AAR-100

Human Factors Newsletter # 00-02

(January 8, 2000 – January 21, 2000)

- **Simulator Technical Industry Group Meeting:** AAR-100 representatives and researchers attended the Simulator Technical Industry Group meeting at the FAA Southern Region Headquarters. The participants included air carrier representatives that direct and manage simulator services for their airlines, and representatives from pilot training facilities. These participants are responsible for the nation's 450 simulators used to train US and international pilots. The FAA has an ongoing research project on simulator fidelity, and requires the cooperation of air carriers in order to implement the next phase of the research being conducted by Volpe. AAR-100 participated in this meeting to establish new agreements to allow researchers access to these simulators. (E. Edens, AAR-100)

- **Air Carrier Training:** AAR-100 representatives and researchers met with Delta Airlines pilot training department directors in Atlanta. Delta is hosting several FAA air carrier training projects, and is in the process of redesigning its pilot training. This redesign will include the human factors research and products. AAR-100 research will be critical to their successful implementation of a new Quality Assurance program. (E. Edens, AAR-100)

- **Instructor/Evaluator Training:** AAR-100 researchers are conducting Instructor/Evaluator Training for the Aer Lingus Annual Pilot Training Seminar that will be held in Dublin the last week in January. The researchers will present findings from air carrier training studies conducted at US carriers. The researchers will also address methods to enhance Quality Assurance programs. The topics will include reliable data collection methods, constructing and implementing "Gold Standards" in instructor calibration training, and using computer based instructor/evaluator calibration systems as an adjunct to annual recurrent instructor training. (E. Edens, AAR-100)

- **AGIE:** The Air Ground Integration Experiment (AGIE) is in its fourth week of data collection at the Technical Center. Also, the Decision Support Automation Research (DSAR) project continues scenario development. Two new engineering research psychologists will join the ACT-530 staff next month. (E. Stein, WJHTC)

- **On-the-Job Training (OJT) Mastery Test:** The Aviation Security Human Factors Program (AAR-510) is developing an OJT Mastery Test to evaluate screener skills and abilities after

they receive 40 hours of OJT. On January 10, the team members met to discuss ideas on script, scenario, and software development. (T. Kraus, AAR-1)

- **Biometric Technologies for Human Factors Systems:** IriScan of Marlton, NJ, briefed security personnel on their biometric technology, using the Iris as a means of identification. The Aviation Security Human Factors Branch is exploring various ways of implementing biometric technology with security systems, specifically TIP systems. This may be an alternative way to login into the security system. The IriScan software is compatible with existing TIP systems as both are Windows-based. (T. Kraus, AAR-1)

- **Checked Bag Integrated Program Management Team (IPMT) Meeting:** Earlier this month, the AAR-520 Checked Baggage (CB) Vector R&D Program Lead, attended the IPMT meeting at headquarters, headed by the Office of Policy and Planning. The IPMT is a team consisting of members of all relevant organizations concerned with checked baggage inspection, including policy, R&D, certification, acquisition and deployment (SEIPT), operational testing, training, and human factors. The meeting established the primary objectives of the CB program based on ACS policy, and discussion ensued on the status of major elements of the program. The main objective is 100 percent screening of selected checked baggage by 2004. One of the main R&D goals discussed in detail was the ARGUS project, which will result in a cheaper, slower EDS for low throughput applications. (T. Kraus, AAR-1)

- **Laboratory Assessment of the L3 eXaminer 3DX 6000 Explosives Detection System Human Factors Usability Evaluation:** Personnel from the Aviation Security Human Factors Program (AAR-510) completed Phase I of the laboratory assessment of the L3 eXaminer 3DX 6000 Explosives Detection System Human Factors Usability Evaluation. Phase I is an evaluation of the usability of the system and the consistency and readability of the user's manual. Phase II will be a study of screener training and system operation. (T. Kraus, AAR-1)

- **Checkpoint Effectiveness and Efficiency Database:** Personnel from the Aviation Security Human Factors Program (AAR-510) awarded a contract to Federal Data Corporation to develop, test, and validate a Checkpoint Effectiveness and Efficiency Database. This database will be housed at the William J. Hughes Technical Center. (T. Kraus, AAR-1)

- **CTX 5500 Training:** Personnel from the Aviation Security Human Factors Program (AAR-510) attended a Security Equipment Integrated Product Team (SEIPT) staffing and training committee meeting on CTX 5500 training. Contractor-developed draft training and the InVision alarm resolution protocol were reviewed at the meeting. The final protocol will be converted into a job aid consisting of prompts for the steps in alarm resolution and then tested for effectiveness. (T. Kraus, AAR-1)

- **InVision Technologies Grant Application:** The Aviation Security Human Factors Program (AAR-510), ACP-6, and AAR-520 are evaluating a grant application from InVision Technologies. The proposal involves developing a series of automated prompts to aid screeners in resolving CTX alarms. (T. Kraus, AAR-1)

