Airbus Runway Safety Technologies

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ICAO Global Runway Safety Symposium

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AIRBUS

2008

Where were we 9 years ago?

Today

How far have we come?

Tomorrow

Where are we going?

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Information & Preparation for Landing in 2008

CONFIGURATION FULL

ACTUAL LANDING DISTANCE (METERS)											
WEIGHT (1000 KG)			46	50	54	58	62	66	70	74	78
RUNWAY CONDITION	DRY		655	690	740	795	855	925	1000	1085	1170
	WET		940	1000	1060	1120	1180	1245	1315	1385	1460
	COVERED WITH	6.3 MM (1/4 INCH) WATER	1230	1320	1410	1510	1620	1730	1840	1960	2080
		12.7 MM (1/2 INCH) WATER	1200	1280	1370	1460	1560	1670	1780	1890	2010
		6.3 MM (1/4 INCH) SLUSH	1210	1280	1360	1440	1520	1610	1700	1810	1920
		12.7 MM (1/2 INCH) SLUSH	1180	1250	1320	1400	1480	1560	1650	1750	1850
		COMPACTED SNOW	1210	1280	1350	1420	1490	1570	1640	1710	1780
		ICE	2610	2730	2860	2990	3130	3270	3410	3645	3690

CORRECTIONS

	CORRECTION ON ACTUAL LANDING DISTANCE							
	dry runway	wet runway	runway covered with					
			1/4 inch water	1/2 inch water	1/4 inch slush	1/2 inch slush	compacted snow	ice
per 1000 ft above SL	+ 4 %	+ 4 %	+ 4 %	+ 4 %	+ 6 %	+ 6 %	+ 5 %	+ 6 %
per 10 kt headwind	No correction for headwind due to wind correction on approach speed.							
per 10 kt tailwind	+ 14 %	+ 20 %	+ 21 %	+ 21 %	+ 20 %	+ 20 %	+ 18 %	+ 27 %
forward C.G.	+ 2 %	+ 2 %	+ 6 %	+ 6 %	+ 6 %	+ 6 %	+ 6 %	+ 3 %
2 reversers operative	− 2 %	− 5 %	− 11 %	− 10 %	− 11 %	− 10 %	− 9 %	− 27 %
Per 5 kt speed increment (and no failure) add 10 % (all runways)								

NOTE : – THE ABOVE DISTANCES ARE GIVEN FOR USE IN FLIGHT
– BEFORE DEPARTURE REFER TO FCOM

Runway 28

- Center 140ft
  - 40% bare and wet
  - 50% wet snow trace
  - 10% compacted snow
- Remaining width
  - 100% dry snow 3 inches

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Information & Preparation for Landing Today

ICAO State Letter Ref.: AN 4/1.1.55-15/30

… the use of an enhanced ***global reporting format for assessing and reporting runway surface conditions***

The Goal

All over the world, flight crew should be able to receive the runway condition information and have it mean the same thing:

EGLL 02170055 09L 3/2/2 75/100/100 05/04/04
WET SNOW/SLUSH/SLUSH

Runway condition description	Runway condition code (RWYCC)
DRY	**6**
FROST **WET** (The runway surface is covered by any visible dampness or water less than 3 mm deep. **SLUSH** (less than 3 mm depth) **DRY SNOW** (less than 3 mm depth) **WET SNOW** (less than 3 mm depth)	**5**
COMPACTED SNOW (Minus 15°C and lower outside air temperature)	**4**
WET ("Slippery wet" runway) **DRY SNOW** (3 mm and more depth) **WET SNOW** (3 mm and more depth) **DRY SNOW ON TOP OF COMPACTED SNOW** (Any depth) **WET SNOW ON TOP OF COMPACTED SNOW** (Any depth) **COMPACTED SNOW** (Higher than minus 15°C outside air temperature)	**3**
STANDING WATER (Water of depth equal to or greater than 3 mm. **SLUSH** (3 mm and more depth)	**2**
ICE	**1**
WET ICE **WATER ON TOP OF COMPACTED SNOW** **DRY SNOW OR WET SNOW ON TOP OF ICE**	**0**

