

# **9th AIAA Aviation Technology, Integration and Operations Conference 2009**

**(ATIO)**

**Hilton Head, South Carolina, USA  
21 – 23 September 2009**

**Volume 1 of 4**

ISBN: 978-1-61567-726-9

The contents of this work are copyrighted and additional reproduction in whole or in part are expressly prohibited without the prior written permission of the Publisher or copyright holder. The resale of the entire proceeding as received from CURRAN is permitted.

For reprint permission, please contact AIAA's Business Manager, Technical Papers. Contact by phone at 703-264-7500; fax at 703-264-7551 or by mail at 1801 Alexander Bell Drive, Reston, VA 20191, USA.

# TABLE OF CONTENTS

## VOLUME 1

<b>Understanding Aspects of Complex Systems Through an Impact Analysis</b> .....	1
<i>G. Davies, P. Connally, M. Price, J. Early</i>	
<b>A Visual Analytics Approach to the Qualitative Comparison of the SESAR and NextGen Efforts</b> .....	19
<i>O. Pinon, D. Mavris, E. Garcia</i>	
<b>Cost-Benefit Analysis of Error Reduction for Complex Systems</b> .....	46
<i>R. McDonald</i>	
<b>Systems Engineering as an Effective Educational Framework for Active Aerospace Design Learning</b> .....	58
<i>R. Curran</i>	
<b>Nationwide Evaluation of a Conflict Resolution Algorithm</b> .....	72
<i>L. Meyn</i>	
<b>A Mathematical Analysis of Conflict Prevention Information</b> .....	85
<i>J. Maddalon, R. Butler, C. Muñoz, G. Doweck</i>	
<b>The Effects of Passive Coordination of Distributed Separation Assurance</b> .....	97
<i>T. Lauderdale</i>	
<b>Speed Control for Airborne Separation Assistance in Continuous Descent Arrivals</b> .....	108
<i>E. Itoh, M. Everdij, B. Bakker, H. Blom</i>	
<b>Robustness of Idle-Throttle Continuous Descent Approach Trajectories Against Modified Timing Requirements</b> .....	124
<i>P. Lindsay, C. Ramsay, M. Vilaplana, J. Lopez Leones, E. Casado</i>	
<b>Ground Automation Impact on Enabling Continuous Descent in High Density Operations</b> .....	148
<i>Z. Khan, H. Idris, R. Vivona, S. Woods, R. Lanier</i>	
<b>Study on Variations in Vertical Profile for CDA Descents</b> .....	167
<i>G. Slater</i>	
<b>Queuing Models for Analyzing the Impact of Trajectory Uncertainties on the NAS Flow Efficiency</b> .....	185
<i>P. Sengupta, M. Tandale, J. Kim, P. Menon</i>	
<b>Projecting Constrained Flight Schedules Based On the Rules From An Empirical Study</b> .....	199
<i>D. Long, J. Hees, S. Hasan, J. Post, J. Gulding, D. Murphy</i>	
<b>Using the Parallel Offset Function to Achieve Required Delay</b> .....	213
<i>G. Slater</i>	
<b>JPDO Case Study of NextGen High Density Operations</b> .....	223
<i>Y. Gawdiak, G. Carr, S. Hasan</i>	
<b>Why Equity Is so Elusive: Dynamical Properties of Overscheduled National Airspace System Resources</b> .....	239
<i>L. Sherry, J. Shortle, V. Kumar</i>	
<b>The Point Merge Arrival Flow Integration Technique: Towards More Complex Environments and Advanced Continuous Descent</b> .....	247
<i>B. Favennec, E. Hoffman, A. Trzmiel, F. Vergne, K. Zeghal</i>	
<b>An Assessment for UAS Depart and Approach Operations</b> .....	259
<i>L. Delgado, X. Prats, C. Ferraz, P. Royo, E. Pastor</i>	
<b>Eye-Tracking Analysis of Near-Term Terminal Automation for Arrival Coordination</b> .....	275
<i>J. Shepley, C. Johnson, J. Sanchez, E. Smith</i>	
<b>En-route Speed Reduction for the Management of ATFM Delays</b> .....	287
<i>L. Delgado, X. Prats</i>	
<b>Surface Planning with Explicit Consideration of Environmental Objectives</b> .....	303
<i>T. Thompson, B. Khorrami, V. Kumar, L. Sherry</i>	
<b>Design of a Light Eco-Friendly Aircraft for 2030-2035 Using a Visual Trade-Off Environment</b> .....	311
<i>S. Ahmadi, L. Boeri, H. Jimenez, D. Mavris</i>	
<b>Aspects of Effective Visualization of Multidimensional Design Spaces</b> .....	321
<i>M. Daskilewicz, B. German</i>	
<b>Decision Support Framework for Future Aircraft Development Programs</b> .....	336
<i>M. Schroyjen, M. Tooren</i>	
<b>Multi-Objective Clean Take-Off Flight Paths for Civil Aircraft</b> .....	348
<i>R. Torres, J. Chaptal, C. Bes, J. Hiriart-Urruty</i>	
<b>Integrated Collaborative Departure Traffic Management</b> .....	354
<i>L. Song, H. Bateman, A. Masalonis</i>	
<b>A Mixed Integer Linear Program for Airport Departure Scheduling</b> .....	367
<i>G. Gupta, W. Malik, Y. Jung</i>	

