

Participants

- EASA
- CANSO
- IFALPA
- FAA/CAST
- LVNL
- Boeing
- DGAC France
- Flight Safety Foundation
- IFATCA
- NLR
- Airbus
- Embraer
- ACI
- IATA
- ERA
- Eurocontrol
- AAPA
- US NTSB
- AEA
- Honeywell
- * ALTA

The Players

- Aircraft Manufacturers
- Operators
 - Aircrews
 - Management
- Airports
- ATC
- Regulators

Manufacturers

- Safe/Reliable Aircraft
- Data and procedures for normal operations
- Data and procedures for non-normal operations

ATC

- Stabilized Approach Assistance
- Pertinent and timely Information
 - Weather
 - Runway Condition



Runway Safety Products Catalog



Runway

Safety
Data

Confusion

Incursion

Excursion

Accident Data 1995 – 2008

Commercial Aircraft

(Substantial and Major Damage, Western and Eastern built Turbojets and Turboprops)

<u>Jets</u>		<u>Turboprops</u>	
Major	Substantial	Major	Substantial
286	372	528	243
Total 658		771	

1,429 Total Accidents

(of all types, not just runway safety accidents)

Runway Safety Accident Data 1995 – 2008

1,429 Total Accidents

	<u>Number</u>	<u>Percent of Total</u>
Incursions:	10 (.7/year)	.6%
Confusion:	4 (.3/year)	.3%
Excursions:	417 (29.8/year)	29 %

Runway Safety Data
 1995 – 2008
 Runway Excursion Data

- 36% of Jet accidents
- 24% of Turboprop accidents

Business Jet Accidents
 1991 - 2002

Total Accidents: 251
 Excursions: 63
 Excursion %: 25.1%

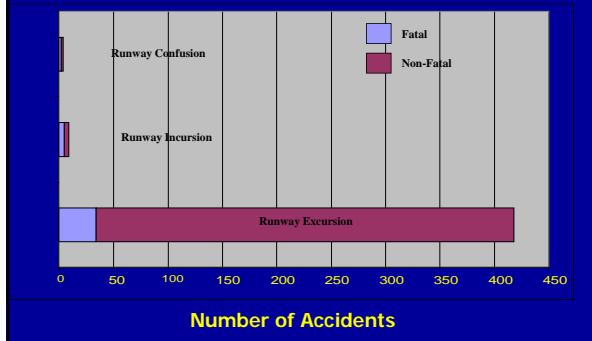
Runway Safety Fatality Data
 1995 – 2008

1,429 Total Accidents
 (492 fatal accidents (33%))

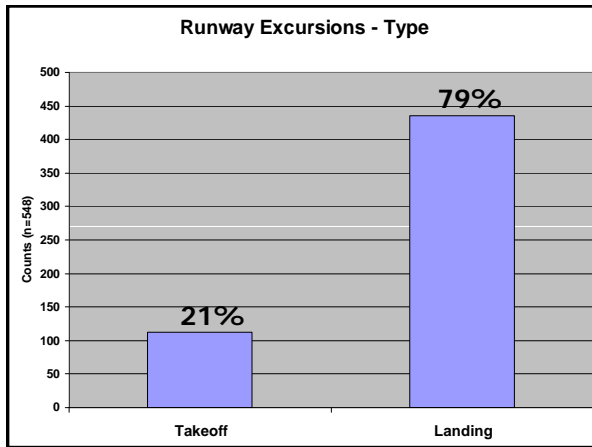
Number of Fatal Accidents (Onboard Fatalities)

Incursions: 5 (129)
 Confusion: 2 (132)
 Excursions: 34 (712)

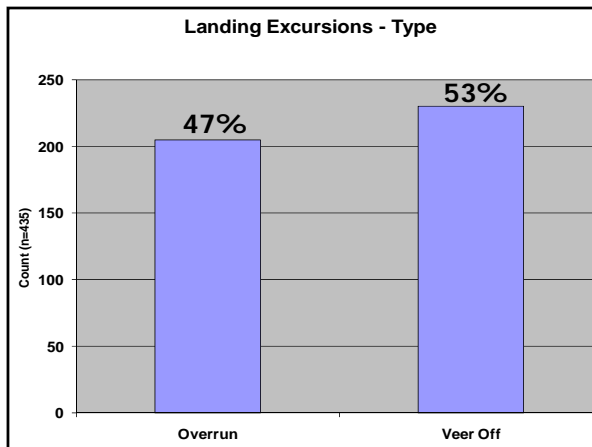
Fatal and Non-Fatal Runway Accidents by Type 1995 thru 2008