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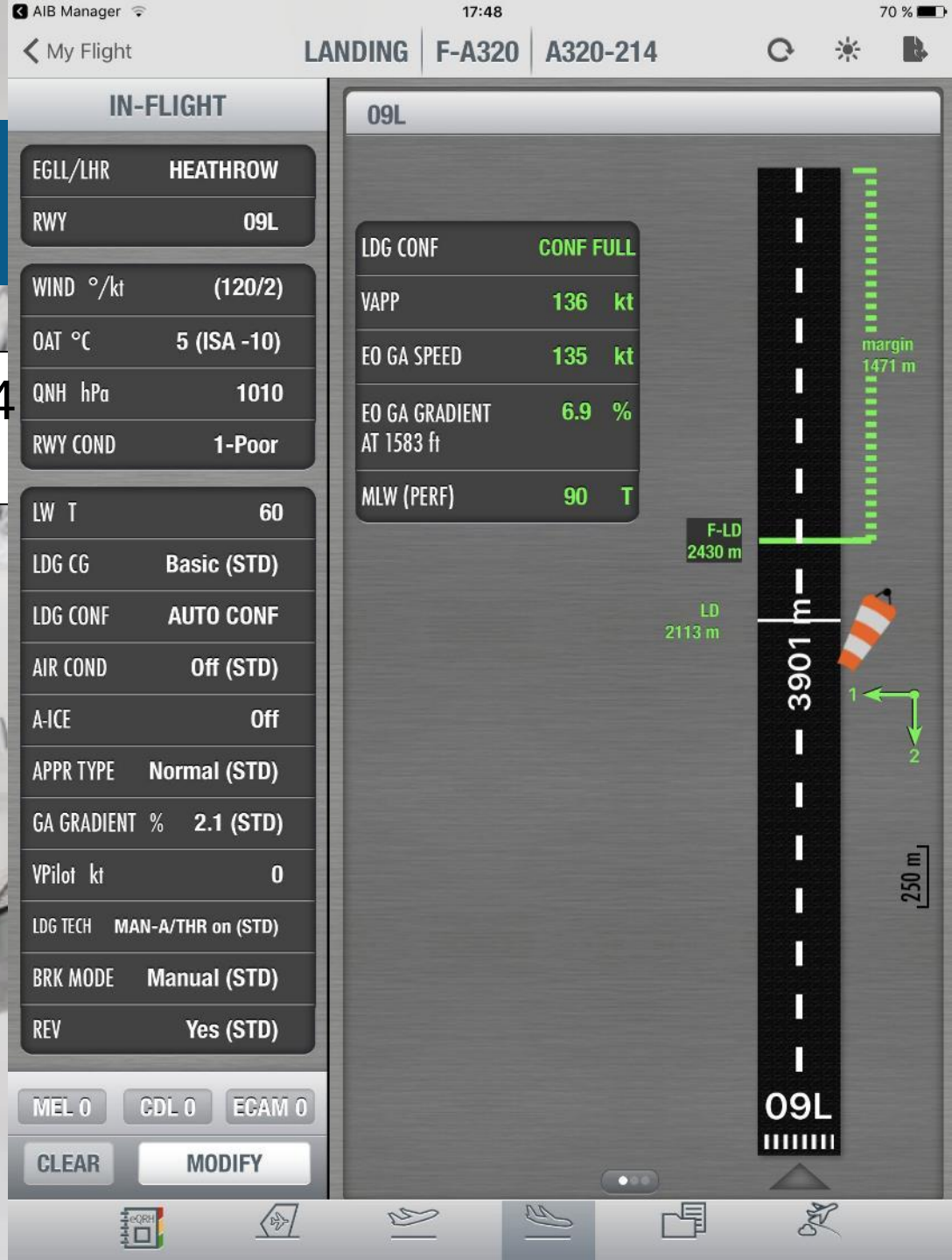
