Sicurezza del Volo

Aeroclub dello Stretto – Scuola di volo

Magis fatigo ut doleas

DO NOT MISS DO NOT FORGET DO NOT MISS DO NOT FORGET DO NOT MISS

Briefing del 26 gennaio 2013

ore 17.00LMT

Speaker:

C.te Ezio Iannelli

AF447 – Lesson learned?

PROGRAMMA BRIEFING SICUREZZA VOLO

1^ Semestre 2013

Calendario delle riunioni

23 febbraio	ore	17.00 LMT
23 marzo	ore	17.00 LMT
27 aprile	ore	17.00 LMT
25 maggio	ore	18.00 LMT
29 giugno	ore	18.00 LMT

The next Briefing

23 febbraio ore 17.00LMT

ATTIVITA' DI BRIEFING S.V.

- **Briefing divulgativo inerente l'attività della Sezione Sicurezza Volo dell'Aero Club dello Stretto**
- **Iniziale trasposizione di nozioni teoriche in una realtà pratica;**
- **Considerazioni e scambio di opinioni a fronte di difficoltà/criticità riscontrate nell'ambito della attività di volo;**
- **Confronto tra i partecipanti in merito a filosofie, tecniche ed esperienze evolute in tempi storici differenti;**
- **Ripensare e riconsiderare la propria attività di volo acquisendo un nuovo modo di intendere la sicurezza**

(Just – culture)

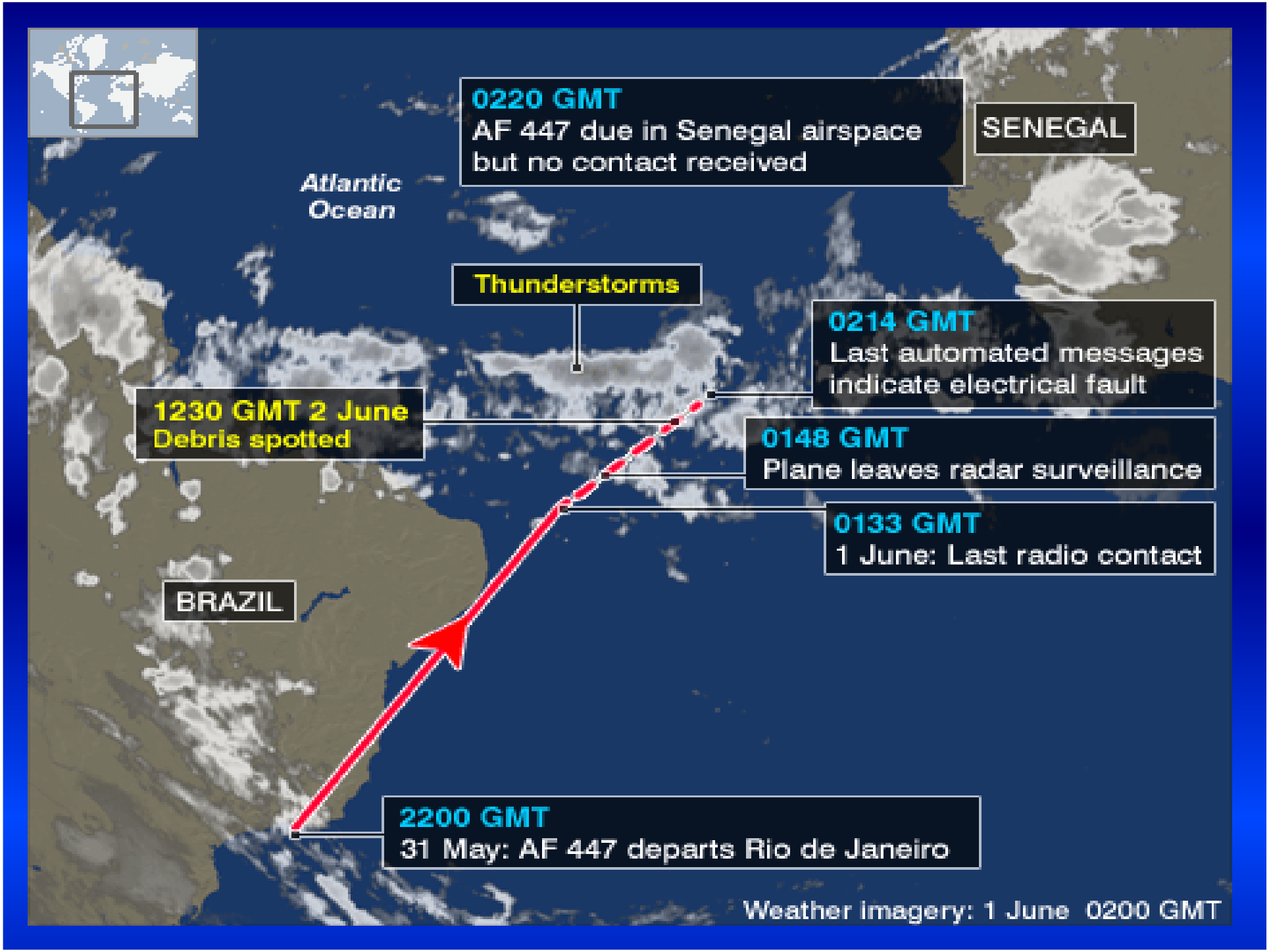
PREVENZIONE

- Prevenzione dei pericoli nell'attività di volo.
- Controllo e gestione delle situazioni quando determinati pericoli si manifestano.
- Contenimento delle conseguenze, in particolare quando avvengono le failure di prevenzione e controllo.