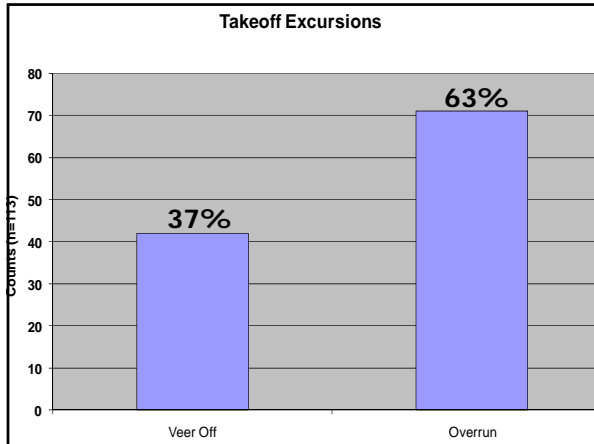


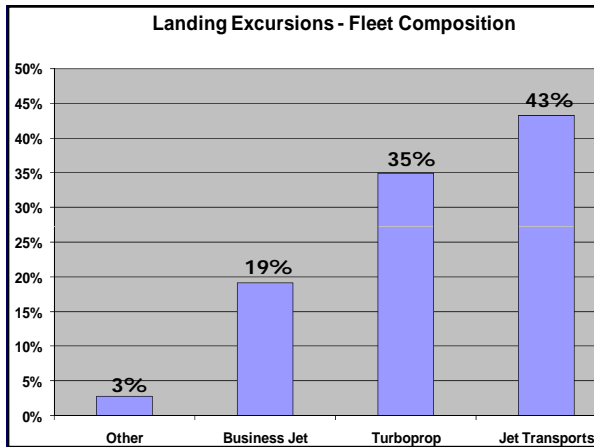
Runway Excursions - Type

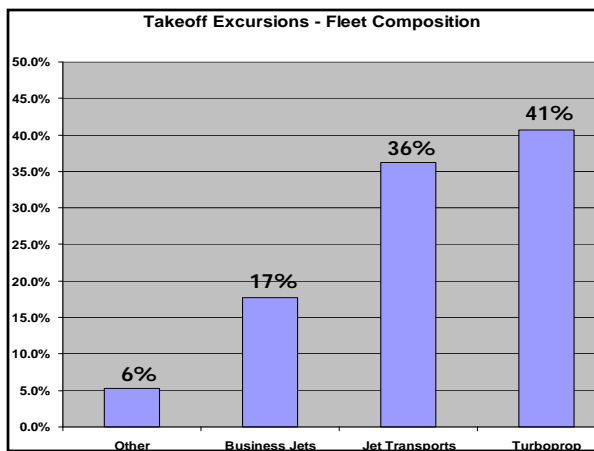


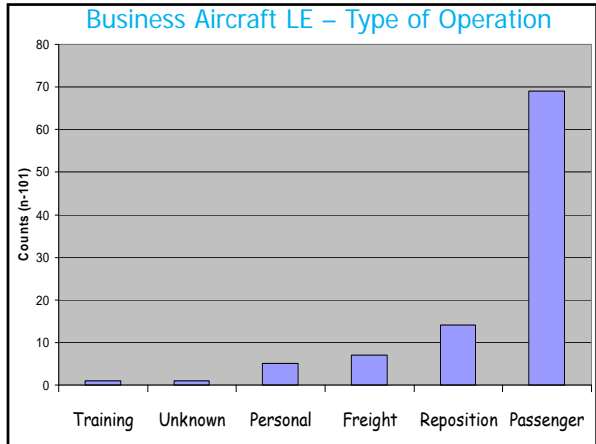
Landing Excursions - Type

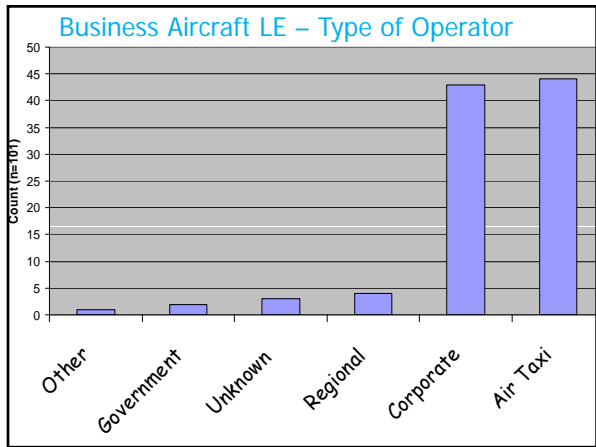


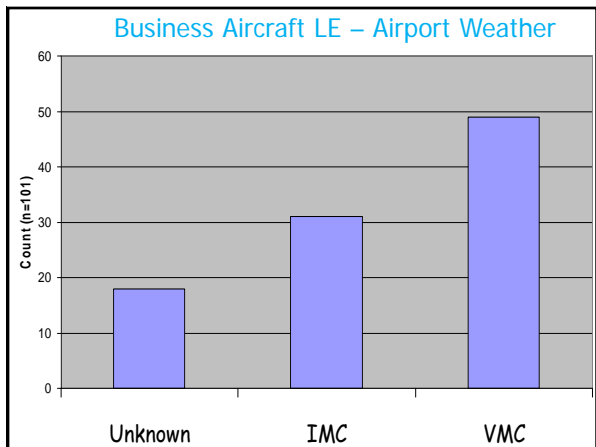


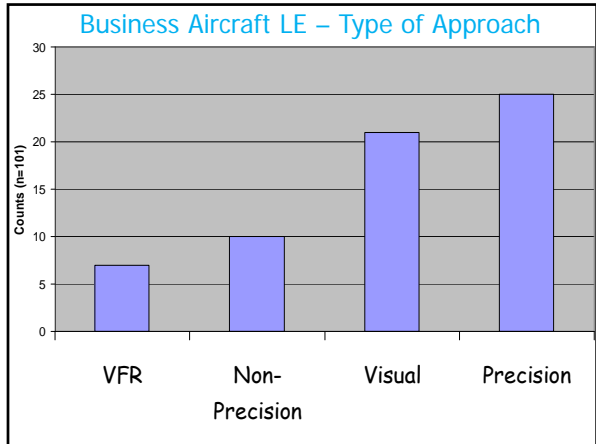


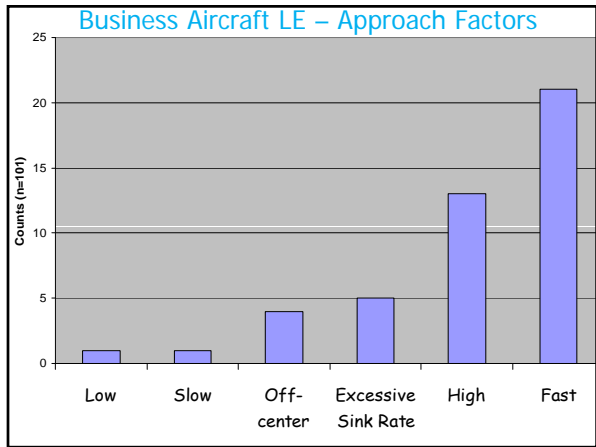


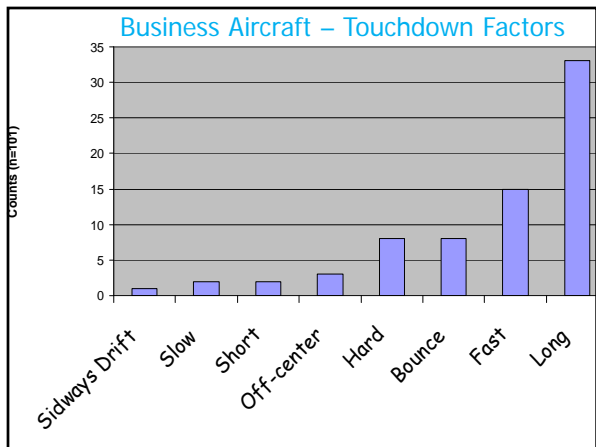


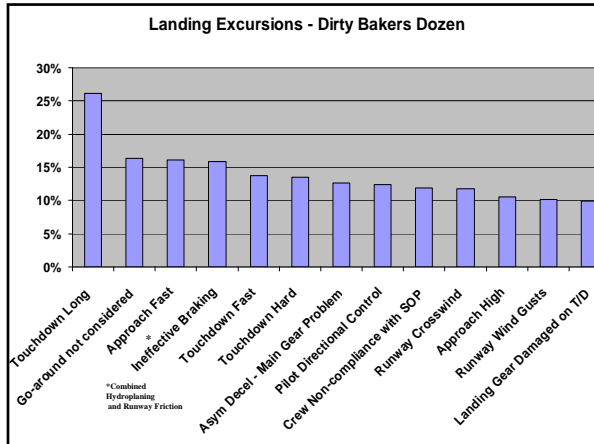


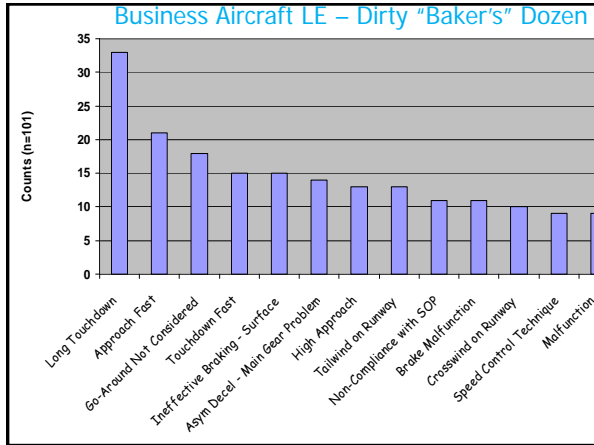


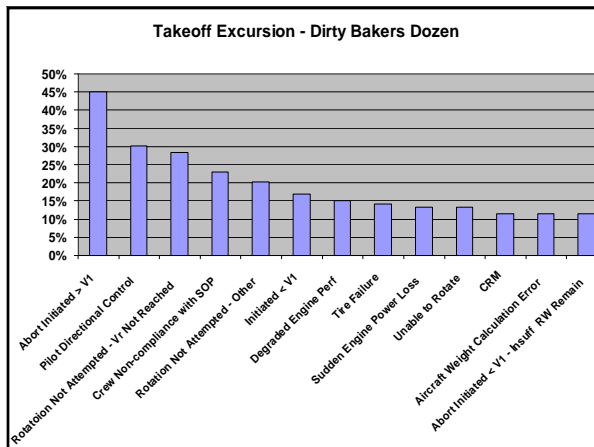












Runway Safety Observations

- Data shows we are being effective in preventing runway incursion *accidents*, but the number of incidents and severity still indicates a very high risk
- Data shows runway excursions are the most common type of runway safety accident (96%) and the most common type of fatal runway safety accident (80%)
- Severity of runway excursions dependent on:
 - Energy of aircraft when departing the runway
 - Airport layout, geography, and rescue capability

Runway Safety Observations

- New procedures (e.g. Auckland, NZ) may be helpful in reducing the risk in some runway incursion and runway confusion situations – but not all
- In the case of runway confusion, many runway incursion interventions may be useful (e.g. moving maps)
- In the case of runway excursions, a major risk reduction factor is flying a stabilized approach with landing in the touchdown zone

Basics

- Stabilized approach with landing in touch down zone
- Energy = Mass X V²
- Effect of reverse thrust is significantly greater on a contaminated runway
- Calculations and rules are important, but so is adhering to the conditions used to calculate them:
 - * e.g. abort past V1
 - * Land long, land fast

FLIGHT SAFETY FOUNDATION



Reducing the Risk of Runway Excursions



Flight Safety Foundation
ALAR

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Microsoft PowerPoint

Approach-and-landing Accident Reduction
Tool Kit

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