

## Monday Workshops

Endeavor C	Atlantis	Discovery A	Discovery B
<b>ODM, ORM and Accident Prevention</b>	<b>Aircrew Fatigue: Understanding the Causes, Consequences and Countermeasures</b>	<b>The Road to Cognitive System Engineering</b>	<b>DDD - Adapatable Simulation for Sociotechnical Systems</b>
WM01	WM02	WM03	WM04
<b>083 - 1630</b>	<b>0830 - 1630</b>	<b>0830 - 1630</b>	<b>1330 - 1630</b>
Ronald Lofaro & Kevin Smith	John Caldwell & Lynn Caldwell	Laura Militello, Gary Klein, Gavan Lintern, Corey Fallon, & Cindy Dominquez	Scott Galster

**Tuesday 0830 - 0955**

**Apollo: Keynote Address**

**The Psychology of Aviation Surprise: An 8 Year Update.**

**Dr. Christopher D. Wickens**

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## Tuesday 1015 - 1140

Apollo	Atlantis	Discovery	Endeavor
<b>Symposium: Stanley N. Roscoe: A Reflection</b> 153	<b>Aviation Maintenance Challenges</b>	<b>Cognitive Engineering and Ecological Support</b>	<b>Selection</b>
ST01	ST02	ST03	ST04
Chair: Gavan Lintern	Chair: Chris Hale	Chair: Laura Militello	Chair: Thomas Carretta
Remembering Stan Roscoe <b>Lintern</b>	Human factors in the ground support of unmanned aircraft systems 165	Designing work-centered support for dynamic multi-mission synchronization 222	Construct- and criterion-validity of aviation psychological test batteries used to select pilot applicants 144
It's better to share what you know <b>Jensen</b>	<b>Hobbs</b> , Herwitz, Gallaway	<b>Roth</b> , Scott, Whitaker, Kazmierczak, Truxler, Ostwald, & Wampler	<b>Sommer</b> , Mayr, & Arendasy
Cockpit displays for continuous control and navigation	The technological, financial, and social realities that are defining the aircraft mechanic of tomorrow 251	Design and evaluation of an intent-based separation assistance display 105	How effective is item bank testing of pilot training applicants in reducing test preparation effects? 204
<b>Beringer</b>	<b>Gallaway</b>	<b>Van Dam</b> , Mulder, & van Paassen	<b>Zierke</b>
Simulator motion - It rocks!...(Or maybe not)	Influence of time pressure on behaviors of aircraft maintenance technicians 232	Ecological interface supporting the air traffic controller in managing inbound traffic 201	Vigilant Warrior™: a selection tool for vigilance performance 172
<b>Jacobs</b>	<b>Suzuki</b> & von Thaden	Van Dijk, Huisman, Roerdink, Mulder, & <b>Van Paassen</b>	Weldon & <b>Shingledecker</b>
Stan and the moon illusion		Testing a multidimensional nonveridical aircraft collision avoidance system: experiments 3 and 4 118	
<b>Acosta</b>		<b>Knecht</b>	
Galileo and the marketing manager revisited <b>Scanlan</b>			

## Tuesday 1300 - 1425

Apollo	Atlantis	Discovery	Endeavor
<p><b>Panel: Selection for Aviation Related Careers: Air Traffic Control in the Air Force and the FAA 123</b></p>	<p><b>Airport and Runway Safety</b></p>	<p><b>Work Analysis for Future Aviation</b></p>	<p><b>Aiding the General Aviation Pilot</b></p>
ST05	ST06	ST07	ST08
Chair: Kathryn Bleckley	Chair: Lawrence (Lance) Prinzel	Chair: Ed Hutchins	Chair: von Thaden
Selection for aviation related careers: Air traffic control in the Air Force and the FAA	Runway incursion prevention using an audio intervention 195	A methodology and tools for the prospective identification of NextGen human factors issues 185	3D audio for navigation, collision avoidance, and spatial disorientation mitigation 224
<b>Bleckley</b>	<b>Maertens, DeSalvo, Chin, &amp; Moon</b>	<b>Funk</b>	<b>Simpson, Brungart, Dallman, Yasky, Romigh, Gilkey, &amp; Cowgill</b>
The role of common methods in personnel selection	Simulation results for highlighting runway safety critical information on cockpit displays of traffic information 247	Aviator 2030--ability requirements in future ATM systems 126	Usage data from users of two synthetic visions systems 176
<b>Carretta</b>	<b>Moertl, McGarry, &amp; Nickum</b>	<b>Eissfeldt</b>	<b>Beringer</b>
	Near-term NextGen and Class 2 EFBs 190	Determining job requirements for the next aviator generation 205	General aviation aircraft maintenance technician's perception of time pressure 233
<b>Crutchfield, King, &amp; Manning</b>	<b>Seamster &amp; Kanki</b>	<b>Hoermann, Schulze-Kissing, &amp; Zierke</b>	<b>Suzuki &amp; von Thaden</b>
	Analysis of ramp damage incidents and implications for future composite aircraft structure 244	Modeling pilot cognitive behavior for predicting performance and workload effects of cockpit automation 168	The effect of video weather training products on general aviation flight behavior 114
	<b>Kanki &amp; Brasil</b>	Kaber, Kim, Veil, <b>Gil</b> , & Kaufmann	<b>Knecht &amp; Ball</b>

