

Aviation Safety 2011

The Year In Review

FLIGHT
SAFETY



F O U N D A T I O N

Jim Burin

Director of Technical Programs

The Fleet - 2011

<u>Type</u>	<u>Western-Built</u>	<u>Eastern-Built</u>	<u>Total</u>
Turbojets	20,901	1,244	22,145
Turboprops	4,852	1,294	6,146
Business Jets			17,165

Source: Ascend

Major Accidents in 2010 Commercial Jets

Date	Operator	Aircraft	Location	Phase	Fatal
2 January	CAA	B-727	Kinshasa, DRC	Landing	0
24 January	Taban Air	TU-154	Mashhad, Iran	Landing	0
25 January	Ethiopian Airlines	B-737	Beirut, Lebanon	Climb	90
22 March	Avistar-TU	TU-204	Moscow, Russia	Approach	0
13 April	Merpati Airlines	B-737	Rendani, Indonesia	Landing	0
13 April	Aerounion	A-300	Monterrey, Mexico	Approach	5
5 May	Satena	EMB-145	Mitu, Colombia	Landing	0
12 May	Afriqiyah Airways	A-330	Tripoli, Libya	Approach	103
22 May	Air India Express	B-737	Mangalore, India	Landing	158
27 July	Lufthansa	MD-11F	Riyad, Saudi Arabia	Landing	0
28 July	Airblue	A-321	Islamabad, Pakistan	Approach	152
28 July	Mauritania Airways	B-737	Conakry, Guinea	Landing	0
16 August	Aires	B-737	San Andres, Colombia	Landing	2
24 August	Henan Airlines	EMB-190	Yichan, China	Approach	42
25 August	Passaredo Linhas Airways	EMB-145	Vitoria Conquista, Brazil	Approach	0
3 September	UPS	B-747	Dubai, UAE	Approach	2
24 September	Windjet	A-319	Palermo, Italy	Landing	0
28 November	Sun Way	IL-76	Karachi, Pakistan	Climb	8
4 December	Dagestan Airlines	TU-154	Moscow, Russia	Climb	2

Major Accidents Commercial Jets 1 January 2011 to 1 November 2011

CFIT
LOC
Excursion

Date	Operator	Aircraft	Location	Phase	Fatal
1 Januray	Kolavia	TU-154	Surgut, Russia	Taxi	3
9 January	Iran Air	B-727	Orumiyeh, Iran	Landing	78
5 March	VASO	AN-148	Garbuzovo, Russia	En route	6
4 April	Gegorian Airways (UN)	CRJ-100	Kinshasa, DRC	Approach	32
18 May	Omega Air Refueling	B-707	Point Mugu, CA, USA	Takeoff	0
20 June	RusAir	TU-134	Petrozavodsk, Russia	Landing	45
6 July	Silk Way Airlines	IL - 76	Bagram, Afghanistan	Approach	9
8 July	Hewa Bora Airways	B-727	Kisangani, DRC	Landing	83
28 July	Asiana Airlines	B-747F	Jeju, South Korea	En route	2
30 July	Caribbean Airlines	B-737	Georgetown, Guyana	Landing	0
20 August	First Air	B-737	Resolute Bay, Canada	Approach	12
7 Sept	YAK Service	YAK-42	Yaroslavl, Russia	Takeoff	44
16 Sept	TAME	EMB-190	Quito, Ecuador	Landing	0
26 Sept	Aerpostal	DC-9	Puerto Ordaz, Venezuela	Landing	0

