



Report of the Workshop

Towards Improved Search and Rescue Coordination and Response in the Antarctic

(Para mejorar la coordinación y respuesta de búsqueda y salvamento en la Antártica)

Tuesday 12 - Thursday 14 August 2008, Valparaiso / Viña del Mar, Chile

hosted by the Chilean Directorate General of the Maritime Territory and Merchant Marine (DIRECTEMAR)
in collaboration with the Council of Managers of National Antarctic Programs (COMNAP)

*Prepared by workshop convenors Antoine Guichard and Ivan Valenzuela
Final version – 26 November 2008*

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Introduction

Under international maritime and aeronautical agreements, Rescue Coordination Centres (RCCs) of five countries (Argentina, Australia, Chile, New Zealand and South Africa) share responsibility for the coordination of Search and Rescue (SAR) over the Antarctic region. Information on arrangements and systems in place can be found in COMNAP's information paper "*Search and Rescue in the Antarctic*" (XXXI ATCM / IP 099 – 2008) available at www.comnap.aq/sar.

Antarctic RCCs and operators have worked together for a long time, though links have often remained informal and on a mostly national level. The situation continues to evolve positively with stronger links being forged.

The current increase in maritime and air traffic can be of concern in relation both to the capability to respond and to the possible impact on National Antarctic Programs. Of particular concern are very large passenger vessels – their rescue would require considerable assets and resources and could cause major disruptions to nearby stations and vessels and the research programmes they support.

COMNAP and RCC authorities decided to convene this workshop to:

- Improve understanding of the nature and activities of RCCs and National Antarctic Programs, and how they can work together;
- Review the nature of maritime, aeronautical and land traffic in the Antarctic region and the challenges it poses for Search and Rescue; and
- Explore options for improved Search and Rescue coordination and response in the Antarctic.

This report outlines the workshop discussions and key outcomes. It includes a number of Recommendations and a range of Actions to be progressed over the next year. A follow up workshop should be reconvened in July/August 2009, in particular to expand on land SAR.

Conventions

- ***“the 5 countries”***: refers to the 5 countries with SAR responsibilities over the Antarctic: Argentina, Australia, Chile, New Zealand and South Africa.
- ***“the RCCs of the 5 countries”***: refers to all relevant Rescue Coordination Centres (RCCs) of these 5 countries. 3 countries have each one Maritime RCC (MRCC) and one Aeronautical RCC (ARCC). The other 2 countries (Australia and New Zealand) have each one single Joint Maritime and Aeronautical RCC (JRCC).
- ***“the 5 National Antarctic Programs”***: refers to the National Antarctic Programs (NAPs) of these 5 countries.

Acronyms

AIS	Automatic Identification System
AMVER	A voluntary global ship reporting system for search and rescue sponsored by the US Coast Guard and available to any SAR authority for distress at sea.
ARCC	Aeronautical Rescue Coordination Centre
ATCM	Antarctic Treaty Consultative Meeting
CCAMLR	Commission for the Conservation of Antarctic Marine Living Resources
COMNAP	Council of Managers of National Antarctic Programs
DIRECTEMAR	Dirección General del Territorio Marítimo y de Marina Mercante ([Chilean] Directorate General of the Maritime Territory and Merchant Marine)
IAATO	International Association of Antarctica Tour Operators
ICAO	International Civil Aviation Organisation
IMO	International Maritime Organisation
ITU	International Telecommunication Union
JRCC	Joint (Maritime and Aeronautical) Rescue Coordination Centre
LRIT	Long Range Identification and Tracking
MRCC	Maritime Rescue Coordination Centre
NAP	National Antarctic Program
PANC	[Argentina and Chile's] Patrulla Antártica Naval Combinada (Joint Antarctic Naval Patrol)
RCC	Rescue Coordination Centre
SAR	Search and Rescue
SOLAS	International Convention for the Safety of Life at Sea (1974)
SPRS	COMNAP Ship Position Reporting System
SRR	Search and Rescue Region

Report Text – as adopted by workshop participants

Disclaimer

Nothing mentioned in this document should be considered contrary to any of the international conventions in force regarding Search and Rescue and Communications, issues which are regulated by IMO, ICAO, ITU, and national laws and regulations in force.

