. This degree of readiness will be established if JRCC is not able to handle the situation without assistance from Denmark. Additionally, other Arctic nations might send personnel or other resources to support and handle a SAR operation.

1.7. Responsibility, interfaces and transfer of the coordinating SAR responsibility

The following describes responsibilities, interfaces and the transfer of the coordinating SAR responsibilities both internally in JRCC Greenland and externally with the Greenland Police.

JACO has the overall responsibility for the JRCC Greenland and thus the overall management responsibility of SAR operations in the JRCC. Naviar's air rescue service is included in this overall JACO responsibility. The responsibility includes management of SAR situations and instructions.

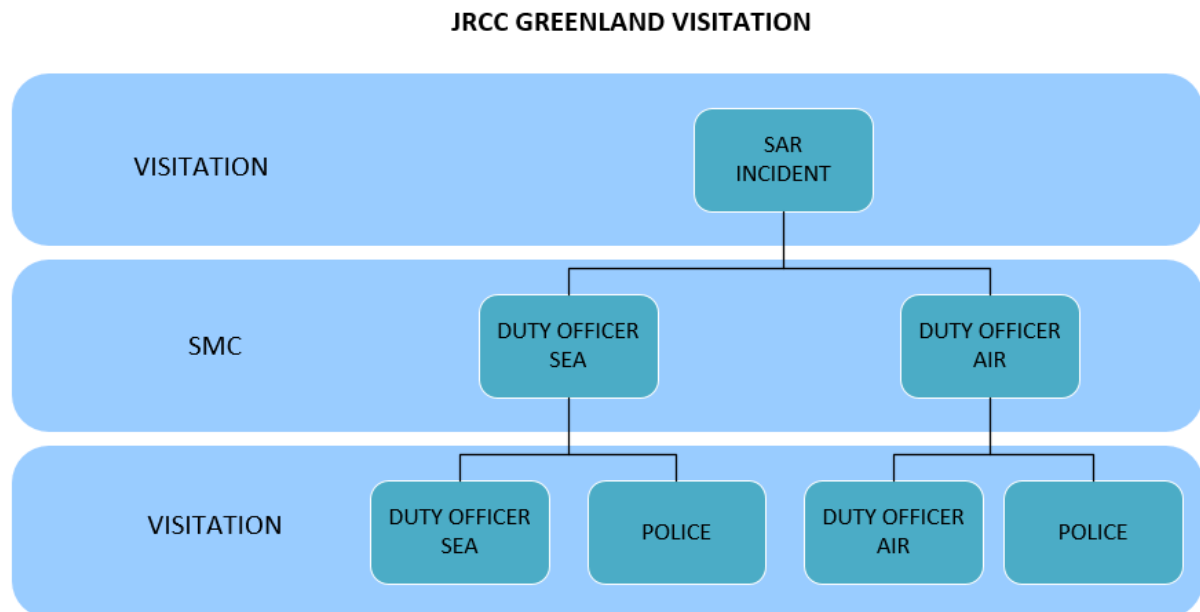
Regardless the degree of readiness, all SAR incidents will be treated according to the same procedural approach. The procedure can be described from the following approach:

In the JRCC, a potential SAR incident can occur directly or indirectly to either the Duty Officer Sea Rescue Service or to the Duty Officer Air Rescue Service (FIC).

When a potential SAR incident occurs the duty officers mutually and immediately must inform each other of the incident and determine whether it is a SAR - and if so - who should be responsible as SMC (internal visitation). When the internal visitation process has been completed, the visited SMC contacts the Greenland Police for external

⁷ Conversely, the Greenland Police have set up a workstation in the Police Command Post (KSN), which is adjacent to the duty officer Police in Nuuk, for a liaison officer from JRCC Greenland, when the police have the coordinating SAR responsibility.

visitation and coordination. If the Duty Officer, Air, is not present, the Duty Officer, Sea, conducts the external visitation process with the Greenland Police. If JRCC Greenland assesses that the incident obviously falls under the responsibility of the Greenland Police, the Duty Officer, Sea, must immediately contact the Duty Officer, Greenland Police. The visitation process can be illustrated as follows:



When it has been determined that a situation is a SAR incident with JRCC Greenland as the responsible SMC, the duty officers in JRCC divides the responsibility according to whether it is an air rescue with the Duty Officer, Air, as the SMC or a sea rescue with the Duty Officer, Sea, as the SMC. During a SAR operation, the SMC role can change between the responsible duty officers, Air, and Sea⁸.

The tasks are distributed as follows:

Duty Officer, Sea, handles the coordinating responsibility as SMC in the Sea Rescue Service.

Duty Officer, Sea, has the following tasks in relation to coordination responsibility as SMC:

- Quick initial alerting of SAR units and other relevant authorities⁹
- Notification of duty officer in FIC / Duty Officer, Air¹⁰

⁸ For example, the SMC responsibility can change from Duty Officer, Air, to Duty Officer, Sea, if an aircraft lands on the sea and later, when a ship is appointed as On-Scene Co-ordinator (OSC), the SMC responsibility naturally shifts to be handled by Duty Officer, Sea.

⁹ The Duty Officer Sea Rescue Service is responsible for alerting own units. At the request of the Duty Officer Sea Rescue Service, the Duty Officer, Air, must ensure that aircraft are directed to a search area and that aircraft must be ready to take on the role as the On-Scene Coordinator, and thus be the first unit in the area to create an overview. Duty Officer, Air, must ensure that SAR trained personnel are ready for participation in SAR briefings in JRCC Greenland for as long a SAR operation with aircraft is in progress.

- Visitation of the incident with the Greenland Police
- Creating a SAR event in the SAR log
- Notification of Aasiaat Radio (also in case of SAR incidents visited to duty officer, air)
- Notification of JACO Senior Officer on call (also in case of SAR incidents visited to the Duty Officer, Air)
- Coordination with participating SAR units included in the SAR log
- Preparation of tasking messages for the SAR units (also air rescue incidents)
- Appointment of an On-Scene Coordinator (OSC)
- Preparation of the Search Area in the SAR calculation program SARIS
- Broadcast a navigational warning (NAVWARNING)
- Preparation of SAR situation reports (SAR SITREPS)
- Submission of Special Event Report (SÆHÆ) to the Duty Officer in Denmark (also with air rescue incidents)
- Follow-up / closing Special Event reports (SÆHÆ) to Duty Officer in Denmark
- Registration of all allocated SAR resources (time spent on deployment)
- Preparation of a final SAR report
- Identification of learning points for follow-up evaluation of the SAR incident¹¹

Duty Officer, Air handles the coordinating responsibility as SMC in the Air Rescue Service.

Duty Officer, Air, has the following tasks in connection with coordination responsibility as SMC:

- Quick initial alerting of SAR units and other relevant authorities¹²
- Notification of Duty Officer, Sea¹³
- Visitation of the incident with the Greenland Police
- Creating a SAR event in the SAR log
- Duty Officer, Sea, supports Duty Officer, Air, who follows Duty Officer, Air's, instructions and directives
- Notification of Aasiaat Radio via Duty Officer, Sea
- Notification of JACO Senior Officer on-call via Duty Officer, Sea
- Duty Officer, Sea, must be ready to receive support from JACO Senior Officer on-call, if necessary
- Coordination with participating SAR units included in the SAR log

¹⁰ If a SAR incident occurs, or an incident that is assessed to develop into a SAR incident, there must be an immediate and mutual alert between the Duty Officer, Air, and the Duty Officer, Sea. The Duty Officer, in the FIC must immediately call and alert the Duty Officer, Air, on call.

¹¹ Immediately after a SAR operation both duty officers must finalize the SAR report and thus ensure that all relevant information is collected along the way. Once the SAR report has been finished, it must be send to all relevant participants in the SAR operation for comments.

¹² The Duty Officer, Air Rescue Service is responsible for alerting own units (relevant aircraft). At the request of Duty Officer, Air, the Duty Officer, Sea, must ensure that relevant rescue units are informed and kept ready.

¹³ If a SAR incident occurs, or an incident that is assessed to develop into a SAR incident, there must be an immediate and mutual alert between the duty officers in JRCC. The Duty Officer, FIC, immediately calls Duty Officer, Air, on call.

- Preparation of tasking messages for the SAR units
- Appointment of an On-Scene Coordinator (OSC)
- Preparation of Search Area
- Issue of notice to airmen (NOTAM) – “warnings to aviation”.
- Preparation of SAR situation reports (SAR SITREPS)
- Submission of Special Event Report (SÆHÆ) to duty officer in Denmark
- Follow-up / closing Special Event reports (SÆHÆ) to duty officer in Denmark
- Registration of all allocated SAR resources (time spent on deployment)
- Preparation of a final SAR report
- Identification of learning points for follow-up evaluation of the SAR incident¹⁴

Duty Officer, Air, is on a 30-minute call and is alerted immediately in the event of a potential SAR incident by the Duty Officer, FIC. When the Duty Officer, FIC, has informed the Duty Officer, Air, on-call, of a potential SAR incident, he or she does the best to perform the function as Duty Officer, Air, until he or she is physically present in JRCC Greenland. When Duty Officer, Air, has arrived, it must be clearly reported to Duty Officer, Sea, that Duty Officer, Air, now has arrived.

Situations may occur during the 30 min. call-period where it may be difficult for the Duty Officer, Air, to exercise the function as SMC. In these special situations, the Duty Officer, FIC, must carry out the following tasks until Duty Officer, Air, arrives.

Duty Officer, FIC, tasks when Duty Officer, Air, cannot handle the function as SMC is as follows¹⁵:

- To inform Duty Officer, Sea, of an incident or a potential emergency
- To keep in touch with an aircraft in distress and obtain information about the distressed person's or persons' situation and their needs
- In cooperation with Duty Officer, Sea, to alert emergency services in the event of an emergency
- In cooperation with Duty Officer, Sea, to start up the SAR log
- In cooperation with Duty Officer, Sea, to appoint the On-Scene Coordinator
- In cooperation with Duty Officer, Sea, to prepare SAR disposal signals
- In cooperation with Duty Officer, Sea, to direct aircraft to a search area

Duty Officer, Air, has the following tasks in connection with the coordination responsibility as SMC¹⁶:

- Quick initial alerting of SAR units and other relevant emergency services
- Notification of Duty Officer, Sea, and visitation

¹⁴ Immediately after a SAR operation both duty officers must finalize the SAR report and thus ensure that all relevant information is collected along the way. Once the SAR report has been finished, it must be sent to all relevant participants in the SAR operation for comments.

¹⁵ Duty Officer; FIC, handles the mentioned JRCC tasks, taking into account own FIC traffic.

¹⁶ In the event of a situation involving a distressed aircraft, Duty Officer, Sea, must, on the request of Duty Officer, Air, call the Senior Officer on-call in accordance with JACO's alerting list (Commander's Critical Information Requirements (CCIRs)). When the JRCC has the coordinating SAR responsibility, in a search and rescue operation for aircraft, the Duty Officer, Air, is responsible as the SAR Mission Co-ordinator (SMC). In a search and rescue operation at sea, it will be the Duty Officer, Sea.

- Visitation of the incident with the Greenland Police
- Create the SAR event in the SAR log¹⁷
- Coordinate with the relevant participants included in the SAR log
- Appointing an On-Scene Coordinator (OSC)
- Preparation of SAR tasking messages
- Preparation of SAR situation reports (SAR SITREPS)
- Recording of all allocated SAR resources (time spent on deployment) for all deployed units
- Preparation of a final SAR report
- Identification of learning points for follow-up evaluation of the SAR incident¹⁸

When Duty Officer, Sea, is responsible as SMC:

- Duty Officer, Air, supports Duty Officer, Sea, as SMC and follows Duty Officer, Sea, instructions and directives.

JRCC Greenland may transfer or take over the SMC responsibility from another SMC if the SMC responsibility is assessed to be more effectively managed and coordinated by JRCC Greenland or another SMC authority¹⁹.

1.7. The daily collaboration between JACO and Naviair

The cooperation between JACO and Naviair means mutual responsibility for the SAR cooperation in JRCC Greenland with reference to Service Level Agreement between JACO and Naviair.

In everyday life without SAR incidents the cooperation consists of:

- Operational meetings and briefings.
- Lessons Identified / Lessons Learned processes.
- Education and courses.
- SAR working groups and meetings.

During minor SAR operations, the mutual support between JACO and Naviair consists of, but is not limited to:

- To coordinate with other participating SAR actors and authorities.
- To inform the management levels about the development of SAR incidents.
- To coordinate with press officers. To assist each other with report-writing, including:
- Tasking messages.

¹⁷ When a SAR operation is started, it must be assigned with a SAR number. This SAR number is assigned by Duty Officer, Sea, who informs this number when starting a new SAR event in the SAR log. Both NAVIAIR Air Rescue Center and JACO Sea Rescue Center must ensure that all log relevant information is entered in the SAR log.

¹⁸ Immediately after a SAR operation both duty officers must finalize the SAR report and thus ensure that all relevant information is collected along the way. Once the SAR report has been finished, it must be sent to all relevant participants in the SAR operation for comments.

¹⁹ An example, if a plane experiences a distress situation and crashes on the icecap, JRCC Greenland is responsible for the Air Rescue in accordance with the definitions in SAR Greenland. At some point, it may be appropriate to hand over the SMC responsibility to the Police, but this will only happen after a visitation process where the formal coordinating management responsibility is handed over.

- Situation reports (SAR-SITREPS).
- SAR reports.
- Special Incident Reports (SÆHÆ).

In the event of larger and more complex SAR incidents (crisis readiness established), NAVIAIR, cf. SLA, must be able to provide one SMC AIR on duty 24/7. In the long term, the person in question must also be able to handle the Aircraft Coordinator (ACO) function, which coordinates the allocation of several deployed aircrafts/helicopters.

During crisis readiness and in accordance with the Service Level Agreement between Naviair og JACO, Naviair must also be ready to have one Duty Officer, Air, ready for being a part of operational planning groups. Operational planning groups are established whenever needed especially during critical events and crisis response. As an example, operational planning groups plan for evacuations, including the need of providing doctors, hospital equipment, etc. Aircraft resources are usually scarce in Greenland and it is often a matter of carefully selecting the aircraft resources that can be extracted from other operational tasks. Operational planning groups are carefully and appropriately defined and organized to plan for crisis situations. Operational planning groups will meet, coordinate, depart (work independently) and then meet again to present products and to coordinate. Plans will be presented and approved by Commander Joint Arctic Command for implementation.

Naviair and JACO have agreed that daily cooperation is best optimized through an ongoing dialogue and mutual information about incidents that may be of common interest or may affect the authorities' operational responsibilities. In this context, Naviair and JACO are obliged to continuously exchange information on aircraft and flight activities relevant to establishing a common operational picture - "situational awareness" - especially related to SAR operations. It is also agreed to follow up on SAR incidents and the week's operational activities immediately after the incidents have happened in order to extract learning points from the incidents and to follow up on the learning points on monthly operational group meetings between JACO and Naviair.

The monthly operational group meetings between the chief of JACO's Joint Operations Center (CHJOC) and Naviair's chief Flight Information Center (FIC) are held by according the topic of the meetings, the identification of learning points from SAR incidents and incidents from daily cooperation. The purpose of the meetings is to ensure that the cooperation between JACO and Naviair related to the JRCC Greenland SAR responsibility is strengthened. Situationally, the Greenland Police and other relevant internal and external parties can participate in the meetings.

1.8. Organization of the duty

See the JRCC Greenland duty instruction.

1.9. Regulations and instructions

The Defense Command and the Joint Arctic Command are responsible for the Maritime and Air Rescue Service's regulations in Greenland.

CH JOC is responsible for preparing and maintaining Standing Operating Instructions (SOI) for the Sea Rescue Service in JRCC Greenland. NAVIAIR is involved in this work.

CH FIC is responsible for preparing and maintaining Standing Operating Instructions (SOI) for the Air Rescue Service in JRCC Greenland. JACO is involved in this work.

Naviar's participation in JACO daily / weekly briefings, in order to be updated on operations and the development of JRCC Greenland.

1.10. Security and classified information

During the watch, duty officer, sea, and duty officer, air, must be aware that the physical security rules and access regulations in the building are complied with, including that persons who are not approved for residence in JRCC Greenland will not be admitted. The duty officers must also be aware that classified material in JRCC Greenland is treated in a proper and safe manner.

Visitors to JACO buildings that also house JRCC, NAVIAIR and FIC must be registered and have handed in access / guest cards at the reception.

1.11. Modification of the collaboration instructions

This service agreement can be changed as needed.

Sign.

Sign.

Anna Eva Villefrance
Operations Director
Flight Information Services and AIS, Operations
NAVIAIR

Xxxxxx
Deputy Chief
ARCTIC COMMAND

5. COOPERATION AND PROCEDURES

5.1. GENERAL

The prerequisite for an efficient and appropriate implementation of search and rescue operations is that the principles previously described in SAR-Greenland, Vol. I are translated into a practical cooperation and a procedure organized according to Greenlandic conditions. In the following, the cooperation and the methods that normally apply during a typical search and rescue operation in Greenland are described and commented on.

The main principles of practical cooperation during search and rescue operations are:

- Common sense,
- A high level of information and
- Initiative.

The application of rules and procedures must not impede rapid and appropriate action.

5.1.1. SAR PROCESSES / PROCEDURES

In the following, the overall SAR processes / procedures used in relation to alerting, implementation, operation, termination and follow-up of a SAR that has been initiated at JRCC Greenland are visualized. The processes are constructed in the order outlined in FIG. 5-1.

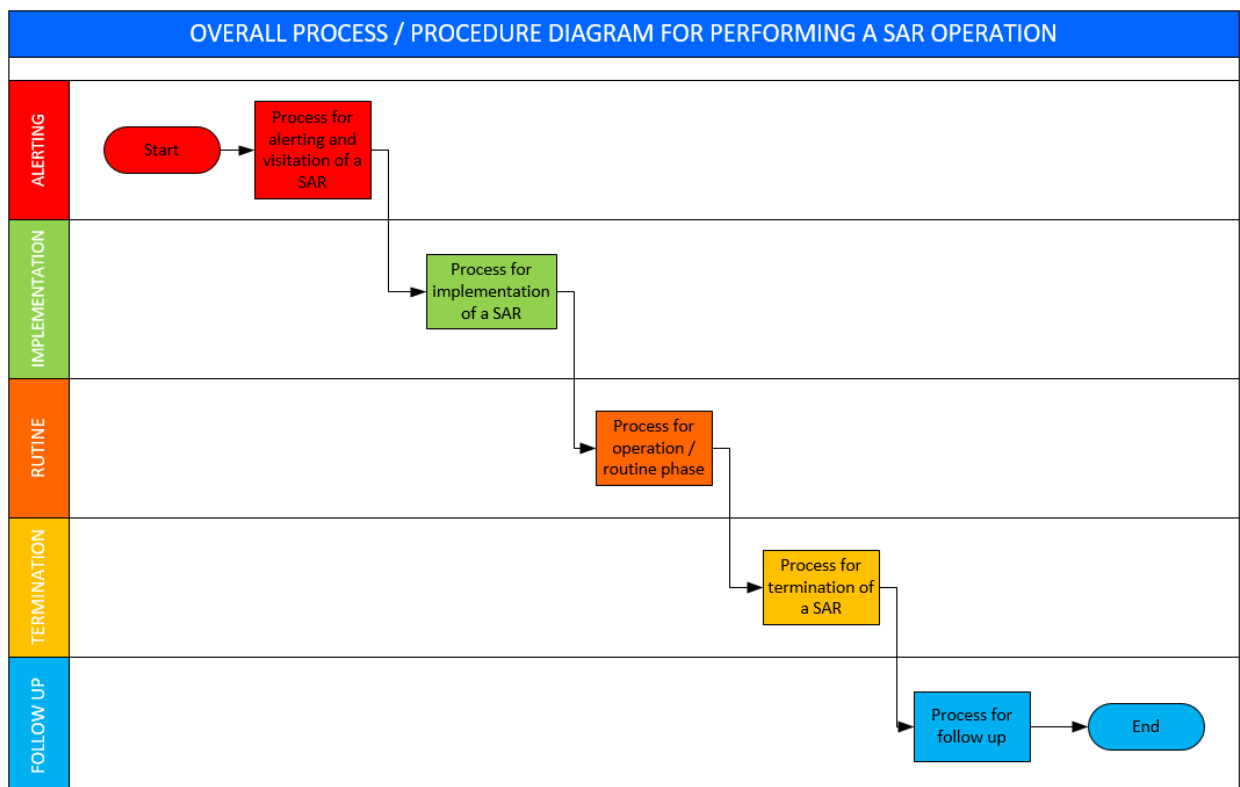


FIG. 5-1 SAR PROCESSES / PROCEDURES

5.2. ALERTING

SAR managers in Greenland are mainly alerted by:

- Persons who assume / assess that an accident has occurred.
- The person in an emergency situation, including electronic emergency signals,
- Aasiaat Radio,
- Witnesses to an accident,
- Foreign rescue centers,

The notifier's identity, residence and communication options must be maintained by the receiver of the alert and written in the log.

The alert should include information about:

- **WHERE** it has happened (position indications).
- **WHAT** has happened.
- **WHEN** the event occurred (time).
- **HOW** the situation is in general (supplementary information).
- **HOW MANY** are in an emergency situation.

5.2.1. PROCEDURE FOR ALERTING AND VISITATION OF A SAR.

In the following, the overall SAR processes / procedures used in relation to alerting and visitation in connection with a SAR initiated at JRCC Greenland are visualized. The processes are constructed in the order outlined in FIG. 5-2.

