



AAR-100

Human Factors Newsletter # 03-06

March 29, 2003 – April 11, 2003

Research Grant Awarded: Earlier this month, the FAA awarded a grant to the University of Nevada-Reno for research into *Visibility in the Aviation Environment*. The purpose of this human factors project is to develop research and educational materials that will help reduce accidents caused by problems of visibility in the aviation environment (in the air and on the ground). There are four related areas of concern: (1) continued flight into reduced visibility and/or “flat light”; (2) failure to detect other aircraft and obstacles in the air and on the ground; (3) failure to utilize resources; and (4) the need for improved education and training for areas of concern (1-3 above). A review of the current literature indicates that accidents related to visibility account for a large portion of the total fatalities in aircraft. Visibility issues range from continued flight into instrument meteorological conditions (IMC) resulting in controlled flight into terrain (CFIT), runway incursions and ground-based accidents during low visibility conditions, and mid-air collisions with ground-based objects or other aircraft. Mid-air collisions are often due not only to reduced visibility, but also to background conditions that camouflage or mask the target and impede detection, and indeed many of these accidents occur in clear skies. In most situations, there appears to be a failure on the part of the pilots to recognize unsafe visual conditions and take appropriate action. In addition, reports indicate that in many cases, pilots of accident aircraft did not avail themselves of available technology, either advanced equipment installed in the aircraft, or ATC services. Further research aimed at understanding visual limitations under conditions of low visibility and decreased detection is needed. Such research will include optimizing strategies for employing available technology and services. Although some of these issues have been investigated in a limited manner in the past, researchers will greatly extend earlier studies with the aid of advances in simulation technology and recent, impressive advances in understanding the physiology and limitations of visual function. Investigations of contrast masking and flat light are particularly important, since quantification of these visual hazards in the flight environment has largely been ignored. Results from this research will form the basis for education materials designed to improve pilot recognition and performance under non-optimal visual conditions, and will ultimately reduce accidents related to poor visual conditions. (W. Krebs, AAR-100)

NTML: A team of Engineering Research Psychologists from ACB-220 visited the Air Traffic Control System Command Center to support a National Traffic Management Log (NTML) user-team meeting. The ACB-220 team conducted testing of the upcoming release of the program. During testing, they validated the implementation of design concepts that had been developed during earlier activities, and identified issues that related to both functionality and human-computer interface usability. The research psychologists worked with the user-team to develop recommendations for issue resolution that were consistent with human factors design guidelines and best practices. For some issues, they developed prototypes of various display options for the team to review and evaluate. (T. Yuditsky, ACB-220)

FTI: Engineering Research Psychologists from ACB-220 traveled to Washington, DC to attend a briefing by Sharon Chinoy (Harris Corporation) on the human factors program for the FAA Telecommunications Infrastructure (FTI) project. In the briefing, Sharon reviewed Harris' holistic approach to applying human factors engineering into the FTI system. The planned (and already completed) activities include analyses, user interface design, coordinating with working groups, and design reviews. The guidelines Harris Corporation is using include Section 508 of the FAA Human Factors Design Standard, for accessibility, and other industry standards. (T. Yuditsky, ACB-220)

National Aviation Research Plan: The 2003 National Aviation Research Plan is now on-line at: <http://204.108.10.116/nasiHTML/RED/index.html>.

National Transportation Week (NTW) Activities: AAR-200's Denise Davis and Karen Stewart are representing AAR in this year's National Transportation Week's "Celebration of Aviation." The event will take place at Potomac Airfield, Fort Washington, MD, on May 13, where the FAA will host an estimated 800 elementary, middle, and high school students. The AAR-200 produced *Gate-to-Gate* CD-Rom, which depicts an airliner's flight from San Francisco to JFK in New York, will be demonstrated for students. The event includes the winners of this year's aircraft building and NTW poster contest, and will include a music of the mind contest with the theme "Charting the Next Century of Flight." Aircraft will be on display, as will bomb sniffing K-9's, NHTSA crash dummies, and vehicle and boating safety demonstrations. (T. Kraus, AAR-200)

FAA Center of Excellence for Operations Research (NEXTOR): NEXTOR recently announced that George Mason University (GMU) has accepted the invitation to become a full member of the NEXTOR consortium. The FAA sponsoring organization, ASD-2, and NEXTOR core team leads, University of California - Berkeley, MIT, University of Maryland, and Virginia Tech, agree that the addition of GMU will be mutually beneficial to the NEXTOR team. GMU brings a unique blend of aviation operations research, public policy, and economic expertise to

the aviation community. The university has served actively as an affiliate member of NEXTOR since 1996. (T. Kraus, AAR-200)

