

# ICAO GRF - Global Reporting Format Implementation

Webinar, 09.12.2020



## Global Reporting Format Implementation

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A large commercial airplane is positioned on a runway covered in snow. The aircraft is viewed from a low angle, emphasizing its size. In the background, to the right, a small car is visible on the same snowy surface. The overall scene is hazy and wintry.

# GRF National Implementation Plan

## ICAO GRF Implementation Plan

Since March 2019 ICAO:

- ⇒ launched a standard 'road map' for the implementation of GRF at national level by Member States' NAAs;
- ⇒ recommended Member States' NAAs to set a 'National Implementation Plan', including the establishment of an Implementation Task Force;
- ⇒ prepared an 'implementation checklist' to help NAAs develop their GRF National Implementation Plan.

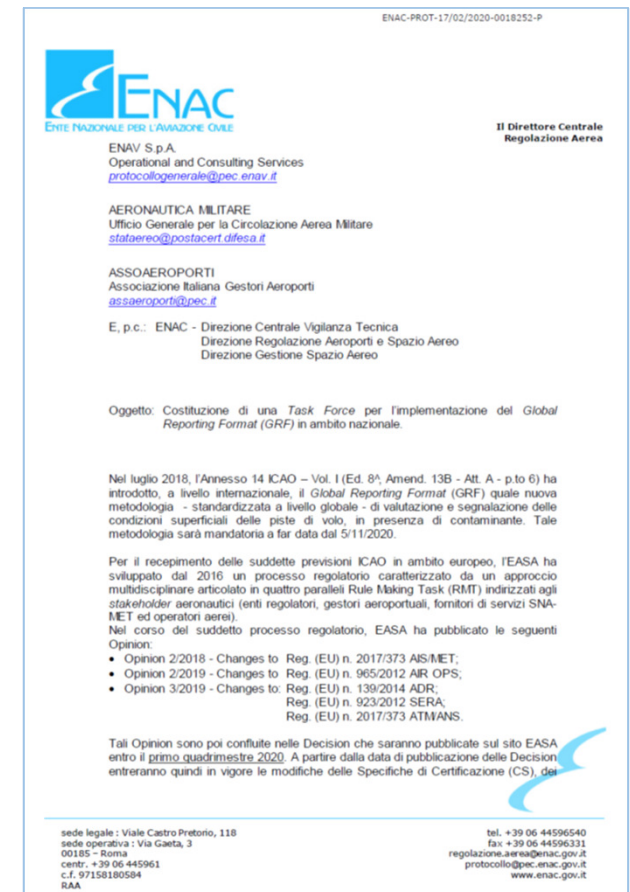
ID	TASK	WHO	WHEN	Remarks
GRF 1	Establish a <i>National GRF implementation team and focal point</i> at the State Level	State GRF implementation team to include: <ul style="list-style-type: none"> <li>- CAA (responsible entity for implementation)</li> <li>- Aerodromes</li> <li>- ANSP(ATM/ADM/ MET)</li> <li>- Airlines/Flight Ops</li> <li>- Any other relevant stakeholder, as required</li> <li>- CAA appointed focal point</li> </ul>	By Sep 2019	
GRF 1-1	Develop a <i>National GRF Implementation Plan</i> , detailing tasks, champions and timelines	State GRF implementation team	By Nov 2019	
GRF 2	Educate by reviewing the following documentation: <ul style="list-style-type: none"> <li>- PANS ADR</li> <li>- ICAO Circular 355</li> <li>- Annex 14</li> <li>- ICAO GRF global Symposium presentations: <a href="https://www.icao.int/Meetings/grf2019">https://www.icao.int/Meetings/grf2019</a></li> <li>- ICAO Doc 10064 (check when available with HQ)</li> <li>- Other relevant ICAO provisions – consequential amendments due to GRF (e.g. PANS-ADM, PANS-ATM, etc.)</li> </ul> Educate by attending: <ul style="list-style-type: none"> <li>- ICAO Regional Workshops</li> </ul> Educate by conducting: <ul style="list-style-type: none"> <li>- State Level Workshops/Seminars</li> </ul>	State GRF implementation team <ul style="list-style-type: none"> <li>- In coordination with national bodies representing airports, ANSPs, Airlines</li> </ul>	By Feb 2020 (consider redrafting by Nov 2020)	Advise difficulties to ICAO regional office
GRF 3	Promote GRF at the national level in context of safety by developing: <ul style="list-style-type: none"> <li>- brochures</li> <li>- website material</li> <li>- AIC (Aeronautical Information Circular)</li> </ul>	State GRF implementation team <ul style="list-style-type: none"> <li>- distribution should also include GABA and Military</li> </ul>	By Feb 2020	
GRF 4	Train relevant stakeholders on GRF Note that different stakeholders may have different training needs (e.g. aerodromes, pilots, ATS, AIS, aerodromes in warm climates vs. operators that fly to locations with winter conditions, etc.)  Train relevant groups that interface with customers on GRF so they can brief their customers when on audit/inspections	Relevant stakeholders: <ul style="list-style-type: none"> <li>- ACI</li> <li>- IATA</li> <li>- IFATCA</li> <li>- IFALPA</li> </ul> State GRF implementation team assess training for: <ul style="list-style-type: none"> <li>- ADR/ATM</li> <li>- CAA/TO inspectors</li> </ul>	By Apr 2020 (consider redrafting by Nov 2020)  By Apr 2020 (consider redrafting by Nov 2020)	
GRF 5	Update SNOTAM Format template (NOTAM/SNOTAM system)	State GRF implementation team assess: SNOTAM template is updated by: <ul style="list-style-type: none"> <li>- ADM</li> </ul>	By Nov 2020	
GRF 6	Train on the new SNOTAM Format	State GRF implementation team assess training on SNOTAM format by: <ul style="list-style-type: none"> <li>- ADM</li> </ul>	By Apr 2020 (consider redrafting by Nov 2020)	
GRF 7	Update AIP, as required	State GRF implementation team assess: AIP is updated by: <ul style="list-style-type: none"> <li>- ADM</li> </ul>	By Nov 2020	
GRF 8	Conduct parallel test of GRF this winter Conduct analysis using archives of SNOTAM & AIREPS (this should also be considered after implementation to identify errors)	State GRF implementation team coordinates parallel test with the necessary stakeholders: <ul style="list-style-type: none"> <li>- Airport operators</li> <li>- ANSP</li> <li>- Regional CAA</li> <li>- Airlines</li> <li>- AIS</li> </ul>	Nov 2019 - Apr 2020	

