



AAR-100

Human Factors Newsletter # 01-06

(March 10, 2001 – March 23, 2001)

STARS: In support of STARS, human factors researchers from the William J. Hughes Technical Center (ACT-530) traveled to the Philadelphia TRACON to discuss using virtual reality (VR) as part of the STARS Transition Plan. At the same time as STARS is introduced, Philadelphia TRACON will be moving into a new facility. VR can be useful in planning equipment layout and identifying human factors issues that arise when new equipment is integrated into the user environment. (T. Yuditsky, K. Allendoerfer, WJHTC)

ASDE-X: The Airport Surveillance Detection Equipment (ASDE-X) Working Group met at the William J. Hughes Technical Center's Research, Development and Human Factors Laboratory (ACT-530) earlier this month. Researchers presented the procedures, data collection forms, and questionnaires for the Early User Involvement Event scheduled for March 20-29. The Working Group also reviewed the rapid prototype of the ASDE-X computer-human interface. (M. McAnulty, WJHTC)

Human Factors Design Guide: Researchers from the William J. Hughes Technical Center (ACT-530) conducted a seminar on the recent update of the Human Factors Design Guide Computer Human Interface Chapter. The seminar was held at FAA headquarters and was attended by an audience from a broad range of backgrounds. The purpose of the seminar was to provide an overview of the changes to the Human Factors Design Guide Chapter 8 (Computer-Human Interface), and discuss why the changes were necessary and what they mean for the future. (V. Ahlstrom, ACT-530)

Air Carrier Training: Human factors grant researchers from the University of Texas conducted a three-day workshop in Hong Kong on the Line Operations Safety Audit (LOSA). The workshop was attended by 15 airlines and representatives from Boeing and Airbus. The workshop also discussed the University of Texas Threat and Error Management Model that is the conceptual framework for LOSA. In addition, invited presentations on LOSA were made at EVA Air in Taipei (code share of Continental) and at Singapore Airlines headquarters (member of the Star Alliance with US air carriers). (E. Edens, AAR-100)

Aviation Security Human Factors:

- **Alaska Airlines Test Bed Transition.** Representatives of the Aviation Security Human Factors Program (AAR-510) met with Bob Handley and Susan Rorke of Alaska Airlines. Bob Handley recently retired as the Director of Postal and Regulatory Affairs. Susan Rorke (formerly of the Air Transport Association) has been named as his replacement. This pivotal meeting coordinated upcoming evaluations at the Seattle-Tacoma International Airport (SEA) test bed and mapped out the strategy and approach for continuation of the FAA-Alaska Airlines Cooperative Research and Development Agreement grant. (C. George, AAR-1)
- **Command Podium Tour.** Representatives of the Aviation Security Human Factors Program (AAR-510) toured the Elevated Podium for Integrated Checkpoint Security Supervision (EPICSS) that is currently under construction at SEA. The EPICSS, which will be completed in late March, is designed to improve checkpoint coordination and communications by providing first level supervisors with advanced security technologies. (C. George, AAR-1)
- **Completion of Computer-Based Training Field Assessment.** The Aviation Security Human Factors Program (AAR-510) recently completed field data collection to assess the efficacy of computer-based training systems for initial screener training. This assessment was conducted at three major U.S. airports and involved more than 175 newly hired security screeners. A test and evaluation report is being written to provide key data for FAA SEIPT procurement. (C. George, AAR-1)
- **Rapiscan Certification Version of Threat Image Projection.** Representatives of the Aviation Security Human Factors Program (AAR-510) accepted delivery of the prototype Threat Image Projection (TIP) Certification Version (CV). The TIP CV was developed by Rapiscan, an x-ray machine manufacturer, as a means to test security screeners with a predetermined sample of fictitious threat images over a set period of time. The TIP CV will be evaluated in the laboratory and will then be field-tested at a major U.S. airport. (C. George, AAR-1)
- **Axis 3-D X-ray Enhancements.** Representatives of the Aviation Security Human Factors Program (AAR-510) were given a demonstration of the revised Axis 3-D x-ray machine. Based on previous human factors testing and test reports, Axis has made substantial improvements in the interface, monitor, control, belt system, and computer algorithms. The revised machine will be evaluated to ascertain the impact on threat detection performance. (C. George, AAR-1)

Enhanced Traffic Management System: Research psychologists from the William J. Hughes Technical Center (ACT-530) traveled to Washington Air Route Traffic Control Center (ARTCC) and Philadelphia Terminal Radar Approach Control (TRACON) to investigate how the Enhanced Traffic Management System (ETMS) is used in the field. ETMS provides traffic management tools in terminal and en route facilities, and at the Command Center. This work is

