

# 19SAMGRF

Global reporting system and format (GRF)

Creation of global system and format (GRF)

Need to standardise information to pilots



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 FRICTION		
0.40 and above		GOOD	—	5
0.35 to 0.39		MEDIUM/GOOD	—	4
0.30 to 0.34		MEDIUM	—	3
0.25 to 0.29		MEDIUM/POOR	—	2
0.20 and below		POOR	—	1
9 — unreliable		UNRELIABLE	—	9

Since 14 November, 2013

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

# No longer reporting $\mu$

*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*

# FTF Phase 2

- Global reporting system and format

5. November 2020

- 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



# Standardised information to pilots

## Aeroplane performance calculation section

Information provided in standardised order.

Type of information identified by location in the information string.

## Situational awareness section

Information provided in standardised order.

Each information ends with a . “full stop”

# Challenges

- Implementation
- Training
- Technical issues/Programming

Willingness to change

# KEY IMPROVEMENT

Table II-1-5. Runway condition assessment matrix (RCAM)

Runway condition assessment matrix (RCAM)			
Assessment criteria		Downgrade assessment criteria	
Runway condition code	Runway surface description	Aeroplane deceleration or directional control observation	Pilot report of runway braking action
6	<ul style="list-style-type: none"> <li>• DRY</li> <li>• FROST</li> <li>• WET (The runway surface is covered by any visible dampness or water up to and including 3 mm depth)</li> </ul>	---	---
5	<p>Up to and including 3 mm depth:</p> <ul style="list-style-type: none"> <li>• SLUSH</li> <li>• DRY SNOW</li> <li>• WET SNOW</li> </ul>	Braking deceleration is normal for the wheel braking effort applied AND directional control is normal.	GOOD
4	<p>-15°C and Lower outside air temperature:</p> <ul style="list-style-type: none"> <li>• COMPACTED SNOW</li> </ul>	Braking deceleration OR directional control is between Good and Medium.	GOOD TO MEDIUM
3	<ul style="list-style-type: none"> <li>• WET ("slippery wet" runway)</li> <li>• DRY SNOW or WET SNOW (any depth) ON TOP OF COMPACTED SNOW</li> </ul> <p>More than 3 mm depth:</p> <ul style="list-style-type: none"> <li>• DRY SNOW</li> <li>• WET SNOW</li> </ul> <p>Higher than -15°C outside air temperature<sup>1</sup>:</p> <ul style="list-style-type: none"> <li>• COMPACTED SNOW</li> </ul>	Braking deceleration is noticeably reduced for the wheel braking effort applied OR directional control is noticeably reduced.	MEDIUM
2	<p>More than 3 mm depth of water or slush:</p> <ul style="list-style-type: none"> <li>• STANDING WATER</li> <li>• SLUSH</li> </ul>	Braking deceleration OR directional control is between Medium and Poor.	MEDIUM TO POOR
1	<ul style="list-style-type: none"> <li>• ICE<sup>2</sup></li> </ul>	Braking deceleration is significantly reduced for the wheel braking effort applied OR directional control is significantly reduced.	POOR
0	<ul style="list-style-type: none"> <li>• WET ICE<sup>1</sup></li> <li>• WATER ON TOP OF COMPACTED SNOW<sup>2</sup></li> <li>• DRY SNOW or WET SNOW ON TOP OF ICE<sup>2</sup></li> </ul>	Braking deceleration is minimal to non-existent for the wheel braking effort applied OR directional control is uncertain.	LESS THAN POOR

<sup>1</sup> Runway surface temperature should preferably be used where available.

<sup>2</sup> The aerodrome operator may assign a higher runway condition code (but no higher than code 3) for each third of the runway, provided the procedure in 1.1.3.15 is followed.

## SNOWTAM

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

Written procedures

# WHY?

GRF – Operational need

Relevance to aeroplane performance

*Simplicity*

DRY

*Simplicity*

DRY

WET

*Simplicity*

DRY

WET

WET (slippery wet)

*Simplicity*



DRY

WET

WET (slippery wet)

STANDING WATER

*Simplicity*

DRY

WET

WET (slippery wet)



STANDING WATER

3 mm

*Simplicity*

DRY

Up to and including 3 mm  
WET - Report RCR using ATM/ATS only.

