

Go where no other business jet has gone before
Operation from unimproved runways





Urs Thomann

Dr. sc. ETH, Dipl. Mat. Ing. ETH

- 2003 – 2005: Materials engineer in the materials and processes team
- 2005 – 2011: Director production management trainer programs
- 2011 – 2018: Director program management PC-24
- 2019 – present: Director technologies, processes, sustainability

The Swiss Aircraft Pioneer



1939
founded

86
years

Private
unlisted, in private
Swiss ownership

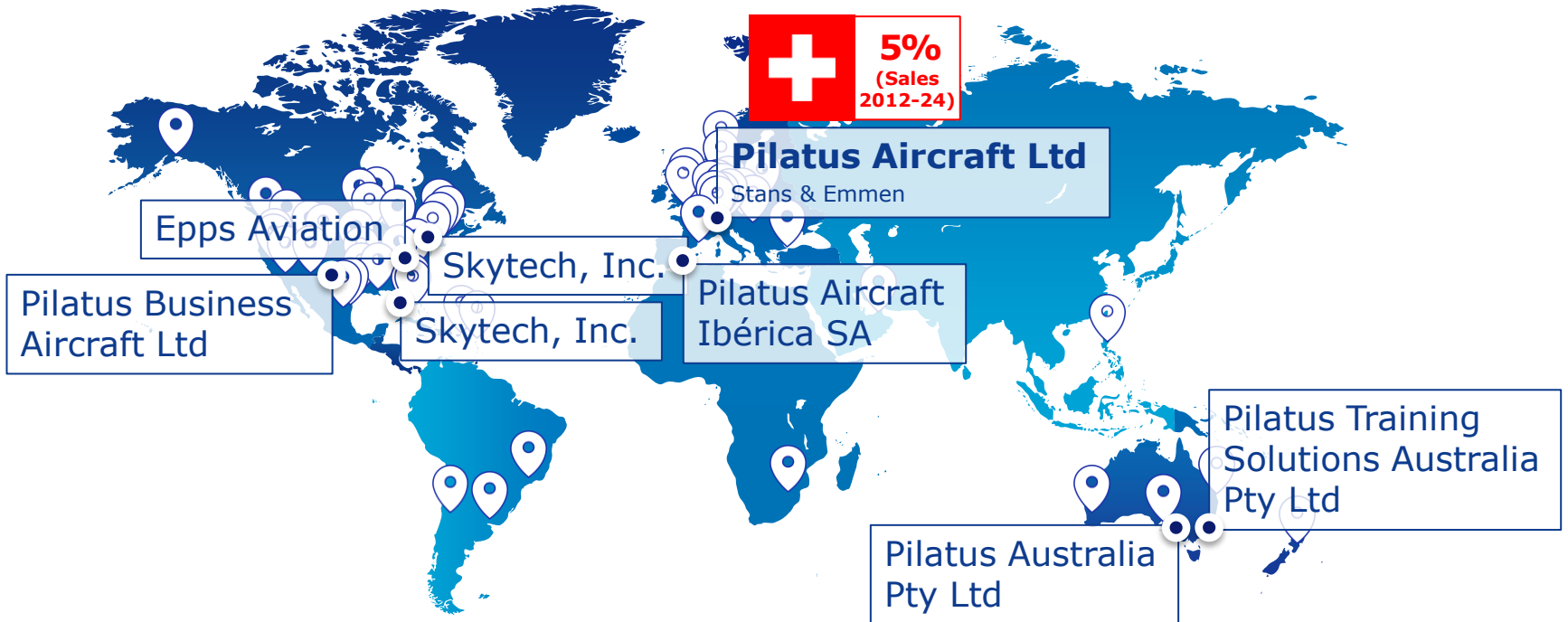
5
continents



Committed to sustainability and to our Swiss location

Global Sales

Our sites and our network



Customer Comes First

Geared to customer requirements



Customer

Business aircraft



Private and business aviation

Training aircraft



Air force pilot training

INNOVATION

Business Aircraft

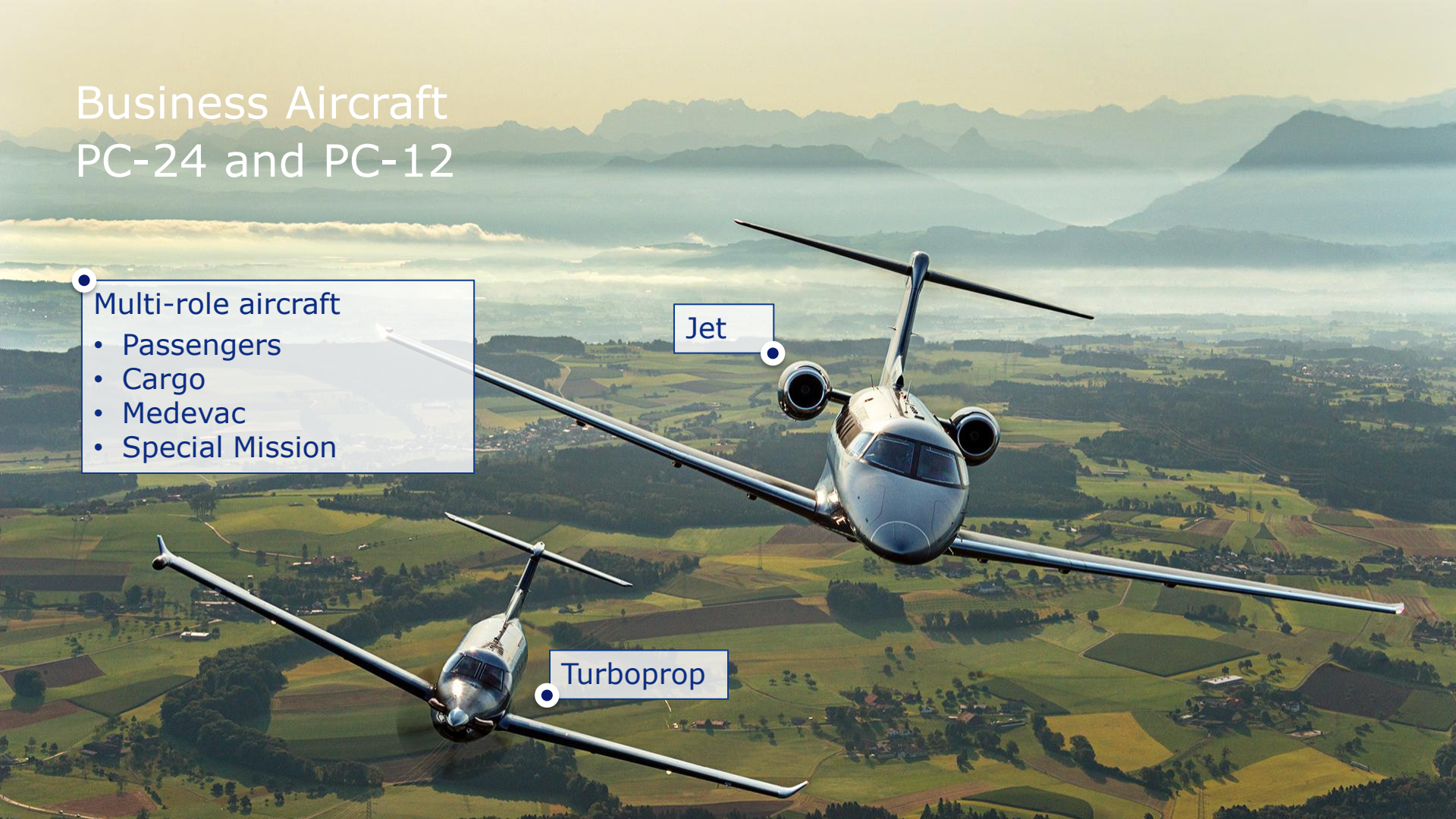
PC-24 and PC-12

Multi-role aircraft

- Passengers
- Cargo
- Medevac
- Special Mission