Source: Ascend

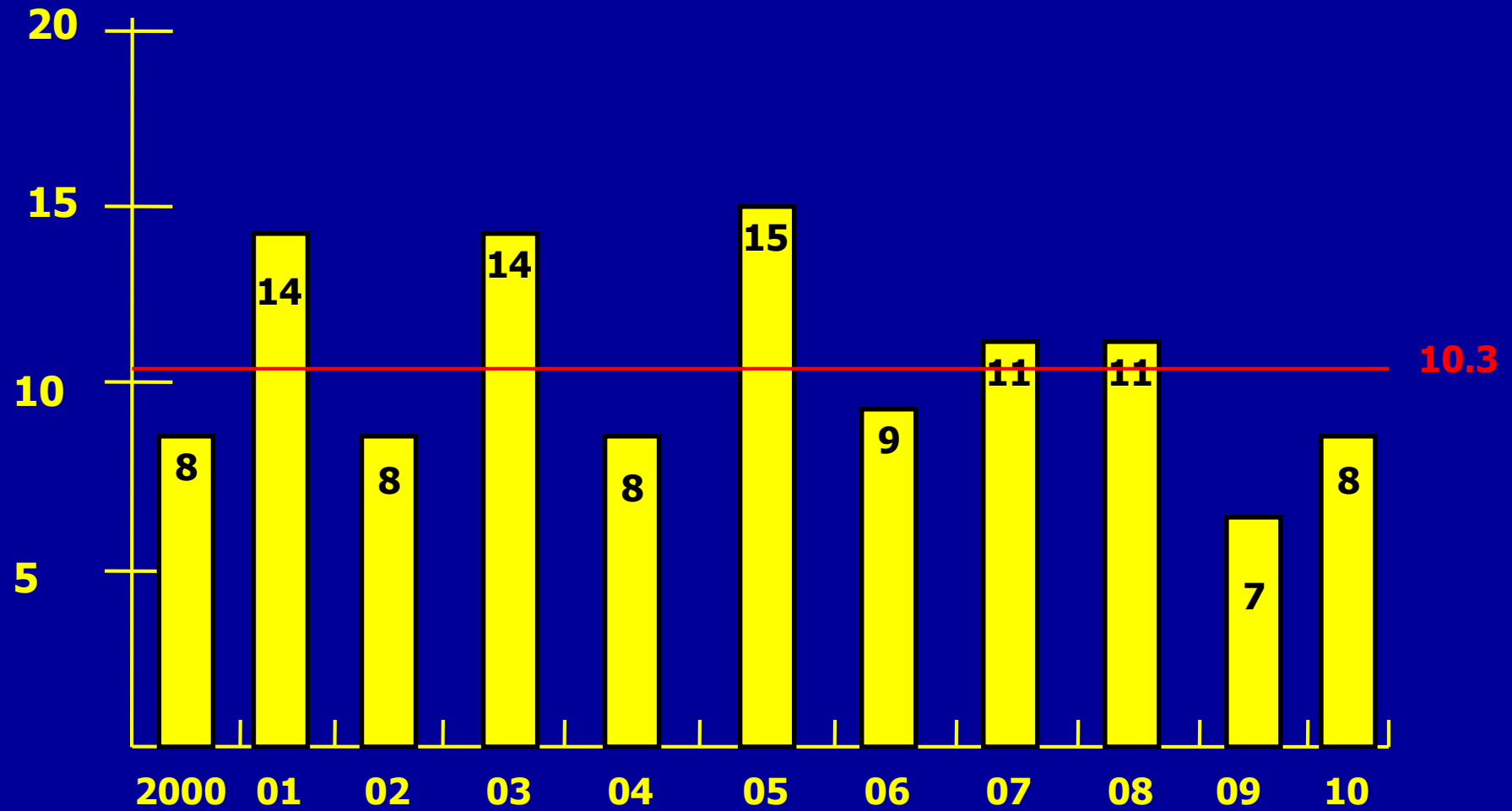
Major Accidents Business Jets

1 January 2011 to 1 November 2011

Date	Operator	Aircraft	Location	Phase	Fatal
6 January	Priester Aviation	Lear -35	Springfield, IL, USA	Landing	0
4 February	Sky Lounge	Hawker 900	Sulaymaniyah, Iraq	Climb	7
18 February	Escuela de Aviacion	Lear 24	Villasana, Mexico	Landing	2
28 March	Hong Fei General	Citation II	Missing - China	En route	3
5 May	Jorda LLC	HS-125	Loreto Bay, Mexico	Approach	0
25 May	Jet Suite Air	EMB Phenom	Sedona, AZ, USA	Landing	0

Source: Ascend

Business Jet Major Accidents 2000 through 2010



Major Accidents

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Commercial Turboprops (> 14 seats)