## Tuesday 1445 - 1610

Apollo	Atlantis	Discovery	Endeavor
<b>Panel: Perspectives on Human Factors Issues in NextGen 223</b>	<b>Accident Analysis and Operational Errors</b>	<b>Cognitive Engineering: Visualization</b>	<b>Air Traffic Control</b>
ST09	ST10	ST11	ST12
Chair: Deborah Boehm-Davis	Chair: Ray King	Chair: Amy Pritchett	Chair: Stephanie Stankovic
	Constructing accurate and precise timelines for major aviation accident investigations 129	Cybernetic approach to 4D flight plan revision support on the flight deck 199	Assisting air traffic control in planning and monitoring continuous descent approach procedures 202
<b>Boehm-Davis, Piccione, Lyall, &amp; Carr</b>	<b>Dietz, Coury, O'Callaghan, &amp; Kolly</b>	<b>Mulder, van Marwijk, Van Paassen, &amp; Mulder</b>	van der Eijk, Mulder, <b>van Paassen</b> , & In't Veld
	Logistic regression analysis of operational errors and routine operations 124	Performance visualization method of air traffic control tasks for educational purpose with utilizing cognitive system simulation 209	An analysis of U.S. and foreign ATP pilots' communication problems at five U.S. en route centers 208
	<b>Pfeiderer, Scroggins, &amp; Manning</b>	<b>Karikawa, Aoyama, Takahashi, &amp; Furuta</b>	<b>Prinzo</b>
	Professionalism in airline operations and accident investigation? 101	Solution space-based complexity analysis of the ATC task of merging aircraft 200	Effect of conflict geometry on maneuver choice and safety in controller response to conflict alerts 154
	<b>Smith &amp; Lofaro</b>	Hermes, Huisman, Boering, Mulder, & <b>Van Paassen</b>	Wickens & <b>Rantanen</b>
		Design and evaluation of a cognitively engineered systems monitoring display 214	Conflict alerts and false alerts in en route air traffic control: An empirical study of causes and consequences 127
		<b>Findler, Narayanan, Collier, &amp; Marshak</b>	<b>Wickens &amp; Rice</b>

**Wednesday 0830 - 0955**

**Apollo**

**Plenary Practitioners' Panel: Operational Issues in Today's Aviation System**

Chair: Esa Rantanen

**Panelists: Fennel** (ALPA), **Pearson** (Arizona State University/Phoenix Sky Harbor Airport), **Shaw** (Dayton Aerospace), **Tiffany** (AFMC 303 AESG/SYC)