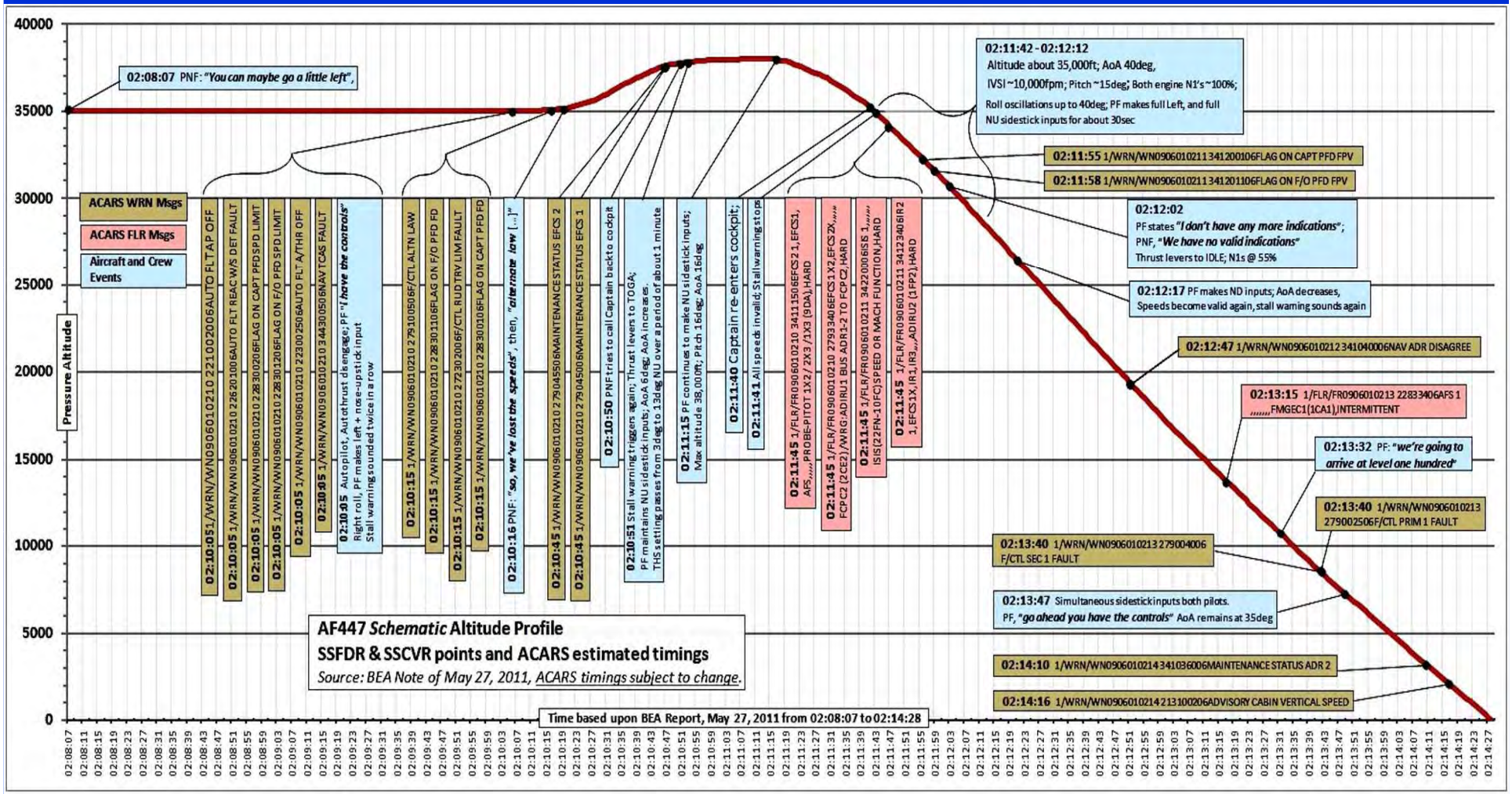
Event Study: AF447

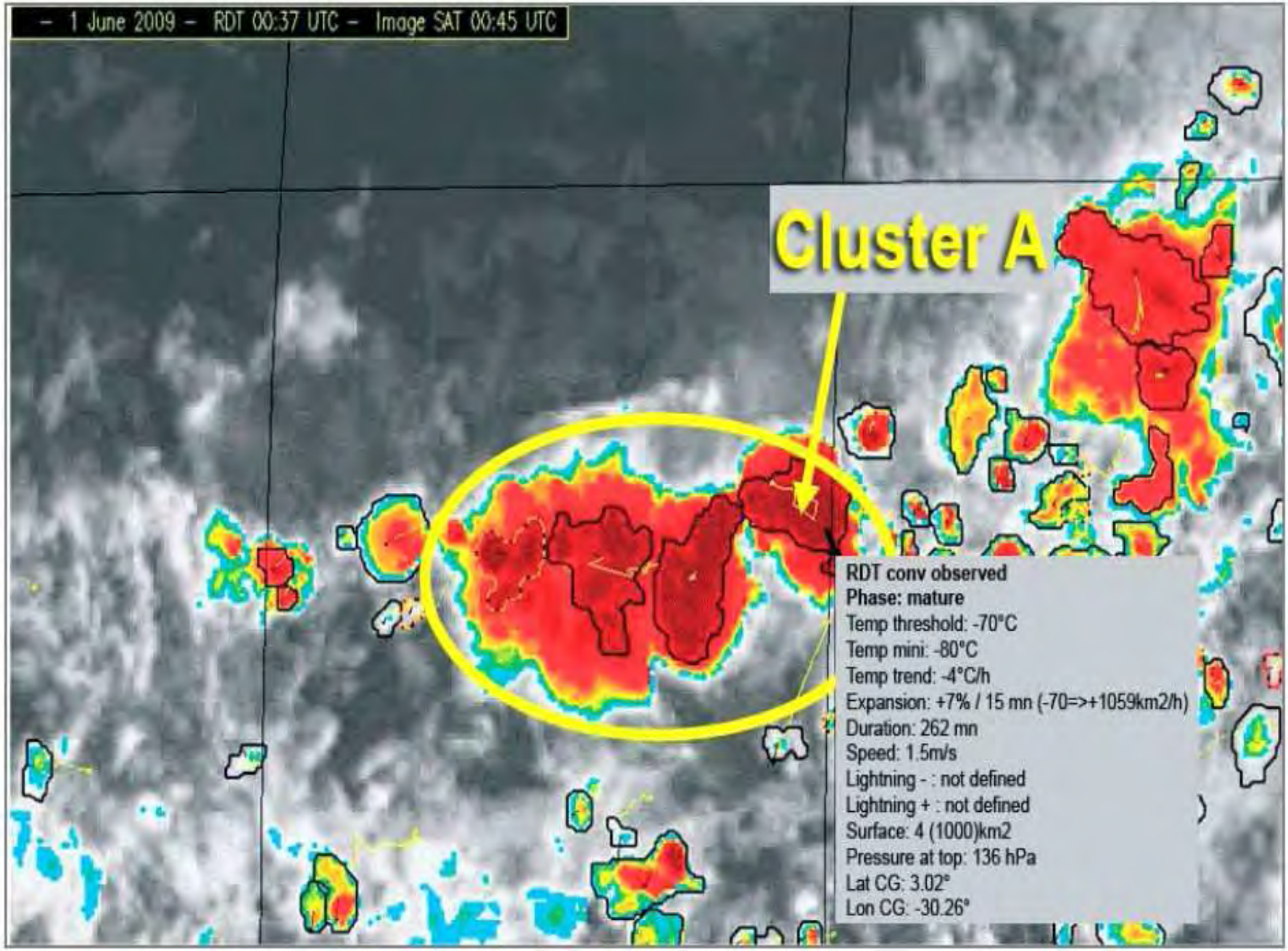
L'incidente si è verificato poco dopo le 02:00 h del 1 ° giugno 2009. Volo AF447, Rio de Janeiro- Paris C. de G., Airbus