1 January 2011 to 1 November 2011 (page 1)

Date	Operator	Aircraft	Location	Phase	Fatal
10 February	Flightline	Metro III	Cork, Ireland	Landing	6
12 February	Sabang Air Charter	CASA 212	Bintan, Indonesia	En route	5
14 February	African Air Services	LET - 410	Mont Biega, DRC	En route	2
14 February	Central American Airways	LET - 410	Cerro del Hula, Honduras	En route	14
4 March	Air Iceland	DHC-8	Godthab, Greenland	Landing	0
8 March	Desert Sand Leasing	DHC-6	Clayton County, GA, USA	Takeoff	2
21 March	Trans Air Congo	AN-12	Pointe Noire, Congo	Landing	9
1 April	Fugro Aviation Canada	CASA-212	Saskatoon, Canada	Approach	1
7 May	Merpati Nusantara	MA-60	Kaimana, Indonesia	Approach	25
18 May	SOL Lineas Areas	SAAB-340	Prahuaniyeu, Argentina	En route	22
6 June	Solenta Aviation	AN-26	Libreville, Gabon	Approach	0
11 July	Angara Airlines	AN-24	Strezheov, Russia	Approach	6
11 July	Trans Maldivian	DHC-6	Male, Maldives	Landing)
13 July	Noar	LET - 410	Recife, Brazil	Approach	16
8 August	IrAero	AN-24	Blagoveshchensk, Russia	Landing	0
9 August	Avis Amur	AN-12	Omsukchan, Russia	En route	11

