



## MH370: Structural Analysis and Ditching Simulation Study

### AEROSPACE SCIENCE AND TECHNOLOGY THE END OF FLIGHT MH370: A FORCED WATER LANDING, STUDY OF THE FLAPERON STRIKING WITH THE SEA SURFACE

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[https://www.mh370-caption.net/wp-content/uploads/Pages-from-lettre\\_3af\\_n41.pdf](https://www.mh370-caption.net/wp-content/uploads/Pages-from-lettre_3af_n41.pdf)

These sources analyze the technical aspects and disappearance of flight MH370, focusing on the Boeing 777-200ER's material composition and specialized crash simulations. One document highlights the aircraft's structural makeup, noting that it consists primarily of aluminum alloys, carbon fiber composites, and titanium to balance weight and durability. The second source details a study by the CAPTIO team, which utilized advanced numerical modeling to investigate how a specific wing component, the flaperon, was damaged. By comparing a controlled ditching scenario against a mid-air breakup, the researchers concluded that the damage patterns strongly suggest the pilot attempted a forced landing on water. These investigations aim to narrow down the underwater search area by calculating the plane's final movements and impact density. Together, the texts provide a forensic engineering perspective on the mystery, combining material science with fluid-structure interaction simulations to hypothesize the aircraft's final moments.

# MH370: THE PHYSICS OF THE END

## A Forensic Analysis of the Flaperon and Search Parameters



How does a single piece of debris tell the story of the final moments of a 142-ton aircraft? This deck analyzes the recovered physical evidence against advanced hydro-structural simulations to determine whether the aircraft crashed in a death dive or performed a controlled ditching.

DEPTH: UNKNOWN

GRID REF: [REDACTED]