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## Wednesday 1015 - 1140

Apollo	Atlantis	Discovery	Endeavor
<p><b>Symposium: UAV interface design for supervisory control 221</b></p> <p style="text-align: center;">SW01</p> <p>Chair: Kristen Liggett</p> <p>Multi-UAV supervisory control interface technology</p> <p><b>Patzek</b></p> <p>Cognitive task analysis of distributed network-centric information for the promotion of shared situation awareness within collaborative UAS operations</p> <p><b>Getzlaff</b></p> <p>Manual and cooperative control mission management methods for wide area search munitions</p> <p><b>Warfield</b></p> <p>Training interventions to reduce Air Force Predator mishaps</p> <p><b>Nullmeyer</b></p>	<p><b>CRM</b></p> <p style="text-align: center;">SW02</p> <p>Chair: Hans Hoermann</p> <p>ATC CRM--to find truth and facilitate change 248</p> <p><b>Grieser &amp; Bowser</b></p> <p>Development of method for CRM skills assessment 243</p> <p><b>Tsuda, Iijima, Noda, &amp; Funabiki</b></p> <p>A PC based methodology for CRM practice training 206</p> <p><b>Cabral, Ribeiro, Landau, &amp; Cunha</b></p>	<p><b>Cockpit Displays</b></p> <p style="text-align: center;">SW03</p> <p>Chair: Julianne Fox</p> <p>Attitude indicator modifications to aid in unusual attitude recovery 192</p> <p><b>Maertens</b></p> <p>A compatibility analysis of attitude display formats 152</p> <p><b>Yamaguchi &amp; Proctor</b></p> <p>Modeling the effects of HUD visual properties and configurations on a multi-dimensional measure of clutter 167</p> <p><b>Kaber, Kim, Alexander, Kaufmann, Veil, Stelzer, &amp; Prinzel</b></p> <p>Design of an ecological vertical separation assistance cockpit display 203</p> <p>Heylen, <b>Van Dam</b>, Mulder, &amp; Van Paassen</p>	<p><b>Training and Simulation</b></p> <p style="text-align: center;">SW04</p> <p>Chair: Dee Andrews</p> <p>Effects of visual, seat, and platform motion during flight simulator transport pilot training and evaluation 155</p> <p><b>Burki-Cohen &amp; Sparko</b></p> <p>Psychological fidelity of simulator human performance limitation training 253</p> <p><b>Kallus</b></p> <p>Visual cues for simulating helicopter deck landings 141</p> <p><b>Magee &amp; Cain</b></p> <p>Knowledge and skill-based evaluation of simulated and live training--from model to application 210</p> <p><b>Borgvall &amp; Castor</b></p>

## Wednesday 1300 - 1425

Apollo	Atlantis	Discovery	Endeavor
<b>Safety Reporting</b>	<b>Task Load Effects</b>	<b>Representation in Different Perceptual Modalities</b>	<b>University Aviation Degree Programs</b>
SW05	SW06	SW07	SW08
Chair: Thomas Seamster	Chair: Ben Knott	Chair: van Paassen	Chair: Alan Hobbs
NASA ASRS addresses general aviation weather encounters 237	A model of flight deck attention and noticing time: predictions and validation 163	Speech synthesis for DATA LINK: a study of overall quality and comprehension effort 240	Are we getting the message across? Human factors and system safety education--what impact has it had? 116
<b>Taube, Morrison, Connell, &amp; Drew</b>	<b>Wickens, McCarley, &amp; Sebok</b>	<b>Godfroy, Begault, &amp; Wenzel</b>	<b>Burdekin</b>
Development of proactive safety management system for industrial fields based on the framework of Aviation Safety Reporting System 211	Contribution of high-frequency EEG features to physiologically-based operator workload estimation 215	Integrated multimodal communications management 216	Results from the first FAA Industry Training Standards (FITS) commercial pilot course 162
<b>Ishibashi, Karikawa, Wakabayashi, Takahashi, &amp; Kitamura</b>	<b>Monnin &amp; Estep</b>	<b>Popik, Finomore, &amp; Brungart</b>	<b>Craig, Beckman, Callender, Gossett, &amp; Dorman</b>
Analysis of team errors in air traffic control 156	Team workload: a construct worth pursuing? 239	Conceptualizing spatial relations in flight training 143	Analysis of female aerospace students' reasons for selecting an aviation career field 226
<b>Lu &amp; Zhou</b>	<b>Funke, Knott, Galster, &amp; Brown</b>	<b>Hutchins, Middleton, &amp; Newsome</b>	<b>Beckman &amp; Zlotky</b>
Review of safety reports involving electronic flight bags 189	Control-force inputs obtained from pilots and nonpilots (flight attendants): Comparison with established handbook distributions of performance 174	The effects of changing the number of targets during a visual tracking task 213	Comparing the accuracy of performing digital and paper checklists using a feedback intervention pack 170
<b>Chandra &amp; Kendra</b>	<b>Beringer</b>	<b>Ericson &amp; Christensen</b>	<b>Rantz, Hilton, &amp; Van Houten</b>

