

The major risks faced by Royal Flying Doctor Service Western Operations in the event of a tropical cyclone

Flight Nurse with the Royal Flying Doctor Service, Steven Curnin, discusses the Service's tropical cyclone preparedness plan and the outcomes of a recent risk assessment.

ABSTRACT

The Royal Flying Doctor Service (RFDS) Western Operations operates two bases in the most cyclone-prone region of the entire Australian coastline. In preparation for a tropical cyclone impacting either of the bases, a comprehensive risk assessment was performed and a major risk identified was the reduced operational capability of the service in the event of a tropical cyclone. The relocation of aircraft to a suitable alternate location can facilitate the operational capability of RFDS Western Operations during a period of cyclonic activity affecting a RFDS Western Operations base. The development of a Tropical Cyclone Plan incorporating the relocation of aircraft aims to address this issue in preparation for the 2009 – 2010 cyclone season.

Introduction

RFDS Western Operations provides services to people requiring care throughout Western Australia. This State is the largest in Australia covering 2.5 million square kilometres in total. The vast majority of patients that are transferred from remote and regional areas are taken to one of the teaching hospitals in the Perth metropolitan area. During 2007/2008 RFDS Western Operations aircraft flew 5,578,165 kilometres transferring 5,931 patients and conducting 1,727 clinics. RFDS Western Operations operate two bases in Northwest Australia at Port Hedland and Derby (RFDS, 2009). The Northwest Australian coastline between Broome and Exmouth is the most cyclone-prone region of the entire Australian coastline, having the highest frequency of coastal crossings (BOM, 2008). The bases at Port Hedland and Derby could potentially be affected by tropical cyclones. The development of a comprehensive risk assessment based on the Australian/New Zealand Risk Management Standard AS/NZS 4360:2004 sought to identify major risks that RFDS Western Operations could encounter in the event of a tropical cyclone impacting one of the northern bases.

Identified risks

The need for RFDS Western Operations to update its Tropical Cyclone Plan utilising a risk assessment framework was important given recent cyclone events that have affected the North Western Australia for example Tropical Cyclones Monty (2004), Glenda (2006) and George (2007). The most likely major risks identified were injury/death to RFDS Western Operations personnel, damage to RFDS Western Operations assets, and reduced operational capability. The RFDS Western Operations Cyclone Planning & Coordinating Committee (CPCC) used a qualitative risk analysis matrix to assess the level of risk associated with reduced operational capability. The likelihood of a tropical cyclone impacting on a northern base was identified as likely and the consequence of this affecting the operational capability of RFDS Western Operations was identified as major. Using a risk level matrix the risk was assessed as extreme. Personal safety and the preparation and maintenance of buildings and their contents in the event of a tropical cyclone are managed under the guidance of the Fire & Emergency Services Authority of Western Australia (FESA) under the Western Australia State Emergency Management Plan for Tropical Cyclone (2007). Reduced operational capability can result in RFDS Western Operations providing a level of service which may be unable to meet the demands of the population in certain areas of the state. Subsequently, this risk was addressed by the Tropical Cyclone Plan.

If no aircraft or crews are available at a particular base then it means that other bases have to be brought in to cover this geographical area. This can have a negative impact on operational capability as this would usually mean that crews from other bases would have to travel greater distances to provide a service to the region which has no crews. This manifests a problem as pilots can only fly 8 hours per day as governed by the Civil Aviation Safety Authority of Australia (CASA, 2004). This may result in crews being unable to respond to certain flights as pilot hours may be compromised. Ultimately, the loss of only a small number of crews and aircraft from one particular base can result in reduced operational capability for the entire state of Western Australia.