Jet

Turboprop



PC-24 and PC-12

Faster and closer to your destination



Designed for use on short and unpaved runways

Shorter travel times

Sustainable aviation fuel

Training Aircraft PC-21 and PC-7 MKX

Training and instruction
for air force pilots



PC-21 and PC-7 MKX

A training system – not just an aircraft



The Pilatus Family

People make Pilatus what it is



The canton's biggest employer

17 %
women

58
nationalities

3,326
employees

9.4
years' service
on average

140
apprentices
in 14 professions

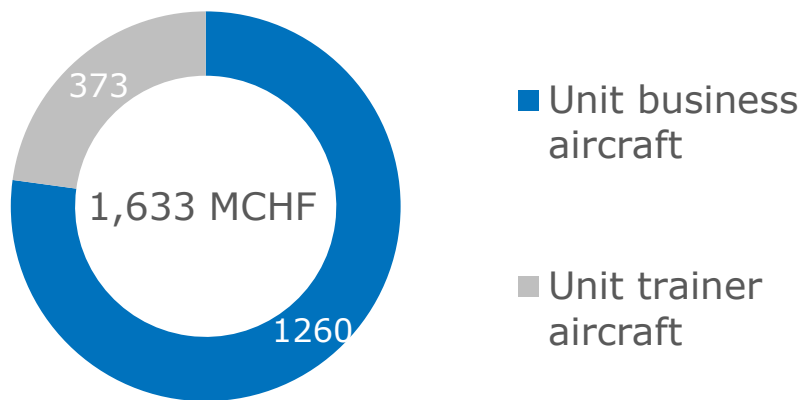
92 %
from Central
Switzerland

Key Figures 2024

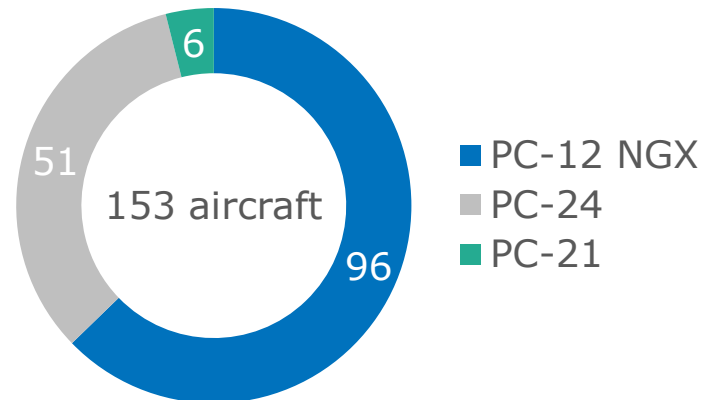
Committed to sustainable growth



Total sales



Number of aircraft



1,633 MCHF
total sales

243 MCHF
EBIT

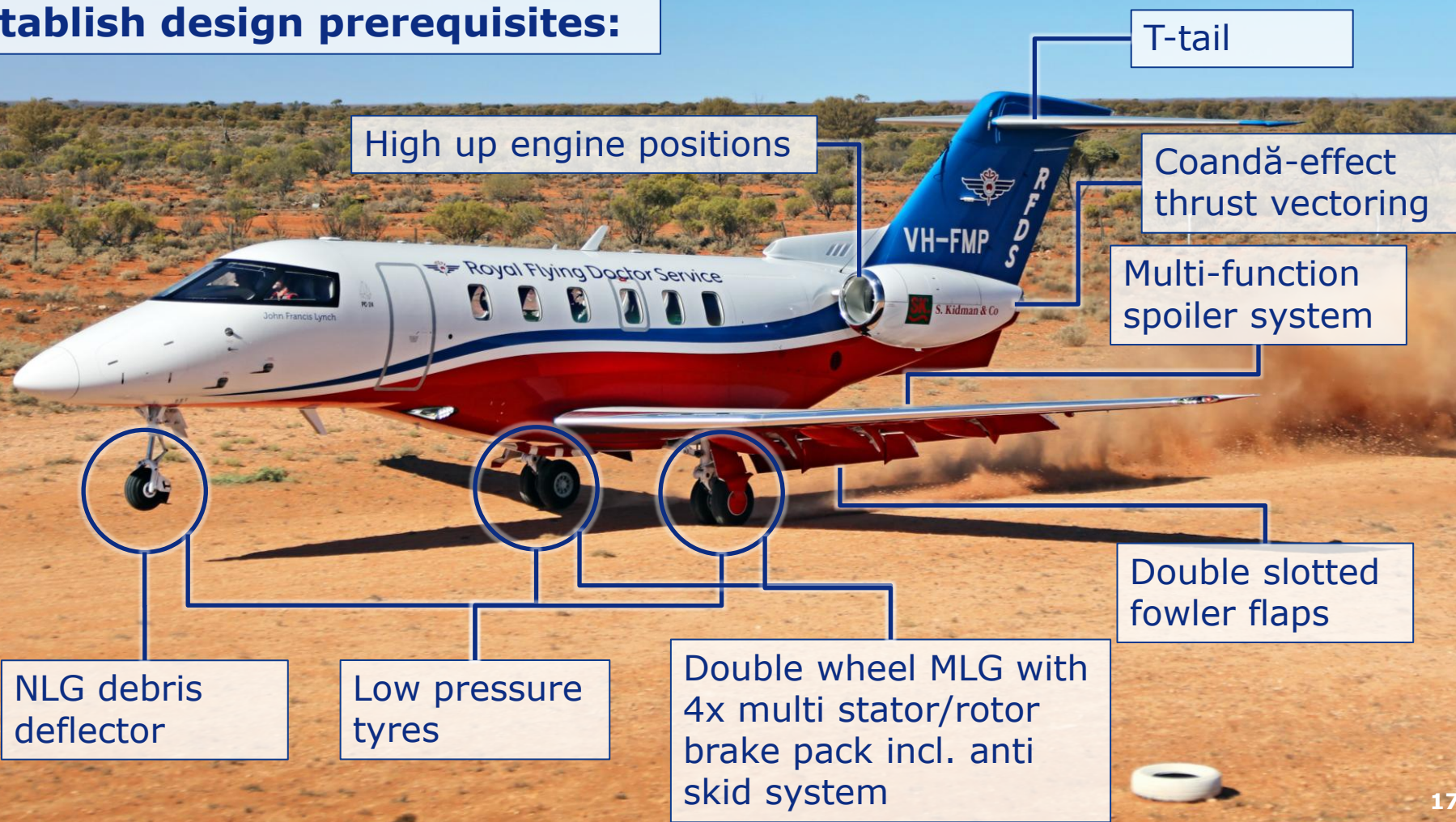
83 MCHF
invested in future

153
aircraft delivered,
every week 3 aircraft



We create the aircraft standard.
The Pilatus Class.

Establish design prerequisites:



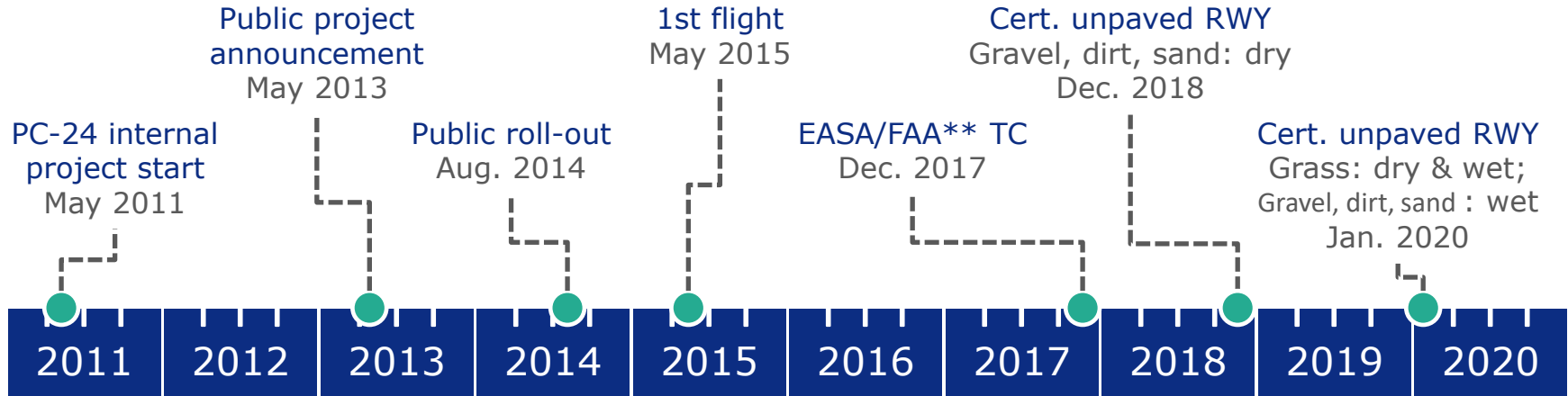
Operation to/from unpaved runways

PC-24 development program



At basic certification (TC*): ~40'000 available runways (RWY)

After supplemental certification: ~**55'000** available runways (RWY)



*TC = Type Certificate; **EASA = European Union Aviation Safety Agency; FAA = Federal Aviation Authority

Certification baseline

Unpaved RWY operations



- No general certification requirements available for A/C > 2'722 kg maximum take-off mass (MTOM); PC-24: 8'500 kg MTOM
- Specific approval per RWY (hardness, unevenness, vegetation,...) required
- No specific requirements for structural and RWY performance
- No recommendations as to how to obtain test data
- All certification aspects negotiated with EASA and demonstrated
- Fully instrumented test aircraft to measure influence on structural fatigue resistance



Types of unpaved runways → Test matrix

- 3 representative runways per surface type
- Full spectrum of weight and centre of gravity (CG)
- Failure and abuse cases (e.g. engine failure) → long runways required

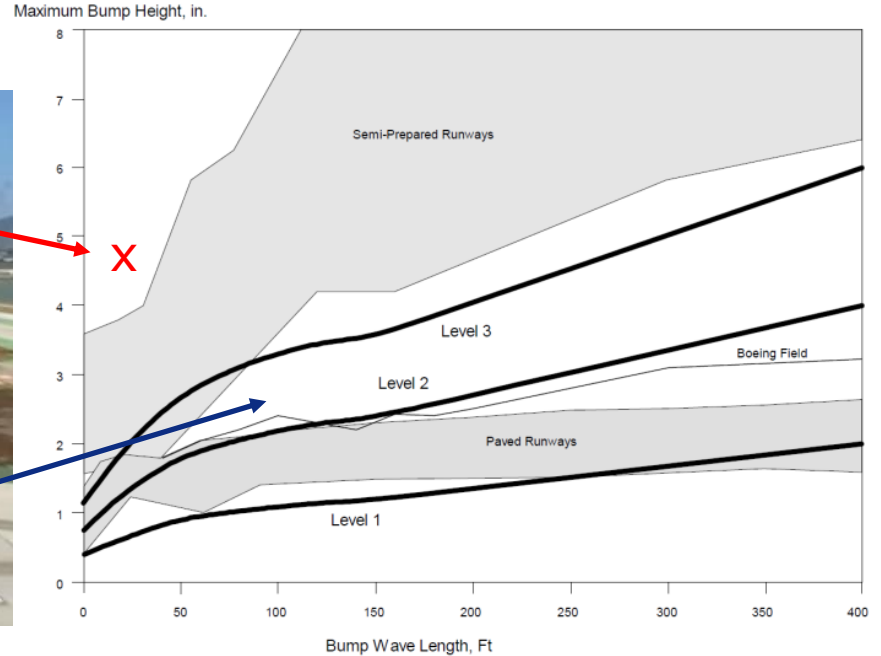
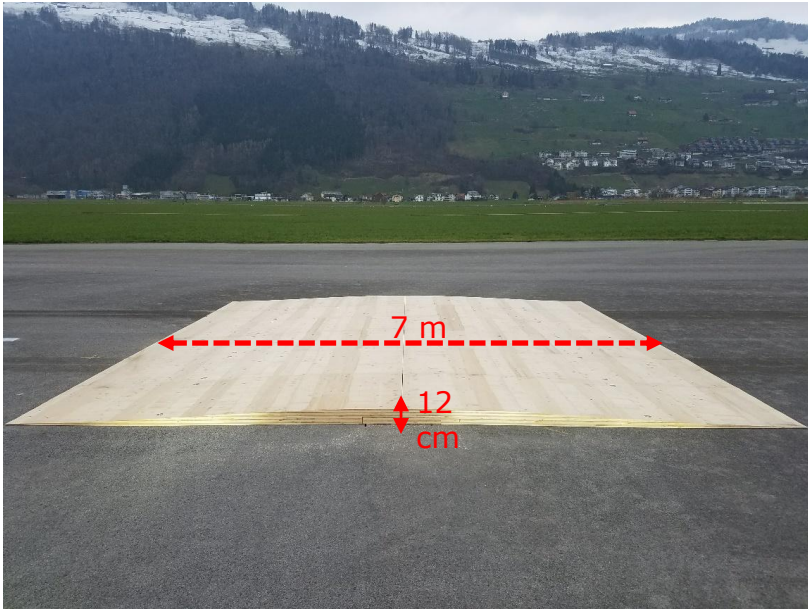


