



AAR-100

Human Factors Newsletter # 01-10

(May 5, 2001 – May 18, 2001)

Standards for Human Factors Design - Update of Chapter 8 of the FAA's Human Factors Design Guide: Chapter 8 of the Human Factors Design Guide deals with the ever-present and important topic of the Computer Human Interface (CHI). Under the auspices of the Human Factors Research Program, researchers at the William J. Hughes Technical Center have completed revisions and updates to Chapter 8 using the latest state-of-the-art documentation. All reviews are complete and the chapter has been published as a stand-alone document. The revised Chapter 8 may be viewed and downloaded from the Human Factors Division website (<http://www.hf.faa.gov/tools.htm>) or from the Human Factors Laboratory (ACT-530) Website (<http://www.tc.faa.gov/act-500/hfl.index/html>). (A limited number of hardcopies may be available from Jennifer Hall, ACT-530 (609) 485-5235 on/about June 1). Chapter 8 is an excellent reference document for issues and requirements related to human-computer design and operation. The chapter may be used as a stand-alone reference document, in conjunction with the other chapters of the design guide, or with other standards documentation. For those who have copies of the 1996 version of the Human Factors Design Guide (either in hard copy or in CD-ROM format), the complete Human Factors Design Guide is to be re-published in CD format in FY02. If there are questions concerning the document, contact Paul Krois (202) 493-5310 or Glen Hewitt (202) 267-7163 at AAR-100 (HQ FAA), or Vicki Ahlstrom (609) 485-5643 at ACT-530 (Technical Center).

STARS: Human factors researchers at the Williams J. Hughes Technical Center hosted a group of Air Traffic personnel from Memphis TRACON, NATCA personnel, and Program Office personnel in support of the STARS program. They presented a demonstration of Memphis simultaneous parallel approach operations on the STARS simulator and responded to questions about how the operations will look on the new system. Memphis will be one of the next facilities to receive STARS, and resolving this issue is high priority to the program. This demonstration allowed the users to see the parallel approaches and addressed their concerns. (K. Allendoerfer, T. Yuditsky, WJHTC)

Air Traffic Operational Errors: Dr. Julia Pounds (AAM-510) and Mr. Anthony Ferrante (AAT-200) presented an invited paper titled Safety Initiatives in the US Federal Aviation Administration at the Fifth EUROCONTROL Human Factors Workshop on Human Error in European Air Traffic Management, May 7-9 in Prague, Czech Republic. The presentation covered several current FAA initiatives such as the index of severity for operational errors and

the human factors technique for investigating causal factors related to operational errors. The three-day workshop provided a forum for human factors researchers, practitioners, and operational air traffic personnel to exchange experiences, new developments, and lessons learned. Topics covered organizational perspectives in error management, a human factors case analysis of a separation incident, safety cultures, predictive error analysis, and team error. Mr. Luis Castro (AAT-200), Drs. Richard Mogford and Roger Remington (NASA-Ames), and Dr. Parimal Kopardekar (Titan Systems) also attended. (P. Krois, AAR-100; J. Pounds, CAMI)

Management and Reduction of Human Error in ATM: Dr. Paul Krois (AAR-100), Dr. Julia Pounds (AAM-510), Mr. Anthony Ferrante (AAT-200), Mr. Luis Castro (AAT-200), Drs. Richard Mogford and Roger Remington (NASA-Ames), and Dr. Parimal Kopardekar (Titan Systems) also attended the Technical Interchange Meeting of the FAA/EUROCONTROL Action Plan 12 on the Management and Reduction of Human Error in ATM, held on May 10-11, 2001 in Prague, Czech Republic. The purpose of the meeting was to finalize plans for the beta test of the JANUS harmonized technique which has been developed by the FAA/EUROCONTROL Action Plan 12 research group. The meeting was also attended by representatives of seven European member states plus Australia, who will be participating in various harmonization activities. Dr. Krois presented a review of Action Plan 12 work to date and Dr. Pounds and Dr. Anne Isaac (EUROCONTROL) presented an overview of research activities conducted to develop the harmonized technique. Dr. Pounds demonstrated the automated interface being developed by CAMI for the beta test data collection. Presentations also addressed research on the prospective phase of Action Plan 12, examining methods for predicting human error with future ATM systems. (P. Krois, AAR-100; J. Pounds, CAMI)

Runway Incursions: A researcher from the Volpe Center presented a seminar on human factors in surface operations at the New England Region Runway Safety Day Conference on May 15th. The seminar presented pilots and controllers with the results of recent research and steps that they can take to help reduce the incidence of runway incursions. (K. Cardosi, VNTSC)

Aerospace Medical Association Meeting: Human factors scientists traveled to Reno, Nevada to participate in the annual scientific meeting of the Aerospace Medical Association. The following papers were presented:

- A Decade of Skill-based Errors in Naval Aviation: Trend Analysis Based On Airframe and Pilot Experience
- Human Factors of Runway Incursions
- The Relationship Between Air Traffic Control Communication Events and Measures of Controller Workload and Sector Complexity
- The Effects of Workload and Decision Support Automation on Controller-to-Controller Communication
- AME Perceptions of Aeromedical Certification and Use of the New Internet System
- Uncovering Human Error Trends in Fatal General Aviation Accidents using HFACS
- Assessing the Reliability of the Human Factors Analysis and Classification System (HFACS) within the Context of General Aviation
- Emotional Correlates of Predicted Neurological Status as Measured by Cogscreen-AE
- The Relationship Between Age and Neurological Status as Predicted by the Cogscreen-AE
- Development of a Work-Sample Color Vision Screening Test for Automated Flight Service