A330-203 marche F-GZCP con 12 membri dell'equipaggio e 216 passeggeri, durante la fase di crociera con turbolenza leggera a FL 350 (10.700 m) e Mach 0.82

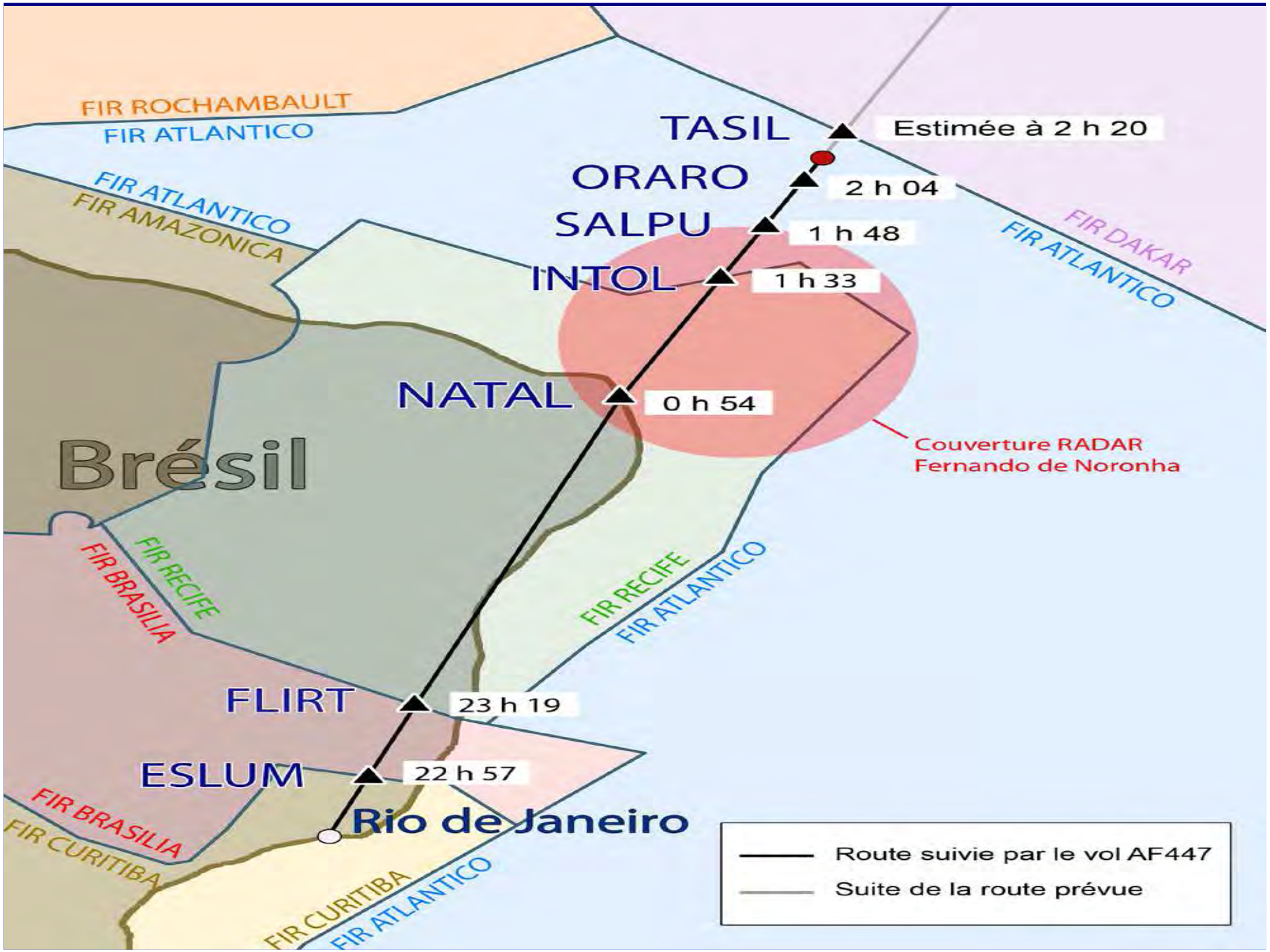
Lesson learned…anche per noi?

