

NATIONAL TRANSPORTATION SAFETY BOARD

Office of Research and Engineering
Washington, D. C. 20594

Performance Study

Specialist Report
Marie Moler
December 29, 2012

A. ACCIDENT

Location:	Sedona, Arizona
Date:	May 25, 2011
Time:	1550 MST, 2250 UTC
Aircraft:	Embraer S.A. EMB-500, N224MD
NTSB Number:	WPR11FA236

B. GROUP

No vehicle performance group was formed.

C. PERFORMANCE STUDY

The flight data was provided by the Flight Data Recorder (FDR) specialist group and was used to analyze the aircraft's final approach path. Latitude and longitude were converted to northing and easting in nautical miles (NM). Figure 1 shows the pressure altitude profile versus the distance traveled along the ground to the threshold of runway 21, which was calculated from the northing and easting. The aircraft's glide slope during the last 1.5 NM of flight was approximately 3.7°. Figure 2 shows the aircraft's recorded airspeed and ground speed. Touchdown was considered to have occurred when weight on wheels transitioned from 0 to 1. The aircraft's speed as it touched down was 128 kts airspeed and 123 kts ground speed. The Vref speed of 97 kts is also shown. The aircraft's indicated airspeed was recorded as 117 kts.

During the aircraft's last 30 seconds of descent, its descent rate was approximately 1374 ft/min as shown in Figure 3.

Runway 21 at Sedona Airport (KSEZ) is 5,132 ft long. The aircraft touched down within the first 1,500 feet of runway. The captain applied the wheel brakes according to Figure 4 and Figure 5. The first officer did not apply the brakes. The thrust lever angles had been brought back to zero degrees about a mile before touchdown and stayed there until after the aircraft had left the runway, Figure 6. After leaving the runway and approximately 24 seconds after touchdown,

the thrust level angles increase to about 70 degrees and stay there until the end of the FDR recording.

Figure 7 shows the aircraft's approach path in latitude versus longitude (and northing versus easting) with the runway threshold, touchdown, and wreckage marked. The aircraft's final 180° turn onto the runway heading was a little over 1 nautical mile in diameter.

