



## **AAR-100**

### **Human Factors Newsletter # 04-20**

**October 2, 2004 – October 15, 2004**

**Technical Notes:** Civil Aerospace Medical Institute representatives presented three papers at the Human Factors and Ergonomics Society's 48<sup>th</sup> Annual Meeting in New Orleans, September 20-24, 2004.

*The Effect of an Advanced Navigation Display with Traffic Information on Single-Pilot Visual Flight Operations.* (Kevin W. Williams, FAA Civil Aerospace Medical Institute, Oklahoma City, OK)

Abstract. To identify the effects that an advanced navigation display would have on pilot performance, 16 pilots were tested in a flight simulator under visual flight rules (VFR) conditions. Of primary interest in the study was the effect that the display would have on the ability of the pilots to locate traffic out-the-window and on scanning both within and outside of the cockpit. Every pilot flew two flight scenarios to compare flight both with and without a traffic display. Results were mixed but generally showed that, even though pilots looked outside less when using the traffic display, they were more successful at locating traffic. Pilots did not perceive a difference in subjective workload either with or without the display. These results suggest that the presence of a traffic display will increase flight safety regarding traffic but only if all traffic are shown on the display

*Pilot Use of a Cockpit Display of Traffic Information (CDTI) during Aircraft Navigation on the Airport Surface: An Analysis of Pilot/Controller Operational Communication.* (O. Veronika Prinzo, FAA Civil Aerospace Medical Institute, Oklahoma City, OK)

Abstract. The Federal Aviation Administration is making a concerted effort to reduce runway incursions. A five-day operational evaluation conducted in October 2000 assessed pilot use of varying types of CDTI devices. Structured and unstructured taxi routes examined how well pilots navigated their aircraft using electronic surface-map displays (north-up, track-up) or a paper surface map. An analysis was performed of 15 hours of communication data to determine how the use of these displays might aid situation awareness and influence operational communications. A Type-of-Route x Type-of-Map analysis of variance revealed that more problems occurred, and more messages were exchanged for structured taxi routes. Most

problems occurred for the north-up group during structured taxi routes, and the number of problems encountered was comparable for the other map groups when pilots navigated unstructured taxi routes. The format in which a map is presented appears to affect some aspects of pilot performance during airport surface navigation.

*General Aviation Pilot Takeoff into Adverse Weather: The “Go/No-Go” Equation*  
(William Knecht, Howard Harris, Scott Shappell, FAA Civil Aerospace Medical Institute, Oklahoma City, OK)

Abstract. This exploratory study assessed pilot takeoff behavior into adverse weather. Sixty general aviation pilots were presented with three levels of simulated ground visibility (1, 3, 5 sm), two levels of cloud ceiling (1000', 2000'), and two levels of real financial incentive (straight salary, salary + bonus for takeoff). Trends were found in regression analysis for a number of environmental predictors of takeoff, though not for personality or demographic predictors. Methodological and analytic concerns inherent to this type of study were encountered and identified.

Point of Contact: D. Schroeder, CAMI

**HF Guide for Mission Analysis:** A "Human Factors Integration Guide for Mission and Service Area Analysis" has been developed to provide guidance on integrating human factors in the activities of the mission and service area analysis. Many of the deficiencies of requirements development processes, investment analyses, and subsequent acquisition programs can be linked to inadequate consideration of human factors at the time of the mission analysis, mission needs statement, and the expression of the capability shortfall. This guide is offered as an outline of the process for integrating human factors in the steps associated with service area analysis and concept/requirements development. The recently prepared guide is available as a tool on the Human Factors Workbench at <http://www.hf.faa.gov/Portal/ShowProduct.aspx?ProductID=181> (G. Hewitt, ATOP-R&D)

**JANUS:** JANUS is a technique for identifying incident causal factors through a structured interview process. Earlier this year, software for an “e-JANUS” application was developed and established on a web server. On-line testing was conducted in September 2004 from several FAA facilities. In October, refinements identified during the test will be made. Once these are completed, an Air Route Traffic Control Center will be briefed and enrolled in the program as the first user test site. (J. Pounds, CAMI)

**NATPRO:** The National Air Traffic Professionals Program (NATPRO) is a new training approach for ATC. The program integrates the concept of “performance coaching” with an awareness seminar coupled with a practicum. The program supplements traditional knowledge-based ATC training. NATPRO coaches are trained to deliver seminar material and demonstrate seminar topics in a practicum setting at their home facility. The seminar increases an individual’s understanding of the mental process of concentration, factors that affect mental processes, the demands of multitasking, and how mental skills relate to performance. The practicum lets participants experience the concepts and their own strengths and limitations using interactive web-based computerized skill challenges. They can experience how performance can vary in

relation to factors such as distraction, fatigue, boredom, and so on. Participants gain understanding of their own performance and identify strategies to improve it. Putting the challenges in a web-based application gives individuals and teams the opportunity to compete for high scores, should they desire to do so. Although the competitive aspect is available to participants, it is not required. It is included to enhance the experience for those participants who want to engage in competition.