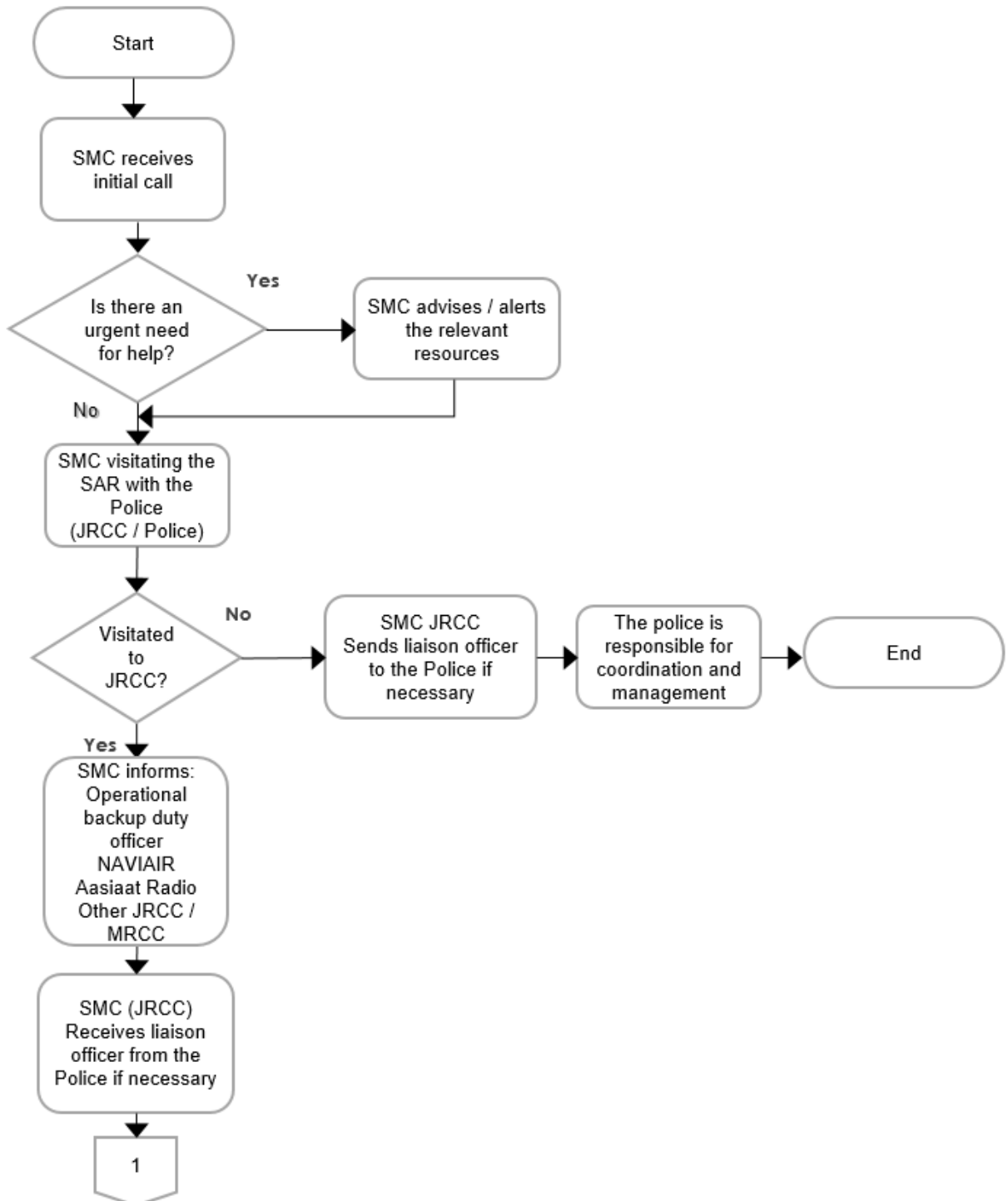


FIG. 5-2 Procedure for Alerting and Visitation of a SAR

5.3. INITIAL ACTION

Upon receipt of an alert, JRCC Greenland, in close cooperation with the Police, assesses whether the situation requires immediate action.

- who should be alerted.

Alerting must be made to JRCC Greenland when the notification concerns matters at sea or matters concerning aviation.

If the alert concerns all other matters, an alert must be made to the Police.

Immediate action is taken when the alert clearly states that human life is in immediate danger and that rapid action is necessary. Ship fires, plane crashes and drowning accidents are typical examples of this.

Further alerting at JRCC Greenland will follow immediately after the initial effort has been initiated.

In addition to initiating immediate action, the Police assist JRCC Greenland with situation reporting, including:

- Patrolling on land in the search area, where possible,
- Contact to relatives etc.,
- Activation of local, private resources and
- Dissemination of messages and reports.

Air traffic services and aerodromes are often the first link in the alert chain when critical situations around flight and aircraft accidents occur. The alert will usually be received by radio or as a visual observation. Local air traffic services and aerodromes will normally, if the critical situation is of a local nature, first take local action before JRCC Greenland (Naviair) is notified.

Naviair is the central Air Traffic Service Unit within Greenland's flight information region. All information about a critical situation that has occurred for an aircraft flying in this area is collected by Naviair, which forwards alerts and information to JRCC Greenland. The Police have the coordinating role on land, so the Police MUST always be notified as soon as possible. Cf. REFIL and Inatsisartut Act no. 14 of 26 May 2010.

When a critical situation arises or is expected to arise, Air Traffic Service and aerodromes will continue to provide necessary assistance to JRCC Greenland until the time when JRCC Greenland decides that assistance is no longer necessary.

If a Port Office is the first link in the alert chain when an incident or accident occurs in the area near or in a port, the Port Office must immediately forward the message to the Police, who then notify JRCC Greenland. In addition, the port office will take immediate action if it is clear from the report that human life is in immediate danger and that rapid rescue is necessary.

If units from the Danish Navy, rescue aircrafts or other state ships in the rescue organization are alerted first, they immediately forward the message to JRCC Greenland and initiate assistance. Communication is established to JRCC Greenland, and if an alert recipient is appointed to be the area manager, the necessary measures

are taken for this, including being able to forward messages. Initiated measures, intentions and observations, etc. reported immediately to JRCC Greenland.

If Aasiaat Radio is alerted first, the alert is immediately transmitted to JRCC Greenland and to the Greenland Police Duty Officer, and the necessary efforts are implemented. Furthermore, the implementation of plans and measures is prepared in accordance with the instructions of the SMC.

The cooperation in the initial phase of an operation mainly consists of disseminating information between JRCC Greenland and activated resources.

JRCC Greenland receives direct alerts or reports regarding incidents and accidents within and outside Greenland's rescue area. The direct messages typically include:

- Absences (overdue situations),
- Observations that are unusual,
- Ships requesting assistance,
- Alerts, or requests for assistance from other rescue centers and
- Electronic alerts.

5.4. SITUATION ASSESSMENT / IMPLEMENTATION

SAR managers in Greenland initiate search and rescue operations in situations where there is presumed to be a danger to human life and / or mobility.

SAR managers in Greenland initiate the search and rescue operation on the basis of received alerts and obtain further information from:

- The receiver of the alert or the person in danger
- What measures have already been taken,
- The conditions at the accident site,
- Number and identity of persons at risk,
- The Police regarding relatives, ownership, description and the circumstances on land, etc.
- Activated resources about status and weather conditions in the area,
- Foreign rescue centers on opportunities for assistance and weather conditions,
- Aasiaat Radio and Naviair regarding local resources and ships and aircrafts in the area that can assist.

The assessment of the situation takes place continuously and is crucial for the organization and execution of the operation. In this phase, the cooperation primarily involves the exchange of information.

Once the extent of the incident is recognized, a decision is made as to whether SAR officers in Greenland should continue to coordinate the entire operation, or whether parts of the management can be transferred to a foreign rescue center or designated OSC.

If the coordination is transferred to a foreign rescue center, all participants in the operation are informed via the normal reporting routes. The handover must be confirmed by the foreign rescue center.

JRCC Greenland has the coordinating management and decides the actions to be taken and informs about the intentions for the implementation of the operation, including

- delimitation of search area,
- information about searched persons,

- position information,
- use of participating rescue units and elements, including assistance from contributing foreign rescue centers,
- designation of the OSC / ACO,
- communication plan,
- meteorological conditions.

The participants in the operation collaborate on the implementation of the plan prepared by JRCC Greenland by exchanging observation reports, situation reports and dissemination of intentions and recommendations. JRCC Greenland continuously assesses the situation based on information received, and adjusts the plan for the operation accordingly.

5.4.1. PROCEDURE FOR IMPLEMENTATION OF A SAR

In the following, the overall SAR processes / procedures used in relation to the implementation of a SAR by the SAR manager in Greenland are visualized. The processes are constructed in the order outlined in FIG. 5-3 and FIG. 5-4.

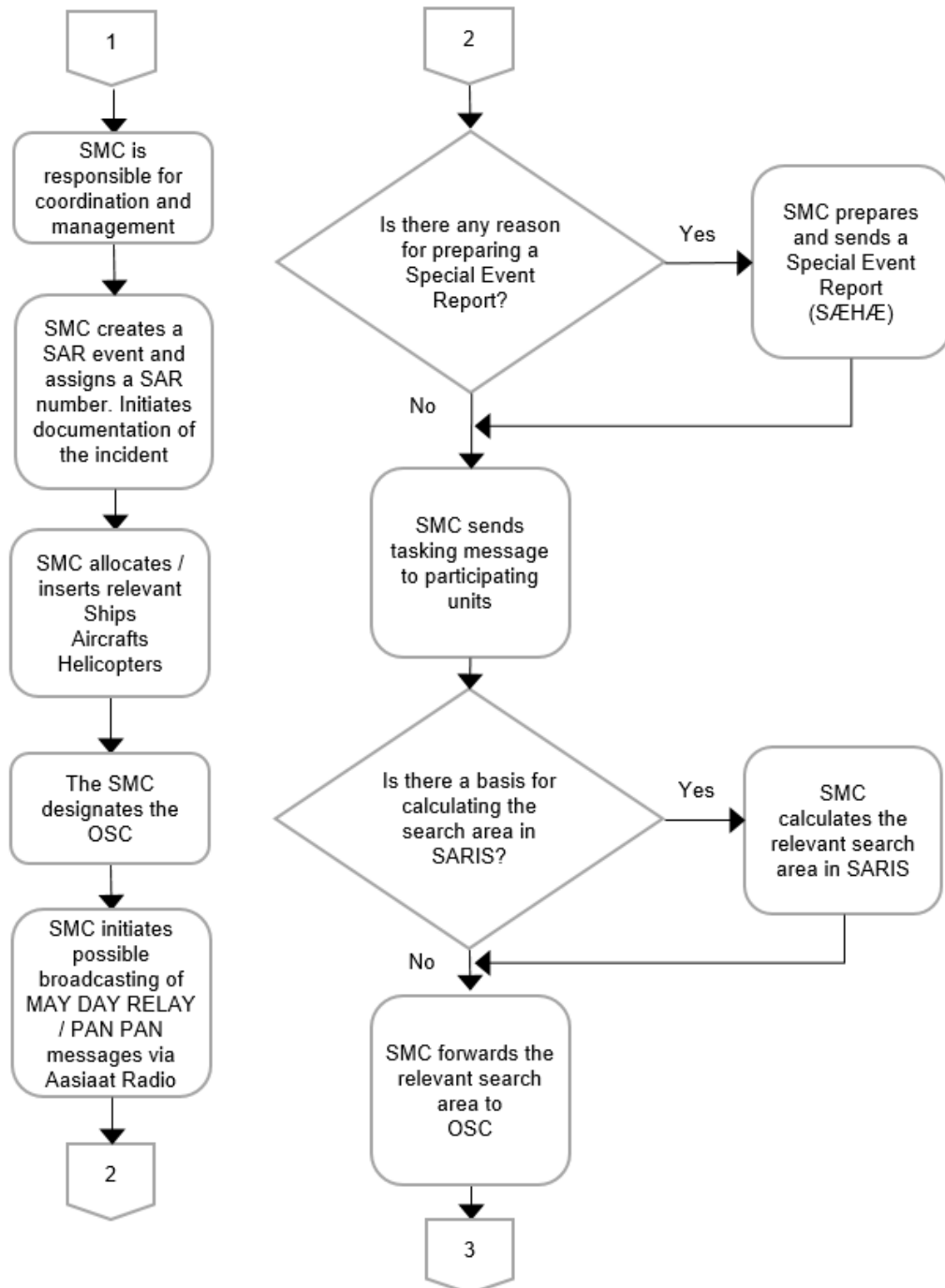


FIG. 5-3 SAR implementation procedure

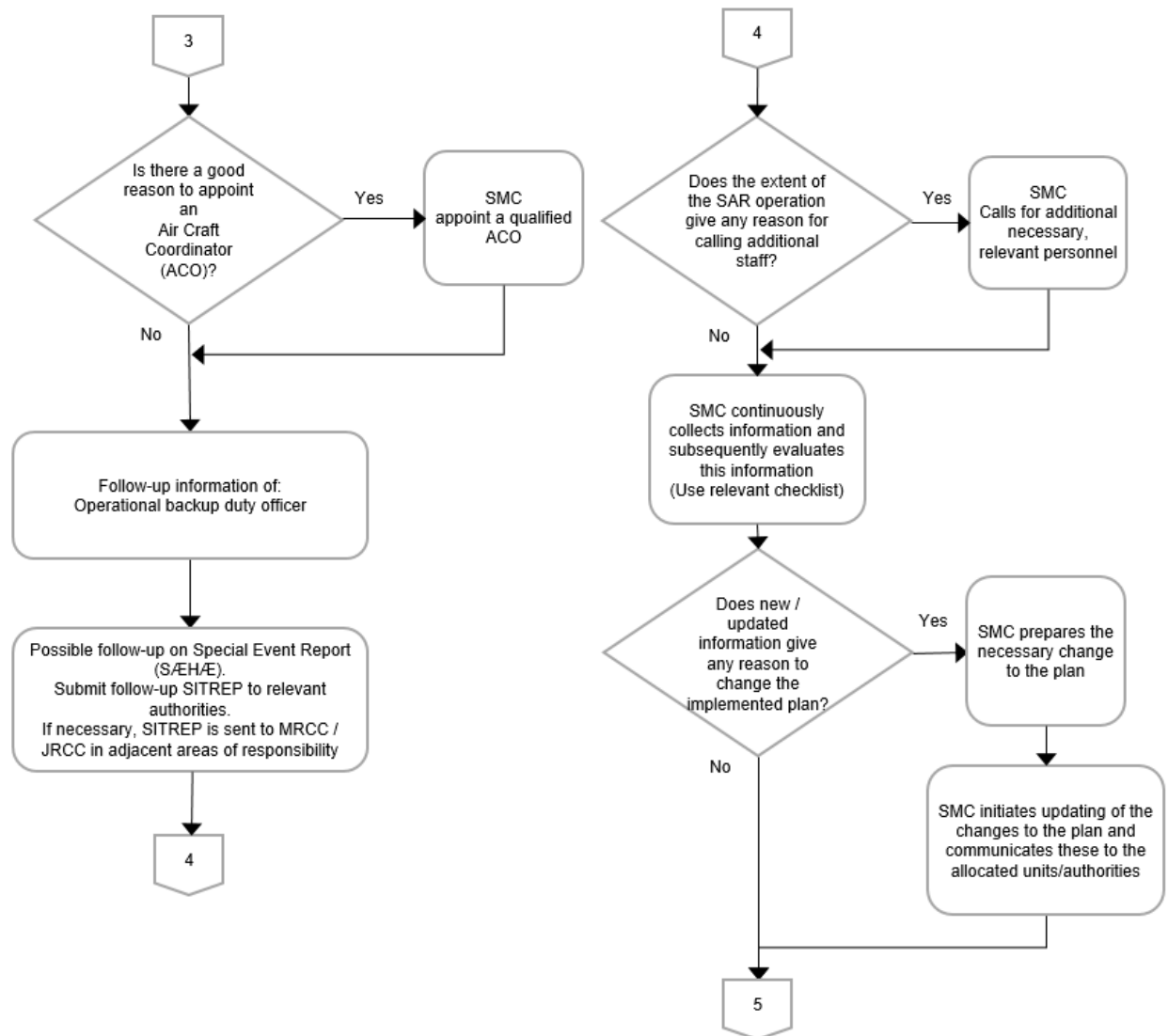


FIG. 5-4 SAR implementation procedure

5.5. FURTHER COOPERATION

5.5.1. OSC FUNCTION

The OSC function is usually handled by a ship or aircraft. The task and principles for designation of the function as OSC are discussed in SAR Greenland, Vol. I, Chapter 2. The cooperation between the participating units begins as early as possible before arrival in the operating area.

If the functions are handled by OSC, these consist of

- control the movements of the rescue units,
- provide the necessary communication
- carry out search and rescue operations in accordance with directives from JRCC Greenland or the Police,
- continuously adjust the search and rescue task according to the conditions on site,
- report regularly to JRCC Greenland or the Police on all matters of importance, including weather conditions, whether results have been achieved, measures implemented, plans, intentions and recommendations,

- request additional assistance or propose the release of rescue units that are no longer needed,
- report on the number, condition, and distribution of the rescued in the rescue units (keep track of all persons rescued)

The OSC function in the Greenland search and rescue area is primarily managed by Navy ships and the Air Force rescue aircrafts. If necessary, warships, military aircrafts, civilian ships or aircrafts of any nationality may be designated as OSC.

5.5.2. INCIDENT COORDINATOR POLICE (ISL-PO)

During search and rescue operations inland and along the coastline, the effort ashore will be handled by the incident coordinator from the Police (ISL-PO). ISL-PO is located on land in the immediate vicinity of the local area of operation and / or operation. The function as incident coordinator Police is initiated immediately after tasking.

The ISL-PO duties includes (Cf. REFIL and Inatsisartut Act no.14 of 26 May 2010.):

- Being in charge of the local communication between activated forces on land,
- Undertaking the deployment of local resources and in cooperation with OSC coordinate these resources with allocated / available resources on land, at sea or in the air,
- Advising JRCC Greenland on special matters that have an impact on the conduct of the rescue effort and
- Coordinating fire brigade and ambulance services so that survivors and injured people can be treated quickly.

Often there will be local plans that specify the incident coordinator Police duties and responsibilities, specifying the local cooperation and operational routines and procedures.

5.5.3. PROCEDURE FOR THE OPERATION / ROUTINE PHASE

In the following, the overall SAR processes / procedures used in relation to the operation and routine phase in connection with a SAR initiated by SAR managers in Greenland are visualized. The processes are constructed in the order outlined in FIG. 5-5.

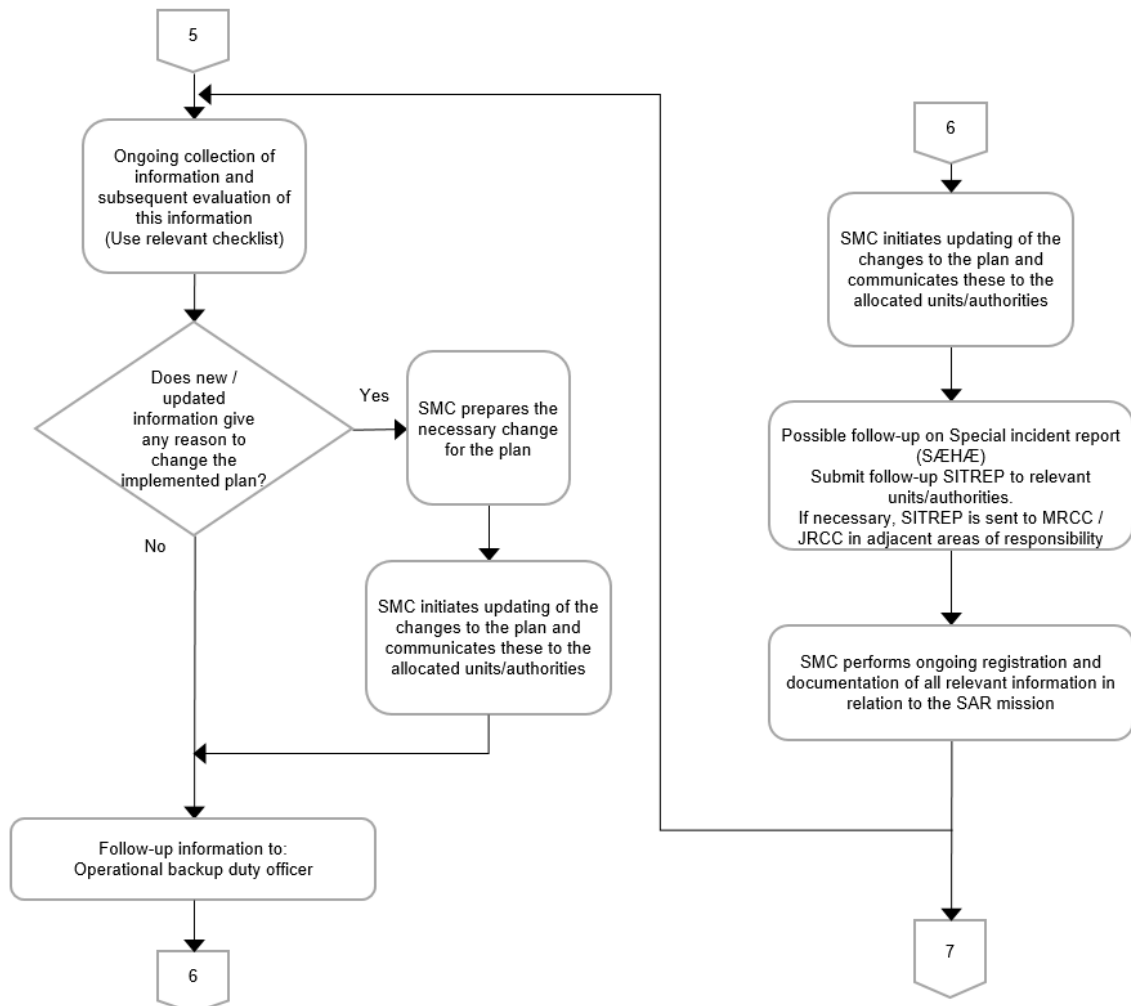


FIG. 5-5 Procedure for the operation / routine phase

5.6. TERMINATION OF SAR OPERATIONS

The decision to terminate a SAR operation is the responsibility of the SMC.

5.6.1. SEARCH OPERATIONS

The SMC must continue the search until it is assessed that the probability of rescuing survivors is no longer present.

Factors that are included in the considerations are i.e.

- The likelihood that any survivors are, or have been, in the search area,
- The probability that the searched object can be located,
- The probability that the searched person is still alive under the given circumstances and weather conditions.

The SMC regularly collects information regarding the above mentioned factors from the OSC, incident coordinators and / or search participants.

The SMC terminates or suspends the search temporarily based on the completed search and assessment and also advice and recommendations from OSC / ISL-PO. Everyone involved is informed of the decision.

5.6.2. RESCUE OPERATIONS

When the SMC considers that a rescue operation has been completed, OSC and / or incident coordinators are notified. Then the SMC terminates the operation and informs all participants.

The decision is based on information from participants, including OSC and / or incident coordinators as well as the SMC's overall assessment of the effort.

OSC and / or incident coordinators also inform the SMC about the following:

- Name, call sign and destination of ships and / or aircrafts with survivors, injured or dead persons on board,
- The physical condition of the survivors and the need for medical or hospital assistance,
- The condition of the casualty (ship/aircraft), including whether obstacles have arisen for shipping or aviation that can be of any safety aspect for shipping and aviation in the area of the casualty.