Source: Ascend

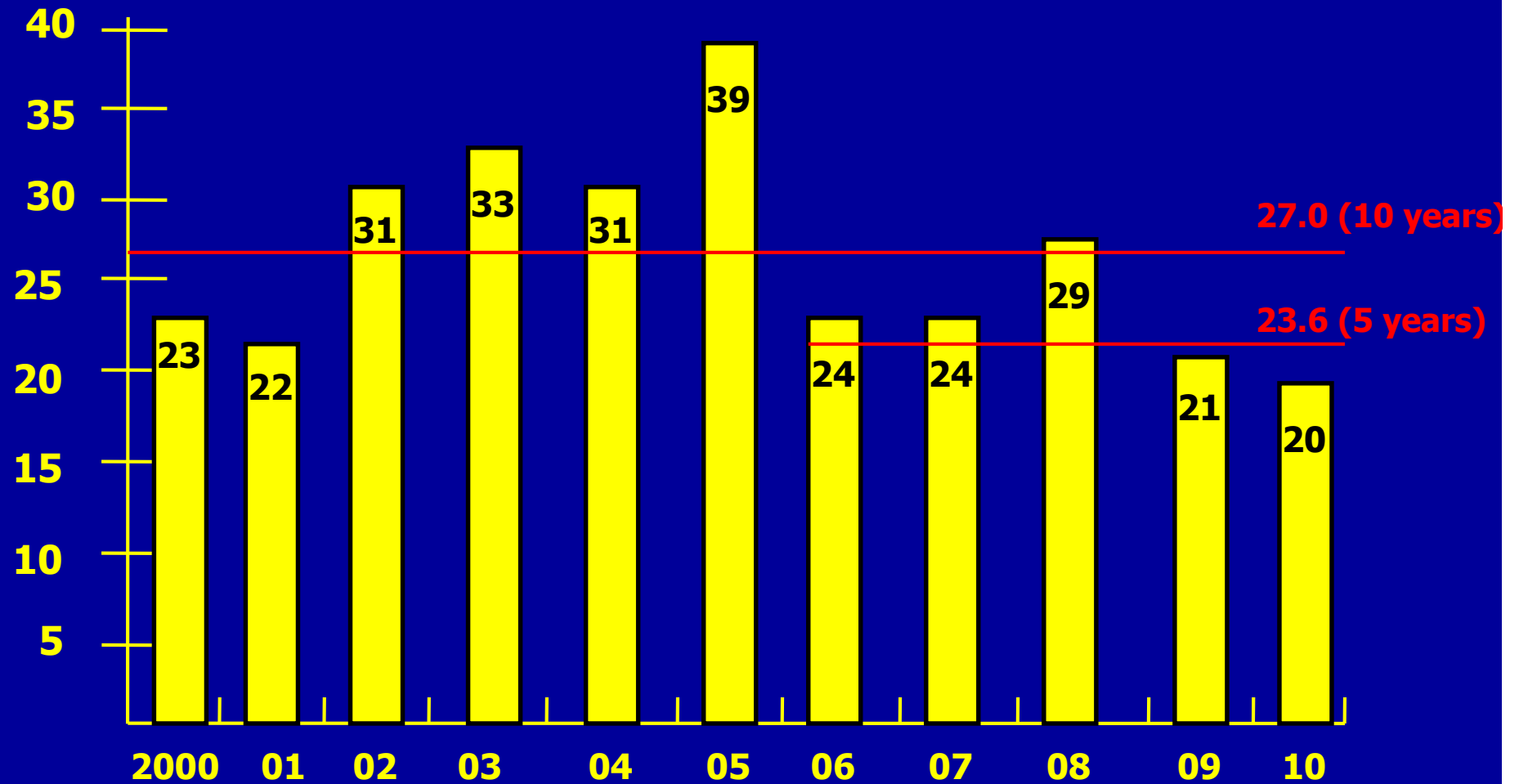
Major Accidents

Commercial Turboprops (> 14 seats)

1 January 2011 to 1 November 2011 (page 2)

Date	Operator	Aircraft	Location	Phase	Fatal
6 September	Aerocon	Metro III	Trinidad, Bolivia	Approach	8
20 September	Salsa d'Haiti	Beech 99	Milot, Haiti	En route	3
22 September	Artic Sunwest Charters	DHC-6	Yellowknife, Canada	Approach	2
25 September	Buddah Air	Beech 1900	Kathmandu, Nepal	Approach	19
29 September	Nusantara Buana Air	CASA 212	Medan, Indonesia	En route	18
12 October	National Regional Transport	EMB-120	Port Gentil, Gabon	Landing	0
13 October	Airlines PNG	DHC-8	Madang, PNG	Approach	28