# GRF National Implementation Plan

In line with ICAO recommendations, in February 2020\* ENAC launched GRF implementation activities (ref. Letter RAA 18252/2020), including:

- ⇒ appointment of GRF Implementation **Task Force**
- ⇒ definition of **GRF Implementation Plan**/Check list
- ⇒ set up of GRF Implementation Program and Plan
- ⇒ involvement of relevant stakeholders

\* Activities delayed due to Covid-19 pandemic





## GRF Task Force - National Implementation Plan

In September 2020 ENAC appointed the GRF Task Force\* made up of

- internal experts from ADR, AIS/ATS/MET, OPS
- external stakeholders (ENAV, AMI, Assaeroporti, Aircraft Operators)\*\*

### Objective:

to develop the GRF implementation process in all the concerned domains with regard to the relevant technical, operational, procedural and training components, incl. participation in EASA 'GRF Coordination Cell'.

\* Ref. Letter 84318 - 07/09/2020

\*\* Ref. Letter 18252 RAA - 17/02/2020, 100079 RAA - 15/10/2020

## GRF Implementation '4 pillars'

- **Training & Communication**

- dedicated training on GRF of ENAC personnel (ADR, AIS/MET, OPS)
- organization of workshops with the concerned stakeholders
- publication of information on ENAC website (GRF webpage)

- **Trial**

- 'real-life' test of GRF-related procedures on selected aerodromes

- **Rulemaking**

- amendment of national rules (e.g. RCEA, AC APT10)

- **Oversight**

- review of the relevant operating procedures
- conduct of 'trial audits' during implementation period



