



ATO-P R&D

Human Factors Research and Engineering Division

Human Factors Newsletter # 06-10

May 6, 2006 – May 19, 2006

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Dr. Terry Allard Named Program Director: The Director, Air Traffic Organization Operations Planning, Research and Development is happy to announce that Dr. Terry Allard has been selected as the new Program Director for Human Factors, and will lead the Human Factors Research & Engineering Division within the Office of Aviation Research. Dr. Allard is a member of NASA's Senior Executive Service and has served as the NASA Headquarters Associate Director of Human System Research and Technology, its Director of Advanced Space Technologies, and as Chief of the Human Factors Research and Technology Division at NASA-Ames Research Center. Before joining NASA in 1999, he managed research and development programs for nine years in the Human Systems Department of the Office of Naval Research. He has a Ph.D. in Psychology and Brain Science from MIT. Dr. Allard will join the staff in June. Congratulations! And Welcome!

Technical Note: Ahlstrom, U, & Friedman-Berg, F. (2006). TRACON Controller Weather Information Needs III: Human-in-the-Loop Simulation. Atlantic City International Airport, NJ: Federal Aviation Administration, William J. Hughes Technical Center.

Abstract

Hazardous weather conditions affect the National Airspace System (NAS) in many ways, including flight safety and system effectiveness. From a safety perspective, hazardous weather conditions contribute to aircraft accidents and fatalities (National Transportation Safety Board [NTSB], 1999a; NTSB, 1999b). From an operational perspective, hazardous weather conditions are very costly. In 1995, weather related delays cost airlines \$4.1 billion, and costs are only increasing (“Weather reports should be higher priority,” 1995). In an effort to mitigate these effects, the Federal Aviation Administration (FAA) is improving the availability of advanced weather information at select Terminal Radar Approach Control (TRACON) facilities. However, the bulk of this weather information is only available to traffic management and supervisors for strategic use. TRACON controllers do not have direct access to advanced weather products. They maintain their Weather Situation Awareness (WSA) by receiving weather briefings from the supervisor and by viewing precipitation levels on their workstation. In the present study, we systematically investigated advanced weather tools and their impact on tactical operations in the TRACON domain. Our results showed an impact of advanced weather information on controller efficiency, with increases in sector throughput (completed flights) of 6% to 10%. By providing enhanced weather information at the workstation, we were able to enhance controllers’ ability to detect approaching weather, monitor its movement, and understand its effect on future operations. In the field, this will increase controllers’ efficiency for the timing of arrivals, for vectoring, for the adjustment of flow and sequencing, and for runway selection.

This research activity supports the Administrator’s Flight Plan Goal for Increased Safety, Objective 5: Enhance the safety of FAA’s air traffic systems.

Point of Contact: U. Ahlstrom, WJHTC

R&D Review: The latest issue of R&D Review is now being distributed; it is also posted online at <http://research.faa.gov/publications/>. *This activity supports the Administrator’s Flight Plan Goal for Organizational Effectiveness, Objective 3: Make decisions based on reliable data to improve our overall performance and customer satisfaction.* (T. Kraus, ATO-P R&D)

En Route ATC: A technical interchange meeting was held at the William J. Hughes Technical Center’s Research, Development, and Human Factors Laboratory on May 3, 2006 to discuss evolving concepts of en route ATC and the validation of productivity improvements that can be achieved. Attendees included representatives from the ATO-P Human Factors Research and Engineering Division, their Human Factors Group/Team located at the Technical Center, the Simulation and Analysis Group, the ATO En Route and Oceanic Services, and the MITRE Center for Advanced Aviation System Development. The meeting focused on project and capability presentations, human-in-the-loop simulation demonstrations, and discussions. *This research activity supports the Administrator’s Flight Plan Goal for Increased Safety, Objective 5: Enhance the safety of FAA’s air traffic systems. It also supports the Administrator’s Flight Plan Goal for Organizational Effectiveness, Objective 3: Make decisions based on reliable data to improve our overall performance and customer satisfaction.* (M. McAnulty, WJHTC)

Awards: Dave Schroeder traveled to Washington, DC to participate in the AAM Research Committee meeting and Federal Air Surgeon’s Management Team meetings (FASMT). The

Aerospace Medicine Awards for Excellence & Achievement Ceremony was held as part of the FASMT and provided recognition for the following individuals from AAM-500: Carol Manning, Ph.D. – Outstanding Manager; Dennis R. Rester – Outstanding Innovator; Dana Broach, Ph.D. – William E. Collins Publication Award (Researcher); and Alfretria Scarborough – William E. Collins Publication Award (Technician). *This activity supports the Administrator's Flight Plan Goal for Organizational Effectiveness, Objective 1: Make the organization more effective with stronger leadership, increased commitment of individual workers to fulfill organization-wide goals, and a better prepared, better trained, safer, diverse workforce.* (D. Schroeder, CAMI)