<b>A Process for Future Aviation Environmental Impacts: A Surrogate Fleet Analysis Approach for NextGen</b> .....	380
<i>K. Becker, M. Kirby, T. Nam, D. Mavris</i>	
<b>Dynamics of Implementation of Mitigating Measures to Reduce Commercial Aviation’s Environmental Impacts</b> .....	394
<i>R. Kar, P. Bonnefoy, R. Hansman, S. Sgouridis</i>	
<b>Environmental Impact Evaluation of Air Transport Systems Through Physical Modeling and Simulation</b> .....	408
<i>M. Brunet, T. Chaboud, N. Huynh, P. Malbequi, W. Ghedhaifi</i>	
<b>Airport Noise Model Suitable for Fleet-Level Studies</b> .....	417
<i>P. Dikshit, W. Crossley</i>	
<b>Impact of Environmentally Optimized Departures on Runway Capacity</b> .....	433
<i>S. Hebly, H. Visser</i>	
<b>Equitable Noise Abatement Departure Procedures</b> .....	444
<i>X. Prats, J. Quevedo, V. Puig, F. Nejjari</i>	
<b>Effect of Stagger Angle on the Generation of Entropy in a Low Reynolds Number Compressor Cascade</b> .....	455
<i>R. Myose, S. Hayashibara</i>	
<b>ANIBAL: A New Aero-Acoustic Optimized Propeller for Light Aircraft Applications</b> .....	478
<i>T. Lefebvre, S. Canard-Caruana, C. Le Tallec, F. David, N. Neuville</i>	
<b>Analysis of Turbofan Design Options for an Advanced Single-Aisle Transport Aircraft</b> .....	498
<i>M. Guynn, J. Berton, K. Fisher, W. Haller, M. Tong, D. Thurman</i>	
<b>Wake Encounter Analysis for a Closely Spaced Parallel Runway Paired Approach Simulation</b> .....	511
<i>B. McKissick</i>	
<b>Online Survey of Pilot Procedures Associated with Wake Vortex Avoidance - Survey Results and Implications for Potential ADS-B Based Procedures</b> .....	525
<i>J. Helleberg, D. Domino, A. Mundra</i>	
<b>Optimization of Payload Multi-Step Strategy in the Case of Meteorological Uncertainties</b> .....	538
<i>B. Talgorn, S. Laporte, Airbus, Toulouse, France; C. Bes, S. Segonds</i>	
<b>Collaborative Flow Management: Automation and Forecast Comparisons for Convective Weather Disruptions</b> .....	543
<i>M. Carter, M. Berge, B. Repetto, D. Wah</i>	
<b>HUREX – Experiment of Use and Prioritization of UAS in Hurricane Disaster Response</b> .....	558
<i>D. Maroney, M. Harkin, L. Litwin, J. Curtiss, A. Bigbee, R. Flournoy</i>	
<b>Multidisciplinary Design Optimization of an Extreme Aspect Ratio HALE UAV</b> .....	573
<i>B. Morrissey, R. McDonald</i>	
<b>A Parametric Approach to Supercritical Airfoil Design Optimization</b> .....	588
<i>J. Haderlie, W. Crossley</i>	
<b>Exploiting Patterns in the Kulfan Transformations of Supercritical Airfoils</b> .....	598
<i>A. Sobester</i>	
<b>Effect of Support Stem on a Dynamically Pitching Delta Wing</b> .....	616
<i>R. Myose, I. Heron</i>	
<b>Optimization of RNAV Noise and Emission Abatement Departure Procedures</b> .....	631
<i>S. Hartjes, H. Visser, S. Hebly</i>	
<b>Integration and Application of a Tool Chain for Environmental Analysis of Aircraft Flight Trajectories</b> .....	644
<i>L. Bertsch, G. Looye, T. Otten</i>	
<b>Towards a New Framework for Better Design Reviews</b> .....	660
<i>R. de Boer, S. Santema</i>	