D. FIGURES

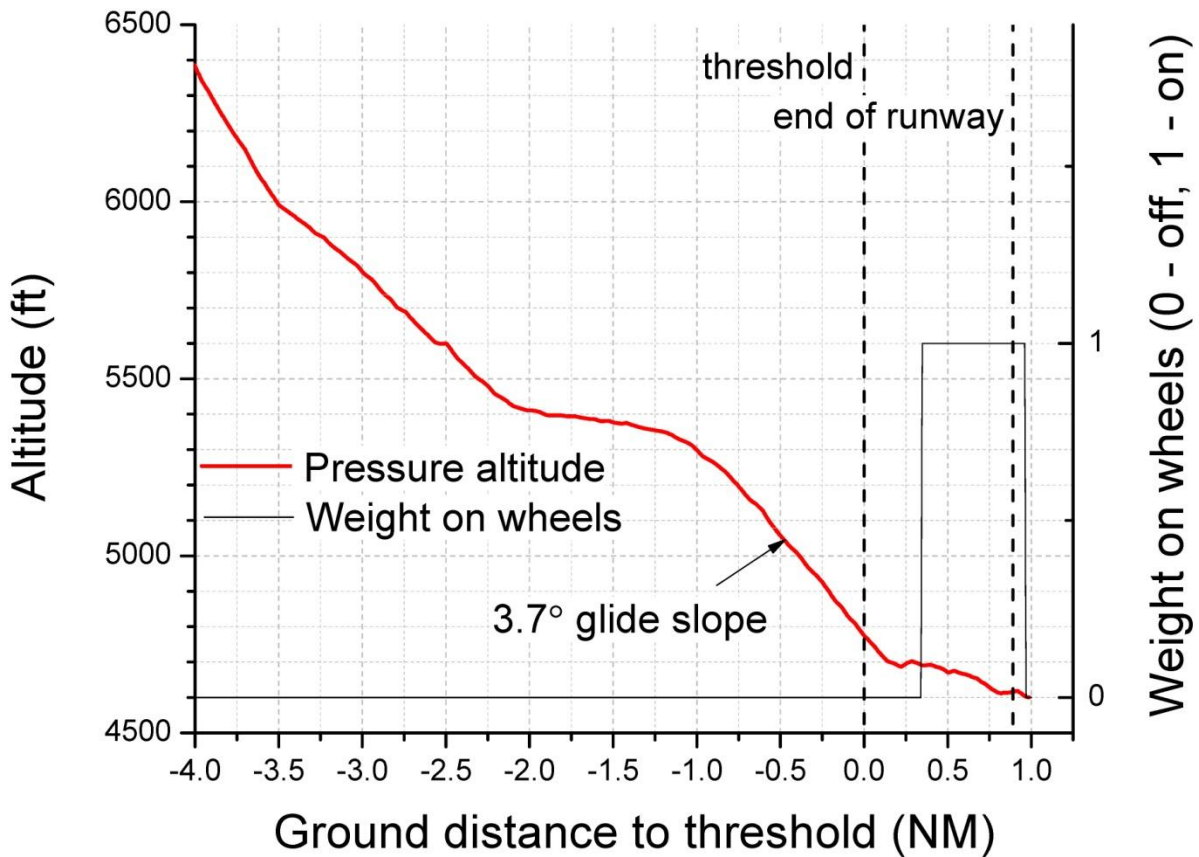


Figure 1. Pressure altitude versus distance traveled along the flight path. The zero point marks the threshold to runway 21.

