



**Aviation Safety Council
Taipei, Taiwan**

**MANDARIN AIRLINES FLIGHT AE 838
BOEING 737-809, B18603 VEERED OFF
THE RUNWAY WHEN LANDING AT CKS
INTERNATIONAL AIRPORT**

Executive Summary

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On October 31 , 2000 , Flight AE 838 wet leased by Mandarin Airlines from China Airlines , aircraft type B737-809 , registration no.B-18603 departed from Yangon Airport , Burmese to Taipei Chiang Kai-shek International Airport (hereinafter called CKS Airport) , the aircraft carried 124 passengers and crewmembers.

At 21:32 Taipei time, AE 838 contacted Taipei Approach Control. Northern Taiwan was affected by the fringe circumfluence of Xangsane Typhoon and the northeast monsoon and there was strong wind and heavy rain in CKS Airport. At 2147:05, the aircraft conducted an ILS approach on 05L in CKS Airport. At 2150:12, the nose wheel touched down, two seconds later, two main wheels veered off the runway to the right grass at 2,439 feet and returned to the runway at 4,119 feet. The nose wheel was never off the runway. Later the captain reported to the Tower Local Control (LC) that the aircraft might run over some right side runway edge lights. LC responded “Roger” without further instructions. Twelve seconds later, the aircraft contacted Ground and Ground instructed the aircraft followed N7 taxiway to A10 apron.

Findings

1. The flight crew possessed qualified licenses.
2. The aircraft had executed all airworthiness directives and obtained an airworthiness certificate.
3. No abnormal records in the Technical Log Book, weight and balance was within limits.

4. The first officer conducted takeoff, cruise and descent of AE 838 from YanGon to CKS Airports, the approach and landing was conducted by the captain.
5. The weather in northern Taiwan was affected by Xangsane Typhoon; there was strong wind and heavy rain in CKS Airport. Air Navigation and Weather Services (ANWS) once issued CB significant weather report, strong wind and Typhoon alert for CKS Airport.
6. When the aircraft was landed, wind speed was 21 knots, maximum gust 34 knots, the weather condition was conformed to the landing limitation of B737-800 of China Airlines.
7. The timing of which the pilot disengaged Autopilot was too late causing a greater included angle between the adjusted track and the runway centerline.
8. The pilot conducted the approach in strong gust and crosswind, 7 to 4 seconds before touchdown, ailerons were greatly manipulated leading a bank to the downwind side, and maximum bank was 8.8 degrees. The crosswind and landing technique did not comply with the operation manual.
9. The two main wheels of the aircraft touched down simultaneously 30 feet right of the centerline at 1,771 feet on Runway 05L of CKS Airport, veered right off the runway at 2,439 feet and returned to the runway at 4,119 feet. Nose wheels never went off the runway.
10. Before landing, the pilot maneuvered the aircraft by a wide range horizontally, plus the affects of strong gust, crosswind

and wet runway, the aircraft continued veering to the right after touchdown, eventually it veered off the runway due to unable to correct in time.

11. It was unable to prove the effectiveness of the deceleration of the aircraft and the possibility of dynamic hydroplaning.
12. The wind direction/speed parameters of the FDR were recorded every 4 seconds, more accurate data was not available to find out the rate of change of wind direction and speed.
13. The aircraft reported to the Tower of the likelihood of running over several runway edge lights, the duty LC acknowledged without further action.
14. The aircraft suffered no substantial damage, no casualties; two Runway 05L edge lights were crushed.
15. If the pilot could honestly file in the first crew report, and if Mandarin Airline could report immediately, then Aviation Safety Council might have the chance to obtain the original FDR data.
16. The agreement of notification responsibility of China Airlines and Mandarin Airlines could not comply with article 7 of “Regulation for Aircraft Accident or Serious Incident Investigation”, causing situations that were not conformed to the regulation.
17. The anemometer of CKS Airport meteorology station can reveal instant wind direction and speed; however the recorded data merely had an average value of one minute, insufficient for the needs of investigation and analysis.

Findings related to the probable causes

1. The pilot maneuvered the aircraft horizontally by a wide range before touchdown which reduced the crab angle, leading to the reduction of headwind component in strong gusts, plus the heavy rain and the wet runway, the aircraft continued veering to the right after touchdown, finally it was too late to correct and veered off the runway.
2. During the last phase of the approach, the pilot maneuvered with large banks at low altitude, and failed to determine a reject landing, hence losing the opportunity of avoiding the accident.
3. The timing for the pilot to disengage Autopilot was too late , and under the circumstances of insufficient reaction time and correcting distance, causing too much of an included angle between the track and runway centerline, plus the strong gust, crosswind and wet runway leading the aircraft to veer off the runway after touchdown.

Safety Recommendations

To Civil Aeronautics Administration, CAA

1. Examine the required theoretical knowledge and maneuvering skills when landings have to be made by civil aviation pilots in strong gusts, crosswind and wet runways, and strengthen the training and examinations. (ASR-01-07-001)
2. Consider the human errors that could be easily made by Air Traffic Controllers when operating in a busy condition, examine and amend Air Traffic Control Operating Procedures, ensure important information is seized and notification operation is

executed at the right time. (ASR-01-07-002)

3. Increase the wind direction and speed records in the airport meteorology station to provide instant data every second for accident investigation analysis. (ASR-01-07-003)

To China Airlines

1. Pilots should have theoretical knowledge and maneuvering skills for landing in strong gusts, crosswind and on wet runways, and strengthen trainings and examinations. (ASR-01-07-004)
2. Establish principles and essentials for filing crew reports in the standard operating procedures, and actually implement. (ASR-01-07-005)
3. Actually implement Notification Activity Procedures for accidents and serious incidents. (ASR-01-07-006)

To Mandarin Airlines

1. Actually implement Notification Activity Procedures for accidents and serious incidents. (ASR-01-07-007)

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