## VOLUME 2

<b>Investigating Long-Range Aircraft Staging for Environment, Economic and Travel Time Impacts</b> .....	668
<i>A. Tyagi, W. Crossley</i>	
<b>Climate Impact Evaluation as Part of Aircraft Pre-Design</b> .....	684
<i>K. Dahlmann, C. Fichter, V. Grewe, B. Kärcher, R. Sausen, U. Schumann, A. Koch, V. Gollnick</i>	
<b>Measuring Vertical Flight Path Efficiency in the National Airspace System</b> .....	691
<i>M. Alcabin, R. Schwab, S. Cheng, K. Tong, C. Soncrant</i>	
<b>A Robust Approach for Predicting Dynamic Density</b> .....	701
<i>M. Bloem, C. Brinton, J. Hinkey, K. Leiden</i>	
<b>Improved Predictions of Flight Delays Using LMINET2 System-Wide Simulation Model</b> .....	715
<i>D. Long, S. Hasan</i>	

<b>Affecting Operational Change Through Analysis - Thanksgiving 2008</b> .....	728
<i>M. Smith, C. Bailey, R. Tamburro</i>	
<b>Directional Demand, Capacity and Queuing Delay in En-Route Airspace</b> .....	741
<i>A. Klein, L. Cook, B. Wood</i>	
<b>Deferability: A Concept for Incremental Air Traffic Management Decision Making</b> .....	757
<i>S. Zobell, C. Wanke</i>	
<b>Holistic Analysis of the Evolutionary Limits of Free Flight Application</b> .....	777
<i>P. Simon, C. Bil, L. Thompson</i>	
<b>Modeling the Scan Pattern Behavior of Air Traffic Controllers</b> .....	787
<i>K. Leiden, B. Willems</i>	
<b>ERASMUS: Transaction Time and Situation Awareness on the Airborne Side</b> .....	798
<i>P. Kolcarek, J. Vasek, P. Krupansky, C. Misiak</i>	
<b>Sensitivity Analysis of Consumer Preference for a Future Small Aircraft with Point-to-point Operations</b> .....	808
<i>J. Lewe, K. Meyer, T. Unton, D. Mavris</i>	
<b>Concurrent Aircraft Design and Airline Network Design Incorporating Passenger Demand Models</b> .....	821
<i>N. Davendralingam, W. Crossley</i>	
<b>Analysis of Network Topologies for On-Demand Intra-Theater Air Mobility Command Operations</b> .....	831
<i>G. Wawrzyniak, L. Millard, D. DeLaurentis, D. Van Veldhuizen</i>	
<b>Assessing Fairness and Equity in Trajectory-Based Operations</b> .....	843
<i>I. del Pozo de Poza, M. Vilaplana Ruiz, C. Goodchild</i>	
<b>Estimating the Benefits of Human Factors Engineering in NextGen Development: Towards a Formal Definition of Pilot Proficiency</b> .....	861
<i>L. Sherry, M. Feary, K. Fennell</i>	
<b>A Proposal for the Development of an Enterprise Architecture Model of the Next Generation Air Transportation System</b> .....	871
<i>M. Butterfield, F. Francy</i>	
<b>Modeling Requirements to Support Assessment of NextGen Mid-Term Performance</b> .....	884
<i>V. Cheng, G. Sweriduk, S. Vaddi, M. Tandale, A. Seo, P. Abramson</i>	
<b>Concurrent Aircraft Design and Variable Resource Allocation in Large Scale Fleet Networks</b> .....	901
<i>N. Nusawardhana, W. Crossley</i>	
<b>Simulating Flight Routing Network Responses to Airport Capacity Constraints in the US</b> .....	932
<i>A. Evans, A. Schafer</i>	
<b>An Allocation Approach to Investigate New Aircraft Concepts and Technologies on Fleet-Level Metrics</b> .....	945
<i>I. Tetzloff, W. Crossley</i>	
<b>Effects of Airline Strategies on Airline Operations and Infrastructure Utilization</b> .....	955
<i>G. Calderon-Meza, L. Sherry</i>	
<b>Environmental Modeling of Advanced Vehicles in NextGen</b> .....	968
<i>J. Rachami, J. Page, B. Kim, L. Zhou</i>	
<b>An Operational Strategy for Persistent Contrail Mitigation</b> .....	980
<i>S. Campbell, N. Neogi, M. Bragg</i>	
<b>Optimizing Air Transportation Future Business Operations In NextGen</b> .....	994
<i>K. Arkind, M. Thomas</i>	
<b>Information Requirements for Pilots to Execute 4-D Trajectories on the Airport Surface</b> .....	1006
<i>V. Cheng, A. Andre, D. Foyle</i>	
<b>Quantitative Analysis of Uncertainty in Airport Surface Operations</b> .....	1018
<i>D. Rappaport, P. Yu, K. Griffin, C. Daviau</i>	
<b>Simulation of the Theoretical Capacity Potential of ESTOL Operations on an Intersecting Runway at Hub Airports</b> .....	1034
<i>P. Böck, C. Kelders</i>	
<b>Characterization Method for Determination of Trajectory Prediction Requirements</b> .....	1043
<i>T. Rentas, S. Green, K. Cate</i>	
<b>Sequencing Strategies for a Japanese Arrival Flow. Preliminary results.</b> .....	1054
<i>C. Gwiggner, S. Nagaoka</i>	
<b>Controller Advisory Tools for Efficient Arrivals in Dense Traffic Environments</b> .....	1061
<i>T. Callantine, E. Palmer</i>	
<b>Wind-Optimal Routing in the National Airspace System</b> .....	1081
<i>K. Palopo, R. Windhorst, S. Suharwardy, H. Lee</i>	
<b>Concept of Operations for Addressing Types of En-Route Hazardous Weather Constraints in NextGen</b> .....	1096
<i>T. Lindholm, J. Krozel, J. Mitche</i>	
<b>Analysis of Automated Aircraft Conflict Resolution and Weather Avoidance</b> .....	1114
<i>J. Love, W. Chan, C. Lee</i>	

