Activities toward Runway Surface Condition Assessment

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AGENDA

1. Introduction
2. TALPA trial
3. JAPAN standard
4. Training
5. Issue

The 10 Snowiest Cities on Earth

1.	Aomori	792cm
2.	Sapporo	485cm
3.	Toyama	363cm
4.	St. John's Canada	332cm
5.	Quebec City Canada	314cm
6.	Syracuse USA	314cm
7.	Saguenay Canada	312cm
8.	Akita	271cm
9.	Rochester USA	251cm
10.	Buffalo USA	240cm

https://www.therichest.com/rich-list/the-biggest/the-10-snowiest-cities-on-earth/

1. Introduction

Introduction : Current practice in JAPAN

Airport

Snow/ice inspection

- Mean depth of snow
- Type of snow
- **Braking action by measuring device**
- Coverage etc.

Surface friction tester(SFT)

Bowmonk AFM2

Tapley meter

ATC

AIS

A/L

Pilot

NOTAM example

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160131 RJAAYNYX
(0162/16 NOTAMR 0161/16
Q)RJJJ/QQSIC/IV/M/A/000/999/
A)RJCH B)1601160131 C)UFN
E)S/I COND AS OF 1601160112
RUNWAY 12/30 TWY AND APN CONDITION
A2  B1  C3  D5   ←1ST 1/3 RWY
E2  F1  G1  H4   ←2ND 1/3 RWY
 I2  J1  K1  L3  ←3RD 1/3 RWY
M2  N2  O2
P2  Q3  R4
W3
RMKS 1)A.3MM B.1MM C.1MM
     2)P5,P6.....1
       P4.....3
       P2,P3,T3 THRU T7....5
       T1,T2,P1.....6
     3) 31/95/95
        SURFACE FRICTION TESTER)
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Braking Action

Good	1
Medium to Good	2
Medium	**3**
Medium to Poor	4
Poor	5
Very Poor	6

Mu value

Type of device

Introduction : Toward “GRF”

INVESTIGATION
- TALPA(FAA) Standard
- Chicago O’hare(ORD) Operation

ICAO MEETING
- Participation in ICAO FTF
- ICAO Global Reporting Format Symposium

ESTABLISHMENT OF Working-Group for IMPLEMENTATION OF “GRF”

Introduction : Working-Group

STUDY GROUP （since 2012.11～）

WORKING GROUP（since 2017.2～）

○ Participants:

JCAB (AD, ANSP , AIS, ACFT-OPS)
Aircraft operator (Japan airlines, All Nippon Airways etc.)
Airport operator （New Chitose Airport)

○ TOPIC

・Identify issues through analyzing the result of TALPA trial.
・Develop runway condition assessment procedures and training materials in Japan

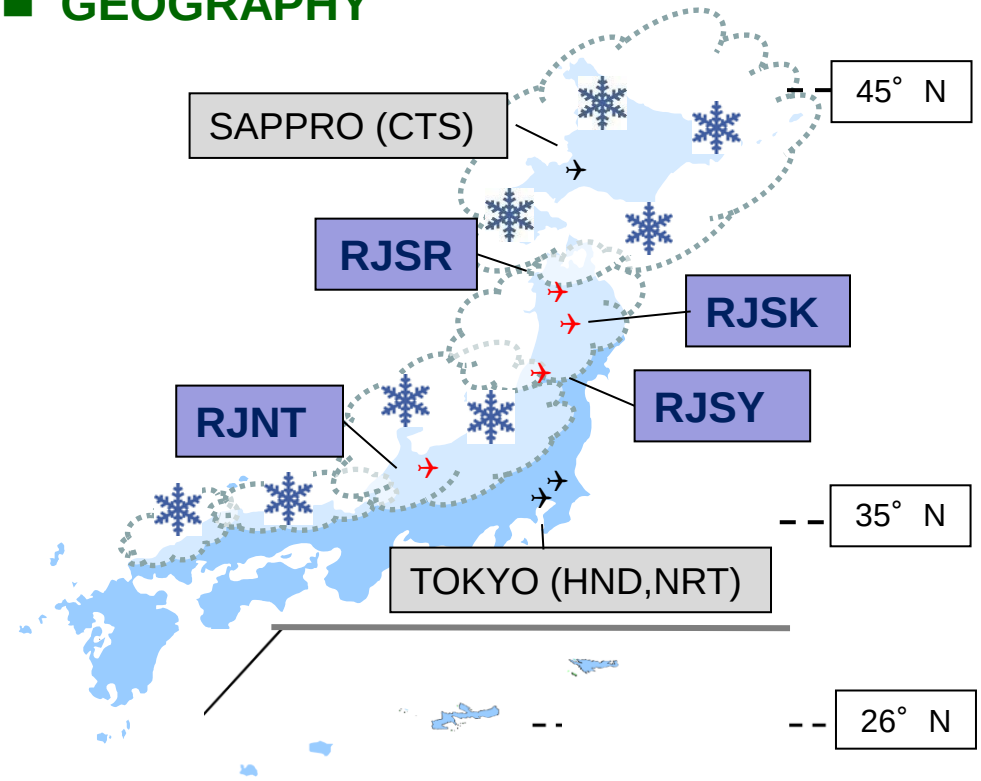
We’ve almost agreed on our standard !

