

c. Training involving communications and the use of automation can be developed for crews operating aircraft with advanced technology cockpits, or for crews transitioning into them

14. ASSESSMENT OF CRM TRAINING PROGRAMS. It is vital that each program be assessed to determine if it is achieving its goals. Each organization should have a systematic assessment program. Assessment should track the effects of the training program so that critical topics for recurrent training may be identified and continuous improvements may be made in all other respects. Assessment of the training program should include observation of the training process by program administrators and self-reports by participants using standard survey methods.

a. The emphasis in this assessment process should be on crew performance. The essential areas of CRM-related assessment include communications processes, decisionmaking, team building and maintenance, workload management, and situation awareness, always in balance with traditional technical proficiency. An additional function of such assessment is to determine the impact of CRM training and organization-wide trends in crew performance.

b. For optimal assessment, data on crewmembers' attitudes and behavior should be collected before CRM indoctrination and again at intervals after the last component of CRM training, to determine both initial and enduring effects of the program. The goal should be to obtain an accurate picture of the organization's significant corporate personality traits before formal adoption of CRM training, and to continue to monitor those traits after implementation.

c. Reinforcement and feedback are essential to effective CRM training programs. Crewmembers must receive continual reinforcement to sustain CRM concepts. Effective reinforcement depends upon usable feedback to crewmembers on their CRM practices and on their technical performance.

d. Usable feedback requires consistent assessment. Crewmembers and those involved in training and evaluation should be able to recognize effective and ineffective CRM behaviors. CRM concepts should be critiqued during briefing/debriefing phases of all training and checking events.

e. To summarize, the assessment program should

(1) Measure and track the organization's corporate culture as it is reflected in attitudes and norms

(2) Identify topics needing emphasis within the CRM program

(3) Ensure that all check airmen, supervisors, and instructors are well prepared and standardized

15. THE CRITICAL ROLE OF CHECK AIRMEN AND INSTRUCTORS.

a. The success of any CRM training program ultimately depends on the skills of the people who administer the training and measure its effects. CRM instructors, check pilots, supervisors, and course

designers must be skilled in all areas related to the practice and assessment of CRM. These skills comprise an additional level to those associated with traditional flight instruction and checking.

b. Gaining proficiency and confidence in CRM instruction, observation, and measurement requires special training for instructors, supervisors, and check pilots in many CRM training processes. Among those processes are role-playing simulations, systematic crew-centered observation, administering LOFT programs, and providing usable feedback to crews.

c. Instructors, supervisors, and check pilots also require special training in order to calibrate and standardize their own skills.

d. Instructors, supervisors, and check airmen should use every available opportunity to emphasize the importance of crew coordination skills. The best results occur when the crews examine their own behavior with the assistance of a trained instructor who can point out both positive and negative CRM performance. Whenever highly effective examples of crew coordination are observed, it is vital that these positive behaviors be discussed and reinforced. Debriefing and critiquing skills are important tools for instructors, supervisors, and check pilots. (Behavioral markers of effective LOFT debriefings are shown in Appendix 2.)

e. Feedback from instructors, supervisors, and check airmen is most effective when it refers to the concepts that are covered in the initial indoctrination/awareness training. The best feedback refers to instances of specific behavior, rather than behavior in general.

16. EVOLVING CONCEPTS OF CRM.

a. **Joint CRM Training.** More and more carriers are discovering the value of revising CRM training to reach various employee groups, and sometimes to combine those groups during training. Their objective is to improve the effectiveness and safety of the entire operations team as a working system.

(1) For many years air traffic controllers have been welcome in the cockpit in order to gain familiarity with procedures by observation from the cockpit jumpseat. Similarly, pilots are welcome to observe operations in air traffic facilities. Using real air traffic controllers during LOFT sessions has been proposed and tried.

