Global Reporting System and Format GRF 2019

Montreal, 26 March 2019

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1962 – 2016
Transport Canada
Joint Winter Runway Friction Measurement Program
1995 – 2004 +

ICAO Friction Task Force
Phase 1 (2008 – 2011)

AOSWG/1 – June 2005

Need to standardise information to pilots

(Chicago Midway - December 2005)

ICAO State letter - May 2006 – Questionnaire

FAA Workshop - August 2006

Aerodrome Panel - 1 December 2006

FAA – TALPA ARC - October 2007

AOSWG/5 – April 2008

ICAO Friction Task Force - April 2008

FTF Phase 1

- Annex 14 and (Annex 15)

- Revised Reporting Procedure
- Revised SNOWTAM

MEASURED OR CALCULATED COEFFICIENT	*or*	ESTIMATED SURFACE FRICTIOI		
0.4[illegible] and [illegible]ve		GOOD	—	5
0.3[illegible]		MEDIUM/GOOD	—	4
0.35		MEDIUM	—	3
0.[illegible]		MEDIUM/POOR	—	2
0.25 and b[illegible]ow		POOR	—	1
9 — unreliable		UNRELIABLE	—	9

Since 14 November, 2013

- Circular 329 – Assessment, Measurement and Reporting of Runway Surface Conditions

No longer reporting μ

Friction measuring equipment values are no longer used to determine and report surface conditions because joint industry and multi-national government tests have not established a reliable correlation between runway friction values and the relationship to airplane braking performance.

FAA SAFO 19001 - Landing Performance Assessment at Time of Arrival

11 March 2019

ICAO Friction Task Force Phase 1 (2011 – 2019)

Global reporting system and format

Simplicity

Simplicity is the ultimate sophistication

PROBLEM STATEMENT

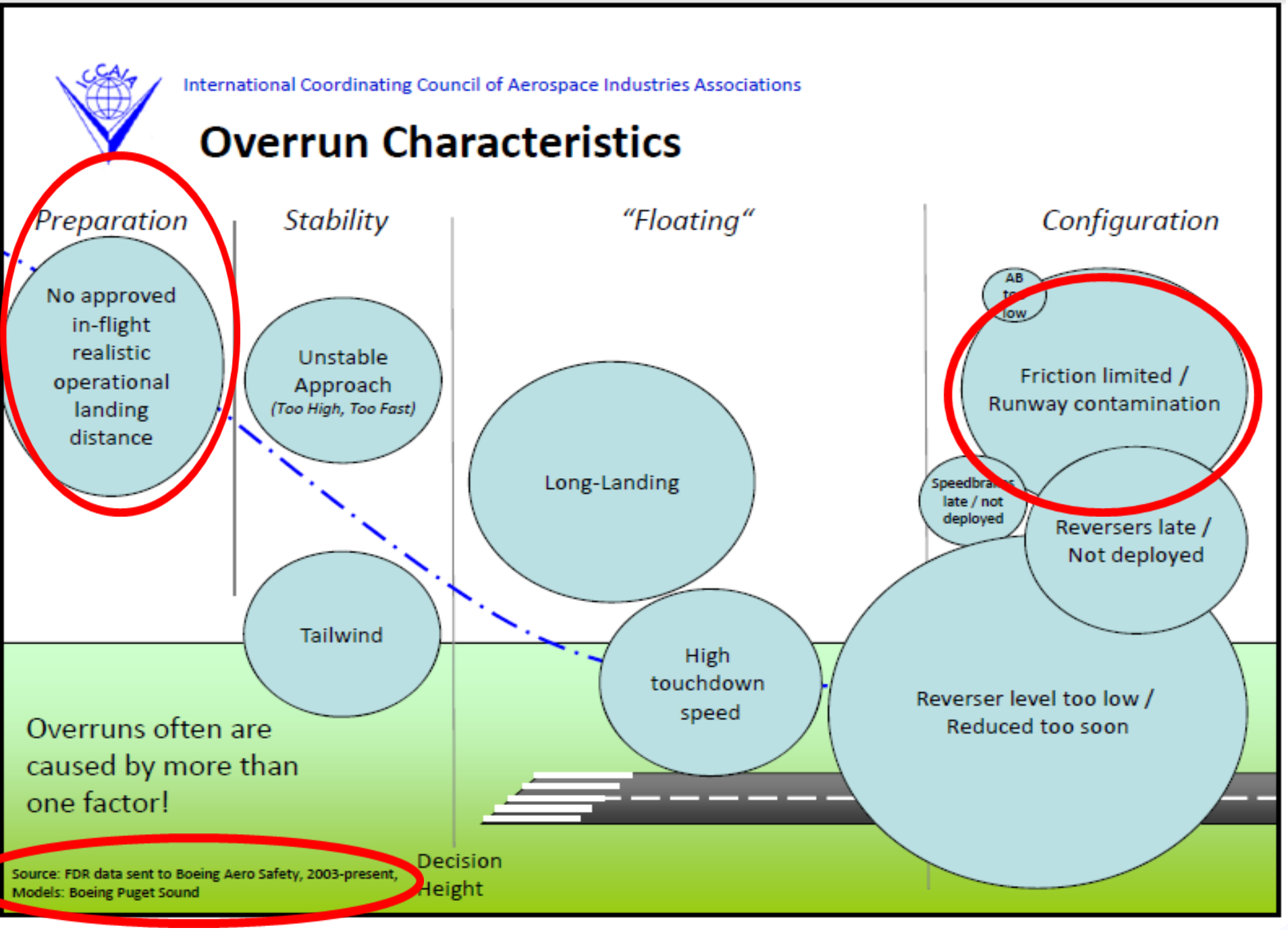
Runway surface conditions have contributed to many safety events and investigations have revealed **shortfalls in the accuracy and timeliness of assessment and reporting methods** currently provided for in ICAO provisions and guidance material.

