



Flight Safety Foundation

Who We Are and What We Do

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Mission and Membership

Flight Safety Foundation (FSF) has been established for well over 57 years. Founded in 1947 by the then-leaders of the aviation industry, the Foundation was set up as an independent, international, nonprofit organization to provide a neutral forum and a noncompetitive environment where all sectors of the industry could meet to discuss aviation safety concerns. Its mission was to study flight safety, identify and anticipate safety problems, to seek solutions to those problems and to disseminate flight safety information. Today, that mission remains essentially unchanged, and the Foundation, with about 900 members from some 150 countries representing every sector of the aviation industry, continues to be supported by the industry's top leaders.

Past Safety Initiatives

Over the years, the Foundation has spurred efforts in a large number of significant safety improvements, many of which are taken for granted today. These include the use of flight data recorders, weather radar, confidential reporting systems, fire-warning systems, structural design requirements for crash survival, ground proximity warning systems and in-flight collision warning systems.

FSF Current Priorities

In recent years, the Foundation has advocated that the main focus of the industry's safety-improvement efforts and prime allocation of its resources should be on those areas that have the most leverage for improvement and that would yield the most significant reduction in the overall accident rate. Using this data-driven approach, statistics clearly show that, over the past 15 years, controlled flight into terrain (CFIT) has been the leading cause of aviation fatalities. One-fourth of all lives lost in accidents involving commercial jet airplanes (1994–2003) were due to CFIT. Statistics also show that over half of hull losses and/or fatal accidents occurred during the approach-and-landing phase. The Foundation has focused on preventing these approach-and-landing accidents (ALAs), including those involving CFIT. In recent years, loss of control (LOC) has surpassed CFIT as the leading cause of fatalities. Finally, in common with all other industries, in more than 85 percent of all aviation accidents, one of the contributing factors has been human error. There are numerous other causes of aircraft accidents, such as midair

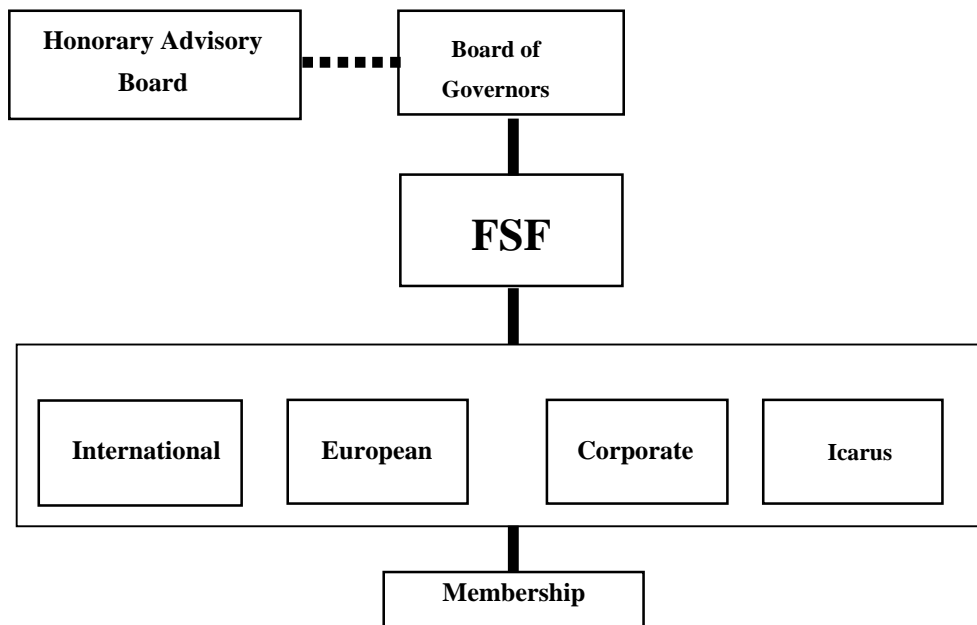
collisions, runway collisions, bird strikes and environmental conditions, all of which are addressed in some way by the Foundation. However, statistically they are infrequent occurrences compared with the big four already listed. Clearly, concentrating on the elimination of CFIT, ALAs, LOC and human factors accidents offers the most potential for safety improvement.

Consequently, in recent years the Foundation's main efforts have been applied in these areas. Although working with different data taxonomies, other major bodies including ICAO, IATA, FAA, CAST, JSSI and JAA have reached the same general conclusions and have also adopted them as their main priorities.