(2) Aircraft dispatchers have functioned jointly with flight captains for years. They have been allowed, indeed required to observe cockpit operations from the cockpit jumpseat as part of their initial and recurrent qualification under part 121. Some carriers have included day trips to their aircraft dispatchers' offices to provide the pilot insight into the other side of the joint function scheme. Those trips have commonly been part of the special training offered to first-time captains. Now, real-life aircraft dispatchers are increasingly being used in LOFT sessions. The training experience gained by the pilot and the dispatcher during LOFT is considered the logical extension of earlier training methods, providing interactivity where CRM (and DRM) principles are applied and discussed.

(3) Maintenance personnel have also had access to the cockpit jumpseat under part 121. Training of first-time captains has often included day trips to a carrier's operations control center where a pilot and a maintenance supervisor can meet face to face and discuss issues of mutual interest in a thrumming, real-life setting. Some carriers have included maintenance personnel in LOFT sessions. Dedicated CRM training courses for maintenance personnel have been operating since 1991.

(4) Even broader cross-pollination of CRM concepts has been considered, using other groups such as passenger service agents, mid- and upper-level managers and special crisis teams like hijack and bomb-threat teams.

(5) Cabin attendants are probably the most obvious of the groups other than pilots who may profit from CRM training. Joint CRM training for pilots and flight attendants has been practiced for years. One fruitful activity in joint training has been that each group learns of the other group's training in shared issues. The joint training has revealed inconsistencies between training for one group and training on the same topic for another group. Examples of shared issues include delays, the use of personal electronic devices in the cabin, and evacuation and ditching. When inconsistencies are identified between the contents of pilots' manuals and flight attendants' manuals, for instance, or between widely-held ideas or attitudes in those two populations, those inconsistencies are brought out into the open and often resolved. Other specific topics for joint training include

- (a) Pre-flight briefings
- (b) Post incident/accident procedures
- (c) Sterile cockpit procedures
- (d) Notification procedures pre-takeoff and pre-landing
- (e) Procedures for turbulence and other weather
- (f) Security procedures
- (g) Passenger-handling procedures
- (h) In-flight medical problems
- (i) Smoke/fire procedures
- (j) Passenger-related regulations such as those relating to smoking (section 121.571), exit row seating (section 121.585), and carry-on baggage (section 121.589)
- (k) Authority of the pilot in command

(6) CRM principles are made more relevant for pilots, flight attendants, and other groups by treating those principles in a familiar job-related context. Furthermore, each group should benefit from concurrent training in CRM that is complemented by usable knowledge of the other's job.

(7) Communication and coordination problems between cockpit crewmembers and flight attendants continue to challenge air carriers and the FAA. Other measures with positive CRM training value for flightcrews are being considered, such as

(a) Requiring cockpit observation flights for all new-hire flight attendants, and permitting cockpit observation flights for all other flight attendants,

(b) Including flight attendants as participants during LOFT,

(c) Scheduling month-long pairings of pilots and flight attendants, and

(d) Providing experienced flight crewmembers to teach new-hire flight attendant orientation classes.

b. Error Management. It is now understood that pilot errors cannot be entirely eliminated. It is important, therefore, that pilots develop appropriate error management skills and procedures. It is certainly desirable to prevent as many errors as possible, but since they cannot all be prevented, detection and recovery from errors should be addressed in training. Evaluation of pilots should also consider error management (error prevention, detection, and recovery). Evaluation should recognize that since not all errors can be prevented, it is important that errors be managed properly.

c. Advanced Crew Resource Management. CRM performance requirements or procedures are being integrated into the SOP's of certain air carriers. Specific callouts, checks, and guidance have been included in normal checklists, the quick-reference handbook, abnormal/emergency procedures, manuals, and job aids. This integration captures CRM principles into explicit procedures used by flightcrews.

d. Culture Issues. While individuals and even teams of individuals may perform well under many conditions, they are subject to the influence of at least three cultures--the professional cultures of the individuals themselves, the cultures of their organizations, and the national cultures surrounding the individuals and their organizations. If not recognized and addressed, factors related to culture may degrade crew performance. Hence, effective CRM training must address culture issues as appropriate in each training population.

