

8th USA / EUROPE Air Traffic Management
Research & Development Seminar

ATM Seminar

2009



Program

June 29 - July 2, 2009
Napa, California USA





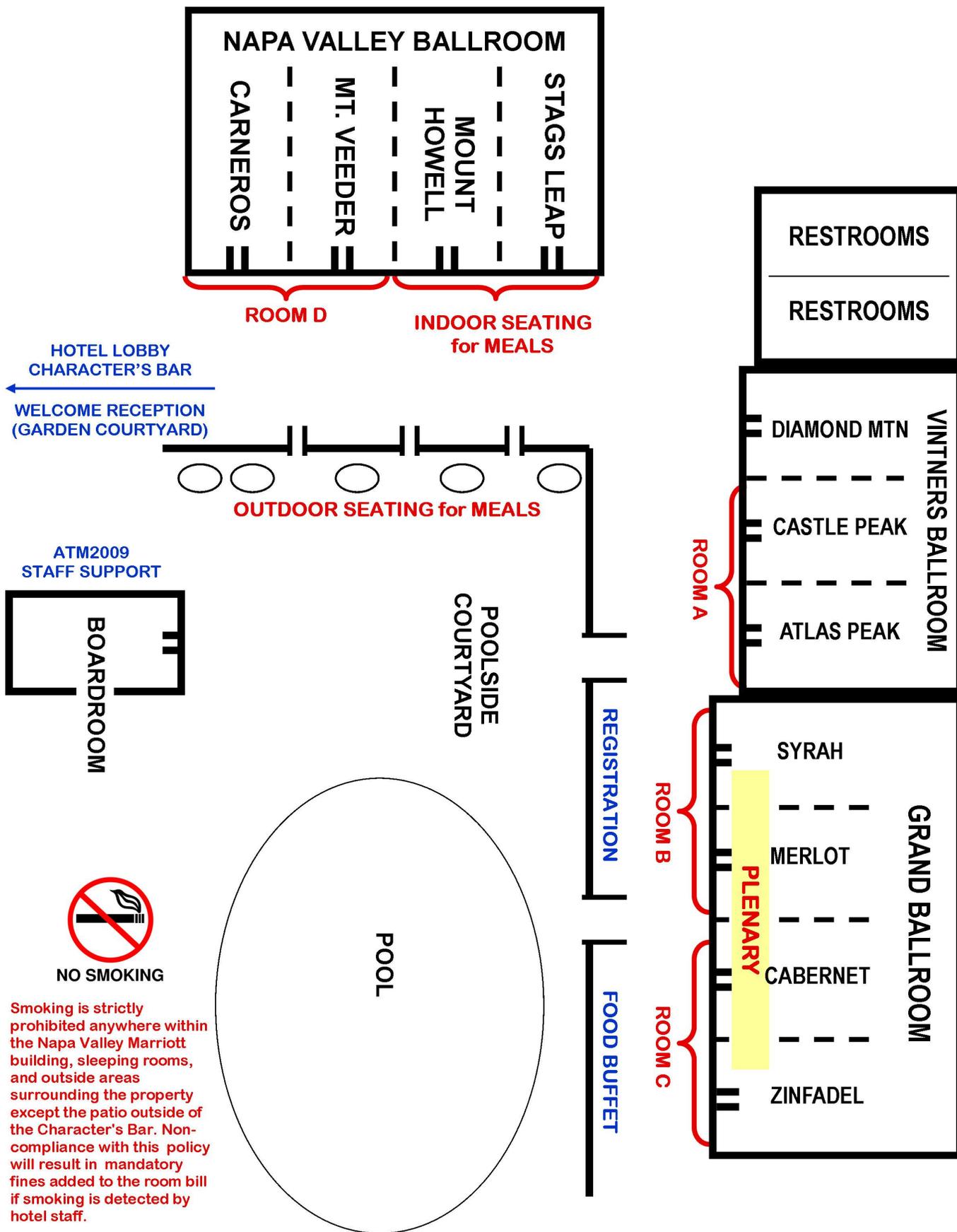
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ATM2009 Seminar At-A-Glance

Su	4:00 PM	reg	Early Registration 28-Jun (4:00 - 7:00 PM Grand Ballroom Foyer)		
Mo	7:00 AM	bf	Registration / Breakfast (Grand Ballroom Foyer) Seating: See Map		
29-Jun			Plenary - Opening Session (Grand Ballroom)		
	8:30 AM	pl	Welcome and Logistics - Sabrina Saunders-Hodge (US Chair) & Vu Duong (Europe Chair)		
	8:45 AM		Greetings - NextGen - Barry Scott, Director FAA ATO-P R&TD		
	9:00 AM		Greetings - SESAR - Bo Redeborn, Principal Director of CND		
	9:15 AM	cb	Coffee Break (Grand Ballroom Foyer) Seating: See Map		
			Track 1 (Room A)	Track 2 (Room B)	Track 3 (Room C)
			Dynam Air & Cap (Jacco)	Network TFO (Steve B)	Safety (Henk B)
	9:45 AM		89 DAC	149 NET	19 SAF
	10:30 AM		105 DAC	143 NET	130 SAF
	11:15 AM		85 DAC	152 NET	12 SAF
	12:00 PM		128 DAC	147 NET	
	12:45 PM	lu	Environment (Ralph I)		Human Factors (Paul K)
	2:00 PM		122 ENV	97 NET	21 HF
	2:45 PM		48 ENV	55 NET	126 HF
	3:30 PM	cb			
	4:15 PM		43 ENV	33 NET	28 HF
	5:00 PM		84 ENV	134 NET	114 HF
	5:45 PM	adj			
	6:15 PM	rec	Reception - Hotel Garden Courtyard Welcome Barry Scott, Dir ATO-P R&TD		
	6:15 AM		ATM2009 Inaugural 5K Race (Optional) Meet in Hotel Lobby		
	7:00 AM	bf	Breakfast (Grand Ballroom Foyer) Seating: See Map		
Tu			Cont Descent Appr (J-P)	Weather (Mark H)	Human Factors (Paul K)
30-Jun	8:30 AM		132 CDA	8 WX	27 HF
	9:15 AM		14 CDA	75 WX	16 HF
	10:00 AM		64 CDA	99 WX	41 HF
	10:45 AM	cb			Perf Mgmt (Wim P)
	11:15 PM		92 CDA	124 WX	73 PRF
	12:00 PM		61 CDA	125 WX	17 PRF
	12:45 PM		37 CDA	91 WX	115 PRF
	1:30 PM	lu	Box Lunch Pick-Up (Grand Ballroom Foyer) *** Note:Extended agenda break ***		
	6:00 PM	tour	Wine Train Departure for Pre-registered Guests ONLY - 3 Hours (Hotel Lobby)		
We	7:00 AM	bf	Breakfast (Grand Ballroom Foyer) Seating: See Map		
1-Jul			Separation (Marcial V)	Innovative (Colin M)	Perf Mgmt (Wim P)
	8:00 AM		138 SEP	67 INO	121 PRF
	8:45 AM		148 SEP	15 INO	102 PRF
	9:30 AM	cb			Airports (Christoph M)
	10:00 AM		94 SEP	59 INO	81 APT
	10:45 AM		158 SEP	110 INO	116 APT
	11:30 AM	lu	TQM (Sandy L)		
	12:45 PM		38 TQM	52 INO	79 APT
	1:30 PM		141 TQM	146 INO	145 APT
	2:15 PM	cb		Finance & Pol (Mike B)	
	2:45 PM		30 TQM	86 FIN	153 APT
	3:30 PM		101 TQM	155 FIN	7 APT
	4:15 PM		151 TQM	82 FIN	44 APT
	5:00 PM	adj			
	5:45 PM	gala	Gala Dinner - Meet in Hotel Lobby (Bus returns every 30 min. starting at 9:00pm)		
Th	7:30 AM	bf	Breakfast (Grand Ballroom Foyer) Seating: See Map		
2-Jul			Special Topic Sessions (Pre-Registration Required)		
	8:30 AM		TBO (Room A), ENV (Room B), HF&SAF (Room C), APT Mgmt (Room D)		
	10:00 AM	cb	Coffee Break (Grand Ballroom Foyer) Seating: See Map		
			Plenary - Final Session (Grand Ballroom)		
	10:30 AM	pl	Research Speaker - Jean-Marc Garot, French Admin/Co-Founder of ATM Seminar		
	10:55 AM		NextGen Speaker - Vicki Cox, Sr VP FAA ATO Operations Planning		
	11:20 PM		Best Paper Awards		
	11:50 PM		Wrap Up		
	12:00 PM	lu	Box Lunch Pick-Up (Grand Ballroom Foyer)		





Monday, June 29, 2009
PLENARY OPENING SESSION (Grand Ballroom)

8:30 AM Welcome and Logistics – Sabrina Saunders-Hodge (US Chair) and Vu Duong (Europe Chair)

Ms. Sabrina Saunders-Hodge is the manager of the Research Partnerships Group within the ATO NextGen and Operations Planning's Research and Technology Development Directorate. She is responsible for coordinating aviation research priorities and builds partnerships with internal FAA/ATO organizations, other agencies, advisory boards, and international organizations. Over the past twenty years Ms. Saunders-Hodge has worked in the field of satellite communications, contributed to the development of ICAO's global plan for transitioning to future communications, navigation, surveillance and air traffic management (CNS/ATM) systems for civil aviation, and served on the drafting team of the National for Aeronautics Research and Development. Just prior to her current position, she served as the technical advisor to the Director of FAA's ATO NextGen and Operations Planning Research and Technology Development organization and continues to play an active role in progressing the directorate's goals and initiatives. Sabrina Saunders-Hodge holds a B.S. and M.S. in Computer Science from the University of Maryland and Johns Hopkins University respectively.