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

Mark D. Rodgers
FAA (AAR-100)



April 14-17, 2003 – 12th International Symposium on Aviation Psychology, Convention Center, Dayton, OH http://web.house.com.ar/users/hf_crm/12h%/20call.doc

April 15-17, 2003 – ATA MRO Conference and Exhibition, Broward Convention Center, Ft. Lauderdale, FL <http://www.awgnet.com/conferences/mromain.htm>

April 22-23, 2003 – 48th Annual Corporate Aviation Safety Seminar, presented by the Flight Safety Foundation and the National Business Aviation Association, Westin Diplomat Resort and Spa, Hollywood, FL <http://www.flightsafety.org/seminars.html>

April 27-30, 2003 – Symposium on Interactive 3D Graphics, Monterey Marriott, Monterey, CA <mailto:Pausch@cmu.edu>

April 29-30, 2003 - FAA Research, Engineering and Development Advisory Committee (REDAC) Meeting, FAA Headquarters, Bessie Coleman Room gloria.dunderman@faa.gov

May 3-10, 2003 – International Conference on Software Engineering, Hilton Portland, Portland, OR <mailto:ldillon@cse.msu.edu>

May 4-9, 2003 – 74th Annual Scientific Meeting of the Aerospace Medical Association, Convention Center, San Antonio, TX <http://www.asma.org/>

May 5-8, 2003 – ATCA Civil/Military Air Traffic Management Conference, Prague, Czech Republic http://www.atca.org/static2_item.asp?item_ID=19

May 6 – 8, 2003 - AHS International 59th Annual Forum and Technology Display, Phoenix Civic Plaza, Phoenix, AZ. [General Information](#) - [Call for Papers](#) - [Exhibitors](#)

May 12-15, 2003 – DOD TAG-49, Country Suites Augusta Riverwalk, Augusta, GA <http://hfetag.dtic.mil/meetschl.html>

May 12-17, 2003 - 2003 IEEE International Conference on Robotics and Automation, The Grand Hotel, Taipei, Taiwan <http://www.icra2003.org/>

June, 2003 – SAE Digital Human Modeling for Design and Engineering, Location TDB <http://www.sae.org/calendar/aeromtgs.htm>

June 2-3, 2003 - The National Center of Excellence for Aviation Operations Research (NEXTOR) Conference on Air Traffic Management and Control, hosted by NEXTOR - Virginia Tech, Virginia Tech Graduate Center, Falls Church, VA

June 9 – July 4, 2002 – World Radio Communication Conference, Geneva, Switzerland <http://www.itu.int/ITU-R/conferences/wrc/wrc-03/index.asp>

June 15-22, 2003 – 45th Paris Air Show le bourget <http://www.paris-air-show.com/index3.htm>

June 16-19, 2003 –SAE Digital Human Modeling for Design and Engineering, Montreal, Canada <http://www.sae.org/calendar/dhm/index.htm>

June 18-19, 2003 – 6th GAIN World Conference, Alitalia Auditorium, Rome, Italy <http://www.gainweb.org/whatsnew.html>

June 22-27, 2003 – 10th International Conference on Human-Computer Interaction, Institute of Computer Science Foundation, Research and Technology, Science and Technology Park of Crete, Heraklion, Crete, Greece <mailto:info@hcii2003.gr>

June 23-25, 2003 – Human Systems Integration Symposium “Enhancing Human Performance in Naval and Joint Environments”, Sheraton Premier Hotel, Tyson’s Corner, VA <http://www.navalengineers.org/Events/HSIS2003/HSIS.html>

July 7-10, 2003 – SAE 33rd International Conference on Environmental Systems, The Westin Bayshore Resort and Marina, Vancouver, Canada <http://www.sae.org/calendar/aeromtgs.htm>

July 14-17, 2003 – AIAA/ICAS International Air & Space Symposium and Exposition, Dayton Convention Center, Dayton, OH <http://www.flight100.org/>

July 21 – 23, 2003 - 4th Australian Pacific Vertiflite Conference on Helicopter Technology, Melbourne, Victoria, Australia. Contacts: [Dr. Arvind K. Sinha](#) and [Mr. Raden Kusumo](#)

July 29-August 4, 2003 – 51st Annual AirVenture, Oshkosh, WI <http://airventure.org/>

August 7-10, 2003 – 111th Convention of the American Psychological Association, Toronto, Ontario, Canada <http://www.apa.org/convention>

September 8-12, 2003 – SAE Aerospace Congress and Exhibition, Palais des Congrès, Montreal, Quebec, Canada <http://www.sae.org/calendar/aeromtgs.htm>

