

Runway Surface Conditions Assessment and Reporting



Runway Contamination Assessment Trial

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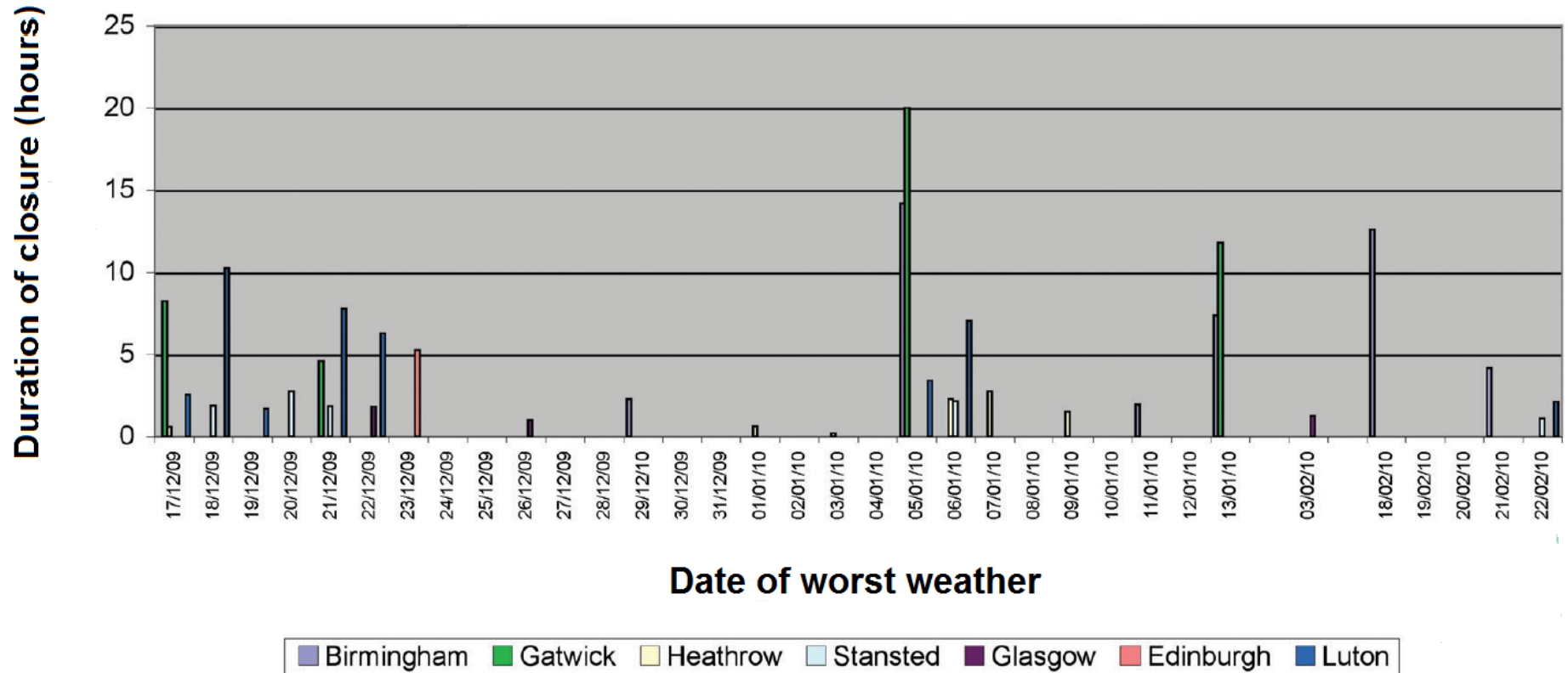
UK CAA