Board of Governors

The relatively small staff of the Foundation, about 17 people, reports through its President to its controlling body, the Board of Governors. The Board itself comprises prominent individuals with extensive experience drawn from aviation and other industries around the world. The Board sets the policies of the Foundation, determines the current agenda and oversees its overall activities.

FSF Organization



Advisory Committees

The heart of the Foundation lies in its three advisory committees. The International Advisory Committee (IAC) addresses large-jet operations (typically 100 seats and up); the Corporate Advisory Committee (CAC) deals with corporate and business aircraft

operators; the European Advisory Committee (EAC) focuses on smaller and regional airlines in the European region. These committees, drawn from FSF membership, typically comprise 30-40 people from all sectors of the aviation industry (including airlines, manufacturers, equipment suppliers, regulators, insurance companies and academia). They normally meet two times a year to identify the current safety problems in their areas of interest. They prioritize their concerns and seek solutions, which are then disseminated through the Foundation's many publications and through its various air safety seminars or workshops where appropriate. Special task forces are formed to address specific safety challenges.

These advisory committees are also each responsible for organizing their respective annual safety seminars, providing expert inputs and advice to the Foundation in their areas of expertise, providing support, and being representatives for the Foundation in their areas of the aviation industry.

Icarus Committee

In addition to its advisory committees, the Foundation also sponsors a think tank — the Icarus Committee — whose members are senior and internationally respected aviation experts. The Icarus Committee considers wider issues affecting aviation. In the past, it has drawn attention to management's responsibility for safety and its influence on the development of an organizational safety culture. This has led to the publication of several special FSF reports on this topic and the distribution of special briefing letters to industry leaders around the world.

The Icarus Committee also initiated a Flight Operations Risk Assessment System (FORAS) project to measure risk analytically and quantitatively. This ongoing project is supported by a grant from NASA and is now undergoing beta testing at several airlines and, if successful, could provide an invaluable tool for management in assessing changes in risk when making business decisions.

In recent times, the Icarus Committee has also worked successfully with ICAO on a project to ensure the protection of the sources of safety information. At the ICAO General Assembly concluded in October 2004, an Assembly Resolution addressing this subject, drafted by the Icarus Committee, was adopted.

'Sister' Organizations

The Foundation has several affiliated regional organizations that it supports in their activities to develop improved aviation safety in various different regions of the world. Each organization is independent but is modeled after the Foundation and deals with safety issues in its own region. These affiliates or "sister organizations" include FSF-Japan, FSF-Taiwan and FSF-Russia. The latter, based in Moscow, is particularly active and looks after aviation safety activities in the Commonwealth of Independent States (CIS) — the former Soviet Union.

In recent years, the Foundation has also established relationships with additional affiliated chapters in West Africa (Lagos, Nigeria), Australia (Melbourne), Iceland (Reykjavik) and South East Europe (Athens, Greece) and is currently involved in the

process of organizing a North African affiliate based in Egypt (Cairo).

FSF-IATA Alliance

In 1999, the Foundation and IATA joined into an alliance "... to enhance the exchange of aviation safety information between FSF and IATA members and to support the aviation industry worldwide." Under the terms of the alliance, all members of IATA became members of the Foundation and thus received the Foundation's safety publications, enjoyed reduced registration rates for seminars, and had access to FSF safety resources. The executive committee of the IATA Safety Advisory Committee (SAC) all became members of the IAC.

The Alliance agreement has recently been modified making membership in the Foundation by IATA members voluntary. Only one IATA member out of some 275 chose to drop out. In an effort to better coordinate the efforts of the two organizations and to avoid possible duplication, a six-member Council drawn from each constituency oversees the safety activities.

Seminars and Joint Conferences

The Foundation conducts three major aviation safety seminars each year, each associated with one of its three advisory committees. The International Air Safety Seminar (IASS) moves around the world and focuses on international safety issues. In recent years, the conference has been held in Rio de Janeiro, Athens, Dublin, Washington, D.C., and Shanghai. It is organized and conducted in conjunction with IATA and IFA. The Corporate Aviation Safety Seminar (CASS) is held in conjunction with NBAA and conducted in North America, home to over 80 percent of the world's business aircraft. The European Aviation Safety Seminar (EASS) is held in conjunction with ERA and conducted in various European cities such as Budapest, Geneva, Barcelona and Warsaw.