2. TALPA trial

TALPA trial : Jan～Mar in 2017

Participated AD	RWY ※all grooved	Type of aircraft in use
RJSR / Odatenoshiro	2000×45m	B738
RJSK / Akita	2500×60m	A321、B788、B738、DHC8 .etc
RJSY / Shonai	2000×45m	A321、B767
RJNT / Toyama	2000×45m	B767、B738

■ GEOGRAPHY



■ METHODOLOGY

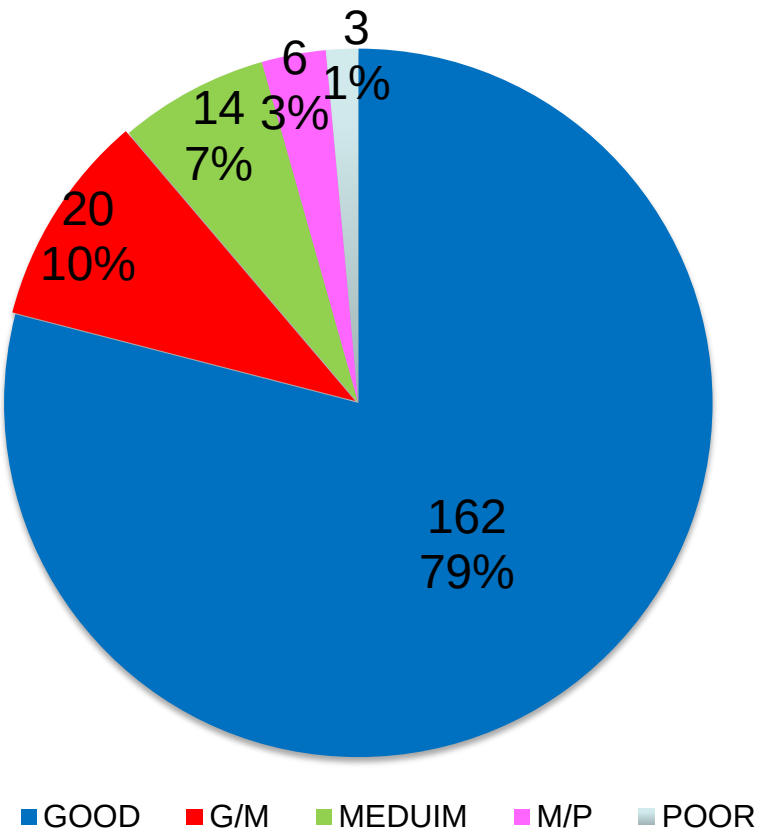
RWYCC
converted by Type(Snow & ice) & Depth
※ no consideration with "Coverage" & "Temparature"

Pilot B/A

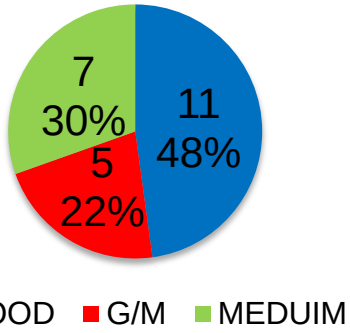
- Pilot B/A vs RWYCC
- Data analysis

“Pilot BA at converted RWYCC”

