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The global runway safety symposium



Efficient information on runway conditions



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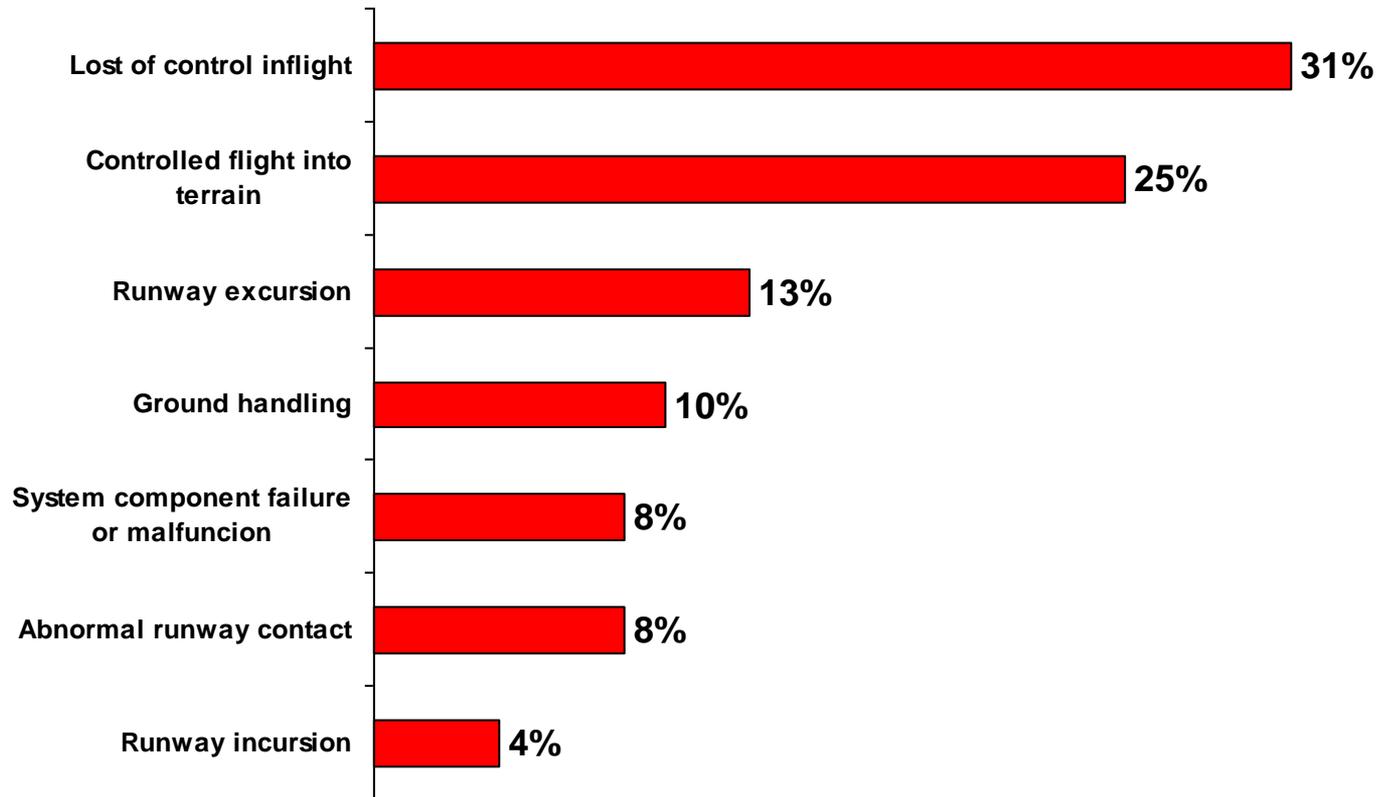
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Runway excursions amongst fatal accidents in commercial aviation

The third most frequent fatal accident :



Source : Boeing 2008

Runway excursions typology

Two ways of leaving the runway :

- ✓ keeping the center line and overrunning the runway (around 60%)
- ✓ leaving the center line and veering off within the length of runway (around 40%)

Runway excursion occurs mainly during landing (around 80 % of RE)



Runway excursions fatalities



90% of runway excursions resulted only in material damages (period 1998-2007)*

But the remaining 10 % resulted during the same period in 500 fatalities out of which 20 % are people outside the aircraft.