PROBLEM (ANC)

…

shortfalls in the **accuracy** and **timeliness** of **assessment** and **reporting** methods

…


International Coordinating Council of Aerospace Industries Associations
Overrun Characteristics
Preparation
Stability
"Floating"
Configuration
No approved in-flight realistic operational landing distance
Unstable Approach
(Too High, Too Fast)
Long-Landing
Tailwind
High touchdown speed
AB
low
Friction limited / Runway contamination
late / not deployed
Reversers late / Not deployed
Reverser level too low / Reduced too soon
Overruns often are caused by more than one factor!
Source: FDR data sent to Boeing Aero Safety, 2003-present, Models: Boeing Puget Sound
Decision Height

International Coordinating Council of Aerospace Industries Associations

Overrun Risk Mitigations

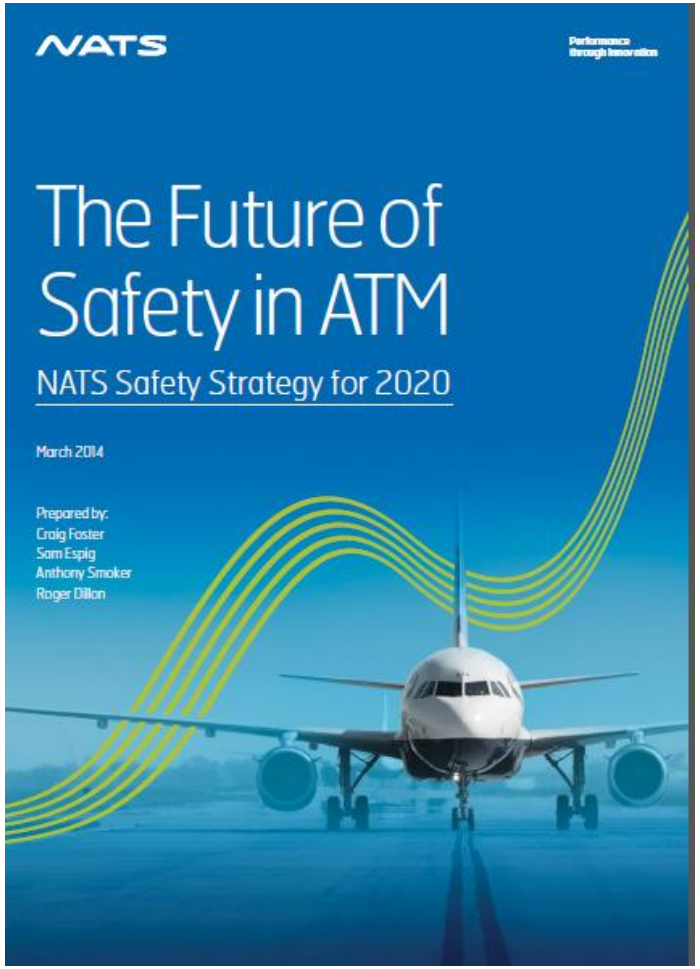
Suggested Operation and Procedural enhancement:

- Runway conditions reporting
- In-flight realistic landing distance calculation
- Stabilized approach
- Touchdown zone marking
- "De-stigmatize" Go- Around
- Use *all* deceleration devices
- Maintain thrust reverser deployment

Suggested equipage enhancements:

- Stability alerting
- Real time dynamic performance prediction
- Aural and visual Go-Around decision aids
- Head-Down and Head-Up visual cues
- Real time dynamic performance prediction
- Aural and visual Go-Around decision aids
- Head-Down and Head-Up visual cues
- Flare guidance
- Real time dynamic stopping distance estimation
- Aural and visual deceleration devices usage aids
- Head-Down and Head-Up visual cues
- Deceleration alerting

Performance and safety



The more we understand about performance the more we understand about safety.

