



ATOP-R&D

Human Factors Newsletter # 05-23

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Articles in this newsletter:

- *National Traffic Management Log*
- *Human Factors Reports*
- *DoD TAG*
- *Communication and Coordination*
- *New Volpe Center Operator Performance and Safety Analysis Division Chief*
- *New Member of the ATO-P R&D Human Factors Team*
- *ERIDS Benefit Study*
- *ATC/TO Communications*
- *NATPRO*
- *Listening in Multi-Talker Environments*
- *Calendar*

National Traffic Management Log (NTML): On December 13-15, 2005, research psychologists from the William J. Hughes Technical Center NAS Human Factors Group will host a meeting of the NTML Working Group. The working group will receive human factors support in defining system design requirements and developing prototypes of proposed displays. The NTML is used throughout the National Airspace System for automated logging and dissemination of traffic management information. In October 2005, nearly 180,000 entries were logged in the system. *This research activity supports the Administrator's Flight Plan Goal for Greater Capacity, Objective 3: Increase on-time performance of scheduled carriers.* (T. Yuditsky, WJHTC)

Human Factors Reports Available: Fourth quarter progress reports for Aviation Maintenance, General Aviation, and Vertical Flight Human Factors are available at <http://www.hf.faa.gov/>. Click on Flight Deck/Aviation Maintenance, then click on Vertical Flight (funded projects), General Aviation (funded projects), and Aviation Maintenance (projects). *This research activity supports the Administrator's Flight Plan Goal for Organizational Excellence, Objective 3: Make decisions based on reliable data to improve our overall performance and customer satisfaction.* (W. Krebs, ATO-P R&D)

DoD TAG: Vicki Ahlstrom presented work done on the Human Factors Design Standard at the Department of Defense Technical Advisory Group's (TAG) Sub-TAG on Standardization in Baltimore, Maryland. Attending this meeting were representatives from various military and government agencies. The standards groups of the diverse agencies work together to share knowledge and coordinate efforts to ensure that government resources are being used as efficiently and effectively as possible. *This research activity supports the Administrator's Flight Plan Goal for Safety, Objectives 1 and 5: Reduce the commercial fatal accident rate: Enhance the safety of FAA's air traffic systems.* (V. Ahlstrom, WJHTC)

Communication and Coordination: Researchers from the William J. Hughes Technical Center's NAS Human Factors Group traveled to Indianapolis Air Route Traffic Control Center and the Terminal Radar Approach Control at Cincinnati/Northern Kentucky International Airport the week of November 14th to collect data on the communication and coordination of National Airspace System (NAS) status between Air Traffic and Technical Operations. The research will document information flow and gather information on ways to improve the efficiency and effectiveness of the process. *This research activity supports the Administrator's Flight Plan Goal for Greater Capacity, Objective 3: Increase on-time performance of scheduled carriers.* (V. Ahlstrom, WJHTC)

Volpe Center Operator Performance and Safety Analysis Division Chief: Dr. Stephen Popkin has been selected Chief of Volpe's Operator Performance and Safety Analysis Division. Dr. Popkin is an engineering psychologist, with a Ph. D. in industrial and organizational psychology. He joined the Volpe Center staff in 2000. Dr. Popkin currently leads the Fatigue Monitoring and Countermeasures Research Team at Volpe, exploring multimodal fatigue and alertness issues. He also sits on the DOT Human Factors Coordinating Committee, is co-chair of the cross-modal Operator Fatigue Management Taskforce, and participates as a member of the International Labor Organization's Working Time Committee, a multinational group dedicated to understanding the effects of shift work on worker health and performance. Congratulations! (T. McCloy, ATO-P R&D)

New Member of the ATO-P R&D Human Factors Team: Eddie Sierra is the newest member of the ATO-P R&D Human Factors Research and Engineering Division. He is a Scientific and Technical Advisor for Human Factors. Before Eddie joined the FAA, he was a Project Manager with L-3, Titan Group's Air Traffic Systems Division in Mays Landing, New Jersey. He supported the FAA William J. Hughes Technical Center's Simulation and Analysis Group. Eddie received his M.S. in Psychology from the Georgia Institute of Technology in Atlanta. He is married to Judie and has two children, Arielle and Cameron. Welcome! (P. Krois, ATO-P R&D)

