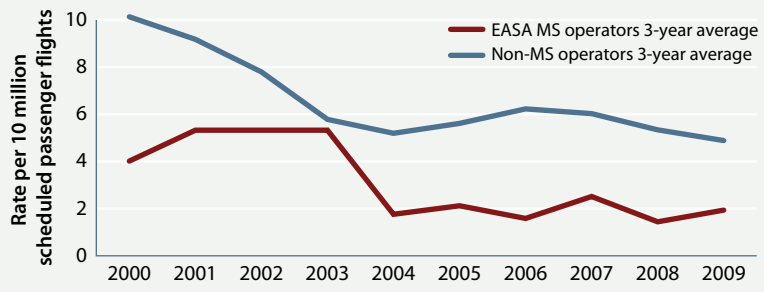
BY RICK DARBY

Accidents Down, Fatalities Up

EASA member states had fewer accidents in 2009 than in previous years, but one airliner loss counted heavily.

The European aviation safety record was marred in 2009 by the loss on June 1 of an Airbus A330 over the Atlantic, resulting in 228 fatalities (*ASW*, 9/10, p. 53). That was the year's only fatal commercial airplane accident for European Aviation Safety Agency (EASA) member states,[1] the agency reported in its most recent annual safety review.[2,3]

Fatal Accident Rates, EASA Member States Vs. Non-Member States, 2000–2009

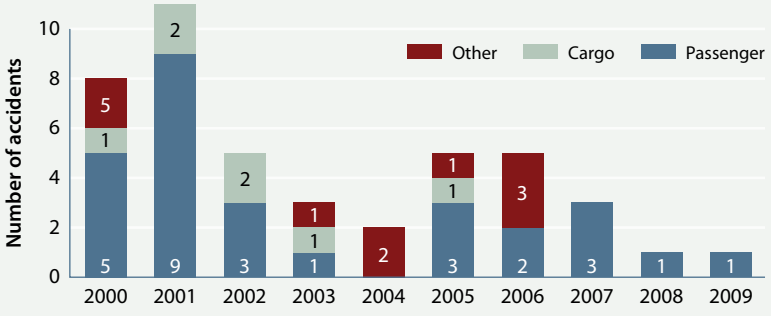


EASA = European Aviation Safety Agency; MS = member state

Source: European Aviation Safety Agency

Figure 1

Fatal Airplane Accidents by Operation Type, EASA Member States, 2000–2009



EASA = European Aviation Safety Agency

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Figure 2

The fatal accident rate of scheduled passenger and cargo operations is significantly lower in Europe than in most of the world. According to the review, the EASA member states' fatal accident rate for the 2000–2009 period was 3.3 per 10 million flights, with the North America and East Asia regions lower, at 2.3 and 2.8 per 10 million flights, respectively. Other regional rates ranged from 4.2 in Australia and New Zealand to 49.1 per 10 million flights in Africa. European non-EASA-member states had a rate of 25.0 per 10 million flights.

Member states had 17 airplane accidents in 2009, 45 percent fewer than the 31 in 2008 and 35 percent lower than the 1998–2007 average of 26. As in 2008, there was one fatal airplane accident — the Air France A330 — compared with an average of four in 1998–2007. Because of the A330 accident, the number of on-board fatalities was notably above that of 2008 or the 1998–2007 average.

Over a more recent decade, 2000–2009, both member and non-member state operators showed a declining fatal accident trend in scheduled passenger operations, but the trend line of member state rates was lower throughout the period (Figure 1). "Although the number of fatal accidents for aircraft operated by EASA member state airlines has remained the same in recent years (one accident), the decrease in the number of flights during the years of 2008 and 2009 has led to an increase in the rate of such accidents," the review says. Traffic, and thus rates, for 2009 are estimates, however.

"Worldwide, excluding EASA member states, passenger air transport operations appear to have a declining proportion of the total number of fatal accidents," the review says. "Other commercial air transport operations, such as air taxi or ferry flights [categorized as other] have an increasing proportion of the total."

For member states, the picture looks somewhat different. Throughout most of the decade, the majority of member state fatal accidents have occurred in passenger operations (Figure 2). But the report does not compare accident rates between operational categories, so numbers of accidents do not precisely measure relative risk.