WET

WET (slippery wet)



3 mm

STANDING WATER

More than 3 mm  
WET (Slippery wet runway) – Report RCR using  
AIM/AIS and;  
ATM/ATS.

DRY

Up to and including 3 mm  
WET - Report RCR using ATM/ATS only.

WET

---

WET (slippery wet)

---

Maintenance issue  
NOTAM

3 mm

STANDING WATER

More than 3 mm  
WET (Slippery wet runway) – Report RCR using  
AIM/AIS and;  
ATM/ATS.

DRY

Up to and including 3 mm  
WET - Report RCR using ATM/ATS only.

WET

---

WET (slippery wet)

---

Maintenance issue  
NOTAM

3 mm

STANDING WATER

More than 3 mm  
WET (Slippery wet runway) – Report RCR using  
AIM/AIS and;  
ATM/ATS.

Main focus on the path of the wheels along the runway

# KEY IMPROVEMENT

Table A-1. RCAM — WET and DRY only (based on PANS-Aerodromes (Doc 9981))

RUNWAY CONDITION ASSESSMENT MATRIX (RCAM)			
Assessment criteria		Downgrade assessment criteria	
Runway condition code (RWYCC)	Runway surface description	Aeroplane deceleration or directional control observation	Pilot report of runway braking action
6	• DRY	---	---
5	• WET (the runway surface is covered by any visible dampness or water up to and including 3 mm depth)	Braking deceleration is normal for the wheel braking effort applied AND directional control is normal.	GOOD
4		Braking deceleration OR directional control is between Good and Medium.	GOOD TO MEDIUM
3	• WET ("slippery wet" runway)	Braking deceleration is noticeably reduced for the wheel braking effort applied OR directional control is noticeably reduced.	MEDIUM
2	<i>More than 3 mm depth of water:</i> • STANDING WATER	Braking deceleration OR directional control is between Medium and Poor.	MEDIUM TO POOR
1		Braking deceleration is significantly reduced for the wheel braking effort applied OR directional control is significantly reduced.	POOR
0		Braking deceleration is minimal to non-existent for the wheel braking effort applied OR directional control is uncertain.	LESS THAN POOR

Note.— An RWYCC 5,4,3 or 2 cannot be upgraded.

## SNOWTAM

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

Written procedures

# Doc 9981 - Circular 355

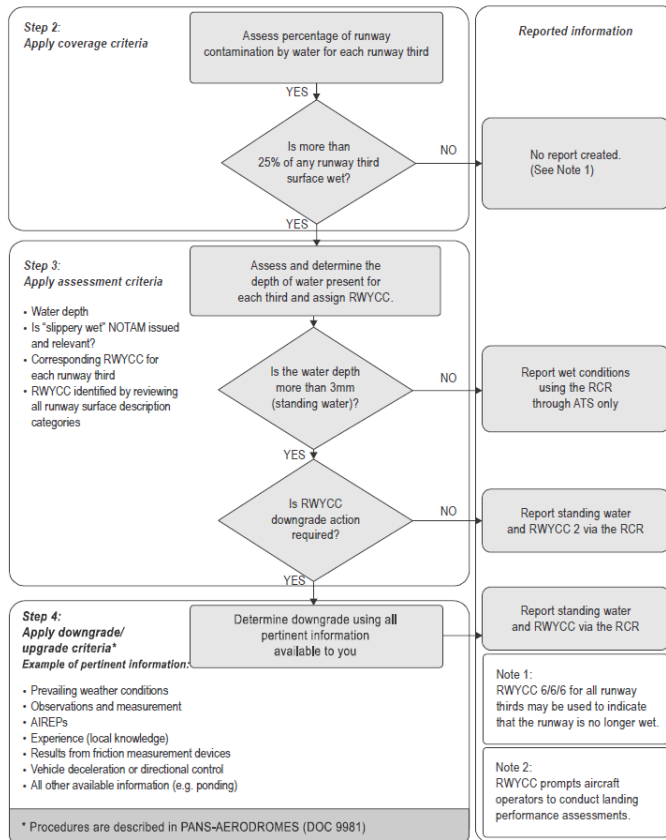


Figure 4-5. Flowchart B

## Written procedures in PANS-Aerodromes (Doc 9981)

## Guidance in Circular 355

# RCR

Up to and including 3 mm:

XXXX 02170225 07 5/5/5 100/100/100 NR/NR/NR  
WET/WET/WET.