17. SUMMARY. Effective Crew Resource Management begins in initial training, it is strengthened by recurrent practice and feedback, and it is sustained by continuing reinforcement that is part of the corporate culture and embedded in every stage of training.

/s/

L. Nicholas Lacey
Director, Flight Standards Service

APPENDIX 1. CREW PERFORMANCE MARKER CLUSTERS

Italicized Markers apply to Advanced Technology Flight Decks. These behavioral markers are provided to assist organizations in program and curriculum development and to serve as guidelines for feedback. They are not presented as a checklist for evaluating individual crewmembers.

1. COMMUNICATIONS PROCESSES AND DECISION BEHAVIOR CLUSTER.

a. Briefings. An effective briefing is interesting and thorough. It addresses coordination, planning, and problems. Although briefings are primarily a captain's responsibility, other crewmembers may add significantly to planning and should be encouraged to do so.

Behavioral Markers

(1) The briefing establishes an environment for open/interactive communications (for example, the captain calls for questions or comments, answers questions directly, listens with patience, does not interrupt or "talk over," does not rush through the briefing, and makes eye contact as appropriate)

(2) The briefing is interactive and emphasizes the importance of questions, critique, and the offering of information.

(3) The briefing establishes a "team concept" (for example, the captain uses "we" language, encourages all to participate and to help with the flight)

(4) The briefing covers pertinent safety and operational issues.

(5) The briefing identifies potential problems such as weather, delays, and abnormal system operations.

(6) The briefing provides guidelines for crew actions centered on SOP's, division of labor and crew workload is addressed.

(7) The briefing includes the cabin crew as part of the team.

(8) The briefing sets expectations for handling deviations from standard operating procedures.

(9) *The briefing establishes guidelines for the operation of automated systems (for example, when systems will be disabled, which programming actions must be verbalized and acknowledged)*

(10) *The briefing specifies pilot flying and pilot not flying duties and responsibilities with regard to automated systems*

b. Inquiry/Advocacy/Assertion. These behaviors relate to crewmembers' promoting the course of action that they feel is best, even when it involves conflict with others.

Appendix 1

Behavioral Markers

(1) Crewmembers speak up and state their information with appropriate persistence until there is some clear resolution

(2) "Challenge and response" environment is developed

(3) Questions are encouraged and are answered openly and nondefensively

(4) Crewmembers are encouraged to question the actions and decisions of others

(5) Crewmembers seek help from others when necessary

(6) *Crewmembers question status and programming of automated systems to confirm situation awareness*

c. Crew Self-Critique Regarding Decisions and Actions. These behaviors relate to the effectiveness of a group and/or an individual crewmember in critique and debriefing. Areas covered should include the product, the process, and the people involved. Critique may occur during an activity, and/or after completing it.

Behavioral Markers

(1) Critique occurs at appropriate times, which may be times of low or high workload

(2) Critique deals with positive as well as negative aspects of crew performance

(3) Critique involves the whole crew interactively

(4) Critique makes a positive learning experience. Feedback is specific, objective, usable, and constructively given.

(5) Critique is accepted objectively and nondefensively

d. Communications/Decisions. These behaviors relate to free and open communication. They reflect the extent to which crewmembers provide necessary information at the appropriate time (for example, initiating checklists and alerting others to developing problems). Active participation in the decisionmaking process is encouraged. Decisions are clearly communicated and acknowledged. Questioning of actions and decisions is considered routine.

