



## ATOP-R&D

### Human Factors Newsletter # 05-14

July 23, 2005 – August 5, 2005

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**Technical Note:** William J. Hughes Technical Center personnel coauthored the following poster session for the August 17-21, 2005 Annual Meeting of the American Psychological Association.

Sara Girotto, Aaron M. Perez, Arathi Sethumadhavan, M. Kathryn Bleckley, Francis T. Durso, Texas Tech University; Todd Truitt, Pam Della Rocco, Carol A. Manning, Federal Aviation Administration; and R. Reed Hunt, University of North Carolina, Greensboro. *Toward Measuring Information Complexity: Reconstructive Information Complexity Index (RICI).* American Psychological Association, Washington, DC.

Modern industrial processes require increasingly complex displays to monitor and control those processes. Those displays, driven by high-speed computers and the desire to present all possibly relevant information to the user, may present too much information to the operator. At best, the additional information will be ignored, but at worst the additional information can make it difficult or impossible to find the right information at the right time. The Federal Aviation Administration (FAA) is interested in developing metrics for determining information complexity to apply to their new air traffic control (ATC) tools.

In our view, information complexity does not depend uniquely on the environment. Because information is the result of interaction between the person and the environment, the metrics to be developed should not take into consideration only the display but also the operator. In this study, we present two experiments to explore the viability of the Chase and Simon (1973) task as a measure of information complexity. In their research aimed at gaining a better understanding of expert chess players, Chase and Simon used a task in which chess players saw a particular configuration of pieces on the board for five seconds and then were asked to recall it. The view/recall sequence continued until the position was recalled perfectly.

In the Reconstructive Information Complexity Index (RICI), participants view a display and are asked to reconstruct it. They can look back at the display as many times as they want. The RICI score is the number of glances necessary to reconstruct the display. The hypothesis is that the more glances needed for the subjects to reconstruct the display, the more information contained in the display.

The first experiment was conducted at the FAA Technical Center in Atlantic City. Three certified professional Air Traffic Controllers (two retired and one supervisory controller) reconstructed four different displays composed of the standard display and no added tools (No Tools), the standard display and Traffic Management Advisor (TMA), the standard display and Controller Pilot Data Link Communication (CPDLC), and the standard display and both TMA and CPDLC. TMA is a tool designed to help controllers sequencing and spacing arrivals. CPDLC is a tool designed to provide data-linked communications between Air Traffic Controllers and pilots. The dependent variable was the number of glances.

The participants sat at a partitioned workstation in a room equipped with cameras recording the subjects' actions. Each participant was presented with eight snapshots of a display (two for each type of display) in a randomized order. The controller reconstructed each display. The experimenter presented the first snapshot on one side of the partition. On the other side of the partition were pens and a blank page to reconstruct the display. The participant was instructed to look at the original display, then reconstruct part of that display, then look back at the display, and reconstruct the next part, and so on. The subject could look back at the display as many times as needed. Accuracy of the reconstruction was stressed.

A 4 (display type) x 2 (scenario) repeated measures ANOVA of the data revealed a main effect for the display type,  $F(3, 6) = 23.53, p < .001$ . Tukey's post hoc analysis revealed that there were significantly more glances for the CPDLC condition compared to the No Tool and TMA conditions and that there were significantly more glances in the TMA + CPDLC condition compared to the No Tool and the TMA conditions. No difference was found between the No Tool and TMA condition nor between the CPDLC and the TMA + CPDLC conditions. Thus, it appears that adding the TMA tool does not increase information complexity, but adding the CPDLC tool does. Of course, whether the added complexity is warranted by the assistance supplied by the CPDLC is a separate question. However, RICI seems to be sensitive enough to pick up differences in information complexity.

The second experiment was conducted at the psychology department of Texas Tech University. Sixteen participants, part of a larger study, reconstructed a screenshot of the Air Traffic

Scenarios Test (ATST), a simulator used by the FAA when screening potential air traffic controllers. Participants reconstructed the identical display on two different days: initially, when first exposed to the ATST, and again after five days (an hour a day) of practice with the simulator. The screenshot was shown on a computer monitor. Participants were asked to reconstruct it on a tablet PC using the Glance software (Pai & Durso, in press) as accurately and quickly as possible and with the fewest number of glances. When participants pressed the spacebar, the screenshot was displayed for five second and then disappeared. They could press the spacebar as many times as they desired. Participants were instructed to continue until the screenshot was reproduced in all important respects.

