



THE HELIOS ACCIDENT & CONSIDERATIONS ARISING

October 6, 2010

“Panos”

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Major HAF/Active F16 Pilot, MSc

Introduction
The Flight
Final Descent
Pilot incapacitation
Research

Objectives

**HELIOS AIRWAYS FLIGHT HCY522 BOEING 737-31S
GRAMMATIKO, ATHENS, AUGUST 14, 2005
ACCIDENT EXPERIENCE**

**AN INVESTIGATION INTO APPROPRIATE ACTIONS TO BE TAKEN
IN THE EVENT OF PILOT INCAPACITATION IN A COMMERCIAL
AIRCRAFT, AND WHETHER CABIN CREW WOULD BE ABLE TO
FULFIL THESE ACTIONS**

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Two F16s
Helios Aircraft

Helios B737-300

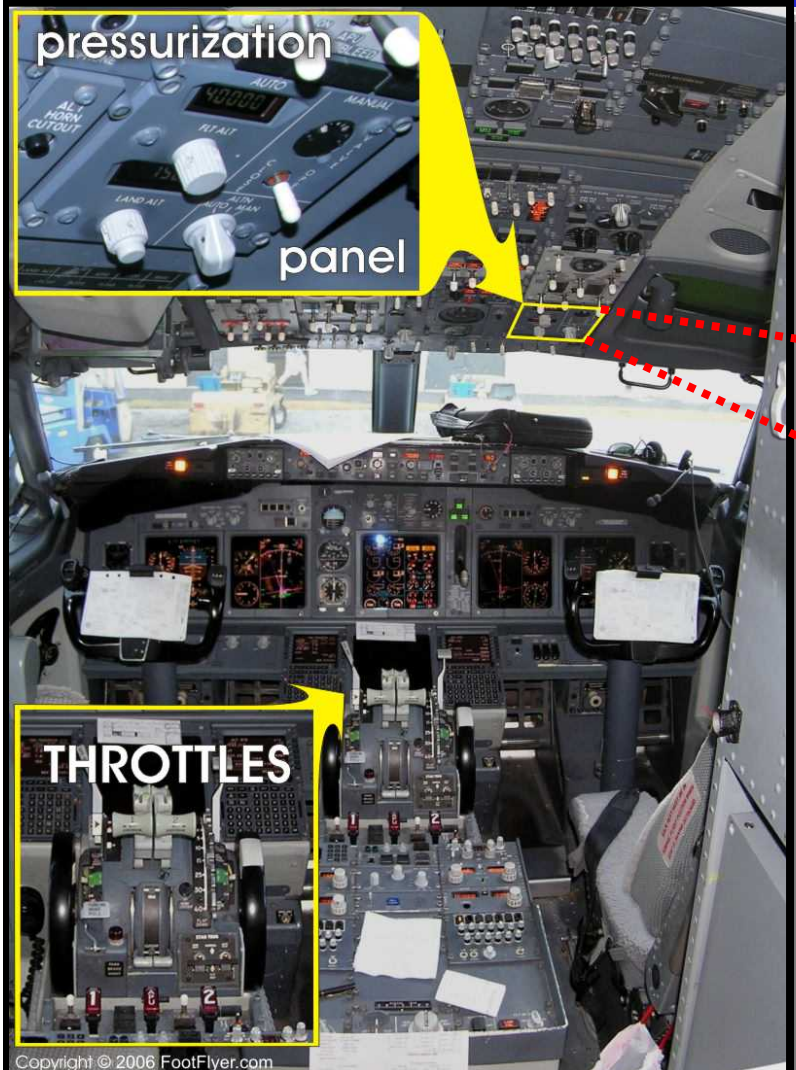


...5B-DBH...

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Ground procedures
Departure – Climb – En route
Intercept Phase

CABIN PRESS SW/HF in Design



*Preflight checklist
Before Start checklist
After Takeoff checklist*



...HCY522 wreckages...