Vu Duong has been Senior Scientific Advisor at EUROCONTROL Bretigny since 2007. Prior to this position, he had been Head of Innovative Research at EUROCONTROL Experimental Center. Besides his research activity, Vu is adjunct professor at Paris Institute of Technology, and affiliated professor of system science at University of Technology, Vietnam National University HCM. A member of the Board of Editors of ATC Quarterly, Guest Editor of Elsevier Transport Research Part C, Vu had been Program Chair of ICRAT Conference series since 2004 and General Chair of IEEE international conferences on Information and Telecommunications Technologies (RIVF Series) since 2003. Vu obtained a Master degree in Engineering and a PhD degree in Artificial Intelligence both from Ecole National des Ponts et Chaussées of France.

8:45 AM Greetings - NextGen - Barry Scott, Director FAA ATO-P R&TD

Barry Scott is the Director of the Research and Technology Development Office in the FAA Air Traffic Organization's NextGen and Operations Planning Service. He joined the FAA in 1966 as a junior engineer in the Aircraft Safety Division at the National Aviation Facilities Experimental Center in Atlantic City, NJ now known as the William J. Hughes Technical Center. In 1970, he helped establish the 1st FAA R&D Field Office at NASA Ames Research Center in California and worked there as research/Manager for 36 years. He has authored many technical papers and won numerous awards for his research in such broad areas as crash fire-fighting, wake turbulence, development of airworthiness criteria for SST and Tilt-Rotor aircraft, head-up displays, TCAS, evaluation of ATC procedures for MLS and PRM systems, and the development and implementation of the Center-Tracon Automation System. He has a BS in Aerospace Engineering from Penn State.

9:00 AM Greetings- SESAR – Bo Redeborn, Principal Director of CND

Mr. Bo Redeborn began his appointment as Director ATM Strategies at the EUROCONTROL Agency's headquarters in Brussels, Belgium on 1st February 2004, with the responsibility of managing the ATM Strategies Directorate and leading the development of the Directorate vision in the context of the Agency's role for the European-wide ATM enhancement programme. On 1st January 2009, he was appointed Director Cooperative Network Design. Cooperative Network Design (CND) is one of the Agency's four core business areas and the CND Directorate aims to achieve the design and implementation of a collaborative, high-performance pan-European ATM system. Bo Redeborn has overall responsibility for the development of mandates entrusted to EUROCONTROL by the European Commission within the Single European Sky initiative and participates as an observer in the Single European Sky Committee and the Industry Consultation Body. Mr. Redeborn started training as an Air Traffic Controller at the Swedish ATS Academy in 1972 and was subsequently employed by the Swedish CAA. He spent six years as an ATCO in Jeddah, Saudi Arabia, on an ICAO Technical Assistance mission, then returned to the Swedish CAA and took up managerial functions with increasing responsibility. Before joining EUROCONTROL, he headed the Air Navigation Services ATM Support & Development Business Area and was responsible for technical and operational support and development with regard to the provision of ATC services and air navigation systems in Sweden. During his career, he has participated in a wide variety of international working groups at EUROCONTROL, ICAO and the EU, and he has made presentations related to CNS/ATM implementation in particular on numerous occasions all over the world. Mr. Redeborn was born in Vasteras, Sweden, in 1952.

9:15 AM Coffee Break



Monday, June 29, 2009 (9:45AM - 12:00PM)
TRACK 1: DYNAMIC AIRSPACE AND CAPACITY MANAGEMENT **Room A**

Rapporteur: Jacco Hoekstra

Session Chair: Paul Krois

<i>Time</i>	<i>Paper Number</i>	<i>Title of Paper</i>	<i>Authors</i>	<i>Presenter</i>
9:45 AM	89	Feasibility of Mixed Equipage Operations in the Same Airspace	Parimal Kopardekar Nancy Smith Katherine Lee Arwa Aweiss (NASA AMES) Paul Lee Thomas Prevot Joey Mercer Jeff Homola Matthew Mainini (San Jose University)	Paul Lee (San Jose State University)
10:30 AM	105	An efficient airspace configuration forecast	David Gianazza, Cyril Allignol, Nicolas Saporito (DSNA)	David Gianazza (DSNA)
11:15 AM	85	A Comparison of Algorithm Generated Sectorizations	Shannon Zelinski (NASA)	Shannon Zelinski (NASA)
12:00 PM	128	Optimizing Airspace Sectors for Varying Demand Patterns using Multi-Controller Staffing	Shin-Lai Tien (University of Maryland) Robert Hoffman (Metron Aviation Inc.)	Shin-Lai Tien (University of Maryland)

Paper #89: Paul Lee

Paul Lee is a senior research associate for San Jose State University, working at NASA Ames Research Center in Human-Systems Integration Division. He received his bachelor's degree in engineering from Caltech and a Ph.D. in cognitive psychology from Stanford University. For the past several years, he has been engaged in research in the area of air traffic control management with a focus on human factors and operational issues related to NextGen airspace.

Paper #105: David Gianazza

David Gianazza is currently researcher in the Planning, Optimization, and Modeling team of the DSNA R&D center, in Toulouse (France). He received his engineer's degrees from the French civil aviation academy (ENAC) and his M.Sc. and Ph.D. in computer science from the "Institut National Polytechnique de Toulouse".

Paper #85: Shannon Zelinski

Shannon J. Zelinski received a M.S. degree in Electrical Engineering Robotics and Controls from the University of California at Berkeley in 2003. She then joined the Aviation Systems Division at NASA Ames Research Center, where she gained expertise in air traffic management, simulation validation, and future demand generation, working with the Airspace Concept Evaluation System. Ms. Zelinski currently leads Dynamic Airspace Configuration research at NASA as an Associate Principal Investigator for the NextGen-Airspace project.

Paper #128: Shin-Lai Tien

Shin-Lai (Alex) Tien is a Ph.D. candidate in the Department of Civil and Environmental Engineering and a graduate research assistant in the National Center of Excellence for Aviation Operations Research (NEXTOR) at the University of Maryland. He received his M.S. degree in Civil Engineering from the National Taiwan University, Taipei, Taiwan in 2000.



Monday, June 29, 2009 (2:00PM - 5:00PM)
TRACK1: ENVIRONMENT IMPACTS IN ATM SYSTEM DESIGN AND OPERATIONS Room A

Rapporteur: Ralph Iovinelli

Session Chair: Mark Hansen

Time	Paper Number	Title of Paper	Authors	Presenter
2:00 PM	122	Development of Flight Inefficiency Metrics for Environmental Performance Assessment of ATM	Tom G. Reynolds (University of Cambridge)	Tom G. Reynolds (University of Cambridge)
2:45 PM	48	Fuel Consumption modeling in support of ATM environmental decision-making	David Senzig, Gregg Flemming (U.S.DOT) Ralph J. Iovinelli (FAA)	David Senzig (U.S. DOT)
4:15 PM	43	Evaluating the Environmental Performance of the U.S. Next Generation Air Transportation System	Michael Graham, Stephen Augustine, Christopher Ermatinger, John DiFelici, and Terence R. Thompson (Metron Aviations) Michael A. Marcolini (NASA Langley) Jeremiah F. Creedon (Old Dominion University)	Terence Thompson (Metron Aviation)
5:00 PM	84	Assessment of the Aviation Environmental Design Tool	George Noel (Volpe National Transportation Systems Center) Doug Allaire, Stuart Jacobson, Karen Willcox (MIT) Rebecca Cointin (FAA)	Rebecca Cointin (Federal Aviation Administration)

Paper # 122: Tom G. Reynolds

Tom Reynolds has a joint appointment as a research engineer in the MIT Department of Aeronautics & Astronautics and technical staff at MIT Lincoln Laboratory. He works on air transportation systems engineering and policy analysis, with a particular focus on mitigating environmental impacts of aviation. He was previously with the Institute for Aviation and the Environment at the University of Cambridge in the UK. He has a Ph.D. in Aerospace Systems from MIT and was a UK Fulbright Scholar.

Paper # 48: David Senzig

David Senzig an engineer with the U.S. Department of Transportation Volpe Center's Environmental and Energy Systems Center of Innovation in Cambridge, Massachusetts. He has worked on aviation environmental issues for over 20 years. He started his career at the Boeing Company working in their noise engineering group. Since then, he has worked for engineering consulting companies and the U.S. Department of Transportation. He holds a private pilot certificate with an instrument rating.

Paper # 43: Terence Thompson (Unavailable)

Paper #84: Rebecca Cointin

Rebecca Cointin currently works in the noise division at the U.S. Federal Aviation Administration (FAA) in the Office of Environment and Energy (AEE). She manages the assessment and integration of a suite of next generation aviation environmental consequence tools. In addition, she leads research projects on aircraft operations with environmental benefits and leads the analytical modeling work regarding existing projects with the National Parks Service. She holds a B.S. degree from Marquette University, Milwaukee, WI and M.S degree in Applied Mathematics from the University of Nebraska in Lincoln, NE.