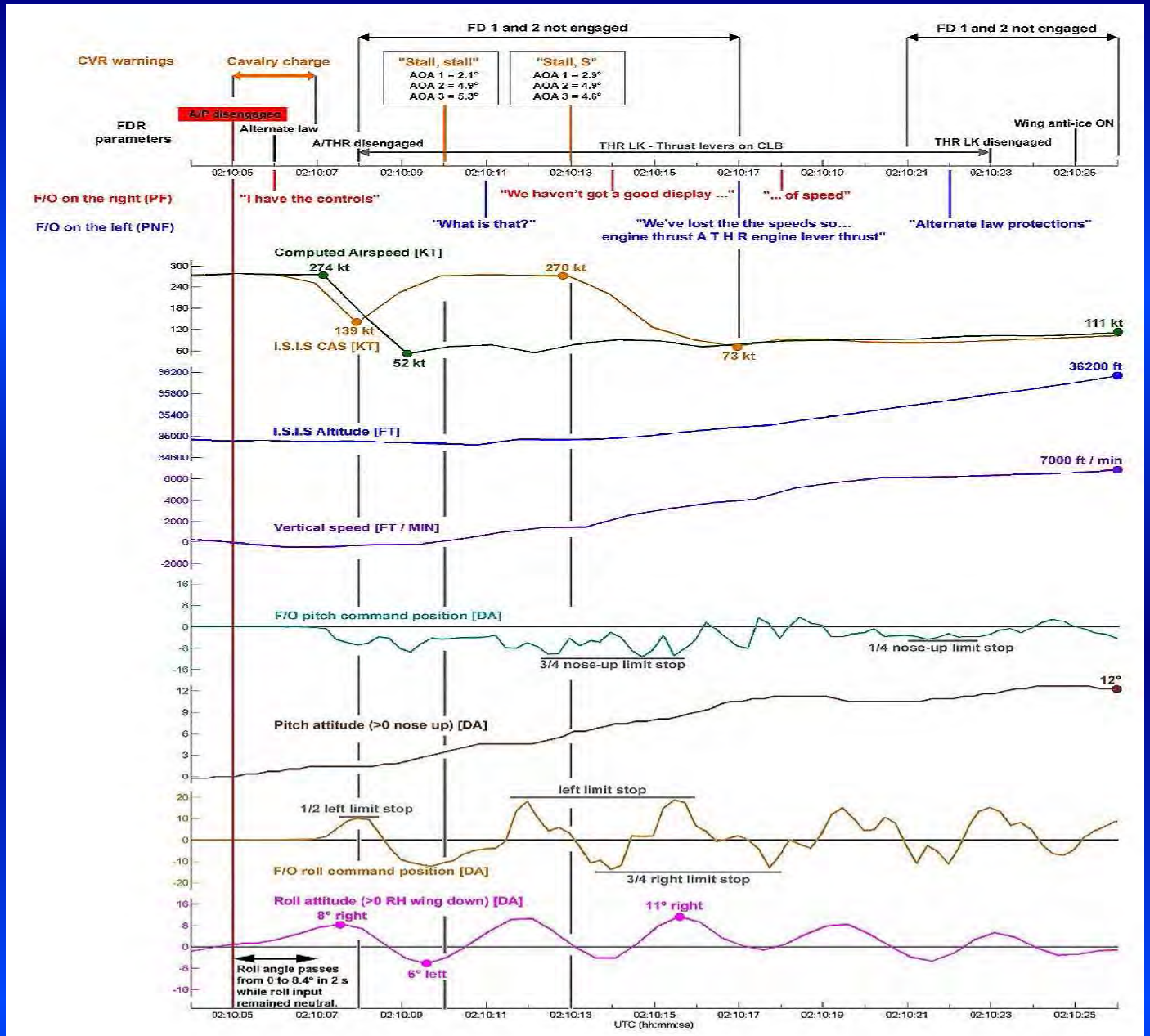

0220 GMT
AF 447 due in Senegal airspace
but no contact received
SENEGAL
Atlantic
Ocean
Thunderstorms
0214 GMT
Last automated messages
indicate electrical fault
1230 GMT 2 June
Debris spotted
0148 GMT
Plane leaves radar surveillance
0133 GMT
1 June: Last radio contact
BRAZIL
2200 GMT
31 May: AF 447 departs Rio de Janeiro
Weather imagery: 1 June 0200 GMT

