
Weather Caused Accidents

Introduction

Aviation has a high level of safety for commercial operations and is considered as one of the safest modes of transport today. Although the aviation industry is considered a safe mode of transport there are accidents that occur due to many different factors. This includes factors such as air traffic control, maintenance and human factors. Another factor that that contributes is the weather, with many different weather phenomenon, weather is a dangerous factor that results in some fatal crashes especially in general aviation.

Crash 1

On the 16th of June 2017, a Cessna 172 was on a private Visual Flight Rules (VFR) flight from Southport Mason Field, Queensland to Ballina Airport in New South Wales. The pilot departed Southport 8:11am, the pilot then tracked towards Stott island at 1500ft Above Mean Sea Level (AMSL) (ATSB, 2019). At 8:28am, whilst over Stott Island the pilot reported the position of the aircraft to ATC, which was the last transmission between ATC and the pilot. After leaving controlled airspace, the pilot continued the flight to Ballina. En-route to Ballina the pilot encountered reduced visibility due to low clouds, fog and drizzle near Bangalow. At 8:44am, the aircraft was approximately 1km north of Bangalow at an altitude of 800ft when radar identification was lost. A minute later at 8:45am, an eyewitness account placed the aircraft 3km further south near the pacific highway flying lower than normal the aircraft turned to the west disappearing into the low-level clouds (ATSB, 2019). Then at 8:47am surveillance data was captured showing the aircraft 6km southwest of the last radar contact heading in a west-south-westerly direction at 700ft with the surrounding terrain ranging from 88ft to 233ft. Following this at 8:50am, several witness account heard near Brooklet the engine noise from the aircraft followed by a loud bang, which indicated the aircraft crashing. The wreckage was later found on a farming property at an elevation of 400ft near Brooklet. All of the witnesses indicated that the weather conditions at the time were low clouds and fog at the time of the accident (ATSB, 2019). 254

At the time of the accident the weather that had contributed to the included low-level clouds, fog and drizzle. The weather conditions were perfect for low-level clouds to form with a humidity of 95% and a temperature of approximately 17.7 degrees Celsius (ATSB, 2019). The clouds that had been forecast in Area 20, which is where Ballina is located, indicated stratus clouds between 1000ft and 2500ft at sea and on the coast with precipitation as well as broken cumulus clouds between 2000ft and 10,000ft with cloud tops above 10,000ft (ATSB, 2019). Stratus clouds are flattened low-level clouds with a grey or white colour that consist of water droplets or ice with a generally grey appearance (Met Office, 2019). They form when moist, warm or cool air blow over colder land or ocean surfaces and can often appear at the surface as mist or fog. The stratus clouds can also be thick and opaque depending on the amount of moisture is in the air and the difference in temperature between the cold and warm air as well as sometimes-producing drizzle (Carr, 2019). Cumulus clouds are puffy cauliflower looking clouds that are the most common cloud produced in fair weather conditions. The cumulus clouds are formed due to convection, when air is heated at the surface lifts up and then water vapour condenses to

produce the cumulus cloud. 217

Crash 2

On the 2nd of December 2005, a Piper PA-31-350 Chieftain was on a private Instrument Flight Rules (IFR) flight from Archerfield, Queensland to Griffith, New South Wales with a pilot, and observer-pilot and two passengers. The pilot departed Archerfield at 11:22am, knowing that the weather conditions were going to be patchy with thunderstorms forecasted the pilot then tracked to Moree at 10,000ft and then direct to Coonamble (ATSB, 2005). Then at 1:03pm, the pilot changed the destination to Swan Hill, Victoria via Hillston, New South Wales. Following the change in destination the aircraft passed over Coonamble at 1:12pm still at the altitude of 10,000ft, four minutes later at 1:16pm the pilot advised air traffic control that he was going five nautical miles (NM) to the left of the flight plan due to weather (ATSB, 2005). At 1:37pm, the pilot had to further divert the flight off track by 20NM due to weather followed by another diversion of 29NM off track due to the weather for the third time. That was the last time the aircraft was in contact with air traffic controllers, when at 2pm the police received a call saying an aircraft had crashed on a property. The wreckage of the piper was found 28km north of Condobolin in New South Wales with other debris spread along a trail 4km away from the main wreckage. The damage found was that the right wing along with the right engine, control surfaces and extremities had been separated from the rest of the aircraft during flight (ATSB, 2005). Whilst the fuselage along with the left engine crashed into the ground and were destroyed by a fire which started post impact. 272

The weather forecast for the flight was occasional thunderstorms east of a line from Bourke to Griffith after 10am associated with a surface trough that was moving through central NSW. The forecast was later updated at 11:30 am, 8 minutes after the aircraft departed stating that the thunderstorms were now 'frequently observed' instead of being 'occasional' (ATSB, 2005). The updated forecast known as a SIGMET (Significant Meteorological Information) was not requested by the pilot en-route to Griffith so the pilot did not know of the changing circumstances of the weather they were flying into. The report of the weather after the accident found that there was an active frontal system moving east at 15 to 25 knots through New South Wales with a line of thunderstorms stretching from South East Queensland, through New South Wales into Victoria (ATSB, 2005). The thunderstorms actively highlighted the front that was sweeping through towards the east.

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