ERIDS Benefit Study: On December 1, 2005, Technical Center personnel from the Human Factors Group completed data collection on the ERIDS(En Route Information Display System) at Houston Air Route Traffic Control Center. This was a field survey and observation study examining how ERIDS is actually used in operations as well as an opportunity to identify how the system might be employed more effectively in the future. *This research activity supports the Administrator's Flight Plan Goal for Greater Capacity, Objective 3: Increase on-time performance of scheduled carriers.* (Randy Sollenberger, WJHTC)

ATC/TO Communications: Researchers from the William J. Hughes Technical Center's National Airspace System (NAS) Human Factors group are traveling to Cleveland Terminal Radar Approach Control and Air Route Traffic Control Center to collect data on communication of system status between Air Traffic and Technical Operations. Researchers will focus on information requirements, information flow, and how system status is logged/reported. The results of this effort will help identify redundancies between Technical Operations and Air Traffic that may exist in the communication and coordination of NAS system status. *This research activity supports the Administrator's Flight Plan Goal for Safety, Objective 5: Enhance the safety of FAA's air traffic systems.* (V. Ahlstrom, WJHTC)

NATPRO: During the last week of November, Julia Pounds convened a National Air Traffic Professionalism Project (NATPRO) Series II project workgroup for an interim meeting at the FAA Academy in Oklahoma City. Attendees included Mike Morrison, acting branch manager, Air Traffic Initial Qualification Training (AMA-510), Kelly Fives, acting section manager, Air Traffic Initial Qualification Training (AMA-512), and controllers Randall Breedlove (retired, Charlotte/Douglas International Airport in NC), Donnie Palmer (Raleigh-Durham International Airport, Raleigh, NC), and Jack Overfield (Houston ARTCC). Researchers from the Air Force Research Laboratory/Human Effectiveness Directorate at Wright-Patterson AFB attended an afternoon session to inform the NATPRO workgroup of research which addresses methods to improve performance in multi-talker listening tasks. They also made some of their evaluation software available for the Series II project.

The Series II project -- *Listening and Beyond... and Next You Go Left Right?* -- was initiated as a proof of concept to determine whether a program for controllers could be developed to target auditory concentration and listening skills. Listening skills are generally thought to be related to readback/hearback errors, but an improvement in these skills would also be expected to benefit all areas of performance.

Series II builds on the framework established by the Series I program for visual concentration. This initiative is currently being completed by en route operational personnel. Series II is complimentary to Series I and is expected to require less time for delivery.

The workgroup edited the materials with accompanying practice exercises and assigned action items for members to finalize the package. Plans are to brief ATO representatives on the Series II program when the results from Series I activities are delivered. *This research activity supports the Administrator's Flight Plan Goal for Safety, Objective 5: Enhance the safety of FAA's air traffic systems.* (J. Pounds, CAMI)

Listening in Multi-Talker Environments: Julia Pounds, controller Randall Breedlove (retired, Charlotte/Douglas International Airport in NC), and personnel from the FAA Academy's Terminal Radar Training Division (AMA-512) met with a team from the Wright-Patterson AFB Research Laboratory/Human Effectiveness Directorate to discuss Air Force research on methods to improve performance in multi-talker listening tasks. Academy personnel who met with the group included Mike Morrison, acting branch manager, Air Traffic Initial Qualification Training (AMA-510), Kelly Fives, acting section manager, Air Traffic Initial Qualification Training (AMA-512), and Clint Windom (AMA-512). The researchers from the US Air Force Research

Laboratory/Human Effectiveness Directorate were: Douglas S. Brungart, Ph.D., Technical Advisor, Adrienne Ephram, M.S., Associate Biomedical Engineer, Nandini Iyer, Ph.D., Postdoctoral Research Fellow, and Brian Simpson, M.S., Engineering Research Psychologist. The USAF team provided information about their research on multi-talker listening tasks and discussed the potential training benefits from this approach. They visited the Academy's Initial Qualification Radar Laboratory and were briefed on the communications system and statistical software. Possibilities for joint research on this topic were discussed.

