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Participation of the Chilean Air and Maritime Search and Rescue Centres in the rescue of the Passenger Ship the Explorer and environmental mitigation of the accident in the Antarctic

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1. Introduction

It is a fact that both maritime and air traffic in the Antarctic has increased sizably in recent years, particularly between the months of November and March. Numerous ships and airplanes transporting scientists, researchers and people carrying out support work in the Antarctic are already a common sight, but significant numbers of tourist ships and aircraft, which tend to carry a large number of people, are also on the up.

The State of Chile, aware of its proximity to the Antarctic and its responsibility in human search and rescue tasks, in addition to protection of the Antarctic environment, in 1989 joined the International Satellite Assistance Programme COSPAS – SARSAT, which enables timely detection of emergency radiobeacons sent by ships, aircraft or any person that activates them in a sign of distress.

In the Antarctic there is coverage of the COSPAS-SARSAT System, which means that a timely alert can be emitted when ships, aircraft or people are in danger, as was the case in the accident of the ship the Explorer, on 23 November 2007.

The Chilean Air Force, through its Air Search and Rescue Service, provides and distributes the information it receives for both maritime and air rescue emergencies. Moreover, the Chilean Navy is in constant contact with Chile's Search and Rescue Service (MRCC), which is linked up to the Maritime Stations in Fildes Bay (Maxwell), Rada Covadonga and Paradise Bay in the Antarctic. These stations send out warnings about accidents and also enable coordination with any ships in the vicinity of the accident, as well as with the units that make up the Combined Antarctic Naval Patrol of Chile and Argentina.

The Combined Antarctic Naval Patrol of Chile and Argentina has a ship in the Antarctic at all times between 01 December and 01 March the following year with the capacity for rescue and salvage, in addition to equipment needed to mitigate any environmental damage that may occur.

The diagram below shows how the Satellite Assistance System works



Overview of COSPAS-SARSAT Satellite Assistance System

2. Reaction of the Air and Maritime Search and Rescue Centres of Chile to the stricken ship the “Explorer” in the Antarctic on 23 November 2007

On Friday 23 November, at 00:34 local time in Chile (UTC+3), the Maritime Telecommunications Centre of Valparaíso received a mayday call over HF frequency from MS Explorer, a Liberian-registered ship, briefly informing that it was taking on water having collided with an iceberg. The incident had occurred 44 miles SE of King George Island, in Antarctic waters. The Search and Rescue Service of Chile (MRCC CHILE) was dispatched to aid the vessel and its crew.

At 01:10 on 24 November, a crew member from the stricken vessel contacted MRCC CHILE by telephone and confirmed that it was at risk of sinking and required immediate assistance. Meanwhile, the Chilean icebreaker the “Viel”, which was in the Antarctic, headed for the site of the accident in order to cooperate in the rescue, along with another three vessels that also received the mayday call (M/V “Nordnorge”, a Norwegian-registered ship, “Ary Rongel”, from Brazil and M/V “National Geographic Endeavour”, from the Bahamas).

In parallel, at 02:57 the Chilean Air Force Missions Control Centre (CHMCC) used its satellite equipment to detect the emergency radiobeacon and confirmed the position of the stricken ship, thereby providing further information to the Maritime Rescue Centre so that it could aid MS Explorer.

At 03:15 the MRCC CHILE made telephone contact with the closest vessel to the emergency area (Nordnorge), and appointed its Captain as Coordinator at the place of the Accident. The Captain of the salvaging vessel, Mr. Arnvid Hansen, during numerous communications with the MRCC Chile, later gave notification that the passengers and crew of the Explorer had been evacuated to lifeboats (154 evacuees).

The photos below show MS Explorer prior to sinking.



Furthermore, at 04:00, the Air Search and Rescue Centre, located at Air Base “Presidente Eduardo Frei M”, dispatched a helicopter to the place of the accident, which was 45 miles SE of the Base, in order to support the maritime rescue operation and provide information on the evacuation led by the Captain of the Explorer, observing from the air the various boats containing the survivors.

At 06:25, M/V Nordnorge began rescuing the evacuees, an operation that ended at 08:45. At the end of the rescue operation the Captain of the Vessel requested authorization to go to Fildes Bay (Maxwell), in order to evacuate the passengers, which was duly granted by MRCC Chile. The vessel put in at Fildes Bay at 13:20 and the rescued passengers began to disembark at 18:25.

