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## IMPLEMENTING THE GLOBAL REPORTING FORMAT (GRF) AT GREEK AIRPORTS

### 1. Introduction - Principles of the GRF

In order to improve the prevention of runway excursions, ICAO has developed a new harmonised methodology for the evaluation and transmission of standardised information on the condition of runway surfaces on a global scale: The Global Reporting Format (GRF).

The GRF improves flight crews' evaluation of the aircraft performance during landing and take-off.

### 2. Implementation Plan

#### 2.1 Date of applicability

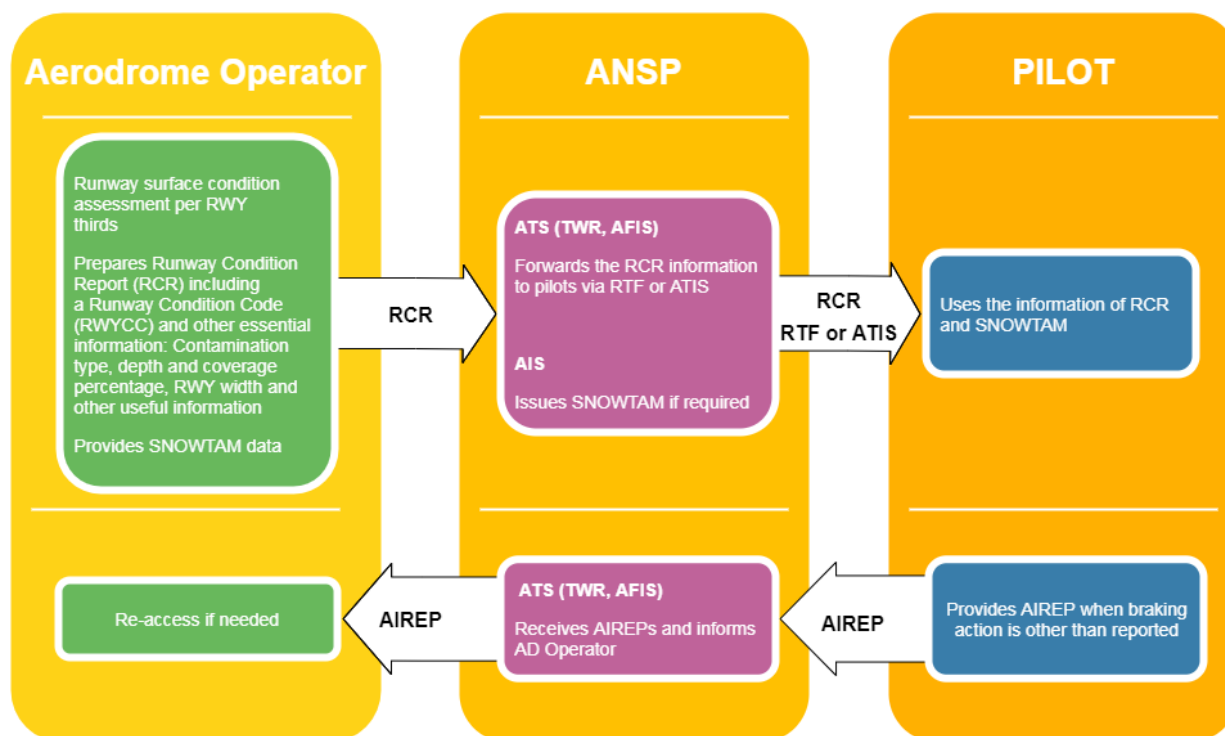
EASA implemented the GRF on August 12<sup>th</sup>, 2021. Global implementation by ICAO is scheduled for November 04<sup>th</sup>, 2021.

#### 2.2 GRF Implementation

The GRF will be implemented at the following Greek aerodromes:

1. Holding an EASA certificate. The list of these aerodromes is available in the AIP Greece **AD 1.5**
2. Facilitating commercial flights
3. Being served by at least one instrument approach procedure
4. Providing Air Traffic Services (ATS)

### 3. Information flowchart



### 3.1 Information collection

**3.1.1** The GRF is based on the categorization of the runway surface condition by taking into account different data such as the type and depth of the contamination as well as the braking action encountered and reported by pilots during landing. The procedure relies on the aerodrome operator who continuously assesses the runway surface condition, for each third of the runway, and issues a runway condition report (RCR).