Multi-talker listening is of particular interest relative to efforts to reduce air traffic control communications errors. Evidence has shown that performance in multi-talker listening tasks can be improved by spatially separating the apparent locations of the competing talkers. Many critically important tasks require listeners to monitor and respond to speech messages originating from two or more competing talkers. Air traffic controllers routinely make decisions on the basis of information they receive through multi-channel communications systems. Although a number of researchers have commented on the substantial benefits that audio technology can provide in these multi-talker communications tasks, no consensus has been reached on how to design an "optimal" multi-talker speech display. This lack of consensus is, in part, a result of the extreme complexity of the multi-channel listening problem. Performance in such tasks depends on a wide variety of factors including: ambient noise in the communications system, the number of competing talkers, voice characteristics of the talkers, relative levels of the talkers, the apparent locations of the talkers, and the listener's *a priori* knowledge about the listening task. A further complicating issue is the variety of methodologies that have been used to examine these factors. Procedural variations often make it difficult to compare the results of different multi-talker listening experiments.

The USAF team also provided demonstrations of their experimental approach and made some of their automation available to the NATPRO Series II development project. *This research activity supports the Administrator's Flight Plan Goal for Safety, Objective 5: Enhance the safety of FAA's air traffic systems.* (J. Pounds, CAMI)

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

Paul Krois
FAA (ATO-P R&D Human Factors)



January 9-12, 2006 - 44th AIAA Aerospace Sciences Meeting and Exhibit, Reno Hilton, Reno, NV <http://www.aiaa.org/>

January 21-25, 2006 – ASHRAE Winter Meeting and Expo, Chicago, IL
<http://www.ashrae.org/template/AssetDetail/assetid/45794>

January 22-26, 2006 – TRB 85th Annual Meeting, Washington, DC <http://trb.org/calendar/>

January 23-27, 2005 - S-18 Safety Assessment for Airborne Systems & Equipment
San Antonio, TX, lemon@sae.org

February 9-10, 2006 - Swinburne University Symposium on Safety Management and Human Factors Symposium, Melbourne, Australia janca@groupwise.swin.edu.au
<http://www.swin.edu.au/aviation/forms/2006SwinburneSymposiumCallforPapers.pdf>

February 21-26, 2006 – Asian Aerospace 2006, Changi Exhibition Centre, Singapore
www.asianaerospace.com

February 26-28, 2006 – Heli-Expo, Dallas, TX <http://www.heliexpo.com>

February 28 – March 1, 2006 – 31st Annual FAA Aviation Forecast Conference, Wash, DC
http://www.faa.gov/news/conferences/aviation_forecast_2006/.

March 12-14, 2006 – AirCargo 2006, Sheraton Bal Harbour, FL
<http://www.aircargoconference.com>

March 13-15, 2006 – Flight Safety Foundation 18th Annual European Aviation Safety Seminar, Athens, Greece <http://www.flightsafety.org/seminars.html#eass>

March 20-23, 2006 – 16th Annual AAMI/FDA International Conference on Medical Device Standards and Regulation, Hyatt Regency, Reston, VA
<http://www.aami.org/meetings/isc/index.html>

March 22 - 25, 2006 - Society for Behavioral Medicine Annual Meeting and Scientific Sessions, San Francisco, CA www.sbm.org/annualmeeting/index.html

March 23-25, 2006 - 17th Annual International Women in Aviation Conference, Opryland Hotel Nashville, TN <http://www.wai.org/>

March 23-27, 2005 – IA Summit 2006, Hyatt Regency, Vancouver, BC, Canada
<http://www.iasummit.org/>

March 28-30, 2006 – Aviation Industry Expo, Las Vegas, NV
<http://www.aviationindustryexpo.com>