Links between RCCs

The 5 countries already have a number of bilateral SAR agreements with one or both adjoining countries, in particular for Maritime

Australia and South Africa each has also a bilateral agreement with France for La Réunion SRR. It was noted that La Réunion RCC can be sometimes best placed to respond in the sub-antarctic/antarctic around the SAR coordination boundary between Australia and South Africa SRRs, and that it was bound to do so under these agreements.

Argentina & Chile join forces and share responsibilities in the Peninsula. They jointly operate the Patrulla Antártica Naval Combinada (PANC) (Joint Antarctic Naval Patrol), which has operated for 10 years. It has been traditionally operated from 01 Dec to 01Mar. Operation will be extended from 15 Nov to 15 Mar for 2008/2009.

It was noted that Qantas was proposing to start a new commercial route by the end of 2008, flying between Sydney and Buenos Aires 3 times a week with a Boeing 747. The return route from Buenos Aires back to Sydney could take the plane as far South as 80 deg South, to avoid the jetstream. It would therefore overfly the continent, crossing 4 of the 5 SRRs. There was a need for examining aviation coordination arrangements.

For practical reasons, South Pole facilities are considered included in New Zealand SRR.

>> Actions

- 5 countries to continue pursuing bilateral SAR agreements for both maritime and aviation
- 5 countries to consider establishing a single regional SAR agreement (Maritime and Aeronautical), which could for example, at least initially, be a simple agreement restricted to exchange of information, communication protocols and aviation coordination arrangements – noting that a number of maritime and aeronautical bilateral agreements are already in place

Links between RCCs and National Antarctic Programs

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Each RCC has connections with its National Antarctic Program, and these continue to develop.

In New Zealand, discussions and planning involve an additional National Antarctic Program (US) that operates in the New Zealand SRR, and the two National Antarctic Programs have a “unified incident command” system in place (a draft version is provided as a meeting paper).

In Australia, the RCC and National Antarctic Program have a Memorandum of Understanding in place (provided as meeting paper).

>> Recommendations

- That each National Antarctic Program establishes and maintains a liaison/relationship with the RCCs of its areas of operation, preferably in association with the National Antarctic Program of the RCC country

>> Actions

- COMNAP to draft a paper and recommendations for increased collaboration in SAR between National Antarctic Programs and relevant RCCs, using the draft Arctic SAR Memorandum of Understanding as a guide (project Manager: Erik Barnes)
- Each of the 5 NAPs to consult with their RCCs and the other NAPs operating in their area to discuss potential communication and collaboration between each other for SAR purposes

Links between RCCs and their national Antarctic agencies

It was noted that in New Zealand, the SAR authority is part of the National “Officials Antarctic Committee”.

>> Recommendations

- That the SAR authorities of each of the 5 countries be included in some way in Antarctic discussions/committees at national level.
- That the 5 NAPs and 5 national Treaty delegations of the 5 countries consider including their SAR authority in discussions and meetings of COMNAP and the ATCM, whenever relevant

Contact List & Communication Protocols

It was agreed that it was crucial to maintain up-to-date SAR points of contact for:

- MRCCs and ARCCs for the 5 SAR Regions (including email addresses for feeding ship position reports)
- COMNAP and IAATO
- CCAMLR (for fishing vessels)
- Individual National Antarctic Programs
- Antarctic stations and ships (including phone and email)

>> Actions:

- COMNAP and RCC Australia to develop, maintain and make available a list of relevant contacts, by 15 October 2008

Information on potential rescue assets

It was important to maintain information on potential rescue assets present in the region, in particular their capabilities, location and contact details.

It was noted that the new Antarctic Treaty Electronic Exchange of Information System (EIES) and the COMNAP electronic Information Exchange system (InfoX), which will have some level of synchronisation, would provide a good basis for maintaining such information.

It was also noted that IAATO was maintaining information about its members' ships, which could be provided to the 5 MRCCs.