TRACCIATO ACARS




– 1 June 2009 – RDT 00:37 UTC – Image SAT 00:45 UTC
Cluster A
RDT conv observed
Phase: mature
Temp threshold: -70°C
Temp mini: -80°C
Temp trend: -4°C/h
Expansion: +7% / 15 mn (-70=>+1059km2/h)
Duration: 262 mn
Speed: 1.5m/s
Lightning - : not defined
Lightning + : not defined
Surface: 4 (1000)km2
Pressure at top: 136 hPa
Lat CG: 3.02°
Lon CG: -30.26°

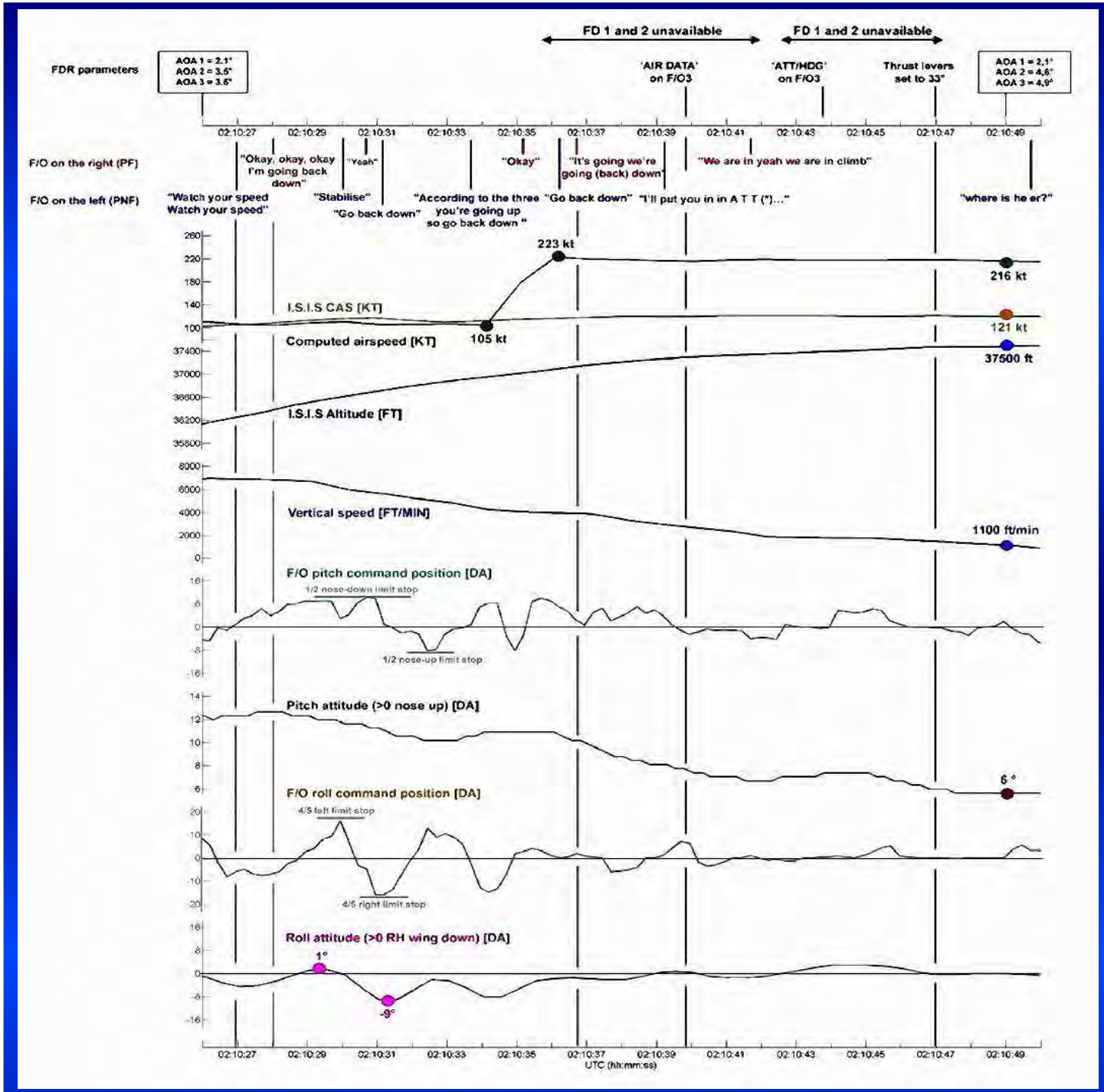

FIR ROCHAMBAULT
FIR ATLANTICO
FIR ATLANTICO
FIR AMAZONICA
FIR DAKAR
FIR ATLANTICO
TASIL
Estimée à 2 h 20
ORARO
2 h 04
SALPU
1 h 48
INTOL
1 h 33
NATAL
0 h 54
Couverture RADAR
Fernando de Noronha
Brésil
FIR BRASILIA
FIR RECIFE
FIR RECIFE
FIR ATLANTICO
FLIRT
23 h 19
ESLUM
22 h 57
FIR BRASILIA
FIR CURITIBA
Rio de Janeiro
FIR CURITIBA
FIR ATLANTICO
Route suivie par le vol AF447
Suite de la route prévue