April 4-10, 2006 – Sun ‘n Fun, Lakeland, FL <http://www.sun-n-fun.org/content/>

April 6-7, 2006 – National Human Capital Summit, Chicago Marriott Downtown, Chicago, IL
http://www.humancapitalinstitute.net/conference_national.html

April 18-20, 2006 – FAA Aviation Safety Programs Conference, Grand Hyatt Hotel, Denver, CO <http://www.aviationsafetyconference.com>

April 22-27, 2006 – CHI 2006, Montreal, Quebec, Canada
<http://www.chi2006.org/call/hcioverviews.php>

April 23-28, 2006 - Avionics Systems Division Meeting, New Orleans, LA (TBD)
lemon@sae.org

April 24-26, 2005 – ATCA/FAA/NASA Annual Technical Symposium, Atlantic City, NJ
http://www.atca.org/activities/event_items.asp?month=4&year=2006&item_id=3557

April 25-27, 2006 – Maintenance, Repair & Overhaul (MRO) Conference & Exhibition, Phoenix Civic Plaza, Phoenix, AZ <http://www.aviationnow.com/conferences/mromain.htm>

May 1-4, 2006 - 47th AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference; 14th AIAA/ASME/AHS Adaptive Structures Conference; 7th AIAA Gossamer Spacecraft Forum; 2nd AIAA Multidisciplinary Design Optimization Specialist Conference; 1st AIAA Non-Deterministic Approaches Conference, Hyatt Regency Newport, Newport, RI <http://www.aiaa.org/>

May 3-5, 2006 - 6th Annual European Business Aviation Convention & Exhibition (EBACE2006), Geneva, Switzerland <http://web.nbaa.org/public/cs/amc/>

May 9-11, 2006 – Flight Safety Foundation 51st Annual Corporate Aviation Safety Seminar, Phoenix, AZ <http://www.flightsafety.org/seminars.html#eass>

May 14-18, 2006 - 77th Annual Scientific Meeting of the Aerospace Medical Association, Caribe Royale Hotel, Orlando, FL <http://www.asma.org/>

May 15-16, 2006 – DoD TAG, Las Vegas, NV <http://hfetag.dtic.mil/meetschl.html>

May 15-16, 2006 – ASTM F38 Unmanned Aircraft Systems Committee Workshop, Sheraton Centre Toronto; Toronto, ON CAN <http://www.astm.org/>

May 17-19, 2006 – 17th International Conference on Heating and Ventilation, Prague, Czech Republic <http://www.acv2006.cz>

May 22-24, 2006 - 9th IFAC Symposium on Automated Systems Based on Human Skill And Knowledge, Nancy, France <http://www.cdc.gov/niosh/exhibits.html>

May 25-28, 2006 – American Psychological Society 18th Annual Convention, New York Marriott Marquis, New York City, NY <http://www.psychologicalscience.org/convention/>

June 6-8, 2006 – IEE System Safety Conference, Savoy Place, London, UK
<http://www.iee.org/events/event/CE202BA5-A0D3-8FE7-2F35A59A02C8B3F3>

June 8-10, 2006 – NTSB Bar Association Annual CLE Conference, NTSB Conference Center, L'Enfant Plaza, Wash, DC <http://www.ntsbbbar.org/>

June 11-14, 2006 – The American Society of Safety Engineers Safety 2006 Conference, Washington State Convention and Trade Center, Seattle, WA
<http://www.asse.org/2006pdcallforpapers.pdf>

June 12-16, 2006 – UPA 2006 – 15th Annual Conference, Broomfield, CO
http://www.usabilityprofessionals.org/conferences_and_events/upa_conference/2006/

June 24-26, 2006 – AAMI Conference & Exposition, Wash, DC
<http://www.aami.org/proposals/index.html>

June 24-28, 2006 – ASHRAE Annual Conference, Quebec, Canada <http://www.ashrae.org/>

June 26-29, 2006 - [General Aviation Technology Conference](#) , Hyatt Hotel, Wichita, Kansas,