It was noted that IMO MSC/Circ. 1079 and MSC.1/Circ. 1184 specify a range of information that should be provided by ships operating in areas remote of SAR facilities and that we should in the future look at providing the information as per these Circulars (The two circulars are named respectively "Guidelines for Preparing Plans for Co-operation Between Search and Rescue Services and Passenger Ships" and "Enhanced Contingency Planning and Guidance for Passenger Ships Operating in Areas Remote from SAR Facilities".)

Chile informed that it is considering proposing the installation of a Maritime Rescue Sub-Centre (MRSC) in Deception Island as a way of improving SAR assets in the area, due to the high traffic around that island, the many incidents that occurred there and the special character of the island

>> Actions:

- IAATO to make its current information about its members' ships available to the MRCCs of the 5 countries
- COMNAP to work with the Antarctic Treaty Secretariat to develop and coordinate their relevant information systems and resources (including EIES, InfoX, AFIM and ATOM) so as to best maintain information on stations, ships and aircraft and make the information available to the RCCs of the 5 countries

>> Recommendations:

- That the Antarctic Treaty Consultative Parties recognise the importance for SAR of maintaining up to date 'permanent' information on all stations, other ground facilities (camps, refuges, airfields...), ships and aircraft

Ship Position Reporting

A range of position reporting mechanisms are in place. Although there may be some duplication, this can also provide a level of redundancy and complementarity.

It was noted that because of the remoteness of the Antarctic region and the low density of rescue assets, it was valuable to receive and regularly monitor position reports, and have advance schedule information, rather than polling or only looking at the information when an emergency occurred.

Ships should be encouraged to report positions at least once a day, and preferably twice a day, once in the morning and once in the evening. They should then preferably report positions both to the relevant MRCC and to either COMNAP (for National Antarctic Program vessels) or IAATO (for IAATO vessels).

The 5 MRCCs confirm that all position reports received would be treated as confidential and used exclusively for SAR purposes. The COMNAP and IAATO systems could tailor distribution of their information depending on the wishes of individual ships or members. It was noted that while there were some concerns about confidentiality, some operators were publishing if not advertising the position and activities of their vessels on public web sites.

COMNAP will make available their position reports to the 5 MRCCs. IAATO will take steps to ensure that the MRCCs have a reliable access route to the IAATO vessel positions. There could be an option to push the information out at regular interval (at least daily) in addition to giving password protected access to web-based reports.

We may want to think about how we could encourage other vessels (non-NAP and non-IAATO) to report to MRCCs.

The AMVER worldwide ship reporting system will always be available to the Antarctic region RCCs for SAR operations.

>> Actions:

- COMNAP to feed information from their ship position reporting system to the MRCCs of the 5 countries
- IAATO to take steps to ensure that the MRCCs of the 5 countries have a reliable access route to the IAATO vessel positions
- COMNAP, IAATO and AMVER to explore ways in which their respective position reporting systems could communicate with, and support, each other

>> Recommendations:

- That National Antarctic Programs are encouraged to use the COMNAP SPRS to its fullest possible extent for all their ships and making use of optional parameters
- That the Antarctic Treaty Consultative Parties
 - recognise the importance for SAR of all Antarctic Ships ensuring that their positions are available to at least the MRCC of the region they are navigating in;

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- encourage ships to liaise with vessels they encounter in the Antarctic Treaty area to promote the use of position reporting systems; and
- resolve that all ships flying their flag or used as part of their National Antarctic Program should while in the Antarctic Treaty Area, as far as possible, report their position to at least one of the MRCCs of the 5 countries, recognising that official MRCCs have systems in place to ensure confidentiality of this information.

Advance Schedules

As noted earlier: *because of the remoteness of the Antarctic region and the low density of rescue assets, it was valuable to receive and regularly monitor position reports, and have advance schedule information, rather than polling or only looking at the information when an emergency occurred.*

It was agreed that availability of advance schedules was valuable to get an advance idea of traffic and presence of rescue assets. Some information on advance schedules could be available through the Treaty's EIES. It was noted that IAATO was maintaining each season a detailed schedule of all its members' ships. It was made available to COMNAP and could be made available to the 5 MRCCs. COMNAP was developing new systems for collecting National Antarctic Program ship schedules, and also add to the Ship Position Reporting System the capability to specify next way-points.

