Final Report

B787-8 REGISTRATION 9V-OFI

TURBULENCE EVENT

9 JUNE 2025

TIB/AAI/CAS.249

Transport Safety Investigation Bureau
Ministry of Transport
Singapore

24 June 2026

The Transport Safety Investigation Bureau of Singapore

The Transport Safety Investigation Bureau of Singapore (TSIB) is the air, marine and rail accidents and incidents investigation authority in Singapore. Its mission is to promote transport safety through the conduct of independent investigations into air, marine and rail accidents and incidents.

The TSIB conducts air safety investigations in accordance with the Singapore Transport Safety Investigations Act 2018, Transport Safety Investigations (Aviation Occurrences) Regulations 2023 and Annex 13 to the Convention on International Civil Aviation, which governs how member States of the International Civil Aviation Organization (ICAO) conduct aircraft accident investigations internationally.

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ABBREVIATIONS

ATC	Air Traffic Control
CIC	Cabin crew-in-Charge
CVR	Cockpit Voice Recorder
DFDR	Digital Flight Data Recorder
eWAS	Electronic Weather Awareness Solution
FIR	Flight Information Region
FO	First Officer
IMC	Instrument Meteorological Conditions
ND	Navigation Display
PA	Public Address
PIC	Pilot-in-Command
PF	Pilot Flying
PFD	Primary Flight Display
PM	Pilot Monitoring
VMC	Visual Meteorological Conditions
VWS	Vertical Windshear
WXR	Weather radar

SYNOPSIS

On 9 June 2025, a Boeing B787-8 passenger flight from Singapore to Baiyun International Airport in Guangzhou, China, encountered turbulence in the vicinity of waypoint SUDUN over international waters while in cruise. A cabin crew member sustained serious injury.

The Transport Safety Investigation Bureau of Singapore classified this occurrence as an accident.

AIRCRAFT DETAILS

Aircraft type	:	Boeing B787-8
Operator	:	Scoot
Aircraft registration	:	9V-OFI
Date and time of occurrence	:	9 June 2025 at 2307 UTC
Location of occurrence	:	Ho Chi Minh Flight Information Region, near waypoint SUDUN
Type of flight	:	Scheduled
Persons on board	:	313 passengers and 10 crew members

1 FACTUAL INFORMATION

All times used in this report are Coordinated Universal Time (UTC).

1.1 History of the flight

1.1.1 On 9 June 2025, a Boeing B787-8 aircraft operated a scheduled flight from Changi Airport, Singapore to Baiyun International Airport, Guangzhou, China. The flight crew comprised a Pilot-in-Command (PIC) and a First Officer (FO). The PIC was the Pilot Monitoring (PM) and the FO was the Pilot Flying (PF).

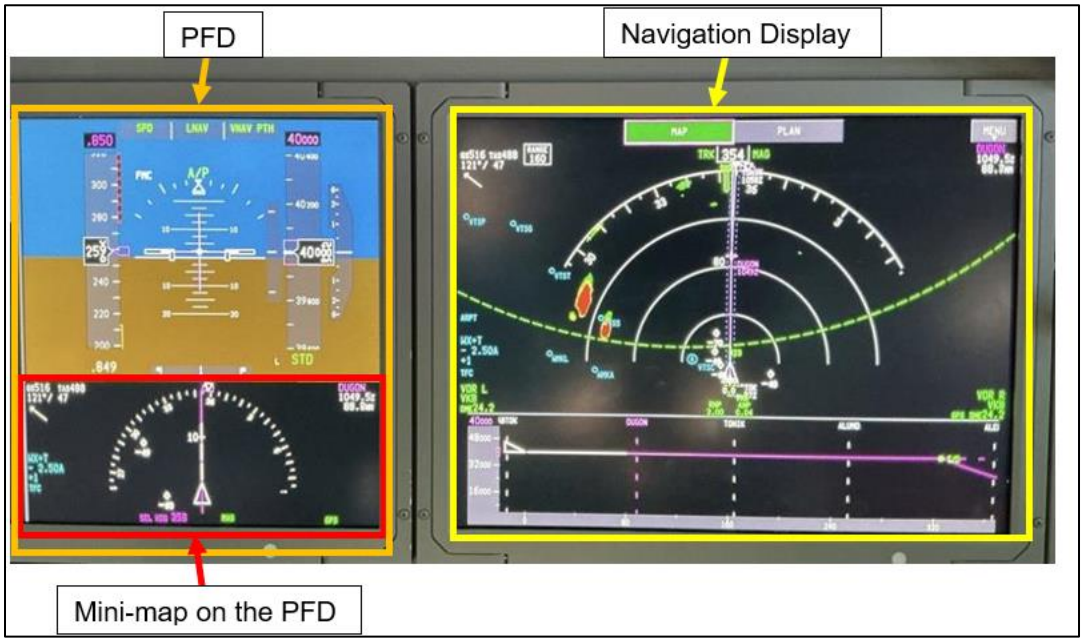
1.1.2 During pre-flight preparation, the PIC and FO noted from the pre-flight briefing package [1] that their flight path would traverse some areas of occasional cumulonimbus clouds in the Singapore, Ho Chi Minh and Sanya Flight Information Regions (FIRs). The flight crew also noted from the eWAS [2] application that they would encounter weather in the second half of the flight. The PIC briefed the Cabin crew-in-Charge (CIC) that they anticipated turbulence during the second half of the flight. The CIC indicated that the in-flight service would be carried out right after departure and should be completed before the aircraft entered the second half of the flight. The aircraft took off at about 2137 hours.