- **Checkpoint Integrated Project Management Meeting:** On January 13, members of the Aviation Security Human Factors Program (AAR-510) met with the Checkpoint Integrated Project Management Team Manager and representatives from the Office of Civil Aviation Security Policy and Planning Technology Integration Division (ACP-400) to discuss numerous human factors initiatives to further enhance checkpoint effectiveness and efficiency. The discussion focused on the screener readiness test, on-the-job training requirements, screener certification, and evaluation of initial screener training computer-based training. All of these human factors efforts dovetail and support the recently released Notice of Proposed Rulemaking for screener and guard company certification. (T. Kraus, AAR-1)

- **Aviation Security R&D Program Review:** AAR-500 hosted a two-day review of the current program on January 11 and 12. Attendees included ACS-1, ACS-2, ACP-1, and AAR-1. The meeting focused on major issues, particularly those dealing with the Strategic Implementation Plan, the 2000 Budget, the Argus Program, transition from R&D to the SEIPT, Directed Trace, and the Threat Resolution Operator Interface. Also included were presentations on checkpoint, checked bags, cargo, aviation security technology integration, human factors, core research, and aircraft hardening. Many presentations featured the "stoplight format" (i.e., red, yellow, green light indicators for an up-to-date project status). (T. Kraus, AAR-1)

- **Tower Initial Requirements Team (IRT):** Volpe Center personnel briefed the Tower IRT at FAA Headquarters on their examination of human factors contributing to the efficiency and safety of tower operations. The purpose of the analysis of selected safety data (ASRS reports, operational errors, NTSB accident reports and pilot deviations) is to assist the Tower IRT in identifying system "shortfalls" i.e., needed system improvements, for the Mission Need Statement. (D. Sussman, Volpe)

- **Society of Automotive Engineers (SAE)-G10W Meeting:** Researchers from Volpe and the Civil Aeromedical Institute traveled to Melbourne, FL, to participate in a meeting of the Society of Automotive Engineers G-10 Committee on Human Factors in Aerospace.

    - A Volpe researcher participated in the Head-up Display (HUD) Subcommittee sessions where he solicited assistance from industry representatives for Volpe's project to develop empirically based human factors guidelines for HUD certification. With the project's first iteration of research plans and apparatus well underway, he met with industry participants and sought the following assistance: (a) advice on maximizing the realism and relevance of experimental protocols, (b) access for data collection to industry resources such as training simulators and flight decks, and (c) recruitment of volunteer pilots to participate in experiments conducted by Volpe. Representatives from Alaska Airlines and Honeywell expressed interest in providing assistance.

    - Dr. Kurt Joseph served as Chair of the SAE-G10W Free Flight Subcommittee meeting. Dr. Scott Mills participated in the SAE-G10W Free Flight Subcommittee meetings. The Free Flight Subcommittee completed revisions to four issue papers that will be included in Aerospace Resource Document 50079 Revision A, Human Factors Issues in Free Flight.

- Dr. Henry Mertens served as Co-Chair of the SAE-G10W Advance Color Display Subcommittee meeting. The group performed the second 5-year review of the existing Aerospace Recommended Practice 4032, entitled Human Engineering Considerations in the Application of Color to Electronic Aircraft Displays. Recommendations and assignments were made regarding revisions to the document. Dr. Mertens also participated in preparation of Draft 11 of an Aerospace Recommended Practice 5364 entitled Human Factors Criteria for the Design of Multifunction Displays for Civil Aircraft. This new document will be submitted to the G-10 Committee for comment. (D. Sussman, Volpe; K. Joseph, S. Mills, H. Mertens, CAMI)

- **Expert Witness Deposition:** Dr. Scott A. Shappell, a researcher from the Human Factors Research Laboratory at CAMI, provided an expert witness deposition and consultation services to the Department of Justice regarding the Korean Air Lines accident in Guam. (S. Shappell, CAMI)

- **Article 55 Team Meeting:** Representatives from CAMI participated in the Article 55 Team Meeting that was held in San Jose, CA. Dr. Pam Della Rocco co-chaired the meeting. The team received briefings from NASA-Ames personnel on topics relevant to Air Traffic Control and toured several laboratory facilities. The team also continued development of a business plan and a Memorandum of Understanding (MOU) between NATCA and FAA concerning the Congressional Shiftwork and Fatigue field study. Dr. Julia Pounds also participated in the meeting and discussed the research project to conduct a retrospective analysis of operational error data using the Human Factors Analysis and Classification System (HFACS). Results of the HFACS analysis will be presented at a future meeting. The ensuing discussion of the analysis led to members' identification of four target areas where mitigation and reduction of operational errors could be addressed. Based on these, a four-point action plan will be outlined and distributed to the members for feedback. The possibility of holding a future team meeting at CAMI devoted to further discussion of the operational error action plan was proposed. (P. Della Rocco, T. Nesthus, J. Pounds, CAMI)