## GRF Implementation time schedule

TRAINING & COMMUNICATION	2020												2021											
	OTT			NOV			DIC			GEN			FEB			MAR			APR					
Informazione Membri Task Force																								
Training interno (Team ENAC)																								
Comunicazione agli Stakeholder																								
Workshop 'Cross-domain'																								
Training (Corsi) Operatori	TBD																							

OVERSIGHT	2021																							
	GEN				FEB				MAR				APR				MAG				GIU			
Mod. Manuali / Procedure (Oper.)																								
Review Manuali / Procedure(Team)																								
'Trial Audit' (no findings)																								
Implementazione AC																								
Follow-up																								

## GRF Implementation time schedule

GRF TRIAL	2020			2021											
	OTT	NOV	DIC	GEN	FEB	MAR	APR	MAG	GIU	LUG					
Definizione Modalità Trial	■	■	■												
Training interno (Team ENAC)		■	■	■											
Selezione Operatori		■	■												
Definizione Modulistica		■	■												
Workshop stakeholder est.			■	■	■	■	■	■	■	■					
Avvio Fase Operativa Trial				■											
Monitoraggio Trial (racc. dati)				■	■	■	■	■	■	■	■	■	■		
Analisi Dati									■	■	■	■			
Report										■	■	■	■		
Follow-up													■	■	■



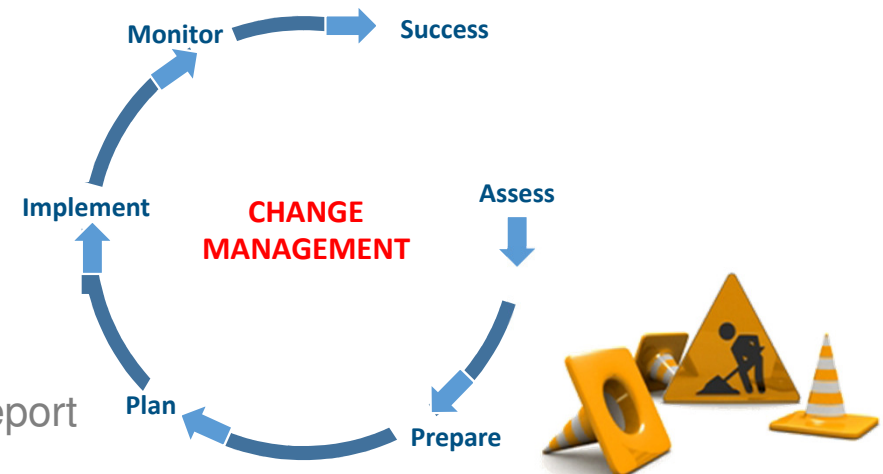
A large commercial airplane is parked on a runway covered in snow. The plane is viewed from the front, showing its nose and wings. In the background, to the right, a small car is visible on the tarmac. The sky is overcast and grey.

# **GRF Implementation at Aerodrome level Training of personnel**

### Changes ahead ...

The implementation of GRF at aerodrome level implies a significant impact on the whole system, as a change involving:

- Aerodrome Operator's Organisation / MS
  - Aerodrome Operations
  - Aerodrome Equipment
  - Coordination / liaison with 'Other Parties'
- exchange of information with ATC: RCR / Special Air-Report



‘Change management’ is essential to ensure safe transition to the new system !



### Organization

- Assignment of new responsibilities for
  - rwy condition assessment / determination of RCC
  - rwy condition reporting to AIS / ATS
- Agreements with other involved parties (e.g. AIS/ATS)
- Training of personnel



### Operations

- New working methods
- Amendment of procedures



### Aerodrome Manual - affected procedures

- E.7.1 - Aerodrome Reporting (e.g. Snowtam)
- E.9 - Procedures for the inspection, assessment and reporting of the condition of the movement area ... (maintenance)
- E.11 - Maintenance of aerodrome equipment
- E.24 - Procedures for winter operations, incl. Snow Plan
- E.25 - Procedures for operations in adverse weather
- Maintenance Programme



# Training of aerodrome personnel

Who is concerned ?