1.1.3 The aircraft was cruising at 39,000 feet. While entering the Ho Chi Minh FIR, the flight crew observed that there were some patches of weather on both sides of their flight path. The FO adjusted the gain setting of the weather radar (WXR) to enhance the resolution of weather returns on his Navigation Display (ND). The weather directly ahead was assessed to be clear, and the fasten-seat-belt sign switch was left in the "AUTO[3]" mode and the sign was not illuminated at this time. The aircraft transitioned from flying in Visual Meteorological Conditions

[1] Pre-flight briefing package contains the Operational Flight Plan, Notice to Airman, Internal Notice to Airmen, weather prognostic chart, potential clear air turbulence chart and forecasted weather satellite images.
[2] eWAS or Electronic Weather Awareness Solution, is an application provided by the operator to its flight crews for weather monitoring.
[3] The fasten-seat-belt switch typically has three positions: ON, OFF and AUTO. The ON and OFF positions are clearly indicated and the fasten seat belt signs in the cabin will illuminate when the switch is set to ON and extinguish when set to OFF. When set to AUTO position, the seat belt signs illuminate automatically below 10,000 feet and extinguish above 10,000 feet. The AUTO position is the normal position during a flight. If flight crew determine there is a need to illuminate seat belt sign during a flight, they will move the switch to the ON position. The OFF position is normally only used when the aircraft is parked at the gate and its engines are shut down.

(VMC[4]) to Instrument Meteorological Conditions (IMC[5]). When looking out of the cockpit, the flight crew described the external environment as white foggy.

1.1.4 At about 2306 hours, while the aircraft was approaching waypoint SUDUN, the FO observed green[6] weather returns about 8 – 10nm ahead of the aircraft on the mini-map display on the FO's Primary Flight Display (PFD) (see **Figure 1**). These weather returns were not visible on the ND[7] as the ND was set to a longer range at the time. As the aircraft was flying in IMC, the flight crew were unable to verify visually the weather suggested by the green weather returns. The flight crew then selected a shorter range of 20nm on their respective ND and now a green weather return was visible on the ND ahead of the aircraft track.



(Source: Airline Operator) (Annotation: TSIB)

Figure 1. Mini-map on the PFD *(for illustration purpose only)*

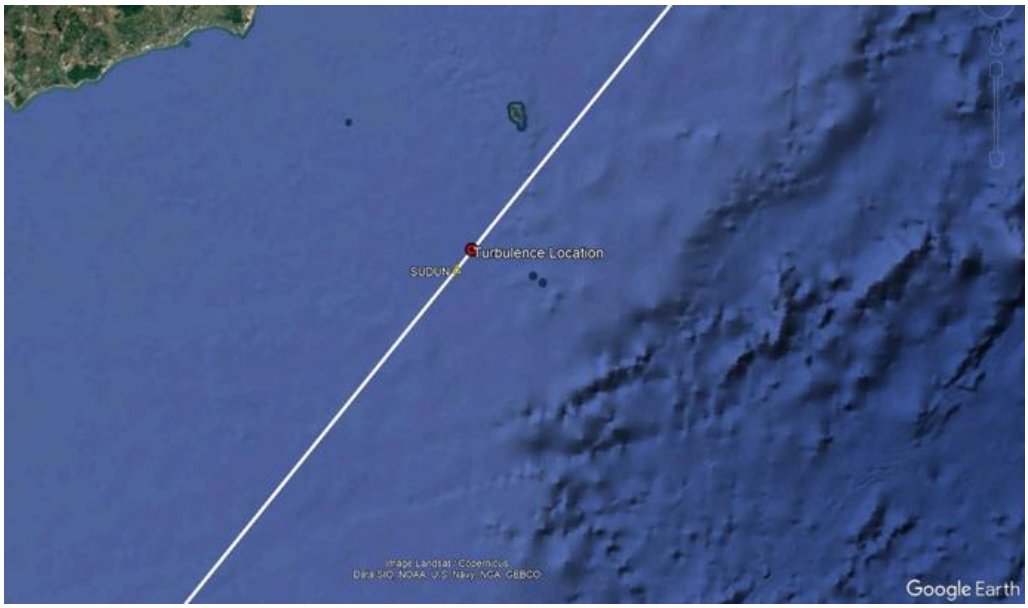
1.1.5 While the aircraft was maintaining a cruise speed of Mach 0.86, the aircraft speed started to creep upwards. The flight crew was concerned that there