# RCR

Up to and including 3 mm:

XXXX 02170225 07 **5/5/5** 100/50/50 NR/NR/NR  
WET/WET/WET.

More than 3 mm

XXXX 03170255 07 **3/2/2** 100/50/50 NR/04/04  
WET/STANDING WATER/STANDING WATER  
NOTAM (SLIPPERY WET). NOTAM (POND). NOTAM  
(RUTTING).

# RCR

Up to and including 3 mm:

XXXX 02170225 07 **5/5/5** 100/50/50 NR/NR/NR  
WET/WET/WET.

Runway up to standard! Trend monitoring!

More than 3 mm

XXXX 03170255 07 **3/2/2** 100/50/50 NR/04/04  
WET/STANDING WATER/STANDING WATER.

NOTAM (SLIPPERY WET). NOTAM (POND). NOTAM  
(RUTTING).

Runway maintenance issues! Trend monitoring!

# Operational need

The information  
is being generated  
**in a standardised format**  
in order to meet an  
operation need.

Runway Condition Report (RCR)

# Runway Condition Report (RCR)

- Aerodrome operator
- **Origin** of information
  - Data collection
  - Assessment
  - Creating information
- **Annex 14 Vol I - Aerodromes**
- **PANS-Aerodromes (doc 9981)**
- **Circular 355**

- Aircraft (Aeroplane) operator
- **Use** of information
  - Intended operation
    - Landing
    - Take off
  - Maintenance
- **Annex 8**
- **Annex 6, Part II**
- **Aeroplane Performance Manual (Doc 10064 New)**

# RCAM – WET and DRY only

Table A-1. RCAM — WET and DRY only (based on PANS-Aerodromes (Doc 9981))

RUNWAY CONDITION ASSESSMENT MATRIX (RCAM)			
Assessment criteria		Downgrade assessment criteria	
Runway condition code (RWYCC)	Runway surface description	Aeroplane deceleration or directional control observation	Pilot report of runway braking action
6	• DRY	---	---
5	• WET (the runway surface is covered by any visible dampness or water up to and including 3 mm depth)	Braking deceleration is normal for the wheel braking effort applied AND directional control is normal.	GOOD
4		Braking deceleration OR directional control is between Good and Medium.	GOOD TO MEDIUM
3	• WET ("slippery wet" runway)	Braking deceleration is noticeably reduced for the wheel braking effort applied OR directional control is noticeably reduced.	MEDIUM
2	More than 3 mm depth of water: • STANDING WATER	Braking deceleration OR directional control is between Medium and Poor.	MEDIUM TO POOR
1		Braking deceleration is significantly reduced for the wheel braking effort applied OR directional control is significantly reduced.	POOR
0		Braking deceleration is minimal to non-existent for the wheel braking effort applied OR directional control is uncertain.	LESS THAN POOR

Note.— An RWYCC 5,4,3 or 2 cannot be upgraded.

## Annex 14, Vol I: 1.1 Definitions

**Wet runway.** The runway surface is covered by any visible dampness or water up to and including 3 mm deep within the intended area of use.

## PANS-Aerodromes 1.1.1.8

....When the runway is wet, not associated with the presence of standing water, snow, slush, ice or frost, the assessed information should be disseminated using the runway condition report **through the ATS only.**

## RCR

- Aeroplane performance calculation section
- Situational awareness section

# RCAM – WET – 3mm depth - Reporting

Table A-1. RCAM — WET and DRY only (based on PANS-Aerodromes (Doc 9981))

RUNWAY CONDITION ASSESSMENT MATRIX (RCAM)			
Assessment criteria		Downgrade assessment criteria	
Runway condition code (RWYCC)	Runway surface description	Aeroplane deceleration or directional control observation	Pilot report of runway braking action
6	• DRY	---	---
5	• WET (the runway surface is covered by any visible dampness or water up to and including 3 mm depth)	Braking deceleration is normal for the wheel braking effort applied AND directional control is normal.	GOOD
4		Braking deceleration OR directional control is between Good and Medium.	GOOD TO MEDIUM
3	• WET ("slippery wet" runway)	Braking deceleration is noticeably reduced for the wheel braking effort applied OR directional control is noticeably reduced.	MEDIUM
2	More than 3 mm depth of water: • STANDING WATER	Braking deceleration OR directional control is between Medium and Poor.	MEDIUM TO POOR
1		Braking deceleration is significantly reduced for the wheel braking effort applied OR directional control is significantly reduced.	POOR
0		Braking deceleration is minimal to non-existent for the wheel braking effort applied OR directional control is uncertain.	LESS THAN POOR

Note.— An RWYCC 5,4,3 or 2 cannot be upgraded.