<b>Revisiting the Boeing B-47 and AVRO Vulcan Configuration Comparison with Observations Relevant to New Aircraft Concepts</b> .....	1129
<i>P. van Seeters, W. Crossley, A. Ko</i>	
<b>Sustainable Bio-Derived Synthetic Paraffinic Kerosene (Bio-SPK) Jet Fuel Flights and Engine Tests Program Results</b> .....	1147
<i>T. Rahmes, J. Kinder, G. Crenfeldt, G. LeDuc</i>	
<b>Environmental Challenge: How to Close the Gap Between Policy and Technology?</b> .....	1166
<i>H. Pfaender, P. Hollingsworth, H. Jimenez, H. Won</i>	
<b>Aircraft Punctuality at Arrival Terminal-Area: Impact on Sequence Conformance, Saturation and Cost</b> .....	1181
<i>D. Ivanescu, A. Marayat, C. Shaw, C. Tamvaclis, M. Wachenheim</i>	
<b>An Exploratory Study of Runway Arrival Procedures: Time-Based Arrival and Self-Spacing</b> .....	1191
<i>V. Houston, B. Barmore</i>	
<b>Arrival Management Architecture and Performance Analysis with Advanced Automation and Avionics Capabilities</b> .....	1205
<i>A. Haraldsdottir, J. Scharl, J. King, M. Berge</i>	
<b>Concurrent Aircraft Design and Trip Assignment under Uncertainty: Fractional Operations</b> .....	1221
<i>M. Mane, W. Crossley</i>	
<b>Design and Optimization of Very Light Jet Aircraft Incorporating Airworthiness Constraints</b> .....	1233
<i>G. Cho, J. Yoon, J. Lee, S. Kim</i>	
<b>The NextGen JPDO Model of Interagency Planning</b> .....	1245
<i>R. Pearce</i>	
<b>The Next-Generation Air Transportation System's Joint Planning Environment: A Decision Support System</b> .....	1252
<i>E. Waggoner, S. Goldsmith, J. Elliot</i>	
<b>JPDO Portfolio Analysis of NextGen</b> .....	1268
<i>Y. Gawdiak</i>	
<b>Models of Air Traffic Merging Techniques: Evaluating Performance of Point Merge</b> .....	1290
<i>D. Ivanescu, C. Shaw, C. Tamvaclis, T. Kettunen</i>	
<b>Sensitivity of an Automated Separation Assurance Tool to Trajectory Uncertainty</b> .....	1300
<i>A. Cone, D. Chin</i>	
<b>Analyzing the Share of Individual Weather Factors Affecting NAS Performance Using the Weather Impacted Traffic Index</b> .....	1313
<i>L. Cook, B. Wood, A. Klein, R. Lee, B. Memarzadeh</i>	
<b>Airborne Trajectory Prediction Accuracy Assessment Based on the Weather Trends Impacts</b> .....	1324
<i>J. Svoboda, P. Krupansky, T. Neuzil, E. Gelnarova</i>	
<b>Developing a Strategic Framework for Airlines Dealing with EU Emission Trading Scheme</b> .....	1332
<i>M. van Hasselt, F. van der Zwan, S. Ghijs, S. Santema</i>	