The program was initiated in 2002 by the Director of Air Traffic Service (AAT-1) and the Manager of the Evaluations and Investigations Staff (AAT-20). A successful limited deployment was conducted at Miami Air Route Traffic Control Center (ARTCC) in 2003. Results showed that the program had positive effects on objective mental skill levels and subjective evaluations of the program. By the end of FY04, the NATPRO Program Manager had certified 82 NATPRO coaches from across 20 ARTCCs, and over 686 individuals had completed the seminar and at least one of the 15 practicum sessions. Also by the end of FY04, 5,005 practicum sessions had been completed at field facilities. (J. Pounds, CAMI)

**Remaining Risk:** Kevin Williams participated in a meeting of the Remaining Risk Joint Safety Implementation Team (RRJSIT) held in Kansas City, MO. The focus of the work is on midair and cargo accidents. All cargo interventions have been scored and 13 safety enhancements were written as a result. The next task for team members is to provide budget estimates for implementation of each of the safety enhancements. In addition, midair interventions will be scored and safety enhancements created. The next meeting will be held in Charlotte, NC later this month. (K. Williams, CAMI)

**Capstone Program:** Cristy Detwiler interviewed pilots involved in the Capstone Project Phase II. in Ketchikan, Juneau, and Sitka, Alaska. The exchange is part of a safety analysis being conducted by the University of Alaska, Anchorage on behalf of the Capstone Office. Questionnaires will be collected and summarized by personnel at the university. In addition to pilots, researchers also met with Flight Standards personnel in Juneau who are overseeing flight companies participating in the Capstone Program. (K. Williams, 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>*

Mark D. Rodgers  
FAA (ATOP-R&D)



**October 10-16, 2004** – ACM Multi-Media 2004, New York, NY <http://www.mm2004.org/>

**October 11-14, 2004** – User Interface 9 Conference, Cambridge, MA [uiconf@uie.com](mailto:uiconf@uie.com).

**October 11-15, 2004** - ACI World Conference and Exhibition, Lisbon, Portugal  
[www.airports.org/events/event\\_frame.htm](http://www.airports.org/events/event_frame.htm)

**October 12-14, 2004** – Shared Vision of Aviation Safety Conference, San Diego, CA  
<http://www.aviationsafetyconference.com/index2.html>

**October 12-14, 2004** – 57<sup>th</sup> Annual Business Aviation Association Meeting and Convention, Las Vegas County Convention Center, Las Vegas, NV <http://web.nbaa.org/public/cs/amc/>

**October 13-15, 2004** – Sixth International Conference on Multimodal Interfaces, Penn State University, State College, PA <http://www.icmiplace.org/>

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

**October 18-20, 2004** – Human Factors in Aeronautics Symposium, NASA-Ames Conference Center, Moffett Field, CA [richard.h.mogford@nasa.gov](mailto:richard.h.mogford@nasa.gov)

**October 18-22, 2004** – AC-9 Aircraft Environmental Systems Meeting, Wichita, KS  
[mlemank@sae.org](mailto:mlemank@sae.org)

**October 19-20, 2004** – Aerospace Council Meeting, Toulouse, France  
[mlemank@sae.org](mailto:mlemank@sae.org)

**October 21-23, 2004** – Aircraft Owners and Pilots Association Expo 2004, Long Beach Convention and Entertainment Center, Long Beach, CA <http://www.aopa.org/expo/2003/virtual/>

**October 23-27, 2004** – NordiCHI 2004, Tampere, Finland <http://www.cs.uta.fi/nordichi2004/>

**October 24-27, 2004** – UIST 2004, 17<sup>th</sup> Annual ACM Symposium on User Interface Software and Technology, Santa Fe, NM <http://www.acm.org/uist/>

**October 25-28, 2004** - [7th Annual Systems Engineering Conference](#) Dallas Marriott Quorum, Dallas, TX

**October 25-28, 2004** – SAE S-9 Cabin Safety Technical Committee Meeting, San Diego, CA  
[mlemank@sae.org](mailto:mlemank@sae.org)

**October 25-28, 2004** – DoD Maintenance Seminar and Exhibition, Hilton Americas, Houston, TX <http://www.sae.org/calendar/aeromtgs.htm>

**October 26-28, 2004** – ICAO Security Seminar, Merida, Mexico <http://www.icao.org>

**October 27-29, 2004** – EUROCONTROL Airport Operations Conference and Exhibition, Brussels, Belgium <http://www.eurocontrol.int/airports/events/index.html>