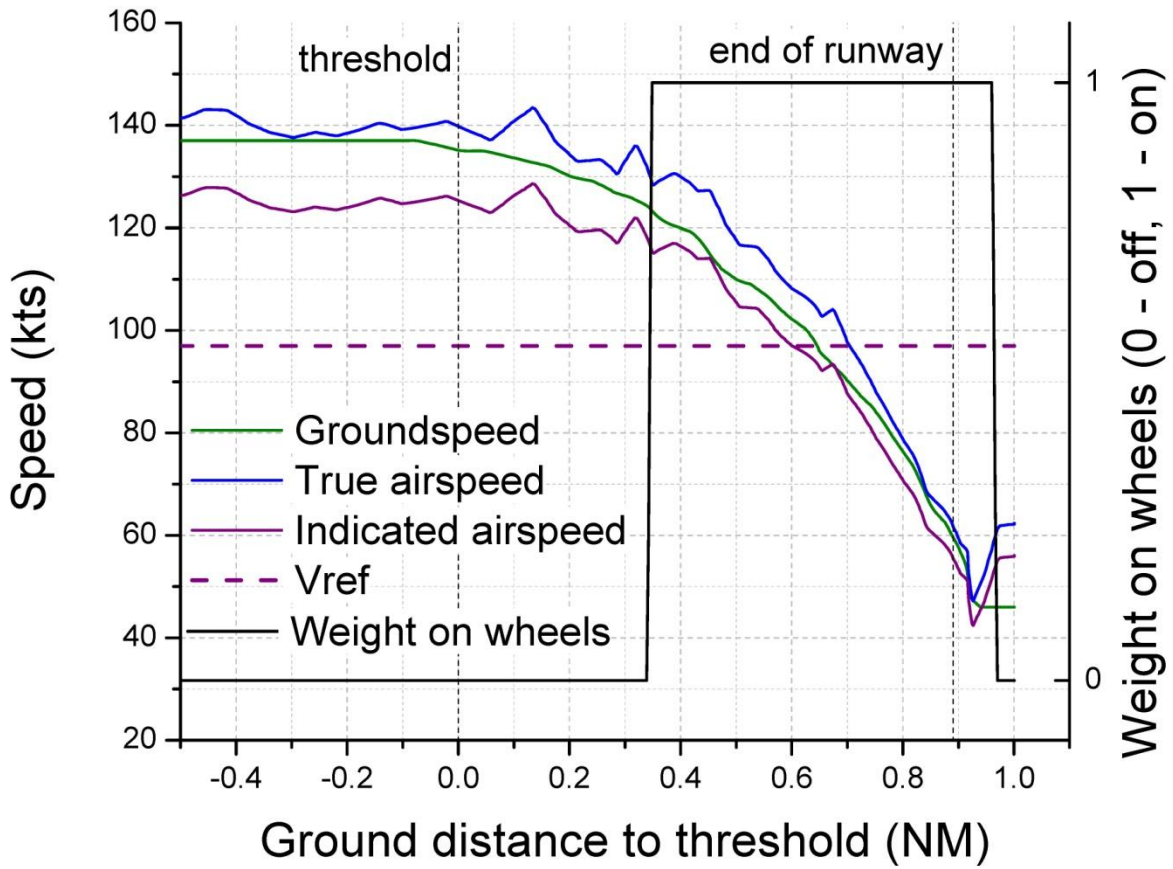


Figure 2. Airspeed and ground speed versus distance traveled along the flight path. The zero point marks the threshold to runway 21.