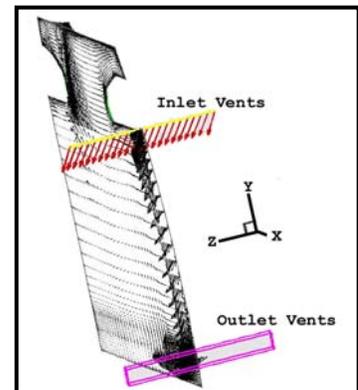
being conducted in support of the ETMS program, which will be adding new functions to the Traffic Situation Display. (T. Yuditsky, K. Allendoerfer, WJHTC)

OPLINK: David Cherry (FAA) will present a paper written by Kim Cardosi (Volpe Center) at the International Civil Aviation Organization (ICAO) Operational Data Link (OPLINK) panel meeting in Redondo Beach, California on March 26th. The paper clarifies sections of the proposed required communication performance (RCP) document. This document will define requirements for future communications systems used by pilots and air traffic control. At issue is the way in which system response time is measured. These measures would be used to determine the suitability of a given system for specific uses (e.g., transmission of a time-critical control instruction). The paper clarifies the way in which system response time should be measured, stressing the importance of including the time required for the user to construct or select, and retrieve, messages. (Paul Krois, AAR-100)

NTSB Reports Aviation Accidents: Late last week, the National Transportation Safety Board (NTSB) released its annual safety statistics for 2000. The statistics show that aviation accidents dropped 3.8 percent, from 2,053 in 1999 to 1,975 in 2000, but the number of deaths from aircraft accidents rose to 748 in 2000 from 697 in 1999. That represents a 7.3 percent increase. Ninety-two people were killed in three accidents involving major commercial airlines or cargo carriers. This compares to two accidents in 1999 in which 12 people lost their lives. But keep in mind, the Alaska Airlines accident off the coast of California in 2000 accounted for 88 of those fatalities. See: <http://www.nts.gov/>

Computation Fluid Dynamics (CFD) in the Transport Cabin: Modifications on the Civil

Aeromedical Institute 747 Cabin Environmental Research Simulator (CERF) have been completed to the extent that data collection related to the development of a CFD model of cabin airflow has started. The simulation will provide a basis for the quantitative assessment of the factors that determine a particular air circulation pattern. In collaboration with the CFD Laboratory in the Department of Aerospace Engineering at the University of Tennessee, the first rendition of a high fidelity computational simulation of the cabin environment specific to the 747 CERF has been achieved. Accurate boundary conditions are currently being measured and set into the CFD model. Formal validation of the overall flow predicted by the model will begin once the boundary conditions are in place. The first application for the completed model will be the characterization of distribution of chemical or biological agents that might be introduced into the cabin environment. Other potential uses include most cabin air quality issues and cabin environmental control system manipulations. (Note: This work is being conducted in association with AAR-520, Dr. Sheldon Brunk.) (J. Whinnery, CAMI)



Air Traffic Management: Human factors scientists met with representatives of EUROCONTROL in Brussels, Belgium on March 19-21. This activity was part of FAA/EUROCONTROL Action Plan 12: Management and Reduction of Human Error in Air Traffic Management (ATM). The purpose of the meeting was to complete harmonization of the

Human Error in ATM Technique (HERA) and Human Factors Analysis and Classification System (HFACS) techniques. Procedures for the upcoming trans-Atlantic field beta test of the new technique were also discussed. (J. Pounds, CAMI)

Cockpit Displays: A CAMI scientist participated in the March 21st kick-off meeting at the Los Angeles Aircraft Certification Office for Universal's application for certification of a new cockpit display system. This system provides both a multi-function display and a primary-flight display, each capable of portraying terrain imagery derived from a terrain database. The discussions included issues of pilot performance and display formatting/design. A number of human factors issues surfaced that are being pursued by CAMI in support of the certification effort. (D. Beringer, CAMI)