>> Actions:

- IAATO to provide its members' pre-season ship schedules to the MRCCs of the 5 countries
- COMNAP to work with the Antarctic Treaty Secretariat to develop and coordinate their relevant information systems and resources (including EIES, InfoX, SPRS) so as it can feed information on advance schedules of participating National Antarctic Program vessels to the RCCs of the 5 countries

>> Recommendations:

- That the Antarctic Treaty Consultative Parties recognise the importance for SAR of providing advance information on ship and aircraft schedules

Library of Information

It was agreed that it would be useful to have available a library of SAR relevant information, including:

- Regulations
- Guidelines
- Training course material
- SAR agreements
- Contingency / Response plans and procedures

>> Actions:

- COMNAP to integrate such a library in its new system – target implementation date: 01 Jan 2009
- RCCs, NAPs and IAATO to forward to the COMNAP Secretariat any material they consider worth incorporating in this library.

Land SAR

Responsibility for Land SAR in the Antarctic has not been defined by any international agreements. No nation has responsibility for coordinating land SAR in the Antarctic, but it has traditionally been the job of the national expeditions deployed to continental stations.

National Antarctic Programs and IAATO operators aim to be self-sufficient but also maintain links so that they can better assist each other if necessary. These Programs have both operational experience and response assets on the ground. They will usually be best placed to respond. RCCs could help them coordinate, but these RCCs know about Air and Maritime SAR, usually not about land SAR.

Already a number of National Antarctic Programs have training courses in place for Land SAR, and some are open to participation by other National Antarctic Programs. A range of information about such courses will be available soon through the COMNAP web site.

It was agreed that this was an area more complex to address in a coordinated way, but that initiatives taken at this workshop, in particular with regard to communication and partnerships between RCCs and National Antarctic Programs and to the collection of information on assets and schedules would already go a good way towards improving the situation.

Progress would be reviewed.

>> Recommendations:

- That the next workshop (should there be one) review progress with Land SAR and consider future steps

Long Range Identification and Tracking - LRIT

It was noted that LRIT would be operational from 31 Dec 2008, and apply to all vessels covered by Chapter V of SOLAS. Ship identification and position will be sent up to a central IMO data exchange.

This was primarily designed for security, but can also be used for safety. Countries can purchase at any time LRIT information from ships that either:

- (a) sail under their flag; or

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- (b) are seeking entry to a port within their territory; or
- (c) are sailing within 1000 NM of their coastline.

A map showing the portions of the Antarctic Treaty area covered by these 1000NM limits is provided at appendix 6.

It was noted that there are sea areas around Antarctica beyond 1000 NM from the coasts of the 5 countries with SRRs. In an area beyond the 1000 NM, the relevant RCC will not have access to LRIT information for all ships present in the area except when a distress has been declared in that area - the information, to be used for SAR purposes only, would then be free of charge.

It was not clear how difficult it would be to try to obtain that the IMO agrees to let the 5 countries purchase LRIT information for the entire Antarctic sector of their SRR, beyond the 1000NM limit.

LRIT was a new system and time was needed to see how it would work and develop, and how useful it may be for Antarctic SAR purposes.

It was agreed to remain focused on increasing uptake of position reporting systems via existing voluntary national or global reporting systems, and review the situation of LRIT at any future workshop.

Automatic Identification System - AIS

The workshop noted the work done by COMNAP through the Uruguayan National Antarctic Program on trialling the use of AIS for small crafts and land-based vehicles around stations, and on considering how this may be used by National Antarctic Programs, independently or together.

It was agreed that this had good potential and should be pursued.

It was noted that AIS information may be in the near future available globally through satellite receivers. It would greatly increase the potential of AIS for tracking all kind of Antarctic activities, but cost may be high.