Water



Snow

Runway characterisation - unevenness



San Francisco RWY 28R (before repair) considered as «rough» → international standard for rough RWY

Runway characterisation

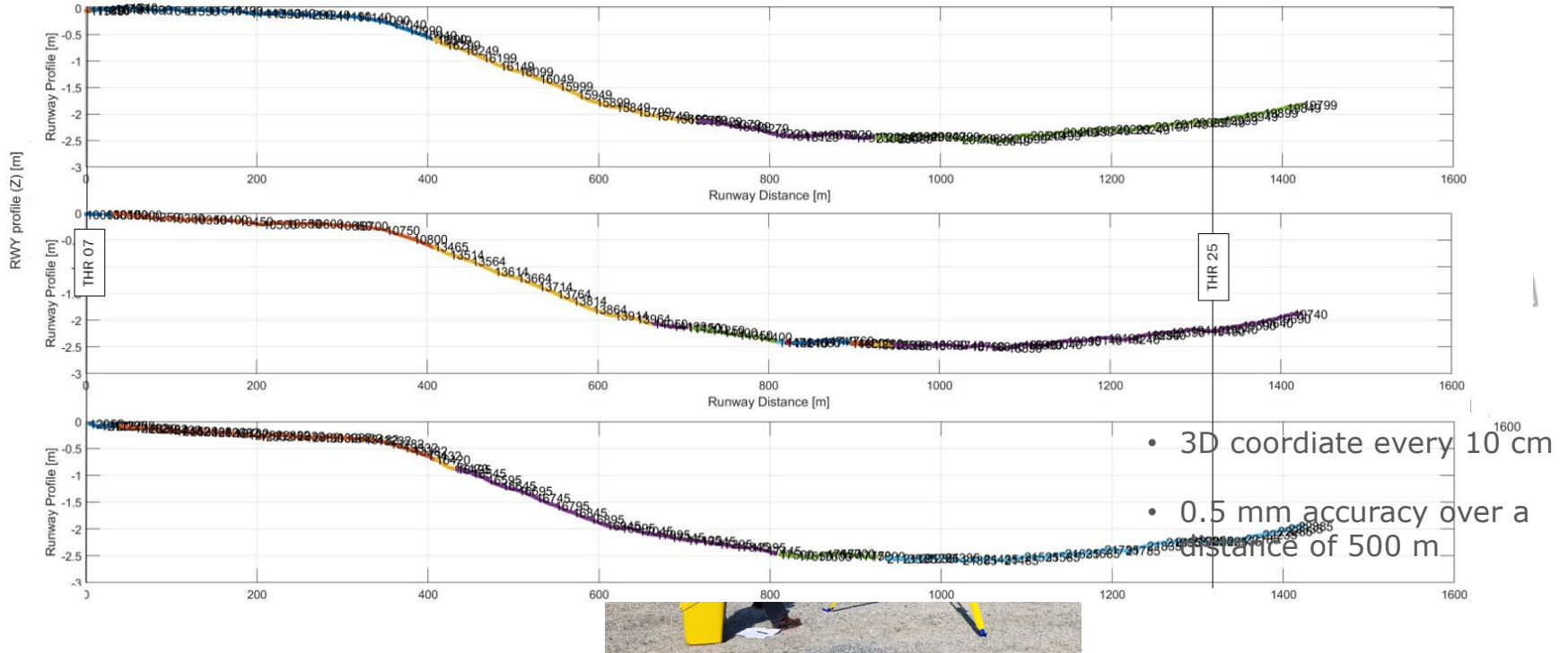
Ground Loads Evaluation – Bumps/Hollows, Potholes and Roughness Levels



