

Appendix I

Discussion Exercise Summary - “Antarctic Search-and-Rescue”

Introduction

An emergency incident response discussion exercise was conducted on Tuesday 26th September 2017 at the Institute for Marine and Antarctic Studies (IMAS) in Hobart, Australia as part of the 18th meeting of the International Ice Charting Working Group (IICWG).

Aim

The aim of the exercise was to prepare members of ice services for a large scale response effort in ice infested waters.

Objectives

- To identify the needs of stakeholders and the role of the IICWG in the event of an incident in the Antarctic;
- To build understanding within the IICWG of the challenges and considerations for operations in the Antarctic;
- To ensure the IICWG Emergency Response Contact List is up to date;
- To discuss how ice services would work collaboratively to assist in a response spanning international boundaries;
- To facilitate working relationships between all stakeholders.

Exercise Facilitator

Martin Boyle - Planning, Projects and Risk Manager at the Australian Antarctic Division

Expert Panel

- Robb Clifton (Australian Antarctic Division - AAD)
- Christine Macmillian (Australian Maritime Safety Authority - AMSA)
- Scott Bryson (Australian Antarctic Division)
- Gerry O’Doherty (Master, AURORA AUSTRALIS)

Scenario Overview

The date is the 19th February 2018.

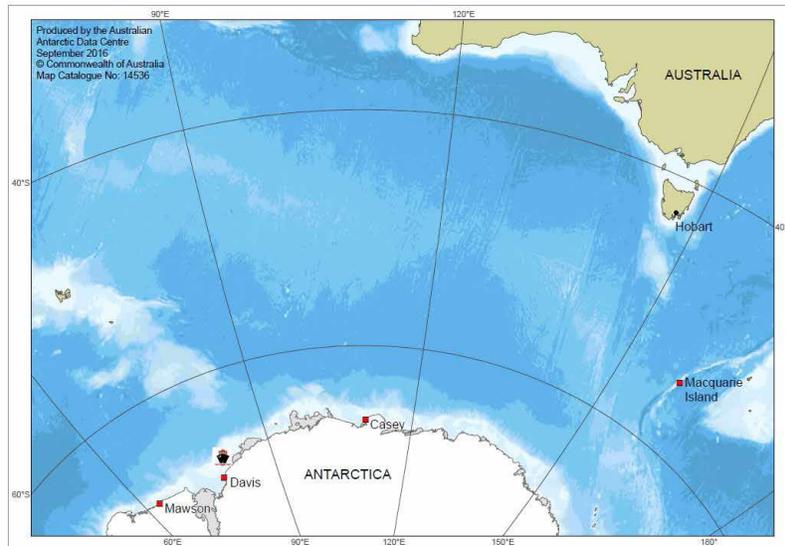
Voyage 3 of the RSV Aurora Australis has completed the annual over water resupply, refuel, and deployment/retrieval of personnel at Mawson research station. The voyage subsequently retrieved personnel and two B3 AS350 ‘Squirrel’ helicopters from Davis research station and is on the final leg of the voyage back to Hobart.

The ship has made slow but steady progress from Davis research station however has encountered heavy pack ice which has closed up around the vessel due to northerly winds. The Master has determined that the vessel will stop attempting to break its way through the pack and hold position until conditions ease.

The ships position is 65° 33.000'S, 80° 11.000'E.

A map of ships location can be found at Appendix 1.

There are a total of 131 persons on board with 107 passengers and 24 crew.



Discussion

- At this stage, being stuck is just a nuisance. There may be any number of reasons why they ended up in this situation. Maybe fuel was limited, maybe a scientist wanted to take some measurements, etc. It may well have been the best thing to do.
- The question now is - what type of information is available on the ship?
 - Well supported with weather forecasts and ice information although ice information could be 24-48 hours old
- How does the lack of information affect decision making as time goes on?
 - May just wait until more is known
 - This time of year should present the best ice conditions; if the vessel is stuck then something must have gone wrong
- At this point, AAD would take charge and start talking to AMSA to find out what other resources might be in the area
 - Will also let the media know what is happening - they will find out and it is best to establish an official information conduit
- AAD will ask the Master what he needs to know

- As Master, Gerry replied that he would want to know what the ice in the general area is like; on the ship, they will know the drift of the ice but would want to know what the ice further afield is doing – where the source of the ice that may cause pressure?
- Why AAD would keep control instead of handing over to AMSA?
 - Could do so if necessary but, at this stage, there is no danger – only operational interruption. It is an AAD ship with a problem in the ice that can be handled. AMSA really can't help at this time, although they are all talking to one another. AAD can call up the defence force if necessary.
- As the ship consumes fuel and time goes on, the Master would be asking for more information from AAD
 - Gerry notes that, if they knew the area is difficult, then they would have already asked for all of the ice information
 - What sort of pressure information can be provided? Is there likelihood of damage? Is there likelihood of having to over-winter?
- It is good for the ice service to know how critical the situation is. If it is really a danger, then they will start staffing up and spending money. If it is only a nuisance at this stage, then will just start paying more attention.