Up to and including 3 mm  
WET – Report RCR using ATM/ATS only.

**3 mm** ←————→

More than 3 mm  
WET (Slippery wet runway) – Report RCR using  
AIM/AIS and;  
ATM/ATS.

# 3mm depth - Assessed

Table A-1. RCAM — WET and DRY only (based on PANS-Aerodromes (Doc 9981))

RUNWAY CONDITION ASSESSMENT MATRIX (RCAM)			
Assessment criteria		Downgrade assessment criteria	
Runway condition code (RWYCC)	Runway surface description	Aeroplane deceleration or directional control observation	Pilot report of runway braking action
6	• DRY	---	---
5	• WET (the runway surface is covered by any visible dampness or water up to and including 3 mm depth)	Braking deceleration is normal for the wheel braking effort applied AND directional control is normal.	GOOD
4		Braking deceleration OR directional control is between Good and Medium.	GOOD TO MEDIUM
3	• WET ("slippery wet" runway)	Braking deceleration is noticeably reduced for the wheel braking effort applied OR directional control is noticeably reduced.	MEDIUM
2	More than 3 mm depth of water: • STANDING WATER	Braking deceleration OR directional control is between Medium and Poor.	MEDIUM TO POOR
1		Braking deceleration is significantly reduced for the wheel braking effort applied OR directional control is significantly reduced.	POOR
0		Braking deceleration is minimal to non-existent for the wheel braking effort applied OR directional control is uncertain.	LESS THAN POOR

Note.— An RWYCC 5,4,3 or 2 cannot be upgraded.

Even if measured; the measured value has to be judged to be representative for the runway thirds.

How the runway

- drains during a rainstorm;
  - Rutting – streams of water?
- dries up after a rainfall
  - Ponding?



# RCAM – WET – 3mm depth - Reporting

Table A-1. RCAM — WET and DRY only (based on PANS-Aerodromes (Doc 9981))

RUNWAY CONDITION ASSESSMENT MATRIX (RCAM)			
Assessment criteria		Downgrade assessment criteria	
Runway condition code (RWYCC)	Runway surface description	Aeroplane deceleration or directional control observation	Pilot report of runway braking action
6	<ul style="list-style-type: none"> <li>• DRY</li> </ul>	---	---
5	<ul style="list-style-type: none"> <li>• WET (the runway surface is covered by any visible dampness or water up to and including 3 mm depth)</li> </ul>	Braking deceleration is normal for the wheel braking effort applied AND directional control is normal.	GOOD
4		Braking deceleration OR directional control is between Good and Medium.	GOOD TO MEDIUM
3	<ul style="list-style-type: none"> <li>• WET ("slippery wet" runway)</li> </ul>	Braking deceleration is noticeably reduced for the wheel braking effort applied OR directional control is noticeably reduced.	MEDIUM
2	<p>More than 3 mm depth of water:</p> <ul style="list-style-type: none"> <li>• STANDING WATER</li> </ul>	Braking deceleration OR directional control is between Medium and Poor.	MEDIUM TO POOR
1		Braking deceleration is significantly reduced for the wheel braking effort applied OR directional control is significantly reduced.	POOR
0		Braking deceleration is minimal to non-existent for the wheel braking effort applied OR directional control is uncertain.	LESS THAN POOR

Note.— An RWYCC 5,4,3 or 2 cannot be upgraded.

Annex 14, Vol I 2.9 Condition of the movement area and related facilities.

2.9.1 Information on the condition of the movement area and the operational status of related facilities shall be provided to the appropriate aeronautical information services units, and similar information of operational significance to the air traffic services units, to enable those units to provide the necessary information to arriving and departing aircraft. The information shall be kept up to date and changes in conditions reported without delay.