- Maintenance Manager
- Operational Service Manager
- 'Snow Control Center' Manager (if any)
- All those responsible for:
  - assessing runway conditions
  - determining RWY Condition Code
  - providing information to AIS / ATS





## Training on GRF - 'action list' ...

The Aerodrome Operator is required to:

- **review and amend its training program**
  - in order to include GRF and
  - the appropriate training syllabi
- **provide the relevant personnel with training on GRF**
  - initial training + OJT on GRF (before Aug 2021)
  - recurrent training (at intervals not exceeding 24m)
- **ensure proficiency check on GRF** (at adequate intervals)
- **use qualified Instructors / Assessors**
- **maintain training / proficiency check records** (as per ADR.OR.D.035)

### Outline of a GRF training programme (ICAO Circular 355 Appendix H)

#### Specific training

- General information
- RWYCC - new reporting format
- RCAM
- RCR
- Reporting (to ATS/AIS)
- Maintenance of 'slippery wet' runway
- Documents and records

+

'common training' on aerodrome familiarization, aerodrome manual, LVPs, airside driving (incl. radiotelephony/phraseology), inspection procedures, etc.



# GRF Training Syllabus in details ...

## General

- Background
  - FAA TALPA
  - ICAO FTF, SARPs, PANS, Guidance / States, rule-making
- History of friction
  - Accidents
  - Different countries / different methods

## RWYCC (Method)

- RWYCC
- Assessment
- Runway thirds



### RCAM

- RCAM layout
- Contamination definition
- Assessment by eye and experience
- Runway length and width

### RCR

- Downgrade and upgrade criteria
- Aeroplane performance section / Situational awareness section
- Timeliness of information, significant change
- Landing / take-off considerations
- Pilot report (AIREP feedback)
- Types of errors (consequences, safety margin)
- Reliability (consistency, accuracy)

### Reporting

- ATS > ATIS
- AIS > SNOWTAM
- Coordination with ATC (e.g. rwy entry, time of assessment, dissemination of results)

### Maintenance of 'slippery wet' runway

- Trend monitoring
- Issuance of NOTAM
- RCR

### Documents and records

- as per the relevant ADRM procedures

Additional content of GRF training syllabus for aerodrome operator's personnel:

- assessment / reporting of rwy surface friction characteristics
- use of rwy friction measurement device
- calibration and maintenance of rwy friction measuring device
- awareness of uncertainties related to friction measurements

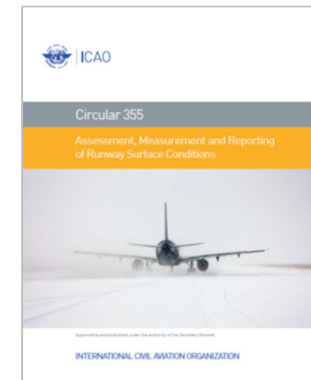
(Ref. ICAO Annex 14 Att. A - 6.8)

Aerodrome personnel should be also suitably trained to identify hazardous conditions related to rwy surface condition assesement and to follow established procedures.

(Ref. ICAO Circular 355)



- ICAO recommends the application of safety management system principles to the implementation of GRF, taking into account:
  - Standards and procedures
  - Training
  - Human Factors
  - Hazards associated with rwy surface characteristics
- Circular 355 (App. B-E) contains a list of hazards generally associated with functional and operational rwy surface conditions.
- Identification of 'runway condition related' hazards and risk management should be facilitated by the **Runway Safety Team** through a specific action plan.



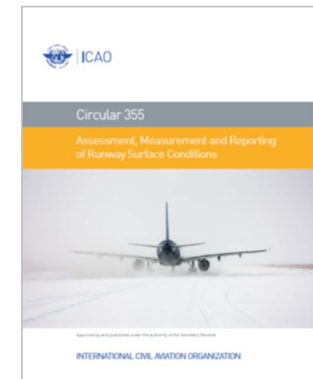
Human factors may adversely affect the information ‘gathering / dissemination’ chain.

⇒ 3 key players (human interfaces) are involved in the process

- aerodrome personnel (**data gatherers / transmitters**)
- ATM personnel (**data receiver / transmitters**)
- flight crew (**data receivers / users**)

⇒ Each **action** in the **process** is part of a **chain** requiring cooperation between all parties; this is based on teamwork, communication and comprehensive training.