Parameters from 2 h 10 min 04 to 2 h 10 min 26

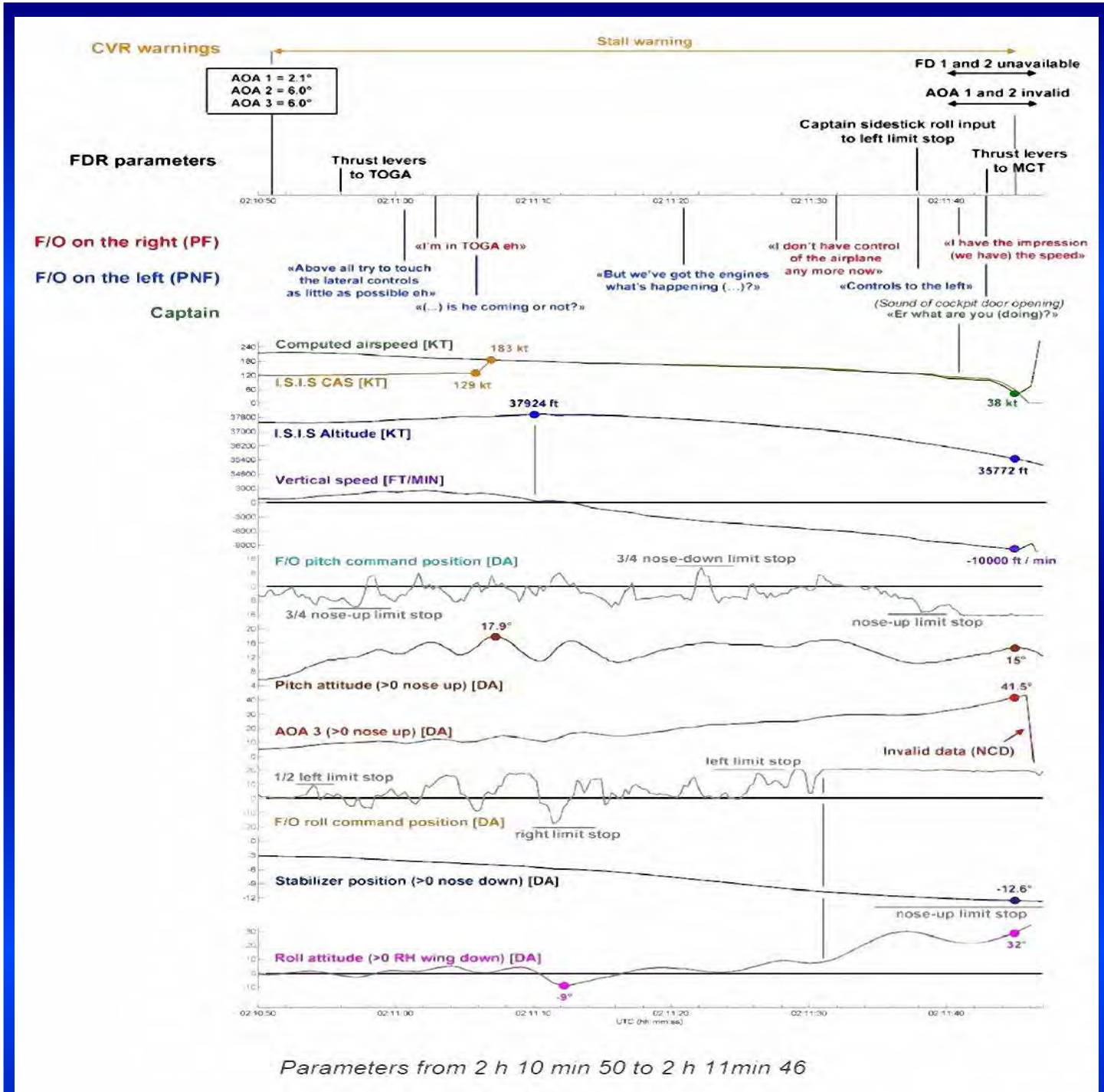
AF447 Condizioni di volo

from 02.10.04 to 02.10.26



AF447 Condizioni di volo

from 02.10.27 to 02.10.49



Parameters from 2 h 10 min 50 to 2 h 11min 46

AF447 Condizioni di volo

from 02.10.50 to 02.11.46

From BEA Report

Bureau d'Enquêtes et d'Analyses pour la sécurité de l'aviation civile

"At 02 h 10 min 51, when the aircraft was at about 37,500 ft and still climbing, the stall warning was activated. A change in the recorded normal acceleration behavior was revealed from 02h 10 min 53, at an angle of attack about 1 to 2 degrees greater than the warning activation threshold."

"This modification of the behavior in the load factor at the centre of gravity results in the appearance of a high frequency component of an amplitude increasing to until about 0.1 g peak-to-peak, and with a signature that is very different from a turbulence signature of meteorological origin".

"The airspeed displayed on the right-hand side may be partially deduced from the recording logic and from the fact that the associated angle of attack value from the ADR becomes invalid if the airspeed is less than 60 kt (the systems consider that the airspeed is insufficient for the angle of attack sensor to provide reliable information)."