The RCR is a validated method that replaces subjective judgments with objective assessments that are directly tied to criteria relevant to aircraft performance. These criteria have been determined by aircraft manufacturers to cause specific changes in aircraft braking performance. It contains all the necessary information of the relevant runway condition for the performance assessment by the flight crew. This information is required at several stages of the flight, not only at the takeoff and landing phases. In particular, in dynamic winter event conditions, the flight crew may need updates throughout the flight. Thus, any significant change of runway condition should trigger a new RCR to facilitate in-flight decision making.

Consequently, for the aerodrome personnel monitoring and reporting the runway surface conditions, it is important to focus on identifying and reporting any significant changes as soon as they occur.

The flight crew's ability to receive the RCR in the various phases of flight depends upon the technology made available to them and, as a consequence, such ability may vary between aircraft operators.

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**3.1.2** The RCR consists of two sections:

**A.** Airplane take-off and landing performance calculation section (for each runway third), which must be filled in to provide pilots with relevant information for pre- and in- flight preparation. This section contains the Runway Condition Code (RwyCC), which is a unique code linking runway condition to the aircraft braking and directional control performances and is derived from the Runway Condition Assessment Matrix (RCAM) and information describing the runway surface condition: type of contamination, depth, coverage for each third of the runway, etc.

Contaminated runway surface condition descriptors among others are:

- a) compacted snow;
- b) dry snow;
- c) frost;
- d) ice;
- e) slush;
- f) standing water;
- g) wet ice; and
- h) wet snow.

**B.** Situational awareness of the surface conditions on the runway, taxiways and aprons section. This section contains optional information such as (but not limited to) reduced runway length, presence of drifting snow, snowbanks, loose sand or chemical treatment on the runway, taxiway and apron conditions.

In most cases, the first section will be sufficient. The second section will be used mainly during winter conditions.

After landing, if the braking action is different from anticipated, crews are asked to communicate a special air-report (AIREP) concerning braking action encountered which ATS forwards without delay to the aerodrome operator. The aerodrome operator takes into account those braking reports and updates the RwyCC accordingly if deemed necessary.

In the latter case, the operator transmits the new RCR to ATS and, when necessary, to AIS.

Table 1 - General matrix applicable to all aerodromes

RUNWAY CONDITION ASSESSMENT MATRIX (RCAM)			
Assessment criteria		Downgrade assessment criteria	
Runway condition code	Runway surface description	Aircraft 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>• FROST</li> <li>• WET (The runway surface is covered by any visible dampness or water up to and including 3 mm depth)</li> </ul> <p><b>Up to and including 3 mm depth:</b></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	<ul style="list-style-type: none"> <li>• SPECIALLY PREPARED WINTER RUNWAY</li> </ul> <p><b>-15°C and lower outside air temperature:</b></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>• SLIPPERY WET</li> <li>• DRY SNOW or WET SNOW (any depth) ON TOP OF COMPACTED SNOW</li> </ul> <p><b>More than 3 mm depth:</b></p> <ul style="list-style-type: none"> <li>• DRY SNOW</li> <li>• WET SNOW</li> </ul> <p><b>Higher than -15°C outside air temperature<sup>1</sup>:</b></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><b>More than 3 mm depth of water or slush:</b></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</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</li> <li>• WATER ON TOP OF COMPATED SNOW</li> <li>• DRY SNOW or WET SNOW ON TOP OF ICE</li> </ul>	Braking deceleration is minimal to non-existent for the wheel braking effort applied OR directional control is uncertain.	LESS THAN POOR

Table 2 - Matrix for use by aerodromes not experiencing winter weather conditions

RUNWAY CONDITION ASSESSMENT MATRIX (RCAM)-SIMPLE VERSION			
Assessment criteria		Downgrade assessment criteria	
Runway condition code	Runway surface description	Aircraft 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>• SLIPPERY WET</li> </ul>	Braking deceleration is noticeably reduced for the wheel braking effort applied OR directional control is noticeably reduced.	MEDIUM
2	<p><b>More than 3 mm depth:</b></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

### 3.2 Transmission of information

3.2.1 When the GRF service is available, the RCR information is available through ATS during ATS opening hours.

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The ATS provider ensures the dissemination of the runway status to the pilots by communicating the information contained in the RCR on the ATIS and, if necessary, on request of the crews, via R/T.

