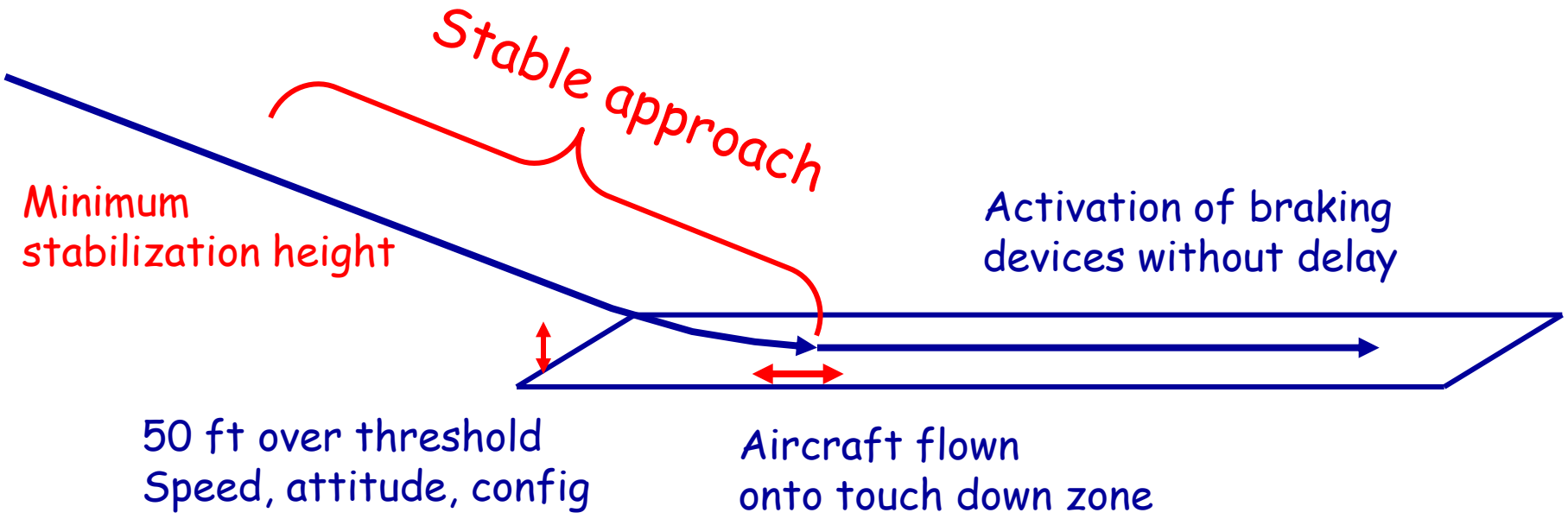
Destabilized Approaches,

The operational perspective

Capt. Bertrand de Courville
IATA - ECAST

ICAO GRSS 2011 - Montreal

Aircraft landing performance perspective



Crew performance perspective

- A stabilized approaches provides pilots with
  - ✓ fewer and smaller corrections close to the ground
  - ✓ more resources available to monitor aircraft systems, ATC, weather and to crosscheck pilot's actions
  - ✓ a better situation awareness

- Stable approach concept is also a decision aid by giving formal criteria to be met at or below a minimum height to continue or not an approach

- Any stable approach could become destabilized.

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2011

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2012

Canadian Transport Safety Board (2007)

" These accidents happened during day and night approaches and involved well-trained crews. (…) Thorough accident investigations into similar accidents, very well thought-out conclusions, findings, and recommend. , have not made much of a dent in the number of such accidents, which continue to happen around the world. "

Stabilized at minimum stab height and then … ?