Behavioral Markers

(1) Operational decisions are clearly stated to other crewmembers

(2) Crewmembers acknowledge their understanding of decisions

(3) “Bottom lines” for safety are established and communicated

(4) The “big picture” and the game plan are shared within the team, including flight attendants and others as appropriate

(5) Crewmembers are encouraged to state their own ideas, opinions, and recommendations

(6) Efforts are made to provide an atmosphere that invites open and free communications

(7) *Initial entries and changed entries to automated systems are verbalized and acknowledged*

2. TEAM BUILDING AND MAINTENANCE CLUSTER.

a. Leadership Followership/Concern for Tasks. These behaviors relate to appropriate leadership and followership. They reflect the extent to which the crew is concerned with the effective accomplishment of tasks

Behavioral Markers

(1) All available resources are used to accomplish the job at hand

(2) Flight deck activities are coordinated to establish an acceptable balance between respect for authority and the appropriate practice of assertiveness

(3) Actions are decisive when the situation requires

(4) A desire to achieve the most effective operation possible is clearly demonstrated

(5) The need to adhere to standard operating practices is recognized

(6) Group climate appropriate to the operational situation is continually monitored and adjusted (for example, social conversation may occur during low workload, but not high)

(7) Effects of stress and fatigue on performance are recognized

(8) Time available for the task is well managed

(9) *Demands on resources posed by operation of automated systems are recognized and managed*

(10) *When programming demands could reduce situation awareness or create work overloads, levels of automation are reduced appropriately*

b. Interpersonal Relationships/Group Climate. These behaviors relate to the quality of interpersonal relationships and the pervasive climate of the flight deck

Behavioral Markers

- (1) Crewmembers remain calm under stressful conditions
- (2) Crewmembers show sensitivity and ability to adapt to the personalities of others
- (3) Crewmembers recognize symptoms of psychological stress and fatigue in self and in others (for example, recognizes when he/she is experiencing “tunnel vision” and seeks help from the team, or notes when a crewmember is not communicating and draws him/her back into the team)
- (4) “Tone” in the cockpit is friendly, relaxed, and supportive
- (5) During times of low communication, crewmembers check in with others to see how they are doing

3. WORKLOAD MANAGEMENT AND SITUATION AWARENESS CLUSTER.

a. Preparation/Planning/Vigilance. These behaviors relate to crews’ anticipating contingencies and the various actions that may be required. Excellent crews are always “ahead of the curve” and generally seem relaxed. They devote appropriate attention to required tasks and respond without undue delay to new developments. (They may engage in casual social conversation during periods of low workload and not necessarily diminish their vigilance.)

Behavioral Markers

- (1) Demonstrating and expressing situation awareness, for example, the “model” of what is happening is shared within the crew
- (2) Active monitoring of all instruments and communications and sharing relevant information with the rest of the crew
- (3) Monitoring weather and traffic and sharing relevant information with the rest of the crew
- (4) Avoiding “tunnel vision” caused by stress, for example, stating or asking for the “big picture”
- (5) Being aware of factors such as stress that can degrade vigilance and watching for performance degradation in other crewmembers
- (6) Staying “ahead of the curve” in preparing for planned situations or contingencies, so that situation awareness and adherence to SOP’s are assured

- (7) Ensuring that cockpit and cabin crewmembers are aware of plans
- (8) Including all appropriate crewmembers in the planning process
- (9) *Allowing enough time before maneuvers for programming of the flight management computer*
- (10) *Ensuring that all crewmembers are aware of initial entries and changed entries in the flight management system*

b. Workload Distributed/Distractions Avoided. These behaviors relate to time and workload management. They reflect how well the crew manages to prioritize tasks, share the workload, and avoid being distracted from essential activities.

Behavioral Markers

- (1) Crewmembers speak up when they recognize work overloads in themselves or in others
 - (2) Tasks are distributed in ways that maximize efficiency
 - (3) Workload distribution is clearly communicated and acknowledged
 - (4) Nonoperational factors such as social interaction are not allowed to interfere with duties
 - (5) Task priorities are clearly communicated
 - (6) Secondary operational tasks (for example, dealing with passenger needs and communications with the company) are prioritized so as to allow sufficient resources for primary flight duties
 - (7) *Potential distractions posed by automated systems are anticipated, and appropriate preventive action is taken, including reducing or disengaging automated features as appropriate*
-

APPENDIX 2. LOFT DEBRIEFING PERFORMANCE INDICATORS

The effective Line-Oriented Flight Training (LOFT) facilitator leads the flightcrew through a self-critique of their own behavior and of their crew performance during the simulation. The debriefing and crew analysis include both technical and CRM discussion topics. Positive points of crew performance are discussed, as well as those needing improvement. At the conclusion of the session, key learning points are summarized covering all participants, including the instructor. A strong sense of training accomplishment and learning is taken away from the session.