September 15-17, 2003 – FAA/TCA/CAA Safety Management in Aviation Maintenance Symposium, Toronto, Canada

September 16 – 18, 2003 - 29th European Rotorcraft Forum, Friedrichshafen, Germany. Contact B. Gmelin at bernd.gmelin@dir.de

September 16-18, 2003 – MRO Europe, Cardiff International Arena, Cardiff, Wales
<http://www.awgnet.com/conferences/meumain.htm>

September 16-19, 2003 – Investigation and Reporting of Incidents and Accidents (IRIA), Williamsburg, VA <http://shemesh.larc.nasa.gov/iria03/>

September 18-19, 2003 – National Academy of Engineering 2003 Frontiers of Engineering Symposium, Irvine, CA [Welcome to the National Academy of Engineering \(NAE\)](#)

September 22 – October 3, 2003 – ICAO 11th Air Navigation Conference, Montreal, Canada
<http://www.icao.int/icao/en/anb/meetings/anconf11/index.html>

September 24-25, 2003 – IATA/ICAO/Flight Safety Foundation ICARUS Committee/University of Texas LOSA Meeting, Montreal, Canada <mailto:helmreich@mail.utexas.edu>

October 6 – 9, 2003 - NATO Research and Technology Agency, Applied Vehicle Technology Panel (AVT) will present "The Vehicle Propulsion Integration Symposium" in Poland. For more information contact cheynes@rta.nato.int

October 7 – 9, 2003 - National Business Aviation Association Annual Meeting & Convention, Orlando, Florida. Contact: www.nbaa.org

October 13-17, 2003 – Human Factors and Ergonomics Society 47th Annual Meeting, Adams Mark Denver Hotel, Denver, CO <http://www.hfes.org/>

October 26-30, 2003 – ATCA 48th Annual International Technical Program and Exhibits, Marriott Wardman Park Hotel, Wash, DC http://www.atca.org/static2_item.asp?item_ID=19

October 27-28, 2003 – National Academies Institute of Medicine Annual Meeting, National Academy of Sciences, Washington, DC <http://wwwsearch.nationalacademies.org/>

October 27-30, 2003 – SAE DoD Maintenance Symposium and Exposition, Valley Forge Convention Center, King of Prussia, PA <http://www.sae.org/calendar/aeromtg.htm>

November, 2003(tentative) – DOD TAG-50, Fall 2003, Phoenix, AZ
<http://hfetag.dtic.mil/meetschl.html>

November 17-20, 2003 – 56th Annual Air Safety Seminar, A Joint Meeting of Flight Safety Foundation, International Federation of Airworthiness, and International Air Transport Association, Bangkok, Thailand <http://www.flightsafety.org/seminars.html>

January 11-15, 2004 – Transportation Research Board Annual Meeting, Washington, DC
<http://www4.trb.org/trb/annual.nsf>

January 21 – 23, 2004 - AHS 4th Decennial Specialists' Meeting on Aeromechanics, Fisherman's Wharf, San Francisco, CA. For more information contact the Technical Chairman, Tom Maier at tmaier@mail.acr.nasa.gov

April, 2004 – SAE General Aviation Technology Conference and Exhibition, Century II Convention Center, Wichita, KS <http://www/sae.org/calendar/aeromtgs.htm>

May 3-6, 2004 – 75th Annual Scientific Meeting of the Aerospace Medical Association, Egan Convention Center, Anchorage, AK <http://www.asma.org/>

May 6-8, 2004 - AHS International 60th Annual Forum and Technology Display, Virginia Beach, VA. Contact Staff@vtol.org

July 27-August 2, 2004 – 52nd Annual AirVenture, Oshkosh, WI <http://airventure.org/>

July 28 – August 1, 2004 – 112th Convention of the American Psychological Association. Honolulu, Hawaii <http://www.apa.org/convention>

September 20-24, 2004 – Human Factors and Ergonomics Society 48th Annual Meeting, Sheraton New Orleans Hotel, New Orleans, LA <http://www.hfes.org/>

October 18-19, 2004 – National Academies Institute of Medicine Annual Meeting, National Academy of Sciences, Washington, DC <http://wwwsearch.nationalacademies.org/>

May 9-12, 2005 - 76th Annual Scientific Meeting of the Aerospace Medical Association, Kansas City, MO <http://www.asma.org/>

October 24-25, 2005 – National Academies Institute of Medicine Annual Meeting, National Academy of Sciences, Washington, DC <http://wwwsearch.nationalacademies.org/>

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



Comments or questions regarding this newsletter?
Please contact Bill Berger at (334) 271-2928
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