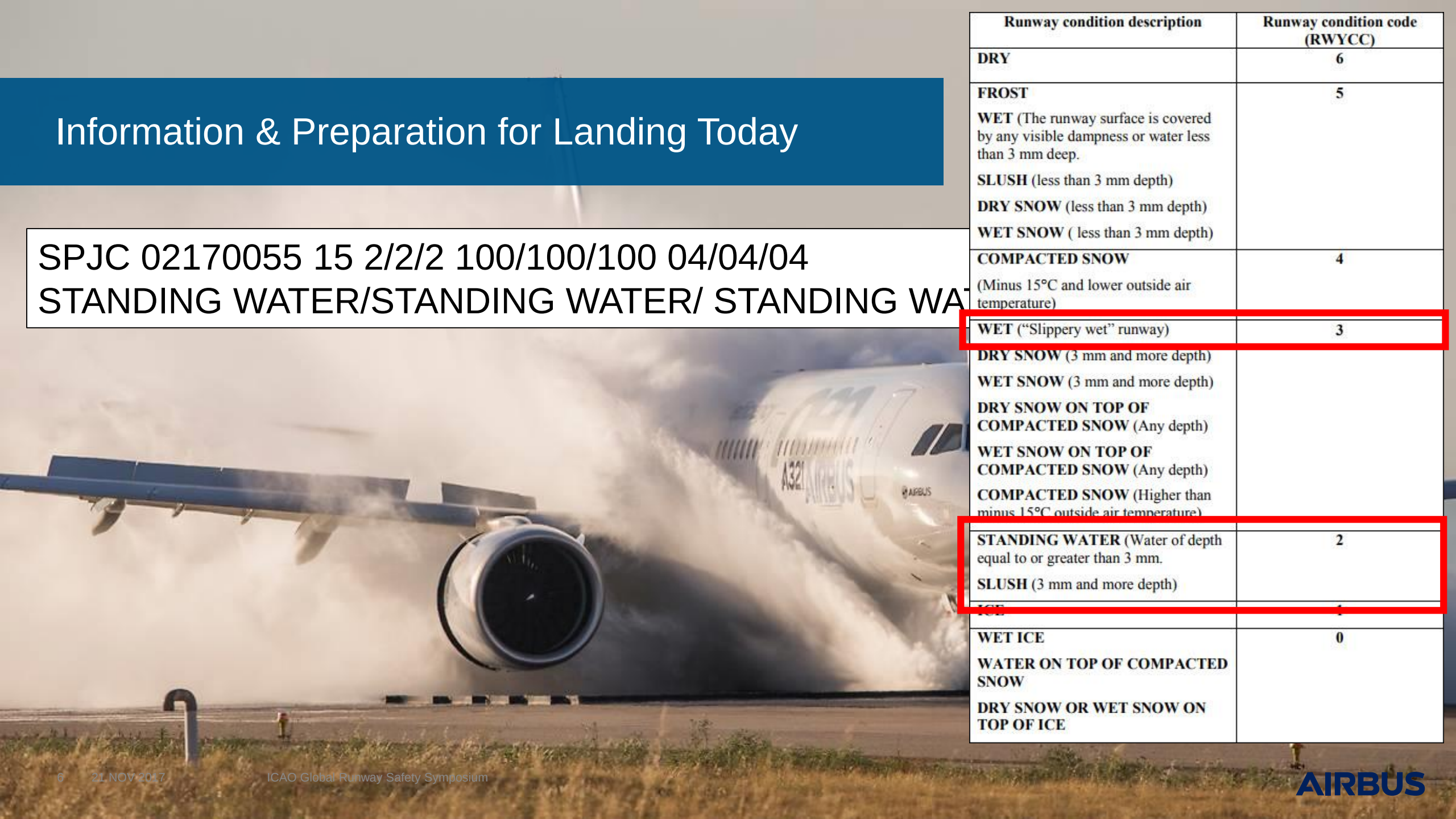
Information & Preparation for Landing Today