It should be noted that the information transmitted by ATS is provided for each third of the runway and is given in the order of the direction of landing or take-off operations in contrast with standard practice of reporting RWY condition per thirds in NOTAMS, where we start from the lower designator.

The ATIS contains the following elements in the following order:

- 1) RwyCC,
- 2) Publication time (corresponding to the observation time),
- 3) Nature of contaminant,
- 4) Contaminant depth,
- 5) Percentage of contaminant coverage,
- 6) Any element disseminated by the operator, except for elements that are useless due to the operating conditions

RCR is not transmitted when RwyCC 6/6/6 (dry runway), except only after, previous contamination has occurred. RwyCC 6/6/6 (dry runway) is always transmitted in case of an improvement from a lower condition code situation, or on pilot's request. Repetitive transmissions of RwyCC 6/6/6 (dry runway) are not required after initial transmission.

**3.2.2** At aerodromes where ATIS is unavailable / not present or if the ATIS identification announced by the pilot is obsolete or the ATIS is under update, ATS transmits RCR elements on frequency (RTF). In this case, and in order to limit frequency congestion, ATS transmits only the following:

- The RwyCC in priority,

Other information is available and can be transmitted on request of the pilot or according to the workload in order to limit the congestion of the frequency. It is noted that ATC Workload does not prevail over the request of a pilot for RCR, except in cases of emergency situations.

ATS is not required to transmit the RCR in the following situations:

- ATIS is operational and up to date
- Local or circling traffic (unless there is a change in the situation)

In case of a fully wet runway (RwyCC 5/5/5) and in the absence of any other contaminant, ATS (TWR or APP) transmits only the RwyCC 5/5/5, or may mention "RUNWAY WET".

Regarding the nature, depth and percentage of coverage, if the three thirds of the runway have an identical characterization, the relevant element is stated only once on the frequency.

Example: wet snow/wet snow/wet snow => wet snow

**3.2.3** At aerodromes where ATIS is present but has technical or other limitations (Digital Voice ATIS not capable to handle the required amount of information or Analogue Voice ATIS) ATIS transmits the following:

- The RwyCC in priority,
- In the case of (a) fully WET runway(-s) and absence of any other contaminant (RCC 5/5/5) ATIS transmits "RUNWAY (or BOTH RUNWAYS) ALL PARTS WET"
- In the case of (a) fully DRY runway(-s) and absence of any other contaminant (RCC 6/6/6) ATIS transmits "RUNWAY (or BOTH RUNWAYS) ALL PARTS DRY"
- If none of the Runway Condition Codes (RCC) for each third is below 5 and surface contaminant is WET then ATS (TWR or APP) transmits only the RCC (e.g. 5/5/6), or may mention "RUNWAY WET"
- Regarding the nature, depth and percentage of coverage, if the three thirds of the runway(-s) have an identical characterization, the relevant element is stated only once.

**3.2.4** In all other cases and in order to limit the congestion of the frequency the rest of information is available and can be transmitted via:

- RTF according to the workload or on request of the pilot. It is noted that ATC Workload does not prevail over the request of a pilot for RCR, except in cases of emergency situations or
- Analogue Voice ATIS (where applicable) when deemed necessary and the working environment permits.

### **3.3 Use of information by crews**

**3.3.1** Friction coefficient measurements and METAR data related to runway surface condition are no longer provided.

The 'DAMP' designation is no longer in use. A runway is considered WET when it is covered with any visible trace of moisture or a thickness of water less than or equal to 3 mm.

A wet runway is considered slippery when its friction characteristics are degraded. In this case, a NOTAM indicating the degraded runway portion is published.

The pilots use the information received in preparation of the flights (SNOWTAM).

In flight, during the approach phase before landing, the RCR data is updated via ATIS or R/T. Pilots will calculate the landing or take-off performance with the RCR data using the data provided by the manufacturer.

Whenever the braking performance encountered during landing is not as good as that announced by the aerodrome operator, the pilot-in-command shall inform ATS as soon as possible by means of an AIREP, reporting the following information:

- Assessment of the perceived braking performance; and
- Type of aircraft.