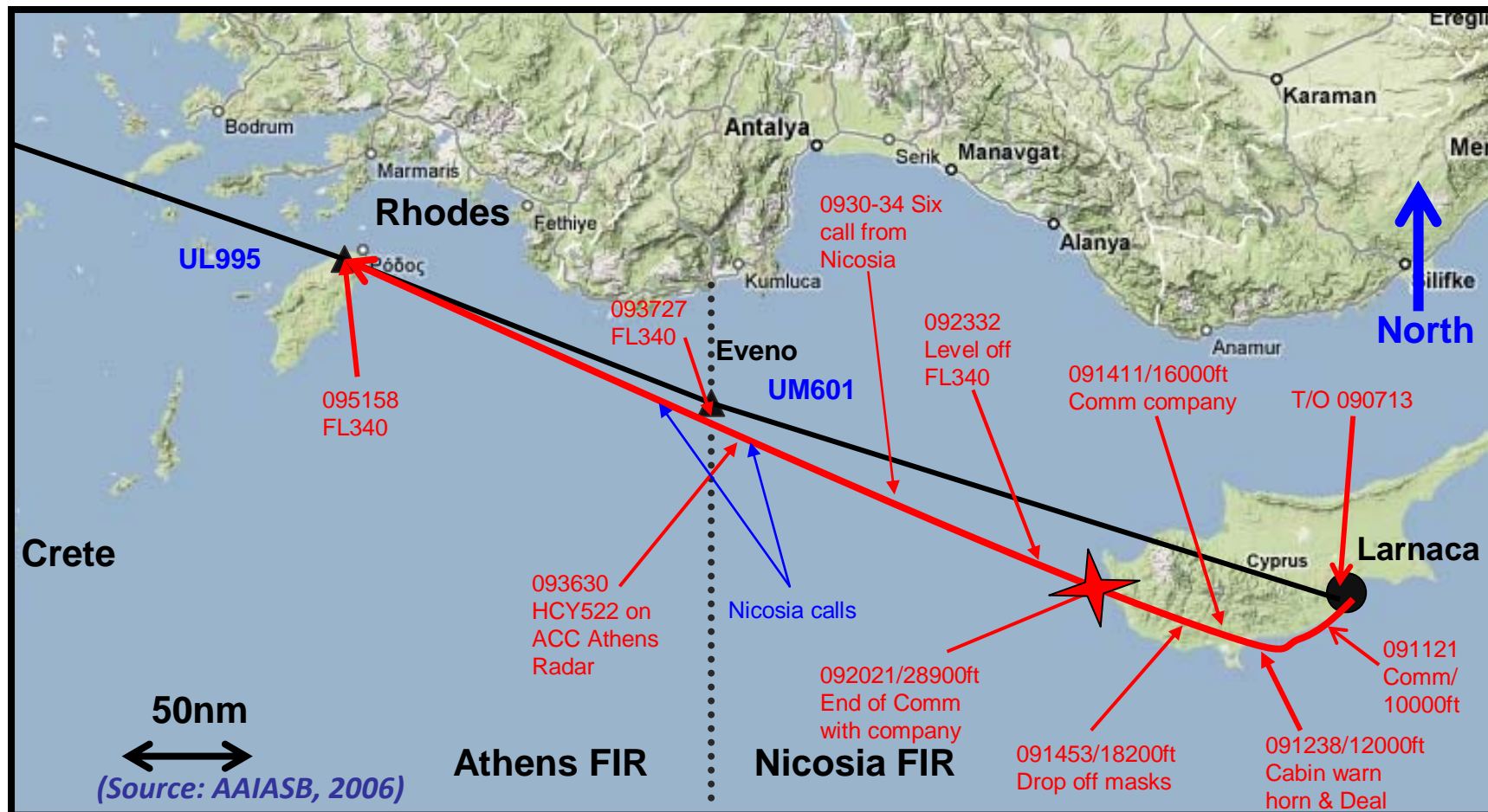
(Source: AAIASB, 2006)

Panos, October 6, 2010

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09.00 09.15 09.30 09.45 10.00 10.15 10.30 10.45 11.00 11.15