5.6.3. PROCESS FOR TERMINATION OF A SAR.

In the following, the overall SAR processes / procedures used in relation to the termination of a SAR initiated by the SMC are visualized. The processes are constructed in the order outlined in FIG. 5-6.

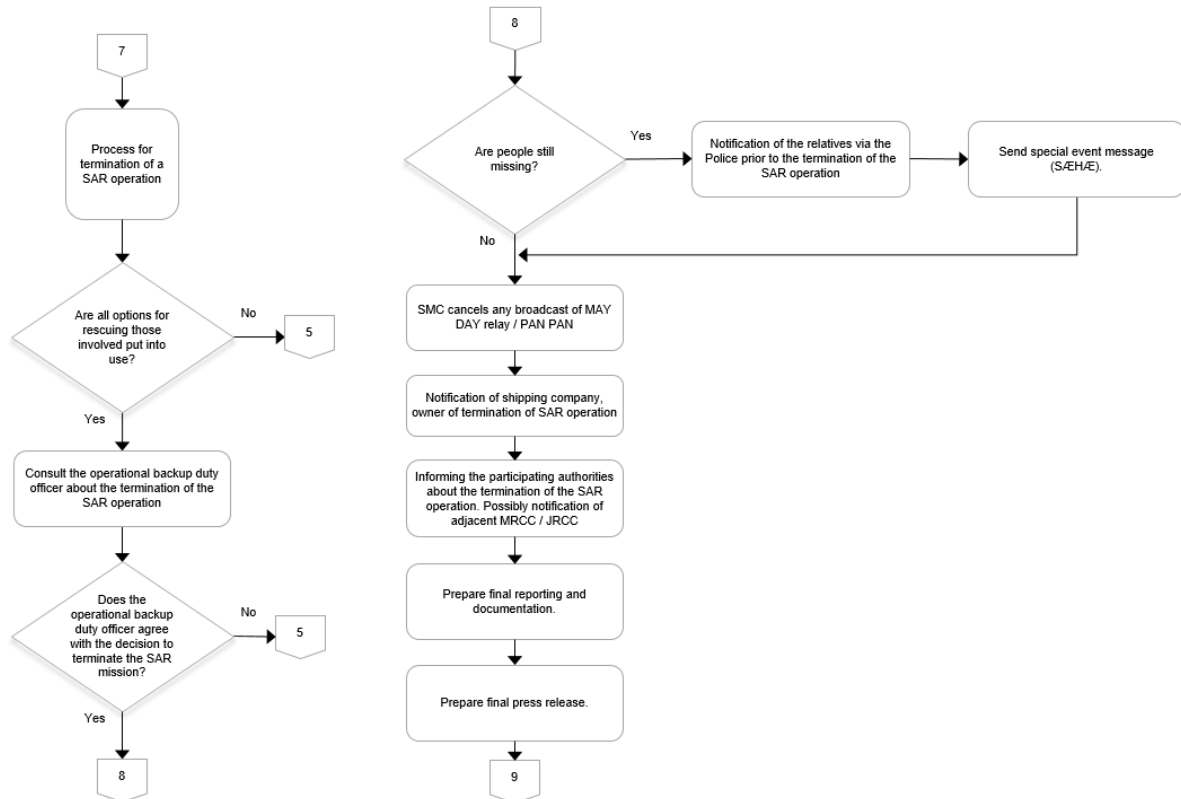


FIG. 5-6 SAR termination process

5.7. COOPERATION AND PROCEDURES

5.7.1. CHECKLISTS

The various elements of the rescue service are expected to cooperate with several parties, establish and use checklists to ensure that the most important functions are performed as appropriately as possible. Checklists are forms containing lists of i.e. the actions the rescue service can expect carried out or initiated and which must be carried out quickly and safely.

The lists include i.e. a number of names of institutions and persons who, from experience, can assist in the conduct of operations or who must be informed. The lists may also contain columns for noting when a given action has been performed.

Information that may facilitate the conduct of a SAR operation (addresses, telephone and telex numbers, e-mail addresses, (INMARSAT-C), material information, etc.) must appear in the lists or other available material.

Each element of the rescue service should prepare its own checklists, among other things with a background in addition to SAR Greenland Vol. II and keep these up to date.

5.7.2. JOURNALS (LOGS)

The rescue service must, as far as possible, keep a detailed journal (diary, log, report form, etc.) of operations in which they participate. The purpose of record keeping is to keep the SMC's decision-making during the operation and also to enable the re-creation of the SAR case in details to be able to analyze the overall operation and the possibility of extracting any learning points for future use.

The journal must i.e. contain:

- Summary of situation assessments and decisions made
- Time and position of all significant observations or events,
- Arrival and departure times for rescue units,
- Implementation of measures and their results,
- Summary of telephone and radio telephony correspondence,
- Transmission and receiving times for written correspondence,
- Search areas and routes, and
- Information about survivors, injured, deceased, etc.

The journal is enclosed with a copy of all prepared sketches, posters, pictures and written correspondence. Often there will be local plans that specify how records should be kept.

5.7.3. STANDARD FORMATS

The authorities use the standardized formats, published by the IMO and ICAO, for the exchange of information and reporting, etc. during international operations. IAMSAR SITREP format appears from SAR Greenland, Vol. I, Chapter 13. Detailed information regarding these formats can be found in IAMSAR Vol. III, Appendix D.

5.7.4. RADIO MEDICAL

Greenland, like a number of other countries, has established an agreement under which medical advice can be provided to seafarers and others. The agreement is called RADIO MEDICAL.

In the event of illness or accident on board ships and offshore installations, etc., where medical assistance is not available, direct connection to a doctor on duty at a designated hospital can be established via coastal radio stations or satellite communication. The master can thus receive advice and guidance on the treatment of the described symptoms or injuries.

Procedures for obtaining medical advice include described in "Radio Stations in Ships, Handbook", the Danish Maritime Authority's Medical Book and internationally in the IAMSAR manuals as well as in the ITU List of Radio stations and Special Service Stations.

5.7.5. MEDICAL EVACUATIONS

Requests from ships and offshore installations for the evacuation of persons who are deemed to need medical treatment are forwarded to JRCC Greenland, which decides on the implementation and evacuation method.

The decision is based on the following factors such as

- The nature of the injury / illness and the presumed need for medical treatment,

- The need for special consideration in the transfer and transport of the patient and
- The weather conditions.
- The medical assessment and recommendation

If no medical assessment has been made and there is any doubt about the patient's condition, JRCC Greenland can refer to the RADIO MEDICAL agreement, whose advice can be decisive for the further processing of the request.

If, from the information on the patient, it is clear that the condition is critical and an evacuation is justifiable, evacuation is initiated in the most appropriate manner.

5.7.6. EMERGENCY PREVENTATIVE OPERATIONS

The circumstances of an accident or incident may initially lead to the assessment that there is no immediate or imminent danger to human life, but at the same time be of such a nature that the situation may develop into an actual emergency.

The SMC may, in knowledge of such a situation, conclude that a number of associated factors have or may have an influence, so that the situation changes in an unfavorable direction and in a way that subsequently necessitates the rescue service's efforts. The factors are often weather conditions or related to condition of the equipment or personnel.

In such cases, the SMC can implement preventive measures. In that case, JRCC Greenland will decide to implement an emergency prevention operation and inform everyone involved.

5.8. REPORTING AND FOLLOW-UP ACTION

5.8.1. GENERAL

In relation to SAR operations, the following overall reports are prepared. Either during the actual conduct of the SAR operation or as a conclusion and follow-up of the SAR mission.

The overall reports that are prepared are:

- SITREP
- SARRAP
- MEDEVAC
- Special event notifications. (Særlig hændelsesmeddelelser). (SÆHÆ)
- Press releases (JACO is responsible for press contact if they are SMC. The Police is responsible for press contact if they are SMC.)
- The Maritime and Aviation Rescue Council's annual report on the sea and air rescue service in Greenland

5.8.2. SITREP

SITREP (Situation report). Status report, prepared in accordance with a standard format of the International Maritime Organization (IMO). The format is used internationally. The purpose of a SITREP is to inform subordinate authorities and partners about the ongoing SAR operation. Provides a brief status of the situation as well as a description of the future plans for the operation. The SITREP format is also used to report on the status of the situation from the responsible On Scene Coordinator (OSC) to the SMC.

SITREP will also have to be submitted by the ACO (Aircraft Coordinator) if one has been designated and deployed in a SAR mission. SITREP is sent in those situations where the issuer finds it useful. For example, in the event of changes in the situation and to provide information about new important information.

5.8.3. SARAP

SARAP (SAR report). Reporting that summarizes the most important details about the SAR operation. Initial call, units involved, course of events, participating units, time used, weather information and a summary chronological description of the process. SARRAP is subsequently used as a background for extracting statistical information to be used in connection with the preparation of the Shipping and Aviation Rescue Council's annual report on the sea and air rescue service in Greenland.

5.8.4. MEDEVAC

MEDEVAC covers the operation of transporting the ill or injured person by helicopter / ship to a hospital - or an airport for onward transport to hospital. In connection with the execution of MEDEVAC, a final report is prepared, which contains the general information about the details of the MEDEVAC. The reporting is also used as statistical material in connection with the preparation of the Maritime and Aviation Rescue Council's annual report on the sea and air rescue service in Greenland.

5.8.5. SPECIAL EVENT NOTIFICATION

Special event notification is prepared as needed. Prepared in those situations where it is deemed necessary to inform upwards in the military hierarchy about incidents that could gain subsequent interest from the public. It could be major accidents with great media interest, etc. Drafting the incident message has the overall purpose of notifying upwards in the system so that this important information is not heard through the press first.

5.8.6. PRESS RELEASES

Press releases are issued, as a general rule, to the public upon completion of the SAR operation. When dealing with major SAR operations, there will be necessary to inform the public during the SAR operation. In this situation, it will be necessary to convene the Press Officer (PAO) in order to prepare and release press information to the public.

5.8.7. ANNUAL REPORT OF THE SHIPPING AND AVIATION RESCUE COUNCIL FOR THE SEA AND AIR RESCUE SERVICE IN GREENLAND

Once a year, a comprehensive report is prepared for the sea and air rescue service in Greenland.

The report is based on the Arctic Contact Group for Rescue Services in the Arctic' (OKA) reporting for the sea and air rescue service in Greenland. Details in this report is coordinated with the Greenland Police and other authorities in the Arctic Operational Contact Group and contains i.e. a statistical overview of the activities of the sea and air rescue service in the past year, including a comparison with statistics from previous years. The report also describes the degree of fulfillment of the Shipping and Aviation Rescue Council's goal and result requirements for the sea and air rescue service in Greenland.

5.8.8. COLLECTION OF EXPERIENCE / LEARNING

To develop and streamline the sea and air rescue service in Greenland, a procedure has been initiated for collecting information from the SARRAP and MEDEVAC reports. The information includes the following:

Evaluation:

- Lessons identified
- Lessons learned
- Best practice

The evaluation is prepared by the officer on duty during the preparation of SARAP and MEDEVAC reports, in the situations where it is considered to be beneficial for the development and efficiency of the sea and air rescue service in Greenland. There is a coordinated exchange of experience between involved partners: (Minimum exchange of reports within 24-72 hours after completion of the SAR operation).

5.8.9. PROCESS FOR FOLLOW-UP ON A SAR

In the following, the overall SAR processes / procedures used in relation to follow-up on a SAR initiated at JRCC Greenland are visualized. The processes are constructed in the order outlined in FIG. 5-7.

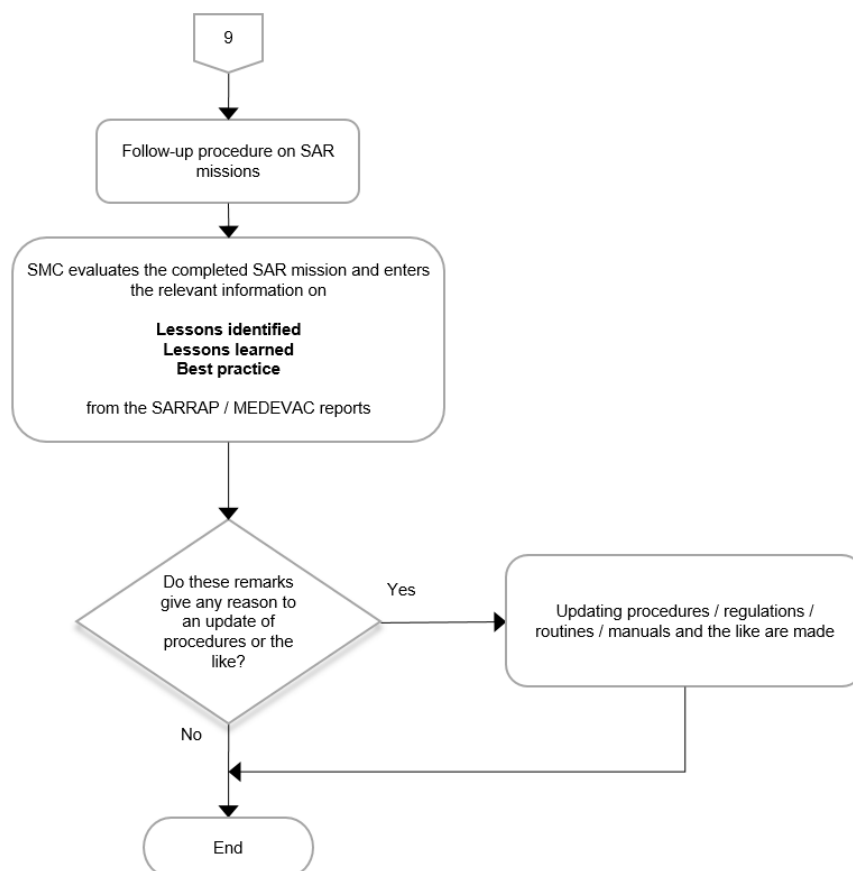


FIG. 5-7 Process for follow-up on a SAR

5.9. MASS RESCUE OPERATION (MRO). MASS EVACUATION

5.9.1. INTRODUCTION

The International Maritime Organization (IMO) has defined Rescue and Mass Rescue Operation (MRO) as follows:

Rescue is the operation performed to pick up people in danger, take care of their health or other needs and transfer them to a safe place.

A Mass Rescue Operation is characterized by the need for immediate response to a large number of people in danger, and that the capacities that one normally has access to in connection with search and rescue operations are insufficient.

As stated in the second definition, a MRO will require the SAR authorities to put in place extraordinary measures to solve the situation. If there may be something like a "routine SAR", then a MRO will be outside the normal routine. The capacities normally available are insufficient. These capacities must therefore be strengthened in a MRO.

This is obviously a major challenge - and it is a challenge for everyone involved in the SAR organization, not just the government agencies responsible for planning and coordination.

The scale and complexity of a mass rescue operation is part of the challenge. The operation will be larger and more difficult than the routine SAR operation. A large number of people are in distress and will perish if SAR services cannot rescue them.

Part of the challenge also lies in the rarity of such events. The SAR professional can go through an entire career without getting involved in a MRO - and even if he / she is involved in one, there can be many variants of MRO (Ferry Disasters, Air Disasters, Land Disasters, etc.). A MRO is such a rare undertaking that the authorities cannot justify the maintenance of sufficient resources to deal with it 'routinely' and thus have to maintain such large contingency measures in everyday life. Areas of increased risk can be identified - large passenger ferry routes, for example - but the risk usually remains low despite high consequence in the event of an accident.

It's not just a matter of physical resources - sufficient staff and SAR units to handle such an operation. The rarity and variability of primary MROs means that response personnel do not become experts in them. Skills developed in "routine" SARs still have their place in the MRO context, but there are additional requirements for handling a MRO. Dealing with a MRO really means more than just working a little harder than we usually do!

Although the primary MRO can vary widely in detail, common factors can still be identified - and these factors can be studied to help preparation. Through planning and training based on experience from previous disasters, have proven to be the best measures.

The first part of the challenge is to recognize the risk and the need to prepare to deal with it, however unlikely it may seem. This means that sufficient resources must be allocated for planning, education and training.

5.9.2. SAR AUTHORITIES AND CAPACITIES

Parent SAR authorities included in a MRO

The following authorities are covered:

- The SAR CO-ORDINATOR - the planner at national or regional level responsible for making plans so that if a MRO is needed, it can be carried out effectively
- MANAGERS and OPERATORS of potential accident ships, aircraft, offshore installations, etc. . coordinating the SAR operation in an emergency on their own unit
- SAR MISSION CO-ORDINATOR (SMC) - responsible for organizing SAR response to incident
- Designated SAR UNITS - responsible for ensuring that their units, whether air, water or land, are ready to play their role
- THE MANAGERS OF 'SUPPLEMENTARY FACILITIES' such as ships at or near the incident - must be ready to assist in accordance with their obligations under international rules
- ON SCENE CO-ORDINATOR (OSC) - responsible for carrying out the SAR mission coordinates the plan in force on the scene of the incident: a complex task in a mass rescue operation
- AIR CRAFT CO-ORDINATOR (ACO) - responsible for the safety and optimal use of the flying units, which can be used in unusually large numbers and in special circumstances
- AUTHORITIES included in the land-based emergency preparedness - which must be ready to receive those involved when they are brought ashore using the maritime resources
- THE SUPERIOR AUTHORITIES for all these entities are responsible for ensuring that they are, as far as possible, prepared for this type of emergency; Last but not least, each individual in each team, or crew supporting SAR authorities as mentioned above. Success depends on each INDIVIDUAL Planner and actor understanding the “big MRO picture” and their own place in it. Everyone should, as far as possible, have "co-ownership" of the prepared MRO plan.

5.9.3. PLANNING FOR A MRO AND SETTING UP CAPACITIES

The definition of a MRO is based on the idea that the capacities normally available to the individual SAR authorities are insufficient. This will be the case in terms of the number and capacity of the designated SAR resources. SAR authorities cannot afford to maintain a sufficient number of rescue units on standby to take care of the thousands of people who, for example, have to be evacuated from a large passenger ship. An important part of MRO planning is to plan how the “gap” that arises as a result of the available resources and the resources that are actually needed is filled in as sufficient as possible, in order to solve a MRO satisfactorily.

However, the inadequacy of the lack of resources and capacities can be reduced by preparing personnel for a MRO. MRO plans can and should be prepared, involved personnel must be trained in the execution of the plan and the plan tested by exercises of various kinds.

People often associate accidents on large passenger ships, incidents that have caught the world's attention and have led to significant administrative reactions from, for example, the IMO with the concept of mass rescue operations. But there are many other situations where a large number of people may be in danger in a maritime context. Passenger ship accidents are actually a significant source of primary MRO. Many lives are lost each year in passenger ship accidents, most often in domestic ferries in poor countries. These disasters are not as high-profile as one involving a cruise ship or a large modern ferry; but they are just as important. Improvements in the safety of the operation of such ships are often necessary - preventing a MRO.

5.9.4. EMERGENCY PLAN (MASS RESCUE OPERATION)

Based on the above described on Mass Rescue Operations, there is a need for an immediate implementation of comprehensive planning, across all involved authorities involved in the search and rescue service in Greenland. The Arctic Operational Contact Group (OKA), set up by the Sea Rescue and Air Rescue Service's Rescue Council (SLR), has the ambition of preparing a joint contingency plan for Mass Rescue Operations in Greenland. A plan that all responsible and involved actors in Greenland can take ownership of.

A. COMMUNICATION

Annexes:

1. Guarding the emergency frequencies of aviation.
2. Aasiaat Radio VHF and MF coverage.
3. INMARSAT coverage.
4. Call signals used in JRCC Greenland's area of responsibility

1. GENERAL

The communication in relation with SAR is based on the coastal radio station, the military communication center in the Arctic Command (COMMCEN Greenland), aviation radio stations as well as existing military and civilian telephone and satellite lines of communication.

2. ORGANIZATION

2.1. COASTAL RADIO SERVICES / COMMCEN GREENLAND

Aasiaat Radio is responsible for the coastal radio service in Greenland as described in section. 13.2.1

2.2. AVIATION RADIO SERVICE

To operate domestic air traffic in Greenland, an aviation radio network (air / ground network, A / G network) has been established. The network is operated by FIC Greenland. The location and frequencies of the stations, etc. are listed in appendix 1. FIC Greenland is staffed 24 hours a day.

The airports in Greenland and FIC Greenland communicate internally via an AFTN circuit, fax and telephone. Opening hours for Greenlandic airports are stated in AIP Greenland, published by AIM NAVIAIR.

The emergency frequency 121.5 MHz is guarded by the tower in Kangerlussuaq, outside the opening hours the frequency is guarded by FIC Greenland. Furthermore, Thule Air Base guards the frequency.

AIRPORT	AFIS- /TOWER	APPROACH
Nuuk, Narsarsuaq, Ilulissat	119,1 MHz	
Maniitsoq, Aasiaat	118,5 MHz	
Qaarsut	119,5 MHz	
Kangerlussuaq	126,2 MHz	118,3 MHz
Kulusuk, Nerlerit Inaat, Sisimiut, Upernavik, Qaanaaq og manned heliports	118,1 MHz	

3. PROCEDURES

During SAR operations, the normal communications organization will continue to operate.

The JRCC / SRC will communicate to military OSC / SRUs via the Armed Forces' normal communications network or mobile phone. Civilian SRUs are usually contacted via CIVIL MARITIME VHF or mobile phone.

OSC establish communication using allocated SAR frequencies to the surface units and aircraft participating in the search and rescue operation.

OSC may designate participating units to guard different emergency frequencies.

4. RADIO COMMUNICATION DURING SEARCH AND RESCUE OPERATIONS IN RELATION TO DISTRESSED AIRCRAFT

Air traffic service units listed in Annex 1 to this Appendix must, in addition to normal operating frequencies, continuously monitor the emergency frequencies of aviation within their respective opening hours. Reference is made to the latest edition of AIP GREENLAND.

Air traffic service units are:

- Tower control / approach control unit.
- Area Control Center (ACC).
- Aerodrome Flight Information Service (AFIS).

5. RADIO COMMUNICATION DURING SEARCH AND RESCUE OPERATIONS IN RELATION TO WITH SHIPS IN DISTRESS AND DISTRESSED FACILITIES AT SEA

5.1. AASIAAT RADIO

Aasiaat Radio monitors the maritime emergency and safety frequencies around the clock and usually handles the situation in relation to ordinary shipping with regard to alerting and ongoing exchange of information in critical situations at sea.

VHF - Very High Frequency - is installed in many recreational boats, commercial boats and dinghies.