SCAN MODE: MULTIBEAM SONAR / SYNTHETIC APERTURE

0 5m 100

160

9

50

16

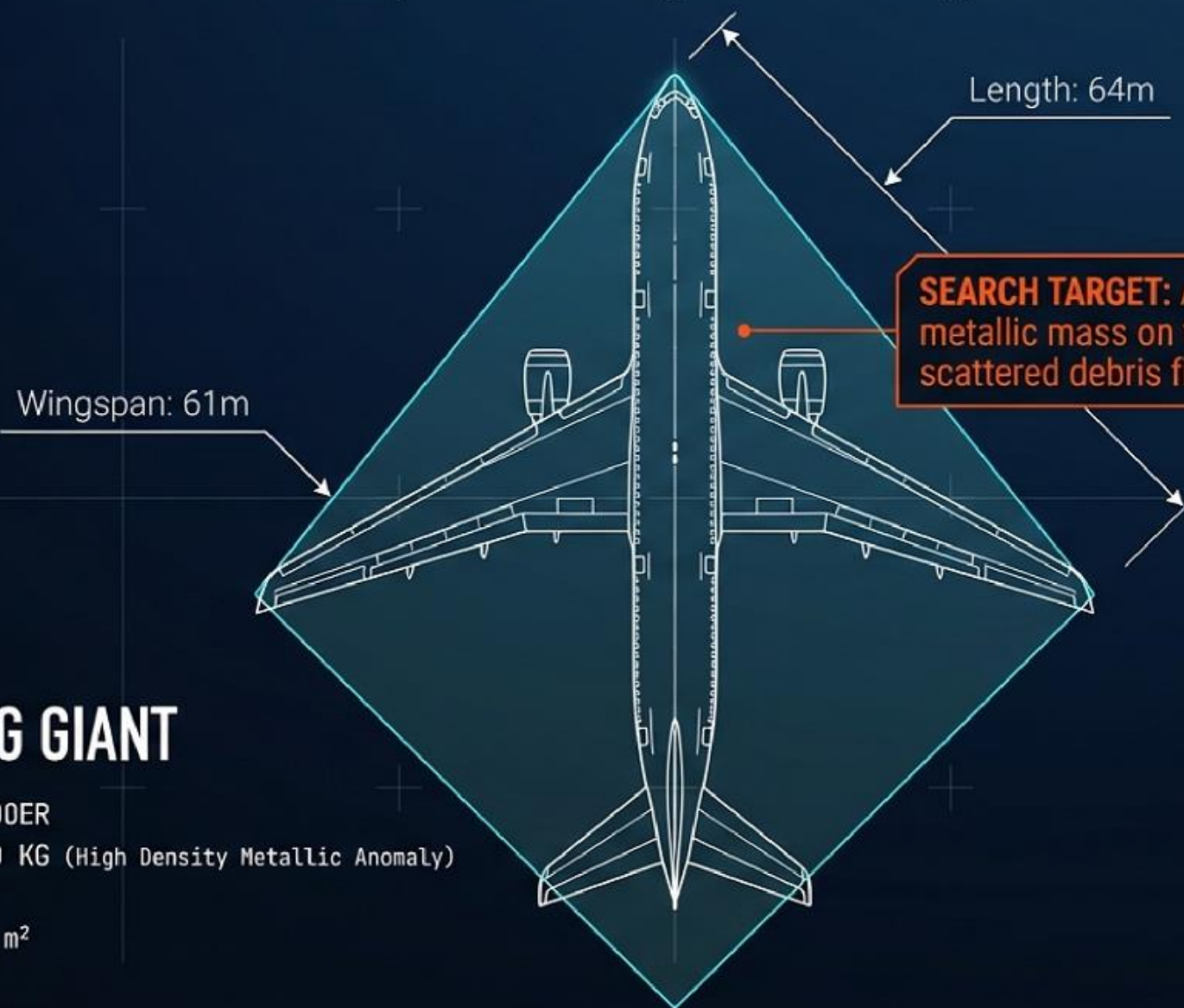
0

16

0 20 120

GRID REF: [REDACTED]