[4] VMC refers to weather conditions that allow pilots to fly using visual references, meaning that the pilots can see terrain, other aircraft.
[5] IMC refers to weather conditions where visibility is reduced, making it necessary for pilots to rely on flight instruments for navigation rather than visual references.
[6] Green weather return means the presence of light rain, i.e. a weak rainfall rate between 0.03 and 0.15 inches/hour.
[7] The range of the mini map display is fixed at 20nm. Weather closer to the aircraft will show up as larger returns as compared to the ND when the ND range is set to a longer range.

could be turbulence ahead and they set the aircraft speed to the turbulence penetration speed[8] (Mach 0.84). According to the flight crew, they planned to request for a deviation to the right of their track from Ho Chi Minh Air Traffic Control (ATC). However, there was heavy radio traffic on the ATC radio frequency and the flight crew did not have an opportunity to contact ATC to request for a deviation.

1.1.6 The PIC believed that the aircraft would be able to fly through the green patch of weather returns indicated on the ND. However, as a precaution, he switched on the fasten-seat-belt sign to get the passengers seated. According to the flight crew, before the PIC could make an announcement over the Public Address (PA) system asking the cabin crew to suspend cabin services and get seated, the aircraft experienced turbulence for a period of 32 seconds.

1.1.7 At the time of the turbulence encounter, the flight crew saw an increase in aircraft speed, which prompted the FO to deploy the speed brakes briefly to slow down the aircraft. The aircraft deviated 200 feet from its assigned altitude. The aircraft stabilised and returned to the cruising altitude at 39,000 feet. **Figure 2** shows the approximate location of the turbulence encounter.



(Source: Google Earth) (Annotation: TSIB)

Figure 2. Turbulence location

[8] This is the optimum speed for flying through turbulence.

1.1.8 Prior to the turbulence, the meal service had already been completed. The cabin crew members were either performing their duties or having their meals at the forward and aft galleys. During the onset of the turbulence, some of the cabin crew members were lifted off momentarily and fell back onto the cabin floor.

1.1.9 After the turbulence, the flight crew called the CIC and was informed that two cabin crew members at the aft galley had sustained injuries[9] and were relieved of their duties. The flight continued with a reduced cabin crew complement and with two pairs of passengers briefed to assist in the manning of two aircraft doors. The PIC arranged for medical services to stand by at Baiyun International Airport for the injured cabin crew members.

1.1.10 The aircraft continued its flight to Guangzhou without further event and landed at Baiyun International Airport at about 0122 hours on 10 June 2025. The injured cabin crew members were sent to a local hospital for treatment.

1.2 Injuries to persons

Injuries	Flight Crew	Cabin Crew	Passengers	Total
Fatal	0	0	0	0
Serious	0	1	0	1
Minor	0	1	0	1
Uninjured	2	6	313	321
Total	2	8	313	323

1.3 Damage to aircraft

1.3.1 There was no damage to the aircraft.

1.4 Personnel information

1.4.1 PIC

Age	45 years old
Licence type	Airline Transport Pilot Licence
Issuing authority	Civil Aviation Authority of Singapore

[9] One sustained serious injury and one sustained minor injury.