On larger ships, several VHF systems have often been installed, which are partly used for the internal communication on board, and partly as part of the ship's safety system. VHF radio is available in several different versions:

- As a permanent installation in a recreational craft or a commercial boat, the range will typically be 10-20 nautical miles.
- Like a handheld radio for use in dinghies, the range is somewhat smaller - typically 5-10 nautical miles.

On larger ships where the antenna has the opportunity to get higher in the air, the range will be 20-30 nautical miles.

In fjords, coves and along mountains and ice edges, you can experience areas with no or uncertain VHF coverage.

If you have VHF installed in the boat, you can get in touch with Aasiaat Radio and nearby vessels. That is why the VHF radio stands out in relation to, for example, a mobile phone.

Aasiaat Radio has VHF stations located at numerous high points along the coast. The location often coincides with a radio chain station, so you use the resources that are already available.

The location gives Aasiaat Radio a much better range than usual for VHF. You will often find that Aasiaat Radio covers large parts of a fjord area, such as Disko Bay or Godthåbsfjorden.

In addition to the fact that at each VHF location there is a work channel available, guarded around the clock, there is also the emergency traffic channel (channel 16), guarded by the coastal radio station.

DSC - Digital Selective Calling - is basically a calling system under GMDSS. Each call consists of a packet of digitized information with one of four priorities:

- Distress
- Urgency
- Safety or
- Routine

The messages can be transmitted to 'All stations', to a single station, or to a group of stations using the special MMSI (Maritime Mobile Selective Identity) number. Emergency messages are transmitted automatically to all stations. In addition to MMSI, different information can be attached to the call. For example, a message regarding Distress will contain the following information:

- Ship identity (MMSI)
- Time of transmission
- What is the reason to transmit the message
- Position of the ship

When the ship is equipped with DSC equipment, the ship's radio operator must ensure that he is updated on the procedures on how to prepare transmissions of DSC messages. Ships regularly test their DSC equipment on the 2187.5 kHz frequency with the nearest coastal radio station. The call is made as an 'Individual' call with the priority 'Safety'.

Digital Selective Calling - is technology found in many new VHF radios. If you have connected GPS to a VHF DSC radio, you will be able to make an emergency call only with the touch of a button. The International Maritime Organization (IMO) has postponed plans to end the guarding of VHF channel 16. Therefore, VHF DSC will not be introduced by Aasiaat Radio, nor will there be a requirement for VHF DSC equipment for smaller ships.

An emergency call on VHF DSC in Greenlandic waters will therefore so far only be guarded by other vessels with VHF DSC installed.

VHF DSC radios are basically available in 2 different versions:

- Class A equipment allows VHF DSC emergency, emergency and safety calls as well as regular calls to / from land and other vessels.

A Class A VHF DSC is more expensive as there are 2 receiver systems. One receiver system is always tuned to channel 70.

- Class D equipment allows VHF DSC emergency, emergency and safety calls as well as regular calls to / from land and other vessels.

A Class D VHF DSC is cheaper as it does not have a built-in receiver dedicated specifically to channel 70.

In addition, low cost VHF DSC systems are:

- Class F equipment allows VHF DSC to send emergency, emergency and safety calls.

However, the equipment does not allow emergency, emergency and safety calls, calls from land or other vessels broadcast on DSC channel 70.

MMSI number for Aasiaat Radio is 00 331 3000

Note that ships that have not connected GPS to the DSC equipment should update the position at least one time on each watch.

An overview of VHF transmitting and receiving channels for Aasiaat Radio is shown in Annex 2.

5.2. GENERAL ABOUT FREQUENCIES AND MARITIME RADIO COMMUNICATION

MF - Medium Frequency - is radio communication on AM-SSB (Amplitude modulation - Single Side Band) in the frequency range 300-3000kHz.

MF is primarily used as a system to communicate between large vessels and coastal radio stations or other land stations.

The range is limited to approx. 300 nautical miles.

Nearly all coastal radio stations worldwide cover MF.

Aasiaat Radio has a number of remote-controlled medium-wave radio stations in almost all major cities in Greenland.

Aasiaat Radio has also introduced DSC. This has meant the introduction of a GMDSS A2 coverage area for Greenland.

The A2 area broadly covers the coastline from north of Upernavik to the coast north of Tasiilaq at a distance of up to approx. 300 nautical miles from the coast.

An overview of MF transmitting and receiving channels for Aasiaat Radio is shown in Annex 2.

HF - High Frequency - is radio communication on AM-SSB (Amplitude modulation & Single Side Band) in the frequency range 3-30MHz.

HF is a system for communication between vessels and between vessels and coastal radio stations or other land stations.

- It is used by several large ships in the area of Greenland and throughout the world.
- The range of HF is in theory the whole earth.

HF is covered by many coastal radio stations all over the world.

In 1992, Aasiaat radio opened a HF radio station. In Qeqertarsuaq and Aasiaat, transmitters are located which are capable of exchanging telephony with ships over long distances.

The HF channels are guarded around the clock.

It is possible to make telephone calls, send telegrams, and obtain weather information and so on at the same low prices as on MF and VHF telephony.

An overview of HF working channels for Aasiaat Radio is shown in Annex 2.

5.3. COMMUNICATION VIA INMARSAT MARITIME SATELLITE SERVICES.

INMARSAT

In GMDSS, the INMARSAT system is an emergency and safety system that covers the globe between approx. 76° north latitude and approx. 76° south latitude.

The range is limited by INMARSAT's geostationary satellites.

There is a wide range of ship ground stations and ground earth stations to cover the needs for shipping communication.

However, the INMARSAT system can also be used commercially for calls and telegrams.

You can find further information about INMARSAT's role in GMDSS on INMARSAT's website: www.inmarsat.com.

Communication between ships equipped with transmission facilities via INMARSAT maritime satellite services and destinations ashore may also be conducted via ground stations operating in these services. INMARSAT's coverage area is shown in Annex 3.

5.4. SPECIFIC FREQUENCIES FOR RADIO COMMUNICATION IN CONNECTION WITH ALERTING AND SEARCH AND RESCUE OPERATIONS

Alarming must be done by emergency call with digital selective call (DSC) on:

- 2187.5 kHz
- 156.525 MHz (channel 70)
or alternatively with radio telephony (voice) on the frequency:
- 156,800 MHz (VHF channel 16)
and well as via INMARSAT's maritime satellite services.

Subsequent radio communications in connection with search and rescue operations usually take place on one or more of the following frequencies:

2182 kHz (telephony)

VHF channel 16 (telephony) as well as via INMARSAT's maritime satellite services.

For on-scene communication limited to VHF communication between mobile units, the frequency 156,300 MHz (VHF channel 6) can also be used.

6. RECEPTION AND POSITION DETERMINATION OF SIGNALS FROM EMERGENCY RADIO TRANSMITTERS

6.1. 406 MHZ EMERGENCY RADIO TRANSMITTERS

EPIRBs

GMDSS, requirements for a number of different emergency radio transmitters depend on the sea area the ship is sailing on and the ship's size, ships type and manning.

In A3 sea areas, so-called INMARSAT EPIRBs are used, which are capable of automatically transmitting the ship's identity and position. In the new versions, INMARSAT EPIRBs are equipped with a built-in GPS receiver.

In all sea areas, you can use so-called COSPAS / SARSAT EPIRBs, which are based on a Russian / American collaboration on satellites that orbit the earth polarly.

The COSPAS / SARSAT EPIRBs use the frequency 406MHz.

406MHz The position indications of the EPIRBs are accurate to within 5 km.

In addition, the 406MHz EPIRBs also pass on the ship's identity to the rescue authorities.

In all sea areas you can also use a so-called SART. A SART is an emergency radio transmitter that, when activated, can respond to ships' 3 centimeters radar.

7. OTHER RADIO COMMUNICATION METHODS

7.1. VHF OR MOBILE PHONE

Mobile phone systems do not have the same operational benefits as maritime radio communication systems. When transmitting emergency messages, ships should therefore preferably use actual maritime radio communication systems.

By using maritime radio communication systems, a broader orientation of other units and ships that can provide assistance is achieved. In addition, the range of mobile phones from the coast is limited and mobile calls cannot be immediately detected.

Even when sailing in areas covered by mobile phone, this cannot be compared with the VHF system in the boat.

The range for VHF, for example, is completely different than for a mobile phone. With a VHF radio on board you can also:

- Get in touch with the rescue authorities
- Get in touch with the vessels that are near you
- Get weather forecasts
- Get ice messages
- Get navigation alerts
- Use ship control
- Call home
- Get medical advice if necessary

If you are in an emergency situation, you will be able to call a proven system with a VHF on board, where both the rescue authorities, other ships in the area and the coastal radio stations have completely fixed routines for how to react.

However, one does not have to be in an emergency situation to get benefit from the VHF radio. For example, if you want to communicate with other ships nearby, VHF is also the preferred solution instead of a mobile phone.

GUARDING THE AERONAUTICAL EMERGENCY FREQUENCIES

The international emergency frequencies are guarded 24 hours a day, as indicated below. Reference is also made to the current edition of AIP GREENLAND.

FREQUENCIES USED ON-SCENE

- The frequencies 3023 KHZ, 5680 KHZ, 123,100 MHZ, 156,300 MHz (CH6), 156,600 MHz (CH12) and 156,800 MHz (CH16) are used of military ships and aircraft on-scene of the rescue operation taking place.
- The 3023 KHZ frequency is also used by lifeboats and ships from the Police for communication with SAR aircraft and JRCC Greenland.

Military SAR aircraft equipped with UHF, VHF (AM / FM) and HF (SSB).

SAR UNITS ' DIRECTION FINDING POSSIBILITIES

- Military SAR aircraft can detect all frequencies in VHF and the UHF band and on the frequency band 190 to 2182 KHZ.
- Civilian helicopters can make direction finding on 121.5 MHz

EMERGENCY LOCATOR TRANSMITTERS (ELT)

Nuuk search and rescue region is an integral part of the Norwegian service area in connection with the polar orbit COSPAS-SARSAT System (Space System for the Search of Vessels in Distress (Russia) - Search and Rescue Satellite-Aided Tracking (Canada, France and the United States)).

The Norwegian COSPAS-SARSAT Mission Control Center in Bodø will via JRCC in Denmark inform JRCC Greenland at any time signals from an emergency radio transmitter (ELT) of 406 MHz have been received and positioned within JRCC Greenland SRR.

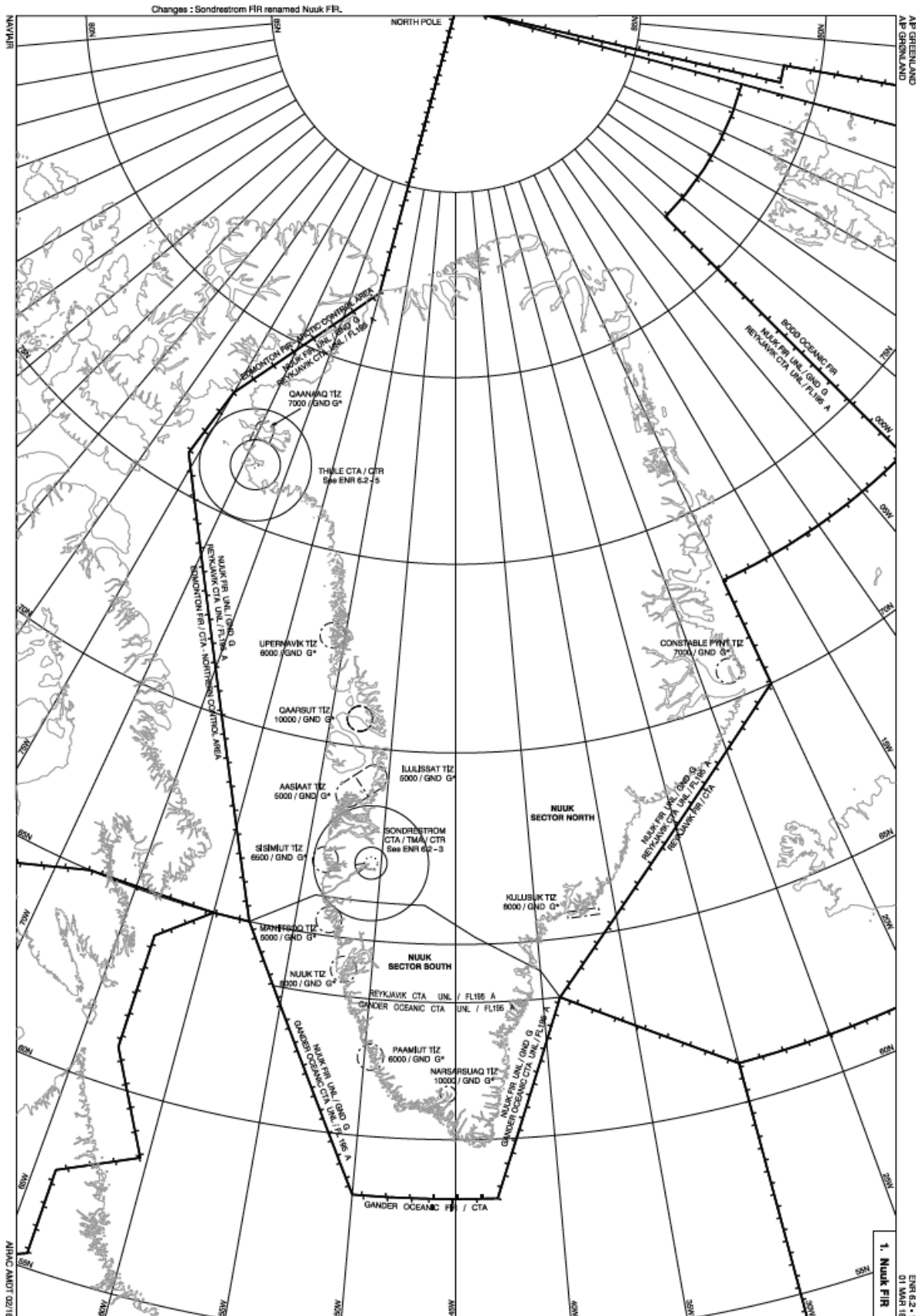
The accuracy of 406 MHz is better than 5 KM at first position determination and improved by subsequent position determinations to about 1 KM.

The maximum waiting time for position determination at the polar orbiting satellites within the JRCC Greenland SRR is about 30 minutes, which means that survivors must activate their ELT without any delay.

Valuable SAR resources are sometimes used in the search for unintentionally activated ELTs and can thus delay the response to a current emergency situation. Great care must therefore be taken to avoid unintentional ELT activation. Should this nevertheless occur, the nearest ATS unit must be notified immediately.

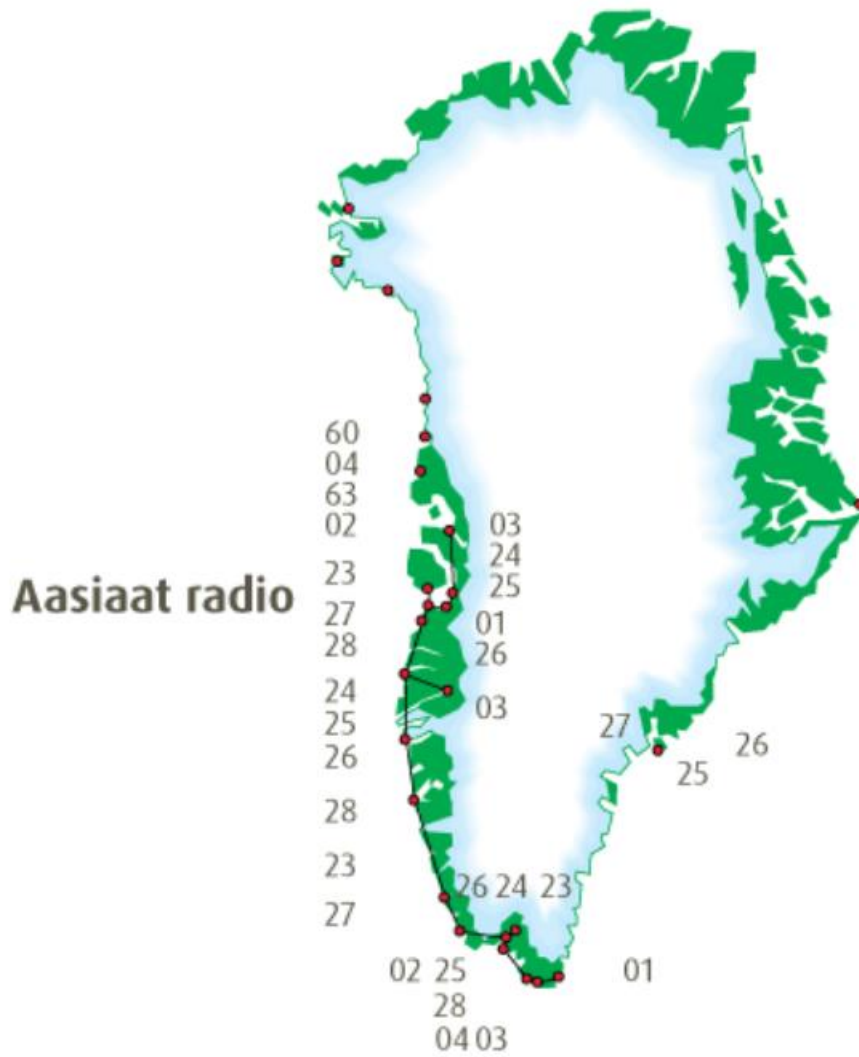
Annex 1 to Appendix A

NUUK FIR

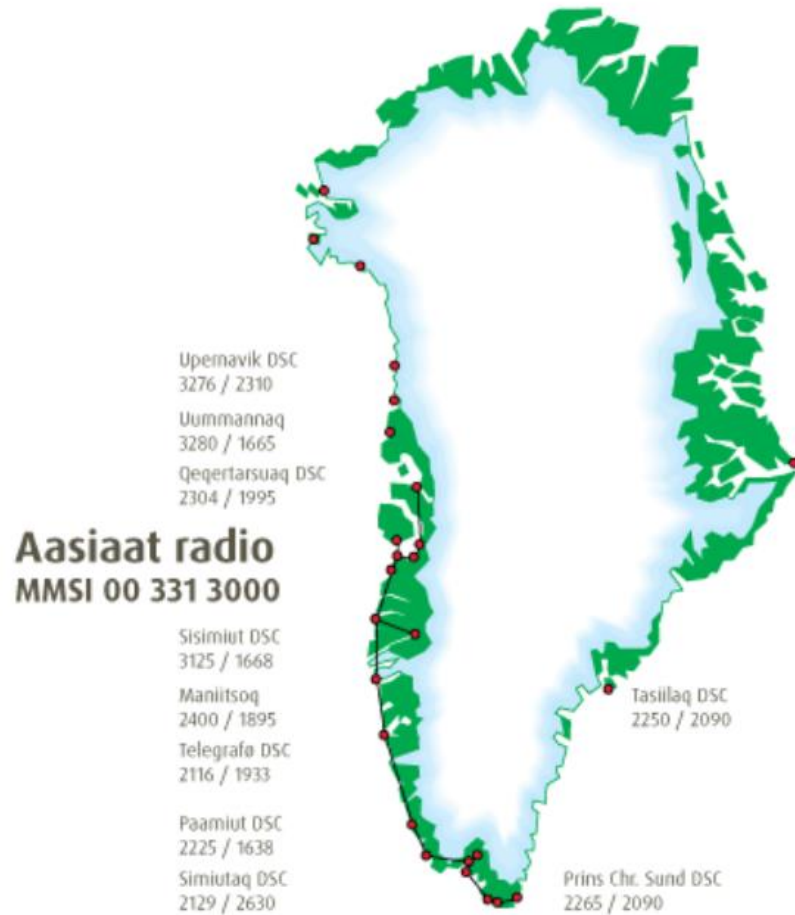


Annex 2 to Appendix A

AASIAAT RADIO VHF CHANNELS



AASIAAT RADIO MF FREQUENCY CARD



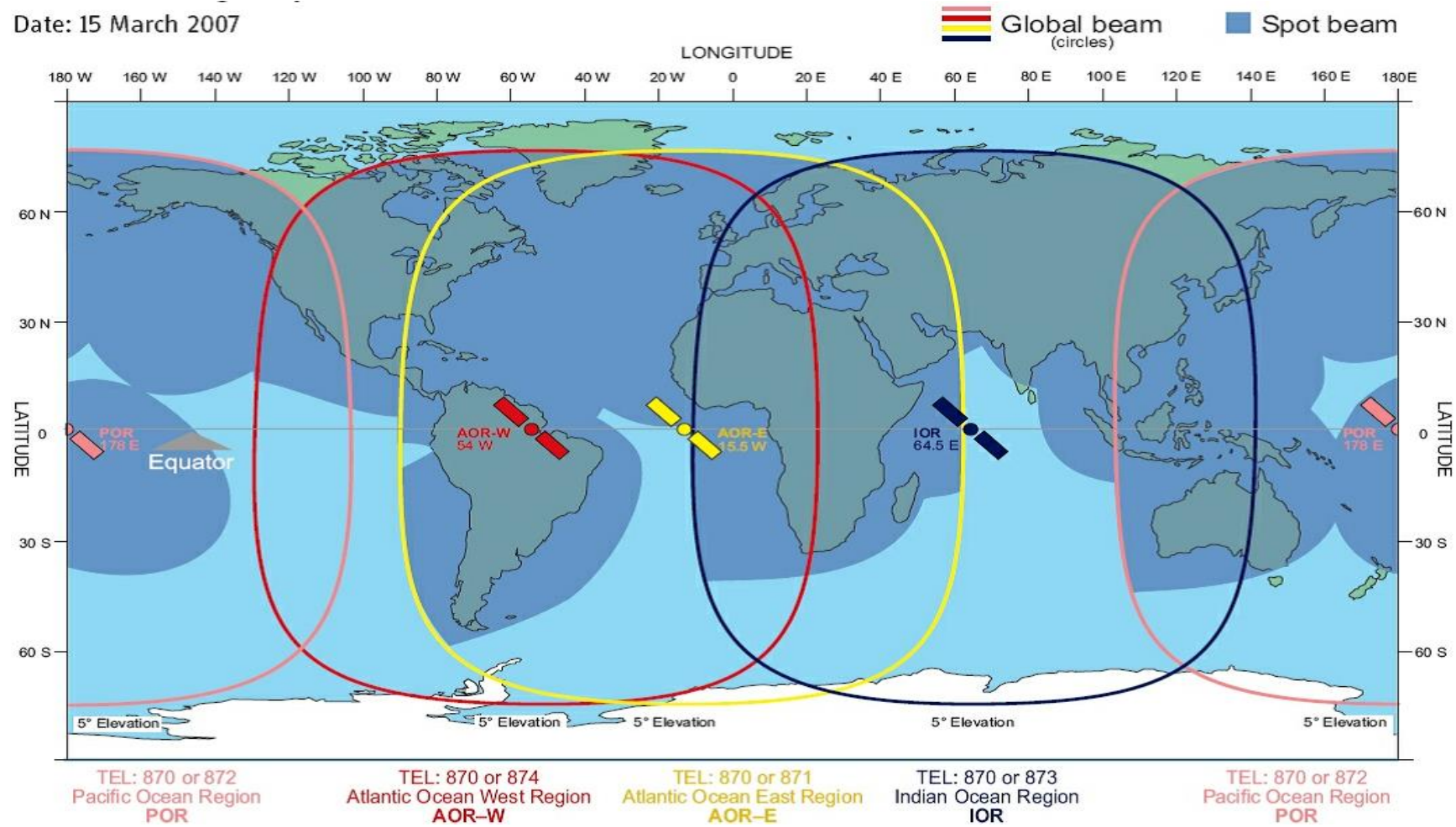
MF-FREQUENCIES

Transmission frq. (Khz)	Location	Ships transmission frq. (Khz)
3276	Upemavik	2310, 2045
3280	Uummannaq	1665, 2045
2304	Qeqertarsuaq	1995, 2045
3125	Sisimiut	1868, 2045
2400	Manitsoq	1895, 2045
2116	Nuuk	1933, 2045
2225	Paamiut	1638, 2045
2129	Qaqortoq	2630, 2045
2265	Ikerasassuaq	2090, 2045
2250	Tasiilaq	2090, 2045

Annex 3 to Appendix A

INMARSAT COVERAGE

Date: 15 March 2007



Annex 4 to Appendix A

CALL SIGNS USED IN JRCC GREENLAND AREA OF RESPONSIBILITY

SHIPS	RESCUE followed by ships name
AIRCRAFTS	RESCUE followed by registration number
HELICOPTER	RESCUE HELIKOPTER followed by registration nr.
ON SCENE COORDINATOR	RESCUE COORDINATOR
JRCC GRØNLAND	RESCUE GREENLAND
JRCC ICELAND	RESCUE ICELAND
JRCC HALIFAX	RESCUE HALIFAX
JRCC TRENTON	RESCUE TRENTON
JRCC BODØ	RESCUE BODØ
JRCC STAVANGER	RESCUE STAVANGER
AIR CO-ORDINATOR	AIR CO-ORDINATOR
AASIAAT RADIO	AASIAAT RADIO

B. JRCC GREENLAND SAR-PLAN

Annex: 1. JRCC Greenland geographical area of responsibility.