## Wednesday 1445 - 1610

Apollo	Atlantis	Discovery	Endeavor
<b>Aerospace Automation</b>	<b>Organizational Safety and Effectiveness</b>	<b>Flight-Path Displays</b>	<b>Training</b>
SW09	SW10	SW11	SW12
Chair: Amy Alexander	Chair: Pat Fitzgerald	Chair: John Reising	Chair: Lochlan Magee
Examples of work domain analysis applied to today energy control system 217 <b>Amelink, Mulder, &amp; Van Paassen</b>	Locus of control and hazardous attitudes among US Army aviators 111 <b>Hunter &amp; Stewart</b>	Comparing tunnel-in-the-sky display on HDD and HUD from task occupation point of view 229 <b>Funabiki, Iijima, &amp; Tsuda</b>	The mystery of distributed learning 108 <b>Lintern</b>
Improving automation effectiveness with psychophysiological workload estimation 212 <b>Christensen, Estep, &amp; Miller</b>	Investigating organization intelligence through safety management systems 120 <b>Gadzinski</b>	Ecological synthetic vision system to support pilot terrain awareness 137 <b>Borst, Mulder, &amp; Van Paassen</b>	Stress training efficacy in an aviation context 112 <b>McClernon</b>
On adaptive automation as a solution to the GLOC conundrum 148 <b>Tripp, Warm, Matthews, Chiu, &amp; Bracken</b>	Validating a four-factor model of safety culture in commercial flight operations 125 von Thaden, <b>Woo</b> , & Spain	Eye-tracking in a mid-fidelity Boeing 777 flight simulator to advance new operational concepts 197 <b>Wu, Lachter, Johnson, Battiste, Kelly, Mogford, Brandt, Dao, Johnson, &amp; Ligda</b>	Applied Threat and Error Management: Toward Crew-Centered Solutions 260 <b>Geiselman</b>
Assessing how novel adaptive visualization displays can impact pilot performance 173 <b>Guarino, Liu, Roth, Bartosiewicz, Harper, &amp; Vincenzi</b>	Self-reported fatigue and organizational risk in multiple airlines 121 von Thaden, <b>Spain</b> , & Woo	The 787 vertical situation display human factors evaluation--enhancements to flight path awareness 122 <b>Hammack, Fox, &amp; Crane</b>	Multivariate evaluation of pilot's threat and error management performance in flying complex flight maneuvers 145 <b>Koglbauer, Kallus, Braunstingl, &amp; Boucsein</b>

**Thursday 0830 - 0955**

**Apollo**

**Plenary Researchers' Panel: Meeting the Challenges of Expanding Demands on the Aviation System**

Chair: Scott Galster

**Panelists:** **Andrews** (711 HPW/RHA), **Boehm-Davis** (George Mason University), **Durso** (Georgia Institute of Technology), **Manning** (FAA CAMI), **Pritchett** (NASA)

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## Thursday 1015 - 1140

Apollo	Atlantis	Discovery	Endeavor
<b>Air Traffic Challenges</b>	<b>Factors Affecting Cabin Crew Performance</b>	<b>Air and Space Displays</b>	<b>Aeronautical Decision Making</b>
SR01	SR02	SR03	SR04
Chair: Hinnerk Eissfeldt	Chair: Joel Warm	Chair: Karen Feigh	Chair: John Flach
Preparing for the future of collaborative air traffic management 151 <b>Smith &amp; Billings</b>	Introducing science into the scheduling of flight and cabin crew duty and rest during ultra long-range flights. 113 <b>Nesthus</b>	Modeling cockpit interface usage during lunar landing redesignation 132 <b>Chua, Major, &amp; Feigh</b>	Determinants of conflict and resolution judgments in ATC 160 <b>Stankovic, Rantanen, Ponomarenko, &amp; Loft</b>
The departure flow management capability: results of field trial studies 188 <b>Spencer, Smith, Carniol, &amp; Pepper</b>	Identifying Taiwanese long-haul carrier flight attendants work-related musculoskeletal health 196 <b>Lee, Stewart, &amp; Kao</b>	Synthetic and enhanced vision system for Altair lunar lander 184 <b>Prinzel, Arthur, Shelton, Williams, Bailey, Kramer, &amp; Allamandola</b>	Impact of time pressure on behavioral patterns in resource allocation tasks 241 <b>Boussemart, Donmez, &amp; Cummings</b>
Comparing the tower operations digital data system to paper flight progress strips 218 <b>Truitt</b>	Fatigue and its effect on cabin crew performance 135 <b>Hide</b>	Attitudes toward automation and information requirements of experienced predator operations <b>Marshak, Hudson, Collier, &amp; Findler</b>	Cue-based training effects on visual scanpaths during weather-related decision making 231 <b>Sawyer &amp; Shappell</b>
	Post-traumatic stress in flight attendant's labor 134 <b>Filipieva</b>		Using Microsoft Flight Simulator X to develop aeronautical decision-making skills in the classroom 181 <b>Beckman, Callendar, Dornan, Gossett, &amp; Craig</b>