# RCAM – STANDING WATER

Table A-1. RCAM — WET and DRY only (based on PANS-Aerodromes (Doc 9981))

RUNWAY CONDITION ASSESSMENT MATRIX (RCAM)			
Assessment criteria		Downgrade assessment criteria	
Runway condition code (RWYCC)	Runway surface description	Aeroplane deceleration or directional control observation	Pilot report of runway braking action
6	<ul style="list-style-type: none"> <li>• DRY</li> </ul>	---	---
5	<ul style="list-style-type: none"> <li>• WET (the runway surface is covered by any visible dampness or water up to and including 3 mm depth)</li> </ul>	Braking deceleration is normal for the wheel braking effort applied AND directional control is normal.	GOOD
4		Braking deceleration OR directional control is between Good and Medium.	GOOD TO MEDIUM
3	<ul style="list-style-type: none"> <li>• WET ("slippery wet" runway)</li> </ul>	Braking deceleration is noticeably reduced for the wheel braking effort applied OR directional control is noticeably reduced.	MEDIUM
2	<p>More than 3 mm depth of water:</p> <ul style="list-style-type: none"> <li>• STANDING WATER</li> </ul>	Braking deceleration OR directional control is between Medium and Poor.	MEDIUM TO POOR
1		Braking deceleration is significantly reduced for the wheel braking effort applied OR directional control is significantly reduced.	POOR
0		Braking deceleration is minimal to non-existent for the wheel braking effort applied OR directional control is uncertain.	LESS THAN POOR

Note.— An RWYCC 5,4,3 or 2 cannot be upgraded.

Annex 14, Vol I: 1.1 Definitions

*Standing water.* Water of depth greater than 3 mm.

*Note.— Running water of depth greater than 3 mm is reported as standing water by convention.*

Standing water (not running) indicates a pond. If this pond is located where the wheel tracks of aeroplanes landing or taking off are located then it should be considered to issue a NOTAM

Standing water (running) indicates rutting. If this rutting is located along the wheel tracks of aeroplanes landing or taking off it should be considered to issue a NOTAM if this occurs regularly during a certain rain intensity.

# RCAM – RUBBER BUILD UP – POLISHING – GEOMETRY CHANGE

Table A-1. RCAM — WET and DRY only (based on PANS-Aerodromes (Doc 9981))

RUNWAY CONDITION ASSESSMENT MATRIX (RCAM)			
Assessment criteria		Downgrade assessment criteria	
Runway condition code (RWYCC)	Runway surface description	Aeroplane deceleration or directional control observation	Pilot report of runway braking action
6	• DRY	---	---
5	• WET (the runway surface is covered by any visible dampness or water up to and including 3 mm depth)	Braking deceleration is normal for the wheel braking effort applied AND directional control is normal.	GOOD
4		Braking deceleration OR directional control is between Good and Medium.	GOOD TO MEDIUM
3	• WET ("slippery wet" runway)	Braking deceleration is noticeably reduced for the wheel braking effort applied OR directional control is noticeably reduced.	MEDIUM
2	More than 3 mm depth of water: • STANDING WATER	Braking deceleration OR directional control is between Medium and Poor.	MEDIUM TO POOR
1		Braking deceleration is significantly reduced for the wheel braking effort applied OR directional control is significantly reduced.	POOR
0		Braking deceleration is minimal to non-existent for the wheel braking effort applied OR directional control is uncertain.	LESS THAN POOR

Note.— An RWYCC 5,4,3 or 2 cannot be upgraded.

- Rubber build up or
- Polishing

can create slippery wet runway.

- Geometry change

can create rutting or ponding.

These processes takes time and they are monitored by the aerodrome operator and NOTAM issued if they are of operational significance.

The RCR reflects

- these NOTAMs when they are in effect.
- STANDING WATER if occurring under unfavourable wind and rainfall conditions.

# RCAM – WET RWYCC 3 – Slippery wet runway

Table A-1. RCAM — WET and DRY only (based on PANS-Aerodromes (Doc 9981))

RUNWAY CONDITION ASSESSMENT MATRIX (RCAM)			
Assessment criteria		Downgrade assessment criteria	
Runway condition code (RWYCC)	Runway surface description	Aeroplane deceleration or directional control observation	Pilot report of runway braking action
6	• DRY	---	---
5	• WET (the runway surface is covered by any visible dampness or water up to and including 3 mm depth)	Braking deceleration is normal for the wheel braking effort applied AND directional control is normal.	GOOD
4		Braking deceleration OR directional control is between Good and Medium.	GOOD TO MEDIUM
3	• WET ("slippery wet" runway)	Braking deceleration is noticeably reduced for the wheel braking effort applied OR directional control is noticeably reduced.	MEDIUM
2	More than 3 mm depth of water: • STANDING WATER	Braking deceleration OR directional control is between Medium and Poor.	MEDIUM TO POOR
1		Braking deceleration is significantly reduced for the wheel braking effort applied OR directional control is significantly reduced.	POOR
0		Braking deceleration is minimal to non-existent for the wheel braking effort applied OR directional control is uncertain.	LESS THAN POOR

Note.— An RWYCC 5,4,3 or 2 cannot be upgraded.