Co-operation
across
Annex's and Panels

that what makes this work so valuable

AMENDMENTS

- Annex 3
- Annex 6, Part II

  Aeroplane Performance Manual (Doc 10064 New)
- Annex 8
- Annex 11
  - PANS ATM
- Annex 14, Vol I
  - PANS Aerodromes
  - Circular 329 – Revised → Circular 355
- Annex 15

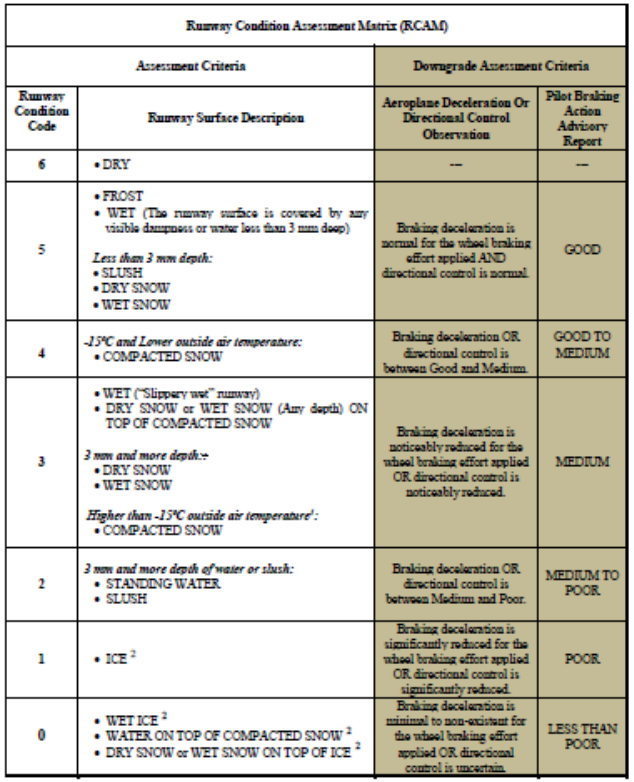
- *All changes are (and must be) coordinated!*

Affects

- Aircraft Manufacturers (Aircraft Flight Manual)
- Aircraft Operators (Operations Manual)
- Aerodrome Operators (Aerodrome Manual)
- Aeronautical Information Services (SNOWTAM)
- Air Traffic Services (ATIS/VOICE)

- ALL: One language

SNOWTAM



Runway Condition Assessment Matrix (RCAM)			
Assessment Criteria		Downgrade Assessment Criteria	
Runway Condition Code	Runway Surface Description	Aeroplane Deceleration Or Directional Control Observation	Pilot Braking Action Advisory Report
6	• DRY	---	---
5	• FROST • WET (The runway surface is covered by any visible dampness or water less than 3 mm deep) *Less than 3 mm depth:* • SLUSH • DRY SNOW • WET SNOW	Braking deceleration is normal for the wheel braking effort applied AND directional control is normal.	GOOD
4	*-15°C and Lower outside air temperature:* • COMPACTED SNOW	Braking deceleration OR directional control is between Good and Medium.	GOOD TO MEDIUM
3	• WET ("Slippery wet" runway) • DRY SNOW or WET SNOW (Any depth) ON TOP OF COMPACTED SNOW *3 mm and more depth:-* • DRY SNOW • WET SNOW *Higher than -15°C outside air temperature[1]:* • COMPACTED SNOW	Braking deceleration is noticeably reduced for the wheel braking effort applied OR directional control is noticeably reduced.	MEDIUM
2	*3 mm and more depth of water or slush:* • STANDING WATER • SLUSH	Braking deceleration OR directional control is between Medium and Poor.	MEDIUM TO POOR
1	• ICE [2]	Braking deceleration is significantly reduced for the wheel braking effort applied OR directional control is significantly reduced.	POOR
0	• WET ICE [2] • WATER ON TOP OF COMPACTED SNOW [2] • DRY SNOW or WET SNOW ON TOP OF ICE [2]	Braking deceleration is minimal to non-existent for the wheel braking effort applied OR directional control is uncertain.	LESS THAN POOR

Written procedures

- RCAM
- RWYCC
- Runway Condition Description (Definitions)

- AIREP
- Assessment
- Reporting

ACCURACY

- Addressed by the new global reporting format

SNOWTAM

Aeroplane performance section
Situational awareness section

Relates to aeroplane performance documentation
(Operational need)

INFORMATION STRING

[Aeroplane performance calculation section]

09111400 09L 3/3/2 50/50/50 //30 COMPACTED SNOW/COMPACTED SNOW/DRY SNOW ON TOP OF COMPACTED SNOW.

[Situational awareness section]

LDA RWY 22 REDUCED BY NOTAM TO 1150. DRIFTING SNOW. TWY B POOR.

CHALLENGES

- Implementation
- Training
- Technical issues/Programming

Willingness to change

Simplicity

KEY IMPROVEMENT

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Written procedures

SNOWTAM

- Single standardised reporting format
- Structured information according to pilots need