ANALYSIS IN PROGRESS

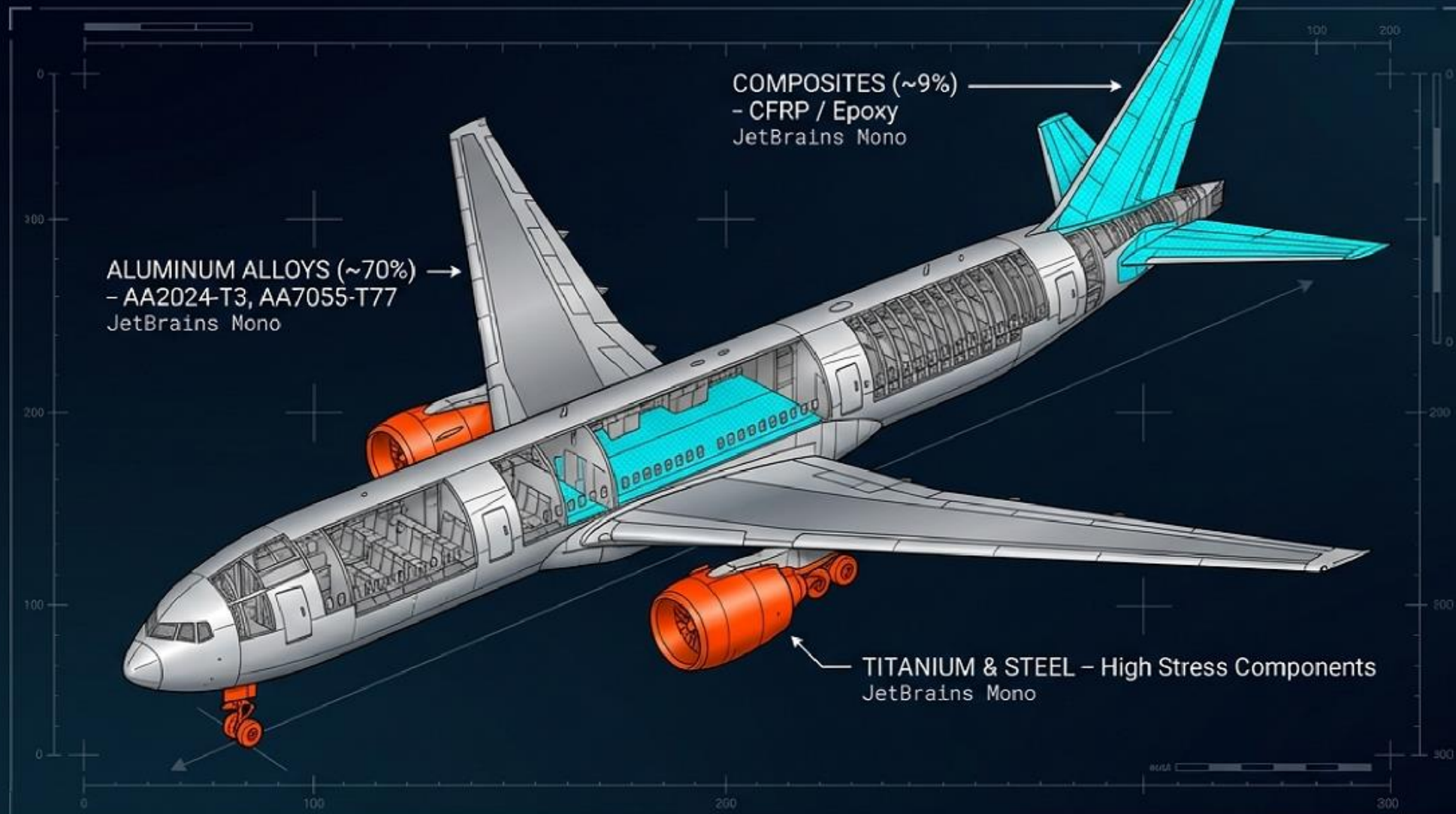


**SEARCH TARGET:** A compact, high-density metallic mass on the seabed. Not a scattered debris field.

# THE MISSING GIANT

MODEL: B777-200ER  
MASS: 142,400 KG (High Density Metallic Anomaly)  
HEIGHT: 18m  
FOOTPRINT: ~1,952 m<sup>2</sup>

# MATERIAL COMPOSITION & SIGNATURE



## INSIGHT

### Forensic Search Profile:

We are scanning for a specific alloy signature of 140-180 tonnes. The durability of aluminum and titanium dictates what survives the crash and corrosion.

# TWO COMPETING THEORIES

## SCENARIO A: FREEFALL



Uncontrolled mid-air breakup or fuel exhaustion.  
High-speed vertical impact.  
Nose-down attitude.