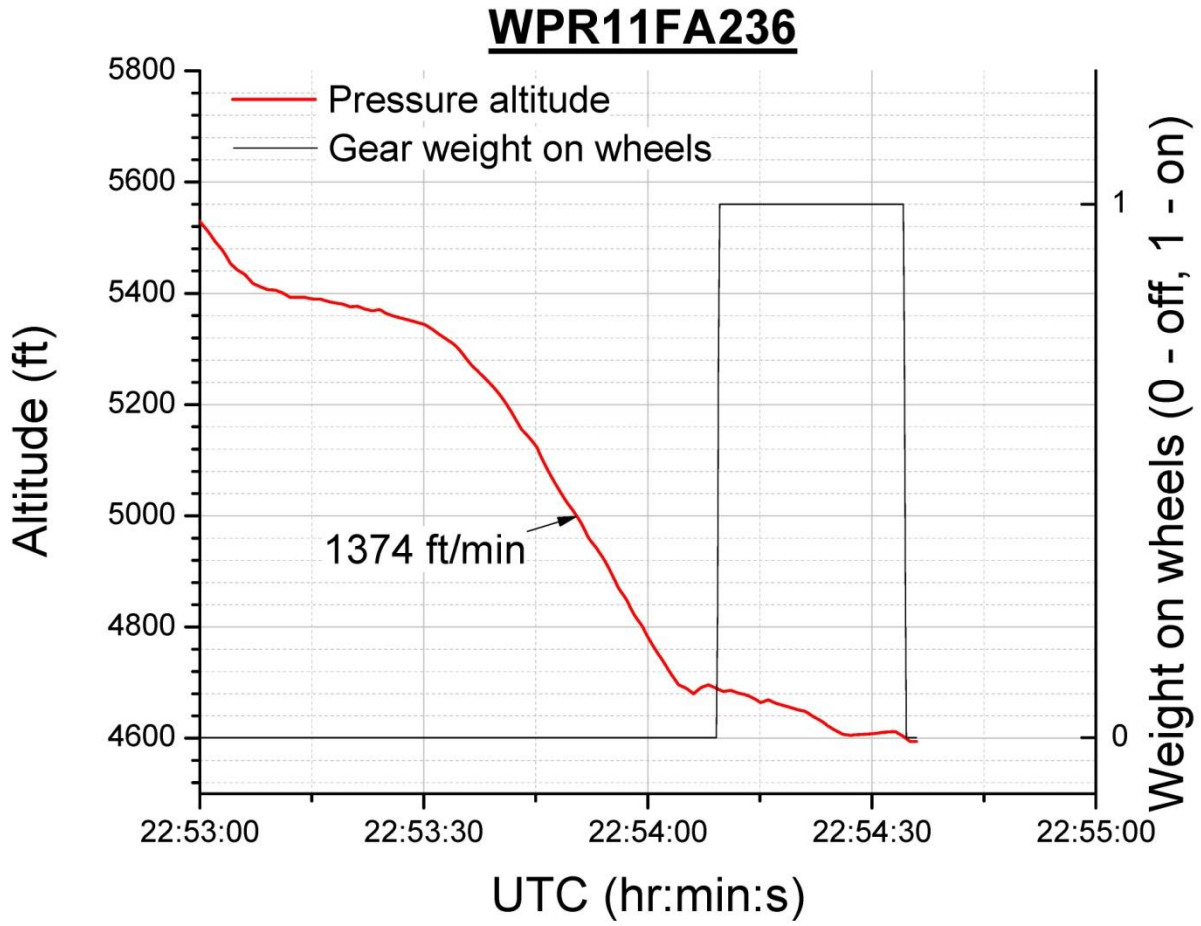


Figure 3. Altitude versus time and weight on wheels.