**October 27-29, 2004** – Human Factors and Ergonomics Society Europe Chapter Annual Meeting, Delft University, the Netherlands  
[http://utopia.ision.nl/users/hfsec/meeting/ec\\_meet.htm](http://utopia.ision.nl/users/hfsec/meeting/ec_meet.htm)

**October 27-29, 2004** – S-9 Cabin Safety Technical Committee Meeting,, San Diego, CA  
[mlemank@sae.org](mailto:mlemank@sae.org)

**October 31, 2004** – ATCA Annual Conference and Exposition, Marriott Wardman Park Hotel, Wash., DC [http://www.atca.org/event\\_items.asp#](http://www.atca.org/event_items.asp#)

**November 1-4, 2004** – DOD Human Factors Engineering Technical Advisory Group Meeting, Holiday Inn Select, Alexandria, VA <http://hfetag.dtic.mil/meetschl.html>

**November 2-4, 2004** – World Aviation Conference, Hilton Hotel, Reno, NV  
<http://www.sae.org/events/wac/>

**November 3-4, 2004** - Second ICAO-IATA LOSA & TEM Conference, Seattle, Wash  
[dmaurino@icao.int](mailto:dmaurino@icao.int) , [curt.graeber@boeing.com](mailto:curt.graeber@boeing.com)

**November 3-5, 2004** - AVSEC World 2004, The Westin Bayshore Resort and Marina, Vancouver, British Columbia, Canada. [www.iata.org/ps/events/aw2004.htm](http://www.iata.org/ps/events/aw2004.htm)

**November 4-5, 2004** – Royal Aeronautical Society Seminar - Human Factors Training in Aviation Maintenance, RAF Bentley Priory, Stanmore, near Watford, North London  
<http://www.raes-hfg.com/xmhftraining.htm>

**November 7-9, 2004** – Aviation Maintenance Software Technology & Resource Symposium, Pointe South Mountain Resort, Phoenix, AZ <http://www.STARSymposium.com>

**November 8-9, 2004** – European Aviation Training Symposium, Vienna, [Austria](#)  
<http://www.at-events.com/eats/conference.asp>

**November 12-17, 2004** – American Society for Information Science and Technology Annual Meeting, Providence, RI [asis@asis.org](mailto:asis@asis.org)

**November 13-14, 2004** – Aviation Nation, Nellis AFB, NV [www.nellisairshow.com](http://www.nellisairshow.com)

**November 15-18, 2004** – 57<sup>th</sup> Annual International Air Safety Seminar (“Sharing Knowledge to Improve Safety”), Pudong Shangri-La Hotel, Shanghai, China  
<http://www.flightsafety.org/seminars.html>

**November 15-18, 2004** – Fire and Cabin Safety Research Conference, Lisbon, Portugal  
[www.caa.co.uk/srg/intsd/event.asp?groupid=73](http://www.caa.co.uk/srg/intsd/event.asp?groupid=73)

**November 16, 2004** - FY04 General Aviation, Vertical Flight, and Aviation Maintenance Human Factors Program Review, FAA Headquarters Bessie Coleman Training Center, Wash, DC <mailto:william.krebs@faa.gov>.

**November 18-19, 2004** – IT World Expo, Toronto, Canada [richardp@WowGao.com](mailto:richardp@WowGao.com)

**November 18-21, 2004** – 45<sup>th</sup> Annual Meeting of the Psychonomic Society, Hyatt Regency and Millenium Hotels, Minneapolis, MN [45th Annual Meeting of the Psychonomic Society](#)

**November 22-24, 2004** - ICRAAT 2004 - International Conference on Research in Air Transportation, University of Zilina , Zilina, Slovakia. [www.icrat.org](http://www.icrat.org)

**January 9-12, 2005** – International Conference on Intelligent User Interfaces, San Diego, CA <http://www.catamaranresort.com/>

**January 9-13, 2005** – TRB 84<sup>th</sup> Annual Meeting, Washington, DC <http://trb.org/calendar/>

**January 10-13, 2005** - 43rd AIAA Aerospace Sciences Meeting and Exhibit, Reno Hilton, Reno, NV <http://www.aiaa.org/>

**January 25-27, 2005** – AE-2 Aerospace Lighting Committee Meeting, New Orleans, LA [elizd@sae.org](mailto:elizd@sae.org)

**January 28, 2005** – Deadline for papers - 6<sup>th</sup> USA/Europe ATM Seminar, Baltimore, MD, June 2005 <http://atmseminar.eurocontrol.fr/>

*February 9-11, 2005* – 6<sup>th</sup> Annual Aviation Security Summit Expo, US Grant Hotel, San Diego, CA <http://www.worldrg.com/AW500/wrg.asp>