Monday, June 29, 2009 (9:45AM - 5:00PM)
TRACK 2: NETWORK AND STRATEGIC TRAFFIC FLOW OPTIMIZATION Room B

Rapporteur: Steve Bradford

Session Chair: Nicolas Durand

Time	Paper Number	Title of Paper	Authors	Presenter
9:45 AM	149	The Area Flow Multi-Sector Planner: A Fast-Time Study of MSP Coordination Activities	Carolyn Sorensen & Ian Crook <i>(ISA Software)</i> Diana Liang, Richard Jehlen <i>(FAA)</i>	Kenny Martin <i>(ISA Software)</i>
10:30 AM	143	4D - Trajectory Deconfliction Through Departure Time Adjustment	Nicolas BARNIER <i>(ENAC)</i> Cyril Allignol <i>(DSNA/DTI)</i>	Nicolas Barnier <i>(ENAC)</i>
11:15 AM	152	Evaluating a New Formulation for Large-Scale Traffic Flow Management	Andrew M. Churchill, David J. Lovell Michael Ball <i>(University of Maryland)</i>	Andrew Churchill <i>(University of Maryland)</i>
12:00 PM	147	Air Traffic Flow Management in the Presence of Uncertainty	John-Paul B. Clarke, Yu-Heng Chang, Liling Ren, Adan E. Vela <i>(Georgia Institute of Tech.)</i> Senay Solak <i>(University of Massachusetts)</i>	Senay Solak <i>(University of Massachusetts)</i>
2:00 PM	97	Resource Allocation in Flow-Constrained Areas with Stochastic Termination Times-Optimistic Approach	Moein Ganji David Lovell Michael O. Ball <i>(University of Maryland)</i>	Moein Ganji <i>(University of Maryland)</i>
2:45 PM	55	Airport CDM Network Impact Assessment	Eduardo GOÑI MODREGO, Mihai-George IAGARU, Marc Dalichampt, Roger Lane <i>(EUROCONTROL)</i>	Eduardo Goni Modrego <i>(EUROCONTROL)</i>
4:15 PM	33	Hybrid Demand and Capacity Balance Model for the Future Air Traffic Management Concept of Operations	Juan José Rebollo, Andrés Cruz <i>(GMV Aerospace & Defence)</i>	Juan José Rebollo <i>(GMV Aerospace & Defence)</i>
5:00 PM	134	Equitable Allocation of Enroute Airspace Resources	Nasim Vakili Pourtaklo Michael Ball <i>(University of Maryland)</i>	Mike Ball <i>(University of Maryland)</i>

**Paper #149: Kenny Martin**

Kenny Martin has been actively involved in ATM modeling and simulation for almost twenty years. Kenny is currently exploring and quantifying benefits for a variety of NextGen and SESAR programs and ConOps, where he initially started with FAA's SIMMOD model, and then seven years at the EUROCONTROL Experimental Centre implementing the RAMS Plus model.

Paper #143: Nicolas Barnier

Dr Nicolas Barnier is a lecturer and research assistant at ENAC, the French Civil Aviation University. Graduated from ENAC in 1997 as engineer, he obtained his PhD in computer science in 2002 from the University of Toulouse. He is one of the authors of the FaCiLe open source Constraint Programming library, a powerful tool to modelize and solve hard/large-scale combinatorial optimization problems, such as those arising in ATM optimization. His research interests focus on Constraint Programming, Local Search and Combinatorial Optimization in general.

Paper #152: Andrew Churchill

Andrew Churchill is a Ph.D. candidate in Civil Engineering at the University of Maryland. He has an MS degree in Civil Engineering also from the University of Maryland. His past research has included models of flight delay and cancellation trends, airport slot control strategies, and strategic traffic flow management models. He has held internships in the airline, government research and consulting industries.

Paper #147: Senay Solak

Senay Solak received the B.S. degree in Electrical Engineering from the United States Naval Academy in 1997, and the M.S. and Ph.D. degrees in Industrial Engineering from Georgia Institute of Technology in 2002 and 2007, respectively. He is currently an Assistant Professor of Operations Management in the Isenberg School of Management at University of Massachusetts Amherst, where he teaches and conducts research in the areas of stochastic modeling and optimization. His research focuses on applications of stochastic optimization in aviation, particularly in air traffic flow management and airspace capacity modeling.

Paper #33: Juan José Rebollo

Juan José Rebollo is an ATM systems engineer at GMV Aerospace. He obtained his MSc in Telecommunication engineering at the University of Sevilla. His research interests include optimization techniques, control theory and systems' simulations. He is currently studying the new air traffic ConOps optimization problems, focusing on network traffic flow optimization.

Paper #134: Mike Ball

Michael Ball is the Orkand Corporation Professor of Management Science in the Robert H. Smith School of Business at the University of Maryland. He also holds a joint appointment within the Institute for Systems Research (ISR) in the Clark School of Engineering. Dr. Ball received his PhD in Operations Research in 1977 from Cornell University. He is co-Director of NEXTOR, the National Center of Excellence for Aviation Operations Research.



Monday, June 29, 2009 (9:45AM - 12:00PM)
TRACK 3: INNOVATIVE METHODS FOR SAFETY ASSESSMENTS **Room C**

Rapporteur: Henk Blom

Session Chair: Dres Zellweger

<i>Time</i>	<i>Paper Number</i>	<i>Title of Paper</i>	<i>Authors</i>	<i>Presenter</i>
9:45 AM	19	A systems-engineering approach to assessing the safety of the SESAR Operational Concept	Derek Fowler, Eric Perrin, Ron Pierce (EUROCONTROL)	Eric Perrin (EUROCONTROL)
10:30 AM	130	Risk-Benefit Analysis of Advanced Air Transportation System Technologies Using Logic Gate Models	S. Eisenhower, T. Bott, J. Foggia (Logic Evolved Tech., Inc.) S. Brown, K. Neitzke M. Sorokach (NASA, Langley)	Terry Bott (Logic Evolved Technologies)
11:15 PM	12	Airspace Encounter Models for Conventional and Unconventional Aircraft	Mykel J. Kochenderfer, Leo P. Espindle, Matthew W. M. Edwards, James K. Kuchar, and J. Daniel Griffith (MIT)	Matt Edwards (MIT)

Paper #19: Eric Perrin

Eric Perrin received an Engineer degree in Aeronautics and Computer Science from the French Civil Aviation School (ENAC) in Toulouse in 1993. He has more than 14 years experience of air traffic management, 8 of which have been spent on safety assessment and safety management. He joined EUROCONTROL in 2002. As EUROCONTROL Safety Assessment and Safety Case Manager, he currently leads a team of safety practitioners working on a range of short- and medium-term ATM issues.

Paper #130: Terry Bott

Dr. Bott is the Vice President of Logic Evolved Technologies, Inc., a Santa Fe, New Mexico consulting firm specializing in systems, risk and decision analysis. Prior to co-founding LETech, Dr. Bott was a Technical Staff Member at Los Alamos National Laboratory for 27 years. Beginning in 1977, Dr. Bott's professional work was centered on safety and risk analysis. Since 1995 Dr. Bott has collaborated with Dr. Stephen Eisenhower in the formulation of a comprehensive approach to the analysis of complex systems using inter-linked logic-gate models called the Logic-Evolved Decision (LED) method. They have successfully applied LED to numerous problems in information and physical security, systems safety, counter-terrorism, complex system performance and system design. Dr. Bott received two Distinguished Performance Awards and as two Achievement Awards at Los Alamos for his innovative research in risk analysis. In 2006 the application of LED Tools to aviation security was awarded Software of the Year by the NASA Langley Research Center. In addition to Los Alamos Dr. Bott has worked at Oak Ridge National Laboratory, completed a sabbatical tenure at the Safety and Reliability Directorate in the UK and served as a Nuclear Propulsion Officer on the aircraft carrier U. S. S. Enterprise. He has a B.A. in physics from the University of Utah and a Ph.D. in Chemical/Nuclear Engineering from Brigham Young University.

Paper #12: Matt Edwards

Matt Edwards is an associate staff member at MIT Lincoln Laboratory. He received a BS and MS in aerospace engineering sciences from the University of Colorado at Boulder. His work focuses on simulation and modeling for the design and evaluation of collision avoidance systems for manned and unmanned vehicles.



Monday, June 29, 2009 (2:00PM - 5:00PM)
TRACK 3: HUMAN FACTORS Room C

Rapporteur: Paul Krois

Session Chairs: Bill Josefsson, Sandy Lozito

<i>Time</i>	<i>Paper Number</i>	<i>Title of Paper</i>	<i>Authors</i>	<i>Presenter</i>
2:00 PM	21	Developing a Safety Culture Measurement Tool kit (SCMT) for European ANSPS	Kathryn Mearns <i>(University of Aberdeen)</i> Barry Kirwan <i>(EUROCONTROL)</i> Richard J. Kennedy <i>(Boeing R&T Europe)</i>	Richard Kennedy <i>(Boeing)</i>
2:45 PM	126	Bet on both sides of the coin to improve the organizational climate: The impact of congruent task and role clarity between leaders and staff	Johan Jönsson, Marcus Arvidsson & Curt R Johansson <i>(Lund University)</i>	Johan Jonsson <i>(Lund University)</i>
4:15 PM	28	Methodology for Estimation of Benefits of Human Factors Engineering in NextGen/SESAR Development	Lance Sherry <i>(CATSR/GMU)</i> Michael Feary <i>(NASA Ames)</i> Jerome Lard <i>(Thales Research & Technology Cedex, France)</i> Capt. Karl Fenell <i>(United Airlines)</i>	Lance Sherry <i>(CATSR/GMU)</i>
5:00 PM	114	Human Factors Assessment of Runway Status Lights and Final Approach Runway Occupancy Signal FAA Operational Evaluations at Dallas Ft. Worth and San Diego International Airports	Maria P. Kuffner <i>(MIT)</i> Captain Robert Perkins <i>(ALPA)</i>	Maria P. Kuffner <i>(MIT)</i>

Paper #21: Richard Kennedy

Dr. Richard J. Kennedy is the Manager of New Programs and Safety Research & Development at Boeing Research & Technology Europe (BR&TE), based at their Centre in Madrid Spain. He has over fifteen years experience of managing and performing R&D programs in several commercial sectors including Nuclear, Railway, Air Traffic Management and Aviation. He holds a Bachelors Degree in Psychology, a Masters Degree in Human Factors, a Master of Business Administration (MBA) and a PhD in Manufacturing and Mechanical Engineering.

Paper #16: Johan Jönsson

Johan Jönsson is a Ph.D. student at the Department of Psychology at Lund University in Sweden. In 1998 he earned his Commercial Pilot Licence issued by FAA and in 1999 the equivalent Swedish certificate. His research interests include change management, leadership, work-oriented relationships, and their impact on organizational climate, change processes, and performance. Recently he has been working with change management issues within the SESAR project definition phase and the EUROCONTROL SENSE research program for change and transition management.

Paper #28: Lance Sherry (Unavailable)

Paper #114: Maria P. Kuffner

Maria Picardi Kuffner has over 25 years of experience in human factors research and development, specifically for aviation applications. She is currently employed at MIT Lincoln Laboratory in Lexington, MA. Before joining MIT Lincoln Laboratory she was a Senior Engineer at Raytheon Company, a Member of Technical Staff at GTE Laboratories Incorporated, and a Research Assistant at the Psychophysics Laboratory of Harvard University and the Air Force Geophysics Laboratory. Ms. Kuffner is a past president of the Human Factors and Ergonomics Society's New England Chapter, was recognized by the FAA for contributions to the National Plan for Aviation Human Factors, and holds a private pilot's license.