The data were analyzed through a paired samples test and revealed the number of glances in the first trial (mean 19.00) was significantly higher than the number of glances in the second trial (mean 12.56),  $t(15) = 4.855$ ,  $p = .000$ . No significant difference was found in the percentage of screen completion (mean for trial one .843, mean for trial two .841).

The results of this second experiment suggest that experience reduces information complexity. As the participants became more familiar with the ATST screen, it took fewer glances to reproduce the screenshot. Importantly, these were identical physical stimuli. As such, algorithms that computed information complexity based solely on the display's characteristics could never note the reduction in information complexity.

Overall, the results of the two experiments seem to indicate that the RIC procedure is a promising tool in information complexity measurement and deserves further research.

*This research activity supports the Administrator's Flight Plan Goal for Increased Safety, Objective 7: Enhance the safety of FAA's air traffic systems.*

Point of Contact: E, Stein, WJHTC

**Employee Attitude Survey (EAS):** On August 4, 2005, CAMI representatives Dana Broach and Carol Manning briefed the Administrator on results of EAS 2005. They also provided a briefing to the Associate and Deputy Associate Administrators for Aviation Safety (AVS-1 & -2). The EAS is an FAA Flight Plan initiative under the Organizational Excellence goal. This iteration of the EAS was administered to a sample of FAA employees, and was the first EAS to be administered on-line via a third-party provider. *This research activity supports the Administrator's Flight Plan Goal for Organizational Excellence, 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. Broach, CAMI)

### **En Route Information Display System (ERIDS):**

- William J. Hughes Technical Center researchers will conduct a cognitive walkthrough on ERIDS, an interactive electronic display system that was developed to replace the current paper delivery format for air traffic control information. ERIDS provides air traffic controllers with access to aeronautical data, weather data, airspace charts, air traffic control

procedures documents, Notices to Airmen, pilot reports, and other information. It is currently deployed at Salt Lake City, Boston, and Jacksonville ARTCCs. The primary purpose of this project is to research the benefits of ERIDS for controllers. Data will be gathered about the current paper format system, information controllers need, when they need it, how frequently they need it, and how they access the information. The current system will be compared with how controllers access information in ERIDS to determine the benefits of electronic display of air traffic control information. The first step in understanding the benefits of ERIDS is to conduct a cognitive walkthrough of how controllers access information in the current paper system. Questions to be addressed include: What are the sources of paper information that controllers use - - airspace charts, reference binders, paper notices, wall and bulletin board displays? How do they access this information - - do they step away from their workstations, roll out charts, flip through sections in a binder, search for a piece of paper at their workstations, move their chair to see a board? How long does it take for controllers to access paper information? How often do they need to access this information? How important is the information? How current is the information? (R. Sollenberger, A. Clarke, WJHTC)

- WJHTC researchers participated in an early review of the ERIDS hardware. They were able to evaluate the potential locations for ERIDS hardware in the controller workstations as well as three cabinets of hardware that will be placed in the equipment room. They identified areas where improvement can be made to facilitate accessibility and maintenance of the equipment. A more thorough review of the hardware will be conducted in September 2005 with Technical Operations representatives from the field. (T. Yuditsky, A. Clarke, WJHTC)

*This research activity supports the Administrator's Flight Plan Goal for Greater Capacity, Objective 3: Increase on-time performance of scheduled carriers.*

## **JANUS**

- In June, members of the JANUS team met with Indianapolis Center (ZID) personnel and briefed them on the web-based version of JANUS (eJANUS). Attending from the JANUS team were Luis Castro (ATO-S), Don Hall (ATO-S, NATCA), Carol Jones (ZID, NATCA), and Julia Pounds (CAMI). JANUS is a human factors technique to identify operational error causal factors. eJANUS was developed to make data collection process faster, more adaptable to operational tempo, and more cost effective. Indianapolis Center had previously participated in the initial beta test of the technique and volunteered for the field test. During the visit, training was provided to facility personnel about procedures for accessing and using the website. The team then observed center personnel working with the tool to obtain initial feedback about the usability of the web interface. Data collection using the website is ongoing.
- In July, JANUS team members met at Memphis Center (ZME) to review work to date, including results from the ZID test and the Runway Safety data collection at ATCTs. Attending were: Luis Castro (ATO-S), Carol Jones (ZID, NATCA), Pat Dalsanders (SEA, NATCA), Scott Keller (TUL, NATCA), Peter Trono (ZLA, NATCA), and Julia Pounds (CAMI). The team was joined by Barry Morgan (ATO-T). During the team meeting, it was

