SNOWTAMS slip into a new style

OPSGROUP Team
10 February, 2021

ICAO will be **updating the format of SNOWTAMs** later this year – the special issue Notams that deal with surface condition reports and contaminated runways. They have published updated guidance on how SNOWTAMs should be issued when the changes take effect on November 4, 2021.

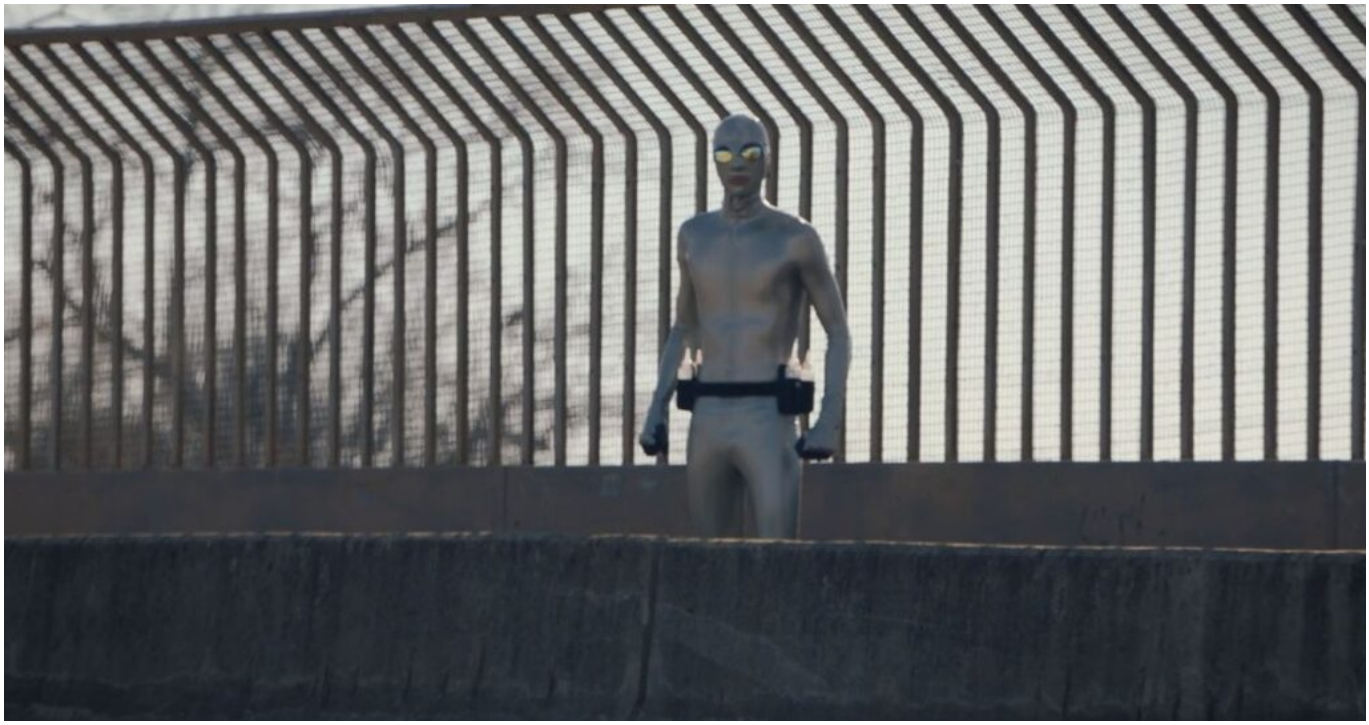
Here's a summary of what's changing, what the new style SNOWTAM will look like, plus a handy chart to help you decode them…

The Friction Task Force

There is such a thing, and we can only assume they wear skintight suits and body surf down runways to measure the friction. Anyway, they make recommendations on global reporting formats and also how to assess runway surface conditions.

It is quite a big thing. A lot of accidents happen because **runway friction is not reported correctly**. Or rather, pilots don't understand it/choose to ignore it. Just ask (several) crews flying into UEEE/Yakutsk about it.

But if you check out the RCAM (Runway Condition Assessment Matrix) below, you will notice that offering a **braking action** is the preferred method nowadays. **Friction coefficients** are not so useful.



Friction Task Force Leader

What is a SNOWTAM?

It is a special series Notam that provides a surface condition report to let pilots know what is on the runway, how much of that is on the runway, and what they can expect their airplane to do (braking wise) on said runway.

So, it is something that basically **tells the pilot: “Watch out, slippery!”** in a rather complicated sort of way.

SNOWTAMS use metric units, and a bunch of codes for deciphering. More about that later on.

What are ICAO changing?

As of 4 November 2021, the **maximum validity of a SNOWTAM will be 8 hours**. Currently they are 24 hours and a lot can change in that time meaning you have to try and discover what is still valid and relevant and what is not.

With the new ones, if they don’t say anything different after 8 hours then you can assume the runway surface condition is good and normal again. If anything changes, they will release a new one which will automatically replace the old one.