Ohio State University Aviation Psychology Symposium: Researchers from CAMI presented the following posters: *Contributing Factors to Unruly Passenger Behavior*, which reported that as airline passenger misconduct increases, the need to understand contributing factors and to identify effective prevention and intervention strategies becomes more urgent. This study reports on the relationship between the severity of unruly behavior and airline-specific factors, including passenger load (number, percent occupancy), flight delay, aircraft type, time from pushback to arrival at gate, time in-flight, carry-on luggage, alcohol/substance use, and smoking. The consequences for various levels of misconduct were also determined. Results are discussed in terms of future research, cabin crew training, and intervention techniques. (E. Fielder, M. Hawkins, CAMI); *Age and CogScreen Scores in Older Aviators*. CogScreen-AE (CS) is a computerized assessment instrument designed to screen aviators for neuropsychological deficits. This study examined the relationship between age and performance on CS Throughput, Reaction Time, and Accuracy measures. Research found that in evaluations of an aging population, fine distinctions must often be made between normal age-related declines in psychomotor skills and perceptual speed versus decrements associated with health-related issues. Discussion focused on the implications of results for such evaluative distinctions among the unique population of aging aviators. (M. Hawkins, J. Moore, E. Fiedler, 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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March 27-29, 2001- The Fifteenth Symposium on Human Factors in Aviation Maintenance, The Brewery Conference Centre, London, UK [mail to: enquiries@conferenceconsultancy.com](mailto:enquiries@conferenceconsultancy.com)

March 31 – April 5, 2001- CHI 2001, Seattle, WA <http://www.acm.org/chi2001>

April 3-5, 2001 – Maintenance Repair and Overhaul Conference and Exhibition, Dallas, TX
<http://www.aviationnow.com/>

April 8-14, 2001 – Sun ‘n Fun EAA Fly-In, Lakeland, FL <http://www.sun-n-fun.com/>

April 24-26, 2001 – 46th Annual Corporate Aviation Safety Seminar, Orlando, FL
<http://www.nbaa.org/>

April 24-26 – *IT 2001 – Airlines Harnessing the Power of Technology*, Hotel Okura, Amsterdam, The Netherlands. <http://www.iataonline.com/>

April 29-May 4, 2001 – *The 13th Annual Software Technology Conference, 2001 Software Odyssey: Controlling Cost, Schedule, and Quality*. Salt Palace Convention Center, Salt Lake City, UT <http://www.stc-online.org/>, or <mailto:stcinfo@ext.usu.edu>

April 30-May 2, 2001- Regional Airline Association Convention, Tampa, FL
<http://www.raa.org/>

May 3-4, 2001 – Human Factors for Aviation Technicians Workshop, Long Beach, CA
<http://www.greyowl.com>

May 14-17, 2001 – DOD Technical Advisory Group Meeting, Antler’s Adam’s Mark Hotel, Colorado Springs, CO <http://dticam.dtic.mil/hftag/>

June 3-8, 2001- Society for Information Display, International Symposium, Seminar & Exhibition, San Jose Convention Center, San Jose, CA [mail to: pdrzaic@elink.com](mailto:pdrzaic@elink.com)

June 17-24, 2001 – Paris Air Show, Le Bourget, France <http://www.promosalons.com/>

July 8-11, 2001 – ATCA 12th Annual International Technical Conference & Exhibition, Conrad International Hotel, Dublin, Ireland <http://www.atca.org/>

August 5-10, 2001 – 9th International Conference on Human-Computer Interaction, New Orleans, LA <http://hcie2001.engr.wisc.edu/>

September 10-14, 2001 – Aerospace Congress & Exhibition By Aerospace North America and SAE, Washington State Convention and Trade Center, Seattle, WA [mail to:kthomson@sae.org](mailto:kthomson@sae.org)

September 18-20, 2001 – NBAA Annual Meeting and Convention, New Orleans, LA
<http://www.nbaa.org/>

October 8-12, 2001 – Human Factors and Ergonomics Society 45th Annual Meeting, Minneapolis, MN <http://www.hfes.org/>

October 2001- Annual Cabin Safety Research Technical Group Meeting, Taj Mahal Hotel and Casino, Atlantic City, NJ

November, 2001 – DOD Technical Advisory Group Meeting, San Diego, CA
<http://dticam.dtic.mil/hftag/>

November 4-8, 2001 – ATCA 46th Annual International Program & Exhibits, Washington Convention Center, Wash, D.C. <http://atca.org/>

November 27-30, 2001 - The Third International Aviation Security Technology Symposium, Tropicana Resort & Casino, Atlantic City, NJ, sponsored by the FAA Aviation Security R&D Division and National Safe Skies Alliance. Symposium topics include: Trace Detection, Bulk Detection, Human Factors, Technical Integration, Operational Testing and Evaluation, Deployment, Aircraft Hardening, Emerging Technologies, and other related topics.
http://www.safeskiesinternational.org/symposium_2001.htm

December, 2001 – EUROCONTROL Air Traffic Management R&D Seminar, Santa Fe, New Mexico <http://eurocontrol.fr/>

September 23-27, 2002 – Human Factors and Ergonomics Society 46th Annual Meeting, Pittsburgh, PA <http://www.hfes.org/>

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



Comments or questions regarding this newsletter?
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