EGLL 02170055 09L 3/2/2 75/100/100 05/04/04
WET SNOW/SLUSH/SLUSH



Information & Preparation for Landing Today

SPJC 02170055 15 2/2/2 100/100/100 04/04/04
STANDING WATER/STANDING WATER/ STANDING WA



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Information & Preparation for Landing Tomorrow

1. For an airport to make a runway condition report, they need to close the runway

2. How “slippery” is the runway?

The interaction between contaminants and the runway are not always the same

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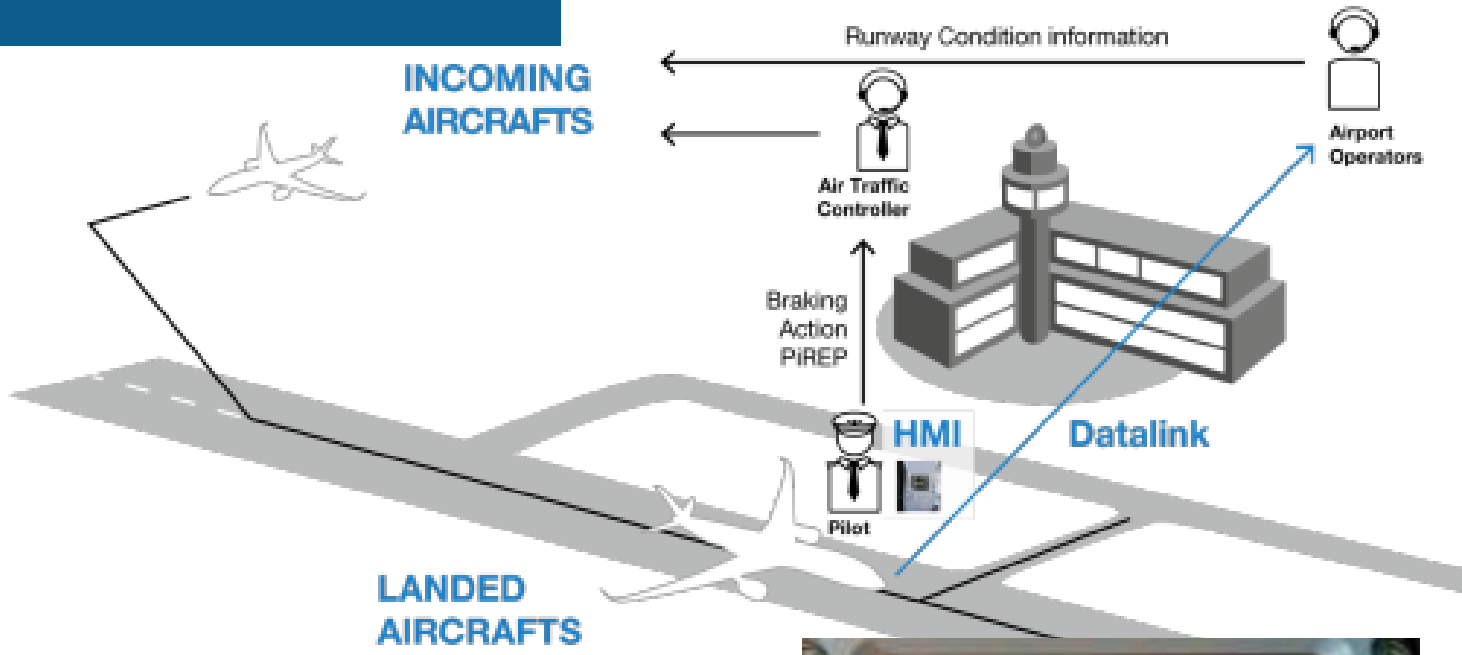
Aircraft as a Sensor for Slippery Runways

- **Feedback to the Pilot & Data to the Airport**

- Use the aircraft as a sensor to determine where on the runway slippery conditions are occurring and how slippery it was