>> Actions:

- Uruguayan National Antarctic Program, in collaboration with others to continue working on AIS options for SAR purposes, and report back on progress to COMNAP, the RCCs of the 5 countries and the ATCM

Remarks on Prevention

It was noted that accidents involving a significant number of persons were of extreme concern and as such required special consideration. Depending on the environment, the SRR and the SAR capability available even small numbers of persons can prove extremely challenging. Large passenger vessels and aircraft will pose a very difficult challenge. Experience with MV Explorer has already clearly demonstrated this problem.

It was also reminded that conditions of ships and skills of crew were important to reduce risks, and it was suggested that we may consider finding ways to make the 2004 Antarctic Treaty *Guidelines for Ships Operating in Arctic and Antarctic Ice-Covered Waters* mandatory for all ships operating in the Antarctic Treaty Area, in particular in relation to crew training. However it was noted that IMO was currently reviewing these guidelines and may consider making the revised guidelines mandatory. All IMO members have the opportunity to contribute to that review.

Already a number of National Antarctic Programs have training courses in place for ship crews, and some are open to participation by other National Antarctic Program. A range of information about such courses will be available soon through the COMNAP web site.

Future work

The workshop recommended that COMNAP reconvene such a workshop in one year time, in particular to expand on Land SAR, then review the requirements for future workshops.

Argentina offered to host this next workshop.

>> Recommendations

- That COMNAP reconvene such a workshop in one year time, in particular to expand on Land SAR, then review the requirements for future workshops.

Appendix 1: List of Actions and Recommendations arising from the workshop

ACTIONS

(Links between RCCs)

- 5 countries to continue pursuing bilateral SAR agreements for both maritime and aviation
- 5 countries to consider establishing a single regional SAR agreement (Maritime and Aeronautical), which could for example, at least initially, be a simple agreement restricted to exchange of information, communication protocols and aviation coordination arrangements – noting that a number of maritime and aeronautical bilateral agreements are already in place

(Links between RCCs and National Antarctic Programs)

- COMNAP to draft a paper and recommendations for increased collaboration in SAR between National Antarctic Programs and relevant RCCs, using the draft Arctic SAR Memorandum of Understanding as a guide (project Manager: Erik Barnes)
- Each of the 5 NAPs to consult with their RCCs and the other NAPs operating in their area to discuss potential communication and collaboration between each other for SAR purposes

(Contact List & Communication Protocols)

- COMNAP and RCC Australia to develop, maintain and make available a list of relevant contacts, by 15 October 2008

(Information on potential rescue assets)

- IAATO to make its current information about its members' ships available to the MRCCs of the 5 countries
- COMNAP to work with the Antarctic Treaty Secretariat to develop and coordinate their relevant information systems and resources (including EIES, InfoX, AFIM and ATOM) so as to best maintain information on stations, ships and aircraft and make the information available to the RCCs of the 5 countries

(Ship Position Reporting)

- COMNAP to feed information from their ship position reporting system to the MRCCs of the 5 countries
- IAATO to take steps to ensure that the MRCCs of the 5 countries have a reliable access route to the IAATO vessel positions
- COMNAP, IAATO and AMVER to explore ways in which their respective position reporting systems could communicate with, and support, each other

(Advance Schedules)

- IAATO to provide its members' pre-season ship schedules to the MRCCs of the 5 countries
- COMNAP to work with the Antarctic Treaty Secretariat to develop and coordinate their

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relevant information systems and resources (including EIES, InfoX, SPRS) so as it can feed information on advance schedules of participating National Antarctic Program vessels to the RCCs of the 5 countries

(Library of information)

- COMNAP to integrate such a library in its new system – target implementation date: 01 Jan 2009
- RCCs, NAPs and IAATO to forward to the COMNAP Secretariat any material they consider worth incorporating in this library.