Cyclone George

In 2007 Severe Tropical Cyclone George was the most destructive cyclone to affect Port Hedland since Tropical Cyclone Joan in 1975. Tropical Cyclone George intensified to a Severe Tropical Cyclone Category 5 and was still at its maximum intensity when it crossed the coast 50 km northeast of Port Hedland at 2200 Western Daylight Savings Time on Thursday 8 March. At 0025 Western Daylight Savings Time on Friday 9 March people in the coastal community of Port Hedland were put on red alert until further notice. In total there were three reported fatalities related to Tropical Cyclone George (BOM, 2007). The operational capability of RFDS Western Operations during Cyclone George was affected due to a number of factors. No aircraft were relocated to alternate locations during Cyclone George and the two aircraft based at Port Hedland were secured in the hangar at the base. There was no damage to aircraft or to Port Hedland airport as a result of Cyclone George. Despite this the full operational capacity of the Port Hedland base was affected as there was an unavailability of flight crews due to fatigue. This was due to RFDS Western Operations medical and nursing crews assisting the local health authorities and other RFDS Western Operations flight crews were fatigued due to maintaining their homes during the cyclone period. This resulted in a late start of crews from the base at Port Hedland culminating in reduced operational capability in this area.

Relocation of aircraft

The relocation of aircraft to an alternate location was identified by the RFDS Western Operations CPCC as an important component in maintaining operational capability. The relocation of aircraft is not a new concept and the United States military often relocate aircraft

from the East Coast bases that could potentially be affected by Hurricanes (Miles, 2003). In the event of a potential tropical cyclone threat affecting any RFDS Western Operations bases, volunteer crews are asked if they can remove the aircraft to an alternate location. As most of the crews living in Port Hedland and Derby have families and homes in the respective towns, few staff will volunteer to relocate aircraft as they want to be with their families and their home. Ultimately, this can result in no aircraft been relocated and the aircraft and crews remaining in the affected base. The RFDS Western Operations CPCC developed a plan in which the early relocation of aircraft to an alternate location could be achieved. It was determined that the relocation of aircraft plan would be activated when the yellow alert phase had been issued. FESA uses the Western Australia Colour Alert System for Tropical Cyclones. In the event of a cyclone there are four stages of alert, blue alert, yellow alert, red alert and all clear. The yellow alert phase states that the cyclone is moving closer and there is a significant risk that destructive wind gusts will develop and it is highly likely to affect the community within 12 hours (FESA, 2007).

It was determined by the CPCC that if there were no volunteers from the potentially affected bases who could relocate the aircraft then alternate pilots could be sought from other bases. These pilots could then be transferred to the affected base either by commercial aircraft, charter aircraft or by company aircraft. The aircraft could then be relocated to an alternate location. This would mean that crews in the affected base could remain with their families and homes yet the aircraft would be in a safe location and if required extra crews could be sourced and deployed to these aircraft thus maintaining operational capability. This would be an expensive option but would maintain operational capability and ensure the security of the aircraft in the



The aftermath of Tropical Cyclone George

Courtesy: RFDS Western Operations



Courtesy: RFDS

RFDS Western Operations Pilatus PC-12

event of a tropical cyclone. The CPCC determined that the advantage of relocating the aircraft eliminated the risk of the aircraft becoming damaged during a tropical cyclone if it was left at the affected base and in the event that the hanger suffered damage this could result in damage to the aircraft making it unusable. The relocation of aircraft also eliminates the problem of having aircraft that could be utilised but were unable to be used due to external elements. These external elements include crew fatigue and issues that could make the airport inoperable following a cyclonic event including flooding of the runway, debris on the runway and damage to aviation installations (Grady, 2005).

Conclusion

The impact of a tropical cyclone on an RFDS Western Operations base could be catastrophic resulting in loss of life and assets. During a period of tropical cyclone activity RFDS Western Operations still needs to maintain optimal operational capability. The development of a Tropical Cyclone Plan incorporating the relocation of aircraft to alternate locations can maintain operational capability providing there are pilots available to relocate the aircraft. Activating the relocation of an aircraft plan at the yellow alert phase gives RFDS Western Operations a realistic amount of time to organise the logistics involved in relocating aircraft. There is a need to review the relocation of aircraft plan following the 2009 – 2010 tropical cyclone season. If such a plan were to be implemented then its effectiveness in maintaining operational capability needs to be evaluated.

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