

9th USA/Europe Air Traffic Management Research and Development Seminar 2011

**Berlin, Germany
14-17 June 2011**

ISBN: 978-1-5108-0172-1

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

Copyright© (2011) by The European Organisation for Safety of Air Navigation (Eurocontrol)
All rights reserved.

Printed by Curran Associates, Inc. (2015)

For permission requests, please contact The European Organisation for Safety of Air Navigation
(Eurocontrol) at the address below.

The European Organisation for Safety of Air Navigation (Eurocontrol)
Rue de la Fusée 96
Brussels 1130
Belgium

Phone: +31 2 729 90 11
Fax: +32 2 729 90 44

infocentre@eurocontrol.int

Additional copies of this publication are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: 845-758-0400
Fax: 845-758-2634
Email: curran@proceedings.com
Web: www.proceedings.com

Tuesday 14th June – Opening Session

08:30	Opening and logistics	Sabrina Saunders-Hodge (FAA); Vu Duong (EUROCONTROL)
08:45	Welcome message	MDir Gerold Reichle , German Minister of Air transport, Division Aeronautics and Astronautics
08:55	Greetings from the US	Karlin Toner
09:05	Greetings from EUROPE	Bernard Miaillier

Tuesday 14th June - Track 1: Performance

Rapporteur: Wim Post

Session Chair: Mike Ball

Time	Paper	Title	Authors (presenter in bold)
09:45	116	Estimating ATM Efficiency Pools in the Descent Phase of Flight 407	Dave Knorr , Xing Chen, Marc Rose, John Gulding (FAA); Philippe Enaud, Holger Hegendoerfer (EUROCONTROL)
10:30	112	Benchmarking Airport Airside Performance: FRA vs EWR 400	Amedeo Odoni , Thomas Morisset (MIT); Wilhelm Drotleff, Alexander Zock (ECAD)
11:15	36	Benefits of Virtual Queuing at Congested Airports Using ASDE-X: A Case Study of JFK Airport 130	Dipasis Bhadra, Dave Knorr (FAA); Benjamin Levy (Sensis)
12:00	143	Impact of Commercial Airline Network Evolution on the U.S. Air Transportation System 572	Tatsuya Kotegawa, Daniel DeLaurentis (Purdue University); Kimberly Noonan, Joseph Post (FAA)

Session Chair: Billy Josefsson

Time	Paper	Title	Authors (presenter in bold)
14:00	65	New Method for Probabilistic Traffic Demand Predictions for En Route Sectors Based on Uncertain Predictions of Individual Flight Events 268	Eugene P. Gilbo , Scott B. Smith (Volpe Center)
14:45	15	Evaluating Delay Cost Functions with Airline Actions in Airspace Flow Programs 22	Michael Bloem (NASA Ames); Haiyun Huang (Delft University of Technology)

Session Chair: Billy Josefsson

Time	Paper	Title	Authors (presenter in bold)
16:00	109	Safety Monitoring in the Age of Big Data 391	Simone Pozzi , Carlo Valbonesi, Valentina Beato (Deep Blue); Rodolfo Volpini, Francesco Maria Giustizieri (ENAV); Frederic Lieutaud, Antonio Licu (EUROCONTROL)
16:45	130	Characterization and Analysis of Traffic Alert and Collision Avoidance Resolution Advisories Resulting from 500' and 1,000' Vertical Separation 477	Jessica E. Olszta , Wesley A. Olson (MIT Lincoln Laboratory)

Tuesday 14th June - Track 2: Human Factors

Rapporteur: Sandy Lozito

Session Chair: Jacco Hoekstra

Time	Paper	Title	Authors (presenter in bold)
09:45	34	Tower Controllers' Assessment of the Spot and Runway Departure Advisor (SARDA) Concept 120	Ty Hoang , Yoon C. Jung (NASA Ames); Jon B. Holbrook (San Jose State University)
10:30	151	Designing a Flight Deck Predictive Weather Forecast Interface Supporting Trajectory-Based Operations 610	Shu-Chieh Wu (NASA Ames); Constance G. Duong (Stanford University); Robert W. Koteskey, Walter W. Johnson (NASA Ames)
11:15	135	Controller Support Tools for Schedule-Based Terminal-Area Operations 516	Michael Kupfer , Todd Callantine, Lynne Martin, Joey Mercer (San Jose State University/NASA Ames); Everett Palmer (NASA Ames)
12:00	133	The Role of Workload for Work Organisation in a Remote Tower Control Center 506	Christoph Moehlenbrink , Anne Papenfuß, Jörn Jakobi (DLR)