The Foundation has also conducted joint conferences on general and specific safety issues with organizations like ICAO, Boeing, Airbus, IFALPA and SAE. In addition, FSF staff provide support by presenting papers at numerous other industry conferences, workshops and other safety-related events.

Publications

Our nine-member staff annually produces 54 issues of scheduled publications, special products such as the *ALAR Tool Kit* (made possible because of the outstanding work of FSF task-force volunteers), proceedings of our three seminars, promotional/informational materials for the seminars, membership materials, dozens of news releases and targeted original research, including statistics. These publications are distributed widely throughout the world to all members and other aviation-related organizations and are vital to preventing aviation accidents by supplying objective information widely, clearly and accurately to audiences that otherwise would not be as well informed. Reprints by other organizations also expand distribution of our information. Although we hold copyright to

these materials, our policy generally encourages free use and wide distribution in the interest of safety. Airlines and other organizations often adapt our work for their in-house safety publications, news reports and programs. Many member airlines, for example, routinely use our information in their respective safety publications. Government authorities have cited our publications as background for official accident-investigation reports. Individual aviation professionals, aviation journalists and mainstream news media similarly rely on these products in their own reports.

We're proud that an example of this work — the “Waterproof Flight Operations” issue of *Flight Safety Digest* — was recognized by FAA with a 2004 award for excellence in aviation research. This 664-page “digital book” on compact disc (CD, a limited number of full-color books were also printed) synthesized for the first time hands-on information for corporate, fractional, on-demand and commuter operators about topics such as how to ditch aircraft, select life rafts, choose safety equipment, understand search-and-rescue capabilities and much more. This project continued a tradition of creating products of unique value. Earlier special *FSD* issues have included in-depth reports on approach-and-landing accidents (“Killers in Aviation”), ground deicing, crew rest and duty-time limitations for corporate and business aviation, flight operational quality assurance and ultra-long-range operations.

The overall mission keeps the editors (who also have experience as pilots) and other highly skilled team members busy working closely with specialists in aviation safety worldwide to research, write, edit and design original articles. They also adapt complex government reports for easy comprehension and practical use. Editors directly assist task forces (such as the ground-accident prevention initiative) to envision and create appropriate products of high quality.

Web Site and Library

The Foundation operates an extensive, award-winning web site covering all of its current publications and activities.

Our publications are distributed globally to all FSF members, and then become accessible to thousands more aviation-related organizations and individuals through the web site, which presents all our current activities and archived information. The web site enables quick searches on any topic that the Foundation has addressed through a powerful search engine and free downloading of nearly all the publications we have produced during the past 17 years. In 2004, the web site averaged more than 1,260 daily visits — approaching 40,000 visits per month.

In addition, the Foundation maintains an extensive aviation safety library, the Jerry Lederer Aviation Safety Library, that is an integral part of the Publications Department. It provides all FSF staff, FSF members, academic researchers and journalists with an extensive collection of regulatory documents and books, periodicals, reports, CDs and other safety-focused media. Moreover, the librarian's research expertise is enhanced by professional research networks and by cultivation of relationships with other sources of current knowledge.

FSF Awards Program

The Foundation administers a number of awards that are presented annually, selection usually being made by an independent committee. These include:

Airport Safety Award

Aviation Week & Space Technology Distinguished Service Award

The Laura Taber Barbour Air Safety Award

Joe Chase Award

Admiral Luis de Florez Flight Safety Award

Flight Safety Foundation–Airbus Human Factors Award in Aviation Safety

FSF Cecil A. Brownlow Publication Award

The Richard Teller Crane Founders Award

FSF Business Aviation Meritorious Service Award

The Honeywell *Bendix Trophy* for Aviation Safety

Flight Safety Foundation–Boeing Aviation Safety Lifetime Achievement Award

FSF President's Citation

In addition, the Foundation also oversees one of the industry's most prestigious awards, the FSF Heroism Award, which is only made in the most exceptional of circumstances.

Aviation Safety Services

The Foundation offers numerous safety services to both industry and governments. These include independent safety audits and internal system evaluations of air carriers, corporate aircraft operators, airports and service centers.

The Foundation was the first to propose the concept of standardized safety audits in order to prevent significant duplication and cost to the industry. Subsequently this concept was developed by IATA with FSF involvement and today, the Foundation's airline-audit arm is also qualified and has approval to conduct IATA Operational Safety Audits (IOSA) for air carriers around the world.