- San Francisco Runway 28R (before repair) showed significant fatigue life roughness
- This roughness level was typical in international standards

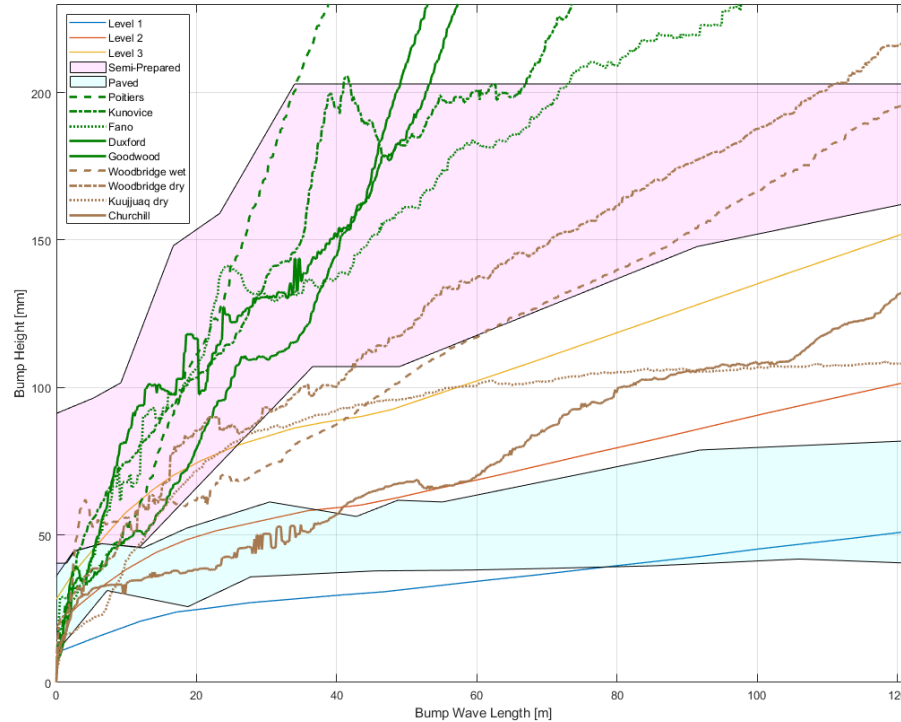
Runway characterisation

Ground Loads Evaluation – Bumps/Hollows, Potholes and Roughness Levels



RWY Roughness Assessment

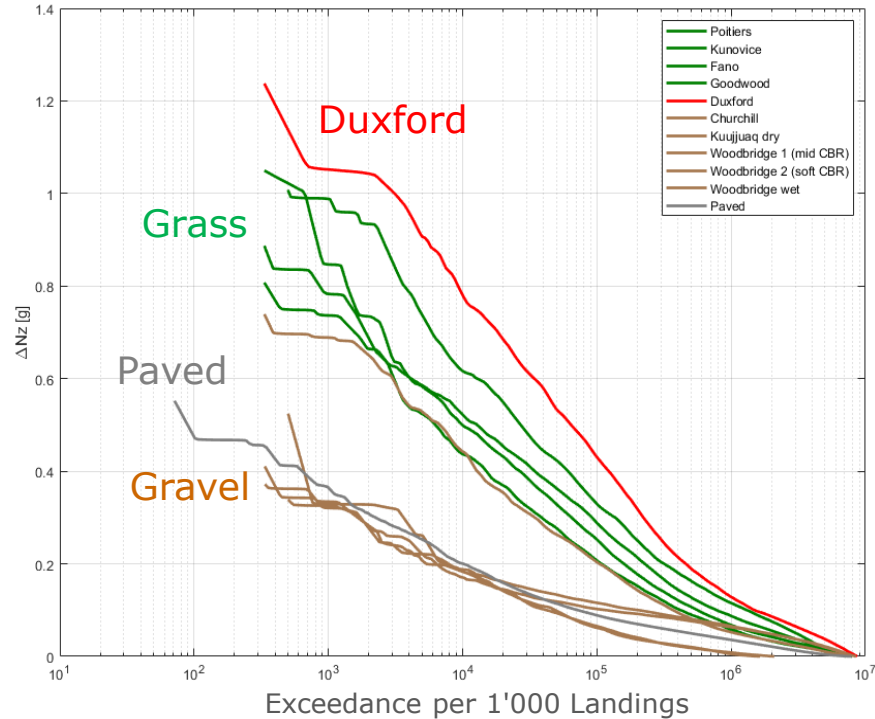
Data Comparison



RWY Roughness Assessment



Data Comparison



- Knock-down factor on Fatigue-Life
- Shorter inspection intervals



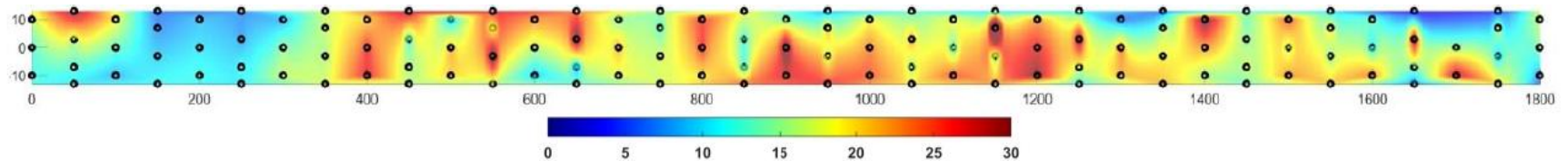


15 Landing c. 30kt nb

Runway characterisation

Bearing strength

- California Bearing Ratio (CBR) indicates the runway's bearing strength in relation to California limestone (=100%)