At approximately 12:30 on 24 November, the Icebreaker Viel arrived on the scene of the accident and began monitoring the stricken vessel and the possible pollution. MS Explorer sank at around 15:30 to 1300 m depth, with 185 m³ of diesel, 24 m³ of lubricant and 1.2 m³ of petrol in its tanks. Below are some photos both of the crew in the lifeboats, and also of the sinking of the Explorer



First images of evacuees in Antarctic waters



The images that went round the world as the passenger ship the Explorer sank on 23 November 2007



3. Assistance and evacuation of passengers and crew from the Explorer

Once the passengers and crew members had been rescued from the scene, after midday they were taken to the Antarctic Air Base “Presidente Eduardo Frei M.”, where most were given accommodation, and the remainder were sent to the Uruguayan Scientific Base “Artigas”. All were given shelter, medical care and food.

The following day, the 154 evacuees from the Explorer were taken to Punta Arenas in two Hercules C-130 aircraft belonging to the Chilean Air Force where they were greeted by representatives from their respective countries to arrange their definitive return home, safe and sound.



4. Environmental mitigation work at the scene of the accident

Due to the geographical sinking position of MS Explorer and the adverse meteorological conditions in the area, it was not possible to contain the fuel spill with either rigid or absorbent barriers.

In order to tackle the pollution, the Viel icebreaker proceeded to move through the sea lane over the spill so as to create mechanical dispersion and speed up the weathering process of the spilt fuel, which was primarily Diesel Marine Fuel Oil (D.M.F.O.).

Pursuant to the 1973 International Convention for the Prevention of Pollution from Ships and its 1978 Protocol (MARPOL Convention 73/78), in Annex II, Rule 5, number 14, the pollution mitigation operations at no time entailed the application of dispersants.

In addition, a helicopter from the Chilean Air Force made a patent and highly significant contribution to the pollution mitigation process, initially patrolling the area from above and later coordinating the operations being carried out in the sea.

5. Environmental impact

At the time of sinking, the volume of substances derived from the hydrocarbons that MS Explorer is estimated to have been transporting was 210 m³, made up of D.M.F.O., oils, lubricants and petrol.

In the wake of the emergency, scientific observers on board the Viel identified groups of penguins and flying birds in the vicinity of the source of the oil spill, and monitored them for the entire time they were in the area. Until the end of the pollution mitigation operations, pollution of the Antarctic flora and fauna was not observed, either in the area of the accident or in the Bransfield Strait.

During the southern summer Chile continued observing the area of the accident from helicopters and ships, and found no new oil spills.

Although spilt D.M.F.O. is more toxic in marine habitats than crude oil, the depth that the vessel rested at (below 1,300 metres), the local temperature (below 0 °C), and the time that has lapsed since the event, which increases the fuel volatilisation rate, the environmental risk in the area has decreased.

6. Experiences

It is vital that ships sailing in the Antarctic report their position to the corresponding MRCC so that it can coordinate possible rescues and, in particular, ensure the safety of all those affected, as was the case with the passengers and crew of MS Explorer.

Due to the accuracy of the COSPAS-SARSAT emergency beacon Satellite Tracking System, which is one of the responsibilities of the Air Search and Rescue Service, the location of an accident in the Antarctic can be pinpointed - a major aid to rescue operations.

In the case of MS Explorer, the number of passengers and crew members rescued was not very large (154 people). A similar emergency involving a ship carrying a greater quantity of people could be a major

problem in terms of the sea rescue, accommodating the evacuees at a base and then transporting them to a place from where they can return to their places of origin.

The weather conditions during the accident of MS Explorer were overall very good, which was probably one of the reasons why there were no fatalities. In view of this, we must seriously consider the way in which this type of situation must be handled in the future. Chile is rising to this challenge. For both air and maritime operations in the Antarctic, it is vital that the safety measures required to operate in such a remote, cold and complex zone for rescue procedures are fully observed.

Due to the location of the Chilean Air Force Antarctic Air Base Pdte. Eduardo Frei M., and its accident evacuation capacities, we can respond and handle this type of emergency appropriately, accommodating numerous people and transporting them to the city of Punta Arenas on the mainland.

Lastly, the regulations issued by the Antarctic Treaty System must seek total solutions for private tourist programmes registered by States not party to the Antarctic Treaty as this type of tourism is increasing continuously.