BY RICK DARBY

Good News About Africa

The African accident rates and numbers were down in 2011.

The View From IATA

The Africa region had considerably fewer accidents in 2011 compared with 2010, and the Commonwealth of Independent States (CIS) had fewer accidents as well. Africa's rate of hull losses was reduced from 7.41 per million flights to 3.27 per million flights in the same period. The data are found in the International Air Transport Association (IATA) *2011 Aviation Safety Performance* report.[1]

For Western-built jets worldwide, the 2011 rate of hull losses per million flights was 0.37 in 2011, compared with 0.61 in 2010[2] (Table 1, p. 50). That represented a year-over-year improvement of 39 percent. Unusually, the hull loss rate was higher for IATA member airlines (0.41 per million flights) than for the industry as a whole (0.37 per million flights) in 2011.

"According to the 2011 industry rate, if you were to take a flight every day, odds are you could go more than 7,000 years without [a hull loss] accident," IATA said in its report.

The Asia-Pacific region in 2011 had its lowest rate for Western-built jet hull losses, 0.25 per million flights, for the seven-year period beginning in 2005. The Europe region's equivalent rate was 0.00 versus 0.45 the previous two years. The North America region held steady at 0.10 in both 2010 and 2011.

Both the IATA member and industry rates for hull loss accidents involving Western-built jets have been on a generally improving trend in the 11-year period 2001–2011, although in each category the rate rose in the middle and late years of the past decade (Figure 1, p. 50).

Considering all aircraft types, Eastern- and Western-built, total accident and fatal accident

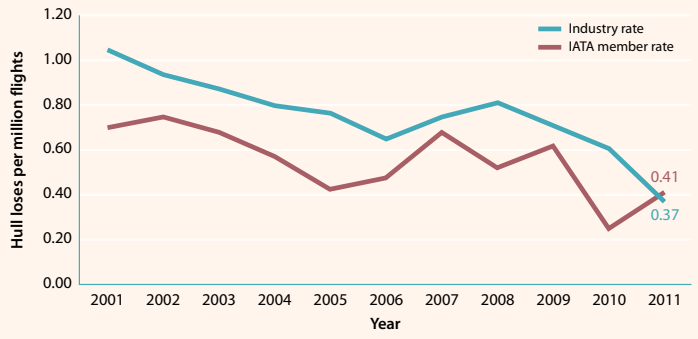
Western-Built Jet Hull Losses per Million Flights, 2005–2011

Region	2005	2006	2007	2008	2009	2010	2011
Africa	9.21	4.31	4.09	2.12	9.94	7.41	3.27
Asia-Pacific	1.00	0.67	2.76	0.58	0.86	0.80	0.25
Commonwealth of Independent States	0.00	8.60	0.00	6.43	0.00	0.00	1.06
Europe	0.33	0.32	0.29	0.42	0.45	0.45	0.00
Latin America and the Caribbean	2.59	1.80	1.61	2.55	0.00	1.87	1.28
Middle East and North Africa	3.84	0.00	1.08	1.89	3.32	0.72	2.02
North America	0.19	0.49	0.09	0.58	0.41	0.10	0.10
North Asia	0.00	0.00	0.88	0.00	0.00	0.34	0.00
Industry	0.77	0.65	0.75	0.81	0.71	0.61	0.37
IATA member airlines	0.43	0.48	0.68	0.52	0.62	0.25	0.41

Source: International Air Transport Association

Table 1

Western-Built Jet Hull Loss Rate per Million Flights, 2001–2011



Source: International Air Transport Association

Figure 1

Accidents, All Aircraft Types, Eastern- and Western-Built

	2010	2011
Total accidents	**94**	**92**
Accidents with IATA members	26	34
Western-built jet hull losses	17	11
Fatal accidents	23	22
Fatalities	786	486

IATA = International Air Transport Association

Source: International Air Transport Association

Table 2

numbers changed little between 2010 and 2011 (Table 2). Fatalities, however, were 38 percent lower in 2011 compared with 2010. In 2011, 24 percent of the total number of accidents were fatal.

