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Australian Transport Safety Bureau

Weather-related event involving a Eurocopter AS350B3, VH-VTX

74 km SW of Orbost Airport, Victoria, 19 January 2014

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Addendum

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Weather-related event involving a Eurocopter AS350B3, VH-VTX

What happened

On 19 January 2014, at about 0824 Eastern Daylight-savings Time (EDT) a Eurocopter AS350B3 helicopter, registered VH-VTX departed Hobart (Cambridge aerodrome), Tasmania, for Camden, New South Wales, with a planned refuelling stop at a Helicopter Landing Site (HLS) near Orbost, Victoria. The flight was planned under the visual flight rules (VFR).[1]

The pilot reviewed the forecast weather during pre-flight planning, noting that forecast low cloud and precipitation may affect the flight, particularly over Bass Strait north of Flinders Island. Although the forecast raised some concerns, the pilot elected to depart, planning to review the weather en route and land at Flinders Island for additional fuel if necessary. Full fuel on departure (which included an auxiliary fuel tank), provided an endurance[2] of over 3.5 hours for an estimated flight time to the HLS near Orbost of about 2.6 hours.

At the time the flight was planned, forecast weather for the flight across Bass Strait north of Flinders Island included several layers of cloud and isolated showers. The lowest cloud forecast was broken[3] stratus cloud with a base at 800 ft, contracting to precipitation by 1100. Visibility was forecast to reduce to 3,000 m in heavy showers, and 5,000 m in showers. During flight planning, the pilot also reviewed the aerodrome forecast (TAF)[4] for Flinders Island (no TAF was available for the destination), which confirmed that Flinders Island was a suitable diversion aerodrome.

An amended forecast for the area over Bass Strait north of Flinders Island was issued after the pilot departed Hobart, to take effect from 1000. Among several changes, the lowest forecast cloud base was amended to 1,200 ft, reducing to 800 ft in showers. The pilot was advised of the amended forecast by Air Traffic Control (ATC) while en route and although unable to recall the details of the amended forecast, the pilot was satisfied at the time that nothing in the amended forecast was operationally significant.

The weather was clear for the departure from Hobart, but patches of low cloud and areas of reduced visibility over inland Tasmania forced the pilot to divert to the east of the planned track. From a point near the north-east coast of Tasmania, the pilot was able to proceed north in relatively clear conditions toward Cape Barren Island and the south-east coast of Flinders Island.

Leaving the north-east coast of Tasmania, the pilot contacted the company refuelling agent at Orbost to gain an appreciation of the weather at the intended landing site. The refuelling agent indicated that there were patches of drizzle in the Orbost area, but the cloud was reasonably high and the visibility to the south over Bass Strait was estimated to be 10 km.

Passing the south-east coast of Flinders Island, the pilot determined that sufficient fuel was available to continue to the intended landing site near Orbost with 30 minutes fixed fuel reserve intact, plus about 40 minutes additional fuel reserve. Based upon the information provided earlier by the refuelling agent and the available endurance, the pilot elected to continue across Bass Strait without landing at Flinders Island. The pilot also commented during the investigation that the

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1 VFR is a set of regulations that allow a pilot to only operate an aircraft in weather conditions generally clear enough to allow the pilot to see where the aircraft is going.

2 Endurance refers to available flight time, without refuelling.

3 Cloud cover is normally forecast using expressions that denote the forecast extent of the cover. The expression 'broken' indicates that more than half to almost all the sky was forecast to be covered.

4 A TAF is an aerodrome forecast that provides a statement of meteorological conditions expected for a specific period of time, in the airspace within a radius of 5 NM (9 km) of the aerodrome.

weather ahead at that time appeared relatively clear, and that there was no significant weather near Flinders Island.

The flight proceeded normally over Bass Strait until about 40 NM south of the intended destination when the pilot encountered rapidly deteriorating weather, including patches of low cloud and areas of reduced visibility. The pilot attempted to manoeuvre around the weather by diverting in a generally north-westerly direction, using a number of offshore resource platforms in the area to assist with assessment of available visibility. After about 15 or 20 minutes of manoeuvring and assessing the weather, the pilot realised that the conditions in the area were worsening and that continuation to the intended destination may not be possible. The pilot also contacted the crew of another helicopter operating in the area to build a better appreciation of the conditions further north. The crew of the other helicopter informed the pilot that conditions to the north were poor, and deteriorating.

In view of the conditions, the pilot contacted a senior company representative to discuss the circumstances and agreed that the best course of action was to divert back to Flinders Island. As the pilot turned south toward Flinders Island however, it became apparent that the wind, which was from a southerly direction, had increased in strength from about 10 to 15 kt (experienced earlier in the flight) to about 20 to 25 kt. Noting the increase in wind strength, the pilot was concerned that there may be insufficient fuel to safely reach Flinders Island.