ATC Tower Cab: CAMI researchers Carol Manning, Jerry Crutchfield, and Frank Durso (Texas Tech University) met with William J. Hughes Technical Center researchers Todd Truitt, Nick Marzelli, Dallas Shiles, Joe Toland, Jim McGhee and Steve Cooley to perform a preliminary evaluation of two prototype displays developed by the Technical Center's Electronic Flight Data Working Group. The displays are being developed to enhance the way flight data can be used by controllers in the tower cab environment. The discussion focused on possible changes and improvements. Additional discussions will be held in the coming months. *This research activity supports the Administrator's Flight Plan Goal for Increased Safety, Objective 5: Enhance the safety of FAA's air traffic systems.* (J. Crutchfield, CAMI)

Safety Culture Seminar: Save the date on your calendar for a seminar entitled "Toward a Safer Culture." The seminar, sponsored by ATO-P Human Factors Research and Engineering Division, will be presented by Dr. Manoj Patankar (Saint Louis University), on Wednesday, June 28, 2006, from 9:00 a.m. to 12:00 p.m. Registration information will follow at a later date. The purpose of the seminar is to provide participants a working understanding of Safety Culture—what is it, what is its significance, how to measure the current status, what/how to change, how to measure the change, and how to institutionalize the change. This is a three-hour module presented in conjunction with other human factors technical workshops and seminars. It provides an overview of the principles of a safety culture, how to apply them in an operational setting, and how to measure the results. This seminar provides a tutorial on safety culture theory, key parameters, actionable means to implement, behaviors and methods to improve performance, qualitative and quantitative measures and assessment techniques, and reporting. *This activity supports the Administrator's Flight Plan Goal for Organizational Effectiveness, Objective 1: Make the organization more effective with stronger leadership, increased commitment of individual workers to fulfill organization-wide goals, and a better prepared, better trained, safer, diverse workforce.* (Glen Hewitt, ATO-P R&D)

Management of Electronic Flight Data: On May 2-5, 2006, Todd Truitt, an engineering research psychologist from the William J. Hughes Technical Center, completed initial usability testing of two prototype interfaces for the management of electronic flight data in an ATC tower. Four tower supervisors comprised two separate groups of participants. The usability test employed a part-task methodology to examine the participants' ability to learn and use the interfaces in a relatively short period of time. For each interface, participants received about one hour of training and practice, and then completed one hour of testing. During testing, one participant worked the ground position and one participant worked the local position while monitoring airport traffic and managing the associated flight data. The participants completed

questionnaires about the interfaces and the research team collected audio and video data. The research team also collected interface interaction data, including the number and duration of actions performed by the participants. Data analysis is in progress. *This research activity supports the Administrator's Flight Plan Goal for Greater Capacity, Objective 3: Increase on-time performance of scheduled carriers.* (T. Truitt, WJHTC)

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)



Note: Calendar events in [blue](#) are new since the last newsletter

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 22-25, 2006 – RAA Annual Convention, Dallas, TX <http://www.raa.org/2006conference/>

May 23-25, 2006 – Defense Standardization Program Conference, Westin Arlington Gateway, Arlington, VA <http://www.sae.org/events/dsp/>

May 23-25, 2006 – 2006 International Air Cargo Conference, Brown Convention Center, Houston, TX <mailto:terryiacc@bellsouth.net>

May 24-26, 2006 – Cognitive Engineering Research Institute 2006 Workshop on Human Factors and UAVs in Mesa, AZ <http://www.cerici.org/workshop/2006Workshop/06mayworkshop.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 12-17, 2006 – Human Factors in Flight Safety and Accident Investigation, SAS Flight Academy, Stockholm, Sweden www.sasflight-academy.com

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,

June 27-29, 2006 – 4th Annual Cognitive Systems Workshop, Santa Fe, New Mexico
http://sandia.gov/cog.systems/cognitive_workshop/index.htm

June 27-29, 2006 – CGAR 2006 Conference, Embry-Riddle Aeronautical University, Prescott, AZ <http://www.cgar.org/default.asp>

*June 28, 2006 – Toward a Safer Culture Seminar, FAA Headquarters, Wash, DC
glen.hewitt@faa.gov*

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 5-9, 2006 - International Organization of Women Pilots 2006 Convention, Washington Marriott, Wash, DC <http://www.ninety-nines.org/>

July 8-11, 2006 – ASA 2006 Annual Conference, Las Vegas, NV www.aviationsuppliers.org

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

July 17-23, 2006 – Farnborough International Air Show, London, UK
<http://www.farnborough.com/>

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

July 26-29, 2006 – CogSci 2006, Sheraton Vancouver Wall Centre, Vancouver, BC, Canada
<http://www.cogsci.rpi.edu/~rsun/cogsci2006/>

August 1, 2006 - The International Journal of Aviation Psychology, Special Issue on Air Traffic Control Human Factors, CALL FOR PAPERS. Please contact Jim

Hitt at hitt_james@bah.com <mailto:hitt_james@bah.com> or Mike McAnulty at mike.mcanulty@faa.gov <<mailto:mike.mcanulty@faa.gov>> with any queries, or to submit papers.