- **Flight Progress Strips:** CAMI participated in a meeting with the Air Traffic Operations Program (ATO-410) and representatives of Free Flight Phase I (AOZ-40) while at FAA Headquarters. Planning was focused on arrangements for a study to observe en route controllers' use of flight progress strips during ATC operations. Agreement was reached on the composition of the observer team and a tentative schedule for collecting data was developed. (C. Manning, CAMI)

- **Human Factors Meetings:** CAMI representatives participated in several meetings and briefings in Washington, D.C. Included was a meeting with the Program Director, AF Resources Management Program (AFZ-1) with regard to the conduct of a baseline job/task analysis for the AF field maintenance workforce. Also included was a meeting with personnel from the Staffing and Compensation Policy Division (AFZ-200) and the Employee and Labor Relations Division (AFZ-300) regarding a briefing for Professional Airways Systems Specialists (PASS) concerning the baseline job/task analysis. The representative attended a review of the prototype Variable Item Generator (VIGOR) software in accordance with the VIGOR procurement contract; presented a briefing to the Assistant Administrator for Human Resources Management (AHR-1) on pass rates, fairness, validity, and alternatives

to the AF Basic Electronics Screening Tool (BEST) examination; and presented a briefing to the national PASS representatives on the field maintenance workforce baseline job/task analysis as part of the formal coordination process. Coordination with the AFZ-200 staff regarding the integration of the baseline job/task analysis with on-going work on AF field staffing standards was also completed. (D. Broach, CAMI)

More information on human factors research can be found at the FAA Human Factors (AAR-100) web site http://www.hf.faa.gov

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FAA (AAR-100)

CALENDAR

March 6-8, 2000- Flight Safety Foundation, 12th Annual European Aviation Safety Seminar, Grand Hotel Krasnapolsky, Amsterdam

March 28-30, 2000- 14th Annual Human Factors in Aviation Maintenance Symposium, "Safety Management: Theory to Practice", Waterfront Centre Hotel, Vancouver, British Columbia, Canada http://www.tc.gc.ca/aviation/mainten/aarpc/hfiam.htm e-mail: boothbj@tc.gc.ca

April 1-6, 2000- Conference on Human Factors in Computing Systems, "CHI 2000", The Hague, The Netherlands http://www.acm.org/sigchi/chi2000 e-mail: CHI2000-office@acm.org

April 11-13, 2000- Advances in Aviation Safety Conference and Exposition, Adams Mark Hotel, Daytona Beach, FL http://www.sae.org/calendar/aas00tag.htm email: jimb@sae.org

April 25–27, 2000- 45th Corporate Aviation Safety Seminar (CASS), The Adam's Mark Hotel, San Antonio, TX http://www.flightsafety.org/cass00_cfp.html

May 9-11, 2000- General Aviation Technology Conference and Exposition, Century II Convention Center, Wichita, KS http://www.sae.org/calendar/gat00/index.htm

May 10-12, 2000- 3rd International Conference on Nonlinear Problems in Aviation and Aerospace, Daytona Beach, FL http://students.db.erau.edu/~siva/conference.html

May 15-18, 2000- 4th Joint DOD/FAA/NASA Conference on Aging Aircraft, St. Louis, MO http://www.aging2000.com

June 6-8, 2000- Digital Human Modeling for Design and Engineering (DHM) Conference and Exposition, Hyatt Regency, Dearborn, MI http://www.sae.org/calendar/dhm00/index.htm

June 13-16, 2000- 3rd International Air Traffic Management R&D Seminar, "ATM-2000", Napoli, Italy http://atm-seminar-2000.eurocontrol.fr

June 20-22, 2000- Threats, Countermeasures, and Situational Awareness: Teaming for Survivability, The Virginia Beach Pavilion and Convention Center, Virginia Beach, VA http://corp-nt20.nawcad.navy.mil/nawcad/news/sit_aware/2000/

July 30 – August 4, 2000- 14th Triennial Congress of the International Ergonomics Association and the Human Factors and Ergonomics Society 44rd Annual Meeting "IEA 2000/HFES 2000", San Diego Marriott Hotel and Marina, San Diego, CA http://iea2000.hfes.org/

August 27-September 1, 2000- 22nd International Council of the Aeronautical Sciences (ICAS) Congress, Harrogate, UK http://www.aiaa.org/calendar/icas00cfp.html

October 10-12, 2000- World Aviation Congress and Exposition, Town and Country Hotel, San Diego, CA http://www.sae.org/calendar/wac00/index.htm

Note: Calendar events in Italics are new since the last Newsletter

Comments or questions regarding this newsletter?
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