1. The following performance markers may be used to evaluate the LOFT facilitator's performance in the debrief/critique phase of LOFT:

- a. Actively states the debriefing and critique agenda and solicits topics from the crew on items that they would like to cover, sets time limits
 - b. Asks the crew for their appraisal of the mission overall
 - c. States his/her own perceptions of the LOFT while guarding against making the crew defensive. Comments are as objective as possible and focus on performance
 - d. Shows appropriate incidents using videotape of the LOFT session, including examples of technical and CRM performance, and selects tape segments for discussion illustrating behaviors that feature the crew performance markers
 - e. Effectively blends technical and CRM feedback in the debriefing, does not preach to the crew, but does not omit items worthy of crew discussion
 - f. Is patient, and is constructive in probing into key areas where improvement is needed
 - g. Ensures that all crewmembers participate in the discussion, and effectively draws out quiet or hostile crewmembers
 - h. Provides a clear summary of key learning points
 - i. Asks the crew for specific feedback on his/her performance
 - j. Is effective in both technical and CRM debriefing
-

APPENDIX 3. APPROPRIATE CRM TRAINING TOPICS --**1. BACKGROUND INFORMATION.**

a. Findings coming from accident investigations have consistently pointed to the fact that human errors contribute to most aviation accidents

b. Research findings suggest that CRM training can result in significant improvements in flightcrew performance. CRM training is seen as an effective approach to reducing human errors and increasing aviation safety

c. Aviation safety information is readily available through the World Wide Web. Many websites contain valuable source materials and reference materials that may be helpful in developing CRM training. Websites commonly link to other websites containing related material. Aviation related websites maintained by U.S. Government agencies include the following

(1) National Aeronautics and Space Administration (NASA), <<http://www.nasa.gov>>

(2) National Transportation Safety Board (NTSB), <<http://www.nts.gov>>

(3) Federal Aviation Administration (FAA), <<http://www.faa.gov>>

2. TRAINING TOPICS, PRINCIPLES, AND TECHNIQUES. It is recommended that CRM training include the curriculum topics described in paragraph 12 of the advisory circular (AC) and the following topics, principles, and techniques

a. Theory and practice in using communication, decisionmaking, and team building techniques and skills

b. Theory and practice in using proper supervision techniques, i.e., captains working with first officers

c. Theory and practice in selecting and using interventions needed to correct flying errors made by either pilot, especially during critical phases of flight. These interventions may include, but not be limited to, communication, assertion, decisionmaking, risk assessment, and situation awareness skills

d. During Line Operational Simulation training, information, and practice of nonflying pilot functions, i.e., monitoring and challenging pilot functions, and monitoring and challenging errors made by other crewmembers for flight engineers, first officers, and captains. Training will alert flightcrews of hazards caused by tactical decision errors which are actually errors of omission. Practice in monitoring, challenging, and mitigating errors, especially during taxi operations, should be included. These skills are important to minimize procedural errors that may occur as a result of inadequately performed checklists

Appendix 3

e. Training for check airmen in methods which can be used to enhance the monitoring and challenging functions of both captains and first officers. The check airmen training should include the message that appropriate questioning among pilots is a desirable CRM behavior and part of the corporate safety culture, further, that such questioning is encouraged, and that there will be no negative repercussions for appropriate questioning of one pilot's decision or action by another pilot.