Tuesday, June 30, 2009 (8:30AM - 12:45PM)
TRACK 1: CONTINUOUS DESCENT APPROACHES **Room A**

Rapporteur: John-Paul Clarke

Session Chairs: Eric Hoffman, Ralph Iovinelli

Time	Paper Number	Title of Paper	Authors	Presenter
8:30 AM	132	Analysis of Continuous Descent Benefits and Impacts During Daytime Operations	Sanjiv Shresta, Dejan Neskovic, and Stephen S. Williams (MITRE CAASD)	Sanjiv Shresta (MITRE/CAASD)
9:15 AM	14	Time-Based Arrival Management for Dual Threshold Operation and Continuous Descent Approaches	Helmke, Hartmut; Hann, Ronny, Uebbing-Rumke, Maria (DLR, German Aerospace Center) Müller, Daniel; Wittkowski, Dennis Deutsche Flugsicherung GmbH, (DFS, Langen, Germany)	Hartmut Helmke (DLR, German Aerospace Center)
10:00 AM	64	Controlled Time of Arrival Flight Trials Results and Analysis	Joel K. Klooster & Ana Del Amo (GE Aviation Systems) Patrick Manzi (LFV Group)	Joel Klooster (GE Aviation Systems)
11:15 AM	92	Evaluation of an Airborne Spacing Concept to Support Continuous Descent Arrival Operations	Jennifer L. Murdoch, Bryan E. Barmore, and Brian T. Baxley (NASA Langley) Terence S. Abbott (Booz Allen Hamilton) William R. Capron (Lockheed Martin Corporation)	Bryan Barmore (NASA Langley)
12:00 PM	61	Feasibility and Benefits of a Cockpit Traffic Display-Based Separation Procedure for Single Runway Arrivals and Departures: Implications of a Pilot Survey and Laboratory Simulations	Dr. Anand Mundra David A. Domino John R. Helleberg Arthur P. Smith (MITRE Corporation)	Anand Mundra (MITRE Corporation)
12:45 PM	37	Flight Deck-Based Merging and Spacing during En Route Descent: Findings from an Air Traffic Controller Simulation	Randy Bone William Penhallegon (MITRE CAASD)	Randy Bone (MITRE CAASD)

**Paper #132: Sanjiv Shresta**

Sanjiv Shresta is a Senior Simulation Modeling Engineer at The MITRE Corporation's Center for Advanced Aviation System Development (CAASD). He holds a B.S. and M.S. in Mechanical Engineering from Virginia Tech and Texas A&M University, respectively, and a Ph.D. in Physics from the University of Maryland at College Park. At CAASD he works on agent-based simulation modeling, fuel flow and trajectory modeling, and analyses of aircraft separation.

Paper #14: Hartmut Helmke

Hartmut Helmke is working in the Institute of Flight Guidance of the German Aerospace Centre in Braunschweig, Germany. The Institute, formally headed by Uwe Völckers, is developing Arrival Management Systems since the early 80s. Here Prof. Helmke is responsible for DLR's latest AMAN development, 4D-CARMA. In 1989 he joined DLR and started to work on Diagnostic Expert Systems, applied for a robot during the German Spacelab mission D-2. Then he developed pilot assistant systems. More and more he returned to earth. Since 1999 he concentrates on Controller Assistant Systems, especially Arrival Management. Together with his co-authors Maria Uebbing-Rumke and Ronny Hann he works for the department of "Controller Assistance". The other two co-authors Daniel Müller and Dennis Wittkowski are working for German Flight Services, DFS, in Langen near Frankfurt. Hartmut received his doctor degree (PhD) from the chemical engineering faculty of the Technical University of Stuttgart in 1999. Since 2001 he is an assistant professor for Computer Science at the University of Applied Science in Braunschweig/ Wolfenbüttel. He is author of three textbooks for professional software development published by Hanser publishing company. Since January he is the acting head of the department of "Controller Assistance".

Paper #64: Joel Klooster

Joel Klooster has been working at GE Aviation Systems, formerly Smiths Aerospace, for 8 years. During that time he has been heavily involved in Flight Management Systems design working in trajectory predictions, navigation and guidance. He currently works in the Research and Product Development group focusing on 4D Trajectory Based Operations. He is on the JPDO Environmental Working Group, Operations Steering Committee. Joel earned a B.S.E from Calvin College, and an M.S.E. from Georgia Institute of Technology.

Paper #92: Bryan Barmore

Dr. Bryan Barmore has a PhD in nuclear physics from the College of William and Mary. He has been involved in Air Traffic Management research since 2000 and is currently a member of the Crew Systems and Aviation Operations Branch at the NASA Langley Research Center. For the past 7 years he has lead NASA's Airborne Precision Spacing research team. Dr. Barmore is a member of the FAA Merging and Spacing development group and is leading the application description for Interval Management in the Requirements Focus Group. He has over 25 publications in ATM and physics research.

Paper #61: Anand Mundra

Dr. Anand Mundra is a senior principal engineer at MITRE's Center for Advanced Aviation System Development. He has over 30 years of experience in developing automation and procedural enhancements to ATC systems in the U.S., Canada and Europe. His most concentrated areas of work in the recent past have been airport capacity, terminal ATC and the development and integration of cockpit capabilities into the ATC system. He is the inventor of the Converging Runway Display Aid (CRDA), also known as "ghosting", which is operational at several facilities in the U.S. and Canada. Dr. Mundra received his Ph.D. from the University of Washington and is an author of over 60 technical papers and reports.

Paper #37: Randy Bone

RANDALL BONE works for MITRE supporting the FAA Surveillance and Broadcast Services Program Office. He mainly works on Cockpit Display of Traffic Information simulations and the development of operational concepts. He is the co-chair of RTCA SC-186 Applications and Operations Sub-Group and is a participant in the International Requirements Focus Group (RFG). He earned a M.S. in 1998 from the University of Illinois at Urbana-Champaign where he also acted as a certified flight instructor - instrument.



Tuesday, June 30, 2009 (8:30AM - 12:45PM)
TRACK 2: WEATHER Room C

Rapporteur: Mark Hansen

Session Chairs: Mark Weber, Christian Pusch

Time	Paper Number	Title of Paper	Authors	Presenter
8:30 AM	8	Weather Forecast Accuracy: Study of Impact on Airport Capacity and Estimation of Avoidable Costs	Alexander Klein <i>(Air Traffic Analysis, Inc.)</i> Sadegh Kavoussi Robert S. Lee <i>(AvMet Applications, Inc.)</i>	Alexander Klein <i>(Air Traffic Analysis, Inc)</i>
9:15 AM	75	The Impact of Severe Weather on Sector Capacity	Lixia Song Daniel Greenbaum Craig Wanke <i>(MITRE)</i>	Lixia Song <i>(MITRE)</i>
10:00 AM	99	The Operational Effectiveness of the Route Availability Planning Tool (RAPT) during the 2008 Convective Weather Season	Michael Robinson Rich DeLaura Ngaire Underhill <i>(MIT)</i>	Michael Robinson <i>(MIT)</i>
11:15 AM	124	Identification of Robust Routes using Convective Weather Forecasts	Diana Michalek Hamsa Balakrishnan <i>(MIT)</i>	Diana Michalek <i>(MIT)</i>
12:00 PM	125	A Model for Determining Ground Delay Program Parameters Using a Probabilistic Forecast of Stratus Clearing	Lara S. Cook Bryan Wood <i>(Mosaic ATM, Inc.)</i>	Lara Cook <i>(Mosaic ATM, Inc.)</i>
12:45 PM	91	Improvement of thunderstorm hazard information for pilots through a ground based weather information and management system	A. Tafferner & C. Forster <i>(nstitut für Physik der Atmosphäre)</i> S. Sénési Y. Guillou <i>(révision Immédiate Météo-)</i>	Arnold Tafferner <i>(DLR - Institut für Physik der Atmosphäre)</i>

**Paper #8: Alexander Klein**

Dr. Alexander Klein has over 20 years experience in creating airport and airspace simulation models, airspace analysis tools, airline decision support tools, weather translation models, as well as in NAS performance analysis, computer graphics and operations research. His current customers include the FAA, NASA, MITRE, and the National Weather Service. Past customers include leading civil aviation authorities, airlines, airports and aerospace companies in the US and in over 20 countries worldwide.

Paper #75: Lixia Song

Lixia Song is a Lead Modeling and Simulation Engineer at MITRE. Her research includes decision support systems analysis and integration, estimation and control, optimization. She holds S.B and S.M. in Solid Mechanics from Hunan University, S.M. in Aerospace Engineering from University of Minnesota, and Ph.D. degree in aeronautical engineering from the Massachusetts Institute of Technology.

Paper #99: Michael Robinson

Mike Robinson is a staff scientist with the Massachusetts Institute of Technology Lincoln Laboratory. At Lincoln Lab, Mike is involved in efforts to develop decision support tools, technologies, and procedures that improve the efficiency of air traffic management during convective weather impact events. Mike has led a new, refined approach for studying air traffic management attributes and assessing the benefits of FAA demonstration tools that involves coordinated multi-facility field evaluations. Leading several field evaluation campaigns, Mike has spent over 60 days in FAA air traffic facilities assessing real-time ATM decision-making and planning when thunderstorms were impacting operations. Mike holds a Bachelor's and Master's degree in meteorology from the State University of New York at Oswego and Texas A&M University, respectively. Prior to joining Lincoln Lab, Mike worked for several years as a research meteorologist at the NASA Goddard Space Flight Center.

Paper #124: Diana Michalek (Unavailable)**Paper #125: Lara Cook**

Lara Cook is a Principal Analyst with Mosaic ATM. She has 12 years experience supporting research and development activities for the FAA and NASA in Air Traffic Management. Prior to that, Ms. Cook worked as an Operations Research Analyst for two major carriers, both passenger and cargo. She holds an MS in Operations Research and Management Science from George Mason University.