### VOLUME 3

<b>Airborne Tactical Intent-Based Conflict Resolution Capability</b> .....	1344
<i>D. Wing, R. Vivona, D. Roscoe</i>	
<b>Analysis of a Multi-Trajectory Conflict Detection Algorithm for Climbing Flights</b> .....	1356
<i>D. Thippavong</i>	
<b>Conflict Detection and Resolution in Converging Air Traffic</b> .....	1369
<i>A. Valenzuela, D. Rivas</i>	
<b>Aircraft Configuration Optimization through Optimal Longitudinal Center of Gravity Range</b> .....	1382
<i>M. Sadraey</i>	
<b>A Methodology for Integrated Conceptual Design of Aircraft Configuration and Operation to Reduce Environmental Impact</b> .....	1400
<i>A. March, I. Waitz, K. Willcox</i>	
<b>Simple Uncertainty Propagation for Early Design Phase Aircraft Sizing</b> .....	1415
<i>A. Lenz, W. Crossley</i>	
<b>Effects of Airspace Charging on Airline Route Selection &amp; Greenhouse Gas Emissions</b> .....	1427
<i>T. Reynolds, L. Budd, D. Gillingwater, R. Caves</i>	
<b>The Effect of Utilization Strategy on the CO<sub>2</sub> Footprint of a Long Haul Aircraft</b> .....	1437
<i>G. Doulgeris, O. Cometto, P. Pilidis</i>	
<b>Aviation and the Environment: Rating Airlines on Their CO<sub>2</sub> Efficiency</b> .....	1449
<i>N. van Dorland, F. van der Zwan, S. Ghijs, S. Santema, R. Curran</i>	
<b>The Looming Challenges of Aviation Greenhouse Gas (GHG) Reduction</b> .....	1465
<i>J. Rachami, L. Zhou, R. Bassarab</i>	