Commercial Turboprop Major Accidents 2000 through 2010



Approach and Landing Major Accidents Commercial Jets

1 January 2011 through 1 November 2011

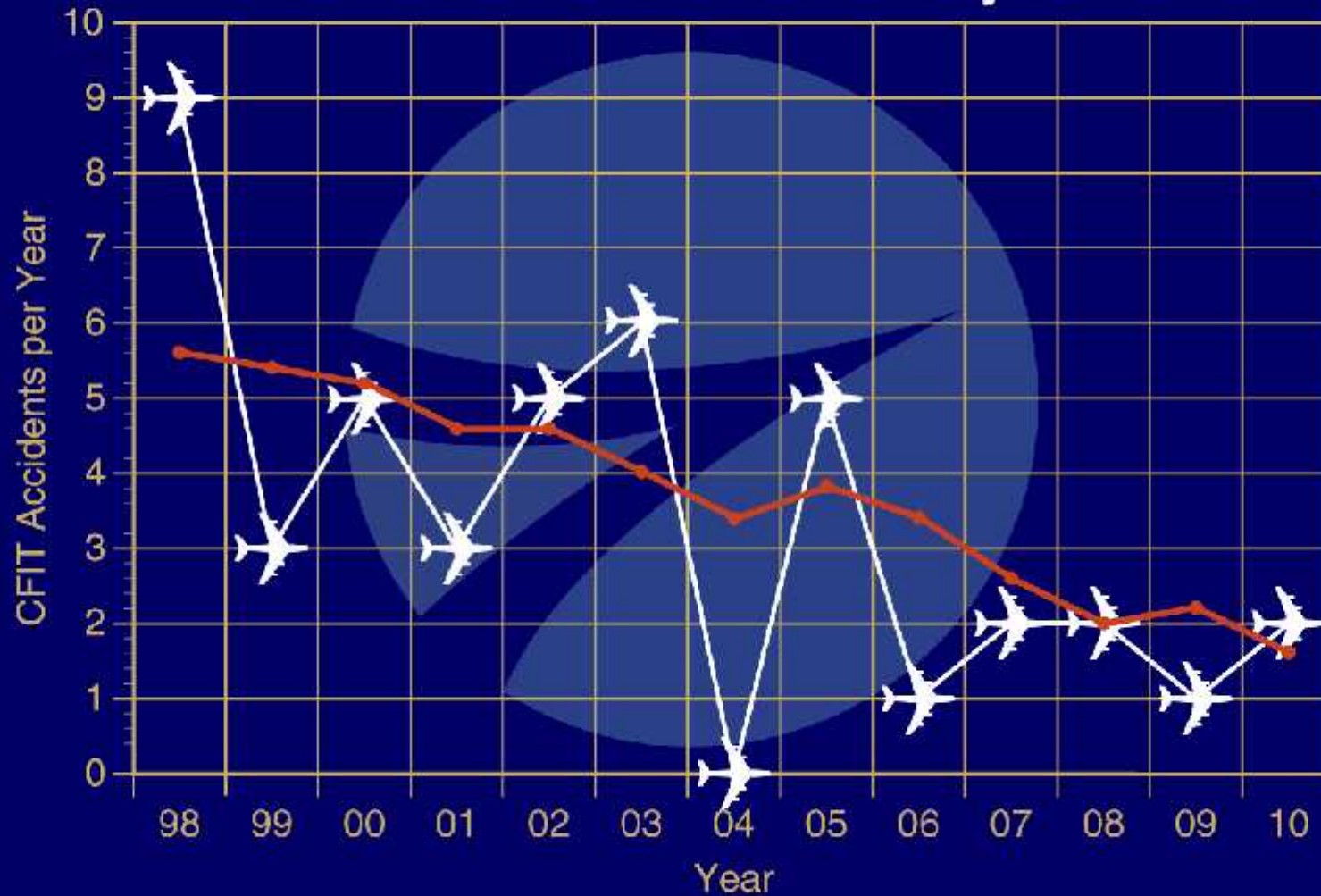
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21 June	RusAir	TU-134	Petrozavodsk, Russia	Landing	45
6 July	Silk Way Airlines	IL - 76	Bagram, Afghanistan	Approach	9
8 July	Hewa Bora Airways	B-727	Kisangani, DRC	Landing	74
30 July	Caribbean Airlines	B-737	Georgetown, Guyana	Landing	0
20 August	First Air	B-737	Resolute Bay, Canada	Approach	12
16 Sept	TAME	EMB-190	Quito, Ecuador	Landing	0
26 Sept	Aeropostal	DC-9	Puerto Ordaz, Venezuela	Landing	0