RYWCC「5」



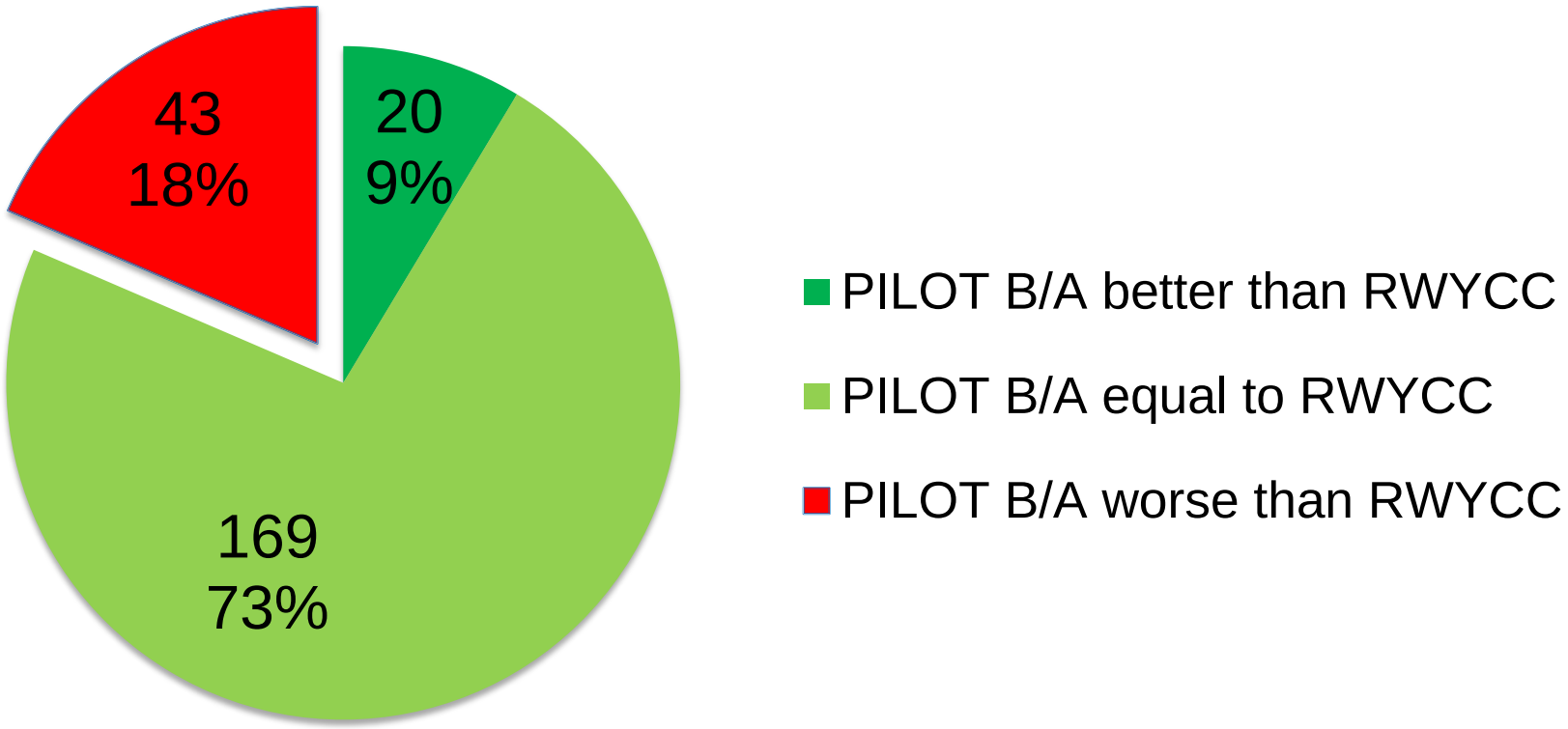
RYWCC「3」



RYWCC「1」

no consideration with coverage and OAT , no RWYCC “6” & ”4”

Summary ‘Pilot B/A vs RWYCC’



- 82% is conservative and equal to Pilot B/A
- 18% is optimistic to Pilot B/A

  ⇒ DOWNGRADE is expected by Airport operator

3. JAPAN standard

JAPAN standard : Present and new criteria

In Japanese ： **滑走路面状態評価等実施基準**
In English ： **Criteria for implementation of runway surface assessment** and other