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10.15

10.30

10.45

11.00

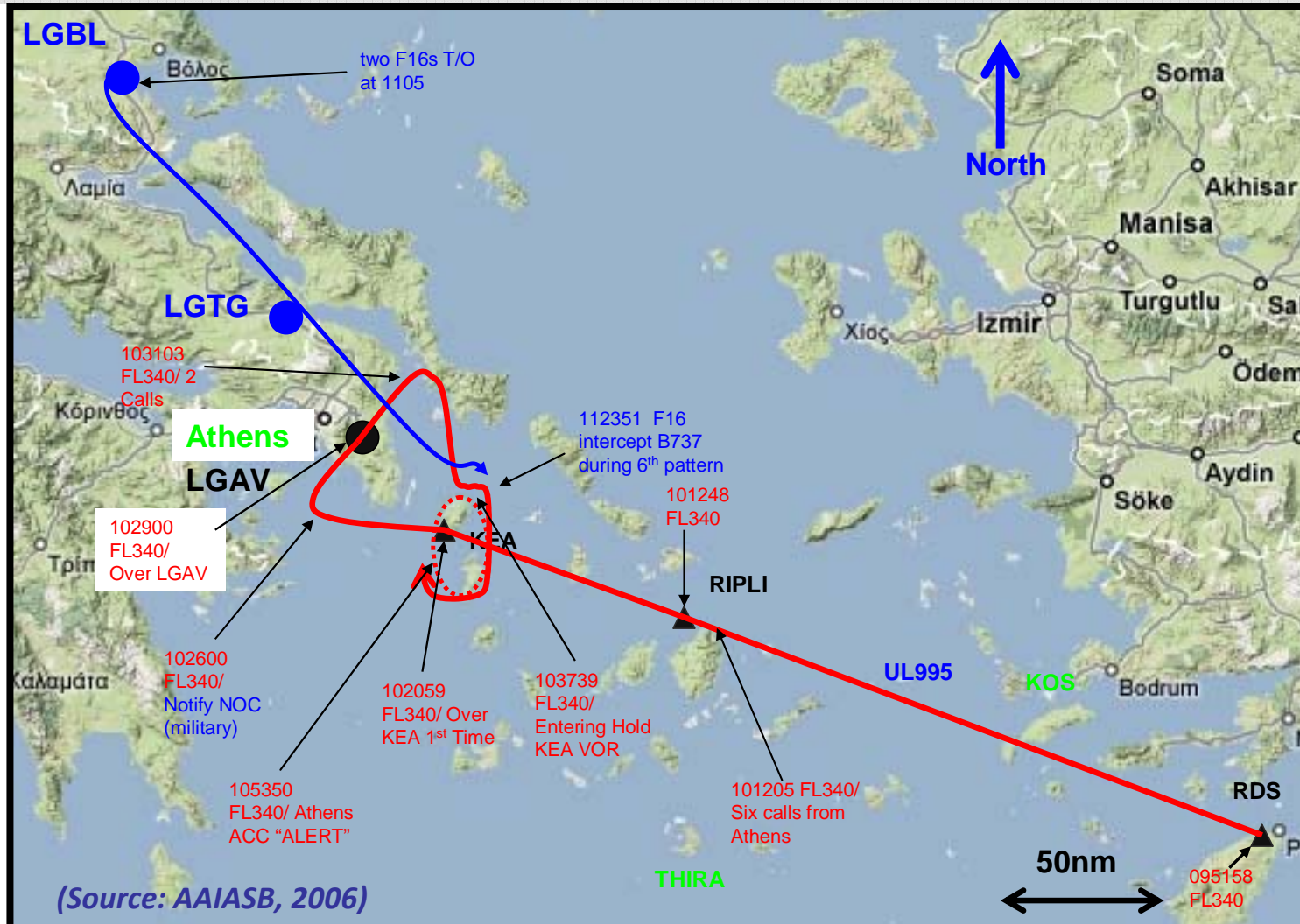
11.15

11.30

11.45

12.00

12.15



(Source: AAIASB, 2006)

October 6, 2010

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Somebody survived...