DGAC France - 31 March 2016

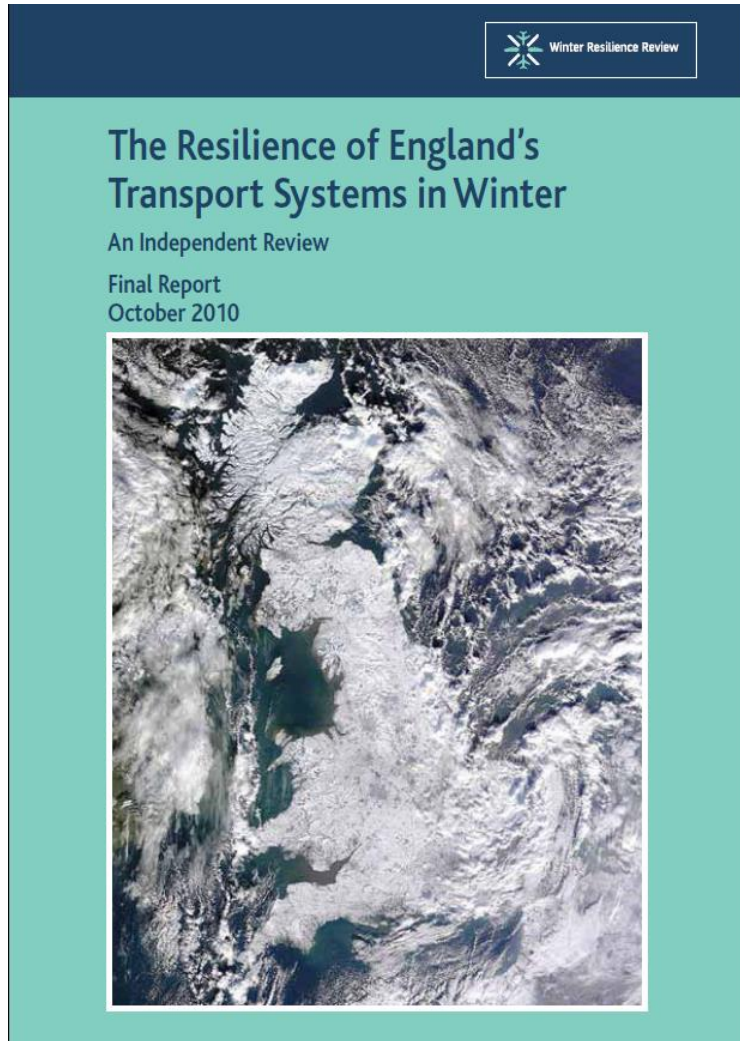
Widespread disruption Winter 09/10



Runway closures during Winter 2009/10



Government response to public criticism



The Independent Review of Winter Resilience was announced by the Secretary of State for Transport in March 2010, to identify practical measures to improve the response of England's transport sector – road, rail and air – to severe winter weather.

Winter 2009/10 Review Meeting

Purpose

- Following severe disruptions, review and update existing information for operators.
- Publish operations documents for winter 2010 by the end of September.
- Ensure a clear winter operations policy is communicated across UK.

Result

- Reporting contamination by % coverage, type of contaminant, and depth for each third of the runway.

Reporting of Contamination Information

This was published Sept 10 for all ATSU to follow and has now been adopted by most aerodromes

	Touchdown Zone			Mid Point			Stop End		
Runway	% Cover	Type	Depth	% Cover	Type	Depth	% Cover	Type	Depth
xx									
yy									

Information to be added to ATIS etc. when contamination reported

Runway Contamination Assessment Trial 2010-11

Objective


- To test how the quality of data passed to operators' crews could be improved by the adoption of an enhanced assessment format, based on FAA TALPA-ARC Matrix, using standard phraseology to describe estimated braking action.
- Trial took place at BHX, EDI, STN & PIK
- Very limited results due to lack of snow.

Runway Braking Action Assessment Table

Depth	Water	Slush	Snow (Wet)	Snow (Dry)	Compacted Snow (any depth)	Ice/Rime	Frost
↑ >19mm	Flooded	STOP	STOP	STOP	Warmer than -15C Medium -15C and Colder Good to Medium	Poor	N/A
19mm >13mm	Flooded	STOP	STOP	STOP			
13mm >3mm	Medium To Poor	Medium to Poor	Medium	Medium			
3mm 0mm	Good	Good	Good	Good			Good
	See over for cautionary note ref 3 Kelvin Rule						
Dry	The runway is not affected by Water, Slush, Snow, Ice or Frost						