agreed that eJANUS is ready for use by additional air traffic facilities. Future activities were outlined. Approximately 29 facilities were selected for FY 2006 and will be contacted regarding their participation. Appropriate feedback reports to stakeholders (i.e., individuals, facilities, NATCA, FAA management) are being developed based on the causal factors data collected. User input will help to identify how these should be formatted for best use of the information. Personnel from the Memphis facilities (MEM and ZME) were briefed on work to date and on the move to the web-based version. ZME had also previously participated in the beta test of the technique and agreed to field test eJANUS. They were provided training materials and access to the website. Additional information about the program was provided to MEM personnel and their decision to test eJANUS is pending.

*This research activity supports the Administrator's Flight Plan Goal for Safety, Objective 4: Reduce the risk of runway incursions.*

Point of Contact: J. Pounds, CAMI

**Traffic Flow Management:** William J. Hughes Technical Center personnel the NAS Human Factors Group met with representatives of the Traffic Flow Management Modernization (TFMM) program and the Traffic Management User Team to discuss plans for a baseline study of the Traffic Situation Display (TSD). The TSD is one of the primary tools currently used by Traffic Management Specialists in the field. It is scheduled to be replaced by a more modern system as part of TFMM. The baseline study will provide the FAA with measures of current task load and information flow which will be useful in evaluating the future 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, A. Clarke, WJHTC)

**Tower Siting:** On August 5, 2005, the FAA issued a press release on the recently completed human factors tower siting research. Charlie Keegan is cited in the release, saying, the new siting methodology "has tremendous immediate and long term implications for both the domestic and international aviation communities. It will enable tower planners to find and resolve potential problems before tower construction begins. The technology will enhance safety and efficiency, and will save the FAA millions of dollars in tower construction costs in years to come." AvDaily mentioned this research in last Monday's edition. *This research activity supports the Administrator's Flight Plan Goal for Increased Safety, Objective 7: Enhance the safety of FAA's air traffic systems.* (W. Krebs, G. Hewitt, ATO-P R&D)

**Technical Operations (TO):** Research psychologists from the William J. Hughes Technical Center supported a meeting of the Technical Operations Human Factors Standardization Team (TOHST). The researchers provided briefings on current and future projects that will have an impact on Technical Operations. They also capitalized on the expertise of the team by facilitating a "Day in the Life" discussion where each subject matter expert described his/her role and responsibilities during an average work day. This discussion revealed that TO personnel deal with many interruptions, administrative tasks, and reprioritization of tasks while working. The TOHST also toured several laboratories at the Technical Center. *This research activity supports the Administrator's Flight Plan Goal for Greater Capacity, Objective 3: Increase on-time performance of scheduled carriers.* (V. Ahlstrom, A. Clarke, WJHTC)

## Technical Information: Human Factors Reports Database

The Human Factors Reports Database has over 1400 articles from 29 different sources, including the William J. Hughes Technical Center, CAMI, NASA and EUROCONTROL. There are also articles from research conducted at several universities. To access the reports, point to: [www.hf.faa.gov/Workbench/search.aspx](http://www.hf.faa.gov/Workbench/search.aspx). The database is updated regularly, and we will keep you informed about the latest articles. Each month we will list articles that have been added to the database. Here is a list of recent additions:

- Hewitt, G. (2004). *Human Factors Integration Guide for Mission and Service Area Analysis*. FAA HFRED. <http://www.hf.faa.gov/Portal/techrptdetails.aspx?id=1322>.
- Isaac, A.; Straeter, O. & Van Damme, D. (2004). *A Method for Predicting Human Error in ATM (HERA-PREDICT)*. (Rep. No. HRS/HSP-002-REP-07). EUROCONTROL. <http://www.hf.faa.gov/Portal/techrptdetails.aspx?id=1259>.
- Truitt, Todd R.; McAnulty, D. Michael; Willems, Ben. A. (2004). *Effects of Collocation and Reduced Lateral Separation Standards in the New York Integrated Control Complex*. (Rep. No. DOT/FAA/CT-TN04/08). Atlantic City, NJ: FAA. <http://www.hf.faa.gov/Portal/techrptdetails.aspx?id=1116>.
- Yeh, M. (2004). *Human Factors Considerations in the Design and Evaluation of Moving Map Displays of Ownship on the Airport Surface*. (Rep. No. DOT/FAA/AR-04/39). Cambridge, MA: USDOT. <http://www.hf.faa.gov/Portal/techrptdetails.aspx?id=1331>.
- Zingale, C. M.; McAnulty, D. M.; & Kerns, K. (2004). *The Effect of Voice Communications Latency in High Density, Communications-Intensive Airspace Phase II-Flight Deck Perspective and Comparison of Analog and Digital Systems*. (Rep. No. DOT/FAA/CT-TN04/02). McLean, VA.: MITRE <http://www.hf.faa.gov/Portal/techrptdetails.aspx?id=1286>.