(Automatic Identification System - AIS)

- Uruguayan National Antarctic Program, in collaboration with others to continue working on AIS options for SAR purposes, and report back on progress to COMNAP, the RCCs of the 5 countries and the ATCM

RECOMMENDATIONS

(Links between RCCs and National Antarctic Programs)

- That each National Antarctic Program establishes and maintains a liaison/relationship with the RCCs of its areas of operation, preferably in association with the National Antarctic Program of the RCC country

(Links between RCCs and their national Antarctic agencies)

- That the SAR authorities of each of the 5 countries be included in some way in Antarctic discussions/committees at national level.
- That the 5 NAPs and 5 national Treaty delegations of the 5 countries consider including their SAR authority in discussions and meetings of COMNAP and the ATCM, whenever relevant

(Information on potential rescue assets)

- That the Antarctic Treaty Consultative Parties recognise the importance for SAR of maintaining up to date 'permanent' information on all stations, other ground facilities (camps, refuges, airfields...), ships and aircraft

(Ship Position Reporting)

- That National Antarctic Programs are encouraged to use the COMNAP SPRS to its fullest possible extent for all their ships and making use of optional parameters
- That the Antarctic Treaty Consultative Parties
 - recognise the importance for SAR of all Antarctic Ships ensuring that their positions are available to at least the MRCC of the region they are navigating in;
 - encourage ships to liaise with vessels they encounter in the Antarctic Treaty area to promote the use of position reporting systems; and
 - resolve that all ships flying their flag or used as part of their National Antarctic Program should while in the Antarctic Treaty Area, as far as possible, report their position to at least one of the MRCCs of the 5 countries, recognising that official MRCCs have

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systems in place to ensure confidentiality of this information.

(Advance Schedules)

- That the Antarctic Treaty Consultative Parties recognise the importance for SAR of providing advance information on ship and aircraft schedules

(Land SAR)

- That the next workshop (should there be one) review progress with Land SAR and consider future steps

(Future work)

- That COMNAP reconvene such a workshop in one year time, in particular to expand on Land SAR, then review the requirements for future workshops.

Appendix 2: Hypothetical Search and Rescue Scenarios

Scenario 1 – Large passenger vessel evacuation off Antarctic Peninsula

Prepared by Argentina, Chile, UK, Uruguay and IAATO workshop participants

Bahamas-registered passenger vessel “Aldebaran” with 1000 persons on board (700 passengers and 300 crew) issues a distress call at 64°32 S and 061°30 W, in small bay on Gerlache Strait. The vessel has suffered an explosion in the engine room and is taking water. 600 persons are evacuated in 4 enclosed lifeboats and 100 in 5 open liferafts. Visibility is reduced to 1km with snow with 25 knots winds. 5 IAATO vessels are within 50NM. Frei airfield is at 160NM and O'Higgins at 110NM

Scenario 2 – Commercial airliner crash landing in Mary Bird Land

Prepared by New Zealand, Australia and USA workshop participants

A QANTAS flight from Buenos Aires to Sydney with 300 people on board crossed the FIR (Flight Information Region) boundary from Chile to New Zealand, at latitude 80 degrees south. The aircraft lost contact with air traffic services, and subsequently crashed in Mary Bird Land while attempting to return to Buenos Aires. RCCNZ coordinated SAR operations with Antarctica New Zealand and the United States Antarctic Program, in accordance with the RCCNZ Antarctic SAR Response plan and Unified Incident Command System, and with RCC Australia.

Scenario 3 – Dronning Maud Land Air Network (DROMLAN) - hard landing of big cargo aircraft at snow compacted runway in Dronning Maud Land

Prepared by South Africa, France, Germany and Japan workshop participants

An IL-72TD aircraft from South Africa with 60 passengers and crew makes a hard landing at Novolazarevskaya runway. 12 persons are injured, some very serious. The aircraft is blocked in the middle of the runway, making it unusable for any fixed wing aircraft. Seriously injured passengers are transferred by helicopter to SANAE Base, and others injured to Novolazarevskaya base. The rest remains at the runway site. SANAE accepts coordination responsibility and informs other bases.

SANAE informs MRCC Cape Town of situation and requests medical evacuation. The most suitable medevac aircraft is to be despatched from South Africa to Troll station when weather permits. Crash survivors to be moved to TROLL by fixed wing and helicopter to meet with medevac aircraft.