Paper #91: Arnold Tafferner

Arnold Tafferner, meteorologist, got his doctoral degree in 1988 in natural sciences after a one year stay at the Rosenstiel School of Marine and Atmospheric Science in Miami (USA). Holding a research position at the Meteorological Institute at the University of Munich, he specialized in forecasting weather on continental as well as regional scale and in nowcasting severe weather events by use of remote sensing applications. Since 12 years he is employed at the Institut für Physik der Atmosphäre of the Deutsches Zentrum für Luft- und Raumfahrt in Oberpfaffenhofen, Germany (German Aerospace Centre), where he designed and operationally installed systems for detection and forecasting atmospheric conditions which pose hazards to aircraft, e.g. aircraft icing, wake vortices and thunderstorms. His main interests are the fusion of data from various observation systems, including satellite and radar as well as from numerical forecasting, with particular emphasis on nowcasting severe weather for air traffic.



Tuesday, June 30, 2009 (8:30AM - 10:00AM)
TRACK 3: HUMAN FACTORS Room C

Rapporteur: Paul Krois

Session Chairs: Bill Josefsson, Sandy Lozito

Time	Paper Number	Title of Paper	Authors	Presenter
8:30 AM	27	Carbon Copy: The Benefits of Autonomous Cognitive Models of Air Traffic Controllers in Large-Scale Simulations	Steven Estes, Craig A. Bonaceto, Kevin Long, Dr. Scott H. Mills, & Dr. Frank Sogandares <i>(MITRE Corporation)</i>	Steven Estes <i>(MITRE/CAASD)</i>
9:15 AM	16	Impact of future time-based operations on Situation Awareness of air traffic controllers	Esther Oprins, David Zwaaf, Fredrik Eriksson <i>(Research & Development / ATM Strategy Development)</i> Koen van de Merwe <i>(National Aerospace Laboratory)</i>	Koen van der Merwe <i>(National Aerospace Laboratory Amsterdam)</i>
10:00 AM	41	Evaluation of ATC working practice from a safety and human factor perspective	Philippe Averty Karim Mehadhebi <i>(Direction des Services de la Navigation Aérienne)</i> Jean-Louis Pirat <i>(Service Technique de l'Aviation Civile)</i>	Karim Mehadhebi <i>(DSNA/DTI/R&D)</i>

Paper #27: Steven Estes

Steven Estes is currently a Lead Human Factors Engineer at the MITRE Corporation's Center for Advanced Aviation System Design in McLean, Virginia. Prior to working for MITRE, he was employed as a human factors engineer at Gulfstream Aerospace. Publications include the book chapter "Macro-cognition in systems engineering: supporting changes in the air traffic control tower", published in the book *Naturalistic Decision Making and Macro-cognition* (Burlington, VT: Ashgate Publishing Company, 2008). Research interests include: cognitive engineering, human computer interface design, human decision making, and human factors in the aviation domain. Steven currently lives in Savannah, GA.

Paper #16: Koen van der Merwe

Koen van de Merwe graduated Cum Laude in cognitive psychology from Leiden University, the Netherlands. He has been teacher of statistics for psychology students at Leiden University. Currently he is a researcher at the National Aerospace Laboratory NLR in Amsterdam, the Netherlands. His work focuses on the functioning of humans in cognitive complex environments. His research field includes civil and military aviation systems and has a strong focus on Air Traffic Control. His work at Air Traffic Control the Netherlands (LVNL) has been focussing on Arrival Management Techniques and their consequences for controller performance and competencies.

Paper #41: Karim Mehadhebi

Karim Mehadhebi has worked within the R&D department of DSNA for 15 years (1994-2009), firstly as a software designer in fields involving both mathematical and algorithmic expertise (radar trajectory smoothing by spline techniques, radar bias tuning by generalized regression, and risk assessment). He has also been involved in the quantitative assessment of safety, which has led him to represent DSNA within the ICAO SASP (Separation and Airspace Safety Panel) and to contribute to the work of the Eurocontrol MDG (Mathematics Drafting Group). He currently works on ways to integrate ATC human workload and safety under an integrated framework, which has led him to propose a new ICAO circular allowing to assess collision risk from a modeling of human errors, and to work in synergy with human actor experts on the safety evaluation of the ERASMUS project.



Tuesday, June 30, 2009 (11:15AM - 12:45PM)
TRACK 3: ATM PERFORMANCE MEASUREMENT AND MANAGEMENT Room C

Rapporteur: Wim Post

Session Chairs: Diana Liang, Wim Post

<i>Time</i>	<i>Paper Number</i>	<i>Title of Paper</i>	<i>Authors</i>	<i>Presenter</i>
11:15 PM	73	Measurement of the Quality of Traffic Orientation Schemes Regarding Flight Plan Efficiency	Marcus Hantschke <i>(Technische Universität Dresden)</i> Urban Weißhaar <i>(Lufthansa Systems)</i>	Hartmut Fricke <i>(Chair of Air Transport Technologies and Logistics)</i>
12:00 PM	17	Modeling Flight Delays and Cancellations at the National, Regional, and Airport Levels in the United States	Banavar Sridhar, Yao Wang <i>(NASA Ames)</i> Alexander Klein <i>(Air Traffic Analysis, Inc.)</i>	Banavar Sridhar <i>(NASA, Ames)</i>
12:45 PM	115	US/Europe comparison of ATM-related operational performance	John Gulding, David Knorr, Marc Rose, James Bonn <i>(FAA)</i> Philippe Enaud Holger Hegendoerfer <i>(Eurocontrol)</i>	John Gulding <i>(FAA)</i>

Paper #73: Harmut Fricke *(Unavailable)*

Paper #17: Banavar Sridhar

Banavar Sridhar is NASA Senior Scientist for Air Transportation Systems. His research interests are in the application of modeling and optimization techniques to aerospace systems. He led the development of traffic flow management software, Future ATM Concepts Evaluation Tool (FACET), which received the NASA Software of the Year Award in 2006 and the AIAA Engineering Software Award in 2009. He is a Fellow of the IEEE and the AIAA.

Paper #115: John Gulding

John Gulding currently serves as the manager for the Forecast Analysis group within the Office of Performance Analysis and Strategy. In this capacity his group develops future schedules for use in NAS wide assessments of Air Traffic programs planned for NextGen implementation. As part of the ATO, Strategy and Performance Organization, he has worked on the development of performance indicators that examine potential inefficiencies in the NAS. Most recently these indicators have been examined in conjunction with EUROCONTROL for the purpose of examining the key databases and statistical processes used by both organizations for assessing performance. John has just under 20 years experience in aviation planning in both the private sector and more recently with the FAA for over 15 years. In this time he has worked on the development, implementation and training of use for airport simulation models, NAS wide simulation models and environmental models which are today used worldwide by governments, engineering firms and industry. His education includes a BA in Mathematics from the University of Virginia and Masters in Operations Research from George Mason University.



Wednesday, July 1, 2009 (8:00AM - 10:45AM)
TRACK 1: SEPARATION Room A

Rapporteur: Marcial Valmorisco

Session Chair: Jeff Schroeder

Time	Paper Number	Title of Paper	Authors	Presenter
8:00 AM	138	Initial Evaluation of NextGen Air/Ground Operations with Ground-Based Automated Separation Assurance	Thomas Prevot, Jeffrey Homola, Joey Mercer, Matt Mainini and Christopher Cabrall <i>(San Jose State/NASA Ames)</i>	Thomas Prevot <i>(San Jose State University/NASA Ames Research Center)</i>
8:45 AM	148	Estimation of Separation Buffers for Wind-Prediction Error in an Airborne Separation Assistance System	Maria Consiglio, Sherwood Hoadley, and B. Danette Allen <i>(NASA Langley)</i>	Maria Consiglio <i>(NASA Langley)</i>
9:30 AM	94	Separation Minima Model: How Changes in Contributing Factors Could Affect Current Standards	Daniel Mosquera-Benitez <i>(Civil Systems Division)</i> Alan Ross Groskreutz (AENA) Lars Fucke (Boeing)	Allan Ross Groskreutz <i>(AENA)</i>
10:15 AM	158	Progress on Joint FAA/Eurocontrol Effort to Develop an ICAO Wake Turbulence Re-Categorization	Steven R. Lang, Jeffrey A. Tittsworth <i>(FAA)</i> Donald P. Delisi David Y. Lai (NorthWest Research) Catalin Lepadatu (Eurocontrol) George C. Greene (Consultant)	Jeffrey Tittsworth <i>(FAA)</i> Catalin Lepadatu <i>(Eurocontrol)</i> Don Delis <i>(NorthWest Research Associates)</i>

Paper #138: Thomas Prevot

Thomas Prevot is a senior research engineer with San Jose State University conducting collaborative research in the Human Systems Integration division at NASA Ames Research Center. He received his doctorate in aerospace engineering from the Munich University of the German Armed forces in 1995. For the past sixteen years, he has investigated future air transportation concepts with a focus on air traffic controller and flight crew interaction with advanced air and ground automation. He is also a principal developer of simulation technologies and engineering prototypes that are used for NextGen human-in-the-loop research by NASA and other government and research institutions as well as industry partners.

Paper #148: Maria Consiglio

Maria C. Consiglio is a senior research scientist at NASA Langley Research Center. She has degrees in computer science and simulation and more than ten years experience in Air Traffic Management research. She has worked in operational concept development, flight deck systems design, implementation, and evaluation, simulation design and advanced avionics software engineering. She is currently the Principal Investigator for the Safety Performance of Airborne Separation (SPAS) simulation studies which is part of the NextGen Airspace Systems project. Ms. Consiglio is a member of AIAA.

Paper #94: Daniel Mosquera-Benitez, Lars Fucke (Unavailable)

Paper #158: Jeffrey Tittsworth, Catalin Lepadatu, Don Delis

Donald Delisi has spent over 23 years in the study of wake vortices, performing and analyzing data from field measurements, laboratory experiments, and numerical simulations. His work has been sponsored by the FAA, NASA, and the U.S. Navy. He has a B.S. in Aeronautical Engineering from Princeton University and an M.S. and Ph.D. in Mechanical Engineering (specializing in Fluid Mechanics) from the University of California at Berkeley.