*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.*

Point of Contact : D. Piccione, ATO-P R&D

**R&D Review:** The summer issue of R&D Review is now on-line at <http://research.faa.gov/newsletters.asp>. This issue is packed with information on R&D programs from throughout the FAA. *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.* (T. Kraus, ATO-P R&D)

**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)



**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>

**August 22-26, 2005** – SAE G-10 (Behavioral Engineering Technology Committee Meeting, Washington, DC [http://forums.sae.org/access/dispatch.cgi/TEAG10\\_pf](http://forums.sae.org/access/dispatch.cgi/TEAG10_pf)

**August 29 – September 1, 2005** – ATO Leadership Summit, Washington, DC

**August 30 - September 2, 2005** - Measuring Behavior 2005, 5th International Conference on Methods and Techniques in Behavioral Research, Wageningen, The Netherlands [www.noldus.com/mb2005](http://www.noldus.com/mb2005)

**September 5-9, 2005** – HCI 2005, Edinburgh, UK <http://www.bcs-hci.org.uk/hci2005/>

**September 11-15, 2005** – International Conference on Fatigue Management in Transportation Operations, Seattle, WA <http://scitech.dot.gov/research/human/>

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

**September 13-14, 2005** – Third ICAO-IATA LOSA TEM Conference, Kuala Lumpur, Malaysia [DMaurino@icao.int](mailto:DMaurino@icao.int)

**September 15-18, 2005** - Conjoint Meeting of the Australasian Society of Aerospace Medicine and the Asia Pacific Federation of Aerospace Medical Association, Gold Coast, Queensland, Australia. [www.asam.org.au](http://www.asam.org.au).

*September 18-22, 2005 - XVIIth World Congress on Safety and Health at Work, Orlando, FL <http://www.cdc.gov/niosh/exhibits.html>*

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

**September 20-21, 2005** - R,E&D Advisory Committee Meeting (joint meeting with NASA's Aerospace Research Advisory Committee), Bessie Coleman Auditorium, FAA Headquarters, Wash., DC [Gloria.dunderman@faa.gov](mailto:Gloria.dunderman@faa.gov)

**September 20-22, 2005** – Second Safety Across High-Consequence Industries Conference, Saint Louis University, St. Louis, MO [http://parks.slu.edu/msasm\\_conference/index.html](http://parks.slu.edu/msasm_conference/index.html).

**September 20-24, 2005** - 1st Congress of the International Society for Cultural and Activity Research (ISCAR), Seville, Spain [iscar2005@iscar.org](mailto:iscar2005@iscar.org)

**September 21-23, 2005** - Cargo Facts 2005- 11th Annual Aircraft Symposium, Sheraton Hotel & Towers, Seattle, Washington [ashoemaker@cargofacts.com](mailto:ashoemaker@cargofacts.com)

**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 26-29, 2005 - Infotech@Aerospace, Hyatt Regency Crystal City, Arlington, VA*  
<http://www.aiaa.org/content.cfm?pageid=1>

**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>

*September 27-30, 2005 - Analyzing Risk: Science, Assessment, and Management, Harvard School of Public Health, Boston, MA*  
<http://www.cdc.gov/niosh/exhibits.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 9-11, 2005** – Aviation Maintenance Star Symposium, Ritz-Carlton, Phoenix, AZ  
[www.STARSymposium.com](http://www.STARSymposium.com)

*October 17-21, 2005 - American Association for Aerosol Research 2005 Annual Conference, Hilton Austin, Austin, TX*  
<http://www.cdc.gov/niosh/exhibits.html>

**October 20-21, 2005** – 2<sup>nd</sup> Annual FAA International Safety Forum, Westfields Marriott, Chantilly, VA <http://www.faa.gov/news/conferences/safetyforum/index.cfm?topic=6>.