Additional information comes in from the Master – a large iceberg is closing in from 10 miles

- Gerry notes that the Master would look at the bathymetry. The depth is only 150 m so the iceberg cannot actually reach the ship's position. However, the ship will be drifting with the ice and may be carried to the berg. If a collision is inevitable he would start making plans to evacuate.
- A question was put to the ice services – can you model the drift of the sea ice and the iceberg?
 - It is possible to closely monitor the iceberg drift and provide short range predictions
 - There are convergence – divergence sea ice products that could be available
 - Several ice services have models that can predict the drift of the sea ice
 - Some services can do the modeling of the ice and the iceberg if they can get some information about the local environmental conditions
- A question was asked about the integration of sea ice forecasts and weather forecasts.
 - Ships do not get surprised by severe weather too often any more – usually anything major is pretty well forecast. There is also a good understanding of local weather forecasting on-board
 - Rare that they find themselves in severe weather that was not expected
 - BOM provides regular text forecasts – but prefers images, Forecasts are built from weather models and communicated in the language of probability. They can provide verbal briefings if a situation becomes more critical.
 - It was noted that it is not necessarily strong wind that causes problems – a weak wind from the wrong direction can be just as problematic

- The issue of satellite data availability was raised
 - In near real time, satellite information is critical; what arrangements have been made in advance for information – weeks and months in advance?
 - Ordering imagery in advance is difficult because of uncertainty about where the ship will be at any given time
 - MDA noted that, if they have some advance knowledge of where the ship is going, they can plan RADARSAT-2 acquisitions and can deliver data very quickly
 - Sentinel-1 has a planned acquisition that is known well in advance but may or may not cover the area of the ship at the required time
 - DLR noted that, in routine cases, they have well defined data chains but in unusual cases they are not sure how it would all work - who should be the conduit for this information?
 - Noted that one problem lies with the sharing of copyrighted images
 - MDA responded that the only requirement is the need to register all the potential users in advance
 - Neal responded that he has worked with many satellite data suppliers but has now settled on calling on KSAT because they can downlink all of the SAR satellites in Svalbard. It makes for a single point of contact, a single way to pay - it is easier for the user.
 - The point was made that this seems rather laissez-faire and perhaps there is a need to tighten things up
 - Need to change from a personalized service to an institutional service
 - Satellite data providers are not completely institutionalized – whoever answers the phone may not have all the answers and may not be able to contact other suppliers

As the scenario continues, there is lots of media interest, including some media personnel on the ship. How should media be handled?

- It is important to plan for this in advance
- Media is important. If you don't give them something that is correct and timely, then someone else will. AMSA is concerned that the Joint Coordination Centre phone number is used. Try to avoid people having to go elsewhere to get information that may be incorrect.
- AAD would not allow media to go to the master and would try to answer the media questions in-house
- It is important to protect the people working the situation from a demanding media. It is necessary to have a buffer between the people doing the analysis work and the media.
- It is also important that the situation experts – as opposed to just communications people - read news releases before they are printed to ensure accuracy
- We need to think about social media and factor it into how we plan our strategy. A single point of contact is not practical.

- We tend to think of media approaches as in the past. We need to thinki anew about how to capitalize on social media. U.S. National Weather Service forecast centres use Twitter effectively to get an authoritative message out.
- But will the analyst have time to use social media?
- The power of Twitter is in the re-tweeting. We need to develop a following of people who will reTweet the message to multiply the distribution.
- IAATO and AECO have emergency plans for all of the operators. The ship funnels media to IAATO which insulates them and also gets out a single message. IAATO also works with RCCs to ensure the same message is getting out.
- We should consider the development of a virtual incident command centre. In a big scenario, it may not be practical to get everyone together in one location. If everyone can be linked in a virtual centre then everyone can provide a consistent message without have to go through one point of contact – not necessarily the same message but at least the same facts
- Ice services should think about how they would like to act in the situation of a ship that is beset – how would they handle it?
 - The ice service could only give ice information in areas they know - if the ship were not in their area, they would give a phone number to the responsible ice service

The ship has now been in the ice for a week and the incident has been turned over to AMSA. Two ships are tasked to respond – KAPITAN KHLEBINKOV and XUE LONG

- At this point, we need the ability to call on other ice services to help with resources
 - IICWG has the emergency contact list to facilitate this
- AMSA is in charge and would provide the contacts for ice information that is being provided to all the ships tasked
- Nautical Institute is trying to establish a competency standard so every ship knows that other ships know what they are doing; it is easy to include everyone on the cc of the communications in a virtual command centre.
- Neal noted that it is very good to have personal contact with Masters
 - Continuity is important – having the same person doing the same job is good
 - But we need institutional continuity
- What kind of information is “authoritative” given that insurance companies control so much? Some information will be coming from ice services while other information is from researchers, management, or others. Should the flow of information to the Master be controlled? How does the master triage all of this?
 - Gerry noted that the level of ice experience of masters varies. AURORA AUSTRALIS Masters have had fantastic educations from the scientists who travel on board but not every master will have that advantage. On a ship, the Master gets information and discusses it with mates and anyone on board who has knowledge to offer.
- The ship management team is involved in all of this from the beginning. The issue is not just getting the ship out of the ice but also the risk of damage and potential costs

Wrap-up / Take-away Messages

- An institutionalized service model is needed to avoid reliance on individuals and maximize sustainability
 - single point of failure is a risk
- Communications protocols are needed
 - Communicate what information is available to ship operators
 - Communicate with ship decision makers before a crisis (form relationships)
- Importance of pre-planning
 - Understand what kind of ice and meteorological information is required beforehand
 - Instead of planning the images based on voyage – could plan the passage according to the information that may be available
- IICWG should work into its vision the concept that ice services need to get to a similar level of service continuity as weather services
- IICWG could be doing more in outreach activities on the importance of meteorology and ice forecasting