

# Coming soon: a new global format for runway surface conditions

OPSGROUP Team  
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ICAO's new Global Reporting Format methodology comes in on November 4, 2021, but a few authorities have decided to implement it sooner than that.

So here is a quick rundown on what GRF is, and what the requirements are for implementing it.

## Runway Excursions

We have talked about these before. So have ICAO. They are a big deal, but they shouldn't be. Or rather, **they shouldn't still be happening.**

Despite numerous incidents, accidents, reports, mitigation plans, you name it, runway excursions are still one of the most common (and often most dangerous) aviation events that are occurring.

A runway excursion is any lateral or longitudinal overrun (not due to any system or component failure or malfunction, or because of an abnormal runway contact).

The primary causes for runway excursions are pretty much an unstable approach was flown, or proper performance calculations weren't done. **Or a combination of both.**



The arrestor system doing its job nicely here

A study of commercial aircraft accidents between 1999 and 2019 showed that **16% of all fatal accidents and 36% of all hull loss accidents** were due to runway excursions.

So, if we can stop them from happening, a lot of aircraft and people will be saved.

### What is GRF?

GRF stands for '**Global Reporting Format**' and it is a new methodology which ICAO are implementing which aims to standardise how **runway surface conditions assessments and reporting** is done.

The issue in the past is that some places still give braking coefficients (not really handy because it means different things for different aircraft). Some places were not really assessing surface contamination properly, and some pilots were not really understanding the implications of what they were being told.

### RCAM

So GRF will use **RCAM - a runway condition assessment matrix** - and this will give pilots a runway condition code.

### 1-6. Nice and easy.

The code is determined by an assessment of what it is contaminating the runway. Snow, ice, water, spilt tomato soup... and then a downgrade assessment criteria is applied. This looks at how the contaminant

will impact the deceleration and the directional control of aeroplanes.

It is simplified. No more coefficients and frictions. Just simple “yep, that’s slippery and slide-y” assessments. Pilots will also give braking action reports, rating the action they experience from “Good” down to “Less than Poor”.

This matrix ties in with the new Snowtam reporting format which you can read about [here](#).

## Runway condition assessment matrix (RCAM)

Source: ICAO Document 9981 PANS -ADR

| 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> </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 3mm depth)</li> </ul> Up to and including 3mm depth: <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                     | -15°C and lower outside air temperature: <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> More than 3mm depth: <ul style="list-style-type: none"> <li>Dry snow</li> <li>Wet snow</li> </ul> Higher than -15°C outside air temperature <sup>1</sup> : <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                     | More than 3mm depth of water or slush: <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>2</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.

ICAO 9981 PANS-ADR contains the RCAM info

### **Who does it impact?**

It impacts a lot of people because it is not just a case of “here is a new format, go”.

**Airport authorities** will be required to train their staff to ensure they are aware of how to carry out the assessments and to ensure reporting is standardised.

**Operators** will need to ensure their staff (flight planners and pilots) are aware of the new format, and more importantly – that they are aware of why and how to use it!

**Pilots** will also need to familiarise themselves with it, and ensure they have a decent grip on what the assessments mean, how to apply them to their performance calculations, and also **how they too can assist in the reporting.**

### **What’s the official source?**

ICAO Annex 14. Or rather **amendment 13-B to Annex 14.**

Here is the amendment letter.

Here is the main ICAO page for all things GRF.

The U.K. CAA GRF page has a nice summary of all the official references too.





**November 4, 2021**

This is the date to know because this is the implementation date. However, familiarising yourself with all the info on it before then might be a good idea because **several authorities have already implemented this.**

NAV CANADA and EASA have both brought it in on **August 12, 2021**

EASA have a bunch of handy info on it from how it was developed to Q&As.

And here is NAV CANADA's page on it.

The FAA have their own project - TALPA - which has pretty much already implemented exactly this so you might not notice much of a change.



### Bottom line

- **Pilots** should familiarise themselves with the new format and understand what it means and how to use it.
- **Operators** should ensure all their staff are trained on it (and throw in some additional unstable approach, excursion mitigation and performance calculation training and awareness too if you fancy).
- **Airports and authorities** should be ensuring they are implementing the new format, and training their staff on its use and importance.

Hopefully this helps **reduce the number of runway excursions** due to contamination and performance issues. Of course, for this to work we need to make sure we are also flying a stabilised approach, and flying one to the runway we did the performance calculation for...