⇒ It is essential that **all of them** have a clear, unambiguous, common **understanding** of the process and use the same terminology.



A large commercial airplane is positioned on a runway, viewed from a low angle. The runway surface appears to be covered in a layer of snow or ice. In the distance, to the right of the airplane, a small car is visible on the runway. The background is a hazy, overcast sky.

# Equipment for runway condition assessment



### Equipment and tools for Runway Condition Assessment

- RWYCC is basically determined by assessing contaminant type, contaminant depth and OAT.
- Assessing these parameters in a **reliable, effective, efficient** manner (often under time pressure) is essential... but how ?
- Different tools are used for runway condition assessment, e.g.:
  - weather information systems
  - contaminant type / depth measuring tools
  - friction tester / CFME (surface friction characteristics)
  - computer hardware / software (incl. worksheets)



### Runway Condition Assessment Equipment - Ongoing **Research Projects**

⇒ **EUROCAE\* WG-109** 'Rwy Weather Information Systems' (RWIS) launched in 2018

- to define the performance expected from the systems to be used for rwy condition assessment purposes and the way of verifying it,
- to prepare Minimum Aviation System Performance Specifications (MASPS) to be adopted as standards by the industry.

⇒ Similar work ongoing in the US by **ASTM E-17 Committee** (Subcom. E-17/25: 'Contamination measurement sensors', Subcom. E-17/26: 'Min. performance requirements to use aircraft as rwy condition sensors')

\* European Organisation for Civil Aviation Equipment, a non-profit organisation founded in 1963.

### Focus: Use of CFMEs - Continuous Friction Measuring Equipments

According to the new EU Rules\*

- Friction measurements cannot be used by flight crews to determine landing performance, since there is no correlation between friction measurements and aeroplane performance data (not to be reported !).
- Nevertheless, CFMEs may be used, along with all other available means, to support upgrade or downgrade of the RWYCC, by using friction measurements in a comparative way and not as absolute values (as part of the overall assessment).

Ref.: draft EASA GM1 ADR.OPS.A.065(d)

Worksheets - Worksheets can help determine the initial RCC reducing human error probability.

- The Aerodrome can use its 'home-made' worksheet or one provided by an external provider, anyway ...
- ... the tool should be thoroughly validated before use in order to prevent errors,
- final assessment (downgrade/upgrade) always requires expert judgement and cannot be made automatically !

AIRPORT (ICAO LOCATION IND.)	>	<b>LIMJ</b>	OPERATOR	>	<b>AAA SpA</b>
LOWER RWY DESIGNATION	>	<b>10</b>	DATE / TIME	>	<b>10/10/20 10:30</b>

	A - 1st third	B - 2nd third	C - 3rd third
TEMPERATURE (OAT)	-5,0	-3,0	-2,0
CONTAMINANT TYPE	ICE	SLIPPERY WET	SP. PREP. WINTER RWY
ACTUAL COVERAGE %	100	100	9
MEASURED DEPTH	1	1	1
INITIAL RWYCC	1	3	6
SPECIAL AIR-REP	MEDIUM	GOOD TO MEDIUM	MEDIUM

SUGGESTED RWYCC	1	3	6
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FINAL RWYCC (INS. MANUALLY)	5	3	6
REPORTED COVERAGE %	100	100	NR
REPORTED DEPTH mm	NR	NR	NR
CONTAMINANT TYPE	ICE	SLIPPERY WET	NR

Example of worksheet



## Human vs Machine ...

Industry provides different types of equipment - e.g. vehicle-mounted or in-pavement sensors - that help save time when measuring contaminant type / depth - often providing (initial) RWYCC / RCR - however ...

**... there is no magic wand !**



- Visual observation (human eye) remains essential,
- Assignment of RwyCC (downgrade/upgrade) is not a fully automated process!
- Final decision always relies on expert judgement & training and ...
- there is **currently no standard** for Runway Condition Assessment Equipment.



Thanks for your attention

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