## Annex 14, Vol I: 1.1 Definitions

*Slippery wet runway.* A wet runway where the surface friction characteristics of a significant portion of the runway have been determined to be degraded.

2.9.9 Information that a runway or portion thereof is slippery wet **shall be made available.**

NOTAM 'Slippery wet NOTAM'

# RCAM – WET RWYCC 3 – Slippery wet runway

Table A-1. RCAM — WET and DRY only (based on PANS-Aerodromes (Doc 9981))

RUNWAY CONDITION ASSESSMENT MATRIX (RCAM)			
Assessment criteria		Downgrade assessment criteria	
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5	• WET (the runway surface is covered by any visible dampness or water up to and including 3 mm depth)	Braking deceleration is normal for the wheel braking effort applied AND directional control is normal.	GOOD
4		Braking deceleration OR directional control is between Good and Medium.	GOOD TO MEDIUM
3	• WET ("slippery wet" runway)	Braking deceleration is noticeably reduced for the wheel braking effort applied OR directional control is noticeably reduced.	MEDIUM
2	More than 3 mm depth of water: • STANDING WATER	Braking deceleration OR directional control is between Medium and Poor.	MEDIUM TO POOR
1		Braking deceleration is significantly reduced for the wheel braking effort applied OR directional control is significantly reduced.	POOR
0		Braking deceleration is minimal to non-existent for the wheel braking effort applied OR directional control is uncertain.	LESS THAN POOR

Note.— An RWYCC 5,4,3 or 2 cannot be upgraded.

2.9.9 Information that a runway or portion thereof is slippery wet shall be made available.

*Note 1.— the surface friction characteristics of a runway or a portion thereof can be degraded due to rubber deposits, surface polishing, poor drainage or other factors. The determination that a runway or portion thereof is slippery wet stems from various methods used solely or in combination. These methods may be functional friction measurements, using a continuous friction measuring device, that fall below a minimum standard as defined by the State, observations by aerodrome maintenance personnel, repeated reports by pilots and aircraft operators based on flight crew experience, or through analysis of aeroplane stopping performance that indicates a substandard surface. Supplementary tools to undertake this assessment are described in the PANS-Aerodromes (Doc 9981)*

# RCAM - PILOT REPORT OF RUNWAY BRAKING ACTION

Table A-1. RCAM — WET and DRY only (based on PANS-Aerodromes (Doc 9981))

RUNWAY CONDITION ASSESSMENT MATRIX (RCAM)			
Assessment criteria		Downgrade assessment criteria	
Runway condition code (RWYCC)	Runway surface description	Aeroplane deceleration or directional control observation	Pilot report of runway braking action
6	• DRY	---	---
5	• WET (the runway surface is covered by any visible dampness or water up to and including 3 mm depth)	Braking deceleration is normal for the wheel braking effort applied AND directional control is normal.	GOOD
4		Braking deceleration OR directional control is between Good and Medium.	GOOD TO MEDIUM
3	• WET ("slippery wet" runway)	Braking deceleration is noticeably reduced for the wheel braking effort applied OR directional control is noticeably reduced.	MEDIUM
2	More than 3 mm depth of water: • STANDING WATER	Braking deceleration OR directional control is between Medium and Poor.	MEDIUM TO POOR
1		Braking deceleration is significantly reduced for the wheel braking effort applied OR directional control is significantly reduced.	POOR
0		Braking deceleration is minimal to non-existent for the wheel braking effort applied OR directional control is uncertain.	LESS THAN POOR

Note.— An RWYCC 5,4,3 or 2 cannot be upgraded.

Annex 6 Part I 4.4.2.1 mandates that flight crew make special air reports (AIREPs) whenever they observe worse runway braking action than previously reported.

It is the pilot's assessment of the manner in which an aircraft responds to the application of wheel brakes.