Appendix 3: List of workshop participants

Name / Affiliation	Email contact(s)
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Report - Antarctic SAR Workshop (12-14 August 2008)

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AUSTRALIA

National SAR agency

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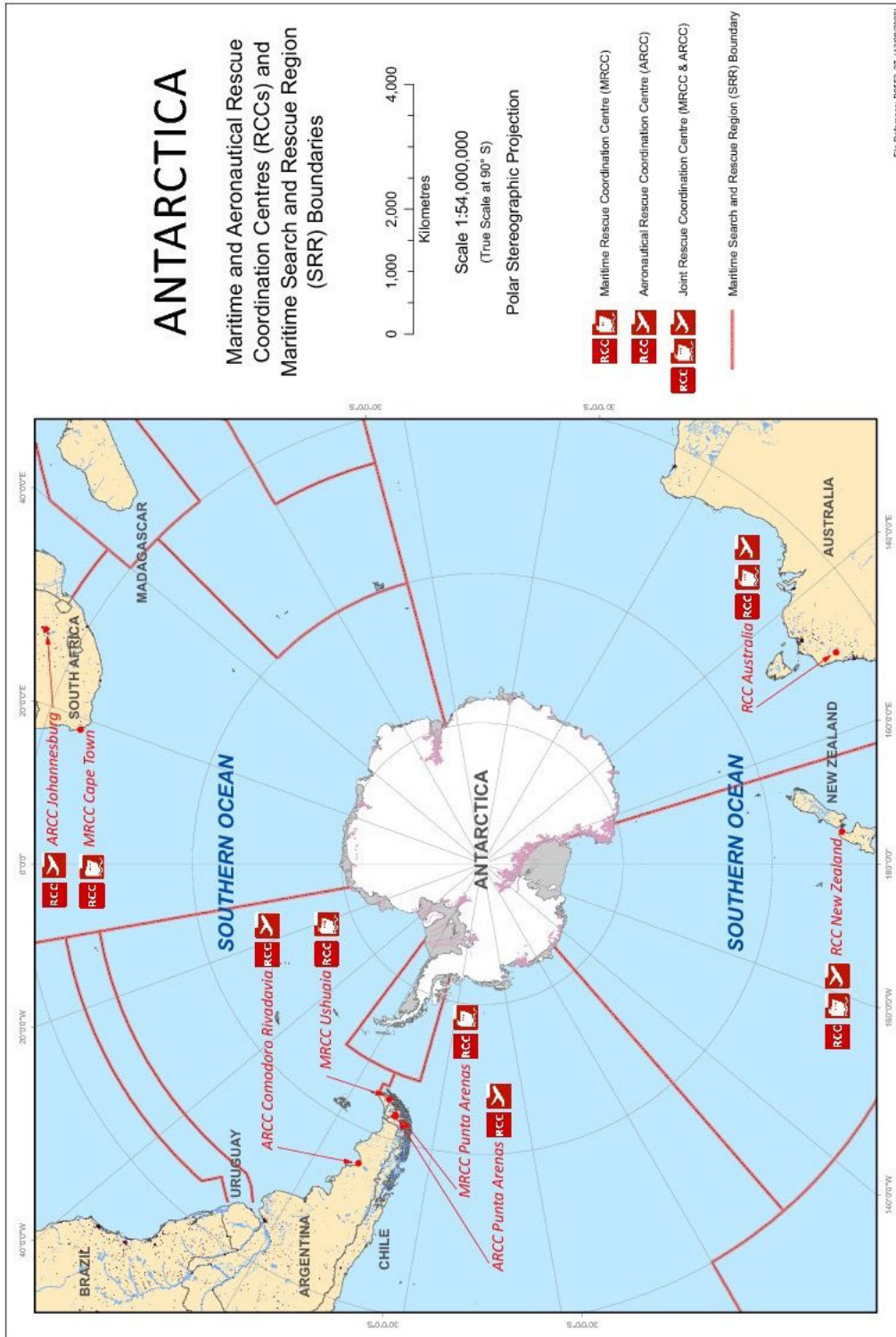