Wednesday, July 1, 2009 (12:45PM - 4:15PM)
TRACK 1: TRAJECTORY AND QUEUE MANAGEMENT Room A

Rapporteur: Marcial Valmorisco

Session Chair: Jeff Schroeder

Time	Paper Number	Title of Paper	Authors	Presenter
12:45 PM	38	Use of Linear Aircraft Intent Response for Tactical Trajectory-Based Operations	Stéphane Mondoloni (MITRE Corporation)	Stephane Mondoloni (MITRE Corporation)
1:30 PM	141	Lateral Intent Error's Impact on Aircraft Prediction	Mike Paglione (FAA) Ibrahim Bayraktutar (EUROCONTROL) Greg McDonald Jesper Bronsvort (Airservices Australia)	Mike Paglione (Federal Aviation Administration) Ibrahim Bayraktutar (EUROCONTROL) Greg McDonald (Airservices Australia)
2:45 PM	30	Departure Scheduling in a Multi-airport System	YanJun Wang, Minghua Hu, Dong Sui, Yong Tian (Nanjing University China) Jianming Zhan (ATM Bureau of Central South China)	YanJun Wang (Nanjing University China)
3:30 PM	101	Distributed Trajectory Flexibility Preservation for Traffic Complexity Mitigation	Husni Idris (L-3 Communications) Daniel Delahaye (Ecole Nationale de L'Aviation Civile) David Wing (NASA Langley)	Husni Idris (L-3 Communications)
4:15 PM	151	Use of Queing Models to Estimate Delay Savings from 4D Trajectory Precision	Mark Hansen , Tasos Nikoleris (University of California) David Lovell , Kleoniki Vlachou (University of Maryland) Amedeo Odoni (MIT)	Tasos Nikoleris (University of California)

**Paper #38: Stephane Mondoloni**

Stéphane L. Mondoloni is currently a Senior Principle Simulation Modeling Engineer at the MITRE Corporation in McLean, Virginia. He has been conducting research and analyses for the Federal Aviation Administration and the National Aeronautics and Space Administration for over 15 years. Research areas include: aircraft trajectory and dynamics, conflict detection and resolution and ATM performance assessment. He is currently working on modeling and simulation of NextGen Operational Improvements in addition to flight object concept development. Dr. Mondoloni obtained his Ph.D. from the Massachusetts Institute of Technology in Cambridge, MA.

Paper #141: Mike Paglione, Ibrahim Bayraktutar, Greg McDonald

Mike Paglione is the Conflict Probe Assessment Team Lead in the FAA's Simulation and Analysis Group at the FAA W. J. Hughes Technical Center, Atlantic City, New Jersey. He has extensive experience in air traffic control automation algorithms, simulation problems, analysis of decision support software, applied statistics, and general systems engineering. He is currently supporting the development, testing, and evaluation of FAA air traffic management software. He was FAA's Rutgers University Fellow from 1994-1996, Accuracy Test Lead for the FAA's User Request Evaluation Tool, Program Manager for the Joint University Program from 1999 to 2004, currently project lead on the Automation Metrics Test Working Group (a cross organizational team developing and implementing metrics for the En Route Automation Modernization Program), and a local team lead supporting a NextGen project investigating improvement to the separation management functions in the en route automation. He holds B.S. and M.S. degrees in Industrial and Systems Engineering from Rutgers University.

Paper #30: Yanjun Wang

Yanjun Wang received the B.S. degree in Air Traffic Management and Dispatch and the M.S. degree in Transportation Planning and Management from Nanjing University of Aeronautics and Astronautics, Nanjing, China in 2004 and 2007 respectively. He is currently working toward the Ph.D. degree in Traffic Information Engineering and Control at Nanjing University of Aeronautics and Astronautics. He has participated in many different projects in air traffic management system, such as modeling and analysis the capacity of airports and terminal areas, designing and realizing the Air Traffic Flow Management System of Guangzhou Operating Centre, CAAC. His research interests include modeling, scheduling, and optimizing of air traffic system.

Paper #101: Husni Idris

Husni Idris received a bachelor of science (1989) and a master of science (1992) in mechanical engineering, a master of science in operations research (2000) and a Ph.D. in human factors and automation (2000), all from the Massachusetts Institute of Technology, Cambridge, Massachusetts, USA. He is a Principal Researcher in the Advanced Transportation Research and Engineering department of Global Solutions, a division of L-3 Communications. His research has focused on modeling and analysis of future ATM concepts. His domain included airport surface operations, collaborative and distributed traffic flow management, and trajectory planning.

Paper # 151: Tasos Nikoleris

Tasos Nikoleris was born in Thessaloniki, Greece, and received his B.S. degree in civil engineering from the National Technical University of Athens, Greece in 2005, and his M.S. degree in civil and environmental engineering from the University of California, Berkeley in 2006. He is currently a Ph.D. candidate and graduate student researcher at the University of California, Berkeley. Prior to enrolling in the Ph.D. program at Berkeley in 2008, he worked as a transportation engineer at Dowling Associates, Inc. His research interests include queuing theory, air traffic flow management, airport capacity and delays, transportation data analysis, and discrete choice modeling.



Wednesday, July 1, 2009 (8:00PM - 1:30PM)
TRACK 2: INNOVATIVE ATM CONCEPTS Room B

Rapporteur: Colin Meckiff

Session Chairs: Gene Wilhelm, Bob Humbertson, Nigel Makins

Time	Paper Number	Title of Paper	Authors	Presenter
8:00 AM	67	SmarNodes - Towards supporting time-critical decision-making in Aviation Security	Rainer Kölle (EUROCONTROL) Alex Tarter (Communication & Integrated Systems)	Rainer Koelle (EUROCONTROL)
8:45 AM	15	Regional GDP -- Extending Ground Delay Programs To Regional Aviation Security	Yu Zhang (University of South Florida) Mark Hansen (University of Berkeley, CA)	Yu Zhang (University of South Florida)
10:00 AM	59	Near-Term Terminal Area Automation for Arrival Coordination	Jeffrey Shepley (MITRE Corporation)	Jeffrey Shepley (MITRE Corporation)
10:45 AM	110	Evaluation of Triple Closely Spaced Parallel Runway Procedures for Off-nominal Cases	Savita Verma, Sandra Lozito, Deborah Ballinger (NASA Ames) Thomas Kozon (Perot Systems/ NASA) Ramesh Panda, Diane Carpenter, Darrell Wooten, Gordon (SAIC/ NASA Ames) Herb Resnick (Raytheon Corporation)	Savita Verma (NASA Ames Research Center) Tom Kozon (Perot System/NASA)
12:45 PM	52	Ant Colony Optimization for Air Traffic Conflict Resolution	Nicolas Durand (DSNA) Jean-Marc Alliot (DSNA)	Nicolas Durand (DSNA)
1:30 PM	146	ERASMUS Strategic Deconfliction to Benefit SESAR	Fabrice Drogoul (EUROCONTROL) Rosa Weber (Honeywell International) Philippe Averty (DSNA)	Fabrice Drogoul (EUROCONTROL) Rosa Weber (Honeywell International)

**Paper #67: Rainer Koelle**

Rainer Kölle is a Senior ATM Security expert with EUROCONTROL, ATM Security Domain, which he joined in April 2005. Rainer has worked in aviation and air traffic management throughout his career. Prior to joining EUROCONTROL, he served as a career officer in the German Air Force with 18 years service experience in total. During this time he was seconded to various international organisations. Rainer represents EUROCONTROL in various standardisation activities, R&D projects and policy guidance working groups (e.g. EUROCAE WG72, SESAR, ECIP). He is active in a number of security and risk analysis networks on crisis management, critical infrastructure protection and ATM/aviation security. Rainer's research focus is on time-critical decision making in aviation security, decision making under uncertainty and real-time threat assessment, high-level and distributed information fusion/communication systems and shared situation awareness. He further has a strong background in cognitive system engineering, resilience engineering, complex adaptive systems and network centric operations. Rainer holds a Diploma in Electrical Engineering from the University of the Bundeswehr. He is currently enrolled in a part-time PhD programme with Lancaster University, Aviation Security Group.

Paper #15: Yu Zhang

Yu Zhang is an Assistant Professor of the Department of Civil and Environmental Engineering at University of South Florida. Yu obtained her Master's (2003) and Ph.D. (2008) from the Civil and Environmental Engineering at University of California Berkeley. Her dissertation proposes emergency response strategies, develop mathematical programming models, and optimization solution algorithms to solve large-scale network problems. During her Ph.D. study, Yu worked for the National Center of Excellence for Aviation Operations Research by applying operations research tools, such as, statistical modeling, optimization, mathematical programming, to solve air traffic flow management, airfield capacity and delay, and disruption management problems.

Paper #59: Jeffrey Shepley

Jeff Shepley is Senior Simulation Modeling Engineer with the MITRE Corporation. He has a BS in systems engineering from the University of Virginia. He is currently a master's degree candidate in systems engineering at the Johns Hopkins University. His work with MITRE has included Human-in-the-Loop simulation of air traffic controller automation aides, RNAV procedure design, and to assist with airspace design.

Paper #110: Savita Verma, Tom Kozon

Savvy Verma has an M.S. degree in Human Factors and Ergonomics from San Jose State University. She has been a technical lead on several research efforts such as Precision Taxiing and Very Closely Spaced Parallel Approaches at NASA Ames. Savvy has worked on various human factors research efforts associated with data link, human performance and cognitive modeling, and surface management, for the last 10 years.

Tom Kozon holds a B.S. degree from Michigan State University and an M.S. degree from the California State University. He has been employed at NASA Ames Research Center for over 22 years as a systems engineer and a data analyst. He has been involved with many facets of aeronautics research, including human factors, airspace, surface and air traffic control experiments conducted in NASA's full-mission and part-task simulation facilities as well as in field operations. He has authored many publications, and has recently presented papers on very closely spaced parallel runway operations, precision taxiing automation, and air traffic controller workload modeling using neural networks. His current work areas include Regional Traffic Flow Management, Nextgen Airportal and Airspace Super Density Operation.