*February 16-17, 2005* – World Aerospace Symposium, Pierre Baudis Toulouse Congress Center, Toulouse, France [http://www.aviationweek.com/conferences/meu\\_e3.htm](http://www.aviationweek.com/conferences/meu_e3.htm)

**March 17-18, 2005** – Aviation and Environment Summit, Crowne Plaza, Geneva, Switzerland <http://www.iata.org>

**April 2-7, 2005** – CHI 2005, Portland, OR [chi2005-chair@acm.org](mailto:chi2005-chair@acm.org).

*April 5-7, 2005* – Aviation Testing Expo 2005: Scientific Conference and Technology Forum, Europe, Messe Hamburg, Germany <http://www.aerospacetesting-expo.com/northamerica/conf+forum.html>

**April 11-15, 2005** – SAE 100<sup>th</sup> Anniversary World Congress, Cobo Hall, Detroit, MI <http://www.sae.org/congress/about/news/congressdates.htm>

**April 17-22, 2005** – International Federation of Air Traffic Controller's Associations, Melbourne, Australia [http://www.ifatca.org/conferences/annual\\_conference.htm](http://www.ifatca.org/conferences/annual_conference.htm)

**April 18-21, 2005** – 13<sup>th</sup> International Symposium on Aviation Psychology (ISAP), Civil Aerospace Medical Institute (CAMI), Oklahoma City, OK (note: call for papers deadline is September 30, 2004). <http://www.cami.jccbi.gov/>, <http://www.wright.edu/isap/>

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

**June 2005** – 6<sup>th</sup> USA/Europe ATM Seminar, Baltimore, MD (note: call for papers deadline is January 28, 2005) <http://atmseminar.eurocontrol.fr/>

**June 13-19, 2005** - Paris Air Show 2005, Parc des expositions de Paris Nord - Le Bourget, 93350, France. [www.paris-air-show.com](http://www.paris-air-show.com)

**July 22-28, 2005** – HCI International 2005, 11<sup>th</sup> International Conference on Human-Computer Interaction, Caesars Palace, Las Vegas, NV [hci2005@ecn.purdue.edu](mailto:hci2005@ecn.purdue.edu)

**August 15-18, 2005** - 43rd AIAA Aerospace Sciences Meeting and Exhibit, Hyatt Regency San Francisco at Embarcadero Center, San Francisco, CA <http://www.aiaa.org/>

**August 18-21, 2005** - 113<sup>th</sup> Convention of the American Psychological Association, Wash, DC <http://www.apa.org/convention>

**September 12-16, 2005** – Interact 2005, Tenth IFIP TC13 International Conference on Human-Computer Interaction, Rome, Italy <http://www.interact2005.org/>

*September 19-23, 2005* – ANA 2005 Aviation Conference and Exhibition, Connecticut Convention Center, Hartford, CN <http://www.aerospace-na.com/ace2005.asp>

**September 25-28, 2005** - 11th Ka and Broadband Communications Conference and 23rd AIAA International Communications Satellite Systems Conference 2005 (organized by IIC), Aurelia Convention Center, Rome, Italy <http://www.aiaa.org/>

**September 26-28, 2005** - AIAA 5th Aviation, Technology, Integration, and Operations Forum (ATIO), Hyatt Regency Crystal City, Arlington, VA <http://www.aiaa.org/>

**September 26-28, 2005** - AIAA 2nd Intelligent Systems Conference (IS), Hyatt Regency Crystal City, Arlington, VA <http://www.aiaa.org/>

**September 26-30, 2005** – Human Factors and Ergonomics Society 49<sup>th</sup> Annual Meeting, Royal Pacific Resort at Universal Orlando, Orlando, FL <http://hfes.org/meetings/menu.html>

**October 3-6, 2005** – SAE 2005 AeroTech Congress and Exhibition, Gaylord Texan Resort and Convention Center, Dallas/Fort Worth Airport Area, Texas <http://www.sae.org/events/conferences/aerospace/>

*October 6-9, 2005 – Aviation North Expo Conference, Fairbanks Princess Riverside Lodge, Fairbanks, AK [www.AviationNorth.org](http://www.AviationNorth.org)*

**October 24-25, 2005** – National Academies Institute of Medicine Annual Meeting, National Academy of Sciences, Washington, [DC http://wwwsearch.nationalacademies.org/](http://wwwsearch.nationalacademies.org/)

**November 6-9, 2005** - ACI World / Pacific Conference and Exhibition, Auckland, New Zealand. [www.auckland-airport.co.nz](http://www.auckland-airport.co.nz)

*November 8-10, 2005 – Aerospace Testing Expo, North America: Scientific Conference and Technology Forum, Long Beach Convention Center, Long Beach, CA <http://www.aerospacetesting-expo.com/northamerica/conf+forum.html>*

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

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

*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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