1. GENERAL

Sea rescue services and air rescue services is a part of the total Greenlandic rescue services that JRCC Greenland is responsible of. JRCC Greenland is a part of Arctic Command Operation Center mentioned Joint Operation Centre (JOC).

JRCC Greenland manages and coordinates search and rescue operations in connection with people in distress at sea.

JRCC Greenland also manages and coordinates search and rescue operations in connection with missing, accidents and distressed aircrafts. Further provides JRCC Greenland assistance to other rescue services authorities.

JRCC Greenland area of responsibility is shown in annex 1.

JRCC Greenland establishes and maintains a search and rescue emergency preparedness (SAR-beredskab) including the Royal Danish Navy ships, Royal Danish Air Force aircrafts. The readiness is adapted to the current situation. JRCC Greenland can change the readiness and positions for the participating units adapted the situation. JRCC Greenland can furthermore make agreement with AIR Greenland using of their helicopters and aircrafts.

2. JRCC GREENLAND RESOURCES

2.1. GENEREL

Resources participation in SAR services can in some cases be available for JRCC Denmark:

2.2. STATE RESOURCES

- The armed forces contribute
 - Royal Danish Air Force aircrafts (ref. SAR Greenland, Vol. I, app. G)
 - Royal Danish Navy ships (ref. SAR Greenland, Vol. I, app. E)
 - Royal Danish Operational center's
- Police contributes
 - Police regions and local police stations with personnel and material (vehicles, snowmobile and chartered vessels) (ref. SAR Greenland, Vol. I, app. F)
- AASIAAT RADIO

2.3 PRIVATE RESOURCES

- Air Greenland (ref. SAR Greenland, Vol. I, app. H)

2.4 CIVIL RESOURCES

- hired Vessels
- civil ships
- civil aircrafts

3. INTERNATIONAL RESOURCES

- ships
- aircrafts
- helicopters (ref. SAR Greenland, Vol. I, app. L)

3.1 COOPERATION BETWEEN THE RESCUE SERVICES

Frequent search and rescue operations require cooperation between JRCC Greenland and rescue services neighboring countries.

The cooperation includes managerially relationship as well as resources. Even the different countries have different SAR organizations, †The cooperation will be implemented without consideration to geographical area of responsibility. The main principle is:

The Rescue Centre, which receive the alarm call, will make operational management unless otherwise agreed

On request from the operational management Rescue Centre others Rescue Centre support resources

The cooperation's main principle is that the Rescue Centre, which best can solve the task assumes operational management, if necessary other Recue Centre support with resources.

The association Arctic Coast Guard Forum has written "Voluntary Guidelines" for the arctic nation's search and rescue cooperation. The Voluntary Guidelines contents the "musketeer's oath" that the countries will support each other if a bigger SAR incident occurs (ref. SAR Greenland, Vol. I, app. D).

Rescue Centers, which cooperate with JRCC Greenland is:

- JRCC Denmark
- JRCC Halifax, Canada
- RCC Edmonton, Canada
- JRCC Trenton, Canada
- JRCC Iceland
- JRCC Bodø, Norway
- JRCC Stavanger, Norway
- MRCC Torshavn, Faeroe Island
- JRCC Norfolk, USA
- JRCC Boston, USA
- MRCC GRIS NEZ, France
- MRCC Murmansk, Russia

3.2 AVAILBLE RESOURCES

The Rescue Centres' resources mentioned above is shown in the international SAR-plans and SAR Greenland, Vol. I app. L. Both JRCC Greenland and Aasiaat are manned 24 hours a day

4. MANAGEMENT

JRCC GREENLAND will organize and manage own and international rescue units during a major SAR event. If it is convenient partially management can be given to the OSC or the the Greenlandic Police. The overall supreme responsibility remains at JRCC Greenland.

If expedient, JRCC Greenland can appoint an OSC according to the following priority:

- Navy ships
- Danish stats ships
- Suitable merchant ships
- Fixed wing aircrafts
- Helicopters

If several aircrafts participate in a search and rescue operation JRCC Greenland can designate an Aircraft Coordinator (ACO). If a fixed wing aircraft participates it will normally be designated as ACO.

If an aircraft crashes on land, the Police will coordinate and manage on the accident site. If the airplane crash is close to an airport, the airport fire and rescue services will be in charge until the local commune ISL arrive to the accident site. JRCC Greenland can be requested to support aviation assistance and JRCC Greenland must be informed about effort of the assistance.

5. COOPERATION BETWEEN THE POLICE AND EMERGENCY AUTHORITIES

If a bigger search and rescue operation going on, the Police set up an available Liaison Officer according to particular agreement. The task for the Liaison Officer is to be the coordination link between JRCC Greenland and the Police authority that is the coordinating authority on the accident site. If necessary, JRCC will request a Liaison Officer from the police.

Alert to the emergency authority is made by the JRCC Greenland by phone number 112. Request about the police assistance made directly to the police authority.

6. PRESS RELATIONS

The authority which is visited as SAR MISSION COORDINATOR (SMC) has the responsibility to inform the press. Arctic Command and Greenland Police publishes independently manuals how to handle the press. If the rescue operation includes Mass Rescue Operation (MRO) a special press unit will be created. If it is relevant, the Police or Arctic Command will inform the press about SAR operations.

If a foreign Rescue Centre managing a search and rescue operation, the press must refer to this foreign Rescue Centre.

7. ADDRESS AND PHONE NUMBERS
ARCTIC COMMAND (Arktisk Kommando)

Postboks 1072
3900 Nuuk

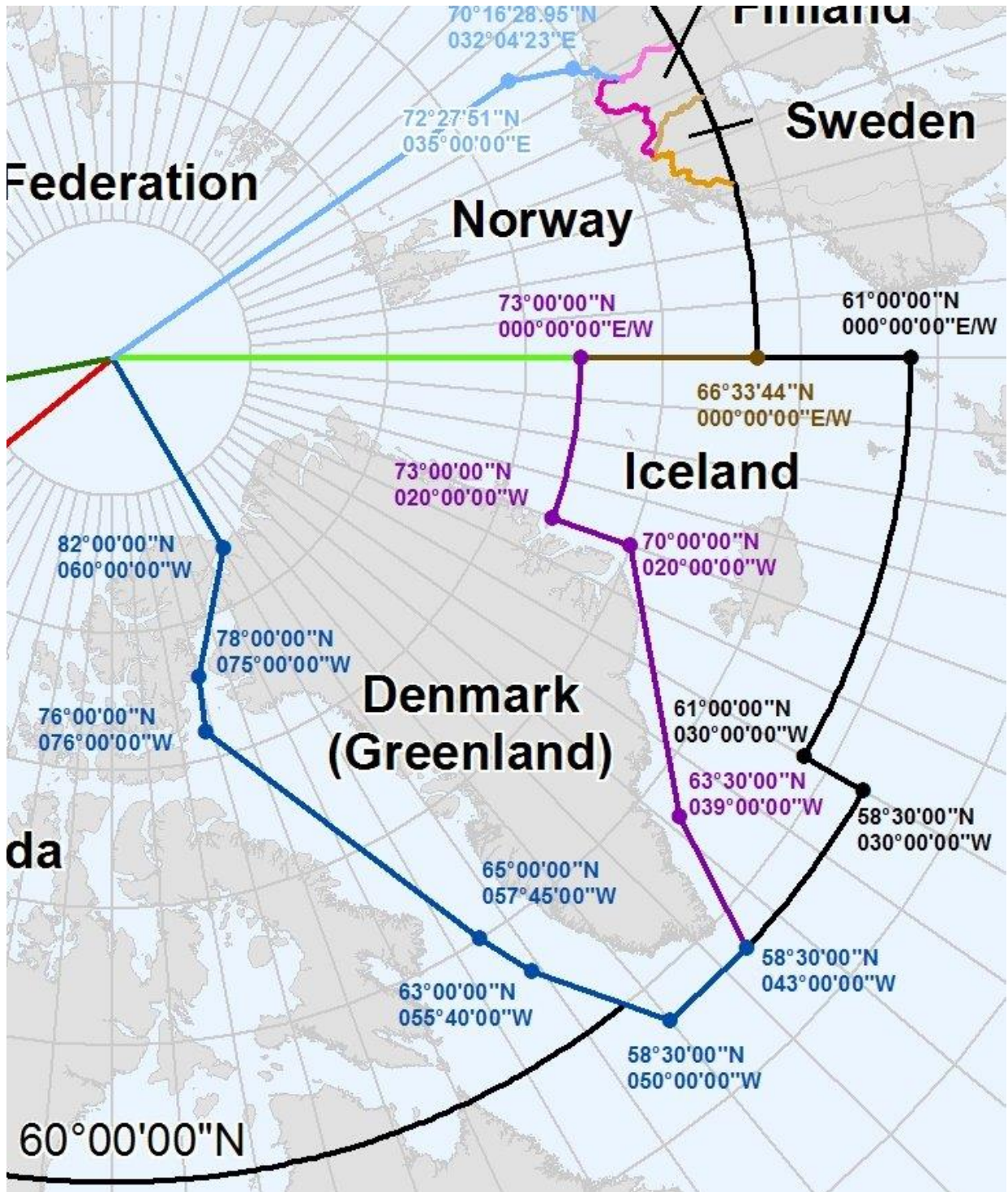
Telephone number: +299 36 40 00
E-mail: jrcc@jrcc.gl

JRCC Grønland

Telephone number: +299 36 40 10/+299 36 40 12
Fax: +299 36 40 99
E-mail: jrcc@jrcc.gl

Annex 1 to Appendix B

GREENLAND SEARCH AND RESCUE REGION



C. REFERENCES

INTERNATIONAL REFERENCES AND DOCUMENTS

1. ANNEX 12. "Search and Rescue" (ICAO) current edition
2. "International Aeronautical and Maritime Search and Rescue Manual, Vol. I, II, and III" (IAMSAR) (ICAO/IMO)
3. Radio Regulations (ITU)
4. Order of the Ministry of Foreign Affairs (BKI number 32) of the 18th of April 1986. The International Convention of the 27th of April 1979 concerning Maritime Search and Rescue (SAR konventionen) including recent changes
5. International Convention on Safety of Life at Sea (SOLAS 1974). (Søsikkerhedskonventionen)
6. COSPAS-SARSAT. Data Distribution Plan

D. The Arctic Coast Guard Forum
VOLUNTARY GUIDELINES
FOR
COMBINED OPERATIONS



Edition I

VER 1.7 Date: 16 JAN 2019

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SUMMARY OF CHANGES

Version	Date
1.0	
1.6	12 APR 2017
1.7	16 JAN 2019
2.0	04 APR 2019

VOLUNTARY GUIDELINES FOR COMBINED OPERATIONS MANUAL, EDITION 1

PREFACE

These Voluntary Guidelines for Combined Operations detail an operational doctrine for the coordination, information sharing, communications, and other supportive procedures to be used by cooperating forces of Arctic Coast Guard Forum (ACGF) Members. This document is not legally binding; rather, it is used on a voluntary basis in accordance with member coast guard agencies' domestic legislative systems, policies, authorities, and capabilities.

In order to achieve an ambitious objective to structure a framework for cooperation among our services on issues of common concern in the Arctic region this manual provides a coordinated system for executing combined operations of vessels, aircraft, and shore-based units under the control of designated authorities of two or more cooperating agencies.

LAYOUT OF THIS MANUAL

This manual is identified by edition and date (e.g. Edition 1, April 2016). Sections of this manual remain to be developed and procedures are likely to be refined. Minor revisions, such as an update to operational procedures, or additional communications information, will be incorporated as a partial update (identified as Edition 1, Update 1, and so on). Major revisions, such as the addition of a participating agency or several sections updated at once, may require reissuing the manual (identified as Edition 2, and so on). It is important that units verify that all participating agencies have the current manual on hand prior to commencing planned and unplanned combined operations.

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TERMS OF REFERENCE

Aim

The Arctic Coast Guard Forum (ACGF) is an independent, informal operationally driven organization, not bound by treaty to foster safe, secure, and environmentally responsible maritime activity in the Arctic.

Operating principles

Membership

Membership is comprised of Canada, Denmark, Finland, Iceland, Sweden, Norway, the Russian Federation, and the United States, hereafter referred to as ACGF Members. Observation/ Participation status for other countries will be considered by ACGF Members when requested.

- II. National delegations should include delegates to cover the subjects at the meeting and may include other departments, agencies, and representation (for example indigenous peoples) as required to advance the discussions.

Meeting logistics

- III. The Forum meets semi-annually with one Experts Meeting and one Principals Meeting.
- IV. The Forum will respect a two-year rotational Chair process that is aligned with the Arctic Council Chairmanship.
 - i. The Forum will leverage the work of other fora to achieve its Aim. Participation will be at senior levels to advance strategic objectives and work plans.

STRATEGIC OBJECTIVES

ACGF Members support the establishment of this independent body of maritime services to:

- vii. Strengthen multilateral cooperation and coordination within the Arctic maritime domain, and existing and future multilateral agreements.
 - i. Seek common solutions to maritime issues related to the agencies fulfilling the functions of coast guards within the region.
 - i. Collaborate with the Arctic Council through the sharing of information.
 - i. Facilitate safe and secure maritime activity in the Arctic region, with sustainable development to be promoted as appropriate.
 - i. Contribute to a stable, predictable, and transparent maritime environment.
 - i. Build a common operational picture to ensure proper protocols for emergency response coordination, and safe navigation.
 - i. Work collaboratively to advance the protection of the marine environment.
 - i. Maximize the potential for Arctic maritime activities to positively impact the communities, lives, and culture of Arctic communities including indigenous

peoples.

- i. Integrate scientific research in support of Coast Guard operations as appropriate.
- i. Support high standards of operations and sustainable activities in the Arctic through the sharing of information, including best practices and technological solutions to address threats and risks.

RULES OF GOVERNANCE

- xvii. The ACGF will respect national and international frameworks and legislation, as well as the mandates of other organizations (i.e. IMO, IALA) and will focus on Coast Guard functions and activities.
 - i. The Forum will be practical, action-oriented, and operationally driven.
 - i. Forum decisions will be consensus based.
 - i. The Forum will determine its own agenda and work plan and will leverage the work of other fora (e.g., Arctic Council) to advance its objectives and minimize duplication.
 - i. It will serve as a mechanism to reinforce national alignment and provide support to other forums.
 - i. The Forum will support agreements between Arctic States, such as those made under the auspices of the Arctic Council, related to coast guard functions.
 - i. The Forum will consider linkages with other organizations as appropriate.

WORKING GROUPS

- xxiv. The Forum has two permanent working groups to fulfill ACGF objectives:
 - Secretariat
 - Combined Operations
- xxv. The two permanent working groups are allowed to create additional working groups as appropriate.

1. PURPOSE OF THE VOLUNTARY GUIDELINES FOR COMBINED OPERATIONS

These *Voluntary Guidelines for Combined Operations* provide a framework for a coordinated system for executing combined operations of vessels, aircraft, and shore-based units under the control of designated authorities of two or more of the cooperating agencies. Our agencies have had the occasion to work together in response to emerging crises. These ad hoc operations are often difficult to coordinate, fragmented and inefficient. This manual is intended to help coordinate efforts of mutual interest, to conduct combined operations at sea, to preserve the safety of life at sea, to protect marine resources, and to prevent illegal activities throughout the Arctic. The maritime operations covered by this manual generally coincide with subject matter falling under the purview of the currently standing ACGF Working Groups and include:

- Maritime Search and Rescue Operations;
- Disaster Response/Humanitarian Relief Operations; and,
- Maritime Pollution Response Operations.

This manual describes procedures to coordinate activities between and among the various elements employed during operational interactions among two or more parties; these elements include activities:

- Between surface units;
- Between aircraft;
- Between surface units and aircraft; and,
- Between shore-based units and surface units/aircraft.

Additionally, Combined Operations will build mutual confidence in every participant, from junior sailors to senior officers, by:

- Developing *reports* - through personal and direct relationships among the leaders, operations staffs, and field unit commanders;
- *respect* – by consideration of each partners culture, values, religion, customs, and history;
- and *knowledge* of partners – through understanding of the doctrine, capabilities and goals; and,
- with *patience* – effective partnerships take time and attention to develop.

The maritime operations described in these Guidelines should also be conducted in a manner consistent with international law, and existing treaties and agreements. However, nations may have interpretations of international law that differ either subtly or materially from other partners. Remaining cognizant of these national differences and assessing the impact that they have on operations is important during both the planning and execution stages. Since the domestic institutions and policies of each nation; and the authorities of each agency differ, bear in mind that not every agency will conduct all of the operations described in this manual. The applicable operations, when conducted, will be in accordance with that agency's policies. This manual will be used on a voluntary basis. It is therefore of utmost importance that, in order to best maintain positive, cooperative relationships as ACGF Members, each member agency take actions that both comply with that agency's own policies and the provisions of this manual to the fullest extent possible.

In certain nations, the responsibilities for many of the maritime operations described in this manual are assigned to the national or regional service component (naval - air - land), in accordance with its domestic law. If such is the case, the parties are recommended to consider the opportunity to involve appropriate naval forces in combined operations, and further consider the incorporation of these voluntary guidelines to their operations planning.

While this manual contains guidelines promoting safe, effective and efficient operations, it is not intended to replace the sound judgment of commanding officers based on their on-scene observations. Therefore, Commanding Officers may deviate from this guidance whenever warranted by safety considerations.

Personnel safety shall always be a paramount concern. While a reasonable amount of risk is inherent in maritime operations, steps to minimize risk are essential, and any contemplated actions entailing unusual and/or excessive risk must be carefully reviewed. The safety of personnel on rescue and assistance teams, boarding and inspection teams, and other response teams, when dispatched, must be maintained. Safe seamanship and airmanship is essential to collision avoidance and airspace de-confliction when forces are operating in combination. Ships and aircraft should take all measures to avoid endangering cooperating forces with their maneuvering, weapons, and electronic systems. In addition to reinforcing international flight and navigation rules, such as the International Regulations for Preventing Collisions at Sea (COLREGS), operational planning efforts should identify any additional safety and security measures needed prior to commencing combined operations.

...

2. COOPERATING SERVICES AND AGENCIES

The purpose of this section is to provide a listing of designated authorities having maritime safety and security responsibilities so that they may be contacted by other States in order to share information, cooperate and coordinate responses to maritime incidents and security threats. A point of contact should be designated for communications regarding: Maritime Search and Rescue Operations, Disaster Response/Humanitarian Relief Operations and Maritime Pollution Response Operations.

- 2. A. Canada / Coast Guard
- 2. B. Denmark / Joint Arctic Command
- 2. C. Finland / Border Guard
- 2. D. Iceland / Coast Guard
- 2. E. Norway / Coast Guard
- 2. F. Russia / Border Service of the Federal Security Service of the Russian Federation
- 2. G. Sweden / Coast Guard
- 2. H. United States / Coast Guard

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3. SITUATIONS FOR CONDUCTING COMBINED OPERATIONS

3. A. ACTUAL OPERATIONS

To the extent allowed by each agency's national legislation(s) and subject to the situation at hand, the participating agencies performing coast guard functions may develop and exchange ship and aircraft patrol schedules to support combined operations. If allowed, the general operating area assigned (ship) and staging/deployment location (aircraft), along with the patrol period will be provided. Additional details such as unit type and name/number, capability/communications limitations, and availability for personnel exchange is useful information.

There may be situations where combined operations occur as the result of an unexpected incident or event. In order to maximize safety, protocols for interactions between vessels and aircraft of different nation's agencies should not differ between these ad-hoc encounters at sea and deliberately planned operations. Therefore, specific procedures documented in the remainder of this manual do not delineate between "planned" and "unplanned" operations.

Examples of unexpected incidents involving combined operations:

- Multi-unit search and rescue operations that involve vessels in distress in a participating state's search and rescue area of responsibility. Large-scale events (e.g. cruise ship or airliner) or wide-area searches often require a combined effort. The search and rescue guidance in this manual will remain consistent with established international procedures.
- Similarly, a natural or man-made disaster often requires the assistance of all available resources that can be brought to the scene to respond. In many cases, these responses will follow agreed-upon international procedures. Where such procedures are not established, practiced interoperability can assure the best possible response.
- A large marine environmental response may tax a single agency's resources. Participating agencies may bring expertise or capability to a combined response effort.