Session Chair: Paul Krois

Time	Paper	Title	Authors (presenter in bold)
14:00	144	Determining the Value of Information for Minimizing Controller Taskload: A Graph-Based Approach 581	John-Paul Clarke (Georgia Tech); Nicolas Durand (DSNA); Eric Feron, William Singhose, Adan Vela (Georgia Tech)
14:45	56	Spatial, Temporal, and Grouping Behaviors in Controller Communication Activities 241	YanJun Wang , Minghua Hu (Nanjing University of Aeronautics & Astronautics); Frizo Vormer, Vu Duong (Eurocontrol)

Session Chair: Paul Krois

Time	Paper	Title	Authors (presenter in bold)
16:00	150	Issues for Near-Term Implementation of Trajectory Based Operations 601	Joel Lacher , Vernol Battise, Rob Koteskey, Arik-Quang V. Dao, Summer L. Brandt, Sarah V. Ligda, Shu-Chieh Wu (San Jose State University); Walter W. Johnson (NASA Ames)
16:45	131	Using Data Communications to Manage Tailored Arrivals in the Terminal Domain: A Feasibility Study 486	Ronald S. Chong , Elida C. Smith (MITRE CAASD)

Tuesday 14th June - Track 3: Separation

Rapporteur: Jeff Schroeder

Session Chair: Paul Krois

Time	Paper	Title	Authors (presenter in bold)
09:45	28	A Standard for Equivalent Lateral Spacing Operations - Parallel and Reduced Divergence Departures	Ralf H. Mayer , Dennis J. Zondervan, Albert A. Herndon, Tyler Smith (MITRE)
10:30	137	Automated Air Traffic Control Operations with Weather and Time-Constraints 535	Thomas Prevot (NASA Ames); Jeffrey R. Homola, Lynne H. Martin, Joey S. Mercer, Christopher C. Cabrall (San Jose State University)
11:15	76	The Influence of Uncertainties on Traffic Control using Speed Adjustments 326	Geraud Granger (STERIA); Cyril Allignol, Nicolas Durand (DSNA)
12:00	103	Relative Significance of Trajectory Prediction Errors on an Automated Separation Assurance Algorithm 381	Todd A. Lauderdale , Andrew C. Cone, Aisha R. Bowe (NASA Ames)

Session Chair: Jacco Hoekstra

Time	Paper	Title	Authors (presenter in bold)
14:00	64	Establishing a Risk-Based Separation Standard for Unmanned Aircraft Self Separation 261	Roland E. Weibel , Matthew W. M. Edwards, Caroline S. Fernandes (MIT Lincoln Laboratory)
14:45	39	A New Approach for Designing Safer Collision Avoidance Systems 150	Mykel J. Kochenderfer , James P. Chryssanthacopoulos, Roland E. Weibel (MIT Lincoln Laboratory)

Session Chair: Jacco Hoekstra

Time	Paper	Title	Authors (presenter in bold)
16:00	68	The Wake Vortex Prediction and Monitoring System WSVBS 288	Frank Holzäpfel, Thomas Gerz, Carsten Schwarz (DLR)

Tuesday 14th June - Track 3: Deployment

Rapporteur: Midori Tanino

Session Chair: Jacco Hoekstra

Time	Paper	Title	Authors (presenter in bold)
16:45	27	Arrival Flow Control by Local Cherry Picking 84	Daniel Schaad , A. Reusser, C. Kern, R. Michalke (AustroControl); Ž. Sivcev, R. Credentino (EUROCONTROL)