Paper #52: Nicolas Durand (Unavailable)**Paper #146: Rosa Weber**

Rosa Weber is a Principal Research Scientist at Honeywell International in Golden Valley, Minnesota. Ms. Weber holds a Master's of Science in software engineering and has 20 years of experience in the design and development of novel software architectures for Flight Management Systems. In the last decade she has focused her career on the R&D of advanced airborne functionality required to enable advanced ATM concepts of operation for both SESAR and NextGen. She is currently working on the NASA "advanced vehicles into the NextGen ATS" program, where she is analyzing the airborne technology requirements for 5 advanced vehicles to be deployed into our NAS in 2025-2040.



Wednesday, July 1, 2009 (2:45PM - 4:15PM)
TRACK 1: FINANCE AND POLICY Room B

Rapporteur: Mike Ball

Session Chair: Mike Ball

Time	Paper Number	Title of Paper	Authors	Presenter
2:45 PM	86	A Market Mechanism to Assign Air Traffic Flow Management Slots	Andrea Ranieri, Lorenzo Castelli <i>(Dipartimento di Elettrotecnica, Elettronica e Informatica)</i>	Andrea Ranieri <i>(University of Trieste)</i>
3:30 PM	155	Assessing the Role of Operator, Passenger, and Infrastructure Costs in Fleet Planning under Fuel Price Uncertainty	Megan Smirti Mark Hansen <i>(University of California, Berkeley)</i>	Megan Smirti <i>(University of California, Berkeley)</i>
4:15 PM	82	Effects of Fuel Prices and Slot Controls on Air Transportation Performance at New York Airports	John Ferguson; Karla Hoffman; Lance Sherry; Abdul Qadar Kara; Guillermo Calderon <i>(George Mason University)</i>	John R. Ferguson <i>(George Mason University)</i>

Paper #86: Andrea Ranieri

Andrea Ranieri is a Ph.D. student in operations research from the University of Trieste in Italy. He got his master in electronic engineering in 2005 from the same university with a thesis developed at the EUROCONTROL CRDS (Hungary). He spent part of his research activity at the EUROCONTROL Experimental Center (France), where he studied through mathematical modeling the impact of 4-D trajectory management and CDM related concepts.

Paper #155: Megan Smirti

Megan Smirti is a Ph.D. candidate at the University of California Berkeley in Civil and Environmental Engineering. Her advisor is Mark Hansen and she is a member of the NEXTOR research group. Her main research interest is in the impact of fuel price uncertainty and environmental concern on the aviation system. Megan is currently working on her dissertation which addresses how the air transportation system might respond to the availability of new aircraft types, changing energy costs, and greenhouse gas emission reduction targets. Her research experience includes evaluating minimum cost network structures for long haul passenger and freight transportation, using econometric modeling to quantify airport capacity gains due to improved technology, and using discrete choice modeling to forecast the introduction of low-emission airport access modes. Megan is a member of two committees of the Transportation Research Board: the Airfield and Airspace Capacity and Delay Committee and the Environmental Impacts of Aviation Committee.

Paper #82: John R. Ferguson

Ferguson, John is a Ph.D. student at George Mason University (GMU) and is conducting optimization research on the New York City Metroplex. He has over seventeen years experience as an Operations Research Analyst and as a Systems Engineer for the Department of Defense. He has a M.S. in Physics and a B.S. in Mathematics.



Wednesday, July 1, 2009 (8:00AM - 8:45AM)
TRACK 3: ATM PERFORMANCE MEASUREMENT AND MANAGEMENT Room B

Rapporteur: Wim Post

Session Chair: Diana Liang

<i>Time</i>	<i>Paper Number</i>	<i>Title of Paper</i>	<i>Authors</i>	<i>Presenter</i>
8:00 PM	121	Validation for Runway Capacity Models	Amy Kim Mark Hansen <i>(University of California, Berkeley)</i>	Amy Kim <i>(University of California, Berkeley)</i>
8:45 PM	102	Management of ATM performance in operational concept development and validation: a case study	Jelmer J. Scholte Henk A.P. Blom <i>(National Aerospace Laboratory NLR)</i> J.C. (Hans) van den Bos Roy B.H.J. Jansen <i>(LVNL – ATC the Netherlands)</i>	Jelmer J. Scholte <i>(National Aerospace Laboratory NLR)</i>

Paper #121: Amy Kim

Amy Kim is currently a PhD student at the University of California at Berkeley. She received an undergraduate degree in Civil Engineering from the University of Waterloo in Canada in 2001 and an M.S. degree from UC Berkeley in 2002. Prior to returning to Berkeley in 2006, Amy worked as a traffic engineer and planner for four years. Some of her research interests include air traffic operations, capacity analysis, and modeling.

Paper #102: Jelmer J. Scholte

Jelmer J. Scholte is R&D Engineer at the National Aerospace Laboratory NLR in The Netherlands. He combines his current main research interests of safety risk assessment and operational concept validation with performing consultancy services to several international customers. At the beginning of this century, he was involved as a safety consultant in several studies regarding the operation of Amsterdam airport including its then new runway 18R/36L. Lately, he has been particularly active in the CAATS II project, which is developing the case-based approach of the European Operational Concept Validation Methodology (E-OCVM), and as safety consultant for the Functional Airspace Block Europe Central. He has an MSc in Applied Mathematics from Twente University.



Wednesday, July 1, 2009 (10:00AM - 4:15PM)
TRACK 3: INTEGRATED AIRPORT/AIRSIDE OPERATIONS **Room D**

Rapporteur: Christopher Meier

Session Chairs: Midori Tanino, Dietmar Bohme

Time	Paper Number	Title of Paper	Authors	Presenter
10:00 AM	81	Airport surface management and runways scheduling	Raphael Deau, Jean-Baptiste Gotteland Nicolas Durand <i>(DSNA/DTI/R&D/POM)</i>	Jean-Baptiste Gotteland <i>(DSNA/DTI/R&D/POM)</i>
10:45 AM	116	Scheduling Aircraft Landings to Closely Spaced Parallel Runways	Michael Kupfer <i>(University of California)</i>	Michael Kupfer <i>(University of California)</i>
12:45 PM	79	Application of Reinforcement Learning Algorithms for Predicting Taxi-out Times	Poornima Balakrishna, Rajesh Ganesan, Lance Sherry <i>(George Mason University)</i>	Poornima Balakrishna <i>(George Mason University)</i>
1:30 PM	145	Linking Traffic Management to the Airport Surface: Departure Flow Management and Beyond	Nathan A. Doble, John Timmerman, Ted Carniol, Mark Klopfenstein <i>(Metron Aviation)</i> Midori Tanino, Ved Sud <i>(Federal Aviation Administration)</i>	Nathan Doble <i>(Metron Aviation)</i>
2:45 PM	153	Delay Impacts onto Turnaround Performance	Hartmut Fricke Michael Schultz <i>(Chair of Air Transport Technologies and Logistics)</i>	Hartmut Fricke <i>(Chair of Air Transport Technologies and Logistics)</i>
3:30 PM	7	Airport Service Vehicle Scheduling	Kenneth Kuhn <i>(Aviation Systems Division, NASA)</i> Steffen Loth <i>(Institute of Flight Guidance, DLR)</i>	Kenneth Kuhn <i>(Aviation Systems Division, NASA)</i>

**Paper #81: Jean-Baptiste Gotteland** (*Unavailable*)**Paper #116: Michael Kupfer**

Michael Kupfer is a Senior Research Associate with the San Jose State University Research Foundation. He is currently on staff in the Human Systems Integration Division at the NASA Ames Research Center, where he is working on Merging and Spacing, Multi Sector Planner and Automated Conflict Resolution. Between 2007 and 2008 Michael was employed with the University of California, Santa Cruz, working in the Aviation Systems Division. There, his recent work included the development of scheduling algorithms for Closely Spaced Parallel Approaches. He earned his Master's Degree in Transportation Engineering from the Dresden Technical University, Germany in 2006 where he developed an optimization model for synchronization of en-route air traffic. Before his graduation he also worked as a student at Eurocontrol CRDS in Budapest, Hungary and one year at Lufthansa Cargo in Los Angeles, USA.

Paper #79: Poornima Balakrishna

Poornima Balakrishna is a Ph.D. Candidate in the Department of Systems Engineering and Operations Research at George Mason University, Fairfax, VA. Her current research work addresses scalability in Approximate Dynamic Programming with applications in air transportation. She is defending her dissertation in August. She received her Masters degree in Operations Research from the University of Oklahoma and her Bachelors degree in Electronics and Communication Engineering from Madras University, India.

Paper #145: Nathan Doble

Nathan Doble is a Senior Analyst in the Research and Analysis Department at Metron Aviation. He earned bachelor's and master's degrees in Aeronautics and Astronautics from the Massachusetts Institute of Technology. He is a member of the AIAA Air Transportation Systems Technical Committee and an instrument-rated pilot.

Paper #153: Harmut Fricke**Paper #7: Kenneth Kuhn**

Kenneth is a lecturer in Transportation Engineering at the University of Canterbury in Christchurch, New Zealand. He is currently learning to pronounce fush und chups. Prior to that, he worked at NASA for two years in the aviation systems division. His research focuses on statistical analysis of transportation data and optimization of transportation systems. He has a PhD in Transportation Engineering and a MS in Operations Research from UC Berkeley, in addition to a BA in Math from Johns Hopkins.

Paper #44: Tobias Andersson Granberg

Tobias Andersson Granberg has an MSc in Industrial Engineering and Management, and a PhD in Infrainformatics. With a background in Operations Research, he is most interested in developing and applying this theory to practical real-world problems, foremost within the area of transportation and logistics. He is currently employed as a research fellow at the Division of Communication and Transport Systems at Linköping University in Sweden.



Thursday, July 2, 2009 (8:30AM - 10:00AM)

Special Topic Sessions

What are the right research questions?