Controlled Flight Into Terrain Major Accidents Commercial Jets 1 January 2011 through 1 November 2011

Date	Operator	Aircraft	Location	Phase	Fatal
21 June	RusAir	TU-134	Petrozavodsk, Russia	Landing	45
6 July	Silk Way Airlines	IL - 76	Bagram, Afghanistan	Approach	9
8 July	Hewa Bora Airways	B-727	Kisangani, DRC	Landing	74
20 August	First Air	B-737	Resolute Bay, Canada	Approach	12

CFIT

All Commercial Turbojets



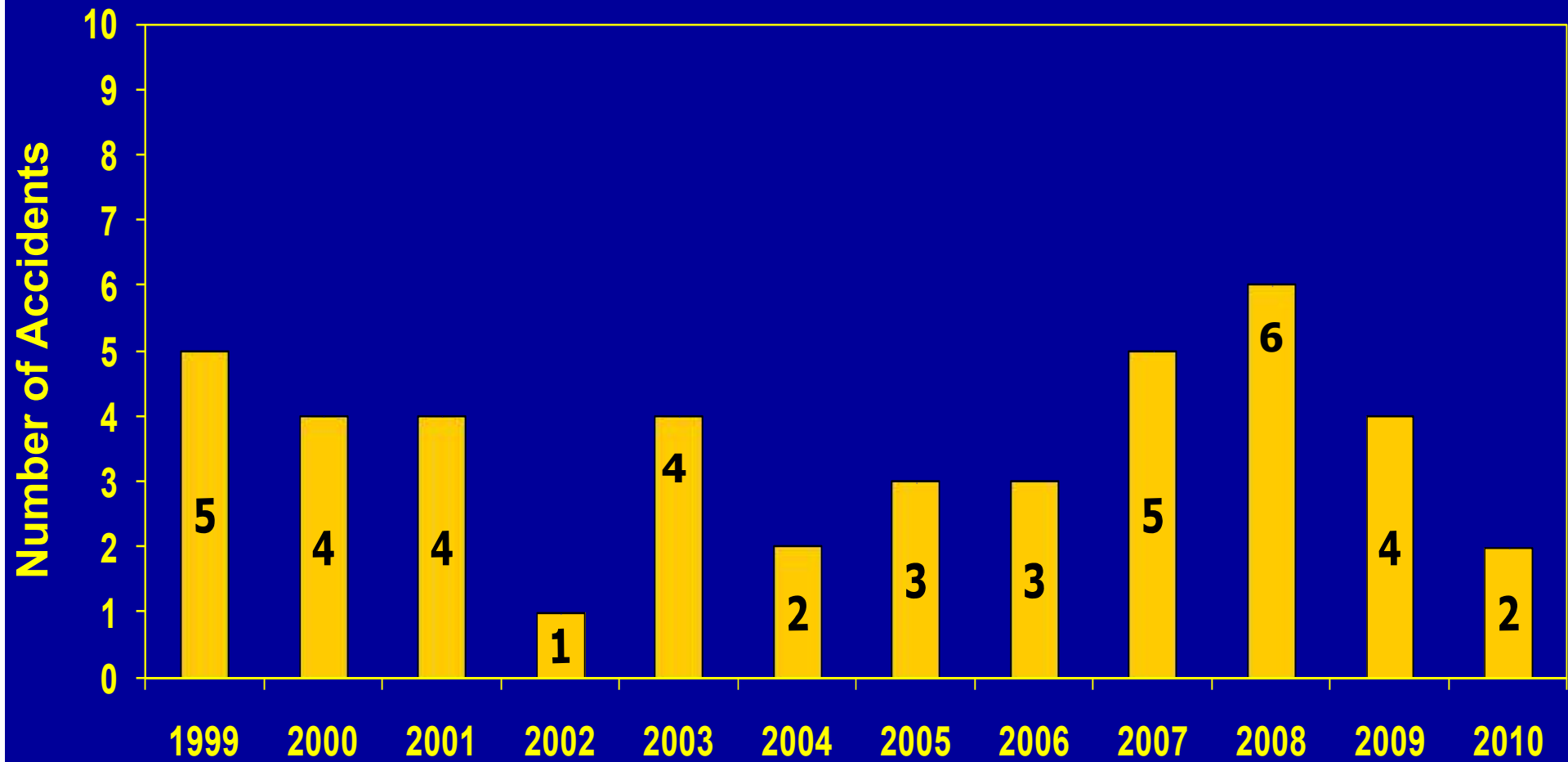
— 5 Year Running Average

Loss of Control Major Accidents Commercial Jets

1 January 2011 through 1 November 2011

Date	Operator	Aircraft	Location	Phase	Fatal
No Loss of Control accidents so far in 2011					