Station Air Traffic Control Specialist Applicants

- Performance on the Farnsworth Lantern and Aviation Lists Test as a Function of Color Vision Deficiency
- An Analysis of Professional ATP and Commercial Pilot Accident Rates by Age
- The Impact of Shiftwork on the Fatigue, Sleep and Performance of Air Traffic Controllers: The Canadian Experience
- Survey of Shiftwork and Fatigue in the US Air Traffic Control Workforce
- Shiftwork-related Changes in Subjective Fatigue and Mood for a Sample of US Air Traffic Control Specialists
- The Effects of Shiftwork and Fatigue on Cognitive Function Among US Air Traffic Control Specialists
- A Comparison of the Effects of Clockwise and Counter-Clockwise Rapidly Rotating Shift Schedules on Sleep
- ATC: the Right Stuff (note: presented by Dr. Schroeder during the luncheon and annual business meeting of the Aerospace Human Factors Association)
- Human Factors Approach to Accident and Prevention Analysis (note: special workshop led by Dr. Shappell/CAMI and Dr. Wiegmann/Illinois))
- Shiftwork and Fatigue Factors in the US and Canadian Air Traffic Control Workforces (note: panel session chaired by Dr. Pam Della Rocco of the William J. Hughes Technical Center and Dr. Tom Nesthus of CAMI)

Aeromedical research scientists made the following presentations:

- Insulin-Treated Diabetic Pilot Experience in the US
- Safety Center Issues: Annual Review of Civil Aircraft Accidents
- Blunt Trauma Injuries in General Aviation Fatalities
- Aviation Accidents and Incidents Associated with the Use of Ophthalmic Devices by Civilian Pilots
- Use of Contact Lenses by US Pilots
- In-flight Medical Incapacitation Research
- Medical Aspects of Aircraft Accident Investigation
- Association of Postmortem Blood Hemoglobin A1c Levels with Diabetic Conditions in Aviation Accident Pilot Fatalities
- Prevalence of Drugs and Alcohol in Fatal Civil Aviation Accidents between 1994 and 1998
- Distribution of Butalbital in Biological Fluids and Tissues
- A Piece of the Puzzle: The Role of Directed Toxicological Research in a High Profile General Aviation Accident Investigation
- DNA-based Detection of Ethanol-Producing Microorganisms in Postmortem Blood and Tissues by Polymerase Chain Reaction
- Consumption of Hemp Products and Drug Testing: Safe or Sorry

Selection and Training: A human factors researcher traveled to Washington DC to participate in a meeting with National Coalition of Black Federal Aviation Employees (NCBFAE) representatives to discuss the potential adverse impact of the AT-SAT test battery. In attendance was Dr. Outtz, a well-respected industrial organizational psychologist living in the Washington

DC area who was hired by the NCBFAE to review AT-SAT for adverse impact. Dr. Outtz made several valuable comments, and his suggestions will serve as the basis for reviewing the test and developing strategies to reduce potential adverse impact while maintaining validity. (E. Fiedler, CAMI)

OpEval-2: A researcher from CAMI participated in a human factors meeting hosted by the MITRE Corp. at McLean Virginia. The meeting focused on review and editing of the results sections of the draft OpEval-2 Final Report. The final day of the meeting involved discussions that centered upon initial plans for the OpEval-3 scheduled to take place at Memphis in FY 2002. (R. Prinzo, 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)



May 22-23, 2001 – IQPC Six Sigma for Aerospace Conference, Scottsdale Hilton, Phoenix, AZ
<http://www.iqpc.com/1485a>

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/>

June 21-22, 2001 – Volpe National Transportation Systems Center National Symposia on Transportation: Education and Workforce, US DOT Volpe Center, Cambridge, MA
<mailto:brewerl@volpe.dot.gov>

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://hci2001.engr.wisc.edu/>

August 7-8, 2001 – Volpe National Transportation Systems Center National Symposia on Transportation: Enabling Technologies, US DOT Volpe Center, Cambridge, MA
<mailto:brewerl@volpe.dot.gov>

August 16-19 – Taipei Aerospace Technology Exhibition, Taipei World Trade Centre, Taipei, Singapore <http://www.taipeitradeshows.com.tw/etate>

September 4-6, 2001 – MRO Europe 2001, Scottish Exhibition & Conference Centre, Glasgow, Scotland <http://www.aviationnow.com/conferences>

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, Human Factors/Ergonomics: It Works, Minneapolis, MN <http://www.hfes.org/>

October 14-18, 2001 – Aerospace Expo 2001, Los Angeles Convention Center, Los Angeles, CA <http://www.aviationnow.com/conferences>

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 3-5, 2001 – MRO Asia 2001, Regal Hotel, Hong Kong <http://www.aviationnow.com/conferences>

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/>

April 7-27, 2003 – Aviation World's Fair, Newport News/Williamsburg, VA <http://www.worlds-fair.com/>

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



Comments or questions regarding this newsletter?
Please contact Bill Berger at (202) 267-8532
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