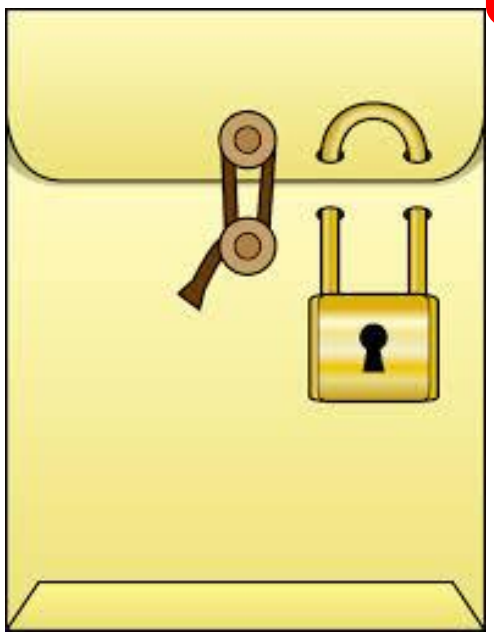
Current Airport Operational criteria

- snow and ice Inspection (void on 5 Nov 2020)

currently effective

New criteria

coming soon !



Applicable on 5 Nov 2020

JAPAN standard : Type of Contaminant

PANS-AD

1.1.3.4 g) Condition description for each runway third:
Table II-1-3. Assigning a runway condition code Runway condition description
“FROST” , “(slippery when) WET” , “WET” , ”STANDING WATER”

- No“FROST” on the runway according to survey to all airport operator.
  ※ already disseminated in AIP as differences from ICAO standards.
- Since maintenance level for runway surface kept highly, no MFL standardization and no report “slippery when WET”.
- No “WET” report during summer, due to airport operator workload.
- “STANDING WATER” is not expected with proper slope installed on a runway.

JAPAN standard : “Mu value” and “RWYCC”

ANNEX14 2.9.10 Recommendation –
“When friction measurements are taken as part of the assessment, the performance of the friction measuring device on compacted snow- or ice-covered surfaces should meet the standard and correlation criteria set or agreed by the State”

○ Report both “Mu value” and “RWYCC” due to:

- most domestic airline strongly depends on “RWY B/A” for calculating landing performance.
- some airline need information on “Mu value” for their own safety for a while.

JAPAN standard : Definition “Temperature”

PANS-AD Table II-1-3. Assigning a runway condition code
Runway condition description : COMPACTED SNOW
RWYCC「4」(outside air temperature minus 15 degrees Celsius and below)
RWYCC「3」(outside air temperature above minus 15 degrees Celsius)

Where/When do I measure temperature ?

No consideration on ground level temperature ?

Any specification on heat indicator ?

How do I judge when heat indicator is out of order ?

Solution

- Use OAT issued by Meteorological Official.
- Select RWYCC “3” unless OAT issued.

JAPAN standard : UPGRADE operation

PANS-AD

1.1.3.15 An assigned RWYCC 1 or 0 can be upgraded using the following procedures

1.1.3.16 Upgrading of RWYCC 1 or 0 using the procedures in 1.1.3.15 shall not be permitted to go beyond a RWYCC 3.

- Investigation with TALPA

"The upgrade operation was mainly set for the airport in frigid area, such as Alaska, where the runway surface is covered with ice and snow, during winter season"

- Consideration
  - Snow removal aggressively in each airport
  - Airlines accept being conservative with short runway

Conclusion

<u>Do not apply "UPGRADE" operation</u>

4. TRAINING

Training : Training materials

CHANGE

MATERIALS

From Investigation to Assessment

- Measuring ⇒ Evaluation
- Objective ⇒ Subjective

From Original to "GRF"

GUIDANCE

Document including operation details based on ICAO Cir329.

DVD

To help airport staff understand easier.