Special Projects

In addition to its seminars, the Foundation also organizes and coordinates special projects. Current examples of these include:

Duty and rest guidelines for FARs Part 91 corporate operators

There is no regulation of duty and rest periods in the corporate-aviation industry. On the other hand, it was recognized that, with the advent of business aircraft having flight durations of over 16 hours, there should be some guidelines for crew rest to ensure safe operations. The Foundation worked with industry and the scientific community to develop such guidelines that were accepted and are now in extensive use throughout the industry.

Ultra-long-range air carrier operations.

The major aircraft manufacturers have also developed aircraft capable of even longer durations, in some cases, of up to 24 hours. This, too, raised concerns about the way in which such flights should be crewed and operated. The Foundation, in its strictly independent capacity, was able to overcome the highly charged and contentious political problems, particularly between pilots and managements, by getting all stakeholders together in a number of workshops where the various issues were discussed. Drawing on its experience in the corporate field, appropriate recommendations for ultra-long-range operations were developed that are now being field tested by several airlines, notably Singapore Airlines that is flying Singapore–New York nonstop, a scheduled flight time of 23 hours and 55 minutes.

FOQA for corporate operators (C-FOQA)

The Foundation has been a great advocate of flight data monitoring and confidential nonpunitive reporting programs, known in the U.S.A. as FOQA programs. These programs, which analyze data from onboard digital flight data recorders, have proven to be one of the most powerful means of identifying potential problems before they became serious, and there are many instances of their use in the airline industry that can be cited where accidents had been prevented before they occurred.

The Foundation has been endeavoring to build on the successful use of FOQA programs in the air carrier industry by developing similar programs for the corporate-aviation industry. There are several reasons why this is more difficult including the fact that, ideally, there should be a fleet of at least 10 aircraft. While progress was being made with several larger fleet operators, the main hurdle now being faced is opposition from the pilot community over confidentiality concerns and the possibility of punitive action for errors exposed by the program. These objections are similar to those experienced in the early days of airline FOQA programs, and the Foundation is continuing to see how they might best be overcome.

Ground accident prevention (GAP)

Safety on the ground needs considerable improvement. FSF research has shown that, worldwide, there are as many as 200 aviation industry fatalities each year and many more injuries as a result of ground accidents on and around the ramp. Further, the cost of damage resulting from ground accidents exceeds US\$5 billion.

While a considerable amount of good work has been done by other organizations, such as IATA and ACI on this subject, the Foundation's assessment was that the outcomes generally related to each organization's particular interest and did not relate in any great degree to other sectors. For instance, IATA's ramp handling manual is not used by the corporate or taxi operators, and vice-versa, although they are all sharing the same ramp space together. As a result, the Foundation has set up a task force comprising representatives of all stakeholders and other interested parties. The intention is not to reject all that has been done before and to reinvent the wheel, but rather to draw on the work done by other organizations in the past and to obtain consensus on operational procedures and best practices that can be utilized by all industry sectors using the ramp.

Smoke/Fire/Fumes in the Aircraft

The Foundation has been asked to lead this industry initiative to address the challenge of smoke/fire/fumes in the aircraft. A workshop was held addressing this issue, attended by manufacturers and operators. A draft philosophy and checklist template were developed. A symposium to address this issue and make final recommendations is planned for March 2005.

Recent and Ongoing Major FSF Activities

For the past 12 years, the Foundation has led the major industry effort to address the approach-and-landing accident reduction (ALAR) challenge that has also included the reduction of CFIT accidents. This work, implementation of which is still a major ongoing effort, has received numerous industry accolades, including the prestigious *Flight International* magazine's Aerospace Industry Award—Training & Safety on three separate occasions.

The vast majority of CFIT accidents occur during the approach-and-landing phase of flight. Since CFIT was the leading cause of aviation fatalities, we addressed this aspect first with a special task force that was followed later by an expanded task force focusing on ALAR itself. A brief outline of each task force's work follows:

CFIT Task Force

The Foundation organized and led an international task force, drawn from the aviation industry worldwide, to reduce CFIT. Their work generated a number of CFIT educational and awareness products. These products include a comprehensive training aid, the CFIT checklist and videos. These have all been translated into the six official ICAO languages — English, Spanish, French, Russian, Arabic and Chinese. With the help of the major airframe manufacturers, including Boeing, Airbus, Saab, Aero International, Gulfstream, Bombardier and others, all working together under the neutral umbrella of the Foundation, these products were distributed to commercial and corporate aircraft operators worldwide. They were also distributed to the world's aviation regulatory authorities, and to major training organizations.