Thirty-seven percent of all accidents involved IATA members in 2011, versus 28 percent in 2010. Even so, the IATA member rate for all 2011 accidents, 1.84 per million flights, was better by 23 percent than that for the industry as a whole, 2.40.

Operators that participated in the IATA Operational Safety Audit (IOSA) program, an evaluation of airline operational management and control systems, showed a safety advantage. The IOSA operator total accident rate of 1.73 per million flights was 52 percent better than the 3.8 for non-IOSA operators.

"The total accident rate for African airlines that are on the IOSA registry was almost equivalent to the world average, while the accident rate for airlines that are not on the IOSA registry was more than five times as high," the report says. "The same trend occurred in the CIS, where the accident rate for IOSA-registered airlines was more than five times better than the rate for non-IOSA-registered airlines."

Again looking at total accidents involving Eastern- and Western-built aircraft, Africa showed the greatest improvement year-over-year: 18 accidents in 2010, eight in 2011 (Table 3). While this difference may not be as significant as a longer-term trend would be, a reduction of 10 accidents in the space of a year in one of the world's riskiest areas seems promising.

The Middle East and North Africa region, as well as North America, had fewer accidents in 2011 than the previous year. In the Asia-Pacific, CIS, Europe, and Latin America and Caribbean regions, the accident numbers rose in 2011 from 2010.

"Of the 92 total number of accidents in 2011, 79 [were] passenger flights, 10 cargo flights and three ferry flights," the report says. Jets were involved in 55 accidents, turboprops in 37.

Runway excursions were prominent among accident categories, the report says.

"Runway excursions, in which an aircraft departs a runway during a landing or takeoff, were the most common type of accident in 2011 (18 percent of total accidents)," the report says. "This is slightly reduced from 2010, when runway excursions accounted for 21 percent of the total accidents, reflecting industry efforts to reduce their frequency.[3]

"Despite industry growth, the absolute number of runway excursions decreased from 23 in 2009 to 20 in 2010 and 17 in 2011. Eighty percent of runway excursions occurred during landing. Unstable approaches — situations where the aircraft is too fast, above the glideslope or touches down beyond the desired touchdown point — and contaminated runways are among the most common contributing factors to runway excursions on landing."

Ground damage accidents, such as collisions during taxiing, were 16 percent of the accident total in 2011, an increase from 11 percent in 2010.

FSF Runway Excursion Database Updated

Flight Safety Foundation published a runway excursion database as part of its report, *Reducing the Risk of Runway Excursions: Report of the Runway Safety Initiative*, covering the period from January 1995 through March 2008.[4] The database — created by Safety Management Specialties — has now been updated to the end of 2010.

"Eighteen accidents occurring in the 2008–2010 period were added to the takeoff runway excursions database," the new report from Safety Management Specialists says. "Two additional records from 2007, not previously included, were also added. The takeoff runway excursions database now consists of 130 accident records for the period 1995–2010."

Accidents, All Aircraft Types, Eastern- and Western-Built, by Region

Region	2010	2011
Africa	18	8
Asia-Pacific	12	13
Commonwealth of Independent States	9	13
Europe	12	15
Latin America & The Caribbean	12	15
Middle East & North Africa	10	8
North America	18	17
North Asia	3	3

Source: International Air Transport Association

Table 3

Landing excursions, which — as IATA notes — occur in larger numbers than takeoff excursions, have also been updated. "The landing runway excursions database was supplemented with an additional 86 accident records for the 2008–2010 period, as well as 11 newly identified accidents from 2007," the report says. "This brings the total number of landing runway excursion accident records to 520 for the period 1995 through 2010."

Of the 86 landing runway excursion events over the 2008–2010 period, there were:

- 41 runway overruns and 45 runway veer-offs;
- 12 fatal accidents, resulting in 239 on-board fatalities;
- Nine unstabilized approaches, 27 stabilized approaches, and 50 accidents in which the quality of the approach could not be determined;
- 16 accidents in which conducting a diversion or go-around was appropriate, but apparently not considered;
- Five events in which a diversion or go-around was considered but not conducted;
- 22 accidents involving long landings;
- Five accidents involving landing with excessive speed;
- Nine hard or bounced landings;

'Eighty percent of runway excursions occurred during landing.'