<b>Challenges in Long-Term National Strategic Initiative Development for Advanced Technologies</b> .....	1471
<i>Y. Gawdiak</i>	
<b>Developing Strategies for Improved Management of Airport Metroplex Resources</b> .....	1480
<i>S. Ayyalasomayajula, D. DeLaurentis</i>	
<b>Towards Optimal Routing and Scheduling of Metroplex Operations</b> .....	1498
<i>B. Capozzi, S. Atkins, S. Choi</i>	
<b>Assessment of the Potential Benefits of an Ideal Integrated Metroplex-Wide Departure Planner</b> .....	1520
<i>A. Saraf, D. Schleicher, K. Griffin, P. Yu</i>	
<b>Queuing Analysis of Interdependencies Between Multi-Airport System Operations</b> .....	1543
<i>H. Idris</i>	
<b>System Dynamic Fleet Forecasting with Technology, Emission, and Noise Goals</b> .....	1553
<i>J. Zhao, D. Agusdinata, D. DeLaurentis</i>	
<b>Implementation of Enhanced Network Restructuring Algorithms and Scenarios for Improved ATO Forecasts</b> .....	1568
<i>D. DeLaurentis, T. Kotegawa, S. Han</i>	
<b>The Effect of Future Vehicles on Controller and Pilot Workload</b> .....	1583
<i>K. Wright, M. Blake, J. Smith, R. Mediavilla</i>	
<b>Agent-Based Simulation of Off-Nominal Conditions During a Spiral Descent (NextGen Vehicle NRA)</b> .....	1598
<i>V. Volovoi, G. Calanni Fraccone, M. Heddrick, R. Kelley</i>	
<b>Modeling Advanced Vehicle Concepts in the NextGen Terminal Airspace</b> .....	1610
<i>D. Holl, R. Laroza</i>	
<b>Quantitative Characterization of Operational-Environmental Performance for Terminal Areas</b> .....	1622
<i>H. Jimenez, D. Mavris</i>	
<b>Integrated Analysis and Design Environment for a Climate Compatible Air Transport System</b> .....	1634
<i>A. Koch, B. Nagel, V. Grewe, K. Dahlmann, U. Schumann</i>	
<b>Expanding Regional Airport Usage to Accommodate Increased Air Traffic Demand</b> .....	1652
<i>C. Russell</i>	
<b>Air-Traffic Uncertainty Models for Queuing Analysis</b> .....	1663
<i>J. Kim, M. Tandale, P. Menon</i>	
<b>A Perspective on NASA Ames Air Traffic Management Research</b> .....	1686
<i>J. Schroeder</i>	
<b>Structural Framework for Performance-Based Assessment of ATM Systems</b> .....	1702
<i>S. Lee, S. Kim, K. Feigh, V. Volovoi</i>	
<b>A Spectral Clustering Based Algorithm for Dynamic Airspace Configuration</b> .....	1717
<i>J. Li, T. Wang, I. Hwang, I. Hwang</i>	
<b>A Method of Optimally Combining Sectors</b> .....	1738
<i>M. Drew</i>	
<b>Heuristic Method for 3D Airspace Partitioning: Genetic Algorithm and Agent-Based Approach</b> .....	1748
<i>R. Kicingner, A. Yousefi</i>	
<b>An Investigation of the Operational Acceptability of Algorithm-Generated Sector Combinations</b> .....	1763
<i>P. Gupta, M. Bloem, P. Kopardekar</i>	
<b>Effects of Fuel Prices on Air Transportation Market Average Fares and Passenger Demand</b> .....	1770
<i>J. Ferguson, K. Hoffman, L. Sherry, A. Kara</i>	
<b>Bringing an Economy-Wide Perspective to NextGen Benefits Analysis</b> .....	1790
<i>K. Harback, L. Wojcik, M. Callahan, G. Lin, J. Drexler</i>	
<b>Whole Life Costing for Capability</b> .....	1810
<i>J. Early, M. Price, R. Curran, S. Ra</i>	
<b>Future Cockpit Concept for Equivalent Visual Operation</b> .....	1827
<i>C. Berth, M. Najfeld, G. Hüttig, S. Sydow</i>	
<b>Design of a Cockpit Display Panel for Tactical Aircraft Operating with Coupled Vertical Navigation (VNAV)</b> .....	1835
<i>A. Boone, B. Field, K. Feigh</i>	
<b>Human-In-The-Loop (HITL) Simulation and Analysis of Optimized Profile Descent (OPD) Operations at Atlanta</b> .....	1851
<i>C. Johnson, J. Ferrante, J. Shepley</i>	
<b>An Integrated Arrival and Departure Display for the Tower Controller</b> .....	1863
<i>J. Bergner, C. König, T. Hofmann, H. Eb</i>	
<b>Impact of Using Reliever Airports to Absorb Additional Demand in the Potomac TRACON</b> .....	1873
<i>J. Smith, R. Mediavilla, K. Wright</i>	
<b>Hypothetical Redesign of the New York Metro Airspace (New Vehicle NRA)</b> .....	1889
<i>G. Nagle, M. Elliott, J. Clarke</i>	
<b>Commercial Low-Altitude UAS Operations in Population Centers</b> .....	1900
<i>E. Atkins, A. Khalsa, M. Groden</i>	

<b>Airborne Technology For Advanced Vehicle Operations In The Next Generation ATS</b> .....	1911
<i>R. Weber</i>	
<b>Swing-Wing Inline-Fuselage Transport Design Studies at Supersonic Flight Conditions</b> .....	1926
<i>S. Cliff, S. Thomas, V. Hawke</i>	
<b>Conceptual Design of an N+2 Supersonic Airliner</b> .....	1982
<i>L. Hamel, T. Folk, H. Jimenez, D. Mavris</i>	
<b>Kinematic Airport Surface Trajectory Model Development</b> .....	1997
<i>C. Gong</i>	
<b>An Empirical Analysis on Taxi Time Reduction Using Aerobahn, an Airport Surface Traffic Decision Support System</b> .....	2008
<i>A. Huang, K. Griffin, B. Levy, R. Young</i>	