Approach-and-landing Accident Reduction (ALAR) Task Force

Another major FSF task force addressed the challenge of the approach-and-landing phase. It is during this phase of flight that over half of all aviation accidents occur. The ALAR effort was directed to develop data-driven interventions to address commercial, cargo and corporate operators as well as ATC, regulators and airports. The culmination of the ALAR effort was the *ALAR Tool Kit*. This CD consolidates the data, products, findings, conclusions and recommendations of nine years of work by almost 300 international aviation experts. It contains PowerPoint briefings with speaker's notes, videos, aircrew briefing notes and reference material that can be used to educate and inform aviation personnel, both aircrews and ATC, of approach-and-landing data, hazards and interventions to reduce risk of a CFIT or approach-and-landing accident.

ICAO has endorsed the *ALAR Tool Kit* as "... containing extremely valuable accident prevention material which will greatly assist accident programmes." And, of great significance, is the fact that a number of the recommendations contained in the *ALAR Tool Kit* have been accepted by both the FAA and JAA and now form the basis of new pilot-training requirements. Others have followed suit, and in order to obtain a commercial pilot's license or have one renewed in Russia, India, Mexico and several other states, it is now necessary to undergo an ALAR training course based on the FSF *ALAR Tool Kit*.

CFIT/ALAR Action Group (CAAG)

At the completion of the CFIT and the ALAR task forces' work, a joint meeting of the Foundation's three advisory committees was held to determine the best way to implement the interventions of the two efforts. The result was the creation of the CAAG. This group was tasked with utilizing the lessons learned from the CFIT effort to more effectively implement the ALAR recommendations. This was done by organizing workshops on a regional basis worldwide at which FSF staff, assisted by others drawn from FSF membership briefed industry stakeholders on the contents and use of the *ALAR Tool Kit*. They, in turn, took that information and, in a manner best suited to their own local culture, further disseminated the information down to the end-users in their own region. These implementation workshops have been a major undertaking for the Foundation and have absorbed much of its meager staff resources for a considerable time. Nevertheless, in the past three years, highly successful regional ALAR workshops have been completed in Miami, Mexico City, Bangkok, Nairobi, Johannesburg, Cairo, Reykjavik, Perth, Melbourne, Beijing, Dakar, Moscow, Brussels, Dubai, Bahrain, Korea and Alexandria, Virginia, (for corporate operators). It must also be mentioned that many of these workshops have received invaluable assistance from our local FSF affiliate organizations.

Loss of Control

The Foundation was the primary coordinator in organizing the industry effort aimed at preventing "loss of control" accidents and in the production of the loss of control training aid. Competing manufacturers joined together under the FSF neutral umbrella to develop and produce educational videos addressing the challenge of loss of control accidents.

The successes of all these task forces are prime examples of how the Foundation, in conjunction with the international aviation industry, is taking positive action to constantly improve safety. These actions, as with all of our efforts, are aimed at reducing the risk of accidents and we will continue to focus on those areas where we can achieve the most significant results and save lives.

Human Factors Programs

The Foundation has long advocated the importance of identifying mistakes that people make and why they make those mistakes. We have vigorously advocated programs for the continuous analysis of flight data. These programs, known as flight operational quality assurance (FOQA) programs in the U.S.A., combined with confidential nonpunitive reporting systems, have been extremely effective as a means of identifying

problems and reducing risk. The FSF European Advisory Committee is currently involved in a project to create a “Human Factors Tool Kit” to address human factors topics and issues.

Safety Audits

Air traffic is expected to double in the next 12 to 15 years. At the same time, funding for regulatory oversight by many authorities is becoming increasingly limited. In 1997, the Foundation advocated adoption of the practice of the financial industry, which uses certified auditors to examine the accounts of banks and public companies on behalf of the financial regulators. The Foundation felt this concept could also be applied to the aviation industry whereby ‘certified safety evaluators’ could examine the operational systems of individual carriers on behalf of the aviation regulatory authority and other airline partners. IATA took up this effort, and they have done an impressive job of developing this idea into the IATA Operational Safety Audit (IOSA), an effort in which the Foundation participated.

Regional Aviation Safety

Notwithstanding that, as a result of FSF efforts and others’ efforts, the overall worldwide accident rate continues to be driven down, the accident rate in different regions varies widely. In North America and Western Europe, the rate is extremely low, whereas in South America and South Asia, for example, it is higher and in Africa it is horrendous. As a result, the Foundation has spent much time promoting aviation safety and the means of improving it in those areas.