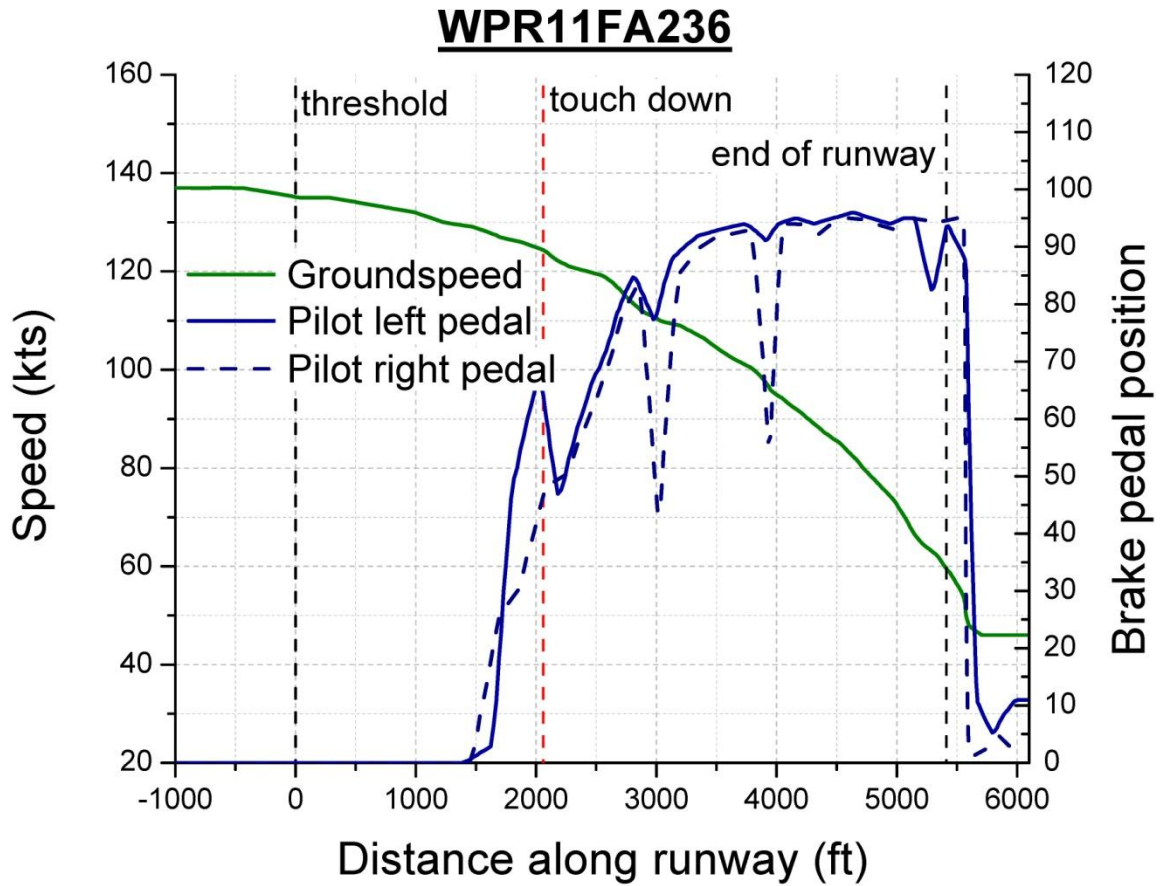


Figure 4. Ground speed and pilot brake pedal position along runway.

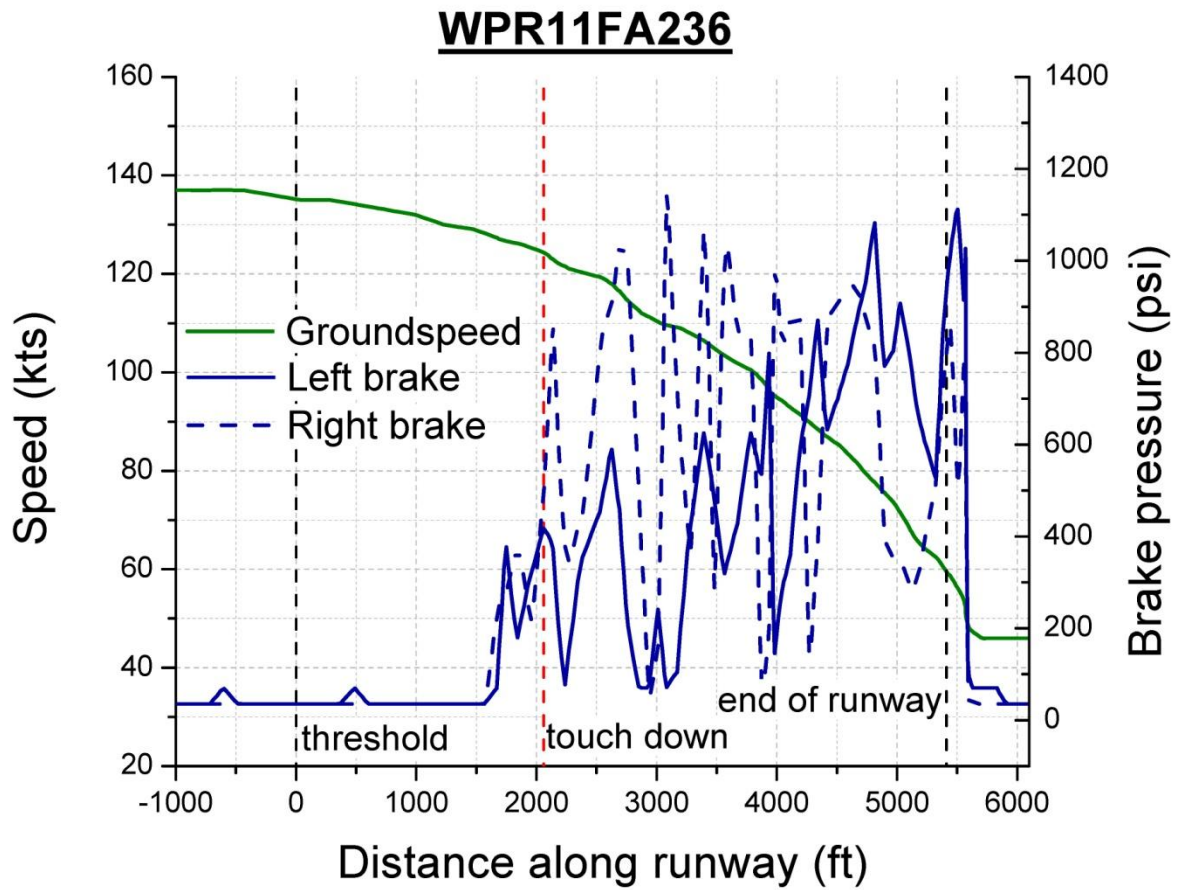


Figure 5. Ground speed and brake pressure along runway.