Loss of Control Major Accidents Commercial Jets 1999 through 2010

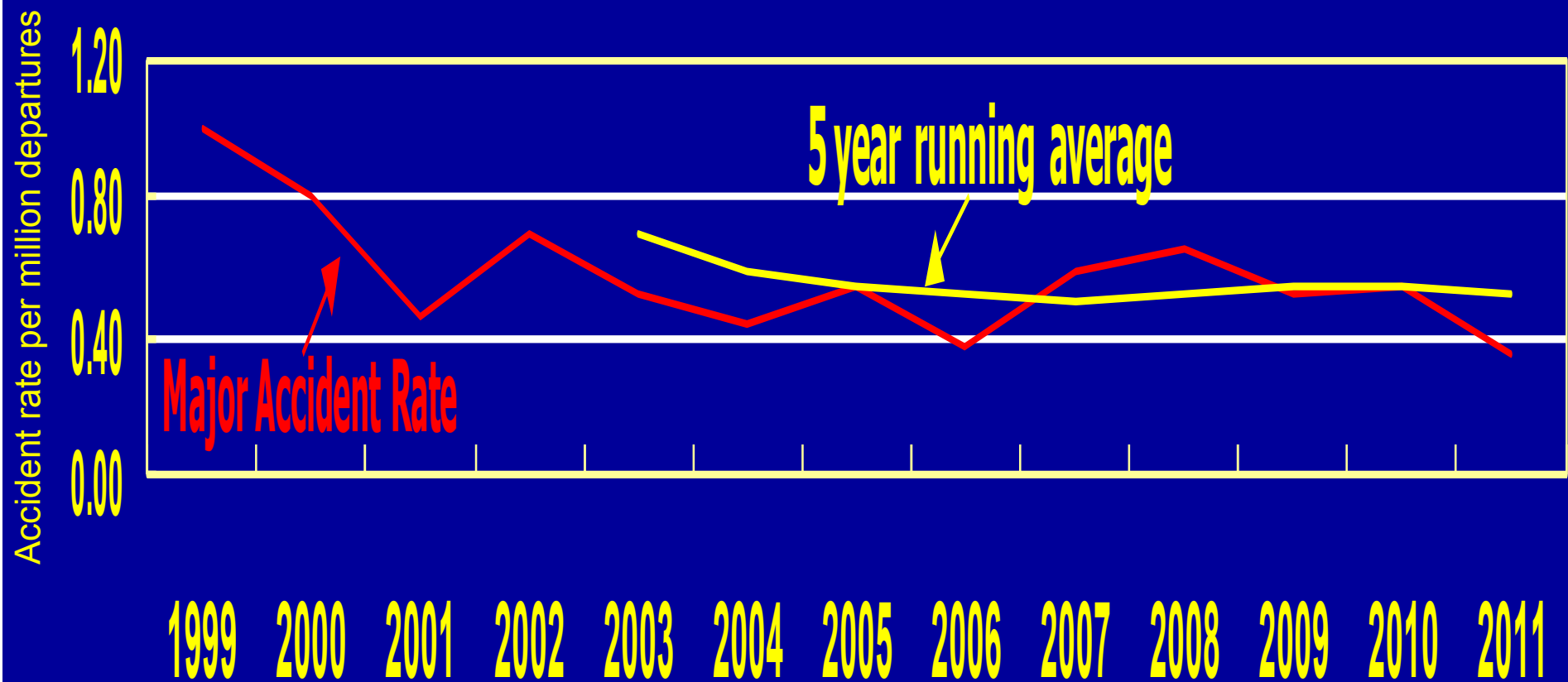


Source: Ascend, Boeing

Major Accident Rate

Western-Built Commercial Jets*

1999 – 2011



Challenges

- **Automation**
 - **Automation knowledge/interaction**
 - **Automation “failures” ?**
 - **AA Cali accident**
 - **THY Amsterdam accident**
 - **Automation dilemma (more or less ?)**
 - **RVSM**
 - **RNP**

Challenges

- **Professionalism**
 - **Profession – What you do**
 - **Professionalism – How you do it**
 - **“ You don’t have to fly for a living to be an aviation professional” - *Earl Weener, NTSB***
 - **“ You don’t have to be getting a paycheck to be a professional pilot” - *Randy Babbit, FAA***
 - **“ Being a professional has nothing to do with what your job is, and everything to do with how you do your job” - *Jim Burin, FSF***

Challenges

Approach and Landing Accident Reduction

- Excursions
 - Success in raising awareness
- Go-arounds
 - Decision
 - * LOSA: 4% unstable – 3% of them go around
 - * Airbus: 3.5% unstable – 1.4% of them go around

9 out of 10 unstable approaches continue to land

Safe Landing Guidelines

Safe Landing Guidelines

Note: The risk of an approach and landing accident is increased if any of the following guidelines is not met. If more than one guideline is not met, the overall risk is greatly increased

- 1. Fly a stabilized approach**
- 2. Height at threshold crossing is 50 feet**
- 3. Speed at threshold crossing is not more than $V_{ref} + 10$ knots indicated airspeed and not less than V_{ref}**
- 4. Tailwind is no more than 10 knots for a non-contaminated runway, no more than 0 knots for a contaminated runway**

Safe Landing Guidelines

5. Touch down on runway centerline at the touchdown aim point

6. After touchdown, promptly transition to desired deceleration configuration:

- Brakes
- Spoilers/speed brakes
- Thrust reversers

Note: Once thrust reversers have been activated, a go-around is no longer an option

7. Speed is less than 80 knots with 2,000 feet of runway remaining

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- 5. Touchdown on runway centerline at the touchdown aim point**
- 6. After touchdown, promptly transition to desired deceleration configuration**
 - Brakes**
 - Spoilers/speed brakes**
 - Thrust reversers**

(Note: Once thrust reversers have been activated, a go-around is no longer an option)
- 7. Speed is less than 80 knots with 2,000 feet of runway remaining**

Aviation Safety 2011

- **Good year overall for commercial jets so far**
 - * Eastern-built jets having second consecutive bad year
- **Average year (so far) for commercial turboprops and business jets**
 - * Eastern-built turboprops having a bad year
- **CFIT continues to be a major killer – and it is happening to aircraft without TAWS installed**
- **There are many challenges out there**
 - * **Automation**
 - * **Professionalism**
- **Safe Landing Guidelines provide information for reducing landing risk**

FSF goal:

**Make aviation safer by reducing
the risk of an accident**