From BEA Report: Initial investigation

- The airplane was intact at the moment of impact;
- It struck the surface of the water with a positive pitch-up attitude, slight bank and a high vertical speed;
- No preparation had been made for ditching;
- No depressurization had occurred;
- An inconsistency in the measured speeds had occurred shortly after time 02.10;
- This inconsistency had led to the loss of some automated systems;
- The accident had occurred between time 02 .14.26 and 02 .15.14

From BEA Report: causes

- Temporary inconsistency between the measured speeds, likely as a result of the obstruction of the Pitot probes by ice crystals that caused the autopilot disconnection and the reconfiguration to alternate law;
- Inappropriate control inputs that destabilized the flight path;
- **The lack of any link, by the crew, between the loss of displayed airspeed information and the appropriate procedure;**
- **The late identification of the deviation from the flight path by the PNF and insufficient correction applied by the PF;**
- **The crew not identifying the approach to stall, their lack of immediate response and the exit from the flight envelope;**
- **The crew's failure to diagnose the stall situation and consequently a lack of inputs that would have made it possible to recover from it;**

From BEA Report: causes

These events can be explained by a combination of the following factors:

The lack of effective feedback mechanisms on the part of those involved that made it impossible to:

- Identify the repeated non-application of the IAS procedure and to remedy this;
- Ensure that the risk model for crews in cruise included icing of the Pitot probes and its consequences;

The lack of practical training in high altitude manual airplane handling and in the procedure for speed anomalies. Task-sharing weakened by:

- **Incomprehension of the situation at the time of autopilot disconnection;**
- **Poor management of the startle effect, resulting in a highly charged emotional factor for the two co-pilots;**

From BEA Report: causes

The crew not taking into account the stall warning, which could have been due to:

- A failure to identify the aural warning,
- The appearance at the beginning of the event of brief warnings that could have been considered as spurious,
- The absence of any visual information to confirm the approach-to-stall after the loss of the characteristic speeds,

Possible confusion with an over-speed situation in which buffet is also considered a symptom;

- Flight Director indications that may have confirmed the crew's view of its actions, even though they were inappropriate,
- The difficulty in identifying and understanding the implications of the reconfiguration to alternate law with no angle of attack protection.