- Display the information to the pilot to help with Pilot Reports

- Send data message to NAVBLUE servers for distribution to stake holders



AVAILABLE 2018

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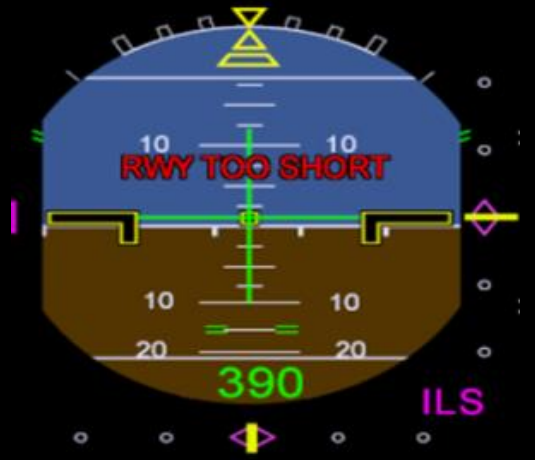
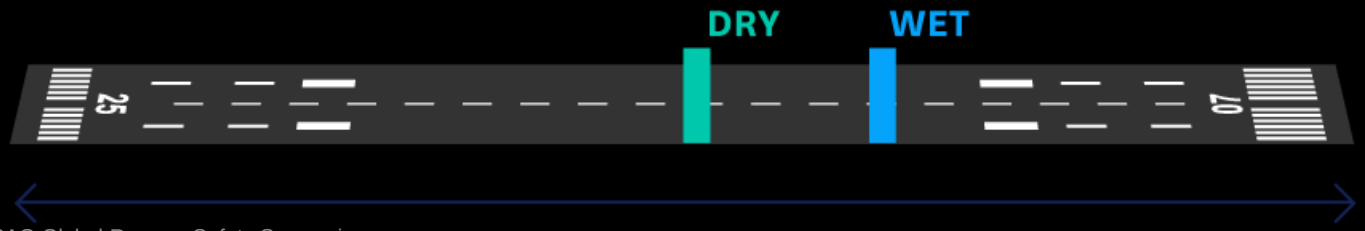
Runway Overrun Prevention System in 2008

RUNWAY
TOO
SHORT





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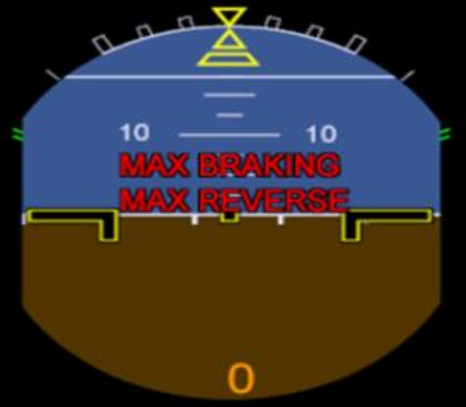
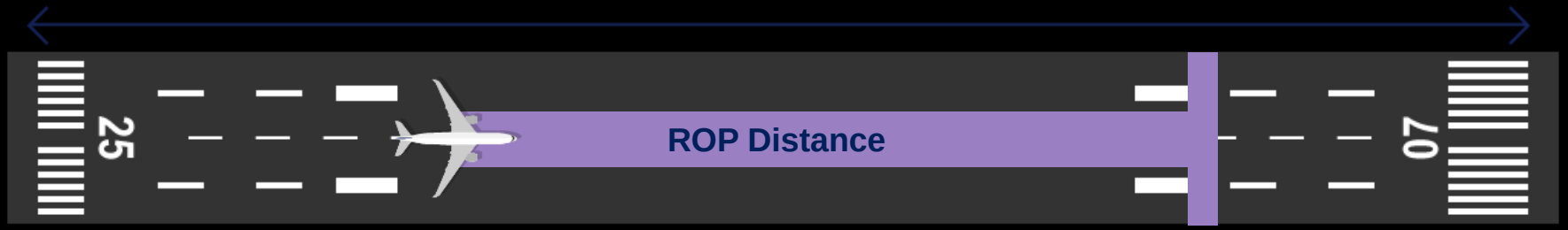
Runway Overrun Prevention System in 2008

BRAKE, MAX BRAKING

SET MAX REVERSE





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Runway Overrun Prevention System in Today