## Tuesday Posters 1615 - 1740

### PT

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PT02	NextGen design requirements: creating a better data communications program 228	<b>Barrow</b> , Gee, & Boehm-Davis
PT03	NextGen flight deck human factors issues 182	<b>Funk</b> , Mauro, & Barshi
PT04	Comparing and contrasting two models of spatial orientation 166	<b>Small</b> , Oman, Keller, Newman, Wickens, Young, Jones, & Brehon
PT05	Alarm relevance and reliability: factors affecting pilots' trust and alarm responses 225	Newlin, <b>Bustamante</b> , & Bliss
PT06	Bridging the gap: Intelligent interface design for intelligent agents 179	<b>Behymer</b> , Simpkins, Bennett, & Posey
PT07	Risk assessment in aviation 220	<b>Mauro</b> & Barshi
PT08	Investigating national differences in commercial aviation safety culture 133	von Thaden, <b>Woo</b> , & Spain
PT09	Flight deck display technologies for 4-DT and surface equivalent visual operations 183	<b>Prinzel</b> , Shelton, Arthur, Jones, Allamondola, Bailey
PT10	The coming paradigm-shift in maintenance: From metals to composites 193	<b>Hobbs</b> , Brasil, & Kanki
PT11	The effect of human factors in aviation maintenance safety 219	<b>Georgiou</b>
PT12	A network collaborative design construct for the dissemination of aviation safety research 257	<b>Bowen</b> , Block, & Patankar
PT13	Transfer of skills from Microsoft Flight Simulator X to an aircraft 178	<b>Beckman</b> , Callendar, Dornan, Craig, & Gossett
PT14	Developing a standardized checklist curriculum utilizing graphic feedback to reinforce salient stimuli 227	<b>Neterer</b> & Rantz
PT15	The effect of video weather training products on general aviation weather knowledge 115	<b>Knecht</b> & Ball
PT16	Facial action crew centered technologies to monitor state of awareness of pilots 136	<b>Brown</b>
PT17	Simulator sickness in the flight school XXI TH-67 flight motion simulators 175	<b>Webb</b> , Bass, Johnson, Kelley, Martin, & Wildzunas
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- PT21 Providing Evidence of a Multiple-Process Model of Operator Trust 128
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- PT23 Vigilant Spirit Control Station: A research testbed for multi-UAS supervisory control interfaces 221
- PT24 Robot Operator Specifications Derived from the Occupational Information Network 259

**Rice**

**Wright, Ruff, Ayala, Calhoun, Mullins, & Draper**

**Rowe**

**Covert & Elliot**



## Wednesday Posters 1615 - 1740

### PW

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PW02	The use of intraocular lenses with advance aviation displays 110	<b>Protheroe</b>
PW03	How differences in spatial ability influence inexperienced users in a visual perceptual aviation task 242	<b>Curtis &amp; Jentsch</b>
PW04	Age and expertise effects on time-sharing multiple tasks in a flight simulation 249	<b>Tsang, Hildenbrandt, &amp; Hammond</b>
PW05	What can a multimodal measure of stress tell us about team collaborative tools? 236	<b>Russell, Funke, Bennett, Knott, &amp; Miller</b>
PW06	Test of a conflict judgments model in ATC 159	<b>Stankovic, Rantanen, &amp; Loft</b>
PW07	Human-assisted logistics optimization (HALO): Support for timely logistics decision-making 171	<b>Weldon</b>
PW08	The effects of success related pressure on information processing strategies and plan continuation error 252	Bourgeon, Valot, <b>Fauconnet</b> , Ardouin, & Navarro
PW09	Decision factors influencing stimulant use among fighter aircrew during combat operations 161	<b>Gore &amp; Hermes</b>
PW10	Adaptive decision support for dynamic mission replanning 255	<b>Vincent, Donnelley, Taylor, Knott, Cottrell, Grabham, Goff, Dixon, Miller, Dukes, Bennett, &amp; Funke</b>
PW11	Towards a 4-dimensional separation assistance display 104	<b>van Dam, Mulder, &amp; van Paassen</b>
PW12	Utility and recognition of lines and linear patterns on electronic displays depicting aeronautical charting information 187	<b>Chandra</b>
PW13	Effects of modes of cockpit automation on pilot performance and workload in a high workload approach 169	<b>Kaber, Gil, Kaufmann, Kim, Veil, &amp; Picciano</b>
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PW21	Validation of a synchronous iconographic digital whiteboard interface for team collaboration in a simulated command and control task	238	<b>Russell, Knott, Galster, Funke, &amp; Dukes</b>
PW22	Utilizing a data table for visualization of command and control tasks	150	<b>Galster, Williams, Mendoza, Shebilske, Levchuk, &amp; Kegley</b>
PW23	Using Multiple Imperfect Diagnostic Automation	146	<b>Keller &amp; Rice</b>
PW24	Automation dependency under time pressure	147	<b>Rice, Keller, &amp; Trafimow</b>

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