Other Areas of Foundation Involvement

The Foundation also participates in many other areas of safety. These include being on the oversight committees for CAST, PAAST, GAIN, NBAA, NASA, COSCAP and other safety organizations and efforts. In addition, we participate in ICAO’s Industry Safety Advisory Panel and have served on numerous governmental committees reviewing aviation safety matters both in the U.S.A. and in other countries.

Other Benefits to FSF Members

The Foundation also has distributed safety information and safety products to its members from other organizations. These include: the *Operator’s Flight Safety Handbook* from GAIN; the latest CAST safety activities; turboprop and turbojet engine malfunction and response training videos from FAA/ATA/CAA; and the *Level Bust Tool Kit* from Eurocontrol.

Advocacy

Although commercial air transport has an enviable safety record compared with any other modes of public transportation, when they occur, aviation accidents generally attract the public’s attention. Notwithstanding the very low accident rate, it is the actual number of accidents that drives the public and political perception of safety, often with adverse results.

The Foundation is frequently asked to comment in the media (to journalists from television, radio and the press) on matters relating to aviation safety, particularly following an accident. Such comment is always objective. The Foundation's starting point is that aviation is fundamentally very safe. However, our mission is to seek constant further improvements. We endeavor to allay public concerns with measured and constructive assessments based on expert knowledge rather than responding in such a way as to further sensationalize the event.

In addition, the Foundation is frequently asked to give safety presentations at international organization conferences and seminars such as The Royal Aeronautical Society, the International Union of Aviation Insurers, GAIN, ACI, IFALPA, ALPA, American Bar Association and ISASI to name just a few.

Industry Relationships

The Foundation maintains close relationships with many other aviation-related organizations around the world, both government and nongovernment, and works with them in various ways. A partial list includes:

AAAE	AAPA	ACI	AIAA	ANAE	AOPA
ATA	ATAC	ATCA	CANSO	EAA	ECAC
ERA	Eurocontrol	IATA	ICAO	IFA	IFALPA
IFSC	ISASI	NATA	NBAA	NLR	RAeS
SAE	UKFSC				

In addition, the Foundation has good relationships with many accident-investigation bodies and regulatory authorities throughout the world.

Worldwide Safety Agenda

The Foundation has always advocated an integrated strategy for a focused safety-improvement effort on a worldwide basis. Around the globe there are numerous safety-improvement plans being developed by various competent bodies. These include ICAO, IATA, PAAST, COSCAP, CAST, JSSI and others. While the participants are generally well known to each other, in many cases, the individual plans were being developed independently, notwithstanding that all of them were identifying many of the same main safety concerns.

The Foundation, because of its unique position as an independent, international, nonprofit organization, continues to act as a facilitating body that attempts to integrate these activities in order to reach consensus as to the main safety concerns both on a worldwide and regional basis, and to avoid expensive duplication of effort. Also, many of the regional contacts and organizations that the Foundation has worked with, particularly in its ALAR effort, have established a safety network that can be used for challenges beyond ALAR, such as runway incursions or bird strikes.

Industry Recognition

The work of the Foundation and members of its staff to constantly improve aviation safety has been recognized in recent years, and we have received numerous awards. In the past few years these include:

- 1994 *Aviation Week & Space Technology* Magazine Laurel Award
- 1995 SSAE Distinguished Contribution Award
- 1997 *Air Transport World* Magazine Airline Industry Service Award
- 1998 *Ground Equipment* Magazine Prillitzer Prize
- 1999 ICAO Edward Warner Award (Gold Medal)
- 1999 *Flight International* Magazine Aerospace Industry Award–Training & Safety
- 2000 Embry Riddle University Pinnacle Award
- 2000 *Flight International* Magazine Aerospace Industry Award–Training & Safety
- 2001 *Flight International* Magazine Aerospace Industry Award–Training & Safety (runner-up)
- 2002 *Flight International* Magazine Aerospace Industry Award–Training & Safety
- 2003 SAFE Association Outstanding Contribution to Safety Through Education Award
- 2004 NBAA Award for Meritorious Service to Aviation
- 2004 FAA Excellence in Aviation Research Award

Summary

Flight Safety Foundation has a long history of safety involvement. It is fair to say that the Foundation is involved in or actually leading almost every major aviation safety activity that is underway in the world today. These efforts have the single, constant and focused goal of making flying safer by reducing the risk of an accident.