July, 2006 - 26th International Congress of Applied Psychology, Athens, Greece
dgeorgas@dp.uoa.gr ,
http://www.erasmus.gr/dynamic/conventions.asp?conv_id=21r/dynamic/conventions.asp?conv_id=21

July 10-14, 2006 – IEA 2006, 16th World Congress on Ergonomics, Maastricht, The Netherlands
<http://www.iea2006.org/>

July 24-30, 2006 – EAA AirVenture, Oshkosh, WI <http://www.airventure.org/>

August 10-13, 2006 – American Psychological Association Annual Meeting, New Orleans, LA
<http://www.apa.org/convention05/future.html>

August 21-24, 2006 - AIAA Modeling and Simulation Technologies Conference and Exhibit. Keystone Resort and Conference Center, Keystone, CO
<http://www.aiaa.org/content.cfm?pageid=1>

August 21-24, 2006 - AIAA Guidance, Navigation, and Control Conference and Exhibit, Keystone Resort and Conference Center, Keystone, CO
<http://www.aiaa.org/content.cfm?pageid=1>

September 6-8, 2006 - 11th AIAA/ISSMO Multidisciplinary Analysis and Optimization Conference, Renaissance Portsmouth, Portsmouth, VA,
<http://www.aiaa.org/content.cfm?pageid=1>

September 10-14, 2006 - 54th International Congress of Aviation and Space Medicine, Bangalore, India. A preliminary registration form may be found at <http://www.isam-india.org/conference44/newreg.php>.

September 20-22, 2006 – HCI-Aero 2006, Seattle, WA <http://www.eurisco.org/hci-aero2006>

Note: Submission Deadlines:

15th March 2006 - Full Research Papers

15 April 2006 - Industry Papers

15 April 2006 - Early Stage Research Papers

15 April 2006 - Panels, Workshops

15 April 2006 - Posters and Demos

September 26-27, 2006 – AIAA Aviation Technology, Integration and Operations Conference, Hyatt Regency, Wichita, KS <http://www.aiaa.org/content.cfm?pageid=1>

October 15-19-2006 – Digital Avionics Systems Conference, Hilton Portland, Portland, OR <http://www.dasconline.org/>

October 17-19, 2006 – NBAA 59th Annual Meeting and Convention, Orlando, FL
<http://web.nbaa.org/public/cs/amc/futuresites.php>

September 25-27, 2006 - 6th AIAA Aviation Technology, Integration and Operations Forum, Hyatt Regency Wichita, Wichita, KS <http://www.aiaa.org/content.cfm?pageid=1>

October 23-25, 2006 – 44th Annual SAFE Symposium, Reno Hilton Hotel, Reno, NV
<http://www.safeassociation.org/symposium.htm>

October 23-26, 2006 - DoD Maintenance Symposium & Exhibition, Reno Hilton, Reno, Nevada <http://www.sae.org/events/conferences/aerospace/>

October 29 - November 1, 2006 – ATCA Convention and Exposition, Marriott Wardman Park, Wash, DC

November 9-11, 2006 – AOPA Expo 2006, Palm Springs, CA
<http://www.aopa.org/expo/2005/virtual/>

November 13-14, 2006 ASTM F38 Unmanned Aircraft Systems Committee Workshop, Hyatt Regency, Atlanta, GA <http://www.astm.org/>

January 8-11, 2007 - 45th AIAA Aerospace Sciences Meeting and Exhibit, Reno Hilton, Reno, NV <http://www.aiaa.org/content.cfm?pageid=1>

May 21-22, 2007 - ASTM F38 Unmanned Aircraft Systems Committee Workshop, Waterside Convention Center, Norfolk, VA <http://www.astm.org/>

July 22-27, 2007 – 12th HCI International, Beijing, China <http://www.hcii2007.org/>

September 25-27, 2007 - NBAA 60th Annual Meeting and Convention, Atlanta, GA
<http://web.nbaa.org/public/cs/amc/futuresites.php>

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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