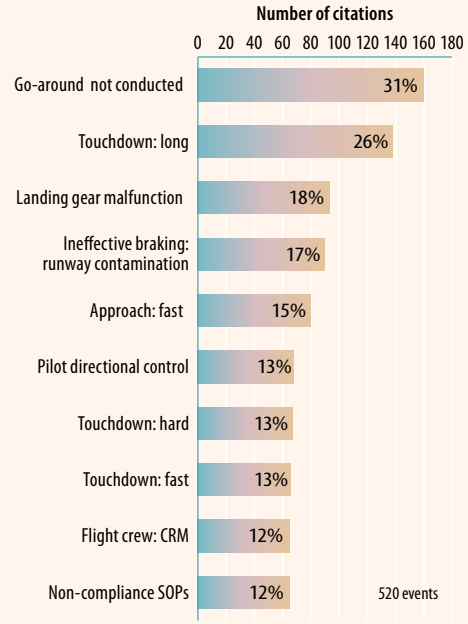
- 14 events involving crosswinds and nine events involving tail winds as relevant factors; and,
- 37 accidents involving wet runways and 15 involving runways contaminated with snow, slush or ice.

The relative contributions of factors involved in landing excursions are consistent in the latest supplement to the database with those in the earlier version, the report says. For the complete 1995–2010 database, "go-around not conducted" and "touchdown: long" were at the top of the list (Figure 2).

There were "very strong associations (greater than 50 percent) with several pairs of factors" in the complete database of landing excursions: "For instance, 'go-around not conducted' is highly correlated with 'unstabilized approach.' This interaction reiterates a common theme accentuating go-arounds as an important mitigator for landing runway excursions. There is also a strong association between 'unstabilized approach" and "touchdown long/fast." This interaction is less incisive, because long, fast landings are inherent elements of an unstabilized approach."

Runway conditions were cited in 79 percent of landing excursions, although (counterintuitively) "wet" and "dry" conditions were cited almost equally, with "dry" conditions a third more common than the combined categories of "slush/snow/ice" and "standing water" (Figure 3).

Landing Excursions, Top Causal and Contributing Factors, 1995–2010

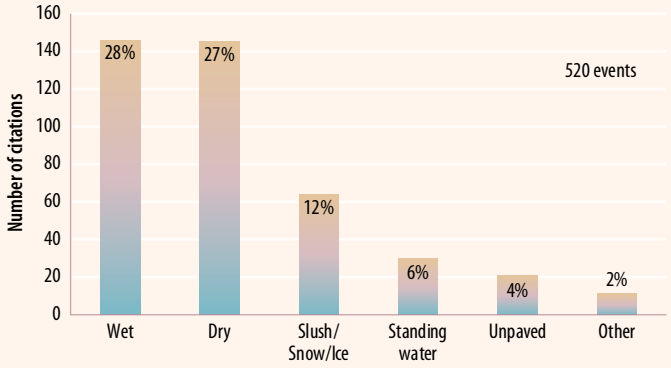


CRM = crew resource management; SOP = standard operating procedures

Source: Flight Safety Foundation and Safety Management Specialties

Figure 2

Landing Excursion Runway Conditions, 1995–2010



Source: Flight Safety Foundation and Safety Management Specialties

Figure 3

Notes

1. The report is available at <bit.ly/yZXK9Q>.
2. A hull loss is "an accident in which the aircraft is destroyed or substantially damaged and not subsequently repaired for whatever reason, including a financial decision by the owner," the report says. Flight Safety Foundation believes that hull losses are not the best metric for operational safety, being more relevant to insurers' actuarial calculations. The Foundation prefers the term *major accident*, with defined criteria, for the most severe type of aircraft accident.
3. IATA's *Runway Excursion Risk Reduction Toolkit* analyzes runway excursion accident data and recommendations for operators, pilots, airports, air traffic management, air traffic controllers and regulators to address the risk of runway excursions.
4. The report is included in the FSF *Approach and Landing Accident Reduction (ALAR) Tool Kit*.