Wednesday 15th June - Track 1: Airports

Rapporteur: Christoph Meier

Session Chair: Midori Tanino

Time	Paper	Title	Authors (presenter in bold)
08:30	92	Performance Evaluation of a Surface Traffic Management Tool for Dallas/Fort Worth International Airport 361	Yoon Jung , Ty Hoang, Justin Montoya (NASA Ames); Gautam Gupta, Waqar Malik, Leonard Tobias (University of California, Santa Cruz); Hua Wang (San Jose State University)
09:15	132	Flight deck surface trajectory-based operations (STBO): Simulation results and ConOps implications 496	David C. Foyle (NASA Ames); Becky L. Hooley, Deborah L. Bakowski, Jennifer L. Williams, Christina L. Kunkle (San Jose State University)
10:00	127	System Oriented Runway Management: A Research Update 467	Gary W. Lohr , Sherilyn Brown, H. Paul Stough (NASA Langley); Steve Eisenhower (Logic Evolved Technologies); Steve Atkins (Mosaic ATM, Inc); Dou Long (Logistics Management, Inc)

Session Chair: Mark Weber

Time	Paper	Title	Authors (presenter in bold)
11:15	136	Collaborative Departure Queue Management: An Example of Airport Collaborative Decision Making in the United States 526	Chris Brinton , Chris Provan, Steve Lent (Mosaic ATM, Inc); Tom Prevost, Susan Passmore (FAA)
12:00	66	Concept and prototype of a ground handling vehicle management system 279	Steffen Loth (DLR)
12:45	122	Managing Passenger Handling at Airport Terminal 438	Michael Schultz , Hartmut Fricke (Technische Universität Dresden)

Wednesday 15th June - Track 2: Safety

Rapporteur: Paul Krois

Session Chair: Dres Zellweger

Time	Paper	Title	Authors (presenter in bold)
08:30	44	Systematic Validation of a Mathematical Model of ACAS Operations for Safety Assessment Purposes 193	Fedja Netjasov , Andrija Vidosavljevic, Vojin Tomic (University of Belgrade); Henk Blom (NLR)
09:15	152	Model-based Safety Requirements Engineering for complex ATM Systems 618	Lothar Meyer , Michael Schultz, Hartmut Fricke (Dresden University of Technology)
10:00	14	Contrasting Safety Assessments of a Runway Incursion Scenario by Event Sequence Analysis versus Multi-Agent Dynamic Risk Modelling 12	Sybert H. Stroeve , Henk A.P. Blom, G.J. (Bert) Bakker (NLR)

Wednesday 15th June - Track 2: Network

Rapporteur: Midori Tanino

Session Chair: Nicolas Durand

Time	Paper	Title	Authors (presenter in bold)
11:15	157	Combining Flight Level Allocation with Ground Holding to Optimize 4D-Deconfliction 636	Nicolas Barnier (ENAC); Cyril Allignol (DSNA)
12:00	45	A Multi-stakeholder Evaluation of Strategic Slot Allocation Schemes under Airline Frequency Competition 205	Vikrant Vaze , Cynthia Barnhart (MIT)
12:45	123	Collaborative Approaches to the Application of Enroute Traffic Flow Management Optimization Models 448	Michael O. Ball, Charles Glover , David J. Lovell (University of Maryland)

Wednesday 15th June - Track 3: Airspace Management

Rapporteur: Miguel Angel Piera Eroles

Session Chair: Giovanni Andreatta

Time	Paper	Title	Authors (presenter in bold)
08:30	153	Benefits and Feasibility of the Flexible Airspace Management Concept: A Human-in-the-loop Evaluation of Roles, Procedures, and Tools 626	Paul U. Lee , Connie Brasil, Jeffrey Homola, Angela Kessel, Hwasoo Lee, Matt Mainini (San Jose State University); Thomas Prevot (NASA Ames)
09:15	49	Method to Analyse Air Traffic Situation Based on Air Traffic Complexity Map 235	Zhao Yifei , Yue Rentian, Zhang De (Civil Aviation University of China)
10:00	141	Airspace Phase Transitions and the Traffic Physics of Interacting 4D Trajectories 555	Bruce K. Sawhill , James W. Herriot, Bruce J. Holmes, Ken Seehart (NextGen AeroSciences, LLC)