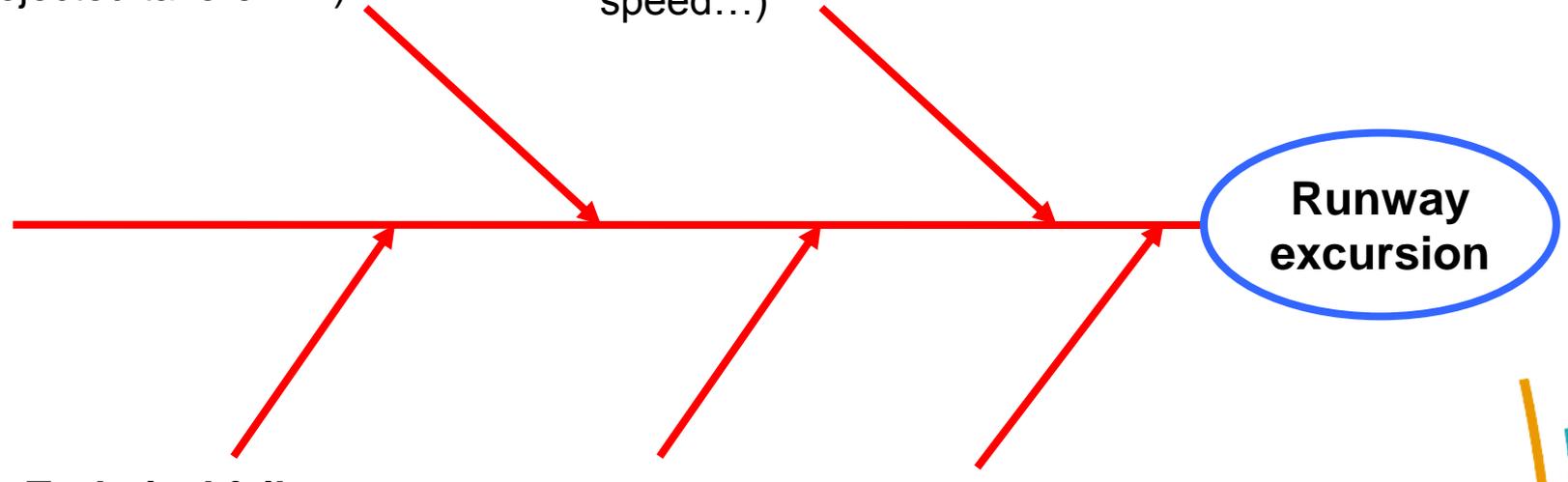
Unfortunately no improvement can be noticed on the trend of this period.

** Source : ASTB report*

Contributing factors

Timely crew decisions
(no go-around, late rejected take-off ...)

Flight handling (unstabilized approach, glide slope deviation, speed...)



Runway excursion

Technical failures
(thrust reversers, brakes, tyres ...)

Meteorological conditions

Runway conditions

Wet/contaminated runway is a predominant factor identified in studies on runway excursion

Information on wet/contaminated runway

Main issues identified for information* on runway condition :

- ✓ relevant and simple information
- ✓ reliable and objective information
- ✓ harmonisation
- ✓ availability and timeliness of information

** Information is also given via NOTAM/SNOWTAM but those issues are presently analysed within the framework of short notice information given by ATC, ATIS or future datalink systems*

Relevant and simple information

Meaningful data for pilots to assess landing distance accurately :

- ✓ appropriate data for inflight landing distance assessment or for system being developed by the industry (computation issues for landing distance or crosswind limitation on wet/contaminated runway)
- ✓ simple information being easily handled by airport operators and ATC and not overloading communications or pilots (for instance balance between datas on all contaminated parts of runway and the minimum information required for appropriate braking action)

Reliable and objective information

Data resulting of measures must be reliable and accurate (like all measurement processes) :

- ✓ performance criteria for the approval of friction measuring devices (accuracy, repeatability, reproductibility, stability, etc.)
- ✓ measuring friction with proven methods and competent personnel
- ✓ depth of contaminant : methodology and measuring devices (coin method, radar, others)



Use of human perception must be controlled :

- ✓ some airports test braking action with land vehicles
- ✓ Pilot Reports PIREP (FAA : used only to downgrade runway condition code)

Harmonisation

Various studies or benchmarking have pointed out **widely varying pilot information practises**.

It is not possible for all airports to transmit precisely the same set of data but pilots need a common and simple framework of data and communication in order to easily carry out their in flight landing distance assessment.



Availability and timeliness of information

Conflict between the need to refresh information especially after meteorological events (showers, rainfall, etc.) and the occupancy time of the runway :

- ✓ methods for runway friction assessments according to the periodicity or triggering event
- ✓ efficient measuring devices for depth of loose contaminant (coin method or rapid and accurate equipment ?)
- ✓ theoretical estimation/prevision of depth based on pavement structure and meteorological events characteristics
- ✓ cartography of runway and critical areas for adapted operating of measuring devices

Works in progress

Civil aviation community is working continuously on these issues :

- ✓ **ICAO : FTF** circular on runway surface condition assessment, measurement and reporting; amendment to SARPS and PANS
- ✓ **FAA : TALPA ARC** (runway condition assessment table, etc.)
- ✓ **EASA : RuFAB** and workshop in April 2010 in Paris ; **ECAST**
- ✓ **Eurocontrol : EAPPRE**
- ✓ many studies on friction, new measurement devices, estimation of contamination

Conclusions

- ✓ **Global and simple reporting format** (no change when crossing borders)
- ✓ **Reliable process of assessment** (proven procedures, competent and trained staff, calibrated equipment, controls)
- ✓ **Better understanding** of inter action between aircraft (not only tyres) and contaminated runway (collection of data, modelisation, experiments, etc.)
- ✓ **Coordination** between various works carried out by organisations, CAAs and industry (no duplication, cross feeding, etc.)



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***Thank you
For your attention !***

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