



AAR-100

Human Factors Newsletter # 04-16

August 7, 2004 – August 20, 2004

Technical Note: *Weatherwise: Evaluation of a Cue-Based Training Approach for the Recognition of Deteriorating Weather Conditions during Flight.* Mark Wiggins, University of Western Sydney, Sydney, Australia, and David O'Hare, University of Otago, Dunedin, New Zealand.

Inappropriate and ineffective weather-related decision making continues to account for a significant portion of general aviation fatalities in the United States and elsewhere. This study details the evaluation of a computer-based training system that was developed to provide visual pilots with the skills necessary to recognize and respond to the cues associated with deteriorating weather conditions during flight. A total of 66 pilots were assigned to one of two groups, and the evaluation process was at both a self-report and performance level. At the self-report level, the results suggested that pilots were more likely to use the cues following exposure to the training program. From a performance perspective, there is evidence to suggest that cue-based training can improve the timeliness of weather-related decision-making during VFR flight. Actual or potential applications of this research include the development of computer-based training systems for fault diagnosis in complex industrial environments.

<http://www.hf.faa.gov/docs/508/docs/weatherOhare.pdf>.

Point of Contact: W. Krebs, ATOP-R&D

Technical Note: A human factors research grant is being awarded to Ohio State University (Principal Investigator – Dr. Phil Smith): “Human Factors Issues for Collaborative Decision Making (CDM) in the National Airspace System”.

Summary: One of the more powerful concepts that has emerged from the CDM Collaborative Routing Group has been the idea of preparing a flight to take multiple alternative departure routes (fueling, checking minimum equipments lists, and weather appropriately for each alternative), thus making it possible to delay the decision about what route to fly until the aircraft taxis out. This concept is being applied at a number of airports, especially within New York. However, the current practice has a major weakness: Airline Operations Centers do not have adequate advance notice when alternative routes may be offered to a flight. As a result,

departures are either delayed because the flight crew has to first contact dispatch to determine whether the offered route is acceptable (or needs additional fuel), or the flight crew simply accepts the offered alternative route leaving dispatch out of the loop.

Under this research initiative, scientists will explore development of a new type of advisory to support the dynamic rerouting of flights as they taxi out, while keeping dispatch in the loop, and propose designs for the tools necessary to support the creation, dissemination and use of this advisory. Both FAA traffic managers and National Airspace System users agree that such dynamic rerouting just prior to departure can be very beneficial as a strategy to deal with uncertainty regarding developing weather or traffic constraints. The focus of this research is therefore how to develop a process (including new procedures and supporting tools) to keep dispatch in the loop while giving traffic managers the flexibility to expedite departures via alternative routings.

Point of Contact: D. Piccione, ATOP-R&D

JANUS: In concert with ATO-S, a candidate set of Air Traffic Control Towers (ATCTs) has been identified for inclusion in the JANUS “go-to” program (CAMI researcher visits the facility and facilitates the JANUS operational error analysis). The in-briefs for these ATCTS started in July. A team representing FAA management, NATCA, and CAMI will visit seven additional facilities to provide information and answer questions about the program. Candidate facilities will then determine whether they will volunteer to participate in this effort. (J. Pounds, CAMI)

HFACS: Scott Shappell will present findings from CAMI’s analysis of general aviation, commercial aviation, and military aviation accident causes at the annual meeting of the International Society of Air Safety Investigators in Gold Coast, Australia, August 30-September 2. The information used in the analysis came from the Human Factors Analysis and Classification System. (D. Schroeder, CAMI)

Scientific Meeting: Drs. King, Milburn, Shappell, and Schroeder participated in the 112th annual convention of the American Psychological Association in Hawaii on July 28-31, 2004. Dr. Milburn made a scientific presentation entitled “Proposed Method to Optimize Item Selection Using Item-Response Theory” during one of the scientific sessions. Dr. Schroeder served on a panel entitled “Succeeding in Today’s High Tech Marketplace – Jobs, Internships, Networking, Mentors.” Drs. King, Shappell, and Schroeder also participated in meetings of the Executive Committee for the Division of Applied Experimental and Engineering Psychology. (D. Schroeder, CAMI)

Operational Errors (OE): Jing Xing, along with Larry Bailey, reported their progress on the runway incursion OE study to sponsors in Runway Safety. They also discussed the production of an educational brochure on cognitive causes behind some runway incursion operational errors. (J. Xing, CAMI)

GAIN: Dr. Boquet participated in the Global Aviation Information Network (GAIN) Conference Working Group B & C in Washington, DC July 27-28. While there, he met with Mr. Bill Wallace (AFS-840) and Mr. Dick Wright (Helicopter Association International) to discuss

human error accident data associated with emergency medical service helicopter accidents. (D. Schroeder, CAMI)

NTML: Research Psychologists from the NAS Human Factors Group supported the meeting of the National Traffic Management Log (NTML) working group. The main objective of the meeting was to define requirements that will allow Traffic Management Specialists in the field to log and coordinate aircraft that are noncompliant with Reduced Vertical Separation Minima (RVSM) criteria but are using RVSM airspace. Together with a team of Specialists from the field and software engineers, the psychologists used iterative rapid prototyping to develop and refine the requirements for a human-computer interface that will support these tasks. (E. Stein, WJHTC)

Air Traffic Management: A researcher from the NAS Human Factors Group observed a simulation at the NASA-Ames Research Center. The simulation was an evaluation of the Distributed Air-Group Traffic Management Concept Element 11 (Terminal Arrival: Self-Spacing for Merging and In-Trail Separation). In the simulation, air traffic controllers staffed feeder and final sectors of Dallas-Fort Worth terminal airspace. In addition to pseudo pilots controlling the other aircraft, two airline pilots flew the NASA Advanced Concepts Flight Simulator in the scenarios. The four conditions tested were a baseline with no spacing tools, flight deck spacing tools only, ground spacing tools only, and both air and ground support tools. In addition to observing all aspects of the simulation, the researcher discussed the simulation, tools, procedures, and observations with several members of the research staff and support personnel. (E. Stein, WJHTC)