Runway Contamination Assessment Trial 2011-12

Trial ran from 1 Nov 2011 to 31 Mar 2012



Same objectives as before
17 Aerodromes across the UK
Limited results again

Runway Contamination Assessment Trial 2011-12

Newcastle

Airline report	ATC report	Pilot report	Time	Ops report	State
4 th Feb 2012					
	Nil	Nil	14.23	Wet x 3 / 100% x 3 / 2mm x 3 /	
	Nil	Nil	15.41	Slush x 3 / 100% x 3 / 2mm x 3 /	
	Nil	Nil	16.29	Slush x 3 / 100% x 3 / 4mm x 3 /	
	Nil	Nil	16.30	Slush x 3 / 25% x 3 / 2mm x 3 /	
	Nil	Nil	17.15	Slush x 3 / 100% x 3 / 3mm x 3 /	
	Nil	Nil	18.49	Slush x 3 / 75% x 3 / 2-3mm x 3 /	
	Nil	Nil	19.05	Slush x 3 / 100% x 3 / 2-3mm x 3 /	
	Nil	Nil	20.08	Compact SN x 3 / 15% 20% 60% / 3mm x 3 /	
	Nil	Nil	20.31	Compact SN x 3 / 15% 20% 60% / 2mm x 3 /	
	Nil	Nil	21.33	Compact SN x 3 / 10% 20% 50% / 2mm x 3 /	
	Nil	Nil	22.56	Compact SN x 3 / 10% 20% 50% / 2mm x 3 /	
5 th Feb					
	Nil	Nil	00.06	Compact SN x 3 / 10% 20% 50% / 2mm x 3 /	
	Nil	Nil	01.18	Compact SN x 3 / 10% 20% 50% / 2mm x 3 /	
	Nil	Nil	02.41	Compact SN x 3 / 10% 20% 50% / 2mm x 3 /	
	Nil	Nil	05.20	Compact SN x 3 / 10% 20% 50% / 2mm x 3 /	
	Nil	Nil	05.50	Compact SN x 3 / 10% 20% 50% / 2mm x 3 /	
	Nil	Nil	06.45	Compact SN x 3 / 10% 20% 50% / 2mm x 3 /	
	Nil	Nil	07.57	SN – Slush x 3 / 20% x 3 / 3mm x 2 – 6mm x 1 /	
	Nil	Nil	09.18	Slush x 3 / 15% 20% 60% / 2mm x 2 – 3mm x 1 /	
	Nil	Nil	11.13	Slush x 3 / 20% x 3 / 2mm x 2 – 3mm x 1 /	
	Nil	Nil	12.42	Wet x 3	

No PIREPS

No PIREPS

Runway Contamination Assessment Trial 2012-13

- Trial ran from 1 November 2012 to 31 March 2013
- 17 Airports with the same objectives as in previous years
- Open to all aircraft operators.



Runway Contamination Assessment Trial 2012-13

- During periods of winter ops and runway contamination crew hear “Good, Medium or Poor” as an indication of Estimated Braking Action
- Pilot feedback is very important and engagement from operators vital
- ATC if appropriate, ask for PIREP once aircraft has vacated the runway
- Trial team to use pilot feedback and FDM data to help draw conclusions.

Runway Contamination Assessment Trial 2012-13

APPENDIX G – ATCO QUESTIONNAIRE – Winter 2012/13

Use this section to record periods of contaminated runway operations

DATE	WATCH
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Q1 ATC supplied data

ATIS LETTER/TIME		
MET VIS / RVR		
TEMP / DEW POINT		
QNH		
PRECIPITATION	Y / N	
PRECIPITATIONTYPE		

Comments

Q2 If Runway was contaminated

	TD	MP
PERCENT COVERED		
TYPE OF DEPOSIT		
DEPTH OF DEPOSIT		

Use this section per a/c landing – a separate record to the first section may be used

Q5a What estimate of braking action was passed to the aircrew?

Q3 Compared with the previous wint

SIGNIFICANTLY BETTER	
SLIGHTLY BETTER	
THE SAME	
SLIGHTLY WORSE	
SIGNIFICANTLY WORSE	

Flt Number					
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Note "Callsign, were the estimated braking actions as as reported"

Q4 Based on your participation in the action phrase is an improvement

YES	
POSSIBLY	
NO	
TASK DIFFICULTY	

Q5b What was their response to the question?

Use this section per a/c landing – a separate record to the first section may be used

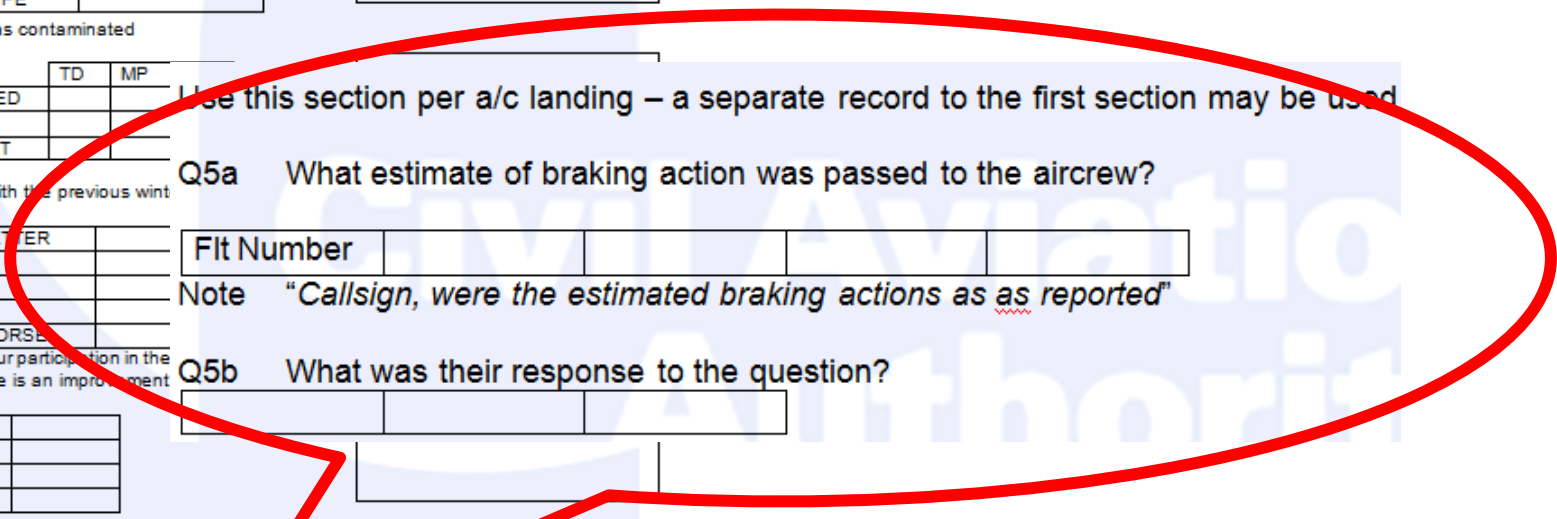
Q5a What estimate of braking action was passed to the aircrew?