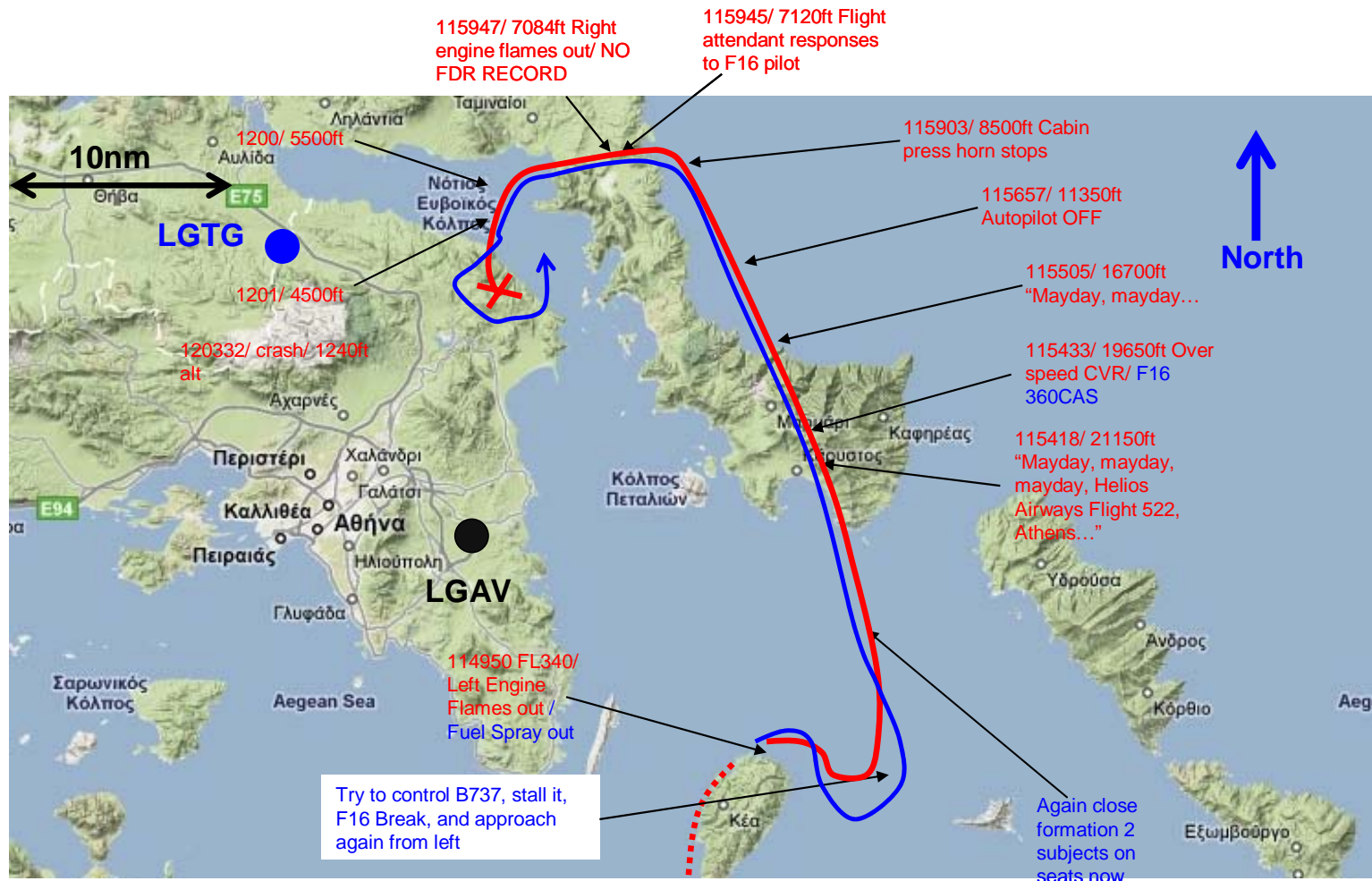


3 hours ...all bottles were used

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14 min to crash
 4 min to crash
 Last efforts

11.45 11.47 11.49 11.51 11.53 11.55 11.57 11.59 12.01 12.03



Analysis of similar accidents

- 1955, Wyoming, UA 406, **66 Fatalities**
- 1972, Staines, BEA 548, **118 Fatalities**
- 2001, Shanksville, UA93, **44 Fatalities**
- 2005, Grammatiko, HCY522, **121 Fatalities**
- Near miss due to aircraft systems design

Common points during incapacitation

- Non critical phase of flight
- High altitude
- Aircraft was flying uncontrollable
- Interceptors
- Somebody was alive before impact/crash
- Medical factors and terrorism

