



Australian Government

Australian Transport Safety Bureau

Weather balloon event involving Bombardier DHC-8-400, VH-LQG

Perth Airport, Western Australia, 26 October 2012

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Weather balloon event involving Bombardier DHC-8-400, VH-LQG

What happened

On 26 October 2012, at about 0715 Western Standard Time¹, a Bombardier DHC-8-402 aircraft, registered VH-LQG (LQG), departed Perth on a scheduled passenger service to Geraldton, Western Australia. The first officer (FO) was designated as the pilot flying.

Shortly after takeoff, at about 700 ft, the captain observed a weather balloon above, in his 1 o'clock² position. The captain advised the FO, who immediately initiated a slight left turn.

The balloon was observed to pass about 10-20 m laterally from the right wingtip and the captain advised air traffic control (ATC).

Weather balloon



Source: Bureau of Meteorology

Weather balloon

Bureau of Meteorology (BoM) weather balloons at Perth Airport are released by BoM staff at the airport using a remote balloon launcher four times per day at 0015, 0715, 1315 and 1915. Depending on the type of balloon used and the atmospheric conditions at the time, the balloon generally ascends for about 1 hour, reaching an altitude of about 60,000 ft. The balloon train (Figure 1) consists of a balloon, a reflective radar target and a radiosonde that conduct the following functions:

- **Balloon:** the balloon is inflated with a sufficient amount of hydrogen to allow it to ascend through the atmosphere at about 1,000 feet per minute.
- **Radar:** as the balloon ascends, radar is used to automatically track the movement of the reflective target, which enables the calculation of wind speed and direction.
- **Radiosondes:** the radiosonde transmits radio signals indicating pressure, temperature and humidity to a receiver located in the Perth Airport meteorological office. This enables temperature and moisture profiles of the atmosphere to be calculated.

ATC coordination

For the release of weather balloons within 3 NM of a controlled airport, a Letter of Agreement between Airservices Australia and the BoM, and the Manual of Air Traffic Services (5-10-300) state that:

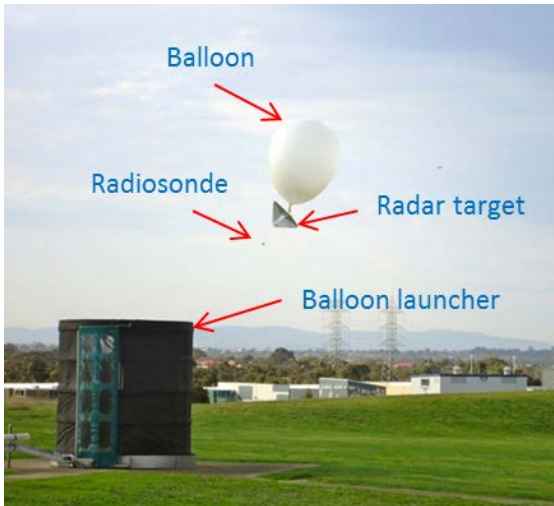
- BoM staff are to contact the control tower and coordinate a balloon release.
- BoM staff are to conduct a visual examination of the airport environment immediately prior to releasing a balloon.
- ATC may delay a balloon release when there is a possibility of conflict with aircraft taking off, landing or conducting a go-around.
- ATC are to advise aircraft that may be operating in close proximity to the balloon below 2,000 ft (above ground level).

¹ Western Standard Time (WST) was Coordinated Universal Time (UTC) + 8 hours.

² The clock code is used to denote the direction of an aircraft or surface feature relative to the current heading of the observer's aircraft, expressed in terms of position on an analogue clock face. Twelve o'clock is ahead while an aircraft observed abeam to the left would be said to be at 9 o'clock.

A review of Airservices Australia data showed that the BoM officer contacted the Perth control tower via telephone requesting permission to release a balloon at about 0715. At the same time, the crew of LQG received a clearance from ATC to line-up on runway 03. Permission was granted for the balloon release, and immediately after, the crew of LQG received an ATC clearance to takeoff.