Flt Number					
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Note "Callsign, were the estimated braking actions as as reported"

Q5b What was their response to the question?

Q6. Any other relevant comments?



Runway Contamination Assessment Trial 2012-13

The weather arrived 😊

30 days with air transport disruption

17 aerodrome reports

> 500+ landings

>60% agreement between runway and pilot reports

	Month	Date	Time	Type	Trial Est	Crew Est	Correlation
1	Dec	01-Dec	06:14	B738	GOOD	GOOD	SAME AS TRIAL
2	Dec	03-Dec	08:00	DH8D	GOOD	GOOD	SAME AS TRIAL
3	Dec	03-Dec	13:00	B738	GOOD	GOOD	SAME AS TRIAL
4	Dec	05-Dec	17:08	RJ85	GOOD	GOOD	SAME AS TRIAL
5	Dec	05-Dec	16:28	CRJ	GOOD	MEDIUM	WORSE THAN TRIAL
6	Dec	05-Dec	16:35	BA42	GOOD	GOOD	SAME AS TRIAL
7	Dec	05-Dec	18:16	DH8D	GOOD	GOOD	SAME AS TRIAL
8	Dec	05-Dec	18:51	DH8D	GOOD	GOOD	SAME AS TRIAL
9	Dec	05-Dec	19:18	A320	GOOD	GOOD	SAME AS TRIAL
10	Dec	05-Dec	19:28	A319	GOOD	GOOD	SAME AS TRIAL
11	Dec	05-Dec	20:35	B752	GOOD	GOOD	SAME AS TRIAL
12	Dec	05-Dec	21:53	DH8D	GOOD	GOOD	SAME AS TRIAL
13	Dec	05-Dec	22:02	J41	GOOD	GOOD	SAME AS TRIAL
14	Dec	05-Dec	22:09	A321	GOOD	GOOD	SAME AS TRIAL
15	Dec	05-Dec	22:27	J41	MED/GOOD	MED/GOOD	SAME AS TRIAL
16	Dec	05-Dec	22:32	J41	MED/GOOD	MED/GOOD	SAME AS TRIAL
17	Dec	05-Dec	22:58	J41	MED/GOOD	MED/GOOD	SAME AS TRIAL
18	Dec	05-Dec	23:13	B73G	MED/GOOD	MED/GOOD	SAME AS TRIAL
19	Dec	05-Dec	23:50	DH8D	MED/GOOD	GOOD	BETTER THAN TRIAL
20	Dec	06-Dec	02:25	B733	GOOD	GOOD	SAME AS TRIAL
21	Dec	06-Dec	02:37	B733	GOOD	GOOD	SAME AS TRIAL
22	Dec	06-Dec	06:24	ATR42	GOOD	GOOD	SAME AS TRIAL
23	Dec	06-Dec	08:26	B73G	GOOD	MED/GOOD	WORSE THAN TRIAL
24	Dec	06-Dec	08:40	A319	GOOD	GOOD	SAME AS TRIAL
25	Dec	06-Dec	09:10	A319	GOOD	GOOD	SAME AS TRIAL
26	Dec	06-Dec	10:42	B738	GOOD	GOOD	SAME AS TRIAL
27	Dec	06-Dec	11:45	B777	GOOD	GOOD	SAME AS TRIAL

FDR analysis

Boeing and Ryanair

Airbus and easyJet