Pilot Incapacitation factors

- **Hypoxia**
- **Terrorism**
- **Cardiovascular**
- **Gastrointestinal**

Measures against Pilot Incapacitation

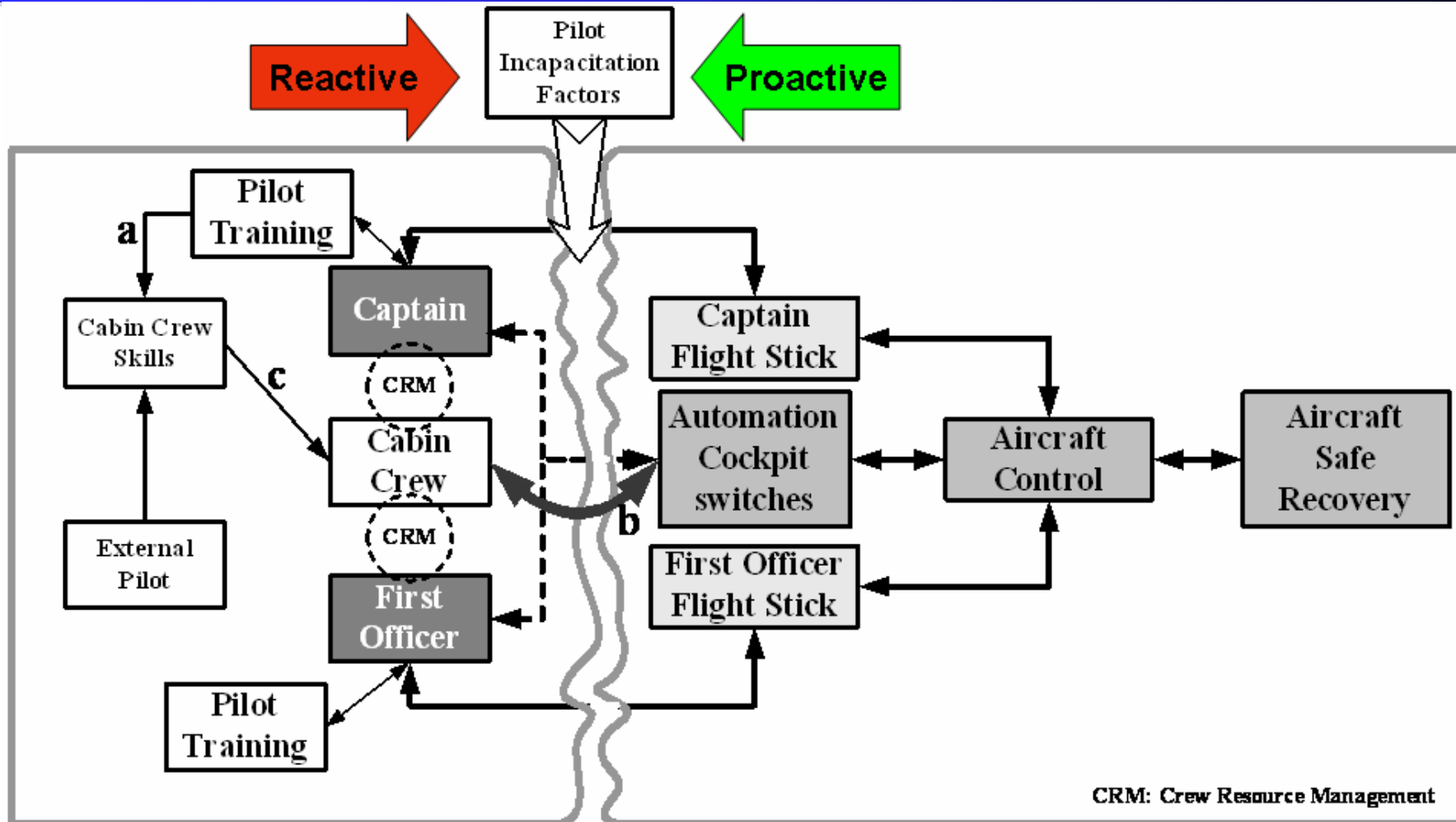
Proactive

- 1% rule, two pilot operations
- Medical screening
- Hypoxia theory training
- Meals policy
- Cockpit locked door
- CRM training
- Flight deck regular checks