## VOLUME 4

<b>Relationship Between Airport Efficiency and Surface Traffic</b> .....	2022
<i>M. Kistler, G. Gupta</i>	
<b>Airport Surface Traffic Planning Optimization: A Case Study of Amsterdam Airport Schiphol</b> .....	2035
<i>P. Roling</i>	
<b>An Automatic Sensor Fault Detection and Correction Algorithm</b> .....	2042
<i>J. Lacaille</i>	
<b>Airport Performance Predictability Model</b> .....	2049
<i>J. Rakas, Y. Zhang, V. Ramamurthy</i>	
<b>Analysis of Gate-waiting Delays at Major US Airports</b> .....	2060
<i>J. Wang, J. Shortle, J. Wang, L. Sherry</i>	
<b>Modeling the Effect of Night Time Penalties on Commercial and Business Flights for Regional Airport Noise and Economics: Rotterdam Airport Case Study</b> .....	2080
<i>W. Wan Mohamed, R. Curran, F. van der Zwan, P. Roling</i>	
<b>Manual Throttles-Only Control Effectiveness for Emergency Flight Control of Transport Aircraft</b> .....	2097
<i>F. Burcham, R. Stevens, R. Broderick</i>	
<b>Efficient Control of Collision Risk Through Mitigation</b> .....	2121
<i>T. Kim, S. Landry, G. Torjek</i>	
<b>Complexity Science Applications to Dynamic Trajectory Management: Research Strategies</b> .....	2130
<i>B. Sawhill, J. Herriot, B. Holmes, N. Alexandrov</i>	
<b>Dynamic Generation of Operationally Acceptable Reroutes</b> .....	2140
<i>C. Taylor, C. Wanke</i>	
<b>Quantifying Desirable Air Route Attributes for a Reroute Generation Capability</b> .....	2161
<i>J. DeArmon, C. Wanke, J. Nardelli</i>	
<b>Multidisciplinary Unmanned Combat Air Vehicle-UCAV Design Optimization Using Variable Complexity Modeling</b> .....	2169
<i>N. Nguyen, S. Choi, W. Kim, K. Jeon, J. Lee, Y. Byun</i>	
<b>Collaborative Unmanned Aircraft Control for Deconfliction Ability in the National Airspace System</b> .....	2183
<i>B. Reitz, G. Crouse</i>	
<b>Mission Formalism for UAS Based Navaid Flight Inspections</b> .....	2210
<i>E. Santamaria, M. Pérez, J. Ramirez, C. Barrado, E. Pastor</i>	
<b>Impact of ESTOL Capability on the Mission Fuel Burn of Regional Jets</b> .....	2227
<i>C. Gologan, F. Stagliano, D. Schmitt</i>	
<b>Ducted Fan VTOL UAV Simulation in Preliminary Design</b> .....	2246
<i>H. Zhao, C. Bil, B. Yoon</i>	
<b>Potential of the Cross-Flow Fan for Powered-Lift Regional Aircraft Applications</b> .....	2259
<i>C. Gologan, S. Mores, H. Steiner, A. Seitz</i>	
<b>Value-Driven Design</b> .....	2269
<i>P. Collopy, P. Hollingsworth</i>	
<b>Measuring Value Creation: A Case Study in the MRO Business</b> .....	2285
<i>W. Beelaerts van Blokland, N. Elferink, R. Curran</i>	
<b>Airspace Sectorization by Dynamic Density</b> .....	2293
<i>C. Brinton, J. Hinkey, K. Leiden</i>	
<b>Trigger Metrics for Dynamic Airspace Configuration</b> .....	2302
<i>A. Yousefi, R. Hoffman, M. Lowther, B. Khorrami, H. Hackney</i>	
<b>Flight Level-based Dynamic Airspace Configuration</b> .....	2322
<i>K. Leiden, S. Peters, S. Quesada</i>	
<b>Macroscopic Capacity Model with Individual Sector Closing Speed Estimates</b> .....	2332
<i>J. Welch, J. Andrews</i>	