Video 1
Pilot eyes scann pattern

Video 2
Vertical destabilization

Video 3
Lateral destabilization

Safety management aspects

Operations

Accidents

Defenses

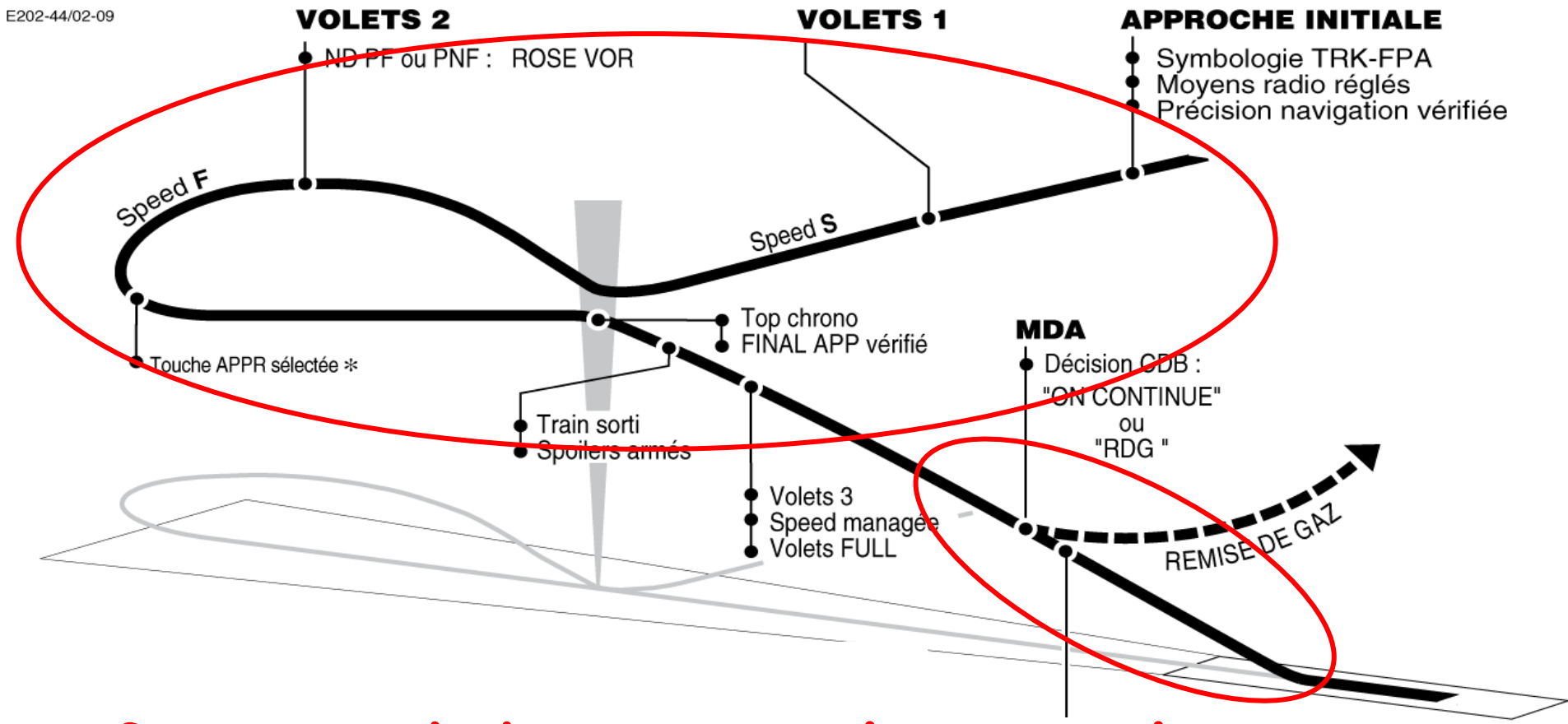
Go around decision

Destabilized Approach or Landing

- **Runway excursion**
- **Landing short**
- **Hard landing**
- **Tail or wing strike**

Go Around decision

Approach and landing context



Go around decision making weaknesses

Two line of defenses - Two level of actions

Preventing

Recovering

Destabilized Approach or Landing

- Landing short
- Runway excursion
- Hard landing
- Tail strike

Pilot information

Go Around decision

Ways of improvement : go around decision making

- Procedures
  - ✓ Task sharing: go around call out/decision by first officers
- Go around **decision** training through improved simulator software
  - ✓ realistic scenario for training go around decision at low height
  - ✓ simulation of visibility reducing when approaching the runway
  - ✓ simulation of downdraft with no wind shear warning reproducing real incident/accident scenario
- Real time decision aid (use of technology) :
  - ✓ real time cockpit information whenever aircraft energy, braking action and available runway does not match each other: ROPS (Runway Overrun Protection System)
  - ✓ design of downdraft predictive detection system

Ways of improvement : information to pilots

- Information provided to pilots
  - ✓ visibility, wind, runway status information to pilots more relevant with quicker update
  - ✓ special information effort for any tail wind situation in addition to cautious radar vectoring
  - ✓ Immediate relay of PIREP when received
  - ✓ PIREP ("keep others aware"): should be part of standard procedure and training for unexpected encounters on final

Ways of improvement : safety management

- Safety management tool
  - ✓ Flight data monitoring: software, method and processes to assess fleet/airline performance regarding go around decision making should be improved and widely used
  - ✓ Safety data sharing (IATA safety data programs)

Destabilized approaches at low height

We can prevent it better

Go around decision making at low height

We can make it safer


SAFETY
OUR PRIORITY