## SCENARIO B: CONTROLLED DITCHING



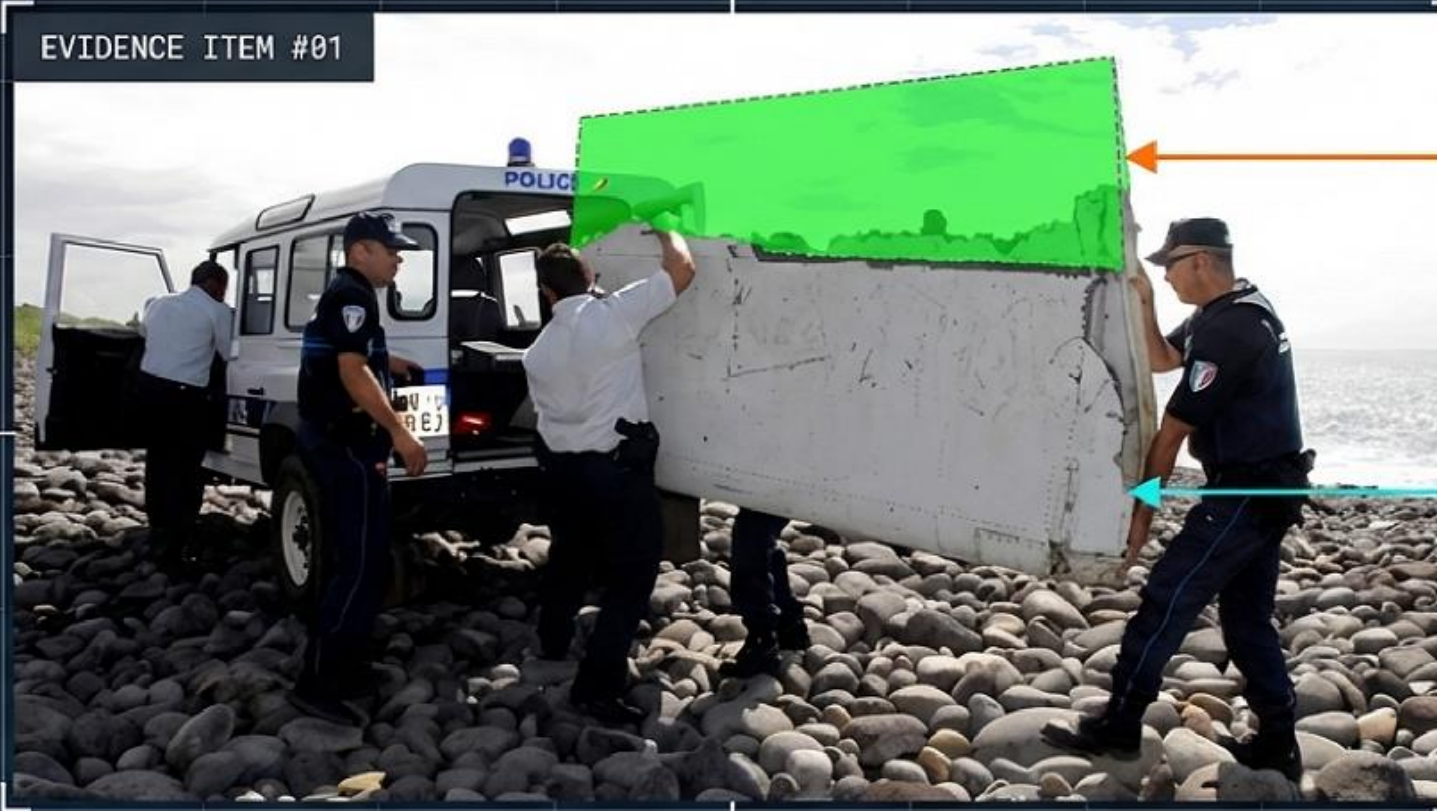
Active piloting until the end.  
Low-speed glide.  
Horizontal attempt to land on water.

VS

Objective: Determine which scenario matches the flaperon damage fingerprint.

# THE CRITICAL EVIDENCE: REUNION FLAPERON

## The Anomaly



The damage pattern is a fingerprint. In a typical high-speed crash, the leading edge impacts first. Here, the back is destroyed while the front remains relatively pristine. How did this happen?