In these events, if a ship or aircraft of the agency of a participating nation is in the area of concern, appropriate means of contact should be made in order to obtain additional information and seek assistance if necessary.

Ships from participating nations, when encountering each other at sea and not able to communicate otherwise, should refer to the International Code of Signals (IMO IA994E).

In addition to training evolutions and exercises, actual operations should be planned to combine units from participating agencies to accomplish mutual goals. Whenever possible, member agencies should exchange officers, rated specialists, and observers for mutual understanding of procedures and practices.

3. B. EXERCISE AND TRAINING OPERATIONS

Exercises should be conducted to validate contingency plans, test, and improve interoperability of the units from participating agencies. Exercises could be a simple

ship passing exercise or work up to a multi-task, realistic exercise with several participating agencies. Equally important are command post (or table-top) exercises that involve commanders and their staffs and provide an economic method of testing command structures and gauge interoperability. Where possible, agencies should be invited to observe relevant exercises of a single agency. Formal training on-site and at host country training centers should be offered in accordance with applicable national guidelines and other existing processes, as appropriate.

The following factors may have an impact on exercise and training operations:

- Differences in national interests, objectives and policies;
- Availability and ability to deploy forces;
- Access to ports and airfields near exercise area; and,
- Status of forces agreements, if applicable.

Proposed exercises and training should be discussed during annual meetings among participating agencies.

Measures of effectiveness (MOE) are used to estimate the success of exercises and training. Exercise planning should identify MOE for tasks to be done. The primary MOE in maritime exercises is the probability of success in actual operations. Typical MOE are:

- SAR Exercise – time to accomplish proper search planning, correct search assets assigned, time to detect search object, time to accomplish recovery, proper reporting.
- Disaster Relief/Humanitarian Assistance Exercise – establishment of Command and Control (C2)/liaison, local needs properly determined, correct forces assigned, persons assisted/fed, infrastructure restored.
- Oil Response – establishment of Command and Control (C2)/liaison, local needs properly determined, correct resources assigned, spill quantity and oil tracking and environment restored.

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4. COMBINED OPERATING PROCEDURES

4. A. COMBINED OPERATIONS PLANNING

Combined Operations Plans should include expected outcomes, areas of operation, deployment plans, risks and mitigations measures, bathymetric information, expected actions and maneuvers, and ice and weather forecast.

The following factors may have significant impact on the tempo and effectiveness of planning and operations:

- Differences in national interests, objectives and policies
- The availability of forces influenced by concurrent operational commitments
- The ability of forces to deploy to the area of combined operations
- Access to airfields and seaports adjacent to area of combined operations
- Logistical support and sustainability issues
- Command, Control, Communications, [Computers, and Information Technology (C4IT)] systems interoperability and connectivity to allow for effective command and control
- Hydro meteorological conditions
- The availability of reliable bathymetric information

All planned operations (actual and training) should be initiated during annual meetings of participating agencies, subject to each nation's operational priorities (i.e., significant incident or emergency where planning may have to be conducted on-site). These operations should focus on improving interoperability between units as well as accomplishing mutual goals. General Concepts of Operation (CONOPS) should be prepared, fully understood and agreed to as early as possible. Combined Operations Plans (OPLAN) should be mutually developed prior to unit deployments. The appropriate operational commander(s) should issue detailed Combined Operations Orders (OPORD) to participating units prior to commencing combined operations.

Combined Operations Plans should be kept simple and focused on clearly defined objectives. Differences in language, equipment, capabilities, doctrine and procedures are some of the interoperability challenges that must be overcome. Operational task rehearsals/interoperability exercises should be conducted immediately upon commencing combined operations. Any unit that needs to depart or withdraw from the Plan should notify the others parties in order to avoid a dangerous situation.

Combined Operations Plans will include, at a minimum:

- Mission description and operating area;
- Mission priorities and limitations;
- Participating units (name, type, call signs);
- Intelligence estimate/Information regarding the operating area;
- Command and control (C2) structure;
- Communications plans and reporting requirements;
- Personnel exchange and interpreter information; and,
- Ship, aircraft, weapons, and personnel safety and security measures.

4. A. 1. COMMAND AND CONTROL

Command and Control (C2) is the exercise of authority and direction by a properly designated commander over assigned and attached resources in the accomplishment of a mission. C2 functions are performed through an arrangement of personnel, equipment communications and procedures employed by a commander in planning and directing operations. C2 is both the process and the system used to decide what must be done and how these decisions are carried out. “Command” and “control,” while related, are not always synonymous.

All planned operations must have an agreed upon form of C2 at the outset in order to achieve a unity of effort from the outset. Shore commanders and subordinates must understand the extent of their authority granted in their command relationship. Normally operational command of participating agency units will remain with that agency. The administrative and logistics responsibilities usually will not change. Units from participating agencies will not be accustomed to working together. Establishing and testing these command relationships and operating procedures will be challenging. Complex issues remain to be resolved, and if necessary, integration of shore staff liaisons should be considered. Liaison officers, whether during exercises or actual operations, improve the flow of information and act as bridges between national authorities. All units from participating agencies involved in unplanned events shall follow the parallel command structure for these combined operations until planning is done to determine and direct a different structure to follow.

4. A. 1. 1 SAR COORDINATION

The SAR system has three general levels of coordination:

1. SAR coordinators (SCs) (National level):
 - SCs are the top level SAR managers. Each State normally will have one or more persons or agencies for whom this designation may be appropriate.
2. SAR Mission coordinators (SMCs) (Rescue coordination Centers)
 - Each SAR operation is carried out under the guidance of a SMC. This function exists only for the duration of a specific SAR incident and is normally performed by the RCC chief or a designee. The SMC may have assisting staff.
 - The SMC guides a SAR operation until a rescue has been effected or it becomes apparent that further efforts would be of no avail.
3. On-Scene Coordinator (OSC)
 - When two or more SAR resources are working together on the same mission, one person on scene may be needed to coordinate the activities of all participating resources.
 - The SMC designates an OSC.

4. A. 1. 2. INCIDENT MANAGEMENT

Unified Command: Incident management is performed by representatives of several agencies when there is more than one agency with incident jurisdiction or when incidents cross political jurisdictions. Agencies work together through the designated members of the Unified Command, often the senior person from agencies and/or disciplines participating in the Unified Command, to establish a common set of objectives and strategies, a single Incident Action Plan, assuring a consistent response plan is developed and deployed and all actions are performed in a safe, well-

coordinated manner.

4. A. 2. INFORMATION SHARING

Information sharing is intended for identifying and initiating timely response measures to threats. Information sharing is important to successfully leading a combined operation. Participants in such operations must be empowered to share appropriate and relevant information to efficiently carry out the tasks. Empowering information exchange should occur at national, regional and tactical levels. Agencies are responsible to provide points of contact to manage situation at-hand and establish clear communication channels during combined operations.

4. A. 2. 1. INFORMATION SHARING OBJECTIVES AND CONSIDERATIONS

ACGF Members:

- Acknowledge the unique nature of the maritime environment and limits of national authorities and response capabilities;
- Take into account the often short-notice and ambiguous information associated with:
 - maritime reporting and the deliberative decision-making process required when planning for and responding to significant maritime threats, risks, or events; and,
 - the possible strategic intersection of national-level response efforts.
- Intend to enhance the exchange of information among the ACGF members complementary to the existing whole-of-government national-level coordination mechanisms that exist in their countries;
- Intend to promote their respective domestic communications and information exchange networks to support timely maritime response efforts;
- Seek to complement, rather than supplant, established coordination and information-sharing mechanisms or national command authorities; and,
- Do not intend to impede the carrying out of activities or authority of the ACGF members.

The ACGF members understand that emergent risks or event information sharing as articulated in this document seeks to facilitate information exchange among national-level coordination mechanisms in responding to maritime threats or events. This is intended to leverage information and expertise among the ACGF members and those involved in the response spectrum. No member is required or compelled to the dissemination of information. This process guide is intended to serve as an enabler to bring together the right people at the right time to exchange event response information when:

- A significant maritime threat, risk, or event exists that could affect more than one ACGF member;
- A maritime threat, risk, or event response is anticipated that could involve more than one ACGF member;
- Action by one ACGF member in the response to a maritime event could affect the national-level public affairs or strategic communications of more than one ACGF member; or,
- There is ambiguity regarding the scope and extent of a maritime threat, risk, or event that could have significant national-level implications for

more than one ACGF member.

4. A. 1. 2 INFORMATION SHARING ARRANGEMENTS

Each ACGF member intends to maintain national-level coordination mechanisms that seek to ensure collective and unified (whole-of-government) response efforts across its departments and agencies. ACGF members' national-level coordination mechanisms are listed in Section 2 of this process guide.

4. A. 1. 3 INFORMATION EXCHANGE

Information exchange and communication under this process guide may occur in person, via e-mail, via telephone, or in a videoconference. ACGF members intend to develop, as appropriate, Standard Operating Procedures (SOPs) to support the administration and activities under this process guide. Information concerning an event to be shared may include, but is not limited to, the following: discussion of facts, existing cross-border coordination mechanisms, identified lead agencies, desired operational or other outcomes, and anticipated timelines.

This process guide contemplates the exchange of the following information:

- An overview, including a brief statement of the threat, risk, or event;
- Amplifying facts or assessments of the reliability of information presented;
- The lead agency and other agencies involved from the ACGF members' government;
- The scope of the ACGF members mandates and authorities; desired national outcomes and authorities to achieve desired operational and other (including national) outcomes (e.g., desired outcomes could include, among others, nullifying a threat, conducting an interdiction, seizing cargo, conducting a right of visit, administrative action, denying access, protecting freedom of navigation and overflight, coordinated tracking, or a criminal prosecution);
- Precedents and prior experiences; issues related to disposition of crew, cargo, and vessel;
- Issues related to public affairs, strategic communications, or public outreach;
- Follow-up actions, if any, that have occurred; and
- A summary of the threat/ event/incident/interdiction, as appropriate.

4. A. 3. MANEUVERING

Safe navigation and good seamanship within the combined maritime operation requires vigilance on the part of Commanding Officers and bridge watch crews, especially when operating in company, whether for exercises or for actual operations. The International Regulations for Preventing Collisions At Sea (COLREGS) should prevail. Commanding Officers, Masters, and Aircraft Commanders need to consider the potential ramifications before engaging in any actions which could be misinterpreted.

In Arctic waters, the presence of sea ice or glacial ice can be expected at any time. Commanding Officers should use every means available to forecast and detect ice including satellite imagery, ice charts and predictions, physical phenomena, ice patrol and lookouts. Commanding Officers should keep in mind that a vessel in company may not be able to follow its intended route or act according to COLREGS due to the

presence of ice. In addition, sea ice often brings poor visibility. Extreme caution should then be used and ultimately could result in the Combined Operation being suspended.

Furthermore, in Arctic waters good information on bathymetry is often lacking or totally absent. The Combined Operations may require entering into such waters. In establishing the Plan, nautical charts and pilot books should be consulted and studied carefully. The vessel designated for such a task should be chosen due to its characteristics (draft, maneuvering capability, type of hull etc.) and for the expertise and local knowledge of its Commanding Officer and bridge crew.

The unit of distance for the application of the Combined Operations Manual is the nautical mile (one nautical mile is 2,000 yards, or 1,852 meters). Speed and distance between ships will be decided by on-scene Commanding Officers according to the conditions encountered. A good lookout must always be kept, including astern. Awareness of the actions of the other vessels is paramount. All vessels in company should be monitored by all means available, including visual bearings, and considered pertinent by the Commanding Officer. Actions to avoid collision must be positive, made with ample time and in observance of good seamanship.

Situations should be resolved quickly to avoid any confusion when uncertainty develops among ships in company. Special procedures for maritime operations such as towing and replenishment at sea will normally be pre-briefed and agreed upon by involved participants. Personnel transfer and boarding operations are typically accomplished by small boat or helicopter.

4. A. 4. FLIGHT OPERATIONS

Aircraft control units will be responsible for establishing flight separation parameters. All participating units prior to flight operations must agree to these parameters. During combined operations, units will normally have different areas of responsibility, so a minimum horizontal separation will suffice. However, procedures must account for detection ranges, contact identification, target pursuit, and search and rescue situations that may draw an aircraft away from its assigned patrol area.

Aircraft Commanders need to consider the potential ramifications before engaging in any actions which could be misinterpreted.

For search and rescue operations, particularly those involving fixed wing and rotary aircraft, the most effective searches may involve overlapping areas of responsibility. Minimum vertical separation parameters must be established. If more than one unit has aircraft control capability, the on-scene commander will assume aircraft control for all aircraft, unless there is a specific and acknowledged agreement made between unit Commanding Officers to the contrary. It is not anticipated that helicopters will land on flight deck equipped ships of participating agencies, except in extreme emergency situations.

Many factors must be taken into account before dispatching an aerial unit to a scene call. Weather is critical; Arctic areas have limited accuracy aviation weather forecasting. Icing conditions such as ice fog, freezing rain and ice crystals are prevalent and can limit the ability to maintain safe flight and/or search or detection.

In the Arctic region, survival equipment such as cold water immersion suits, survival rafts, firearms (wildlife encounter) and personal locator beacons must be clearly defined in an agency's policy.

The time of year is also critical. Areas of higher latitude areas might benefit from almost 24 hours of sunlight during the summer but will be in almost total darkness in the winter. Aircraft certified for night search may have to be used.

Fuel planning is critical. Very few fuel resources exist in the Arctic, therefore long transit times lowers the time available to loiter over a scene or search area.

International standard (ICAO) VHF aviation frequencies should be used to communicate between aircraft, to pass information and avoid mishaps by resolving air traffic issues. Not every aerial unit is equipped with marine / Coast Guard frequencies.

Airplane units will be more effective at long range day/night/instruments missions and long search patterns. Helicopter units will have lower range and be most useful in smaller search pattern with local aerial work capacity (hoist, sling, torching, ice landing).

If an aircraft is equipped with a fixed code transponder code or AIS it should be communicated to other surrounding unit for easier identification.

4. B. COMBINED OPERATING PROCEDURES

4. B. 1. SEARCH AND RESCUE

The International Civil Aviation Organization (ICAO) and the International Maritime Organization (IMO) jointly developed the International Aeronautical and Maritime Search and Rescue (IAMSAR) Manual to foster co-operation between themselves, between neighboring States, and between aeronautical and maritime authorities. The goal of the IAMSAR Manual is to assist State authorities to economically establish effective SAR services, to promote harmonization of aeronautical and maritime SAR services, and to ensure that persons in distress will be assisted without regard to their locations, nationality, or circumstances. This comprehensive, three volume manual provides guidelines for a common aviation and maritime approach to organizing and providing SAR services through the use of standardized terminology and SAR coordination.

The purpose of the Voluntary Guidelines for Combined Operations is to advance that effort to an even greater degree within the Arctic.

The participating ACGF Members will operate their Civil SAR systems in accordance with the IAMSAR Manual, and will strive to set a standard of excellence within the Global SAR system for State to State co-operation. The ACGF reaffirms the longstanding commitment that SAR resources available to one nation will be shared with all nations. Ideally, this co-operation would take the form of:

- Shared Ship Reporting System information for SAR purposes
- Shared computer resources such as Computer Assisted Search Planning, upon request
- Shared database information for SAR
- Facilitate communications
- SAR aircraft and ships of one nation assisting a SAR effort in a neighboring Search & Rescue Region

In addition, the participating agencies will seek opportunities to provide SAR training course quotas to Coordinators from other members, visits to SAR facilities, as well as on-the-job Coordinator professional exchanges, and bi-lateral or multi-lateral SAR exercises. When a Rescue Coordination Center (RCC) receives information indicating a distress outside of its SRR, it should immediately notify the appropriate RCC and then take all necessary action to coordinate the response until the appropriate RCC has assumed responsibility. Participating agencies will undertake to advise neighbor RCCs on SAR incidents of common interest, especially those cases that could potentially involve another agency. When SAR operations occur along boundary lines separating SRRs, affected RCCs, through mutual consultation, shall decide which RCC will have responsibility. If the distressed craft drifts from one SRR to another SRR, the coordination shall remain with the original RCC. Both RCCs shall identify potential SAR units, including locations and capabilities; provide a description of available air fields and fueling facilities, and any medical facilities within their SRR.

An On-Scene Coordinator (OSC) will be appointed by the SAR Mission Coordinator (SMC). If this is impractical, then the OSC should be assigned by mutual agreement among the participants considering using the following factors:

- First unit on-scene

If the first unit on-scene can be replaced by another more capable unit, the following factors will be considered in transferring the OSC role:

- Capability and expertise to carry out the OSC role for an extended duration
- Capability to carry out the OSC role in ice-infested waters (icebreaking capability), in the prevailing ice conditions
- As agreed to by units on-scene (normally because of unit limitations such as communication capabilities)
- Unit requesting emergency assistance (unless the nature of the emergency prohibits)

When an appropriate RCC is involved, the OSC shall be responsible for:

- Assist in the development of the search plan while providing the RCC with enhanced situational awareness
- Execution the search plan at the direction of the RCC
- Deviating from the plan based on actual on-scene conditions and informing the RCC of all deviations
- Periodic reporting to the RCC (SITREPs)
 - Progression of search
 - Weather and ice conditions
 - Submission all relevant information on survivors and missing persons
 - Number of survivors, names, and medical assistance required
 - Repatriation of survivors on participating vessels
 - Logistical assistance required

If for some reason the operation is not being conducted by a RCC, the OSC will assume responsibility for the fulfilling the following:

- Determining the probable location of the object of the search (datum) and the possible limits of error in its position and the search area
- Organization of the search participants in a safe manner and assigning search patterns for the search units or their group
- Designating appropriate units to affect the rescue when the object of the search is located
- Releasing search units when they are no longer needed
- Coordinating on-scene communications
- Making arrangements for the separation for safety purposes of units engaged in the search
- Maintaining records of the operation
- Reporting number and names of survivors to the operational commander.

Standard search pattern diagrams for ships and aircraft are contained in Chapter 5 of Volume II of the IAMSAR Manual. Participating unit Commanding Officers should make every attempt to comply with the On-Scene Coordinator's recommendations. However, Commanding Officers must maintain the safety of their crew as the highest priority.

See Annex I for SAR contact information by nation.

4. B. 2. MARINE POLLUTION RESPONSE

The responsibility for responding to a marine pollution event is generally placed on the polluter, under the appropriate coastal state. However, cooperation on marine pollution preparedness and response can ensure the effective employment of available personnel and facilities in the event of an incident where the polluter is not known, or in large spills beyond the response capability of one country or have the potential to impact on more than one country. The national and regional stockpiles of response equipment as well as persons with expertise in mitigation and countermeasures of pollution incidents in the regional oil industry and marine spill response organizations can be called upon on an as-available, not-to-interfere, and cost-reimbursable basis. In addition, providing marine pollution response assistance may be in a participating agency's interest as a training opportunity to maintain or enhance experience levels and response posture for major pollution incidents.

The 1990 International Convention on Oil Pollution Preparedness, Response and Cooperation (OPRC) was adopted to facilitate mutual assistance in preparing for and responding to a major oil pollution incident. The OPRC Oil Pollution Manual was also developed to provide a guide for government actions. The manual includes sections on combating oil spills and the administration of oil pollution response. The participating agencies should be familiar with the OPRC Oil Pollution Manual. Although detailed operational guidance is not provided, familiarity with this manual will improve the coordination of operations. Marine pollution operations often require unique capabilities, such as oil skimming and aerial dispersants; however, they rely on forces operating under command and control responsibilities similar to most maritime operations.

4. B. 3. DISASTER RESPONSE / HUMANITARIAN RELIEF

Natural and/or man-made marine disasters have recently inflicted enormous damage on human society across the globe. Although the Arctic has been mostly spared, the increase in human activity in the region could result in severe consequences if a major event occurs.

By the nature of our Services and our presence in the Arctic, we are bound to participate in disaster response and humanitarian assistance operations. For the purposes of these Guidelines, the scenarios envisioned in this section are limited to assistance to a shore community.

Responding to maritime related emergencies in any capacity (i.e., assets, manpower, relief supplies and aid) involves preparation and a shared cooperation amongst the Forum nations to provide this assistance with as minimal additional workload imposed on the affected nation as possible. Therefore, it is incumbent upon the parties to develop and implement efficient and effective ways of preparing, exercising, and responding to those disasters before they happen.

Often the presence of a self-contained ship, manned by disciplined and technically trained personnel can have a very significant impact on the response to a natural disaster. Maritime forces are well suited to support humanitarian aid to efforts that relieve or reduce suffering, loss of life, and damage to property caused by man-made or natural disasters. In particular, they can provide short-notice readiness, flexibility, and mobility to respond to a disaster. In the Arctic, assistance can be provided in the following areas:

- Evaluation of the severity of the situation;
- Shelter and/or evacuation;
- Food and medical assistance and supplies;
- Provision for a limited amount of water and power;
- Communications capability;
- Labor and technical assistance to restore infrastructure; and,
- Transportation of relief supplies/stores.

A natural disaster may affect the approaches or harbor conditions. Navigational aids may be off-station or missing. Shipwrecks or damaged vessels may encumber the channels and wharfs. Proceed into a disaster-affected area with caution. Consider sending a ship's small boat or launch ahead to sound and sight obstacles. A helicopter may also be used to obtain a more general situational awareness.

ARRIVAL PHASE: Depending on foreknowledge of the situation, it may be necessary for the unit that is designated as On-Scene Coordinator to go ashore to collect information. Always include medical personnel on initial shore parties to provide emergency assistance. Locate the person in charge and through that person, assess priorities for support. Assess the level and duration of assistance required. Evaluate available resources and capabilities (marine and land), and provide an initial assessment to the operational commander and request additional support, as needed.

ASSISTANCE PHASE: Assign tasks with participating units based on priorities. Manage workload to ensure crews remain effective and safe. Be alert for the development of dangerous situations, with the most common being exposure to the harsh environment. Continue reports to the operational commander, including relaying requests for follow-up support.

4. C. OPERATIONAL LESSONS LEARNED

To maintain and improve the effectiveness of combined maritime operations, lessons learned from each operation should be recorded as they occur, and incorporated in future operations. Immediately following any planned or unplanned operation, including exercises, involving the participating agencies, a debriefing will take place aboard one of the participating units, if possible. Participants should include:

- Ships' command representative;
- Exchange officers;
- Liaison officers/interpreters; and,
- Aircraft commanders (when participating).