860 Aircraft

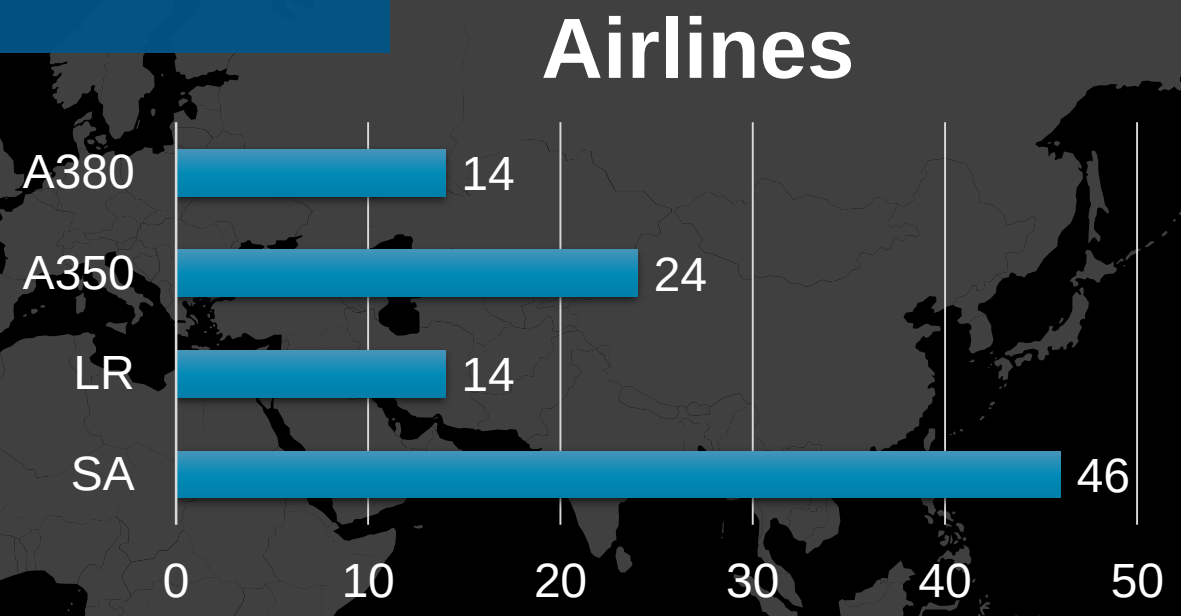
1,355,000 Landings

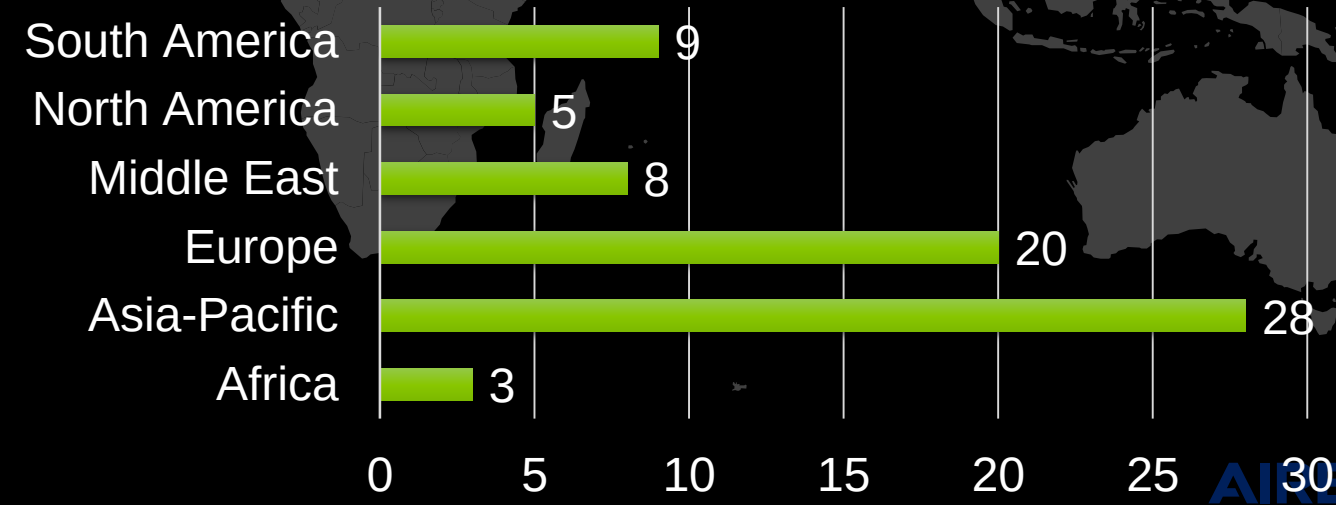
A380

A320

A350

A330





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Runway Overrun Prevention System Tomorrow

ROPS keeps getting better

Worldwide standard to facilitate adoption

Cooperation

Lufthansa Honeywell Aerospace

Conclusion

- Runway Safety Technologies have come a long way in the last 9 years
- The safety benefits they bring to the aeronautical community are proven
- Nevertheless we need to continue to push forward and grab the low hanging fruit

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Thank you

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