



CASE STUDY

AMISA



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BREAKING THE ICE WITH SATELLITE COMMUNICATIONS

Not one of the 74 passengers and crew aboard the Russian ship MV Akademik Shokalskiy would have dreamt of the frigid fortnight they were about to endure when they set sail for Antarctica's Commonwealth Bay late last year.

They would have been prepared for the violent westerly winds that would have assaulted them as they navigated the Southern Ocean, dubbed the Roaring Forties, Furious Fifties and Screaming Sixties. These fierce winds travel the entire circumference of the globe, unhindered by land, allowing them to build to damaging speeds along the corresponding latitudes.

They definitely would have been equipped for sub-zero temperatures. It is no secret that the southern-most continent is the coldest on the planet - almost completely covered in ice and with temperatures that can drop to -89C.

Being equipped for the unavoidable is an easy thing to do. On the other hand, being prepared for two weeks isolated from the rest of the world, cut-off from help and threatened by ever-encroaching pack-ice, is much harder to foresee... But when the ship became stranded in the Antarctic on Christmas Day, the crew was ready.

Five ships were involved in the rescue operation: the Akademik Shokalskiy itself, the Chinese Xue Long (Snow Dragon), the French L'Astrolabe, the Australian Aurora Australis and the Polar Star from the US. The logistics involved in organising some of the largest ice-going ships, in one of the most remote regions on the planet, could only be described as staggering.

Clear and constant communication would be absolutely vital for the operation to succeed.

2 WEEKS

The Akademik Shokalskiy trapped in pack ice from 25/12/13 to 2/1/14

5

The number of ships included in the rescue operation

74

The number of passengers and crew stranded by pack ice off Antarctica





AS IT HAPPENED

Shortly after 7:20am on Christmas Day, the Australian Maritime Safety Authority (AMSA) received a distress signal – a vessel was beset by pack-ice (ice that is too thick to break through) off the coast of Antarctica.

AMSA assumed coordination of the rescue operation after being notified by the Falmouth Maritime Rescue Coordination Centre in the UK.

AMSA provides search and rescue services to vessels navigating Australian waters. With the organisation's search and rescue region amounting to one tenth of the earth's surface, Alan Lloyd, AMSA Search and Rescue Operations Manager, said there were a number of issues that complicated the operation before it even started.

"The size of our region poses some significant challenges," Lloyd said. "In the case of the Antarctic rescue, it happened in a remote location where there weren't a lot of ships. In fact, the closest was still days away."

Lloyd said given the nearest ships were at least two days from the stricken research vessel, timing was critical and any delay could be costly.

"Using Inmarsat-C, part of the Global Maritime Distress and

Safety System (GMDSS), we were able to alert ships in the vicinity of the vessel in distress. We were not only able to notify them of the situation and ask for help, but we could also send the identity, position, course, speed and cargo of the ship," he said.

The Inmarsat-C is a two-way data service used to monitor and track maritime activity around the world due to its use in the GMDSS and offers data transfer, e-mail, SMS, telex, remote monitoring, position reporting, electronic chart and real-time weather updates, maritime safety information (MSI) and security services to ships around the world. The service is also available for land mobile and aeronautical use.

Meanwhile, the 74 people on board – 50 scientists and volunteers, two journalists and 22 Russian crew members – could do nothing but watch as south-westerly winds packed ice floes even tighter against the ship.

Lloyd said that while coordinating rescue ships, AMSA's Rescue Coordination Centre (RCC) was also in constant contact with the stranded vessel.

"The Antarctic rescue clearly demonstrated the value of

satcom in search and rescue. RCC Australia was able to communicate regularly with the vessel beset by ice and the vessels that responded to the distress situation," he said.

"GMDSS allowed RCC Australia to manage the incident. We were able to alert nearby ships and assist in coordinating the search and rescue operation with minimum delay, as well as tracking the positions of the responding vessels in relation to the location of Akademik Shokalskiy."

Communication between vessels became even more essential when rescue ships also had difficulties navigating toward the Russian ship through the pack ice. While attempting to rescue the Russian ship, Chinese icebreaker Xue Long was unable to navigate through the ice any closer than 6 nautical miles. Despite being unable to free the Akademik Shokalskiy, the captain of the Chinese vessel advised AMSA its situation was not dire and that they would remain in their current position to assist the Akademik Shokalskiy as required. The Snow Dragon had food supplies for several weeks and could support those stranded on the Russian passenger ship.

NEW TECH NEW TACTICS

"Access to mobile and cost-effective satellite communications has reduced the information and coordination gap. AMSA moved from relying on facsimile transfer of incident details and briefing information to having internet access to incident maps and task briefings as well as the digital tracking of rescue assets - whether maritime, aviation or land."

Alan Lloyd, AMSA Search and Rescue Operations Manager



Lloyd said that if it wasn't for recent advances in satellite communications, the international rescue mission could have ended differently.

He said the technology wasn't exclusive to large vessels and also allowed for individual rescuers to maintain the vital link between themselves and the Rescue Coordination Centre.

"In responding to search and rescue, maritime casualty and pollution incidents, we send staff out into the field to assist and coordinate remediation efforts," he said. "Our personnel are able to maintain real-time linkages to AMSA's rescue coordination centre by voice and data via a number of technologies including Inmarsat BGAN terminals and personal mobile satellite phones. This constant and reliable communication allows incident

responses to be undertaken in an effective and timely manner, especially in remote locations."

HOME SWEET HOME

A helicopter on board the Xue Long was used to airlift passengers from the Shokalskiy before they were transferred to the waiting Aurora Australis to begin the long voyage home. The 22 crewmen aboard the Russian ship decided to wait until the ice pack relented which broke free a week later.

Lloyd said throughout the ordeal there was one thing above all else that not only helped rescue efforts, but also the morale of those stranded - communication.

He said anyone planning a sea voyage must be prepared for absolutely everything. "I would recommend distress beacons

and access to a two-way communication device (voice and/or text) suitable for the area you're operating in. During a crisis, access to reliable and bullet-proof distress equipment allows anyone requiring assistance to communicate with rescuers.

"Not only this, but it also allows friends and family to be made aware of your situation."

The MV Akademik Shokalskiy and other vessels can rest assured that authorities like AMSA are investing in state-of-the-art satellite technology, provided by Inmarsat, to maintain a Global Maritime Distress and Safety System which enables rapid response and integrated communication to quickly reach stricken vessels when in need.



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