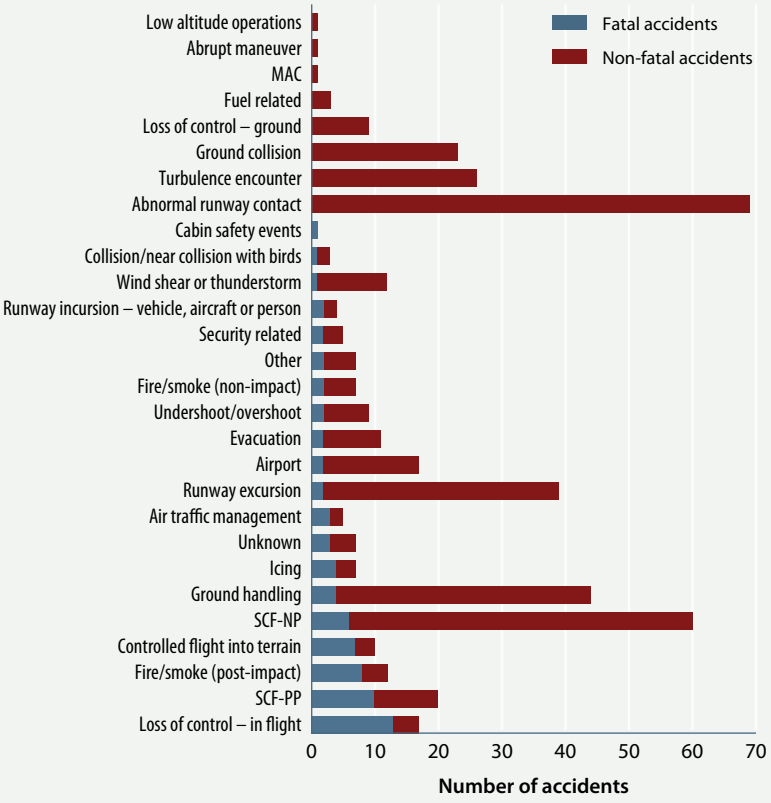
Accidents in member state commercial air transport operations were categorized according to the standardized definitions developed by the Commercial Aviation Safety Team-International Civil Aviation Organization (CAST-ICAO) Common Taxonomy Team.[4] For the 2000–2009 decade, "loss of control in flight" ranked highest among fatal accident categories, followed by "system or component failure — powerplant," and "fire/smoke — post-impact" (Figure 3). Controlled flight into terrain, or CFIT, once the grimmest reaper of all in commercial aviation, has ranked fourth among fatal accident categories during the past 10 years.

The proportions of the top four accident categories, as well as CFIT, have varied over the past 10 years (Figure 4). The review says, "In recent years, the proportion of accidents which included the categorization of ARC (abnormal runway contact) has increased. Such accidents usually involve long, fast or hard landings. …

"Also increasing is the percentile of accidents involving ramp ('ground handling') events. These accidents involve damage to the aircraft by vehicles or ground equipment or the incorrect loading of an airplane."

There were five fatal helicopter accidents in 2009, compared with 10 in 2008 and eight as the 1998–2007 average. The 18 on-board fatalities in 2009, however, exceeded the four of 2008 and the 1998–2007 average of 11. The relatively high on-board fatality number for 2009 was attributable to the 16 occupants killed in a crash during a flight from an oil platform to Aberdeen, Scotland.

Accident Categories, Fatal and Non-Fatal Accidents, EASA Member State Airplanes, 2000–2009

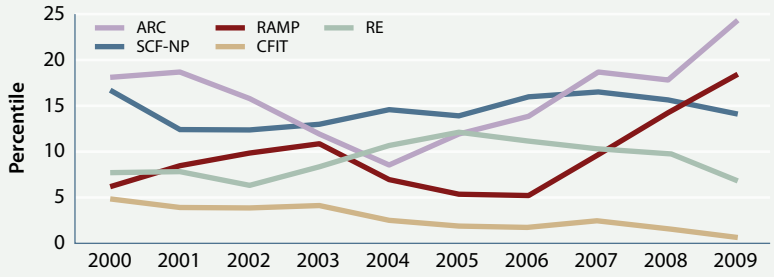


EASA = European Aviation Safety Agency; MAC = airprox/TCAS alert/loss of separation/near midair collision/midair collision; SCF-NP = system/component failure or malfunction (non-powerplant); SCF-PP = system component failure or malfunction (powerplant)

Source: European Aviation Safety Agency

Figure 3

Trends in Top Four Accident Categories and CFIT Category, EASA Member State Airplanes, 2000–2009