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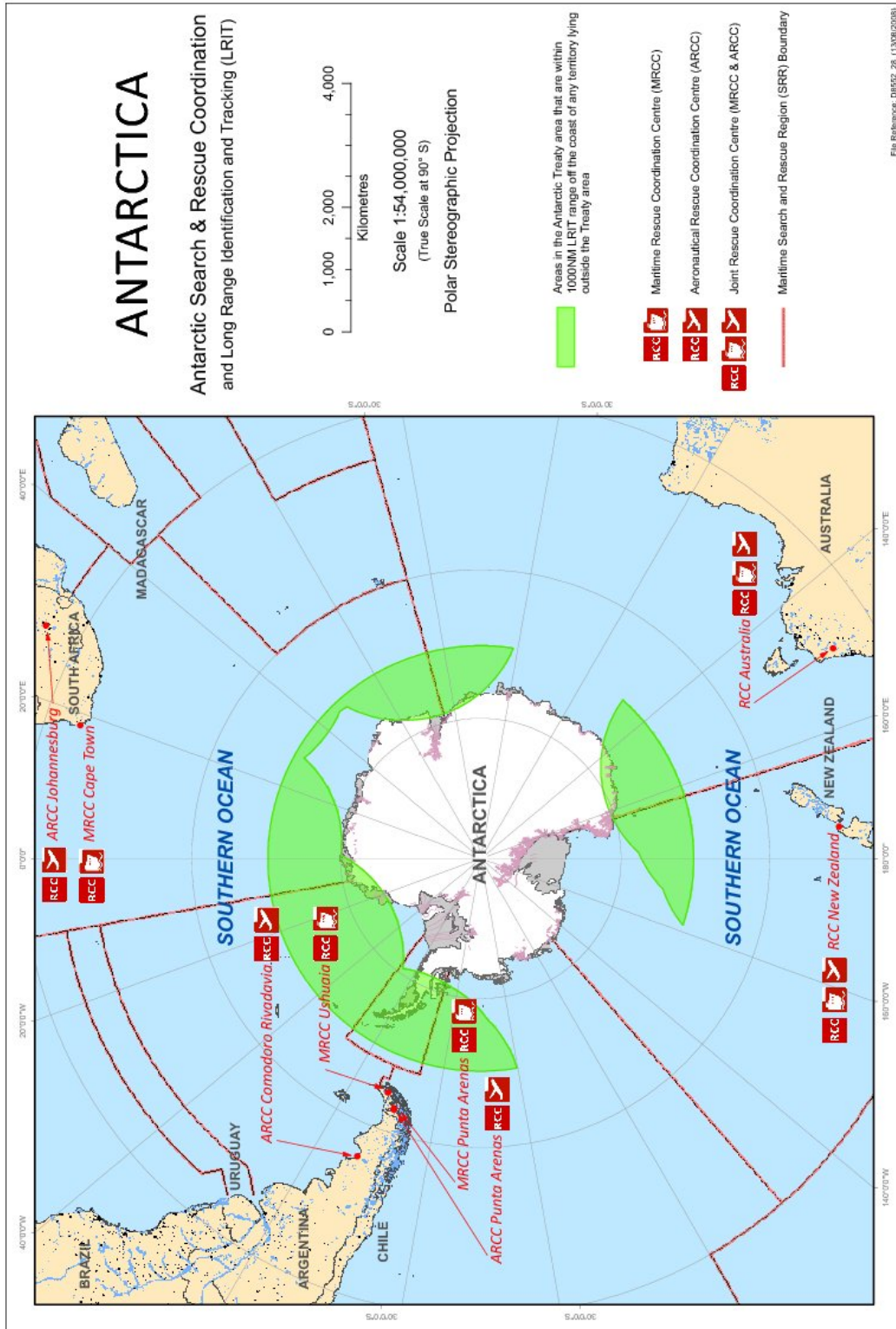
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Appendix 5: Map – Antarctic SRRs and RCCs



Appendix 6: Map – Antarctic SRRs, RCCs and LRIT



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