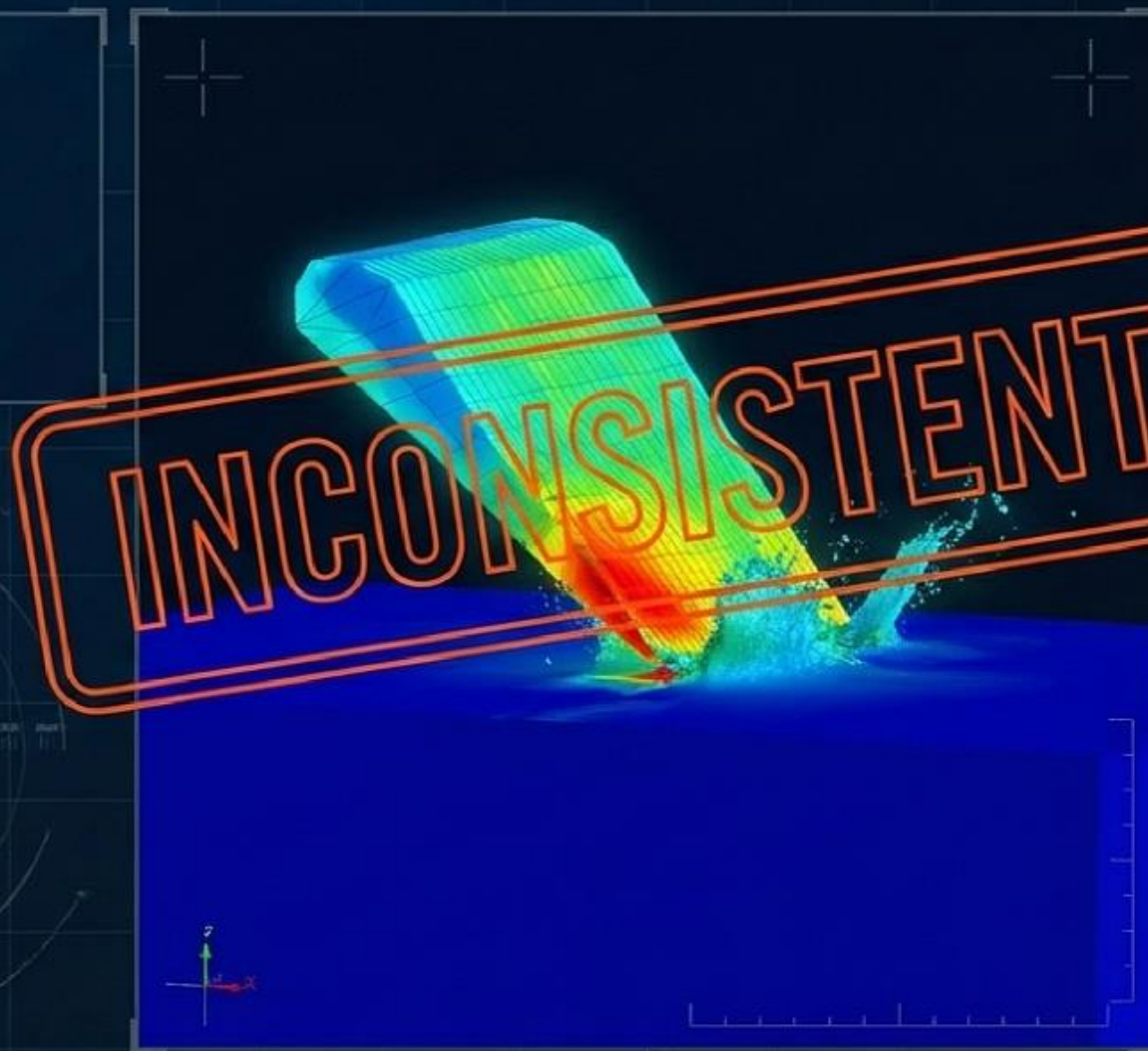
# SCENARIO A: FREEFALL SIMULATION

## PARAMETERS:

Drop Altitude: **5,000 ft**

Impact Speed: **38 m/s**  
(**137 km/h**)

Angle: **50° Nose Dive**



## DAMAGE REPORT:

Primary Impact: **LEADING EDGE (Nose).**

Result: Massive stress and crushing on the front.

Verdict: **Does not match the recovered debris.**

# SCENARIO B: CONTROLLED DITCHING SIMULATION

## PARAMETERS:

Horizontal Speed:  
68.42 m/s (153 mph)

Vertical Speed:  
2.54 m/s (500 ft/min)