August 1-3, 2006 – 27th National Aerospace FOD Prevention Conference, Seattle, WA
www.nafpi.com

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>

August 29-31, 2006 – General Aviation Technology Conference & Exhibition, Wichita Hyatt,
Wichita, KS <http://www.sae.org/events/gat/>

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 6-7, 2006 - FAA-ATA 18th Annual International Symposium for Human Factors in
Maintenance and Ramp Safety, Orlando, FL. www.airlines.org

September 8-13, 2006 – 75th NASAO Convention, New Orleans, LA www.nasao.org

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](http://www.isam-india.org/conference44/newreg.php).

September 12-14, 2006 – 23rd International Air Cargo Forum and Exposition, Calgary, Ontario,
Canada <http://www.tiaca.org>

September 19-21, 2006 – Space 2006, San Jose, CA www.aiaa.org

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 8-11, 2006 - IEEE International Conference on Systems, Man, and Cybernetics, The Grand Hotel, Taipei, Taiwan <http://ins.cn.nctu.edu.tw/smc2006/>
March 1, 2006: Deadline for submission of papers (full papers only)

October 15-19, 2006 – Digital Avionics Systems Conference, 25th DASC Network Centric Environment: The Impact on Avionics and Systems, Hilton Portland and Executive Tower, Portland, OR www.dasconline.org
February 19, 2006 – Deadline for submitting abstracts of 1000 words

October 15-20, 2006 – 2nd Annual Augmented Cognition International Conference, Hilton San Francisco, San Francisco, CA www.augmentedcognition.org

October 16-20, 2006 – Human Factors and Ergonomics Society Annual Meeting, San Francisco Hilton, San Francisco, CA <http://www.hfes.org/web/HFESMeetings/meetings.html>

Key Dates:

March 1, 2006 - Proposals (all presentation types)

April 18, 2006 - Accept/reject letters sent

May 8, 2006 - Workshop preliminary handouts due

May 16, 2006 - Proceedings paper prep instructions available

May 22, 2006 - Workshop final acceptances sent

June 5, 2006 - Online preliminary program available

June 26, 2006 - Proceedings papers due

September 8, 2006 - Early registration deadline

October 16-19, 2006 – ATA 49th Annual Non-Destructive Testing Forum, Ft. Worth, TX www.airlines.org

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

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 25-27, 2006 – Cargo Facts 2006, Miami, FL ashoemaker@cargofacts.com

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/>

November 14-16, 2006 – Aerospace Testing Expo, Anaheim, CA www.aerospacetesting-expo.com

November 17-19, 2006 – NBAA Annual Meeting and Convention, Orlando, FL www.nbaa.org

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

January 27-31, 2007 - ASHRAE Winter Meeting, Dallas, TX jyoung@ashrae.org, or www.ashrae.org.

February 13-15, 2007 – US Air Force T&E Days, Hilton San Destin Beach, Destin, FL
<http://www.aiaa.org/content.cfm?pageid=230&lumeetingid=1474&viewcon=submit>

March 3-10, 2007 – IEEE Aerospace Conference, Big Sky, Montana
<http://www.aiaa.org/content.cfm?pageid=1&show=All>

March 7-8, 2007 – Avionics 07 Expo XXI, Amsterdam http://www.avionics-event.com/avionics06/why_exhibit.html

*March 9-11, 2007 - Human-Robot Interaction Conference 2007 Washington, DC:
<http://www.hri2007.org/>*

April 17-23, 2007 – Sun ‘n Fun, Lakeland, FL <http://www.sun-n-fun.org/content/>

*April 22-26, 2007 – 2007 International Symposium on Aviation Psychology, Dayton, OH
www.wright.edu/isap (NOTE: Call for Papers – Due July 10, 2006)*

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

June 23-27, 2007 – ASHRAE Annual Meeting, Long Beach, CA jyoung@ashrae.org, www.ashrae.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>

October 1-5, 2007 – Human Factors and Ergonomics Society Annual Meeting, Baltimore
Waterfront Marriott Hotel, Baltimore, MD

<http://www.hfes.org/web/HFESMeetings/meetings.html>

November 13-16, 2007 – DoD Maintenance Symposium and Exhibition, Rosen Shingle Creek,
Orlando, FL <http://www.sae.org/events/conferences/aerospace/>



Comments or questions regarding this newsletter?
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