Commanding Officers should evaluate these lessons learned, and provide any recommendation for changes to this manual to their operational commander. The ACGF Chair will remain the coordinating agency for the Combined Operations Manual and if changes are agreed upon, procedures for revision will be implemented.

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5. COMMUNICATIONS PROCEDURES

5. A. GENERAL RADIO MONITORING REQUIREMENTS

Communications will be a key to the success of any combined maritime operation. Language differences present the most immediate challenge. Information lost during translations can be significant and misunderstanding and miscommunications can have serious effects. For planned operations, every effort will be made to specify a language to be used, or otherwise ensure interpreters are deployed on participating units. In the absence of interpreters (most likely to occur during unplanned operations), the International Code of Signals, supplemented by the combined operations brevity codes listed in Annex II will be used for communications between units. Voice and visual communications will normally be used. All vessels and aircraft participating in planned operations, and those listed on patrol schedules shall monitor, at minimum, the radiotelephone hailing frequencies listed in this chapter. For unplanned events, vessels and aircraft will monitor these frequencies when combining for operations.

5. B. HAILING PROCEDURES.

A vessel's International Radio Call Sign (IRCS) will be used when establishing and maintaining radio communications. An aircraft's tail number will be used similarly. When the identity is not yet known, a hail using simply the nationality and "ship" or "aircraft" will be used. Other previously agreed upon call signs may be used during combined operations and exercises.

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E. DANISH NAVY VESSELS

IVER HUITFELDT-class (Build 2008 - 2011)



PNT. NUMBER AND NAME	CALL SIGNS	MMSI NUMBER
F 361 IVER HUITFELDT	OVVA	219 103 000
F 362 PETER WILLEMOES	OVVB	219 104 000
F 363 NIELS JUEL	OVVC	219 105 000

SHIPS DATA:

Length o.a.:	138,7 meters	Maximum speed:	28+ knots
Breadth:	19,75 meters		
Draft:	6,5 meters		
Airdraft:	32,5 meters		
Displacement:	6650 tons	Crew:	117
Fully equipped hospital with associated cabin section (2 bunks).			

MISCELLANEOUS INFORMATION:

Towing capacity:

4 towing ropes of 220 meters each, braided, 54 2*GMDSS. HF/MF/VHF DSC mm. Breaking strength 79 tons.

Navigation:

3 3 cm radar
2 GPS receivers
Inertial navigation system
ECDIS
Spare compass
Gyrocompass
1 echo sounder
Log
1 VHF DF
1 UHF DF
Night observation equipment
FLIR
NAVTEX-receiver
Sonar
AIS
Voyage data recorder
UHF homer (243 MHz)
Meteorology system

Safety equipment:

2 COSPAS SARSAT emergency transmitters
2. SART

Life rafts
Survival suits

Communication:

INMARSAT-B
INMARSAT-C
2 civil maritime VHF
1 civil air VHF
Military VHF
Transportable VHF radios
Mobile telephone
Facsimile receiver
Fleet 77
Iridium telephone
Different satellite connections
Underwater telephone

Inflatable boats:

2 inflatable boats
Compass
Chart plotter
AIS
Normal safety equipment and survival suits.
Jason Cradle (for recovery of persons from the water)

Cranes:

1 electrical-hydraulic crane type Heila.
The lifting capacity at 7 meter outlay is 2,550 kg / 15.5 m 900 kg. Maximum outlay 8,8 m. over STB side.

ABSALON-class



PNT. NUMBER, NAME AN CALL SIGNS		MMSI NUMBER
F 341 ABSALON	OUFA	220 189 000
F 342 ESBERN SNARE	OUFB	220 191 000

SHIPS DATA:

Length o.a.:	137,6 meters	Maximum speed:	24 knots
Breadth:	19,5 meters		
Draft:	6,00 meters		
Airdraft:	31,30 meters		
Displacement:	6639 tons	Crew:	113

Other facilities:

Flex deck with 240 lane meters with the option of staying in shelter. Can carry 4 LYNX or 2 EH101 helicopters and doctor. Fully equipped hospital with associated cabin section (4 bunks).

MISCELLANEOUS INFORMATION:

Towing and pumping capacity:

4 towing ropes of 220 meters each, 68mm,
breaking strength 780 KN.

Navigation:

3 3 cm radar

2 MIL GPS

1 CIV GPS

2 Inertial navigation systems

4 stand alone ECDIS stations

2 Gyrocompasses

2 echo sounders

Log

1 VHF DF

1 HF DF

1 UHF DF

Night observation equipment

FLIR

NAVTEX receiver

Sonar

INMARSAT-C

Safety equipment:

2 COSPAS SARSAT emergency
transmitters

2 SART

Life rafts

Survival suites

Communication:

GMDSS. HF/MF/VHF DSC

Iridium telephone.

INMERSAT Fleet 77

2 Civil maritime VHF

1 Civil air VHF

Military VHF

UHF homer (243 MHz)

Transportable VHF radios

Mobile telephone

Inflatable boats:

2 Inflatable boats.

Compass

Normal safety equipment and
survival suits.

Jason Cradle (for recovery of
persons from the water)

Possible to embark LCP og FKP-
RHIB

Survival suites

Cranes:

2 hydraulic telescopic cranes.

Lifting capacity: 1,35 ton at 12,5 meters
outlay. 3,36 tons at 6 meter outlay.

THETIS-class

(Build 1988 - 1992)



PNT. NUMBER AND NAME	CALL SIGN	MMSI NUMBER
F 357 THETIS	OUEU	219 522 000
F 358 TRITON	OVGW	219 523 000
F 359 VÆDDEREN	OUEW	219 524 000
F 360 HVIDBJØRNEN	OUEX	219 525 000

SHIPS DATA:

Length o.a:	112,5 meters	Maximum speed:	21 knots
Breadth:	14,4 meters		
Draft:	6,14 meters		
Airdraft:	27,60 meters		
Displacement:	3500 tons	Crew:	49
Size of the helicopter deck:		27,2 x 14,4 meters	
		Reinforced to approx.10 Tons	

Embarked as standard equipment 1 SEAHAWK helicopter and doctor when operating around the Faroe Islands and Greenland. Fully equipped hospital with associated cabins (4 bunks).

MISCELLANEOUS INFORMATION:

<p>Towing and pumping capacity:</p> <p>Hydraulic towing winch with 200 meters towing wire, 36.5 mm. Breaking strength 69 tons.</p> <p>2 towing ropes of 220 meters each, braided, 54 mm. Breaking strength 79 tons.</p> <p>Navigation:</p> <p>2 3 cm radar</p> <p>1 10 cm radar</p> <p>2 GPS Receivers</p> <p>Inertial navigation systems</p> <p>ECDIS</p> <p>SODENA</p> <p>2 Gyrocompasses</p> <p>2 Echo sounders</p> <p>Log</p> <p>VHF/UHF DF</p> <p>HF DF</p> <p>FLIR (Forward Looking InfraRed) equipment</p> <p>Searchlight in both sides</p> <p>1 wire lead for towing rope.</p> <p>1 HIFR (Helicopter In Flight Refuelling). Ship is equipped for HIFR operations.</p> <p>Safety equipment:</p> <p>3 COSPAS SARSAT emergency transmitters</p> <p>2 SART</p> <p>2 chute systems / evacuation slides and associated life rafts</p> <p>Survival suits</p> <p>Cranes:</p> <p>2 hydraulic cranes, type THRIGE on the RAS-deck. Lifting capacity at full outlay is 2000 kg.</p> <p>2 cranes on the helicopter deck. Lifting capacity at 4,5 meters outlay is 2900 kg.</p>	<p>HIFR equipment dimensions and coupling: 31 meters, UNISEX-coupling, CARTER filling head.</p> <p>Communication:</p> <p>1 MF/HF DSC</p> <p>2 VHF DSC</p> <p>2 MIL/CIV VHF</p> <p>2 RADIOTELEX</p> <p>1 INMARSAT-C</p> <p>1 NAVTEX</p> <p>Inflatable boats:</p> <p>2 inflatable boats.</p> <p>Compass</p> <p>Normal safety equipment and survival suits.</p> <p>Jason Cradle (for recovery of persons from the water)</p> <p>2 Civil air VHF</p> <p>Transportable VHF radios</p> <p>Mobil telephone</p>
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KNUD RASMUSSEN-class



PNT. NUMBER AND NAME	CALL SIGN	MMSI NUMBER
P 570 KNUD RASMUSSEN	OVFG	220 428 000
P 571 EJNAR MIKKELSEN	OVFH	220 429 000
P572 LAUGE KOCH	OVFI	219 030 000

SHIPS DATA:

Length o.a:	71,8 meters	Maximum speed:	17,0 knots
Breadth:	14,6 meters		
Draft:	4,95 meters		
Airdraft:	23,0 meters		
Displacement:	2050 tons	Crew:	18 (bunks for 43)

MISCELLANEOUS INFORMATION:

Towing and pumping capacity:

Towing equipment:

- polypropylene towing ropes, braided 54 mm each 220 meters. Breaking strength 79 tons.
- wire lead for towing rope.

Communication:

2 Civil VHF radios

2 Civil VHF DSC radios

3 VLF-HF receivers

2 HF transmitters

1 MF-HF transceiver. GMDSS.

Navigation:

- 2 FURUNO radars, 3 cm. (FAR 2117)
- 1 10 cm FURUNO (FAR 2137S).
- 1 TERMA SCANTER 4100 surveillance radar.
- 1 ECPINS route navigation computer.
- 1 ECPINS planning navigation computer.
- 1 ECPINS backup navigation computer.
- 1 AIS (Kongsberg BF200)

- 2 civil GPS receivers (SIMRAD GN33).

- 2 Gyrocompasses (SAILOR HC4500)
- 1 SAT-telephone (FLEET77) SAILOR-T&T TT-3622B)
- 9 Transportable CIV/MIL VHF radios
- 1 INMARSAT-C (SAILOR H2095C)
- TELEFAX
- NAVTEX (FURUNO NX-700)
- Mobil telephone (GSM)
- 1 Direction finder (DF)
- 1 UHF DF

Boat equipment:

- 1 search and rescue boat (SAR) of LCP-class.

Inflatable boats:

- 1 10 person inflatable boat of RIB type with 2 60 HP outboard motor.
- 1 8 person inflatable boat of RIB type (spare) with 1 60 HP outboard motor.

Automatic pilot system (EMRI FAP-2000)

- 1 Sonar (Sperry Marine ES5100)

Search light.

FLIR





Safety equipment:

- 6 25 Pers. life rafts
- Inflatable life jackets
- Self-inflating life jackets

Crane:

- 1 hydraulic crane type HEILA type HR 160-10/2BJ.
(15 tons at 10 meter of outlay).

F. MARITIME POLICE UNITS

NAME	C/S	MAX SPEED	COMMUNICATION EQUIPMEN	
SISAK	OXYW	12 knots	Homer ZG 3 UHF-radio direction finder 243.000 MHz VHF-radio direction finder Koden KS-538 Aircraft comms radio Becker GL-415	
SISAK II	OZOM	10 knots	Homer Receiver 406-2-053-28VNV Radio direction finder Furuno Aircraft comms radio Becker GL-415	
SISAK III	OZQT	10 knots	VHF-transceiver Furuno VHF-direction finder FD-527 SAR Homing system Aircraft comms radio Becker AR-4201	
SISAK IV	OZVC	10 knots	Furuno VHF direction finder Homer direction finder 406-2-053 Aircraft comms radio Becker GL-415	

DATA – SISAK:

L/W/D: 27,60m/6,50m/2,80m
 Displacement: 38 tons
 Crew: 6 persons
 Range: 1440 NM, 12 kts/5 days
 Speed max: 12 kts
 Berths on board: 12 persons
 Accommodate: 50 persons
 Sensor: Radar (surface)

DATA – SISAK II-IV:

L/W/D: 24,15m/6,32m/3,00m
 Displacement: 32 tons
 Crew: 5 persons
 Range: 2880 NM, 10 kts/12 days
 Speed max: 10 kts
 Berths on board: 8 persons
 Accommodate: 50 persons
 Sensor: Radar (surface)

G. DANISH AIR FORCE

BOMBARDIER CHALLENGER CL-604

SPEED, KNOTS	Max: 350 March: 250 Average search speed: 160
ENDURANCE	Max mission time 5½ hours, depending of the range to airfields
RADIO BEACON	MDF 124F: V/UHF 100 – 400 MHz Maritime CH 16 og 70 ARGOS beacons COSPAS-SARSAT 406.025 MHz Chelton Homer: VHF 118-250 MHz / UHF 225-410 MHz
AUX.ELECTRONIC EQUIPMENT	2 x HF radio: 2.0 – 29.9999 MHz 2 x V/UHF radio: 30 – 399.985 MHz 2 x VHF: 118.00 – 151.975MHz SATCOM inmarsat / FLIR

General.

Challenger 604 is a long range patrol and transport aircraft. Challenger 604 is used for surveillance and transport in Denmark and in the Arctic area. Also used as search and rescue, assertion of sovereignty capacity and transport of patients. Can be loaded with sea markers, flares, smoke buoys, a dinghy and emergency equipment to drop.



FACTS (operating arctic area (GREENLAND)):

Numbers of Challenger 604: 3.
 Crew member: 2-5 depend of the mission.
 Range: App. 5500 km, depend of the mission.

Capacity: 12 passengers or 3 stretchers with 4 medical people or 2500-pound freight

Sensor capacity: Device which in a long range distance and day and night can detect and identify objects in bad weather condition.

Communication:

- UHF, VHF and HF (voice)
- SATCOM

Are capable to use snow and gravel runways.

LOCKHEED-MARTIN C-130J HERKULES

SPEED, KNOTS	Cruise: 250 Average search speed: 160
ENDURANCE	Max mission time 7-8 hours, depending of the range to airfields
RADIO BEACON	VHF (Homer): 108-152 MHz (AM) 30-89 MHz & 152-174 MHz (FM) Maritime VHF CH 16 og 70 UHF (Homer) 225-400 MHz
AUX.ELECTRONIC	VHF, UHF, HF and SATCOM.

Equipped with radar which is able to detect and identify surface units. Night vision goggles to increase night search
Can be loaded with sea markers, flares, smoke buoys, a dinghy and emergency equipment to drop.
Long mission time in a search area gives the C-130J the advantage for On Scene Coordinator.

General.

C-130J is a long range aircraft. Used to evacuation of wounded persons and transport freight for the defense force.



FAKTA:

Numbers of C-130J: 4
Crew members: 4 depend of the mission.
Range: Ca. 5900 km, depend of the mission.
Capacity: 123 passengers, or app. 20 tons freight.
Sensor capacity: radar.
Communication: VHF, UHF, HF and SATCOM
Are capable to use snow and gravel runways, can make high precision drop of freight and survival equipment.
MMSI number for Aasiaat Radio is 00 331 3000
Note that ships that have not connected GPS to the DSC equipment should update the position at least one time on each watch.
All kind of tasks can be done in all weather conditions.

SIKORSKY AIRCRAFT CORPORATION (US) MH-60R SEAHAWK

SPEED, KNOTS	Max: app. 150 Average cruise speed: 120
ENDURANCE	App. mission time 3 hours, and 5 hours with drop tanks
OPERATIONAL FLIGHT LEVEL	1000 feet (max.10.000 feet)
COMMUNICATION	VHF, UHF, HF, Maritime VHF, LINK 16 GPS, multi mission surface radar, FLIR, LLTV, DAYTV

General.

MH-60R is a flexible multi-mission capability helicopter. Main task is surveillance, search and rescue and medical evacuation.



FAKTA:

Numbers of MH-60R: 9

Crew members: national missions 4 and international missions 5.

Range: SAR mission app. 230NM





Capacity:

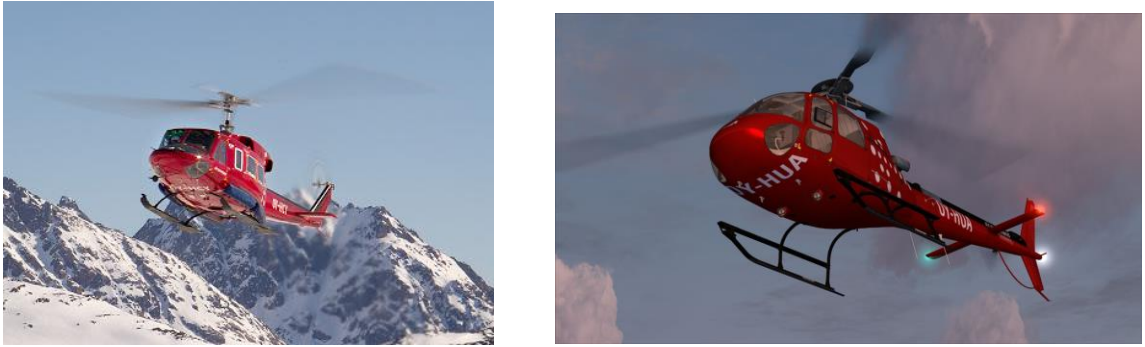
Sensor capacity: radar.

Communication: VHF, UHF, HF and LINK 16
single/doubles sling system, stretcher, rescue basket, drop dinghy and Emergency Life Raft Pod (ELRP)

H. AIR GREENLAND AIRCRAFTS

Air Greenland aircrafts

AIRCRAFT TYPE	SPEED, KNOTS	ENDURANCE MAX.	RADIO DIRECTION FINDER	REMARKS
DHC-7 Dash Seven	Max 231 March 220	6 hours, Operation radius 1200 NM	ADF 200-1750 kHz	The operation radius will be reduced with low level flight
DHC-7		DHC-8		
				
DHC-8 Dash Eight	Max 285 March 275	4 hours, Operation radius 1100 NM	ADF 200-1750 kHz	The operation radius will be reduced with low level flight
KING AIR 200 BE-20	Max 260 March 260	4 hours, Operation radius 1300 NM	ADF 200-1750 kHz	The operation radius will be reduced with low level flight
KING AIR 200		EC225		
				
EC225 helicopter	Max 175 March 140	3 hours 40 min, Operation radius 500 NM	ADF 200-1750 kHz	Can include 5 persons in SAR configuration.

BELL 212 helicopter	Max 110 March 100	3 hours, Operation radius 200 NM	ADF 200-1750 kHz	Can include 8 persons.
BELL 212				AS 350
				
AS 350 Eurocopter Ecureuil helicopter	Max 115	3 hours, Operation radius 360 NM	ADF 200-1750 kHz	Can include 5 persons.

EQUIPMENT TO S-61 AND Bell-212 HELICOPTERS

There are stored Hoist equipment to S-61 and Bell-212 helicopters located:

- Ilulissat, S-61
- Narsarsuaq, S-61
- Nuuk, Bell-212

At each hoist is placed:

- 4 pcs. rubber suits.
- 1 pcs. rescue basket contents:
- 1 pcs. single lift.
- 3 pcs. guide lines.
- 1 pcs. static wire.
- 1 pcs. wire cutter.
- 1 pcs. boathook.
- Smoke signals/marker buoys/sea Anchors.
- 6 pcs. glow stick.

I. AIR DROP EQUIPMENT (FIRST AID AND EMERGENCY)

General

The Danish Defense is able to support first aid and medical equipment to drop to people in distress from crashed aircrafts. The first aid and medical equipment is in a container named "ARCTIC 2-PACK". The drop container content first aid and medical equipment for the first 48 hours for two persons.

The equipment can be dropped from C-130J Hercules, Challenger CL-604 and Twin Otter (Nordlandair).

The drop container is manufactured of hard yellow plastic. The size of the container is: length 86 cm, width 56 cm and high 45 cm weight 51 kg./112 lbs.

Air Group West, Kangerlussuaq has stored and located:

6 pcs drop container ARCTIC 2-PACK
5 pcs drop / hoist down dinghies (life rafts)
9 pcs hoist down bilge pumps

AIR GREENLAND, Kangerlussuaq airport has stored and located:

1 pcs drop container ARCTIC 2-PACK
2 pcs hoist down bilge pumps
2 pcs jerry cans
1 pcs drop / hoist down dinghy (life raft)

AIR GREENLAND, Qarqortoq Helo-airport has stored and located:

1 pcs hoist down bilge pumps
1 pcs jerry can

REMARKS: If a SAR-situation occurs, which makes it necessary to use equipment from AIR GREENLAND stock, a permission must be obtained from Arctic Command or the Chief of Police, GREENLAND. If the authorization delays the SAR-operation, the Arctic Command must be informed as soon as possible.

Station NORD has stored and located:

2 pcs drop container ARCTIC 2-PACK

Mestervig has stored and located:

2 pcs drop container ARCTIC 2-PACK

Furthermore, 4 pcs drop container is stored and located by Squadron (ESK) 721 HG.ATW AALBORG in case take off from AALBORG.

**J. NAME OF THE SHIPS – PENNENT NUMBERS – CALL SIGNS –
MMSI NUMBERS.**

PRIMARY EFFORT UNITS

Name of the ship	Pennant number	Call sign	MMSI - number
THETIS	F 357	OUEU	219 522 000
TRITON	F 358	OUEV	219 523 000
VÆDDEREN	F 359	OUEW	219 524 000
HVIDBJØRNEN	F 360	OUEX	219 524 000
KNUD RASMUSSEN	P 570	OVFG	220 428 000
EJNAR MIKKELSEN	P 571	OVFH	220 429 000
LAUGE KOCH	P 572	OVFI	219 030 000
ABSALON	F 341	OVFA	220 189 000
ESBERN SNARE	F 342	OVFB	220 191 000
IVER HUITFELDT	F361	OVVA	219 103 000
PETER WILLEMOES	F362	OVVB	219 104 000
NIELS JUEL	F363	OVVC	219 105 000
SISAK	-	OXYW	331 000 056
SISAK II	-	OZOM	331 000 004
SISAK III	-	OZQT	331 095 100
SISAK IV	-	OZVC	331 099 000

M. POLICE IN GREENLAND

1. Management and organization of the police district

Greenland is divided into five large municipalities and an area called the National Park. The Greenland Police are represented throughout Greenland with a total of 19 police stations in the country from Qaanaaq in the north to Nanortalik in the south.

As a national authority, the Greenland Police District is organizationally placed under the Ministry of Justice. Overall, the police district is headed by the police chief, who is physically located in the capital, Nuuk, together with the central police administration. The central administration is divided into three pillars: the Public Prosecutor's Office, the Staff Pillar and the Police Pillar. From here, the police in the individual police regions, the prosecution, the police vessels, the finances, the staff, the police academy and IT tasks are administered.

In each pillar, there is an overall leader, and together with the Chief of Police, they form the top leadership of the entire police district.