In view of the poor weather ahead and concerned that there was insufficient fuel to safely reach Flinders Island, the pilot elected to make a precautionary landing on a nearby offshore resource platform. The pilot informed ATC and a company representative accordingly, and although the pilot did not declare an emergency, ATC initiated an INCERFA[5] as a precaution, and the company representative informed search and rescue authorities of the situation. The pilot landed on the platform without incident with a remaining endurance of about 55 minutes.

When the weather cleared, the pilot was able to continue to the planned destination and land with required fuel reserves intact.

ATSB comment

The pilot indicated that with the benefit of hindsight, it would have been prudent to either delay departure from Hobart until more favourable conditions were forecast, or land at Flinders Island en route to refuel and further assess the weather before setting out across Bass Strait. The pilot also commented to the effect that being in visual contact with offshore resource platforms probably encouraged continued attempts to negotiate the poor weather, because they provided a reference to assist with continuous assessment of the prevailing visibility. Again with the benefit of hindsight, the pilot indicated that it would have been prudent to divert back to Flinders Island at the first indication of poor weather.

A company review of the incident concluded that had the pilot diverted to Flinders Island as soon as deteriorating weather was encountered, sufficient fuel was available to land safely (assuming that the en route weather back to Flinders Island remained suitable for flight under the VFR). In effect, attempting to manoeuvre around the poor weather eliminated the option the pilot had intended to use in the event that poor weather was encountered.

Importantly however, irrespective of how the pilot ended up in a position where landing on an offshore resource platform seemed the only option, the pilot made a very sound decision not to continue into deteriorating weather. Numerous incidents and accidents have resulted when flights conducted under the VFR encounter instrument meteorological conditions (IMC). [6]

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[5] INCERFA is a phase where uncertainty exists as to the safety of an aircraft and its occupants.

[6] Instrument Meteorological Conditions (IMC) describes weather conditions that require pilots to fly primarily by reference to instruments, and therefore under Instrument Flight Rules (IFR), rather than by outside visual references. Typically, this means flying in cloud or limited visibility.

The ATSB recently published a research booklet *Avoidable Accidents No. 4 - Accidents involving pilots in Instrument Meteorological Conditions*. The A key message included in the report was:

> Avoiding deteriorating weather or IMC required thorough pre-flight planning, having alternate plans in case of unexpected deterioration in the weather, and making timely decisions to turn back or divert.

The report highlights a number of lessons learnt from weather-related accidents. Those lessons include:

> Even though you may have decided on a course of action, decision making is a dynamic process, particularly when it comes to weather, and requires continuous assessment of conditions en route. Make decisions early – when in doubt, turn about.

A copy of the booklet is available on the ATSB website at www.atsb.gov.au/publications/2011/avoidable-4-ar-2011-050.aspx

Offshore resource platform operations. The safe conduct of helicopter operations onto offshore resource platforms demands a comprehensive understanding of the complex hazards involved, many of which are not apparent without appropriate knowledge, training and experience. Offshore resource platform operators deal with these hazards through careful risk assessment and extensive crew training programs. A precautionary landing on an offshore resource platform should only be considered under exceptional circumstances. Having made a decision to conduct a precautionary landing, pilots should endeavour to contact platform operations staff to obtain appropriate clearance prior to landing.

Safety action

Whether or not the ATSB identifies safety issues in the course of an investigation, relevant organisations may proactively initiate safety action in order to reduce their safety risk. The ATSB has been advised of the following proactive safety action in response to this occurrence.

Operator

In response to this occurrence, the aircraft operator advised the ATSB that the following safety actions are being undertaken or considered:

- Communication to company pilots regarding weather considerations during flight planning.
- Review of the company Operations Manual with a view to adding specific instructions dealing with Bass Strait crossings.

Safety message

Two key safety messages emerge from this incident:

- This incident serves as a reminder of the need for conservative and thorough planning when intending to proceed into an area where poor weather is forecast.
- If poor weather is encountered en route, options for continued safe flight can quickly diminish. Timely and conservative decision making is often critical to a safe outcome.

General details

Occurrence details

Date and time:	19 January 2014 – 1127 EDT	
Occurrence category:	Incident	
Primary occurrence type:	Weather-related event	
Location:	74 km SW of Orbost aerodrome, Victoria	
	Latitude: 38° 24' S	Longitude: 148° 19' E

Aircraft details

Manufacturer and model:	Eurocopter AS350B3	
Registration:	VH-VTX	
Serial number:	4753	
Type of operation:	Private	
Persons on board:	Crew – 1	Passengers – Nil
Injuries:	Crew – Nil	Passengers – Nil
Damage:	None	

About the ATSB

The Australian Transport Safety Bureau (ATSB) is an independent Commonwealth Government statutory agency. The ATSB 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.