Licence validity	Valid till 31 March 2026
Medical certificate	Class 1
Medical certificate validity	Valid till 31 March 2026
Medical operational proviso	Nil
Last Base Check date	8 March 2025
Last Line Check date	23 July 2024
Total flying hours	8,639 hours
Aircraft types flown	Airbus A320 Boeing B787
Total hours on type	1,040 hours 57 minutes
Flying in last 90 days	221 hours 8 minutes
Flying in last 7 days	14 hours 2 minutes
Flying in last 24 hours	0 hours
Duty time in last 48 hours	22 hours 9 minutes
Rest period in last 48 hours	25 hours 51 minutes

1.4.2 FO

Age	54 years old
Licence type	Airline Transport Pilot Licence
Issuing authority	Civil Aviation Authority of Singapore
Licence validity	Valid till 30 April 2026
Medical certificate	Class 1
Medical certificate validity	Valid till 30 April 2026
Medical operational proviso	Holder shall wear corrective lenses that correct for distant vision and shall have available a second pair of spectacles while exercising the privileges of the license.
Last Base Check date	2 June 2025
Last Line Check date	23 July 2024
Total flying hours	8,185 hours
Aircraft types flown	Airbus A320 Boeing B787
Total hours on type	2,421 hours 36 minutes
Flying in last 90 days	229 hours 40 minutes
Flying in last 7 days	13 hours 41 minutes
Flying in last 24 hours	0 hours
Duty time in last 48 hours	0 hours
Rest period in last 48 hours	48 hours

1.5 Aircraft information

1.5.1 There was no reported fault related to the WXR during the flight.

1.6 Meteorological information

1.6.1 Recorded Weather Data

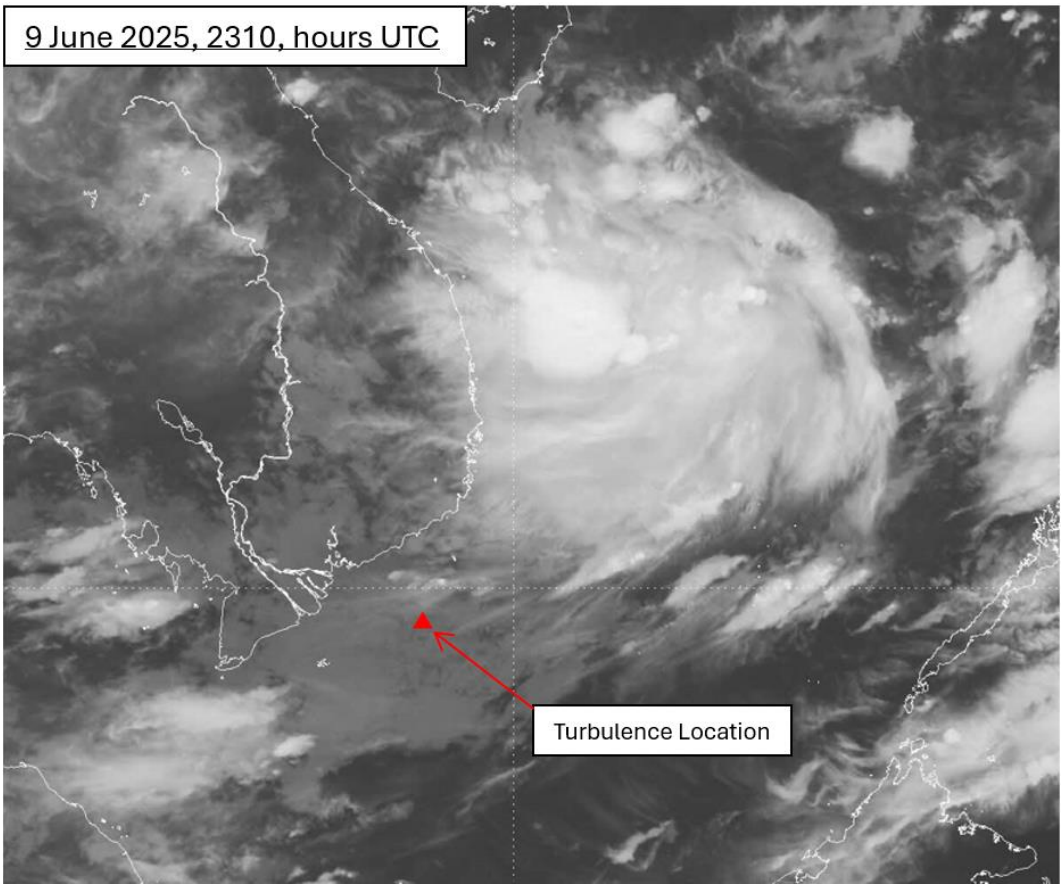
1.6.1.1 The pre-flight briefing package given to the flight crew indicated a Vertical Windshear (VWS)[10] value of "3" at waypoints DAGAG and SUDUN around the Ho Chi Minh FIR. The weather prognostic chart indicated that there was a possibility of occasional cumulonimbus with the top of clouds extending up to 50,000 feet in the area. As mentioned in paragraph 1.1.2, the eWAS indicated that there was weather at the second half of the flight.