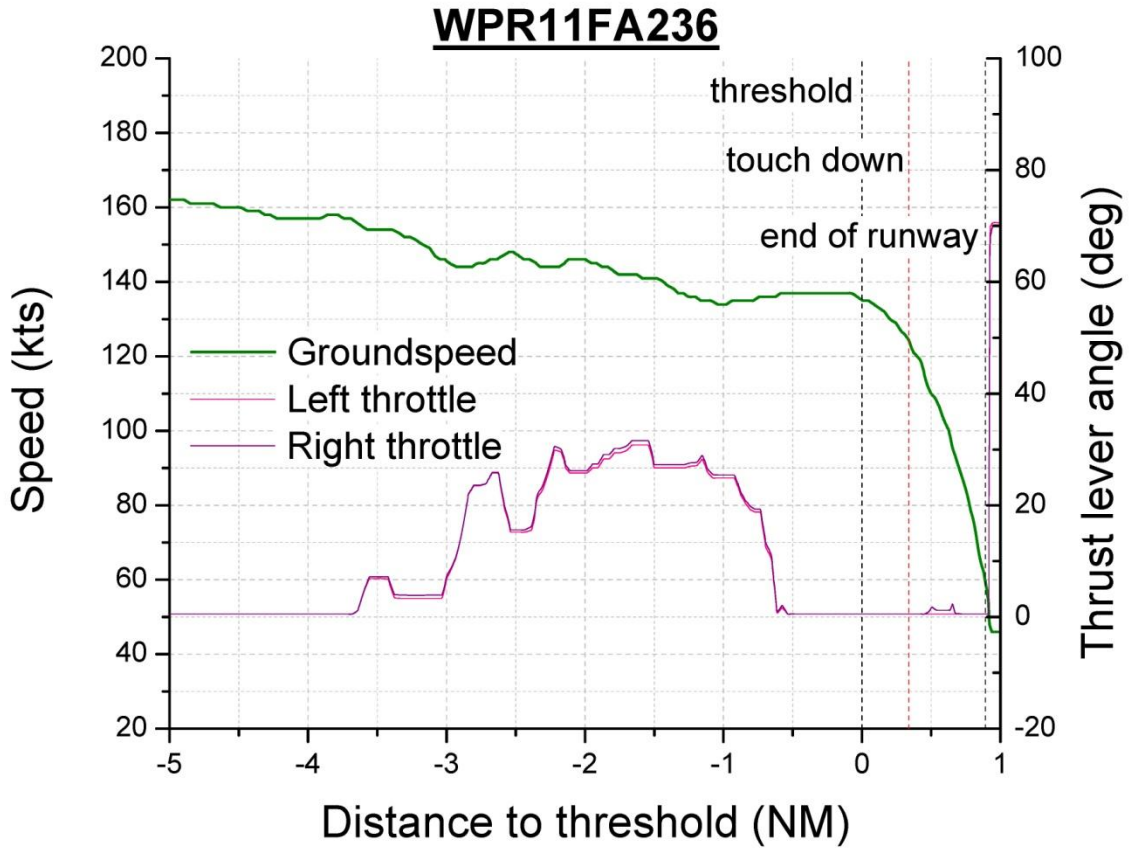


Figure 6. Ground speed and thrust lever angle up to and along runway.