Angle:  
Gliding Approach

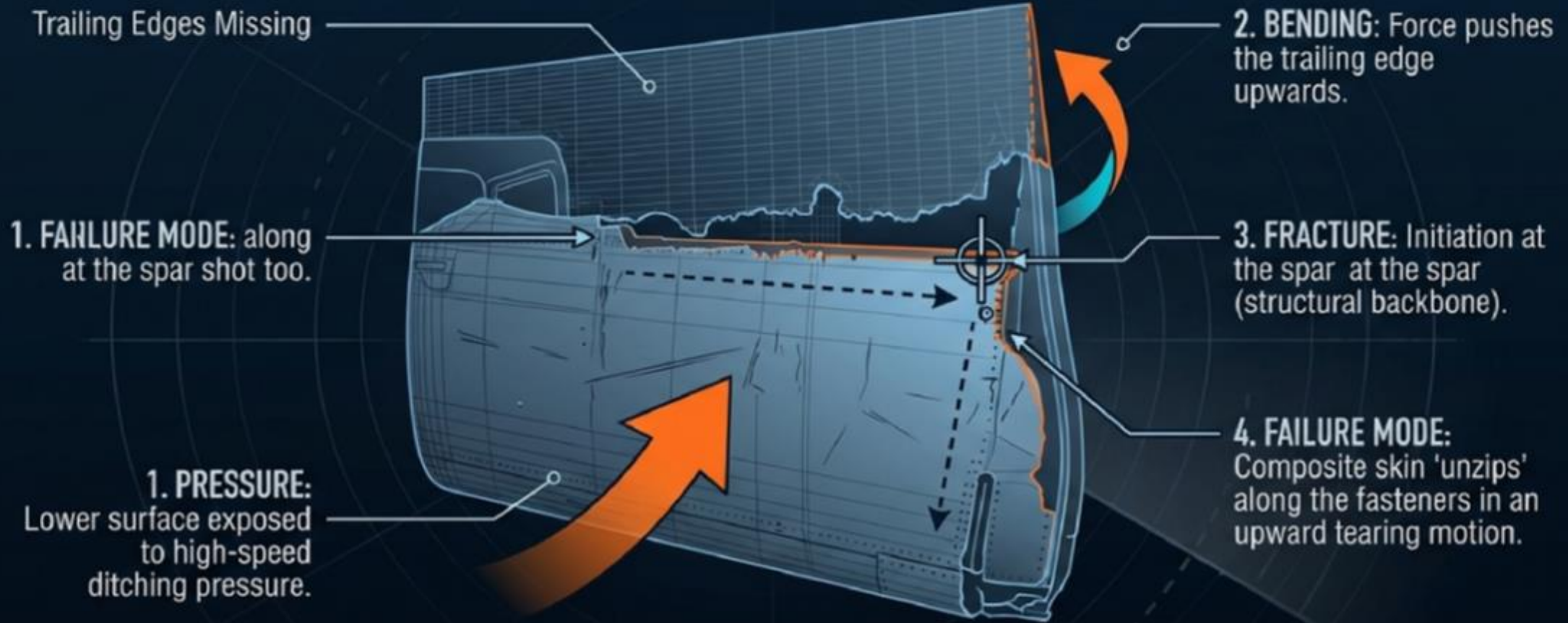


## PHYSICS REPORT:

Hydrodynamic Pressure:  
**High-speed flow** on the underside.

Effect: The flaperon acts as a water ski, creating **massive lift force** on the trailing edge.

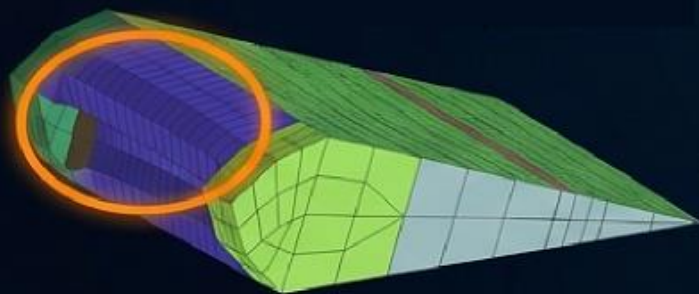
# FAILURE MECHANISM: HYDRODYNAMIC TEARING



The water pressure forces the trailing edge up until it snaps, leaving the leading edge intact.

# FORENSIC MATCH: SIMULATION VS. REALITY

## FREEFALL SIM



Leading edge cracked and severely dented

**NO MATCH**

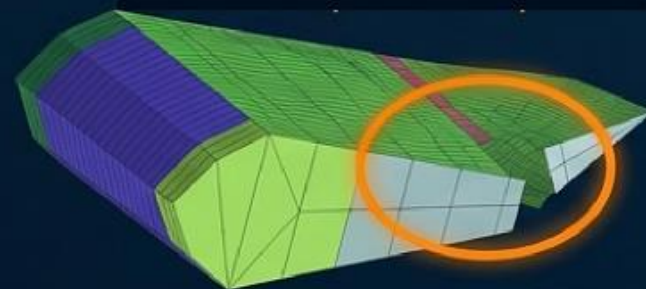
## REAL EVIDENCE



Trailing edge missing

**TARGET**

## DITCHING SIM



Trailing edge fully broken and on the point of separation

**PERFECT MATCH**

The Ditching simulation reproduces the exact damage pattern. The Freefall simulation creates damage that does not exist on the artifact.