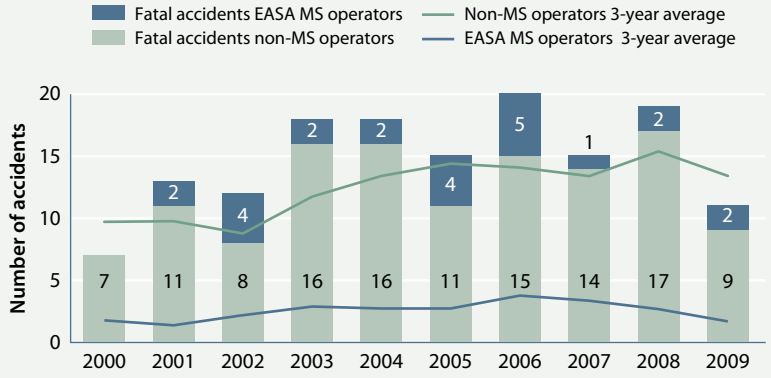


EASA = European Aviation Safety Agency; ARC = abnormal runway contact; RAMP = ground handing; RE = runway excursion; SCF-NP = system/component failure or malfunction (non-powerplant); SCF-PP = system component failure or malfunction (powerplant); CFIT = controlled flight into terrain

Source: European Aviation Safety Agency

Figure 4

Fatal Helicopter Accidents, EASA Member States and Non-Member States, 2000–2009

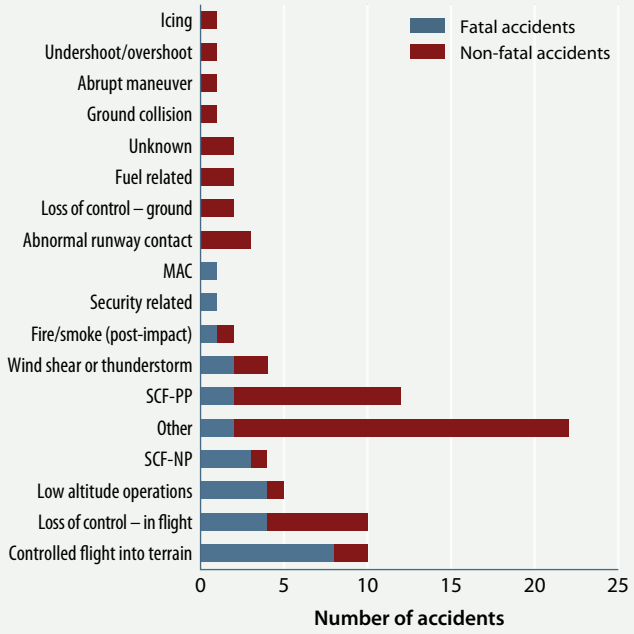


EASA = European Aviation Safety Agency; MS = member state

Source: European Aviation Safety Agency

Figure 5

Fatal and Non-Fatal Helicopter Accidents, EASA Member States, 2000–2009



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Source: European Aviation Safety Agency

Figure 6

"When looking at the three-year moving averages, it appears that the number of fatal helicopter accidents worldwide has increased in the last years, while the average for EASA member state operators has remained more or less constant," the review says (Figure 5).

In contrast with airplane operations, CFIT was the most frequent category for member state fatal helicopter accidents from 2000 to 2009 (Figure 6). The review says, "In most cases, adverse weather circumstances were prevalent, such as reduced visibility due to mist or fog. Also, several flights had taken place at night or over mountainous or hilly terrain."

The next highest category in fatal accidents was "loss of control in flight." That was approximately equaled, however, by "low altitude," which scarcely appears in the ranking of categories in fatal airplane accidents. The review says that the category consists of "collisions with terrain and objects that occurred while intentionally flying close to the surface, excluding takeoff and landing phases."

"System component failure — non-powerplant" and "system component failure — powerplant" were significant in member state helicopter fatal accident numbers and non-fatal accident numbers, respectively. "The accidents in both categories mainly involve engine, main rotor system, tail rotor system or flight control failures or malfunctions," the review says.

EASA says that it has attempted to reduce the proportion of accidents classified as "unknown" by obtaining additional accident data. Only two accidents — both non-fatal — had unknown causes in the 2000–2009 data.

Notes

1. EASA member states are the 27 European Union countries plus Iceland, Liechtenstein, Norway and Switzerland.
2. EASA. *Annual Safety Review 2009*. Available via the Internet at <easa.europa.eu/communications/docs/flash/ASR-2009>.
3. The accident data involved at least one aircraft with a maximum takeoff weight greater than 2,250 kg (4,960 lb). Accident and fatal accident definitions followed International Civil Aviation Organization Annex 13, *Aircraft Accident and Incident Investigation*.
4. <www.intlaviationstandards.org/index.html>. An accident may be assigned to more than one category.