1.6.1.2 According to the Meteorological Service Singapore, a tropical system that eventually evolved to become Severe Tropical Storm "Wutip[11]" was about 850km northeast of the turbulence location. The aircraft flew through an area of middle to dense clouds as shown in satellite image (see **Figure 3**). However, the limited satellite image resolution is such that it is not possible to determine if the aircraft had encountered convective clouds or to discern the details of the weather system encountered[12].

[10] Vertical Windshear (VWS) is one of the factors used to assess the likelihood of a Clear Air Turbulence (CAT). It is the rate of change of wind velocity in knots per 1000 feet. Moderate CAT may be encountered if the value exceeds 6 (i.e. 6 knots/1000 feet).

[11] The Regional Specialised Meteorological Centre Tokyo issued an advisory of a developing tropical storm on 10 June 2025 0000 UTC. Hence, this information was not available in the pre-flight package for the flight crew.

[12] The investigation team contacted Vietnam's National Centre for Hydro-Meteorological Forecasting for their ground weather radar data in the hope of obtaining a better satellite image. However, the agency indicated that the radar data for the relevant period was not available.



(Source: Meteorological Service Singapore) (Annotation: TSIB)

Figure 3: Satellite image of cloud types at location of turbulence encounter

1.7 Flight recorders

1.7.1 The Digital Flight Data Recorder (DFDR) and Cockpit Voice Recorder (CVR) were removed from the aircraft after the occurrence.

1.7.2 Data from the DFDR around the time of the turbulence was available for TSIB's analysis. The aircraft DFDR data showed that the vertical acceleration fluctuated as follow:

Time since turbulence	Vertical acceleration
0 – 6 secs	+1G[13] to +2.25G
6 – 10 secs	decreased to +0.40G
10 – 18 secs	increased to +2.09G

[13] Gravitational force (G) is a measure of acceleration that compares the force experienced by the aircraft with the force corresponding to the acceleration due to gravity.

18 – 26 secs	decreased to +0.39G
26 – 32 secs	returned to +1G
32 – 75 secs	Aircraft stabilised at cruising level 39,000 feet

1.7.3 The CVR data around the time of the turbulence occurrence had been overwritten.

1.8 Additional information

1.8.1 Aircraft in the vicinity

1.8.1.1 The investigation team reviewed the radar recordings from Ho Chi Minh ATC and Flightradar24 and noted that, during the period one hour before and one hour after the time of the turbulence encounter (about 2307 hours), there were three other aircraft in the vicinity of the occurrence location:

(a) Two aircraft were flying at 35,000 feet and requested Ho Chi Minh ATC for deviation due to weather.

(b) One aircraft, which was flying 30 minutes ahead of the occurrence aircraft along the same flight route and at the same level of 39,000 feet, did not deviate from its flight route.

1.8.2 Operator’s procedures for turbulence management

1.8.2.1 Turbulence Management for Cabin Crew

1.8.2.1.1 The cabin crew could continue to move around the cabin and perform cabin duties during the flight unless instructed to be seated by a PA announcement. When turbulence is anticipated, the flight crew will make one of the corresponding PA announcement:

(a) In the event of light turbulence requiring the "FASTEN SEAT BELT" sign to be switched ON and the Commander determines that cabin service may continue, the PA would be: *"LADIES AND GENTLEMEN, THIS IS YOUR CAPTAIN. FOR YOUR SAFETY, PLEASE FASTEN YOUR SEAT BELTS. CABIN CREW, TO CONTINUE SERVICE WITH CAUTION”*.

(b) In the event of moderate to severe turbulence requiring the "FASTEN SEAT BELT" sign to be switched ON and the Commander determines that cabin service should be suspended, the PA would be: *"CABIN CREW, PLEASE SUSPEND SERVICE AND TAKE YOUR SEATS. LADIES AND GENTLEMEN, THIS IS YOUR CAPTAIN. DUE TO TURBULENCE, PLEASE RETURN TO YOUR SEAT AND HAVE YOUR SEAT BELT FASTENED".*

1.8.2.1.2 However, according to the flight crew, there was insufficient time to make any PA announcement before the onset of turbulence (see paragraph 1.1.6).