Each SNOWTAM will get its own serial number for identifying it.

What else is in the Guidance?

TTAAiiii CCCC MMYYGGgg (BBB)

Yep, that is written in it. It is an abbreviated heading demonstrating how certain things should be written. For example:

GG EADBZQZX EADNZQZX EADSZQZX

170540 EADDYNYX

SWEA0154 EADD 02170535

(SNOWTAM 0154

EADD
02170535 09L 6/6/6 NR/NR/NR NR/NR/NR DRY/DRY/DRY 02170515 09R 5/2/2 100/50/75 NR/06/06 WET/SLUSH/SLUSH 02170500 09C 2/2/2 75/75/50 06/12/12 SLUSH/SLUSH/SLUSH 40

DRIFTING SNOW. RWY 09R CHEMICALLY TREATED. RWY 09C CHEMICALLY TREATED.)

This is an example of how the **new style SNOWTAM will look**. Not a huge difference to the old ones, but here is a decode for you anyway.

- **GG EAD** etc etc is who produced it. Not super relevant for pilots.
- Snowtam **0154** is the serial number of the Snowtam
- **EADD** is where we get interested. That is the airport identifier. Issued on the 17th February at 0535
- Runway 09L
- It then gives the runway condition code for each runway third, as determined by the **RCAM** (runway condition assessment matrix). 6/6/6/ means dry/dry/dry.
- Next up is the percentage coverage. **NR** means less than 10% or dry. Hence the many NRs
- This SNOWTAM then moves onto 09R because frankly 09L was quite boring and dry.
- 09R is 5/2/2 (good, medium-poor, medium-poor according to RCAM). 100% covered, 50% covered, 50% covered) and NR/06/06 is the depth – dry/ 6mm/6mm of wet/Slush/Slush
- Then it moves onto another runway…. blah blah blah

The last bit is another change – this gives you **“Situational Awareness”** – a free text (i.e. real human language) section reporting other important stuff you might want to know.

A decoding device

We aren’t going to be there to decode for you, so here is a decoding device we made earlier (by copying the ICAO one and adding some nice colours).

You might also want to download something like the **SNOWTAM app** on your smartphone (just make sure whatever you use is correct against your company manuals).

DECODING A SNOWTAM - WHERE IT IS TALKING ABOUT	
ITEM A	**RBCA -** THE 4 LETTER ICAO IDENTIFIER FOR THE AIRPORT. Rebecca International
ITEM B	**12161300 -** THE DATE AND TIME. December (12) the 16th (16) at 1300z
ITEM C	**09L -** THE RUNWAY. They always use the lower number. So you aren't going to see a 27R as well. This is the SNOWTAM way.

DECODING A SNOWTAM - WHAT IT IS TELLING YOU	
ITEM D	**3/2/6 -** THE RUNWAY CONDITION FOR EACH THIRD. Check out RCAM below.

RUNWAY CONDITION CODE	RUNWAY SURFACE DESCRIPTION	AIRPLANE DECELERATION OR DIRECTINAL CONTROL OBSERVATION	PILOT REPORT OF BRAKING ACTION
6	DRY		
5	FROST WET - visible dampness or moisture up to and including 3mm *Up to and including 3mm: SLUSH / DRY SNOW / WET SNOW*	*Braking deceleration normal for wheel braking effort applied AND directional control is normal*	**GOOD**
4	*OAT -15degC and lower:* COMPACTED SNOW	*Braking deceleration OR directional control is between Good and Medium*	**GOOD TO MEDIUM**
3	WET (slippery when wet) DRY/WET SNOW ON TOP OF COMPACTED SNOW (any depth) *More than 3mm: DRY SNOW / WET SNOW* *OAT higher than -15degC: COMPACTED SNOW*	*Braking deceleration is noticeably reduced for the wheel braking effort OR directional control is noticeably reduced*	**MEDIUM**
2	*More than 3mm: STANDING WATER / SLUSH*	*Braking deceleration OR directional control is between Medium and Poor*	**MEDIUM TO POOR**
1	ICE	*Braking deceleration OR directional control is significantly reduced*	**POOR**
0	WET ICE / WATER ON COMP SNOW DRY/WET SNOW ON ICE	*Braking deceleration OR directional control is minimum or uncertain*	**LESS THAN POOR**

DECODING A SNOWTAM - MORE WHAT IT IS TELLING YOU	
ITEM E	**NR/25/75 -** PERCENT COVERAGE. NR (<10% or dry), 25 (10-25%), 50 (26-50%), 75 (51-75%), 100 (76-100%)
ITEM F	**05/115/195 -** DEPTH OF CONTAMINANT - 2 OR 3 DIGITS. 05 for 5mm. 115 for 115mm etc
ITEM G	**SLUSH/SNOW/ICE -** TYPE OF CONTAMINANT. For each third.