These reports provide feedback to the aerodrome operator regarding the accuracy of the assigned RWYCCs relative to the runway surface conditions actually experienced.

# Promulgation of Runway Condition Report (RCR)

How to get the information (RCR) from the originator to the end user uncorrupted and with full integrity intact.

# Runway Condition Report (RCR)

- Aerodrome operator
- Promulgation/Dissemination of information
  - ATM/ATS
    - ATC phraseologies
    - CPDLC
    - ATIS/D-ATIS
  - AIM/AIS
    - SNOWTAM
  - PANS ATM (Doc 4444)
  - PANS AIM (Doc 10066) New

- Aircraft (Aeroplane) operator
- Provide information to flight crew (PIC)
- (Business models)
  - ACARS (1978)
    - ARINC (1929)
    - SITA (1949)

# Runway Condition Report (RCR) and SMS

## State Safety Plan (SSP)

- **Aerodrome operator**
  - Safety Management System (SMS)
  - ATM/ATS
    - SMS – ATC phraseologies, CPDLC, ATIS
  - AIM/AIS
    - SMS - SNOWTAM

- **Aircraft (Aeroplane) operator**
  - Safety Management System (SMS)



# Runway Condition Report (RCR) and SMS

## State Safety Plan (SSP)

- Aerodrome operator
  - Safety Management System (SMS)

- ATM/ATS
  - SMS ATC phraseologies, CPDLC, ATIS
- AIM/AIS
  - SMS - SNOWTAM

Integrity of RCR information



- Aircraft (Aeroplane) operator
  - Safety Management System (SMS)

# Runway Condition Report (RCR) and SMS

## State Safety Plan (SSP)

- Aerodrome operator
  - Safety Management System (SMS)

- ATM/ATS
  - SMS – ATC Phraseology, CPDLC, ATIS
- AIM/AIS
  - SMS - SNOWTAM

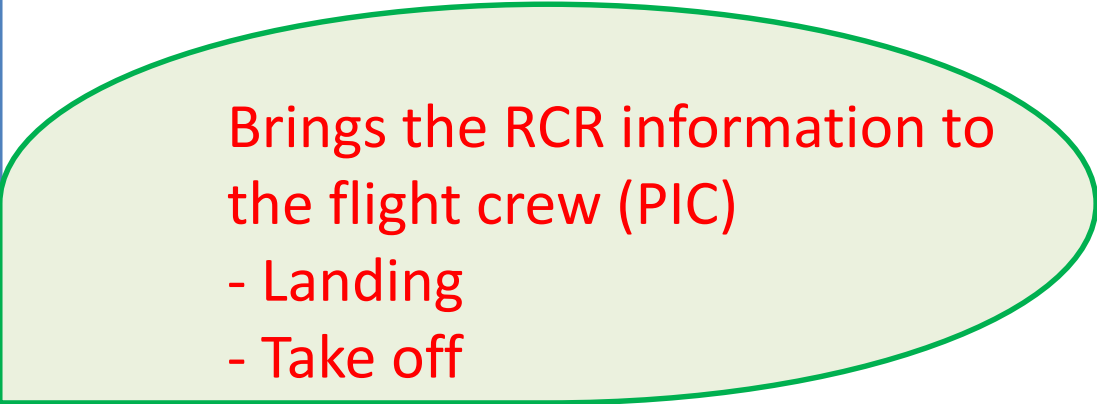
Integrity of RCR information



- Aircraft (Aeroplane) operator
  - Safety Management System (SMS)

Brings the RCR information to the flight crew (PIC)

- Landing
- Take off



# ICAO SARPs, PANS and guidance material provided

- Annex 8
- Annex 6 Part 2
  - Aeroplane Performance Manual (Doc 10064) - **New**
- Annex 14, Vol I – Applicability 5 November 2020
  - PANS-Aerodromes (Doc 9981)
    - Assessment, Measurement and Reporting of Runway Surface Conditions (Circular 355) – **Revised Circular 329**
  - PANS-ATM (Doc 4444)
- Annex 15
  - PANS-AIM (Doc 10066) - **New**

# Ongoing/future work

- ICAO
  - Modernisation of the Airport Services Manual, Part 2, Pavement Surface Conditions
- States and industry:
  - Realised that today's wet runway certification and guidance are in need of improvement.
  - Various initiatives
- New technology:
  - Aircraft as a sensor
  - Big databases