Wednesday 15th June - Track 3: Surveillance and Navigation

Rapporteur: Billy Josefsson

Session Chair: Dirk Kuegler

Time	Paper	Title	Authors (presenter in bold)
11:15	78	Towards Defining Required Interval Management Performance 333	Ian Levitt (FAA); Lesley A. Weitz (MITRE CAASD)
12:00	120	Flight Deck-Based Interval Management-Spacing During Departures: Flight Crew Human-In-The-Loop Simulation 426	William J. Penhallegon , Andrew S. Mendolia, Randall S. Bone, Gregory L. Orrell, H. Peter Stassen (MITRE CAASD)
12:45	94	Airline Based En Route Sequencing and Spacing Field Test Results: Observations and Lessons Learned for Extended Metering 371	Peter M. Moertl (MITRE CAASD)

Thursday 16th June - Track 1: Weather

Rapporteur: Jeff Schroeder

Session Chair: Craig Wanke

Time	Paper	Title	Authors (presenter in bold)
08:30	9	Three Models for Weather Impacted Airspace Capacity Estimation and Forecast 2	Alexander Klein (Air Traffic Analysis Inc); Lara Cook (Mosaic ATM Inc)
09:15	33	Analytical Workload Model for Estimating EnRoute Sector Capacity in Convective Weather 110	John Y. N. Cho , Jerry D. Welch, Ngaire K. Underhill (MIT Lincoln Laboratory)

Session Chair: Craig Wanke

Time	Paper	Title	Authors (presenter in bold)
10:30	71	Probabilistic 2-Day Forecast of Runway Use 298	Henk Hesselink , Joyce Nibourg (NLR)
11:15	146	Generating Probabilistic Capacity Profiles from weather forecast: A design-of-experiment approach 591	Gurkaran Buxi, Mark Hansen (University of California Berkeley)

Thursday 16th June - Track 1: Air-Ground Integration

Rapporteur: Dirk Kuegler

Session Chair: Jacco Hoekstra

Time	Paper	Title	Authors (presenter in bold)
13:30	21	Integrated Pilot and Controllers Procedures: Aircraft Pairing for Simultaneous Approaches to Closely Spaced Parallel Runways 64	Savita Verma (NASA Ames); Lynne Martin (San Jose State University); Sandy Lozito, John Kaneshige, Debbi Ballinger (NASA Ames); Thomas Kozon, Lara Cheng (University of California Santa Cruz); Shivangli Sharma (SGT Inc); Shobana Subramanian (NASA Ames)
14:15	32	Evaluation of an Autonomous Taxi Solution for Airport Operations during Low Visibility Conditions 100	M.Y. Hakkeling-Mesland, B. van Beek, F.J.L. Bussink (NLR); M. Mulder, M.M. van Paassen (Delft University of Technology)

Session Chair: Sandy Lozito

Time	Paper	Title	Authors (presenter in bold)
15:30	16	Controller and Pilot Evaluation of a Datalink-Enabled Trajectory-Based Operations Concept 32	Eric Mueller , Dave McNally, Tamika Rentas, Arwa Aweiss, David Thippavong, Chester Gong (NASA Ames); Jinn-Hwei Cheng, Joe Walton, John Walker, Chu-Han Lee, Scott Sahlman (University-Affiliated Research Center); Diane Carpenter (Science Applications International Corporation)
16:15	142	Controller Aids for Integrating Negotiated Continuous Descent Approaches into Conventional Landing Traffic 563	M. Uebbing-Rumke , M.-M. Temme (DLR)
17:00	42	Discovering Delay Patterns in Arrival Traffic with Dynamic Continuous Descent Approaches using Co-Evolutionary Red Teaming 174	S. Alam, W. Zhao, J. Tang, C. Lokan, H. Abbass (University of New South Wales); M. Ellejmi, S. Kirby (EUROCONTROL)

Thursday 16th June - Track 2: Finance

Rapporteur: Christoph Meier

Session Chair: Dres Zellweger

Time	Paper	Title	Authors (presenter in bold)
08:30	43	Financial Incentives for NextGen Avionics: ADS-B Case Study 184	Joseph Post , Michael Wells, James Bonn, Patrick Ramsey (FAA)
09:15	126	Integrating best-equipped best-served principles in ground delay programs 457	Andrew M. Churchill , Michael O. Ball (University of Maryland); Alexander David Donaldson, R. John Hansman (MIT)