DECODING A SNOWTAM - SITUATIONAL AWARENESS STUFF	
ITEM H	**35 -** RUNWAY WIDTH CONTAMINATED (if less than published width)
ITEM I	**RWY 09L REDUCED TO 2000 -** Info on runway length reduction will be written
ITEMS J-O	Other need to know info on the horrible weather conditions
ITEMS P-R	Conditions of other movement areas - Aprons and Taxiway
ITEM T	Some plain language remarks

Why these changes?

Well, in order to **make SNOWTAMS better**, because they are fairly important. You might get some frosty toes if you step in a puddle of slushy snow, but you're going to get more than cold feet if you go skidding off the end of a runway.

SNOWTAMs are there to **make winter weather safer**. They give **critical information about the state of the runway**, and this should be plugged into whatever performance calculating device your airplane needs you to use so that you can see whether you will stop before, or after, the end of the runway.

Winter Is Coming

Declan Selleck
10 February, 2021

"**Well, we have a question for you**." The New York Center controller seemed amused.

"Go ahead," I replied, my voice made uneven by the moderate turbulence we were bouncing around in. As I answered, I cast another look over my shoulder at the ice on the wings. **The Dash-8 boots were doing their job, at least for now**. The aircraft took on a bit of shudder as the props flung ice unevenly off of the blades.

The Center controller delivered the news with a mixture of ironic humor and pity. "Williamsport wants to know if you want them to plow the runway. They say they are closed currently. They have four inches of snow on the runway, but there is a hard crust of ice on top."

I quickly retrieved the flight release and rifled through the six foot paper scroll to find the NOTAMs. Nothing about the airport being closed, thank Zeus. At least I didn't miss something big like that. Dispatch should have known—but here we were, halfway between Philadelphia and Williamsport, in and out of freezing rain. I eyed the fuel gauges critically. Plenty left to get there and fly back, if need be. At least there was that.

"Well yeah," I told the controller. "Plowing the runway would be helpful."

That night ended with a circling approach to minimums through a narrow valley in light freezing rain mixed with snow. The First Officer flew the approach perfectly, and thanks to the superior stopping power of the Dash 8 we had plenty of slick runway left to play with. Just another Northeast U.S. winter night—par for the course from November until March.

Winter is coming. In some parts of the world, winter is already here and people are insistent on staying inside on top of their twin mattress. However, for pilots, they still have to brave the weather. Flying always brings challenges, but winter supplies extra problems that separates mere pilots from imaginative problem solvers. Problem solving must always be wrapped in a healthy rind of risk analysis. When things go bad in winter weather, they often go bad in a big way.

The accident record is filled with examples of the problems that ice and snow can cause. The American

Eagle ATR in Indiana in 1994 was brought down by the crew's lack of appreciation for the extreme effects of super-cooled large droplets (SLD). In 2005, Southwest Airlines slid off of the end of a slick runway at Chicago Midway. There have been icing induced loss of control events the world over and a few aircraft seem to slip off of the taxiway every winter. Sometimes, simply the additional worry and workload posed by extreme winter weather can add risk. A crew can find themselves rapidly being overcome by events, leaving little time to make decisions in a highly dynamic environment.

Technology has come a long way in helping to mitigate the risks that winter can pose. There are now predictive charts for SLD that pilots can examine prior to flight. Deice and Anti-ice fluid technology has improved in past years; there are now three different types of fluid available for use, each tailored for a specific application. The holdover times (the amount of time that fluids remain effective) are revised on a yearly basis as formulations change and the science improves. Some airports are even experimenting with large heaters and infrared deicing technology. Predictive weather tools are much better as well, leading to proactive cancellations that allow aircraft to be positioned for relatively rapid system recovery once a major winter storm has passed.

But there are still problems … Even the best anti-icing fluids can rapidly lose effectiveness in the right conditions; temperatures near freezing with high humidity makes for large, wet flakes that can quickly saturate even the most robust Type 4 fluids and render them useless. Weather systems can capriciously change course with little warning, meaning the difference between a snow apocalypse and a mild dusting of white. Winter is expensive too, with deicing and anti-icing fluids costing more per gallon than jet fuel. Duty days get longer, crews get fatigued, schedules lag and dispatchers become swamped with work. There is nothing more expensive than operating a late airline, and late is often the rule rather than the exception when it comes to winter operations.

So, what is the key to safe winter operations? Planning is essential, but so is flexibility. Many airports have instituted gate hold programs for deicing operations, which helps prevent needless burning of jet fuel on the taxiway. Proactive assessment is key. Knowing the conditions at the destination prior to departure can mean the difference between a successful outcome and tens of thousands to dollars of expense for a divert to an alternate. Caution is the most important concept. Aircraft performance numbers are important, but takeoff and landing distance data should be taken with a grain of salt: it is not uncommon for conditions to vary significantly along the runway length, especially at smaller airports with limited snow removal capabilities.

Planning and caution can mean the difference between a successful, safe operation and having to have a crew have to get creative in the middle of the night. Winter is coming. Time to get ready.