1.8.2.1.3 In situation of imminent turbulence encounter, the cabin crew members were also taught during their training not to wait for flight crew's PA to be seated if they assess that the conditions in the cabin warrant them to do so immediately.

1.8.2.2 Turbulence Management for Flight Crew

1.8.2.2.1 The turbulence management procedure requires flight crews to make a PA announcement to advise the cabin crew to continue service with caution or suspend service. The procedures included a method to urgently inform cabin crew members to be seated immediately by cycling the fasten-seat-belt sign switch more than once.

2 ANALYSIS

2.1 The aircraft encountered turbulence when it was cruising at 39,000 feet. Before that, the aircraft had been cruising smoothly for about 50 minutes. The flight crew had not observed any weather returns on their NDs until the aircraft had flown past waypoint SUDUN.

2.2 At the time of the turbulence encounter, there was a developing tropical storm some 850km from the aircraft. The investigation team does not believe that this developing storm was a factor in the turbulence encounter. The investigation team opines that the turbulence encounter was more likely associated with the areas of middle to dense convective clouds in the vicinity of the aircraft location.

2.3 The flight crew intended to fly through the green patch of weather returns indicated on the ND. As a precaution, they switched on the fasten-seat-belt sign to get the passengers seated and fasten their seat belt. In the cabin, the cabin crew did not feel the need to be seated as the flight was smooth prior to the onset of turbulence. The flight crew intended to instruct the cabin crew to suspend service and secure themselves. However, the onset of the turbulence came too soon.

2.4 Had the fasten-seat-belt sign been switched ON when the deviation was being considered, together with a PA announcement to the cabin crew, it may have provided more time for the cabin crew to secure themselves.

2.5 This occurrence serves as a reminder that:

(a) While green weather returns suggest light precipitation which is generally considered safe for passage, the possibility of encountering turbulence cannot be ruled out.

(b) Turbulence can occur unexpectedly, even when the WXR does not show any adverse weather. Passengers should always fasten their seat belts while seated and refrain from moving about in the cabin unnecessarily.

(c) Flight crews' early PA announcements would be useful in instructing the cabin crew members to secure themselves early. If there is insufficient time to make the PA announcement, the alternative method to seat the cabin crew was for the flight crew to cycle the fasten-seat-belt sign switch more than once.

3 CONCLUSIONS

From the information gathered, the following findings are made. These findings should not be read as apportioning blame or liability to any particular organisation or individual.

3.1 The aircraft encountered turbulence when it was cruising at 39,000 feet. The investigation team opines that the turbulence encounter was more likely associated with the areas of middle to dense clouds in the vicinity of the aircraft location.

3.2 Between 2240 hours when the aircraft entered Ho Chi Minh FIR and when the turbulence was encountered, the flight crew observed green weather returns on their NDs indicating some weather on their flight path. There was heavy radio traffic on the ATC radio frequency and the flight crew did not have an opportunity to contact ATC to request for a deviation. The flight crew assessed the green weather returns as suitable for passage and continued on their flight path. They switched on the fasten-seat-belt sign to get the passengers seated and fasten their seat belts, but they did not have time to make a PA announcement to get the cabin crew to suspend cabin service and seated before the turbulence encounter.

3.3 The occurrence underscores the need for flight crews to be cautious when operating near weather and, when in doubt, to switch on the fasten-seat-belt sign and make a PA announcement early to inform cabin crew members of the next course of action.

4 SAFETY ACTIONS

Arising from discussions with the investigation team, the organisation has taken the following safety action.

4.1 The operator has taken the following safety actions:

(a) Shared the findings and key takeaways of the event with all flight crew in July 2025, reminding them to cycle the “Fasten seat belt” sign more than once in an imminent turbulence situation to urgently alert cabin crew to be seated immediately and securely fasten their seat belts. Flight crews were also reminded that they may deviate from the ATS route without prior ATC clearance to avoid weather as per the operator’s in -flight contingencies special procedures, and use 121.5 MHz for deviation request if the ATC frequency is congested.

(b) Developed and conducted an e-learning refresher module on turbulence management for cabin crew, which all cabin crew completed in August 2025

(c) Launched an on-going safety campaign on 1 October 2025 with a view to constantly reminding cabin crews on Enhanced Turbulence Management to prevent injuries.

5 SAFETY RECOMMENDATIONS

In view of the safety actions taken by the operator, no safety recommendation is proposed.