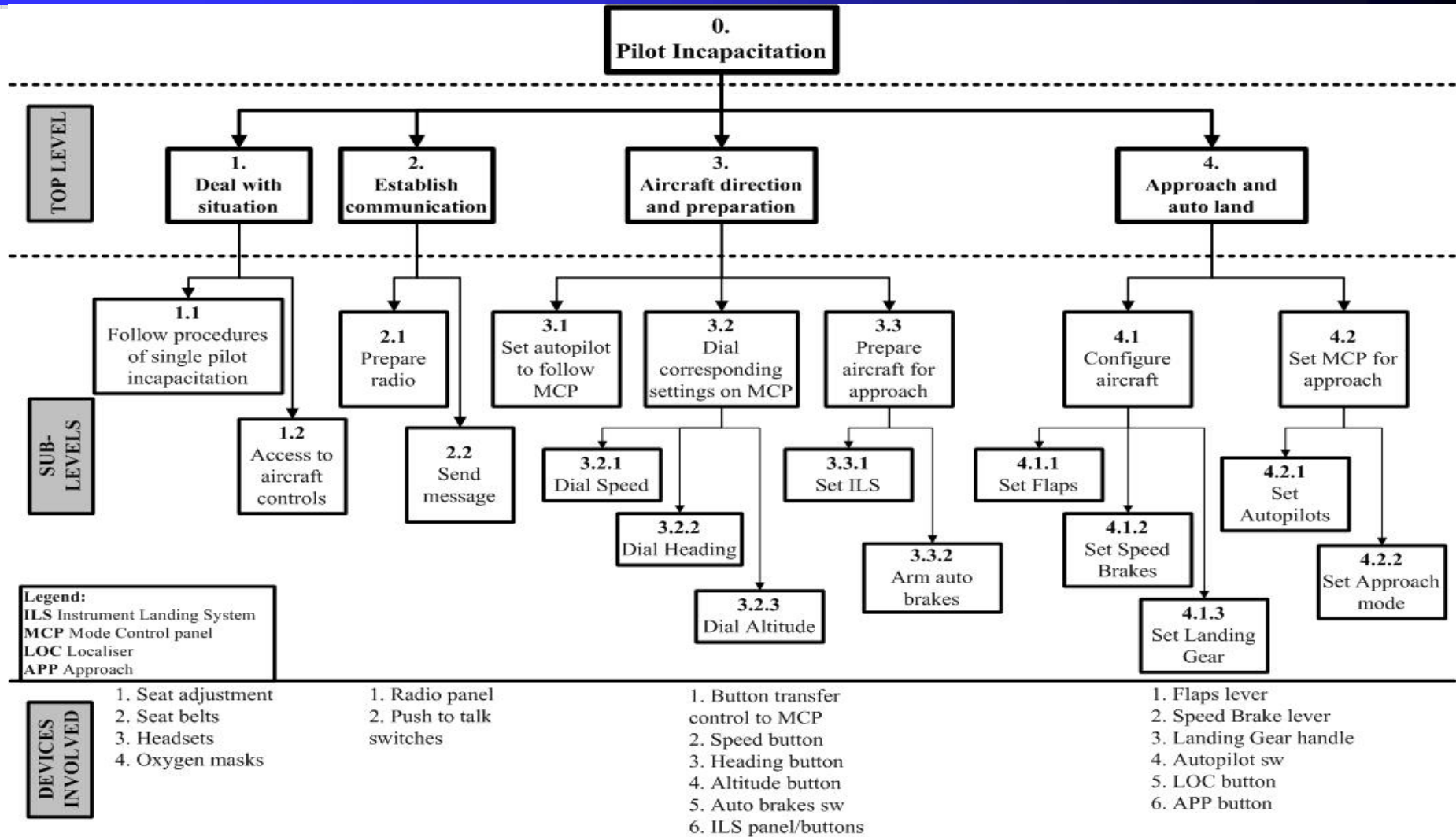
Reactive

- Cabin crew for Single pilot incapacitation
- Technical knowledge

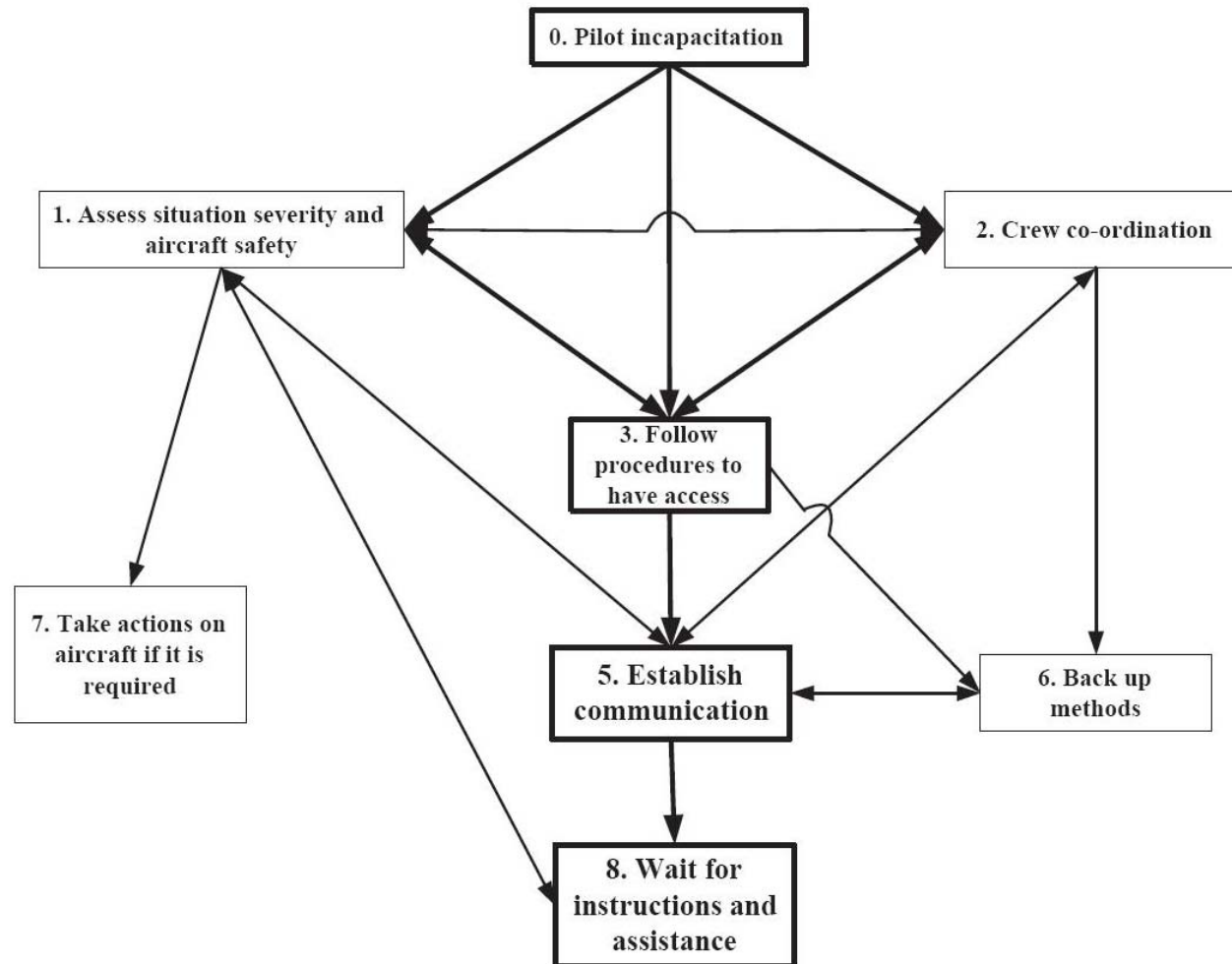
Concept of research based on a model



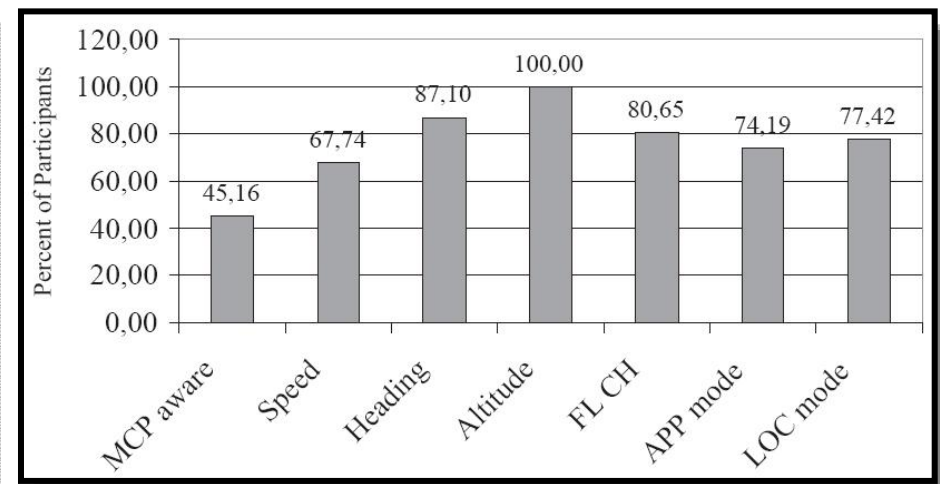
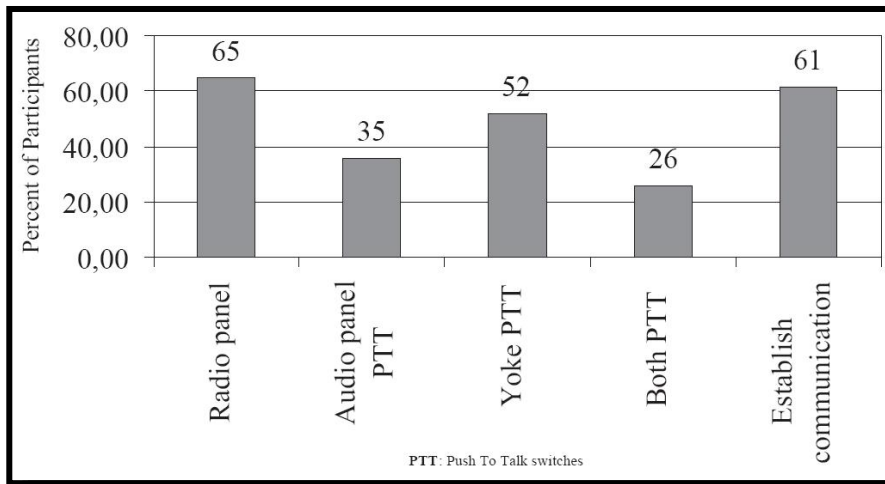
Cabin crew need to do



Cabin crew would do



Cabin crew technical knowledge...



Research findings

Cabin crew would...

- ...deal with situation, but communication uncertainty...
- ...wait for guidance – instructions...
- ...develop CRM skills...
- ...consider any impending danger...
- ...be unaware for Autopilot Disengage SW...
- ...would not be able to tune ILS frequency...

Cabin Crew may...

- ...recognise cockpit controls with an external guidance...

Communication is mandatory

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Cabin crew need to do
Cabin crew would do
Findings
Research recommendations
The controversy

Research recommendations



Research recommendations

- Cabin crew
 - PTT sw **Vs** Autopilot disengage sw...
 - Mayday call...
 - Fighters approach...
- Pilots need hypoxia practical training...
- **Airlines:**
 - Cabin crew checklist include cockpit outline
 - What if analysis during preflight brief
- **Aircraft manufacturers** ...emergency descent button
- **Regulators** revise sterile cockpit reg. **Vs** emergency contracts

The controversy

- **No second/co-pilot**
- **Boeing says...~450000 pilots in the next 20 years.**
- **Empraer develop single seat commercial aircraft.**

MailOnline

Let stewardesses land the plane in a crisis, says Ryanair boss: Airline wants to ditch co-pilots



Are you sure...?

Do you ask your customers if they will get on board with single pilot?

*Dedicated to...
the heroic flight attendant of the Helios
HCY 522 last flight ...*

Andreas Prodromou...



...his girlfriend, Haris...

Thank you...!!!

Panos (panstath@hotmail.com)