<b>Aerospaceports – Economic and Schedule Guidelines .....</b>	<b>2343</b>
<i>G. Finger, B. Gulliver, C. Curtis</i>	
<b>A KBE Genetic-Causal Cost Modeling Methodology for Manufacturing Cost Contingency Management.....</b>	<b>2351</b>
<i>R. Curran</i>	
<b>Business Case Analysis Tool for Airline Assessment of ADS-B Equipage .....</b>	<b>2367</b>
<i>D. Howell, G. Paull, J. King</i>	
<b>A Comparison of Aviation Greenhouse Gas Emission Mitigation Policies for Europe .....</b>	<b>2386</b>
<i>L. Dray, A. Evans, T. Reynolds, A. Schäfer</i>	
<b>Multidisciplinary Design Optimization of a Truss Braced Wing Aircraft.....</b>	<b>2400</b>
<i>O. Gur, M. Bhatia, J. Schetz, W. Mason, R. Kapania, D. Mavris</i>	
<b>An MDO-Inspired Systems Engineering Perspective for the "Wicked" Problem of Aircraft Conceptual Design .....</b>	<b>2421</b>
<i>B. German, M. Daskilewicz</i>	
<b>Hybrid Optimization for a Combinatorial Aircraft Design Problem.....</b>	<b>2437</b>
<i>S. Lehner, W. Crossley</i>	
<b>Object-Oriented Framework for Computational Workflows in Air-Vehicle Conceptual Design.....</b>	<b>2452</b>
<i>L. Balachandran, M. Guenov</i>	
<b>Sensitivity of the ATS to Size and Configuration of Very Large Aircraft .....</b>	<b>2470</b>
<i>K. Noth, D. DeLaurentis</i>	
<b>Advanced Vehicles Modeling for the Next Generation Air Transportation System (NextGen Vehicle Integration NRA).....</b>	<b>2485</b>
<i>M. Kirby, H. Ran, S. Dufresne, W. Sung, D. Mavris, G. Burdette</i>	
<b>The Integration of New Vehicles into the National Airspace System: A Metrics Framework &amp; Trade Study Approach (New Vehicle NRA).....</b>	<b>2503</b>
<i>A. Ramadani, L. Vempati</i>	
<b>Advanced Vehicle Concepts in the Next Generation Air Transportation System.....</b>	<b>2521</b>
<i>M. Blake, J. Smith</i>	
<b>A Seven-Factor Procedural Analysis of Safety Culture Known Measurement: A Case Study at KLM E&amp;M.....</b>	<b>2531</b>
<i>A. Ghobbar</i>	
<b>Safety Analysis of the Separation Assurance Function In Today's National Airspace System.....</b>	<b>2553</b>
<i>R. Hemm, A. Busick</i>	
<b>An Examination of Aviation Accidents and Incidents Related to Integrated Vehicle Health Management.....</b>	<b>2579</b>
<i>M. Reveley, J. Briggs, M. Thomas, J. Evans, S. Jones</i>	
<b>Assessing the Impacts of Airspace Security Measures Employed During the 2008 Democratic and Republican National Conventions .....</b>	<b>2593</b>
<i>P. Ostwald, D. Rowe</i>	
<b>Analysis of Increasing User Flow Management Responsibility using Shared Delay Information.....</b>	<b>2606</b>
<i>J. Henderson, H. Idris, R. Kicingier, J. Krozel</i>	
<b>Metrics for Aircraft Flow Interaction Complexity .....</b>	<b>2620</b>
<i>C. Cross, T. Thompson, T. White, J. DiFelici, T. Lewis, L. Ren</i>	
<b>Enhancing Collaboration in Air Traffic Flow Management.....</b>	<b>2638</b>
<i>K. Sheth, S. Gutierrez-Nolasco</i>	
<b>An Aggregate Sector Flow Model for Air Traffic Demand Forecasting .....</b>	<b>2649</b>
<i>B. Sridhar, N. Chen, H. Ng</i>	
<b>Contrast and Comparison of Metroplex Operations: An Air Traffic Management Study of Atlanta, Los Angeles, New York, and Miami.....</b>	<b>2661</b>
<i>L. Ren, J. Clarke, D. Schleicher, S. Timar, D. Crisp, R. Gutterud, T. Lewis, T. Thompson</i>	
<b>Queueing Models for 4D Trajectory-Based Aircraft Operations in NextGen.....</b>	<b>2678</b>
<i>T. Nikoleris, M. Hansen</i>	
<b>Author Index</b>	