- ◆ *TRAJECTORY BASED OPERATIONS*
- ◆ *ENVIRONMENT*
- ◆ *HUMAN FACTORS and SAFETY*
- ◆ *AIRPORT MANAGEMENT*

***NOTE: These sessions will serve to
guide future ATM research.***

*****All seminar participants must choose/pre-register for one session by Wednesday noon. Participants are requested remain in session selected.**



TRAJECTORY BASED OPERATIONS (Room A)

Management by Trajectory is the key concept element in both the SESAR and the NextGen concepts.

Session Chairs: Steve Bradford, FAA/ATO and Nicolas Durand, DSNA

- ◆ Trajectory prediction improvement is a key issue. Previous research on uncertainties has shown that uncertainties on horizontal and vertical speeds increase dramatically the number of potential conflicts to be addressed. These levels of uncertainty are far lower than human controllers are inferring, and one of the future challenges will be to design MTCD systems able to help them in their task.
- ◆ Area navigation and required navigation performance are becoming increasingly available. There is to date very little discussion between ANSPs and FMS designers on adapting the future FMS to the future ATC needs. Are we talking the same language? For example, how are ground speed and airspeed related? Could ANSP only deal with RTAs on specific points given by FMS or will they require more information? What are the real FMS capabilities in terms of uncertainties? Have we checked the performance of FMS trajectory prediction on a large scale? How do we include the weather forecast?
- ◆ There is a major assumption that data versus voice exchange is the big technological enabler. But do we have that next level of detail on how this all works? What kind of information is the aircraft going to exchange with the ground, and what benefit are we going to get from this information?

All these issues need to be addressed in a two-way dialogue. Too often researchers assume special powers with respect to FMS accuracy, path and data communications. As often the implementers and designers are guessing what future applications may require. This session will explore these questions and issues as an open forum to set up a continuing dialogue.



ENVIRONMENT (Room B)

Envisioning a future Air traffic management system in a carbon controlled world

Session Chair: Megan Smirti, University of California, Berkeley

Discussants: John Gulding, FAA, Ralph Iovinelli, FAA, Rebecca Cointin, FAA, Nancy Young, ATA, Mary McMillan, PARTNER COE Advisory Board Member

Several pressing developments, at international and national levels, seek to address the climate-change impacts of aviation. Much research is focused on developing measures to reduce greenhouse gas (GHG) emissions from aviation. A variety of solutions exist, some in development and others in varying stages of implementation. Impending regulation and climate change concerns are driving us to consider GHG reduction measures as a necessity. Despite this need, the picture of an air traffic management system under carbon constraints is neither clear nor agreed upon.

This session will focus on how air traffic management approaches and policies could change in a carbon constrained world. The session will cover what these approaches and policies are and how research can be focused today to support the understanding of their impacts. Approaches and policies regarding scheduling, operations, and air navigation will most likely change. Research can support an understanding of how these approaches and policies could change and the impacts of such changes. Necessary research will be broad-based and represent innovative, large-scale thinking to address the challenge, such as examining ATM policies across regions; the reallocation of aircraft types to balance environmental concerns, and the altering of frequency and aircraft size to balance emissions and service quality. To meet future goals, research innovations must be linked with proven practice in emissions reduction strategies development and implementation, such as Continuous Descent Arrivals.

Aviation environmental research, such as that presented at ATM2009, shows the breath of innovative research regarding ATM and the environment. The following questions are intended to bring the ideas presented at ATM2009 and beyond to the forefront.

The following questions will be discussed:

1. How do we measure ATM performance with respect to climate impacts?
 - a. Is GHG emissions the right metric?
 - b. Are there other metrics by which to gauge ATM performance with respect to environmental impacts?
2. In what ways will policies and procedures change in a carbon constrained world?
3. What is the definition of the new carbon-constrained paradigm?
 - a. Can carbon constraints and aviation growth co-exist?
 - b. What are ways to ensure a carbon constrained system does not lead to a loss of system capacity?
4. What are the Air Traffic Management responsibilities to provide a system which meets carbon constraining policies?
 - a. What are the Air Navigation Service Provider (ANSP) roles and responsibilities in a carbon-constrained ATM system?
 - b. What are the operator roles and responsibilities in a carbon-constrained ATM system?
5. What are innovative environmental approaches beyond current success stories?
 - a. How do these innovative approaches fit in these current successes?
 - b. In consideration of all aviation stakeholders, are these approaches institutionally acceptable?
6. What are the research issues still to be addressed?



HUMAN FACTORS AND SAFETY (Room C)

Do We Need People in ATM? For What?

Session Chairs: Paul Krois, FAA/ATO and Dres Zellweger, ATM2009 Program Committee

Panelists: Tom Sheridan, Volpe; and Richard Kennedy, Boeing R&T Europe

Of course we will still need people for Air Traffic management in the future. While we know that there will be more dependence on automation in the far term (2025+ time frame), the answer to “for what” is not at all clear. In this human factors and safety session we will explore questions to help guide the research into the roles for people and machines and the potential changes in air/ground responsibility. In complex situations, the challenge is to find the proper mix of what people and machines do to complement one another. We know, for example, that people are much more resilient in dealing with failures, but if recovery involves complexity, machines may have to be part of the recovery process. Our discussion will be framed by such questions as:

Can we shift the controller role from today’s tactical nature to a more strategic nature?

- ◆ How will controllers accept not vectoring airplanes, and leaving routine separation assurance to automation or to pilots?
- ◆ Will they resist taking on a new, more strategic role?
- ◆ Will they regard a change in roles and responsibilities as a loss of dignity and job satisfaction?
- ◆ Must we avoid defining new roles that might make controllers subservient to the automation?
That is, will automation tell them what to do—OR—does it do things that controllers cannot override?
- ◆ Do we really need different kinds of controllers?

Who will be responsible for safety? How does authority come into play?

- ◆ If we automate certain functions, what should human responsibility for those functions be? For example, will people have to be responsible for every command and execution, including approving what automation is doing?
- ◆ Under normal conditions? If there are failures?
- ◆ Will people still “feel responsible” even if they no longer are formally responsible?
- ◆ If the automation fails, are there some guiding principles for maintaining safety?

Do we have the right methods to understand the impact of changes on human performance and help refine operational concepts in relation to the envelope of human performance?

- ◆ Do we have the necessary safety methodology to understand the safety of major changes to the ATM system?



AIRPORT MANAGEMENT (Room C)

Airports – Now and Forever the True Bottlenecks?

Session Chairs: Christoph Meier, Siemens and Mark Hansen, UC Berkeley

Airports—especially runways and in some cases gates and stands—are today the primary bottlenecks of the air transport system. Sometimes it takes decades to expand airports or to build new ones. During the current economical situation, traffic figures are temporarily decreasing, but we expect from past events that robust growth will return. We posit that without sufficient technology advance, airport constraints will be the ultimate determinants of how much growth can occur.

Many promising concepts for increasing airport capability have been explored, developed, and in some cases deployed. These include:

- ◆ Airport Collaborative Decision Making (CDM), which allows airlines, controllers, and the airport operator to work together to reduce gate congestion and departure queues;
- ◆ Advanced Surface Movement Guidance & Control System (A-SMGCS), which includes surveillance, control, routing, and guidance systems for optimizing movement on the airport surface;
- ◆ Arrival and departure optimization;
- ◆ End-around taxi-ways;
- ◆ Reduced separations and paired approaches;
- ◆ Increased use of secondary airports;
- ◆ Market mechanisms for allocating airport resources.

Experience with these innovations—including results presented at this year's ATM2009 seminar—suggests that progress is possible, but there are serious questions about whether they will enable airports to keep pace with the other elements of the system, and what to do if they cannot.

The following questions will be discussed in the Airport breakout session:

1. What additional innovative promising approaches are known and should be studied further in the coming years?
2. What are the primary barriers to deploying and realizing benefits from these concepts—are they technical, institutional, economic, or political?
3. How can we stimulate further innovative R&D in this area?
4. Are airports in Europe and in the US really so different that we cannot transfer successful solutions from one continent to the other – or can we do better?



**Thursday, July 2, 2009 (10:30AM - 12:00PM)
PLENARY FINAL SESSION (Grand Ballroom)**

- 10:30 AM Research Speaker – Jean-Marc Garot, French Admin/Co-Founder of ATM Seminar**
Jean-Marc Garot is currently a member of the Conseil General des Ponts et Chaussées attached to the Ministry of Transport and Environment of France. He had been Director of EUROCONTROL Experimental Center from 1995 to 2005, and is one of the three founders of US/EU Air Traffic Management R&D Seminar series. Prior to joining EUROCONTROL, Jean-Marc had been Director of the French CENA (Air Traffic Management Research Center) for 8 years; Special Assistant to the Director of the FAA Advanced Automation System, and Manager of CAUTRA IV (French Automated ATC Automation System). Jean-Marc is a graduate of Ecole Polytechnique and of Ecole Nationale de l'Aviation Civile of France.
- 10:55 AM NextGen Speaker – Vicki Cox, Sr. VP FAA ATO Operations Planning**
As the Air Traffic Organization's Senior Vice President for NextGen and Operations Planning, Vicki Cox provides increased focus on the modernization of the nation's air traffic control system through the NextGen implementation and delivery plan. Most recently, she was the Director of the ATO's Operations Planning International Office. In her capacity as director, she was responsible for development and implementation of the FAA's strategy for the Next Generation Air Transportation System as well as having oversight of the ATO International Strategy and current international activities. Within the FAA, she has served as the Director of Flight Services and Finance and Planning and the Program Director of the Aviation Research Division. She came to the FAA from the Department of Defense, where she is served as Director of International Technology Programs in the Office of the Director of Defense Research and Engineering. Vicki Cox graduated from Converse College and received a master's degree from East Carolina University. She has a certificate in U.S. National Security Policy for Georgetown University. She is a DOD Level III Certified Acquisition Professional in systems planning, research, development and engineering and holds a private pilot's license.
- 11:20 AM Best Paper Awards**
- 11:50 AM Wrap Up**
- 12:00 PM Adjourn (Box Lunch)**

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