f. Training for new first officers in performing the nonflying pilot role to establish a positive attitude toward monitoring and challenging errors made by the flying pilot. Training should stress that appropriate questioning is encouraged as a desirable CRM behavior, and that there will be no negative repercussions for appropriate questioning of one pilot's decision or action by another pilot.

g. Training for captains in giving and receiving challenges of errors. Training should stress that appropriate questioning is encouraged as a desirable CRM behavior, and that there will be no negative repercussions for appropriate questioning of one pilot's decision or action by another pilot.

h. Factual information about the detrimental effects of fatigue and strategies for avoiding and countering its effects.

i. Training for crewmembers which identifies conditions in which additional vigilance is required, such as holding in icing or near convective activity. Training should emphasize the need for maximum situation awareness and the appropriateness of sterile cockpit discipline, regardless of altitude.

j. Training that identifies appropriate levels of automation to promote situation awareness and effective management of workload.

k. Use of autopilot in in-flight icing. All flightcrew members should clearly understand their aircraft's susceptibility to in-flight icing and should monitor in-flight ice accretion by all means available. One effective means of monitoring ice accretion might be to disconnect the autopilot at intervals, if doing so is consistent with the approved procedures contained in the airplane flight manual.

l. Training for crewmembers in appropriate responses when passengers intimidate, abuse, or interfere with crewmember performance of safety duties. Training should address crew coordination and actions, which might defuse the situation. See AC 120-65, Interference with Crewmembers in the Performance of Their Duties, dated October 18, 1996. Training should include specific communication topics, such as conflict resolution.

m. Line-oriented flight training (LOFT) or special purpose operational training (SPOT) for cockpit crewmembers, which addresses appropriate responses to the effects of pitot-static system anomalies, such as a blocked pitot tube. Emphasis should be on situation awareness, inquiry/advocacy/assertion, and crew coordination, when flight instruments act abnormally.

n. LOFT or SPOT for cockpit crewmembers that contain a controlled flight into terrain scenario. Emphasis should be on prevention through effective communication and decision behavior. The

importance of immediate, decisive, and correct response to a ground proximity warning should also be addressed

o. Training for pilots in recognizing cues that indicate lack or loss of situation awareness in themselves and in others, and training in countermeasures to restore that awareness. Training should emphasize the importance of recognizing each pilot's relative experience level, experience in specific duty positions, preparation level, planning level, normal communication style and level, overload state, and fatigue state. Pilots should assess these characteristics actively and continuously, in their fellow crewmembers and in themselves. Training should also emphasize the importance that improper procedures, adverse weather, and abnormal or malfunctioning equipment may have in reducing situation awareness. "Guidelines for Situation Awareness Training" contains expanded guidance on cues and countermeasures, and may be viewed or downloaded from the FAA web page at <http://www.faa.gov/avr/afs/train.htm>

p. Training in communication of time management information among flightcrew and cabin crewmembers during an emergency. Training should stress that the senior or lead flight attendant can effectively brief other flight attendants and passengers and prepare the cabin only if the time available in the emergency is clearly communicated by the flightcrew. Other information elements that are vital in effective time management are the nature of the emergency and any special instructions relating to the planned course of action.

3. APPROPRIATE TRAINING INTERVENTIONS.

a. The most effective CRM training involves active participation of all crewmembers. LOFT sessions give each crewmember opportunities to practice CRM skills through interactions with other crewmembers. If the training is videotaped, feedback based on crewmembers' actual behavior, during the LOFT, provides valuable documentation for the LOFT debrief.

b. CRM training can be presented using a combination of the following training interventions

- (1) Operator in-house courses
- (2) Training center courses
- (3) Special Purpose Operational Training
- (4) LOFT sessions
- (5) Computer Based Training courses



別添資料

ASRS Program Overview (2004)



<資料5>

ASRS Program Overview (2004)



PROGRAM OVERVIEW

[Click here to go to the in-depth ASRS Program Briefing](#)

Purpose

Confidentiality and Incentives to Report

Report Processing

Database

Program Outputs

Summary

Limitations

The Aviation Safety Reporting System (ASRS) was established in 1975 under a Memorandum of Agreement between the Federal Aviation Administration (FAA) and the National Aeronautics and Space Administration (NASA). FAA provides most of the program funding, NASA administers the program and sets its policies in consultation with the FAA and the aviation community. NASA has chosen to operate the program through a contractor selected via competitive bidding. The current contractor is [Battelle Memorial Institute](#).



