



**Aviation Safety Council
Taipei, Taiwan**

**EVA AIRWAYS FLIGHT BR2196
AIRCRAFT TYPE A330-203
REGISTRATION NO.B-16306
ENCOUNTERED CLEAR AIR
TURBULENCE OVER HIGH SEAS NEAR
TOKYO, JAPAN**

Executive Summary

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On March 28, 2005, Eva Airways flight BR2196, aircraft type A330-203, registration number B-16306, at 1455 Taipei time, conducted a scheduled passenger flight from Taipei CKS International Airport to Narita International Airport, Tokyo, Japan, there were 2 pilots, 12 cabin crew and 2 non-duty cabin crew, 251 passengers on the aircraft, total 267 people.

The cruising altitude of the aircraft on the way to Japan was 37,000 feet, at 1701 the aircraft started to descend, at 1703:50, it encountered turbulence when descending to 33,932 feet, vertical speed changed dramatically. The turbulence lasted for around 12 seconds, the vertical speed of the aircraft later returned to a stable condition, with slight variations occasionally. At 1706:33, the aircraft again encountered turbulence with minor variations at 29,680 feet, the turbulence lasted till 1708:05 and returned to stable when the aircraft descended to 25,552 feet.

The interviews showed, the turbulence occurred when the Captain had finished the ready to descend announcement and turned on the fasten seatbelt sign, and the aircraft just started to descend. Cabin crewmembers were about to finish the selling of duty-free products at that time, and part of the passengers were still not back to their seats, causing injuries of 46 passengers and 10 cabin crewmembers, one of the passengers suffered cervical spine fracture and was severely injured. The aircraft obtained the first priority approach, at 1727 landed at Narita Airport Tokyo. After landing the aircraft examining records showed, the fuselage

structure, flight control surface, wheel well and cabin doors of the aircraft were not damaged, parts of the cabin ceiling and oxygen masks came off, overhead lockers deformed.

Findings related to the probable causes

1. The severe Clear Air Turbulence the aircraft encountered at the occurrence location, causing the aircraft rapidly swayed, part of the cabin crew and passengers were injured due to the impacts to objects inside the cabin.

Findings Related to the Risks

1. Before the occurrence, Japan had announced many times about significant weather information of medium to severe turbulences, the alert range and time covered the flight route of the aircraft, after Eva Airways dispatchers analyzed and judged the significant weather forecast, the en-route significant weather chart of the CAT forecast area and the low level wind shear forecast of Narita Airport were provided to the aircraft pilots during briefing, however the significant adverse weather information was not provided to the pilots.
2. Clear Air Turbulence was not easy to be detected in advance, and was not easy to be identified from the limited data of the cockpit instruments, causing the flight crew not easy to aware that the aircraft was in a region where Clear Air Turbulence might occur during the flight.

Other Findings

1. The flight crew of the occurrence aircraft all possessed qualified pilot qualifications and appropriate licenses, complied with

ROC Civil Aviation Act and the company's requirements.

2. After the occurrence, Japan authorities did not conduct alcohol tests to the flight crew.
3. The duty time, flight time, rest time etc. of the flight crew were conformed to the relevant law requirements. And no evidence showed that the flight crew and their personal lives had existed medical, behavioral or mental issues which could affect the performances on the day of the occurrence.
4. The certificate, lading and maintenance of the occurrence aircraft were all conformed to the regulations of Civil Aviation Act, the aircraft was conformed to the airworthiness standards before the occurrence, and no evidence showed that the aircraft had any existed mechanical failure or other structural, flight control system, engine problems etc. during the occurrence.
5. The CVR data which A330 equipped to record important flight occurrence investigation data, possibly after the aircraft landed, the RCDR/GND CTL switch was activated and the data was overwritten, the voice records during the occurrence were lost.

Safety Recommendations and Action Taken

To EVA AIRWAYS

1. Enhance the gathering of significant adverse weather information, and indeed provide relevant information to flight crew, for the benefits of building up situation awareness of en-route environment for crew as soon as possible.

Action Taken

The Flight Control Department of Flight Operation Division of Eva Air had made announcement of providing significant adverse weather information on April 10, 2005. (Notice No.2005-0026R2), and required to increase SIGMET information in Dispatch Release for dispatch operations.

1. Strengthen cabin crew with self-safety protection measures and trainings when encountering turbulences.

Action Taken

Eva Air had published the two improvement measures of Important Notice and Duty Subject Advocacy in April 2005 for cabin safety after the accident, and amended to strengthen the turbulence related emergency procedures for cabin crew, to distinguish from the expected and the unexpected situations.

1. Establish related measures to avoid activating RCDR/GND CTL switch and causing important accident data to lose in FDR systems of A330 or similar aircrafts after accidents, and strengthen to propagandize.

To Civil Aeronautics Administration, CAA

1. Require Airlines to establish related measures to avoid activating RCDR/GND CTL switch and causing important occurrence data to lose in FDR systems of A330 or similar aircrafts after the occurrence and strengthen to propagandize.
2. Propagandize to relevant personnel that activating RCDR/GND CTL switch could cause important occurrence data to lose in FDR systems of A330 or similar aircrafts after the occurrence.

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