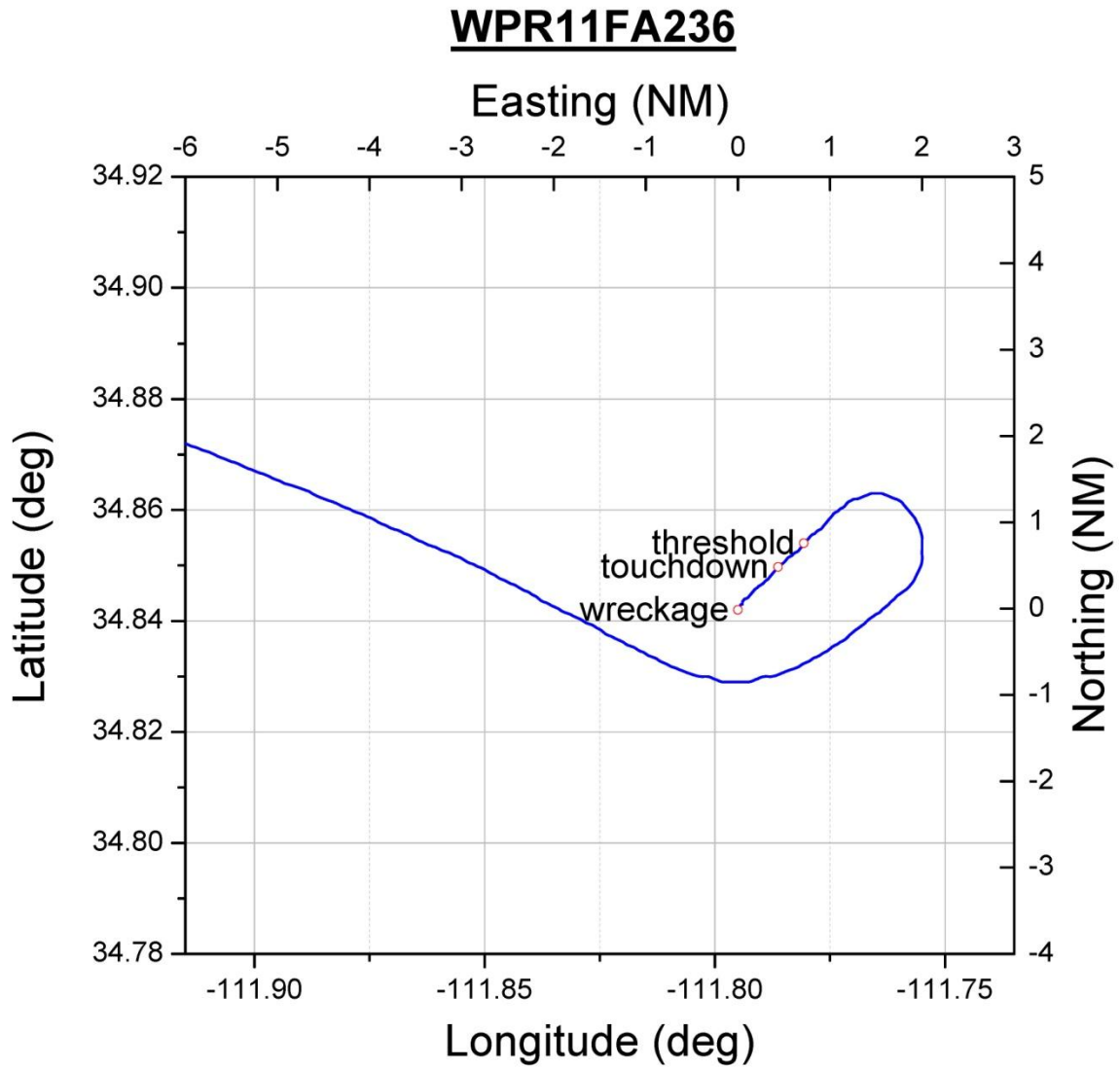


Figure 7. Aircraft flight path. Runway 21 threshold, touchdown point, and wreckage are shown.

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