Purpose of the ASRS Program



Purpose

Top of Page

The ASRS collects, analyzes, and responds to voluntarily submitted aviation safety incident reports in order to lessen the likelihood of aviation accidents. ASRS data are used to

- Identify deficiencies and discrepancies in the National Aviation System (NAS) so that these can be remedied by appropriate authorities
- Support policy formulation and planning for, and improvements to, the NAS
- Strengthen the foundation of aviation human factors safety research. This is particularly important since it is generally conceded that over two-thirds of all aviation accidents and incidents have their roots in human performance errors



Confidentiality and Incentives to Report



Confidentiality and Incentives to Report

Top of Page

Pilots, air traffic controllers, flight attendants, mechanics, ground personnel, and others involved in aviation operations submit reports to the ASRS when they are involved in, or observe, an incident or situation in which aviation safety was compromised. All submissions are voluntary.

Reports sent to the ASRS are held in strict confidence. More than 300,000 reports have been submitted to date and no reporter's identity has ever been breached by the ASRS. ASRS de-identifies reports before entering them into the incident database. All personal and organizational names are removed. Dates, times, and related information, which could be used to infer an identity, are either generalized or eliminated.

The FAA offers ASRS reporters further guarantees and incentives to report. It has committed itself not to use ASRS information against reporters in enforcement actions. It has also chosen to waive fines and penalties, subject to certain limitations, for unintentional violations of federal aviation statutes and regulations which are reported to ASRS. The FAA's initiation, and continued support of the ASRS program and its willingness to waive penalties in qualifying cases is a measure of the value it places on the safety information gathered, and the products made possible, through incident reporting to the ASRS.

Report Processing

Report Processing

Top of Page

Incident reports are read and analyzed by ASRS's corps of aviation safety analysts. The analyst staff is composed entirely of experienced pilots and air traffic controllers. Their years of experience are uniformly measured in decades, and cover the full spectrum of aviation activity: air carrier, military, and general aviation, Air Traffic Control in Towers, TRACONS, Centers, and Military Facilities.

Each report received by the ASRS is read by a minimum of two analysts. Their first mission is to identify any aviation hazards which are discussed in reports and flag that information for immediate action. When such hazards are identified, an alerting message is issued to the appropriate FAA office or aviation authority. Analysts' second mission is to classify reports and diagnose the causes underlying each reported event. Their observations, and the original de-identified report, are then incorporated into the ASRS's database.

Database

Database

Top of Page

The database provides a foundation for specific products and subsequent research addressing a variety of aviation safety issues. ASRS's database includes the narratives submitted by reporters (after they have been sanitized for identifying details). These narratives provide an exceptionally rich source of information for policy development and human factors research. The database also contains coded information from the original report which is used for data retrieval and statistical analyses.

Program Outputs

Program Outputs

Top of Page

ASRS uses the information it receives to promote aviation safety in a number of ways:

- **Alerting Messages** When ASRS receives a report describing a hazardous situation - for example, a defective navigation aid, mischarting, a confusing procedure, or any other circumstance which might compromise safe flight -- it issues an alerting message. Alerting messages take a variety of forms but they have a single purpose - to relay safety information to individuals in a position of authority so that they can investigate the allegation and take needed corrective actions. ASRS has no direct operational authority of its own. It acts through, and with the cooperation of, others.
- **CALLBACK** ASRS distributes CALLBACK, a monthly safety bulletin, to more than 85,000 pilots, air traffic controllers, and others. Each issue of CALLBACK includes excerpts from ASRS incident reports with supporting commentary. In addition, CALLBACK may contain summaries of ASRS research studies and related aviation safety information. CALLBACK is one of the ASRS's most effective tools for improving the quality of human performance in the NAS at the grass roots level. Editorial use and reproduction of CALLBACK articles, with appropriate attribution, is encouraged.
- **ASRS DIRECTLINE** New in 1991, ASRS Directline is published periodically to meet the needs of operators and flight crews of complex aircraft, such as commercial carriers and corporate fleets. Articles contained in Directline are based on ASRS reports that have been identified as significant by ASRS analysts. Distribution is directed to operational managers, safety officers, training organizations, and publications departments. Editorial use and reproduction of Directline articles, with appropriate attribution, is encouraged.
- **Database Search Requests** Information in the ASRS database is available to interested parties. Individuals and organizations wishing to access ASRS data on a particular aviation safety subject may contact the ASRS with a statement of need. The ASRS will then search its database for pertinent reports and will print, bind, and mail any information applicable to the request. To date more than 3,000 searches have been accomplished in support of government, industry, and academe. (Note: The ASRS Database is available on CD-ROM.)


See the "ASRS Database" page for details and ordering information)

- **Operational Support** Through frequent communications between the two organizations, the ASRS contributes to the FAA's ongoing safety efforts. The ASRS also supports the FAA and the NTSB during rule-makings, procedure/airspace design efforts, accident investigations, and like circumstances by assembling and digesting relevant information from its database. This is a growing role for the ASRS.
- **Topical Research** ASRS has conducted and published over 56 research studies. ASRS research has always been designed and conducted with an orientation toward real-life operational applications, most have examined human performance in the NAS. Ways are sought to effect incremental improvements in aviation safety through improved procedures, training, design, etc. Recent subjects of ASRS research include wake turbulence analysis, digital avionics software and hardware problems, TCAS II incidents, cockpit interactions incidents analysis, airport ramp safety incidents, crew performance during aircraft malfunctions, air carrier return-to-land incidents, use of digital flight data to measure safety and crew performance (APMS), and use of ASRS data in the FAA's AQP program.



Summary

Summary




Top of Page

The ASRS is a small but important facet of the continuing effort by government, industry, and individuals to maintain and improve aviation safety. The ASRS collects voluntarily submitted aviation safety incident/situation reports from pilots, controllers, and others. The ASRS acts on the information these reports contain. It identifies system deficiencies, and issues alerting messages to persons in a position to correct them. It educates through its newsletter CALLBACK, its journal ASRS Directline and through its research studies. Its database is a public repository which serves the FAA's and NASA's needs and those of other organizations worldwide which are engaged in research and the promotion of safe flight.



Limitations

Limitations



Top of Page

1. The ASRS assurance of confidentiality and the availability of waivers of disciplinary action do NOT extend to reports of accidents or criminal activity (e.g., hijacking, bomb threats, and drug running). Such reports should not be submitted to ASRS. If such reports are received, they are

forwarded identified to cognizant agencies

- 2 FAA policies regarding the ASRS are covered by Advisory Circular 00-46C, FAR 91.25, and paragraph 2-38 in the "Facility Operations and Administration" Handbook (7210.3M). The waiver of penalties is subject to the following limitations: (A) the alleged violation must be inadvertent and not deliberate, (B) it must not reveal an event subject to Section 609 of the Federal Aviation Act, (C) the reporter must not have been found guilty of a violation of the FAR's or the Federal Aviation Act during the preceding five years, and (D) the ASRS report must be submitted within 10 days of the event.
- 3 The ASRS professional staff is composed of retired controllers, as well as both active and retired pilots. To avoid conflicts of interest, ASRS analysts, researchers, and management personnel are not permitted to have ongoing employment relationships with the FAA, air carriers, or similar organizations.
- 4 ASRS's mailing address is P O Box 189, Moffett Field, California, 94035-0189.