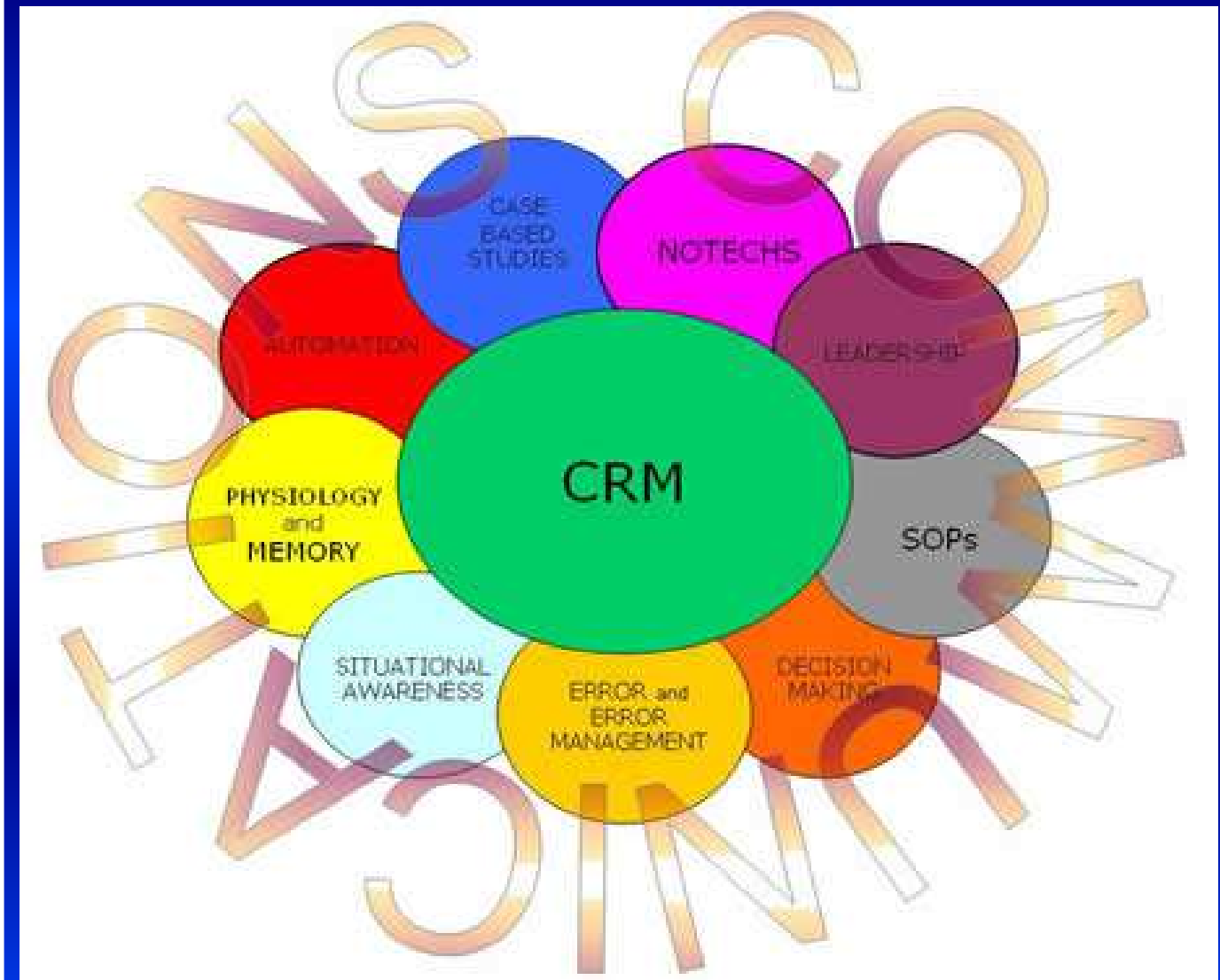
Sintesi finale

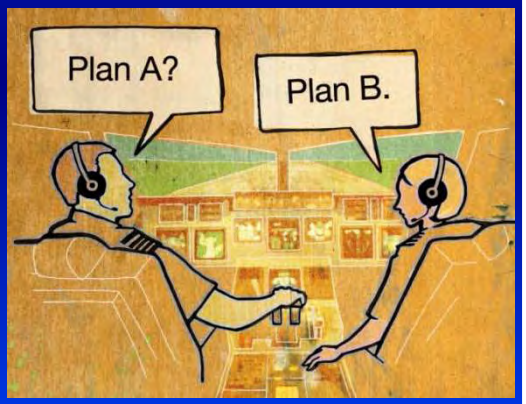
Nel rapporto BEA le "cause"hanno avuto una iniziale descrizione della sequenza di eventi, a partire da come i piloti erano **"completamente sorpresi"** per una temporanea mancanza di informazioni sulla velocità.

A seguito di ciò, entrambi i piloti **non sono stati più volte in grado di riconoscere o interpretare** ciò che gli strumenti stavano mostrando.

Il BEA, ha concluso la sua descrizione, con una serie di valutazioni sul motivo per cui si sono verificati **gli errori dei piloti in merito alla percezione cognitiva.**

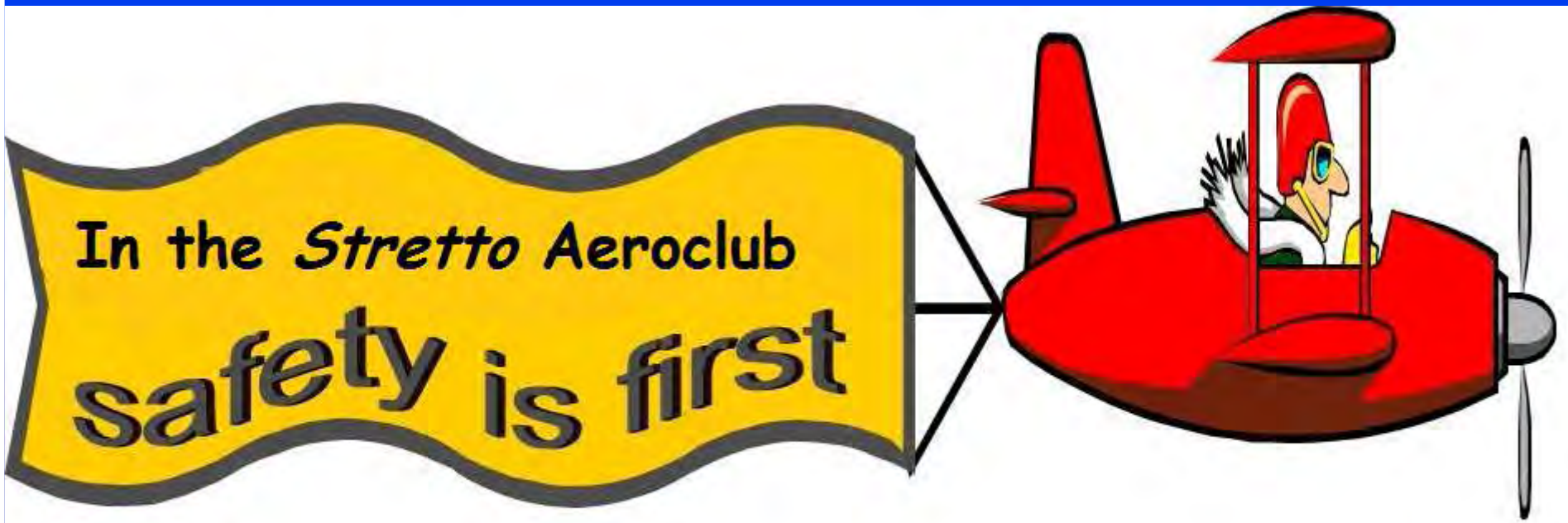
Il BEA, afferma che l'errore del Comandante, nel non rendere chiari i ruoli e le responsabilità di PF e PNF, può avere impostato le condizioni **per la quasi totale assenza di un efficace C.R.M.**





IL CREW RESOURCE MANAGEMENT (C.R.M.) E' UNO STRUMENTO CHE CONSENTE DI OSSERVARE, ANALIZZARE, VALUTARE E GESTIRE TUTTE LE DIVERSE SITUAZIONI CHE SI POSSONO CREARE NELL'INTERAZIONE UOMO-MACCHINA-AMBIENTE

Good-bye and happy flight



NEXT BRIEFING 17.00LMT february 23, 2013