Thursday 16th June - Track 2: Trajectory and Queue Management

Rapporteur: Dirk Schaefer

Session Chair: Colin Meckiff

Time	Paper	Title	Authors (presenter in bold)
10:30	90	En-Route Optimal Flight Planning Constrained to Pass Through Waypoints using MINLP 351	Manuel Soler , Alberto Olivares, Ernesto Staffetti (Universidad Rey Juan Carlos); Pierre Bonami (CNRS)
11:15	47	ATC Taskload Inherent to the Geometry of Stochastic 4-D Trajectory Flows with Flight Technical Errors 215	Vlad Popescu , John-Paul B. Clarke, Karen M. Feigh, Eric Feron (Georgia Institute of Technology)

Session Chair: Jay Merkle

Time	Paper	Title	Authors (presenter in bold)
13:30	119	Dynamically Generating Operationally-Acceptable Route Alternatives Using Simulating Annealing 416	Christine Taylor , Craig Wanke (MITRE CAASD)
14:15	40	Design and Evaluation of the Terminal Area Precision Scheduling and Spacing System Trajectory and Queue Management 158	Harry N. Swenson , Jane Thippavong, Alex Sadovsky (NASA Ames); Liang Chen, Chris Sullivan, Lynne Martin (University of California Santa Cruz)

Session Chair: Jay Merkle

Time	Paper	Title	Authors (presenter in bold)
15:30	41	Trade-offs and Issues in Traffic Synchronization 168	Claus Gwiggner , Masato Fujita, Yutaka Fukuda, Sakae Nagaoka (ENRI); Tasos Nikoleris (University of California Berkeley)
16:15	19	Controlled Time-Of-Arrival Spacing Analysis 42	Joel K. Klooster (GE Aviation Systems); David de Smedt (EUROCONTROL)
17:00	138	A Human-in-the-Loop Evaluation of Flow-Based Trajectory Management in Mixed Equipage Airspace 545	Nancy Smith , Tom Prevot (NASA Ames); Connie Brasil, Jeff Homola, Angela Kessell, Hwasoo Lee, Paul Lee, Matt Mainini, Joey Mercer (San Jose State University)

Thursday 16th June - Track 3: Environment

Rapporteur: Mark Hansen

Session Chair: Mohan Gupta

Time	Paper	Title	Authors (presenter in bold)
08:30	30	Potential Adaptation to Impacts of Climate Change on Air Traffic Management 91	Rachel Burbidge, Alan Melrose , Andrew Watt (EUROCONTROL)
09:15	20	Design of Aircraft Trajectories based on Trade-offs between Emission Sources 54	Banavar Sridhar , Neil Y. Chen (NASA Ames); Hok K. Ng (University of California Santa Cruz)

Session Chair: Tom Edwards

Time	Paper	Title	Authors (presenter in bold)
10:30	62	Evaluation of Continuous Descent Approach as a Standard Terminal Airspace Operation 251	Yi Cao, Tatsuya Kotegawa, Dengfeng Sun , Daniel DeLaurentis (Purdue University); Joseph Post (FAA)
11:15	38	Prediction of Top of Descent Location for Idle-thrust Descents 140	Laurel Stell (NASA Ames)

Session Chair: Miguel Angel Piera Eroles

Time	Paper	Title	Authors (presenter in bold)
13:30	25	Enhanced Descent Wind Forecast for Aircraft 74	Jesper Bronsvoort (Airservices Australia); Rodney Potts (Australian Government Bureau of Meteorology); Greg McDonald (Airservices Australia); Ekkehard Gutt (Emirates Airlines)
14:15	73	High-Fidelity Weather Data Makes a Difference Calculating Environmental Consequences with FAA's Aviation Environmental Design Tool 317	Michael J. Yaworski , Eric P. Dinges (ATAC Corporation); Ralph J. Iovinelli (FAA)

Session Chair: Mohan Gupta

Time	Paper	Title	Authors (presenter in bold)
15:30	72	Fuel Consumption and Operational Performance 307	Megan S. Ryerson , Mark Hansen (University of California, Berkeley); James Bonn (FAA)
16:15	83	Green Delay Programs 343	Xavier Prats (Technical University of Catalonia); Mark Hansen (University of California, Berkeley)
17:00	48	Demonstration of Reduced Airport Congestion through Pushback Rate Control 225	I. Simaiakis , H. Khadilkar, H. Balakrishnan, T. G. Reynolds, R. J. Hansman (MIT); B. Reilly, S. Urlass (FAA)