

Airport Winter Operations

Reporting Winter Contaminants

Presented to: Airports and Airlines Winter Operations

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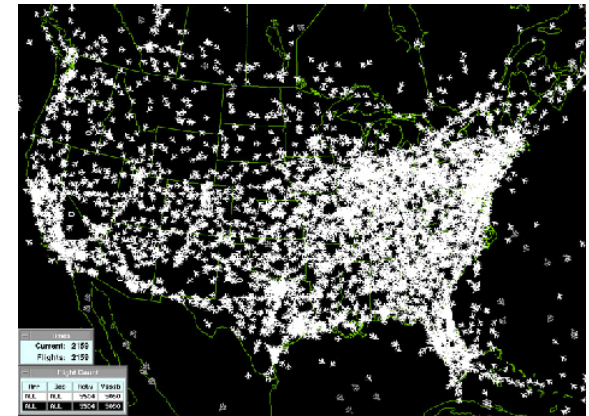




Global Storm Impact

FAA National Airspace System

- Balances air traffic demand with system capacity without affecting safety
- During severe weather situations, minimize the impact on the national airspace system, in collaboration with Air Traffic facilities and system users
- Liaison with international air traffic service providers



Individual Airport Impact



Minimizing Airport Impact by Planning

- Airports located where snow and icing conditions occur must prepare, maintain, and carry out a snow and ice control plan
- The plan must include instructions and procedures for:
 - Prompt removal or control of snow, ice and slush on each movement area
 - Positioning of snow off the movement area surfaces
 - Selection and application of authorized materials for snow and ice control
 - Timely commencement of snow and ice control operations
 - Prompt notification when any portion of the movement area is less than satisfactorily cleared

Current Runway Condition Reporting

- **Reliance on pilot braking action reports, friction measurements, and type of contaminant and coverage**
- **Unclear terms like “patchy” and “thin” frequently used**
- **Field Condition Reports frequently not updated and disseminated in a timely manner.**
- **Example: !FAI FAI RWY 1/19 PTCHY
THN PSR WEF 0910131530**

Current Landing Distance Calculations

- **Our regulations do not require contaminated runway conditions to be specifically considered in meeting the dispatch landing performance requirements.**
- **Manufacturers provide contaminated runway data on an advisory basis for airplane operators to use at their discretion.**
- **No requirement for a “before landing” performance assessment and no standard for a safety margin to be applied.**
- **No system that makes sure field condition reports are given in the same terms that the manufacturer’s data is in.**

Proposed Runway Condition Assessment Matrix

Airport Runway Condition Assessment				Pilot Reports (PIREPs) Provided To ATC And Flight Dispatch
Assessment Criteria		Downgrade Assessment Criteria		
Code	Runway Condition Description	Mu (μ) ¹	Deceleration And Directional Control Observation	PIREP
6	• Dry		-	Dry
5	<i>1/8" or less depth of:</i> <ul style="list-style-type: none"> • Water (Includes Wet or Damp) • Slush • Dry Snow • Wet Snow 	40 or Higher	Braking deceleration is normal for the wheel braking effort applied. Directional control is normal.	Good
4	<ul style="list-style-type: none"> • Frost <i>-15°C and Colder outside air temperature:</i> <ul style="list-style-type: none"> • Compacted Snow 	39	Brake deceleration and controllability is between Good and Medium.	Good to Medium
3	<ul style="list-style-type: none"> • Wet ("Slippery when wet" runway) • Dry Snow or Wet Snow (Any Depth) over Compacted Snow <i>Greater than 1/8" depth of:</i> <ul style="list-style-type: none"> • Dry Snow • Wet Snow <i>Warmer than -15°C outside air temperature:</i> <ul style="list-style-type: none"> • Compacted Snow 	30 to 39	Braking deceleration is noticeably reduced for the wheel braking effort applied. Directional control may be noticeably reduced.	Medium
2	<i>Greater than 1/8" depth of:</i> <ul style="list-style-type: none"> • Water • Slush 	29 to 30	Brake deceleration and controllability is between Medium and Poor. Potential for hydroplaning exists.	Medium to Poor
1	• Ice ²	21 to 29	Braking deceleration is significantly reduced for the wheel braking effort applied. Directional control may be significantly reduced.	Poor
0	<ul style="list-style-type: none"> • Wet Ice² • Water on top of Compacted Snow² • Dry Snow or Wet Snow over Ice² 	20 or Lower	Braking deceleration is minimal to non-existent for the wheel braking effort applied. Directional control may be uncertain.	Nil

Primary Columns

Airport Runway Condition Assessment	
Assessment Criteria	
Code	Runway Condition Description
6	<ul style="list-style-type: none"> Dry
5	<p><i>1/8" or less depth of:</i></p> <ul style="list-style-type: none"> Water (Includes Wet or Damp) Slush Dry Snow ← Wet Snow
4	<ul style="list-style-type: none"> Frost -15°C and Colder outside air temperature: Compacted Snow
3	<ul style="list-style-type: none"> Wet ("Slippery when wet" runway) Dry Snow or Wet Snow (Any Depth) over Compacted Snow <p><i>Greater than 1/8" depth of:</i></p> <ul style="list-style-type: none"> Dry Snow ← Wet Snow <p><i>Warmer than -15°C outside air temperature:</i></p> <ul style="list-style-type: none"> Compacted Snow
2	<p><i>Greater than 1/8" depth of:</i></p> <ul style="list-style-type: none"> Water Slush
1	<ul style="list-style-type: none"> Ice²
0	<ul style="list-style-type: none"> Wet Ice² Water on top of Compacted Snow² Dry Snow or Wet Snow over Ice²

Secondary Columns

Friction Coefficient (μ ₁)	Downgrade Assessment Criteria	Pilot Reports (PIREPs) Provided To ATC And Flight Dispatch
	Deceleration And Directional Control Observation	PIREP
40 or Higher	-	Dry
39 to 30	Braking deceleration is normal for the wheel braking effort applied. Directional control is normal.	Good
	Brake deceleration and controllability is between Good and Medium.	Good to Medium
29 to 21	Braking deceleration is noticeably reduced for the wheel braking effort applied. Directional control may be noticeably reduced.	Medium
	Brake deceleration and controllability is between Medium and Poor. Potential for hydroplaning exists.	Medium to Poor
20 or Lower	Braking deceleration is significantly reduced for the wheel braking effort applied. Directional control may be significantly reduced.	Poor
	Braking deceleration is minimal to non-existent for the wheel braking effort applied. Directional control may be uncertain.	Nil

Proposed Approach

- **Condition Code, which is based on contaminant type and depth, is primary information**
- **Manufacturer Performance Data and Field Condition Reports would use the same contaminant terms**
- **Pilots would have landing performance data based on the "Code" from the manufacturer in calculating necessary landing distance at the time of approach**
- **Example: !FAI FAI RWY 1 5/3/3 50% 1/8 IN DRY SNOW WEF 0910131530**

Effect of Proposed Approach

- **Standardized terminology, used for both field condition reporting and for pilot assessment of landing performance safety, will assist pilots in making better decisions and improve the safety of operations in adverse weather conditions.**
- **Pilots could make more informed decisions as to when takeoffs and landings were safe considering runway conditions and aircraft performance.**

2 Years of Validation

- **Winter 2009-2010 – 10 Airports; 2 Airlines**
- **Winter 2010-2011 – 25 Airports; 2 Airlines**
- **Made Small Changes to Matrix**
- **What Future Holds**