Weather Displays: The NAS HF Group will begin a weather simulation study this week. The appropriate offices within the FAA and NAATCA have identified 12 suitable controller volunteers from TRACONS across the country who will visit the William J. Hughes Technical Center and take part in the study. The controllers will arrive two by two and will work traffic with alternative weather displays available. Researchers will determine if the availability of the weather displays has an impact on overall performance, workload and visual scanning behavior. Data collection will last 6 weeks and researchers will analyze the data. (E. Stein, WJHTC)

*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)



August 22-27, 2004 – IFIP 13.5 Working Conference on Human Error, Safety, and Systems Development, Toulouse, France [Advance program](#)

August 23-27, 2004 - SAE G-10 Human Behavioral Performance Committee Semiannual Meeting, Seattle, WA <http://www.sae.org/standardsdev/aerospace/g10tag.htm>

August 23-27, 2004 – Aircraft Instruments Meeting, Bellvue, WA elizd@sae.org

September 1-3, 2004 – ICAO Aviation Language Symposium, Montreal, Canada <http://www.icao.int/icao/en/anb/meetings/IALS/index.html>

September 5-9, 2004 - [52nd International Academy of Aviation and Space Medicine](#)
Sun City, South Africa

September 8-9, 2004 – Civil Aviation Safety Symposium 2004, Westin Hotel Galleria, Dallas, TX <http://www.asdnet.org/cass/default.htm>

September 14-16, 2004 – Airbus Human Factors Symposium, New Delhi, India <http://www.airbus.com/customer/events.asp>

September 14-17, 2004 – 22nd International Air Cargo Forum and Exposition, Basque Country, Spain <http://www.tiaca.org>

September 14-17, 2004 – National Cargo Security Council 2004 Conference & Exhibition, Riviera Hotel & Casino, Las Vegas, NV <http://www.cargosecurity.com>

September 16, 2004 – Aircraft Lighting Meeting, Nashville, TN elizd@sae.org

September 19-20, 2004 – Association for the Advancement of Medical Instrumentation AAMI/HE Human Factors Engineering Committee Meeting, New Orleans, LA ntongson@aami.org

September 20, 2004 – Nondestructive Methods and Processes Committee Meeting, Albuquerque, NM kerrir@sae.org

September 20-22, 2004 [AIAA 1st Intelligent Systems Technical Conference](#) Hilton Chicago, Chicago, IL

September 20-22, 2004 - [AIAA 4th Aviation Technology, Integration and Operations \(ATIO\) Forum](#) Hilton Chicago, Chicago, IL

September 20-23, 2004 - [AIAA 3rd "Unmanned Unlimited" Technical Conference, Workshop and Exhibit](#) Hilton Chicago, Chicago, IL

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

September 27-29, 2004 – SAFE Association 42nd Annual Symposium, Grand America Hotel, Salt Lake City, UT <http://www.safeassociation.com/symposium.htm>

September 28 – October 8, 2004 – ICAO Assembly 35th Session, Montreal, Canada
<http://www.icao.int/icao/en/assembl/a35/index.html>

September 28-30, 2004 - Seventh GAIN World Conference (Global Aviation Information Network), Montreal, Canada. <http://www.gainweb.org>.

September 29 – October 1, 2004 – 2004 International Conference on Human Computer Interaction (HCI-Aero), Toulouse, France
<http://www.eurisco-international.com/hci-aero2004>.

October 4-7, 2004 – SAE SEAT – Aircraft Seat Committee Meeting, Albuquerque, NM
mlemank@sae.org

October 5-7, 2004 – Aircraft Seat Committee Meeting, Albuquerque, NM
mlemank@sae.org

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.

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

October 12-14, 2004 – 57th 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

October 18-22, 2004 – AC-9 Aircraft Environmental Systems Meeting, Wichita, KS
mlemank@sae.org

October 19-20, 2004 – Aerospace Council Meeting, Toulouse, France
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, 17th 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

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 – Human Factors and Ergonomics Society Europe Chapter Annual Meeting, Delft University, the Netherlands
http://utopia.ision.nl/users/hfesec/meeting/ec_meet.htm

October 27-29, 2004 – S-9 Cabin Safety Technical Committee Meeting,, San Diego, CA mlemank@sae.org

October 31, 2004 – ATCA Annual Conference and Exposition, Marriott Wardman Park Hotel, Wash., DC 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 , curt.graeber@boeing.com

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 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

November 15-18, 2004 – 57th 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

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

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

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

January 9-13, 2005 – TRB 84th 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

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

April 2-7, 2005 – CHI 2005, Portland, OR chi2005-chair@acm.org.

April 11-15, 2005 – SAE 100th 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

April 18-21, 2005 – 13th International Symposium on Aviation Psychology (ISAP), Civil Aerospace Medical Institute (CAMI), Oklahoma City, OK (note: call for papers deadline is August 16, 2004). <http://www.cami.jccbi.gov/>, <http://www.wright.edu/isap/>

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

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

July 22-28, 2005 – HCI International 2005, 11th International Conference on Human-Computer Interaction, Caesars Palace, Las Vegas, NV 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 - 113th 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 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 49th 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 24-25, 2005 – National Academies Institute of Medicine Annual Meeting, National Academy of Sciences, Washington, DC <http://wwwsearch.nationalacademies.org/>

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

January 22-26, 2006 – TRB 85th 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
or via e-mail at bill.ctr.berger@faa.gov

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