- Measurement by means of dynamic cone penetrometer
- Characterisation of the entire runway: „Heat Map“ ↓



Runway characterisation

Rolling resistance – Braking behaviour

- Rolling resistance [-]: Measurement by means of landing without applying brakes on representative loooooooooong runway
- Braking performance [MJ/m]: Measurement by means of acceleration-stop manoeuvres and landing with applying maximum brake power



Certification campaign on gravel











Kuuujuaq





Certification campaign on grass

Kunovice



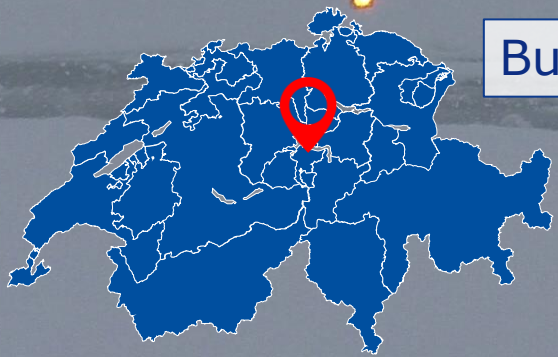


Contaminated runway



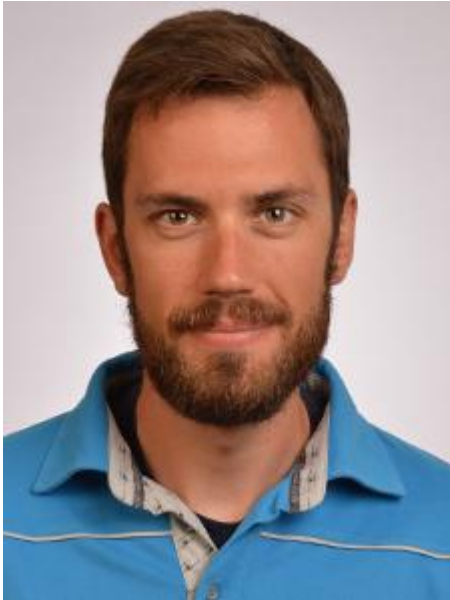
Woodbridge





Buochs

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