Training : DVD image ①

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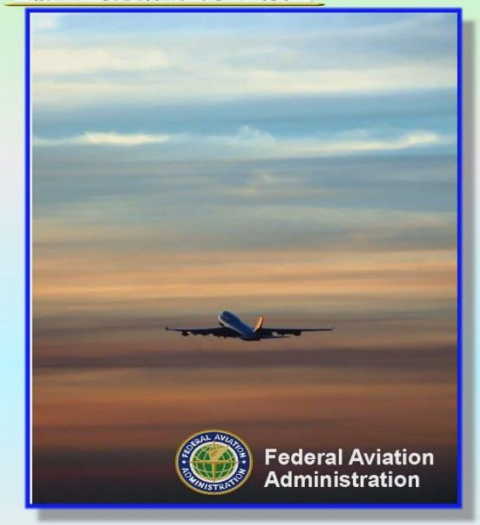
◆Background and concept RWYCC

滑走路面状態評価方式導入の背景

新滑走路状態評価方式訓練



Takeoff and Landing
Performance
Assessment
Aviation
Rulemaking
Committee
(TALPA ARC)

新滑走路状態評価方式訓練

国際民間航空機関（ICAO）

INTERNATIONAL CIVIL AVIATION ORGANIZATION

JAPAN Regulation : DVD image ②

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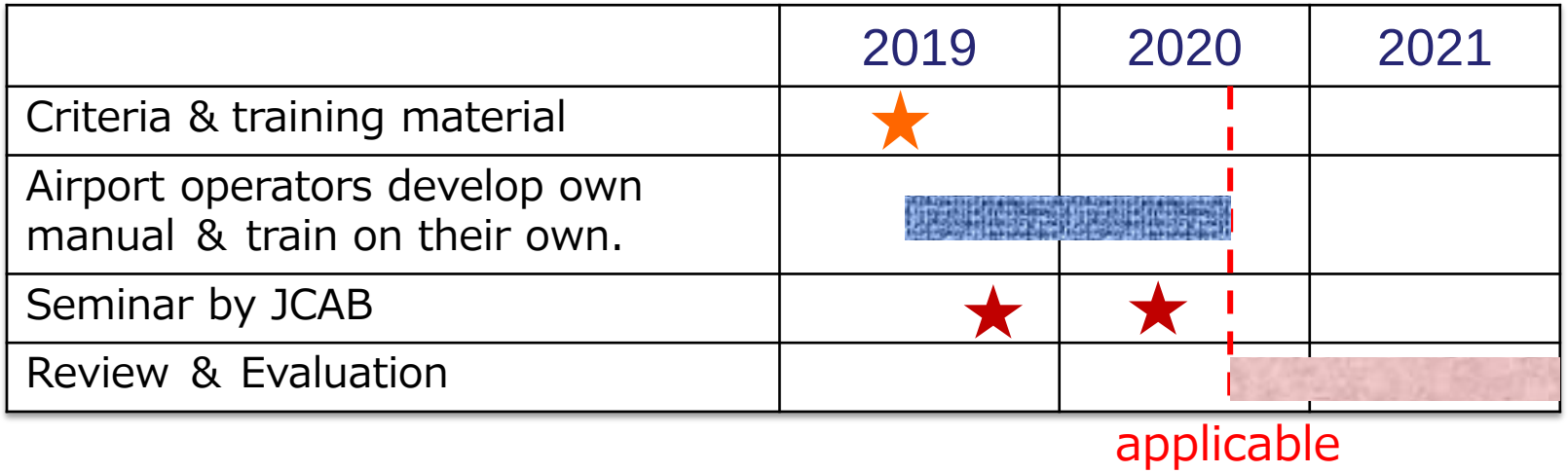
◆Differentiate ICE from COMPACTED SNOW

氷(Ice)

圧雪(Compacted Snow)

TRAING : Training schedule

Task	Time scale
Establish criteria	End of Q2 2019
Develop training material (Guidance & DVD)	End of Q2 2019
Airport operators develop own manual	After criteria issued
Airport operators train by themselves	After criteria issued
JCAB project “seminar for airport operator etc.”	End of fall
Review first year operation and evaluate criteria	



5. Issues

Issues : Ongoing

- Do Civil-Military joint-airport use RWYCC ?
- How do I apply the Downgrade properly ?
- The Criteria works well ?

Issues : Consecutive big events in 2020

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Handover NEW CHITOSE (CTS) operation from State to Private on 1 JUN

TOKYO Olympic Paralympic Games July ~ August

Implementation of “Global Reporting Format” on 5 NOV

Thank you for your attention !

https://tokyo2020.org