The leader of the police column is the Chief Police Inspector. As of 1 August 2018, the police district is divided into two geographical police regions. These are police region north and police region south.

- Police Region North covers the municipalities of Qaqqata, Qeqertalik and Avannaata.
- Police Region South covers the municipalities of Sermersooq and Kujallaq.

The nationwide duty center is located at the police station in Nuuk and the duty center is always responsible for SAR operations that have been visited to the police.

The responsibility for a SAR operation cannot be placed locally.

The duty center is responsible for receiving and coordinating all inquiries to the police between 16-08 on weekdays, Saturdays and Sundays and public holidays. In Nuuk, a staff unit is also located to support the entire police pillar.

2. Contact information

Grønlands Politi Hovedstation
Postboks 1006, Imaneq 22
3900 Nuuk
Telephone: 701448
E-mail: gri-politi@politi.dk

Greenland Police	TELEPHONE
Duty Officer, Greenland Police	00299 701448

REMARKS:

The Greenland Police Duty Officer can be contacted by telephone around the clock at the above telephone number.

O. AASIAAT RADIO

1. Aasiaat Radio

The Greenlandic coastal radio station - Aasiaat Radio - monitors an A2 sea area, extending approximately from Pituffik on the northern part of the west coast to the middle of the Blosserville coast on the east coast of Greenland.

The monitoring is not limited to the coastal areas of Greenland; but applies to all calls that are not answered by another coastal radio station.

VHF channel 16 is also monitored in the coastal area from Kullorsuaq in the north to Prins Christians Sund in the south and around Tasiilaq.

Aasiaat Radio's task is to collect information in a given situation, and pass the information on to the rescue authorities. Aasiaat Radio will also exchange messages between the rescue authorities and between them and ships, as well as direct the exchange of the correspondence.

Aasiaat Radio is staffed around the clock. When a given situation arises, staff are called in to the extent deemed necessary.

An emergency checklist is kept, which may be exchanged with the rescue authorities via e-mail.

Aasiaat Radio is in direct contact with the JRCC at a coastal radio bus network where all information is entered.

Aasiaat Radio is responsible for controlling vessels traveling between Greenlandic ports and ports of call sailing in KYSTKONTROLLEN. In case of failure to report, the police will be notified.

Aasiaat Radio receives and forwards messages from ships in GREENPOS directly to JRCC Greenland.

Location of radio equipment is shown on the maps shown below.

2. Contact information

Aasiaat Radio can be contacted as follows:

130	Regular customers
892 766	Tape recorded SAR phone - secret number
892 777	Telefax
386 993	Local telephone
	Coastal radio omnibus circuit
oyr@telepost.gl	E-mail
www.kystradio.gl	Internet
	For all communication other than emergency, safety and security as well as GREENPOS or KYSTKONTROLLEN, please refer to the backup Duty Officer, who is currently bm@telepost.gl and / or nsa@telepost.gl .

**KYSTRADIO
KYSTRADIO TJENESTEN I GRØNLAND**

med angivelse af:

Tjenestearter:

MF - telefoni = MF

VHF - telefoni = VHF

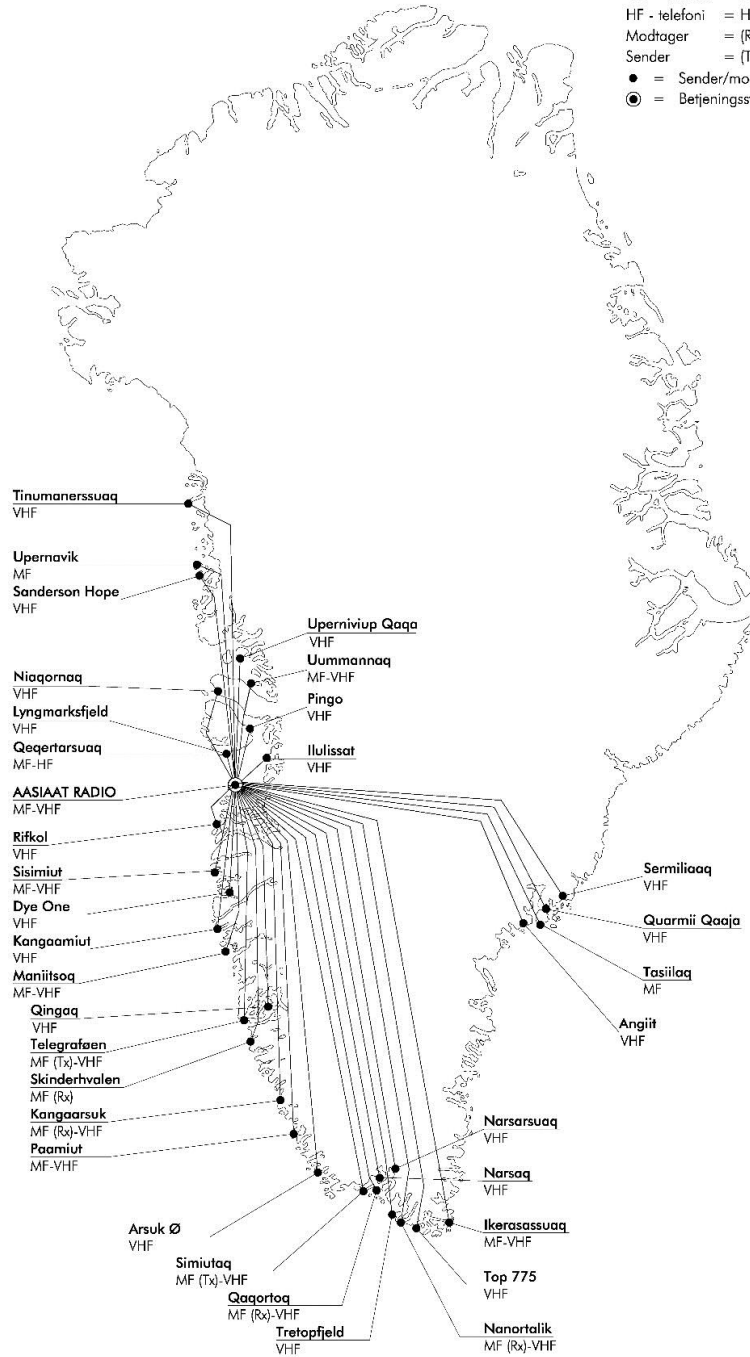
HF - telefoni = HF

Modtager = (Rx)

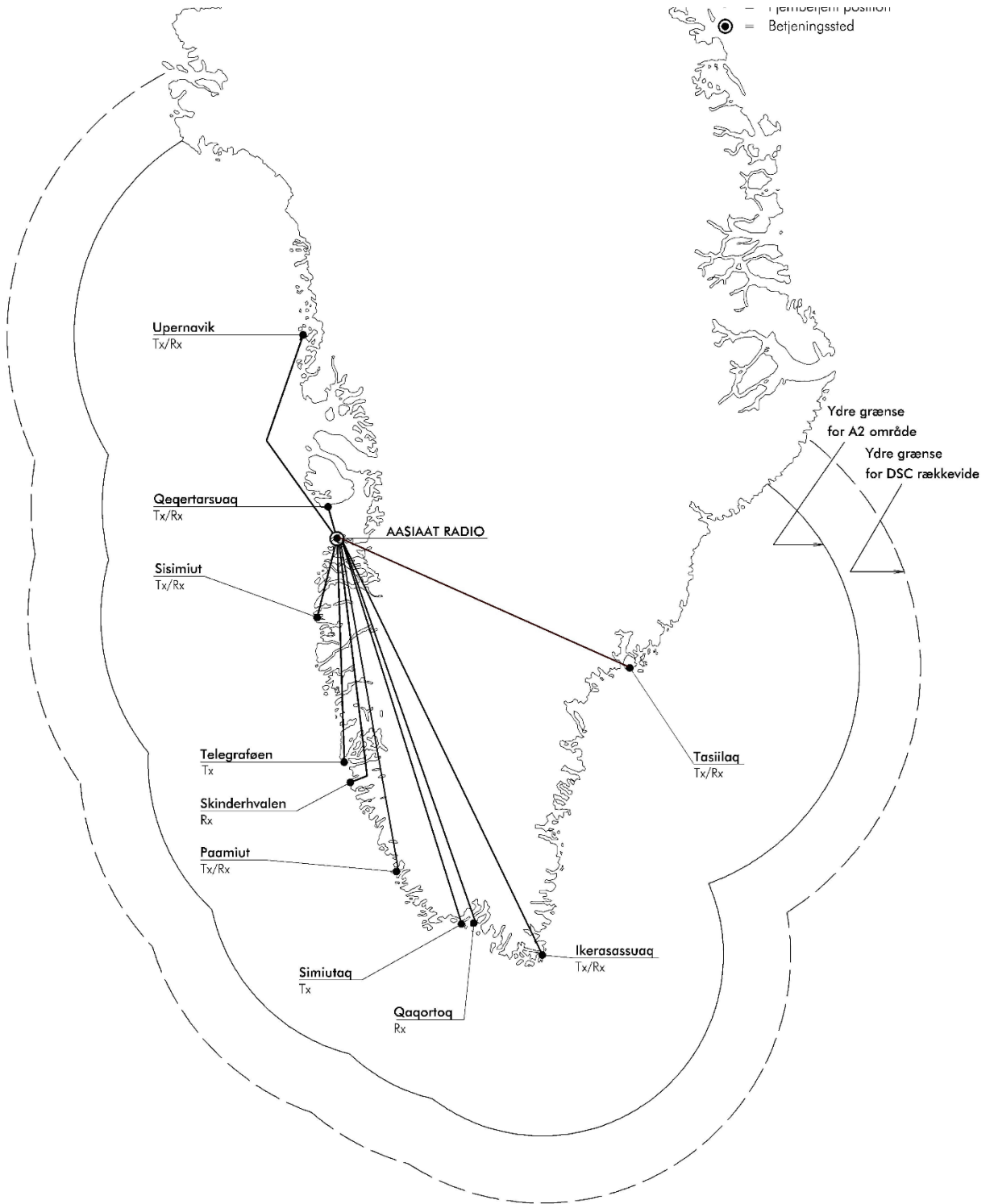
Sender = (Tx)

● = Sender/modtager (Fjernbetjent)

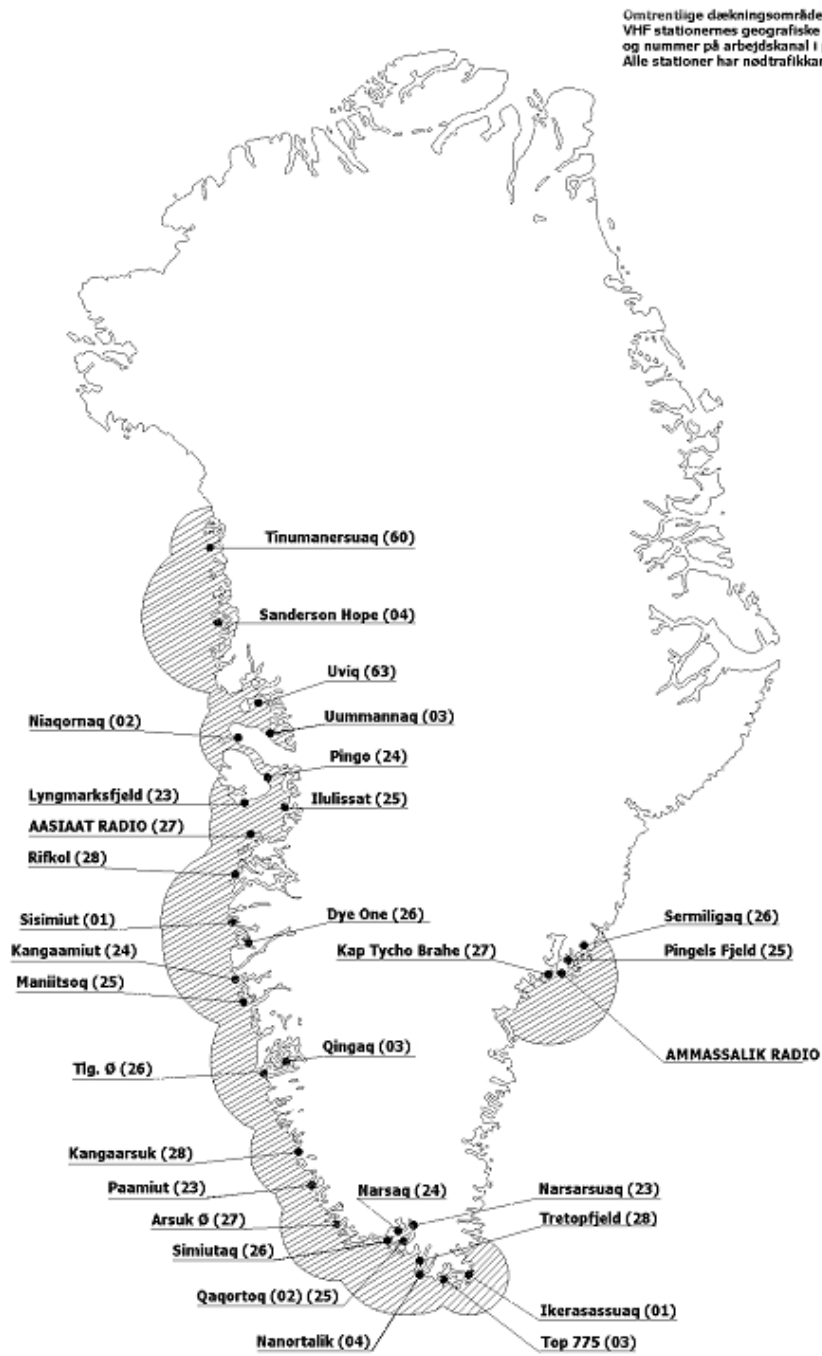
⊙ = Betjeningssteder



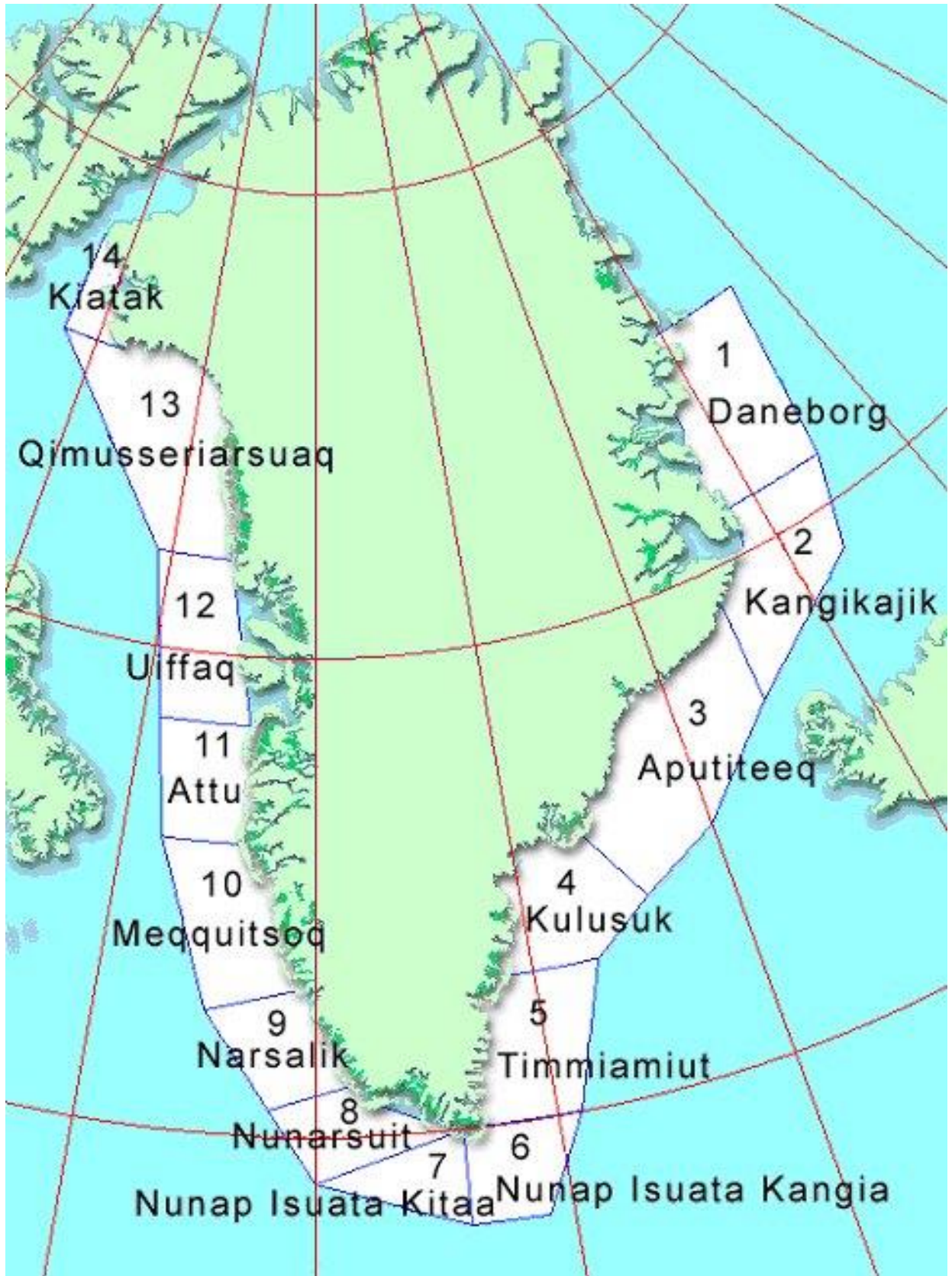
Aasiaat Radio - location of VHF radio channels. All positions have channel 16.



Aasiat Radio - A2 sea area off Greenland



Aasiaat Radio - approximate coverage areas on VHF. All positions have channel 16



Aasiaat Radio - map of warning areas near Greenland

R. THE GREENLANDIC HEALTHCARE

1. Introduction

This document describes the facilities and functions of the Greenlandic Health Service as they are at present.

This document describes the overall facilities and features that are primarily available in the regional cities.

After this, the organization of regional hospitals, health centers and settlements consultations is reviewed.

The last part of the document describes specialized functions and facilities at the main hospital placed in Nuuk as well as the treatment that takes place abroad / Denmark.

2. Institutions in the regions

In each of the five health regions, the following categories of institutions are now defined, which are typically established on the basis of population in the individual localities in the regions:

- **Regional hospitals**
 - o Located in the city of the region with the most inhabitants
- **Health centers**
 - o Smaller health center: Population base 500 - 1,200 inhabitants
 - o Larger health center: Population base > 1,200 inhabitants
- **Health stations**
 - o Population base 200 - 500 inhabitants
- **Settlements consultations**
 - o Larger settlements consultation with a "Pipaluk": Population base 50 - 200 inhabitants
 - o Minor settlements consultation without a "Pipaluk": Population base <50 inhabitants

The situation at all levels of institutions is characterized by large staff turnover and recruitment problems in relation to key health personnel such as doctors, nurses, health nurses and medical secretaries. Therefore, not all healthcare services are always offered in practice.

2.1. Regional hospitals

The regional hospitals are located in the largest city in each region and are therefore located in Ilulissat, Sisimiut, Aasiaat and Qaqortoq. In Nuuk is the national hospital, which together with the region's health center takes care of the citizens in Nuuk's need for general health services - and in this way corresponds to the regional hospitals' functions and facilities. Landhospitalet also offers specialized functions that take care of the entire Greenlandic population's needs for this.

The regional hospitals are generally staffed with doctors, nurses, health assistants, health nurses, midwives, somatic and psychiatric home nursing, physiotherapists, bioanalysts, pharmaconomists, porters as well as assistants / health assistants and administrative staff. However, the staff is largely employed for short periods and on a temporary basis - just as in shorter or longer periods there is a lack of representation of certain health professional groups.

The regional hospital is staffed 24 hours a day. Outside normal working hours, citizens can contact the regional hospital by telephone if the citizens need emergency help.

REGIONAL HOSPITALS AND CONTACT INFORMATION

Region	Regional Hospital	Telephone numbers in case of emergency
Region Avannaá	Ilulissat Sygehus	(+299) 94 32 11
Region Disko	Aasiaat Sygehus	(+299) 89 22 11
Region Qeqqa	Sisimiut Sygehus	(+299) 86 42 11
Region Kujataa	Qaqortoq Sygehus	(+299) 64 22 11
Region Sermersooq	Dronning Ingrid's Sundhedscenter (DIS), Nuuk	(+299) 34 41 12

2.2. Larger / smaller health centers and health stations

Most health centers are staffed with doctors, nurses, health assistants, porters and the like corresponding to the functions available at the health center, such as health care, home nursing and medicine delivery, etc. However, there may be periods without a regular doctor, but where medical tasks are covered via visits from the Regional Hospital or via skype consultations. As is the case for the regional hospitals, there is also a large turnover of staff for the health centers and stations and a large difference in the extent to which they offer specific health services.

If you need emergency help outside normal working hours, please refer to current on-call arrangements. It is also possible to admit patients in connection with planned treatment / examination. The health center is staffed 24 hours a day. Outside normal working hours, citizens can contact the health center directly if they need emergency help. To the extent that the staff competencies are present, round-the-clock / weekend coverage can be established for shorter periods - for example for patients awaiting transport for treatment at the regional hospital / DIH / abroad.

The health stations will typically be staffed during normal working hours (08-16 on weekdays). If you need emergency help outside normal working hours, please refer to current on-call arrangements.

HEALTH CENTERS AND STATIONS

Region	Health center
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Region Avannaq	Qaanaaq Health center Upernavik Health center Uummannaq Health center
Region Disko	Kangaatsiaq Health station Qasiqianguit Health center Qeqertarsuaq Health center
Region Qeqqa	Maniitsoq Health center
Region Sermersooq	Dronning Ingrid's Health center (Nuuk) Tasiilaq Health center Paamiut Health center Ittoqqortoormiit Health center
Region Kujataa	Narsaq Health center Nanortalik Health center

2.3. Settlements consultations

Settlements consultations are typically staffed with unskilled staff.

3. Dronning Ingrid's Hospital (DIH, Nuuk)

The clinical areas at Dronning Ingrid's Hospital (DIH) consist of:

- Surgical Area
- Medical Area
- Acute Area
- Psychiatric Area
- Diagnostic & Therapeutic Area
- In addition, DIH has a patient hotel

Patients registered in the population register with a residence in Greenland can be examined for treatment in Denmark when it is a treatment that the Greenland Health Service cannot offer / handle itself. It is primarily the Capital Region of Denmark that handles treatment of patients residing in Greenland, but it is also possible to receive treatment at other hospitals that offer a given treatment.