**October 22-26, 2005** – American Medical Informatics Association Annual Symposium, Hilton Washington, Wash, DC <http://www.amia.org/meetings/annual/current/>

**October 23-26, 2005** - UIST 2005, Eighteenth Annual ACM Symposium on User Interface Software and Technology, Seattle, WA <http://www.acm.org/uist/index.html>

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

**October 24-26, 2005** – 43<sup>rd</sup> SAFE Symposium, Grand America Hotel, Salt Lake City, UT <http://www.safeassociation.org/symposium.htm>

*October 25-26, 2005 - 2005 International Symposium: Beyond Regulatory Compliance, Making Safety Second Nature, Reed Arena, Texas A&M University, College Station, TX*  
<http://www.cdc.gov/niosh/exhibits.html>

**October 26-28, 2005** – Air Cargo Americas, Radisson Centre, Miami, FL  
[www.aircargoamericas.com](http://www.aircargoamericas.com)

**October 27-28, 2005** - Second International Conference on Knowledge Management ICKM2005, Westin Charlotte, Charlotte, NC <http://www.asis.org/ICKMcall.htm>

**October 30-November 7, 2005** – ATCA 50<sup>th</sup> Annual Conference and Exposition, Dallas, TX  
[http://www.atca.org/event\\_items.asp](http://www.atca.org/event_items.asp).

**October 30—November 3, 2005** – 24<sup>th</sup> Digital Avionics Systems Conference, Hyatt Regency Crystal City, Wash., DC <http://www.dasconline.org>

**November, 2005** – DoD TAG (Human Factors Engineering Technical Advisory Group) Meeting, Baltimore, MD <http://hfetag.dtic.mil/meetschl.html>

**November 3-5, 2005** - AOPA Expo, Tampa, Florida [www.aopa.org](http://www.aopa.org)

**November 3-5, 2005** - Conference on Designing for User Experience, Fort Mason, San Francisco, CA <http://www.dux2005.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 7-9, 2005** – DoD TAG, Baltimore, MD <http://hfetag.dtic.mil/meetschl.html>

**November 7-10, 2005** – Flight Safety Foundation 58<sup>th</sup> Annual International Air Safety Seminar, Moscow, Russia [http://www.flightsafety.org/iass05\\_cfp.html](http://www.flightsafety.org/iass05_cfp.html)

**November 7-10, 2005** - Ergonomics and Human Factors: Applications in Occupational Safety and Health, Harvard School of Public Health, Cambridge, MA  
<http://www.hsph.harvard.edu/ccpe/programs/EHF.shtml>

**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>

**November 8-10, 2005** – Maintenance, Repair & Overhaul Exhibition Asia, Suntec Convention Center, Singapore <http://www.aviationnow.com/conferences/masmain.htm>

**November 10, 2005** - 34th Annual Meeting of the Society for Computers in Psychology, Toronto, Ontario, Canada <http://www.scip.ws>

**November 10 - 13, 2005** - 46th Psychonomic Society Annual Meeting, Toronto, Ontario, Canada <http://www.psychonomic.org/meet.htm>

**November 15-17, 2005** - National Business Aviation Association's 58th Annual Meeting & Convention, New Orleans, LA [www.nbaa.org](http://www.nbaa.org)

**November 16-17, 2005** – IEE Human Factors Engineering Professional Network/MoD Human Factors Integration Defense Technology Center “People and Systems Symposium: Who Are We Designing For?”, Grange City Hotel London, UK <http://conferences.iee.org/pas2005>

**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/>

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

**March 20-23, 2006** – 16<sup>th</sup> 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](http://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/>

**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](http://www.humancapitalinstitute.net/conference_national.html)

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

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

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

*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 18<sup>th</sup> Annual Convention, New York Marriott Marquis, New York City, NY <http://www.psychologicalscience.org/convention/>

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

**July, 2006** - 26th International Congress of Applied Psychology, Athens, Greece  
[dgeorgas@dp.uoa.gr](mailto:dgeorgas@dp.uoa.gr) ,  
[http://www.erasmus.gr/dynamic/conventions.asp?conv\\_id=21r/dynamic/conventions.asp?conv\\_id=21](http://www.erasmus.gr/dynamic/conventions.asp?conv_id=21r/dynamic/conventions.asp?conv_id=21)

**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](http://www.isam-india.org/conference44/newreg.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** – 44<sup>th</sup> Annual SAFE Symposium, Reno Hilton Hotel, Reno, NV  
<http://www.safeassociation.org/symposium.htm>

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

*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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