Figure 1: Weather balloon train



Source: Bureau of Meteorology

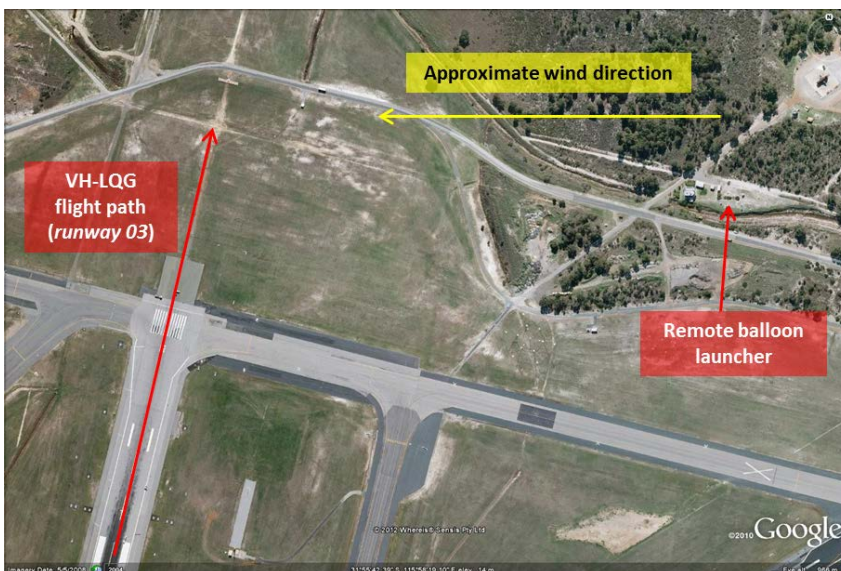
Pilot comments

The FO reported that he conducted a thorough lookout when entering the runway and did not observe any activity related to the release of the balloon. The captain also stated that they did not receive any advice regarding the release.

BoM officer comments

The BoM officer reported that he had conducted a scan immediately prior to the balloon release and did not observe any aircraft taking off. He further stated that it could be difficult to sight aircraft on the southern end of runway 03 due to a line of trees obscuring the view. After releasing the balloon, the officer observed an aircraft taking off on runway 03. The officer was concerned that the balloon may pass in front of the aircraft due to the strong easterly winds.

Figure 2: Perth Airport



Source: Airservices Australia

General details

Registration:	VH- LQG	
Manufacturer and model:	Bombardier Inc. DHC-8-402	
Operator:	Sunstate Airlines	
Type of operation:	Air transport – high capacity	
Occurrence category:	Incident	
Primary occurrence type:	Airspace related event	
Location:	Perth Airport, Western Australia	
	Latitude: S 31° 56.42'	Longitude: E 115° 58.02'
Persons on board:	Crew – 4	Passengers – 54
Injuries:	Crew – Nil	Passengers – Nil
Damage:	Nil	

About the ATSB

The Australian Transport Safety Bureau (ATSB) is an independent Commonwealth Government statutory agency. The Bureau is governed by a Commission and is entirely separate from transport regulators, policy makers and service providers. The ATSB's function is to improve safety and public confidence in the aviation, marine and rail modes of transport through excellence in: independent investigation of transport accidents and other safety occurrences; safety data recording, analysis and research; and fostering safety awareness, knowledge and action.

The ATSB is responsible for investigating accidents and other transport safety matters involving civil aviation, marine and rail operations in Australia that fall within Commonwealth jurisdiction, as well as participating in overseas investigations involving Australian registered aircraft and ships. A primary concern is the safety of commercial transport, with particular regard to fare-paying passenger operations.

The ATSB performs its functions in accordance with the provisions of the *Transport Safety Investigation Act 2003* and Regulations and, where applicable, relevant international agreements.

The object of a safety investigation is to identify and reduce safety-related risk. ATSB investigations determine and communicate the safety factors related to the transport safety matter being investigated.

It is not a function of the ATSB to apportion blame or determine liability. At the same time, an investigation report must include factual material of sufficient weight to support the analysis and findings. At all times the ATSB endeavours to balance the use of material that could imply adverse comment with the need to properly explain what happened, and why, in a fair and unbiased manner.

About this report

Decisions regarding whether to conduct an investigation, and the scope of an investigation, are based on many factors, including the level of safety benefit likely to be obtained from an investigation. For this occurrence, a limited-scope, fact-gathering investigation was conducted in order to produce a short summary report, and allow for greater industry awareness of potential safety issues and possible safety actions.