# THE VERDICT: A GUIDED END

The physical evidence supports a **CONTROLLED DITCHING**.

- The damage pattern is inconsistent with a high-speed death dive.
- The flaperon was still attached to the wing upon impact.
- This implies active piloting to maintain a glide angle in the final moments.



# IMPLICATIONS FOR THE SEARCH BOX

- **IMPACT DYNAMICS:** The plane did not disintegrate in mid-air.
- **DEBRIS FIELD:** High-density. Not scattered.
- **TARGET FOOTPRINT:** The "Diamond" (approx. 2,000 - 5,000 m<sup>2</sup>).
- **MASS:** 140+ tons of Aluminum and Titanium alloys.





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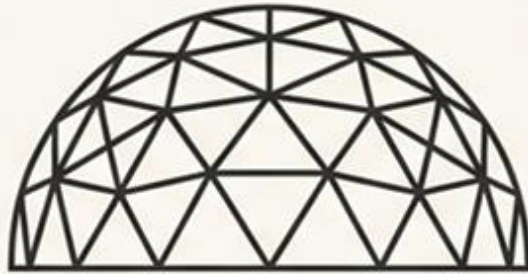
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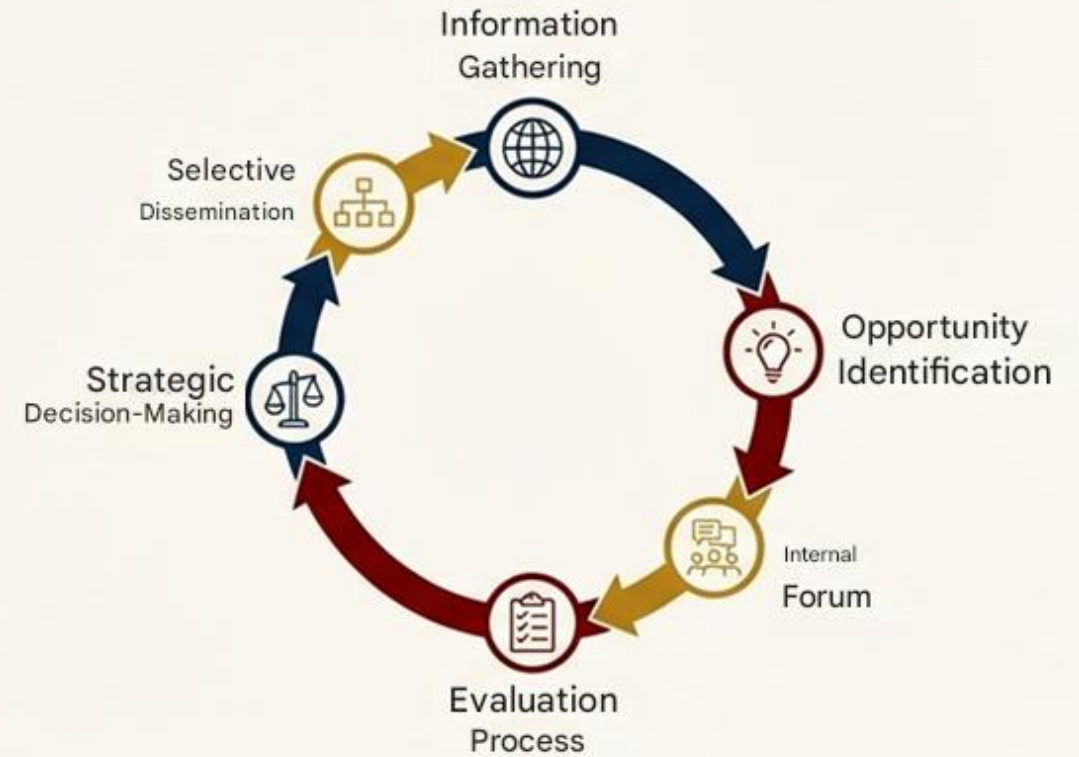
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